CR-02 CULTURAL RESOURCES SURVEY INTERIM REPORT

SKAGIT RIVER HYDROELECTRIC PROJECT FERC NO. 553

Seattle City Light

Prepared by:
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March 2022
Initial Study Report

TABLE OF CONTENTS

List of Figures

List of Tables

List of Attachments

List of Acronyms and Abbreviations

ACHP.....Advisory Council on Historic Preservation
APE.....area of potential effects
APN.....assessor parcel number
ARMMP.....(Skagit) Archaeological Resources Mitigation and Management Plan
ARPA.....Archaeological Resources Protection Act
Cascadia.....Cascadia Archaeology, LLC
CFR.....Code of Federal Regulations
City Light.....Seattle City Light
cm.....centimeter
CMZ.....channel migration zone
CoSD.....City of Seattle Datum
CRWG.....Cultural Resources Work Group
DAHP.....Department of Archaeology and Historic Preservation
FERC.....Federal Energy Regulatory Commission
ft.....feet
GPS.....Global Positioning System
HDR.....HDR Engineering, Inc.
HPA.....high probability area
HPI.....historic property inventory
HPMP.....Historic Properties Management Plan
HRMMP.....(Skagit) Historic Resources Mitigation and Management Plan
in.....inch
ISR.....Initial Study Report
LiDAR.....light detection and ranging
LPA.....low probability area
m.....meter
MPA.....moderate probability area
NAVD 88.....North American Vertical Datum of 1988
NEPA.....National Environmental Policy Act
NHPA.....National Historic Preservation Act
NPS.....National Park Service

NRB .....National Register Bulletin

NRHP.....National Register of Historic Places

O&M.....operations and maintenance

PA .....programmatic agreement

Project .....Skagit River Hydroelectric Project

RCW .....Revised Code of Washington

ROW .....right-of-way

RSP .....Revised Study Plan

SHPO .....State Historic Preservation Officer

SOI .....Secretary of the Interior

SRI .....Statistical Research, Inc.

USFS.....U.S. Forest Service

USR.....Updated Study Report

WISAARD.....Washington Information System for Architectural and Archaeological Records Data

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1.0 INTRODUCTION

The CR-02 Cultural Resources Survey is being conducted in support of the relicensing of the Skagit River Hydroelectric Project (Project), Federal Energy Regulatory Commission (FERC) No. 553, as identified in the Revised Study Plan (RSP) submitted by Seattle City Light (City Light) on April 7, 2021 (City Light 2021). On June 9, 2021, City Light filed a "Notice of Certain Agreements on Study Plans for the Skagit Relicensing" (June 9, 2021 Notice)[1] that detailed additional modifications to the RSP agreed to between City Light and supporting licensing participants (which include the Swinomish Indian Tribal Community, Upper Skagit Indian Tribe, National Marine Fisheries Service, National Park Service [NPS], U.S. Fish and Wildlife Service, Washington State Department of Ecology, and Washington Department of Fish and Wildlife). The June 9, 2021 Notice proposed no changes to the Cultural Resources Survey as described in the RSP.

In its July 16, 2021 Study Plan Determination, FERC approved the Cultural Resources Survey with modifications. Specifically, FERC recommended that City Light include the Nlaka'pamux Nation Bands Coalition as a consultation party for the study and recommended including the Nlaka'pamux Nation Tribal Council's recordation procedures into the study methods. Accordingly, City Light is consulting with the Nlaka'pamux Nation Bands Coalition for the study and incorporated the Nlaka'pamux Nation Tribal Council's recordation procedures into the study methods.

This interim report on the 2021 study efforts is being filed with FERC as part of City Light's Initial Study Report (ISR). City Light will perform additional work for this study in 2022 and include a report in the Updated Study Report (USR) in March 2023.

[1] Referred to by FERC in its July 16, 2021, Study Plan Determination as the "updated RSP."

2.0 STUDY GOALS AND OBJECTIVES

The goal of this study, as stated in the RSP, is to assess the potential effects of the Project's operations and maintenance (O&M) on cultural resources within the area of potential effects (APE) that are included in or eligible for listing in the National Register of Historic Places (NRHP). The survey and subsequent study report that will be prepared to document the study efforts and results will be completed in consultation with the Section 106 consulting parties. O&M refers to all activities needed to operate and maintain the Project, such as energy production; management of flows and woody debris; maintenance and repair of facilities,[2] powerhouse equipment, buildings, vessels, water and sewer systems, parking lots, roads, signage, landscaping, vegetation, distribution and transmission poles and lines; and dredging.

The primary objective of the study is to provide sufficient information to assist FERC in compliance with Section 106 of the National Historic Preservation Act (NHPA) and other cultural resources regulations and executive orders. Information collected during the survey will be used to identify archaeological and historic built environment resources that qualify as historic properties in the APE and to assess potential Project effects to them. Key components for identifying priority areas for the Cultural Resources Survey will derive both from cultural resources' potential on the landscape and the scope of potential Project operations and activities that could affect historic properties, pursuant to 36 Code of Federal Regulations (CFR) § 800.4(a).

The specific objectives of the study are as follows:

- Further define the specific areas of the APE that will be surveyed (i.e., survey areas) in consultation with Section 106 consulting parties.
- Review and synthesize existing archaeological, historical, and ethnographic data within 1.0 mile (1.6 kilometers) of the APE.
- Complete a cultural resources survey. The survey will include inventory of both archaeological and historic built environment resources.
- Identify and record cultural resources within the survey areas.
- Complete initial evaluation of NRHP eligibility for located cultural resources, if possible, at this inventory level of effort.[3]
- Preliminarily evaluate the potential effects on NRHP-listed and eligible cultural resources (e.g., historic properties) from O&M of the Project, if possible, at this inventory level of effort.
- Summarize survey results regarding potential effects of the Project on historic properties to inform the license application and management plans.

[2] Project facilities include Gorge, Diablo, and Ross developments (e.g., dams, powerhouses, reservoirs, and associated infrastructure); Newhalem and Diablo townsites; transmission lines; transportation infrastructure; City Light recreation, interpretation, and education facilities; and other auxiliary facilities.

[3] Some cultural resources may require additional work beyond this level of effort, which may be done at a later date (e.g., some archaeological sites may require test excavations prior to NRHP evaluation and some built environment resources may require extensive archival research prior to NRHP evaluation) per 36 CFR § 800.4(b)(2).

- Provide recommendations for any additional work to evaluate NRHP eligibility and Project effects, as applicable.

3.0 STUDY AREA

As per 36 CFR § 800.16(d), the APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Based on this regulatory definition, the APE for the Project relicensing is defined as including all lands within the FERC Project Boundary. The APE also includes lands or properties outside the Project Boundary where Project operations or Project-related recreation activities or other enhancements may cause changes in the character or use of historic properties, if any such properties exist.

The APE is shown in Figures 3.0-1 and 3.0-2. On March 12, 2021, City Light initiated Section 106 consultation with the Department of Archaeology and Historic Preservation (DAHP) and provided a description of its proposed APE for the relicensing efforts. City Light continued to work with DAHP and Section 106 consulting parties to refine the APE and submitted a revised APE to the consulting parties for review on April 29, 2021, which was filed with FERC on May 3, 2021. An update to the APE mapbook was provided to the consulting parties and filed with FERC on May 10, 2021. The DAHP concurred with the APE on June 23, 2021.

The APE includes an area of anticipated potential physical effects and anticipated potential auditory and visual effects, which may overlap and reach beyond areas with potential physical effects. For this study, survey is focused on a study area within the APE where proximity to Project facilities, project-related activities, or observable on-the-ground physical effects upon the landscape heighten the potential for an overlap of physical, auditory, and visual effects that could adversely affect historic properties, where present. Following the study, City Light will update the APE, if necessary, where demonstrated and reasonably anticipated Project effects have the potential to affect historic properties outside the current APE.

The study area for the Cultural Resources Survey is the portion of the APE delineated for anticipated potential physical effects. If, during the course of study implementation, Project-related physical effects are identified outside the study area and could affect historic properties, the study area will be revised to include the location(s) of those effects.

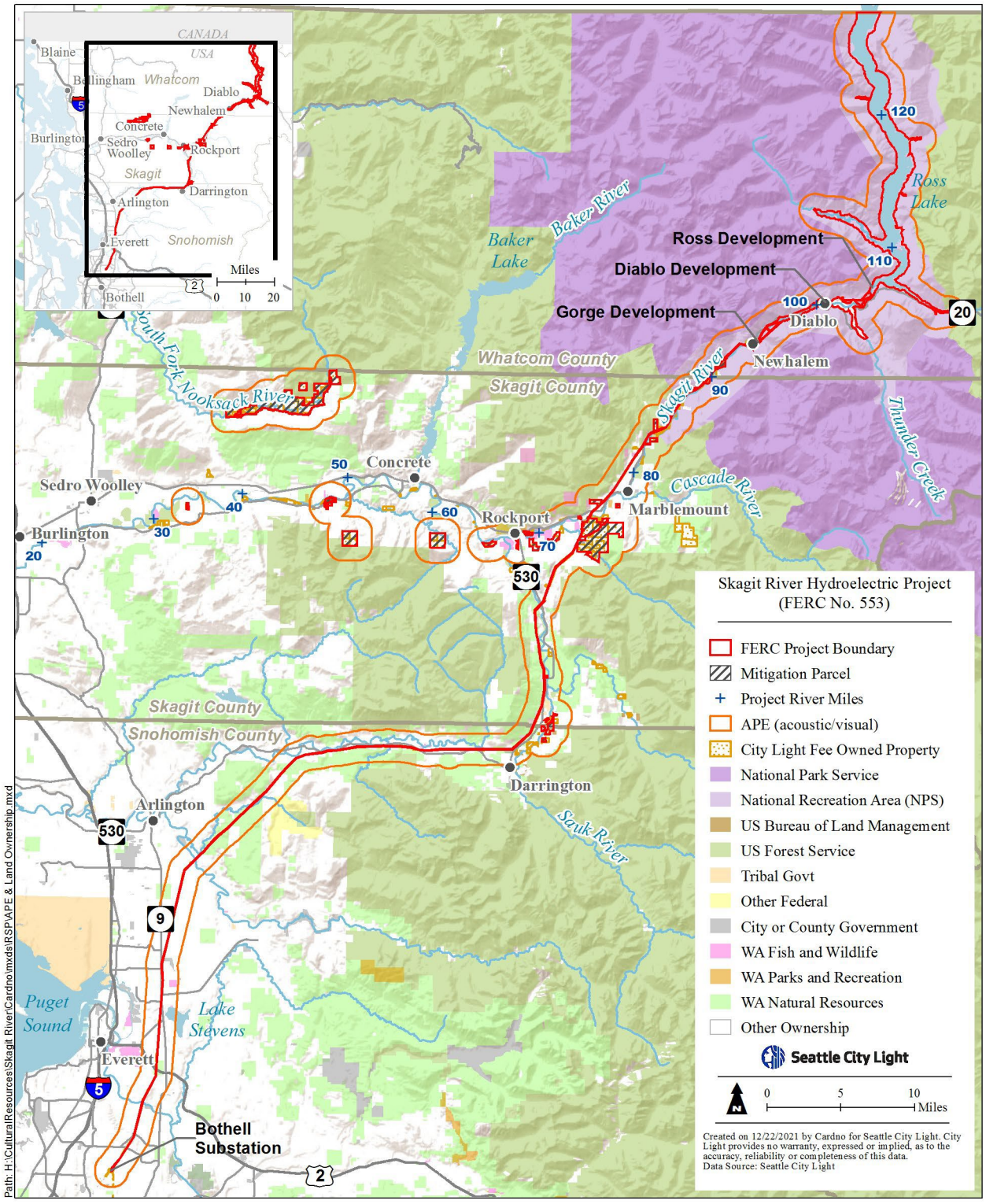

Figure 3.0-1. Location map of the Skagit River Hydroelectric Project APE.

Figure 3.0-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 1 of 3).

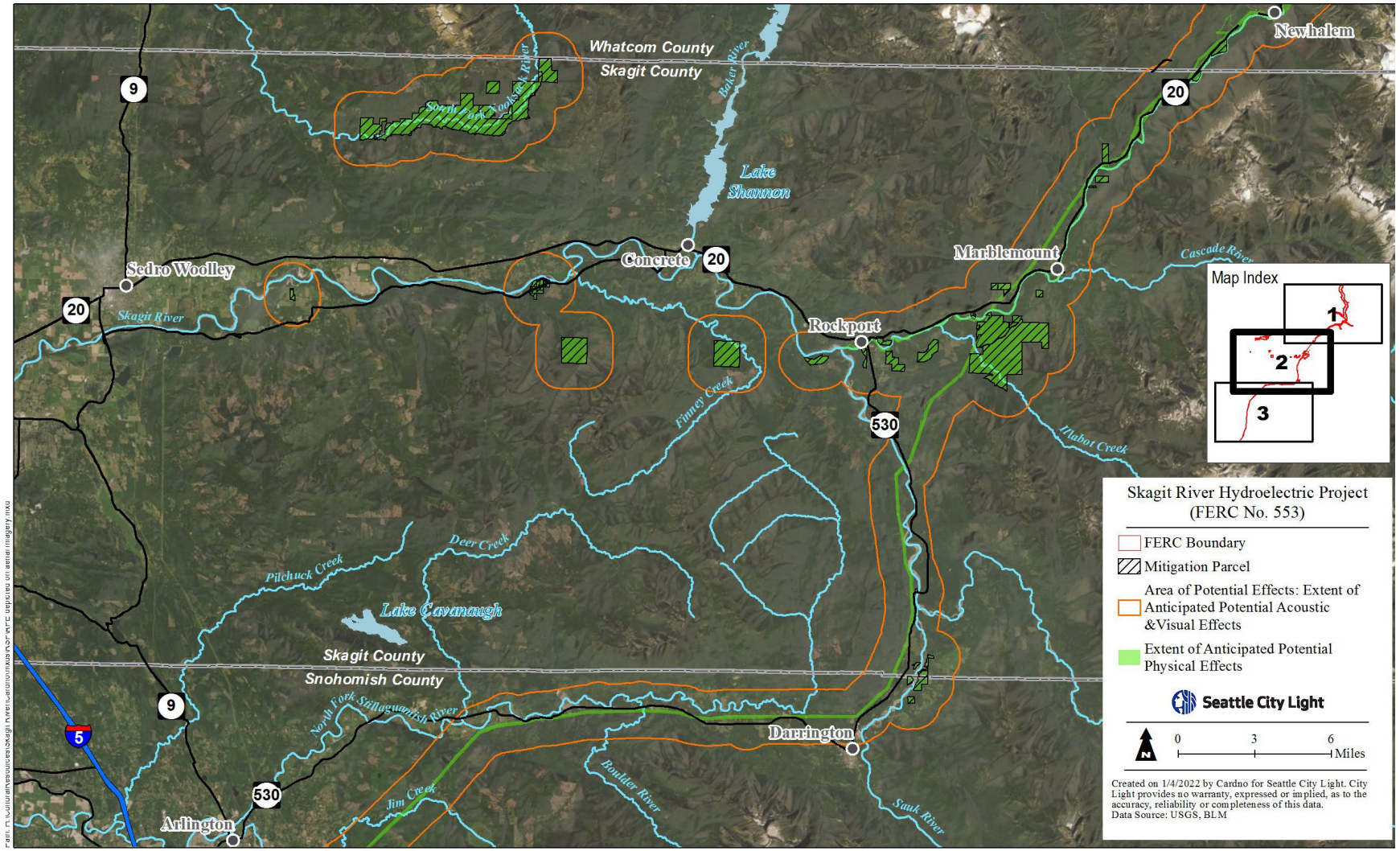

Figure 3.0-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 2 of 3).

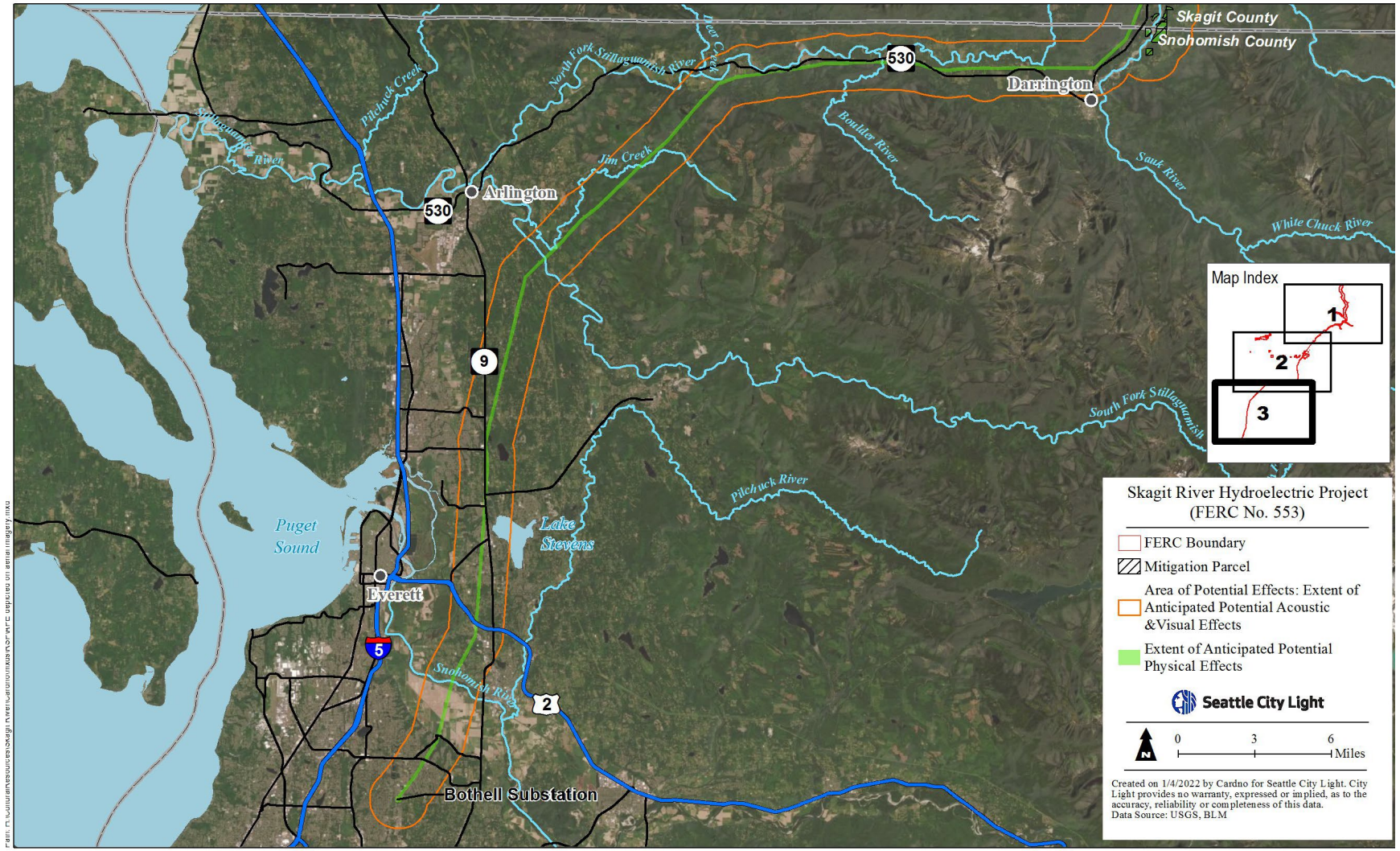

Figure 3.0-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 3 of 3).

4.0 METHODS

The methods for this study were initially provided in the RSP and were subsequently refined in the Research Design attached to this study report (Attachment A). The Research Design was reviewed by the Cultural Resources Work Group[4] (CRWG) in 2021. City Light addressed comments and provided the updated Research Design to DAHP for review and concurrence. The DAHP concurred with the revised Research Design on November 9, 2021.

City Light and its study team (HDR Engineering, Inc. [HDR], Cascadia Archaeology, LLC [Cascadia], and Statistical Research, Inc. [SRI]) are currently implementing the Cultural Resources Survey according to the study methodology included in the final Research Design, which laid out four steps targeting specific milestones in the FERC relicensing process. These steps include: (1) develop research design and establish the survey areas with the CRWG (which consists of the Section 106 consulting parties); (2) conduct cultural resources field survey; (3) perform post-field documentation and analysis; and (4) report results of the study. Each of these steps is described below, along with the process for curating any materials collected during the field efforts, which is also described in the Research Design.

4.1 Develop Research Design

Prior to conducting fieldwork, the City Light study team developed the Research Design (Attachment A), established proposed survey areas within the study area, and reviewed existing literature and interview data, including the CR-01 Cultural Resources Data Synthesis study reports (City Light 2022a and 2022b; Curti et al. 2020). The draft Research Design was provided to the CRWG for review in the RSP on April 7, 2021. Comments on the Research Design were received from the Nlaka'pamux Nation Tribal Council, Sauk-Suiattle Indian Tribe, and Upper Skagit Indian Tribe. The Research Design was revised to address these comments and resubmitted to the CRWG for an additional 30-day review and comment period, beginning on August 23, 2021. Additional comments were addressed, and the revised Research Design was subsequently provided to the DAHP for review. As described above, the DAHP concurred with the revised Research Design on November 9, 2021. The final Research Design is being filed with FERC as part of this ISR. Confidential portions of this Research Design are being filed in FERC's privileged files.

The following steps were used to finalize the Research Design and to refine areas that will be surveyed under the study:

(1) Review of DAHP predictability model, which has been condensed into three probability areas (i.e., high, moderate, low) for this study and are viewable as mapbooks and kmz files;

(2) Review and overlay existing survey and resource data from DAHP (previous surveys, archaeological sites/isolated finds and built environment) onto maps and kmz files;

(3) Review relationships between types of landforms and areas or conditions with high incidence of discovery and artifact or archaeological feature preservation;

[4] The CRWG is made up of the Section 106 consulting parties and is one of multiple working groups created by City Light for the purpose of organizing coordination with participants engaging in the Project relicensing process.

(4) Review and overlay the Project facilities, roads, and other areas of operations onto maps and kmz files;

(5) Identify the highest potential for O&M activities to affect known and unknown cultural resources;

(6) Refine with detailed geospatial analysis (e.g., slope, large rockfall areas, caches, vertical rock faces, aspect, accessibility and points of access; and soils data); and

(7) Refine with historic records, maps, CR-01 Cultural Resources Data Synthesis study results, interviews, and other information, as available.

4.2 Field Survey of the Study Area

This section describes the specific areas within the study area where field survey is occurring, along with the field survey methodology.

4.2.1 Identification of Survey Areas

City Light and its study team reviewed the results of the CR-01 Cultural Resources Data Synthesis (City Light 2021b; Curti et al. 2020), which summarized relevant existing records of cultural resources and previous studies housed at the DAHP, NPS, U.S. Forest Service (USFS), Canadian Register of Historic Places, British Columbia Heritage Resource Inventory Application, Treaty of Point Elliott, Indian Claims Commission, and City Light internal records. Online libraries were also accessed when available. Outreach was completed with 11 Indian Tribes and two First Nations while implementing the CR-01 Cultural Resources Data Synthesis. Available ethnohistories, ethnographies, place name documents, cultural resources reports, and environmental reports from repositories associated with participating Indian Tribes and Canadian First Nations were reviewed for the CR-01 Cultural Resources Data Synthesis after expressed permission was granted (Curti et al. 2020).

City Light also reviewed historic maps, soil data, and the probability model in the Washington Information System for Architectural and Archaeological Records Data (WISAARD). Locations of specific archaeological concern were identified through coordination with the CRWG. Landform mapping data was also reviewed, where available. Based on these sources, City Light identified high, moderate, and low probability areas for cultural resources sensitivity as described below. These probability areas were then overlaid with Project facilities, including reservoirs, to determine proposed survey locations to be refined in the field, as appropriate. Targeted survey areas include those locations with high and moderate probability and those locations where Project facilities are located.

4.2.1.1 Archaeological Resources

As discussed with the CRWG during the 2019 Study Plan Development Process and 2020-2021 meetings and collaboration, archaeological survey areas were initially delineated by review of existing historic aerial imagery, historic maps, and Light Detection and Ranging (LiDAR) data within the study area. Additional information from the CR-01 Cultural Resources Data Synthesis was also used to identify survey areas. An archaeological reconnaissance-level pedestrian survey is occurring throughout the entire Project transmission line corridor where access is granted, as requested by one of the participating Indian Tribes. In addition, areas were prioritized for survey

based on areas with high, moderate, and low probability for finding cultural resources as described below. Further, not all Project activities or effects can be foreseen at this time. Therefore, City Light anticipates that FERC, at the conclusion of the relicensing process, will enter into a programmatic agreement (PA)[5] regarding historic properties, to lay out the strategy for yet undiscovered cultural resources or unanticipated Project-related effects. City Light further anticipates that the PA will require development and implementation of a historic properties management plan (HPMP) that will provide procedures and protocols for considering and managing potential effects to historic properties from the Project during the term of the new FERC license. Over the course of the new license term, individual undertakings not anticipated during relicensing would follow the standard Section 106 process or the procedures of the HPMP and could be surveyed at the time an unanticipated undertaking is proposed.

Identifying Likely Locations for Archaeological Evidence

Examples of likely locations to find precontact archaeological evidence include the following:

- Flat to semi-flat areas with 15 percent slope or less (south-facing aspect can also be key), including river and creek terraces, ridges/ridge toes, saddles, base of slopes, bluffs, natural lake or spring margins, confluence of rivers/streams, and alluvial fans;
- Areas of identified human activity based on ethnographic and ethnohistoric records that could leave lasting archaeological evidence (e.g., camp sites, villages, ceremonial places, resource gathering areas, identified fishing locales, stream crossings, travel routes, anthropogenic burning);
- Midslope elevation above river channel migration zone (CMZ) (e.g., potential trail/encampment locales, portage areas);
- Accessible rock faces with smooth surfaces (e.g., for rock art);
- Accessible rock faces or bedrock with exposed chert bands or other rock types desirable for flintknapping;
- Rocky slopes near other relatively flat topographic features (e.g., places where food caches might be, places near ridge tops where ceremonial sites or pit burials may be);
- Stands of large trees (potential for culturally modified trees);
- Rock prominences, knolls (or other easily recognizable features during distance travel);
- Areas with large boulders or landslides (i.e., potential overhangs, shelters, burials, food caches);
- Areas where soil is exposed, and erosion has occurred;
- Areas next to rivers where large eddies persist; and

[5] FERC typically completes Section 106 by entering into a PA with the license applicant, the Advisory Council on Historic Preservation (ACHP), and the State Historic Preservation Officer (SHPO). Because it is not always possible for FERC to determine all project effects of various activities that may occur over the course of a license, the PA typically provides, and FERC typically requires as a license condition, that the licensee develop and implement a HPMP to protect historic properties.

- High preservation environments that intersect likely locations for human activity.

Examples of likely locations to find historic archaeological evidence include the following:

- Flat to semi-flat areas with 15 percent slope or less (south-facing aspect can also be key) including river and creek terraces, ridges/ridge toes, saddles, base of slope, bluffs, natural lake or spring margins, confluence of rivers/streams, and alluvial fans;
- Midslope elevation above river channel migration zones (e.g., potential trail/encampment locales, portage areas);
- Areas with documented homesteads;
- Areas with non-native vegetation (cultivars) typically found around homesteads or other historic buildings or features (e.g., lilacs, iris, roses, non-native domestic fruit trees and shrubs);
- Areas of native vegetation with particular cultural importance and discrete growing conditions (i.e., plant communities that are not ubiquitous) can sometimes signal a pre-contact anthropogenic landscape and may be associated with archaeological evidence;
- Areas of historic mining claims;
- Historically documented areas of human activity (homesteading, mining, timber harvest, work camps, administrative cabins and facilities);
- Historic travel routes (i.e., trails, roads, railroads);
- Historically documented stream crossings and ferry landings; and
- High preservation environments that intersect likely locations for human activity.

Identification of High Probability Areas

High probability areas (HPA) are defined as those with high potential for containing archaeological resources. HPAs were developed through evaluating the existing data and input from the CRWG.

The probability model available on WISAARD, NPS landform mapping, local topography, soils data, data obtained during the literature review, and results of the CR-01 Cultural Resources Data Synthesis were all used to help establish areas with the highest probability for discovery of archaeological evidence. Information also included quantitative data for the distribution of sites by major landform types in and around Ross Lake (e.g., Mierendorf et al. 1998:78–81; Mierendorf, 2021; DiCenzo 2021).

Completing Survey in High Probability Areas

Archaeologists walking and visually inspecting the ground surface for archaeological evidence (i.e., pedestrian survey) will prioritize their work in HPAs based on three categories: (1) existing Project effects (i.e., where Project O&M activities are known to occur); (2) potential Project effects (i.e., where Project O&M activities may occur); and (3) no current planned activities or no known Project-related effects. Each of these categories are briefly described below. Surveys within these categories are dependent upon the workers' ability to access locations due to topography, inundation, or other safety concerns.

(1) Existing Project Effects

Survey will occur in HPAs that are being affected or have potential to be affected by Project O&M during the new license term. Areas of high potential for Project effects were derived from information collected during the current license period and projections for Project operations in the new license term. Information from concurrent relicensing studies that focus on Project effects on other types of resources (e.g., fisheries, wildlife, recreation, plant communities, water, and air quality, and operations modeling) will aid in formulating a basis for setting priorities for cultural resources surveys that match the scope of the Project's O&M. For example, repeated or periodic maintenance could cause direct effects related to ground disturbance where there is high potential for archaeological sites. Sedimentation and erosion along reservoir or river shorelines due to wave action or changes in hydrologic flow could directly affect shorelines and adjacent areas with known or high archaeological potential. Project activities involving ground disturbance could include augmentation of side channel habitat for salmon, vegetation removal, planting, or fencing installations on lands left largely dormant for wildlife.

Areas of direct effects are those locations where Project O&M cause physical, visual, auditory, and/or atmospheric changes at the same time and place with no intervening cause. For this study, City Light has added 5 to 20 meters (m) (16 to 66 feet [ft]) for most types of Project-related activities to provide a buffer for potential impacts beyond the immediate footprint of the activity. Examples of direct effects are provided below:

- Ground disturbing work associated with Project O&M;
- Widening or maintenance outside the footprint of existing study roads plus a 20 m (66 ft) buffer from both shoulders of roads to be widened or maintained;
- Development of new staging/stockpiling/maintenance yards or expansion beyond the existing footprint plus a 20 m (66 ft) buffer;
- Development of new access trails for maintenance work or maintenance outside the existing footprint plus a 20 m (66 ft) buffer from both shoulders of trail;
- Replacement or moving transmission towers – survey extent would cover the footprint of the new tower pad plus 20 m (66 ft) buffer, plus staging area and access road as outlined above;
- Hazardous fuel reduction (i.e., vegetation clearing) plus a 20 m (66 ft) buffer around location of reduction;
- O&M work on Project facilities plus a 10 m (33 ft) buffer;
- Use/maintenance in existing footprint of study roads plus a 5 m (16 ft) buffer from both shoulders of roads;
- Use of existing staging/stockpiling/maintenance yards plus a 5 m (16 ft) buffer;
- Maintenance in existing footprint of existing access trails plus a 5 m (16 ft) buffer from both shoulders of trail; and
- Maintenance in existing footprint of transmission line right-of-way (ROW) plus a 76 m (250 ft) buffer from both sides of outside shoulders.

(2) Potential Project Effects

HPAs where there is immediate potential for Project-related effects to occur are also being surveyed. As noted in the RSP, potential effects may include any Project-related effects associated with the day-to-day operation and maintenance of the Project and any new activity proposed under the new license. Types of effects may include direct (i.e., the result of Project activities at the same time and place with no intervening cause), indirect (i.e., the result of Project activities later in time or further removed in distance but reasonably foreseeable), and/or cumulative (e.g., caused by a Project activity in combination with other non-Project past, present, and foreseeable future activities) effects (Advisory Council on Historic Preservation [ACHP] 2019). Potential for Project effects were informed by O&M, emergency response, and information regarding Project activities gathered from other relicensing studies.

(3) No Current Planned Activities or No Project Effects

This study focuses on HPAs that are incurring or will likely incur Project effects. HPAs that are not incurring or expected to incur Project effects are not prioritized for survey. However, City Light will survey these as feasible during this study and management of these areas will be outlined in the HPMP for the new license.

Identification of Moderate Probability Areas

Areas with moderate probability (MPA) for containing cultural resources were identified through evaluation of source materials (i.e., known archaeological, ethnographic, and ethnohistoric data, former survey results, archaeological expectations, and types/nature of archaeological evidence most likely to be found given the body of archaeological expectations).

MPAs are being surveyed where they incur Project effects. MPAs will not be surveyed where there are no current or anticipated Project effects. Similar to HPAs, over the course of the new license term, individual undertakings not anticipated during relicensing would follow the standard Section 106 process or the procedures of the HPMP and can be surveyed at the time an unanticipated undertaking is proposed.

Identification of Low Probability Areas

During the development of the Research Design, areas with low probability (LPA) for containing cultural resources were identified. Where there are existing Project effects, LPAs are being surveyed using pedestrian methods. Shovel probes are not being excavated within LPAs. No survey will occur within LPAs where there are no current or anticipated Project effects.

4.2.1.2 Historic Built Environment Resources

Fieldwork for the historic built environment survey associated with this study will be prioritized based on an inventory of all historic built environment resources within the study area estimated to be 40 years old or older. A 40-year age threshold was used for this study to provide study data that would be valid for several years and facilitate planning for the HPMP. City Light anticipates that the HPMP will be implemented under a new license issued by FERC, which may not be issued for several years following completion of this study.

Existing records and construction dates are being used to determine age of historic built environment resources (i.e., whether they are 40 years old or older and whether they have any specific age information). These structures are being identified and reviewed to determine the level of fieldwork needed to complete or update records. Some historic built environment resources already have recent records (i.e., within the last 10 years) that will not need to be updated as part of this study. For example, the Skagit River and Newhalem Creek Hydroelectric Projects historic district (DT66; National Register # 11000016) National Register nomination form is currently being updated as part of the current license requirements outlined in the Skagit Historic Resources Mitigation and Management Plan (HRMMP). The results of the National Register nomination form update will be summarized in the USR.

4.2.2 Cultural Resources Survey Implementation

City Light and its study team have or are in the process of acquiring the necessary archaeological permits and rights-of-entry to implement the study. The study team is conducting pedestrian cultural resources surveys in the prioritized areas for both archaeological and historic built environment resources in compliance with applicable laws and regulations, including the Washington State Standards for Cultural Resources Reporting (DAHP 2020), NPS guidelines, Archaeological Resources Protection Act (ARPA), Organic Act, and Section 106 of the NHPA. The study is being overseen by cultural resources specialists who meet the Secretary of the Interior's (SOI) Professional Qualifications Standards for archaeology and architectural history and/or historic architecture (36 CFR § 61), as appropriate.

The study area crosses lands owned or managed by private, local school district, city/municipality, county, state, federal, and Tribal entities. Applicable permits and/or permissions have been or will be obtained for each landowner or manager prior to accessing these lands. Portions of the study area where access permission or permits are not granted will not be surveyed and will be identified in the final study results. Given that not all lands within the study area are public lands and not all the survey area is within existing easements or rights-of-way held by City Light, City Light is attempting to gain access to privately-owned lands in the study area where survey is prioritized; however, access may not be granted for all parcels. If access is not granted to privately-owned lands, then survey work will not be conducted in those areas. Unsurveyed lands, including the reasons why they were not surveyed, are discussed below. Subsequent management of these areas will be outlined in the HPMP for the new license.

Survey is prioritized in areas where high potential for historic properties intersects with potential Project O&M activities. Logistics, seasonal timing, and safety were considerations for prioritizing timing of surveys in different areas throughout the study period. Representatives of Indian Tribes and Canadian First Nations were invited to participate in the cultural resources surveys as either paid technicians or volunteer observers. The Sauk-Suiattle Indian Tribe and Stillaguamish Tribe of Indians have expressed interest in observing portions of the fieldwork. City Light and its consultants have emailed the Sauk-Suiattle Indian Tribe and Stillaguamish Tribe of Indians to inform them of fieldwork dates and locations. These parties have been responsive; however, no Indian Tribal members or Canadian First Nations members have participated in the fieldwork to date.

No discoveries of bone have occurred to date. However, any discovery of bone will be ascertained by a professional to differentiate between potential human and non-human remains. If human

remains are suspected or identified, work at that location will cease immediately, and the Unanticipated Discovery Plan for the relicensing will be followed to protect the find (Attachment C of the Research Design). Such discoveries will be treated with dignity and respect while next steps are determined through consultation with FERC, DAHP, affected Indian Tribes and/or Canadian First Nations, and applicable agencies.

4.2.2.1 Archaeological Resources

The archaeological survey is being implemented in two field seasons. This study is not duplicating previous or ongoing work such as the studies that have been or are being completed under the Archaeological Resources Mitigation and Management Plan (ARMMP) under the current FERC license. The archaeological survey includes surface and subsurface techniques, as described below.

Pedestrian Survey

A pedestrian survey is being conducted by archaeologists walking and visually inspecting the ground surface. The pedestrian survey is occurring in safely accessible portions of the HPA, MPA, and LPA that are prioritized for survey within the three reservoirs, Project facilities, study roads and trails, and Skagit River between Newhalem and its confluence with the Sauk River (Table 4.2-1). The pedestrian survey along the shorelines of the three reservoirs is occurring between normal high water and average low water (Tables 4.2-2). Additionally, pedestrian survey is occurring along the entire Project transmission line corridor (including LPAs) within the study area except where City Light does not conduct any activities and where landowner permission could not be obtained for the study.

Roadside and boat reconnaissance was completed at the beginning of these field efforts within the study area, as feasible, to ground-truth access routes and potential areas for survey (i.e., steep vs. gently sloping areas, minimal to dense vegetation, etc.) and view areas suggested for shovel probing, which are based on desktop review and are shown in the Research Design (see Attachment A of the Research Design). Roadside and boat reconnaissance was also used to identify areas that would be suitable for visual assessment using spotting scopes/binoculars. Boats will also be used to survey the Skagit River, to observe the riverbanks for exposed profiles, and identify areas for pedestrian survey (HPA/MPA/LPA).

Table 4.2-1. Areas targeted for pedestrian survey.

Probability Area	Existing Project Effects	Anticipated Project Effects[1]	No Project Effects Anticipated
HPA	Yes	Yes	Yes
MPA	Yes	Yes	No[2]
LPA	Yes	Yes	No[2]

1 The potential surcharge area for Ross Lake (i.e., 2.5 ft above normal maximum water surface elevation) will be surveyed as will the other portions of the High Ross Inundation Zone that show particular potential for recreation effects where archaeological sites have been recorded.

2 The transmission line portion of the study area will be surveyed in full, which includes MPAs and LPAs regardless of whether Project effects are anticipated. The High Ross Inundation Zone above normal maximum water surface elevation of Ross Lake will not be surveyed except in areas as described above.

Table 4.2-2. Reservoir water surface elevations and pedestrian survey areas.

Reservoir	Reservoir Elevations		Pedestrian Survey Area[3]
	Average Low Water Surface Elevation	Normal Maximum Water Surface Elevation	
Ross Lake	1,530 CoSD[1] (1,536.26 NAVD 88[2])	1,602.5 CoSD (1,611.26 NAVD 88)	1,530-1,605 CoSD (includes 2.5 ft of potential surcharge)
Diablo Lake	1,195 CoSD (1,201.36 NAVD 88)	1,205 CoSD (1,211.36 NAVD)	1,195-1,205 CoSD
Gorge Lake	865 CoSD (871.51 NAVD 88)	875 CoSD (881.51 NAVD)	865-875 CoSD

1 CoSD = City of Seattle Datum.
2 NAVD 88= North American Vertical Datum of 1988.
3 Elevations denoted for pedestrian survey are approximate and will vary based on reservoir elevations at the time of survey.

Accessible survey areas in Ross Lake, in particular, are dependent upon water levels at the time fieldwork is conducted, which will occur in 2022. Additionally, for the Ross Lake area, the survey will extend into the lower extent of the High Ross Inundation Zone in a few key areas to enable surveyors to observe signs of recreation activities adjacent to and within the reservoir. The High Ross Inundation Zone is the area of inundation above current normal maximum water surface elevation (1,602.5 ft CoSD) that would result from the building of High Ross dam. The High Ross Treaty[6] was negotiated between the U.S. and Canada on March 30, 1984, and extends to January 1, 2066. Under the Treaty, City Light agreed not to build High Ross in exchange for British Columbia providing an equivalent amount of power.

The low elevation extent used for delineation of the proposed pedestrian survey areas is based upon the average low drawdown elevation in Ross Lake of 1,530 ft CoSD. This average low has been used as a planning tool to delineate areas reasonably likely to be accessible (i.e., not inundated) for pedestrian survey during the annual draw down of Ross Lake. If Ross Lake elevations below 1,530 ft CoSD can be reached at the time of fieldwork, they will be prioritized for survey.

Pedestrian survey consists of the following methods:

HPA/MPA survey areas will include unsurveyed lands, as well as previously surveyed lands where the date of survey is older than 10 years. The survey will be completed as follows:

(1) Parallel transects will be set at intervals of 20 m (66 ft) or less depending upon survey width, topography, and sensitivity. Irregular transects may be necessary due to steep, uneven terrain and to avoid natural hazards in the survey area.

(2) Anchor points on transects will be recorded by a hand-held Global Positioning System (GPS) unit that achieves submeter accuracy in the field. For areas where submeter accuracy

6 The full title of the "High Ross Treaty" is *Treaty with Canada Relating to the Skagit River and Ross Lake in the State of Washington, and the Seven Mile Reservoir on the Pend d'Oreille River in the Province of British Columbia*.

cannot be achieved using GPS,[7] alternate traditional mapping methods will be used to achieve the greatest accuracy possible.

(3) Transects will be marked by hand on field maps and will be digitized later for inclusion in the survey results to illustrate survey coverage in the technical report that will document the study results as described below.

(4) Overview photographs will be taken of all survey areas. Surrounding vegetation and ground visibility will be documented and representative examples will be photographed.

(5) Unsafe, steep slopes will not be surveyed. Generally, slopes greater than 30 degrees may be unsafe to traverse. Slopes of 30 to 40 degrees will be considered for survey or access by the Field Director based upon visual inspection, local conditions, and safety. Survey will also exclude areas that are too vegetated to safely survey or are inundated.

(6) Slopes that are not surveyed will be visually assessed from above or below the slope as feasible.

Subsurface Survey

A subsurface archaeological survey is being conducted within HPAs and MPAs that are prioritized for survey as described above and based upon results of on-the-ground inspection during surface survey. Surveyors are ground-truthing the shovel probe areas for feasibility. The shovel probe locations are shown in the Research Design (see Attachment A of the Research Design). Additional areas may be identified during the field survey and will be shovel probed at that time or in the second study season, as in the case of Ross Lake. The subsurface survey is occurring concurrently with and after the pedestrian survey, depending upon the location. The subsurface survey includes the elements outlined below. If a subsurface survey is unable to be completed during the study period, in these targeted areas, further intensive level survey will be provided for in the HPMP.

(1) Subsurface probes using a shovel or auger will be placed at the discretion of the Field Director(s). The shovel probes will be placed in approximate 20 m (66 ft) intervals as possible where sediments are not inundated and in areas that are not too steep. Shovel probe transect intervals may be tightened in areas of higher probability.

(2) Small diameter soil cores (e.g., an Oakfield soil probe with < 2 centimeter [cm] (0.8 inches [in.]) bit diameter) may be used in some areas to help refine where subsurface probes could yield subsurface archaeological data by identifying whether buried intact sediments are or are not present.

(3) Shovel probes will measure approximately 40–50 cm (15.7-19.7 in.) in diameter, will be excavated to the maximum extent reasonably possible (generally 1 m [3.3 ft]), and observations on soil types and stratigraphic changes will be described.

(4) Some of the shovel probes may be supplemented by hand-operated bucket auger probes to reach depths not feasible with shovel alone, if possible, and at the discretion of the Field Director(s). It is expected that shovel and auger probes together may reach a maximum depth of 2 m (6.6 ft).

[7] Satellite reception for the handheld GPS units may be limited in the study area due to the surrounding steep terrain and heavy tree cover.

(5) Shovel probe excavation will be terminated if glacial deposits or impenetrable materials (e.g., cobbles or roots) are encountered.

(6) All materials excavated in shovel probes will be screened through ¼ inch mesh.

(7) A sediment profile will be recorded for each of the excavated probes using standard field methods (see Thien 1979). All probes will be photographed.

(8) The locations of all probes will be recorded on a survey map and with a GPS unit that achieves submeter accuracy in the field, or otherwise recorded if satellite reception is poor.

(9) Subsurface probes using a shovel or auger will be used to identify presence/absence of archaeological sites and to define site boundaries. No excavations (e.g., testing or data recovery) will occur within previously recorded archaeological sites as part of the survey.

(10) Newly identified site boundaries will be delineated by the excavation of shovel probes in cardinal directions 20 m (65.6 ft) from the farthest identified artifacts. If those shovel probes are negative, then additional probes will be excavated at 10 m (32.8 ft) or 5 m (16.4 ft) (to be determined by recovery) away from the farthest identified artifacts. If the 20 m probes are positive for cultural materials, then another 20 m buffer will be added, and additional probes will be excavated in cardinal directions.

(11) For previously recorded sites, no shovel probes will be excavated within 25 m (82 ft) of known site boundaries.

A subsurface survey along the transmission line corridor will focus on locations of proposed or anticipated Project-related activities, such as repairs to City Light owned/maintained roads or anticipated transmission line tower relocations. Seven such locations have been identified and will be shovel probed in the first study season. These seven locations are shown in the Research Design (see Attachment A of the Research Design). Additional locations suitable for subsequent shovel probing along the transmission line will be identified during the pedestrian survey and excavations may occur in the second study season if time allows.

Site Recordation and Collection

In the State of Washington, an archaeological site is defined as a geographic locality that contains two or more artifacts and/or features of human construction (DAHP 2020). An archaeological site may span multiple time periods and could include multiple components consisting of historic and precontact resources, as well as associated historic built environment resources. An isolated artifact consists of a single item without associated features or deposits (DAHP 2020). Newly observed and revisited archaeological resources will be recorded on State of Washington Site/Isolate Inventory Forms. Site/Isolated Inventory Forms will be updated for all revisited archaeological resources. Documentation will be updated to include all newly identified cultural materials and features, and will report on resource condition, and integrity as well as any materials or features that are no longer visible or present.

All newly discovered archaeological resources estimated to be 40 years old or older within the survey areas are being documented during pedestrian and subsurface survey. Previously recorded archaeological resources within the survey areas that are lacking essential information or where substantial changes have occurred since the resource was last documented, will be revisited as part of the pedestrian survey. Records will be updated as described in DAHP guidelines (DAHP

2020:37). A map showing the locations of previously recorded archaeological resources within the study area was provided in the Research Design as a privileged and confidential attachment.

In addition, all archaeological resources within the study area are being documented in a master list. The master list will include the site/isolate trinomial, field ID, location, ownership, right-of-entry, age, site type, initial assessment of seven aspects of integrity, State Historic Preservation Officer (SHPO) eligibility status, field recorder recommendation of eligibility, digital photo, date recorded, name of field recorder, and any previous site forms.

No collection is occurring on private, county, or state lands in accordance with the Revised Code of Washington (RCW). Artifact collection on federal lands is only occurring on NPS lands under the NPS issued ARPA permit, which includes limited collection of artifacts that are uncovered during excavation and those that are at risk of being illegally collected. Any collected artifacts will be curated in accordance with federal laws and the ARPA permit (see below).

All artifacts that are not being collected will be left on site or in shovel probes and will be noted on field forms. The artifacts will be recorded and photographed in the field and their locations will be noted.

- For NPS lands, identified artifact(s) will be:
  - Left on the ground unless they are at risk of looting, erosion, or if they are temporally diagnostic;
  - All precontact artifacts identified in shovel probes will be collected; and
  - Diagnostic historic artifacts identified in shovel probes with unique identifiers (e.g., maker's marks) will be collected. If there are multiple artifacts of the same type (e.g., bottles of the same make), an approximate 10 percent sample of the artifact type will be collected.

All collected artifacts will be noted, bagged, tagged, and inventoried prior to transport off site.

Historic artifacts identified in shovel probes will not be collected if they are (1) non-diagnostic (e.g., glass fragments without maker's marks) or (2) are datable but do not have unique identifiers (e.g., bricks and nails). They will be recorded, catalogued, and photographed in the field. After recordation, they will be reburied in their respective shovel probe(s). Descriptive and metric attributes for all artifacts that are left in the field will be recorded on field forms. Photographs will be taken for those artifacts left in the field with scale and date stamps, if available. All photographs will be noted on a photo log. Representative photographs will be taken for those artifact types that have many samples at a given site, such as historic glass fragments, fire-modified rock, or lithic debitage. The locations of any artifacts left on site or in shovel probes will be noted on field forms.

The condition of each resource is being documented to assist in integrity assessments that will occur following the field effort. Documenting the condition of each resource includes identifying Project and non-Project effects, which will also be used to facilitate future management recommendations. Modern recreation trails and roads in and adjacent to archaeological resources will also be noted for subsequent assessment of effects. The presence of modern recreation trails

and roads have the potential to increase risk of damage to archaeological resources due to accessibility, frequent use, maintenance, or other Project-related effects.

4.2.2.2 Historic Built Environment Resources

The historic built environment resources in the study area, including buildings, structures, objects, historic districts/sites and cultural landscapes, are being surveyed at the reconnaissance-level as follows. Historic built environment resources are being identified in the study area based on existing records and construction dates.

All historic built environment resources estimated to be 40 years old or older within the study area are being documented in a master list. Resources managed in the HRMMP (City of Seattle 1991) are included as necessary. The master list includes the historic property ID, assessor parcel number (APN), address, ownership, right-of-entry, date of construction, initial assessment of integrity, SHPO eligibility status, field recorder recommendation of eligibility, digital photo, date recorded, name of field recorder, and if there is an associated historic property inventory (HPI) form.

For those historic built environment resources that have not been previously recorded or updated within the last 10 years and are located within the study area, HPI forms are being completed at the reconnaissance level.

Where Project-related activities occur (e.g., vegetation management, road improvement, infrastructure upgrades, etc.), sufficient detail will be documented on HPI forms to provide a recommendation regarding NRHP eligibility.

Intensive-level survey and NRHP nominations are not part of this study. The architectural historian's recommendations based on the reconnaissance-level survey will be used to inform whether any further evaluation is necessary in the future.

The survey includes an analysis of the physical characteristics of the historic built environment resource's exterior, including an architectural description of those characteristics, including but not limited to:

- Building plan, size, and layout;
- Foundation;
- Form type;
- Exterior cladding;
- Roof type and material;
- Structural system;
- Windows and entrances; and
- Other pertinent physical characteristics, features, and materials.

Each resource is being photographed and address or location is being recorded on a map with a hand-held GPS unit that achieves submeter accuracy in the field. For areas where satellite reception is poor for effective use of GPS, alternate traditional mapping methods are used to achieve the

greatest accuracy possible. Physical descriptions are being supported by existing historic photographs and maps, ownership history, and historic use if/when such records are available.

This study is not duplicating previous or ongoing work, such as City Light's ongoing efforts related to the HRMMP requirements under the current FERC license.

4.3 Post-field Documentation and Analysis

Post-field documentation and analysis consists of completing archaeological site forms and HPI forms, data/artifact analysis, and development of resource and report maps, and cultural contexts for identified archaeological and historic built environment resources. Identified resources are being evaluated for NRHP eligibility, if possible, and preliminary recommendations regarding potential Project effects are provided. All collected artifacts have been or will be analyzed in the laboratory. Collected descriptive and metric attributes will be included in the study reports for the USR. The remainder of this section outlines the process for evaluating NRHP eligibility and identifying and assessing Project-related effects.

4.3.1 Evaluating NRHP Eligibility

Recommendations of NRHP eligibility will be developed based on the contexts, background information, integrity, and field data, as feasible. Resources listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, prehistory, architecture, archaeology, engineering, and culture and that possess integrity of location, design, setting, material, workmanship, feeling, and association.

The NRHP is maintained by the NPS on behalf of the SOI. The DAHP administers the statewide NRHP program under the direction of the SHPO, located in Olympia, Washington. The NPS has developed NRHP Criteria for Evaluation (36 CFR § 60.4) to guide the evaluation of cultural resources for eligibility for inclusion in the NRHP. Section 106 requires the assessment of project effects to historic properties, which are those properties listed in or eligible for listing in the NRHP. If a property is determined eligible for inclusion in the NRHP under the Section 106 process, it does not automatically result in the listing of the property in the NRHP. As described in the NPS's National Register Bulletin (NRB) 15 "How to Apply the National Register Criteria for Evaluation," the four criteria under which a property may be determined to be eligible are (NPS 1997):

- Criterion A: Associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: Associated with the lives of persons significant in our past; or
- Criterion C: Embodies the distinctive characteristics of a type, period, or method of construction or represent the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: Has yielded, or may be likely to yield, information important in prehistory or history.

NRB 15, "How to Apply the National Register Criteria for Evaluation" and NRB 36, "Guidelines for Evaluating and Registering Archaeological Resources," provide guidance on evaluating

resources for listing in the NRHP (NPS 1997, 2000). For a property to be eligible under Criteria A, the property must be associated with an event, a series of events, or a trend important in the defined historic context of the property. The event or trends must clearly be important within the associated context, which can mark an important moment in American prehistory or history, or a pattern of events or a historic trend, that made a significant contribution to the development of a community, a state, or the nation (NPS 1997:12).

To be considered for listing under Criterion B, a property must be associated with individuals whose specific contributions to history can be identified and documented. Such persons "significant in our past" are those individuals whose activities are demonstrably important within a local, state, or national historic context (NPS 1997:14).

Criterion C applies to properties significant for their physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork (NPS 1997:17). Under Criterion C, a property must meet at least one of the requirements listed above, and described as follows: (1) the first requirement, that properties "embody the distinctive characteristics of a type, period, or method of construction," refers to the way in which a property was conceived, designed, or fabricated by a people or culture in past periods of history (NPS 1997:17); (2) "The work of a master" refers to the technical or aesthetic achievements of craftsman or architect (NPS 1997:17); (3) "High artistic values" relates to the expression of aesthetic ideals or preferences and applies to aesthetic achievement (NPS 1997:17); and (4) the last requirement under Criterion C, "resources that represent a significant and distinguishable entity whose components may lack individual distinction," refers to districts defined under Criterion C (NPS 1997:17).

Lastly, to be considered for listing under Criterion D, a property must have the potential to answer, in whole or in part, research questions that contribute to our understanding of human history (NPS 1997:21). Importantly, this criterion necessitates that those questions are answered through the actual physical materials of cultural resources (NPS 1997:21). Archaeological sites are primarily assessed under Criterion D, though may qualify under the other criteria.

In addition to these criteria, for a property to be determined eligible for the NRHP, it must continue to possess sufficient physical characteristics that reflect its historical significance, defined as "integrity" (NPS 1997). Integrity is the ability of a property to convey its significance whereby historic properties either retain integrity or they do not. The NRHP criteria recognize seven aspects or qualities that, in various combinations, define integrity. There are seven aspects of integrity, as listed below:

- Location;
- Design;
- Setting;
- Materials;
- Workmanship;
- Feeling; and
- Association.

To retain historic integrity, a property will always possess several, and usually most, of these aspects. The significance of a property must be established before historic integrity can be assessed. As outlined in NRB 15 (NPS 1997), the steps in assessing integrity are:

- Define the essential physical features that must be present for a property to represent its significance;
- Determine whether the essential physical features are visible enough to convey their significance;
- Determine whether the property needs to be compared with similar properties; and
- Determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the property being nominated and if they are present. Ultimately, the question of integrity is answered by whether or not the property retains the identity for which it is significant.

Additional guidance is provided through NRB 36, "Guidelines for Evaluating and Registering Archaeological Properties" (NPS 2000). Following NRB 36 (NPS 2000), an archaeological site should possess both significance and integrity to be eligible for the NRHP. Significance is the relative importance of a site within the historical context. In addition, the archaeological site must meet at least one of the NRHP criteria (A–D) listed above.

Cultural resources less than 50 years old typically do not meet the NRHP criteria (A–D); however, there are seven Criteria Considerations that may qualify a resource for the NRHP, as outlined in 36 CFR § 60, NRB No. 15 and No. 22, "Guidelines for Evaluating and Nominating Properties That Have Achieved Significance Within the Last 50 Years" (NPS 1998). The Criteria Considerations are as follows:

- Criterion Consideration A: A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
- Criterion Consideration B: A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
- Criterion Consideration C: A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his or her productive life; or
- Criterion Consideration D: A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
- Criterion Consideration E: A reconstructed property when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
- Criterion Consideration F: A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

- Criterion Consideration G: A property achieving significance within the past 50 years if it is of exceptional importance.

Amendments to Section 106 of the NHPA specify that properties of religious and cultural significance (including traditional cultural properties) may be determined to be eligible for inclusion in the NRHP. In carrying out their responsibilities under Section 106, federal agencies are required to consult with any Indian Tribe that attaches religious or cultural significance to any such properties (NRB 38 [Parker and King 1998]). These types of properties will be studied under a separate study being implemented for the relicensing process: CR-04 Inventory of Historic Properties with Traditional Cultural Significance (City Light 2022c).

36 CFR § 800.4(b)(2) allows for the phased identification and evaluation of historic properties when Projects consist of corridors or large land areas, or where access to properties is restricted. Agencies may also defer final identification and evaluation of historic properties if it is specifically provided for in a memorandum of agreement executed pursuant to 36 CFR § 800.6, a PA executed pursuant to § 800.14 (b), or the documents used by an agency official to comply with the National Environmental Policy Act (NEPA) pursuant to 36 CFR § 800.8.

If additional fieldwork is required to complete recommendations of NRHP eligibility, the resource(s) would be considered unevaluated for the purposes of this study. If Project effects are anticipated on any unevaluated resources, those resources will either be evaluated for NRHP eligibility at that time or future assessment of effects will be addressed under the HPMP.

4.3.2 Identifying and Assessing Effects on NRHP Eligible Properties

Potential effects that may be associated with this undertaking include any Project-related effects associated with the day-to-day O&M of the Project and any new activity proposed under the new license. Types of effects may include direct (i.e., the result of Project activities at the same time and place with no intervening cause), indirect (i.e., the result of Project activities later in time or further removed in distance but reasonably foreseeable), and/or cumulative (e.g., caused by a Project activity in combination with other non-Project past, present, and foreseeable future activities) (ACHP 2019).

Section 106 of the NHPA requires lead federal agencies to consider direct, indirect, and cumulative adverse effects of their undertakings on historic properties. In this case, the undertaking is FERC's issuance of a new license for the Project. As required under 36 CFR § 800.5, City Light will identify and assess, in consultation with Section 106 consulting parties, any adverse effects on historic properties or potential historic properties resulting from the Project. 36 CFR § 800.5(a)(1) states that:

> *An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.*

City Light is documenting existing conditions, ongoing effects, and potential effects on historic properties. If evaluations of Project effects cannot be completed as part of this study, then a future assessment of effects will be provided for in the HPMP.

4.4 Reporting

The results of the survey and post-field documentation and analysis will be presented in two study reports that comply with Section 106 of the NHPA, NPS, and DAHP reporting guidelines. Archaeological resources data will be reported upon separately from historic built environment resources due to confidentiality for sensitive archaeological resources. A description of any archeological features or artifacts unearthed during the course of this study, including the depth and characteristics of the find, will be included in a confidential document. Due to confidentiality requirements for archaeological site locations, distribution of the reports will be restricted as per RCW 42.56.300.

Initial assessments of Project effects on historic properties and NRHP eligibility recommendations will be included in the reports, as feasible. The initial assessment of Project effects will include discussion of ways to avoid or minimize adverse effects on NRHP-eligible or listed cultural resources (i.e., historic properties), which may include treatment, such as site protection, fencing, and/or monitoring. The site and HPI forms will be included as appendices in the reports, as appropriate. The findings in the reports will be used to inform the development of the HPMP for the new license. If evaluations of NRHP eligibility and Project effects are not feasible, the reports will provide recommendations regarding ways to accomplish those evaluations. Unevaluated resources will be treated as if they are historic properties until or unless they are formally evaluated for the NRHP.

The study reports will include, at a minimum, an introduction, cultural and natural contexts, methodology, results of the field surveys and post-field documentation and analysis, as described above, and any management recommendations. The draft reports will be provided to the consulting Indian Tribes and Canadian First Nations, NPS, USFS, and other agencies as appropriate for review and comment. After comments are addressed, the revised draft reports will be provided to DAHP for review and comment to seek concurrence on NRHP eligibility evaluations. The study reports for the USR will be filed with FERC; the archaeological reports will be submitted as privileged and confidential.

4.5 Curation

Artifact collection will only occur on NPS managed lands; therefore, collected artifacts will be prepared for curation at the NPS curation facility in Marblemount according to the issued ARPA permit. Curation will comply with the federal standards as presented in 36 CFR Part 79, Curation of Federally owned and Administered Archaeological Collections. Cataloged specimens will be housed in archival clear, self-sealing polyethylene bags with a minimum thickness of 4 mil. Every cataloged item will be accompanied by a bag label listing the bag contents and provenience information. The bag labels will be printed on archival acid-free and lignin-free paper. All associated documentation related to the field effort and study report for the USR will be submitted with the specimen collection for permanent storage at the repository. No artifacts will be collected from private, county, state, or other federal lands during study implementation.

5.0 PRELIMINARY RESULTS

Field efforts for this study began on September 7, 2021. Pedestrian and subsurface surveys have occurred on accessible properties including those belonging to City Light and NPS, as well as within the ROW within the transmission line corridor between Newhalem and the Sauk River. The surveyed areas are shown in mapbooks in Attachments B and C.

5.1 Pedestrian and Subsurface Survey

As of October 14, 2021, an estimated 2,774.2 acres of potential pedestrian survey area have been assessed out of the 12,875.4 acres of total pedestrian survey area proposed within the study area (Table 5.1-1). Of these 2,774.2 acres, 1,854.1 acres have been surveyed by conducting pedestrian survey transects on foot and/or by boat, which includes 1,826.8 acres covered by pedestrian survey transects and 27.3 acres of shoreline survey through use of a boat. A total of 920.1 acres out of the 2,774.2 acres were not surveyed on foot due to unsafe slopes, slippery rocks, or dense vegetation.

There are a total of 43 subsurface survey areas included in the Research Design (Attachment A), which equate to 434.9 acres. As of October 14, 2021, eight subsurface survey areas totaling 160.7 acres were surveyed on foot. However, permission to conduct subsurface survey was only granted for 29 acres of which 27.5 acres were shovel probed at 20-meter intervals and 1.5 acres were deemed inaccessible due to unsafe slopes, dense vegetation, lack of soil development, and other such environmental factors. The remaining 131.7 acres within these eight subsurface survey areas are pending permits and/or rights-of-entry.

The remaining subsurface survey areas will be shovel probed in the second year of study implementation and reported on in the study report in the USR.

Table 5.1-1. Survey area coverage as of October 14, 2021.

Survey Area Type	Total Potential Survey Area Acres	Total Acres Assessed	Total Acres Surveyed	Total Acres Deemed Not Surveyable
Pedestrian Survey[1]	12,875.4	2,774.2	1854.1	920.1
Subsurface Survey	434.9	29	27.5	1.5

1 Pedestrian survey area includes the subsurface survey area.

Along with the 2,774.2 acres of the proposed pedestrian survey area that was assessed, an additional 92.6 acres outside of the pedestrian survey area were examined opportunistically while crew members attempted to access survey areas and/or because they were adjacent to surveyable land due to good visibility, lack of slope, etc. (not included in acreage totals listed in Table 5.1-1).

5.2 Archaeological Resources

A total of 118 archaeological resources (68 sites and 50 isolates) have been recorded and/or revisited during the survey so far, as of October 14, 2021 (Table 5.2-1). These resources include 68 archaeological sites, of which 55 are historic, nine are precontact, and four are multicomponent (e.g., historic and precontact). Of the 68 total archaeological sites, 46 were newly recorded and 22 were previously recorded and revisited.

Table 5.2-1. Archaeological resources recorded and/or revisited as of October 14, 2021.

Archaeological Resource Type	Total Number Revisited	Total Number of Newly Identified Resources	Total Revisited or Newly Identified
Archaeological Site (Historic)	11	44	55
Archaeological Site (Precontact)	8	1	9
Archaeological Site (Multicomponent)	3	1	4
Archaeological Isolate	2	48	50
Total	**24**	**94**	**118**

The 46 newly recorded archaeological sites are briefly described below. Smithsonian trinomials have not yet been obtained for these sites.

- 1 multicomponent (possible precontact shell and historic debris scatter);
- 39 historic debris scatters (one site is associated with a historic built environment resource);
- 2 historic road segments;
- 1 possible historic railroad grade;
- 1 historic quarry pit with associated docks and check dam;
- 1 precontact lithic scatter with fire modified rock; and
- 1 site consisting of culturally modified trees.

The 22 revisited, previously recorded archaeological resources include:

- 6 precontact lithic scatters (45WH63, 45WH64, 45WH454, 45WH1029, 45SK106, 45SK136)[8];
- 1 precontact lithic scatter with a precontact feature (45SK171);
- 1 precontact camp with a lithic scatter (45SK437);
- 1 multicomponent site containing a precontact lithic scatter and historic debris scatter (45WH957);
- 1 multicomponent site containing a precontact lithic scatter, historic debris scatter, and a historic homestead (45SK200);
- 1 multicomponent site containing a precontact lithic isolate, historic debris scatter, historic townsite, historic hydroelectric property, historic railroad property, and a historic cairn/rock feature (45WH897);
- 6 historic debris scatters (45WH89, 45WH516, 45WH899, 45WH923, 45WH1012 [portion not revisited due to pending right-of-entry], 45SK284);
- 1 historic debris scatter/historic railroad property (45SK230);

[8] Site numbers are Smithsonian trinomials consisting of the state number (45), county initials, and sequential number assigned by DAHP.

- 1 historic work camp with a historic debris scatter (45WH687);
- 1 historic cemetery/burial (45WH824);
- 1 historic hydroelectric/historic mining property (45WH1084); and
- 1 site containing a historic object (i.e., retaining wall) (45SK229).

The remaining archaeological resources consist of 50 archaeological isolates, of which 48 were newly recorded and two were previously recorded and revisited. The types of isolated finds are all historic objects including pull tab cans, a knife-opened can, glass bottles and one jar, motor oil and beer cans, buckets, oil drums, auto parts, square nails, spikes, corrugated metal piping, wire rope, eye bolts, insulators, cable spool, and a tree stump tie. A historic boat tie-off was also observed, which may qualify as a historic built environment resource.

5.3 Historic Built Environment Resources

A total of 21 historic built environment resources have been visited during the survey as of October 14, 2021 (Table 5.3-1). Of these, 15 resources were newly recorded and six were revisited. The survey also overlapped the NRHP-listed historic district, Skagit River and Newhalem Creek Hydroelectric Projects (DT66; National Register Listing # 11000016), which contains multiple individual historic built environment resources. However, the study did not update any records for contributing resources to the historic district because City Light is currently updating the National Register nomination form for the district, which includes updating evaluations as needed. The results of the National Register nomination form update will be summarized in the USR.

The types of historic built environment resources documented during the study as of October 14, 2021, are summarized in Table 5.3-1.

Table 5.3-1. Historic built environment resources recorded and/or revisited as of October 14, 2021.

Historic Built Environment Resource Type	Number of Previously Recorded Historic Built Environment Resource Revisited	Number of Newly Identified Historic Built Environment Resources	Total
Historic District	1 (DT00066)	0	**1**
Bridge	1	3	**4**
Dock	0	4	**4**
Check Dam and Gate	0	1	**1**
Concrete Barrier	0	1	**1**
Mining Property (not specified)	1	0	**1**
Residence	3	0	**3**
Other Structure (i.e., storage structures, outhouse, squatter's shack, navigation light structures)	0	6	**6**
Total	**6**	**15**	**21**

6.0 SUMMARY

The Cultural Resources Survey is a two-year study. Of the total 12,875.4 acres of potential survey area in the study area, 2,774.2 acres have been surveyed and/or deemed inaccessible during the first study year as of October 14, 2021. The remaining acreage will be surveyed in the second year of study implementation, as access is granted by land managers/owners, and will then be reported in the USR.

Data collection is ongoing for the study as well. As of October 14, 2021, 118 archaeological resources have been documented, of which 94 were newly recorded and 24 were previously recorded and revisited. Of the 118 archaeological resources, nine were precontact, 55 were historic, and four were multicomponent (e.g., precontact and historic), and 50 were historic archaeological isolates. A total of 21 historic built environment resources were also documented, of which 15 were newly recorded and six were previously recorded and revisited.

6.1 Next Steps

Ongoing work will continue in the second study season to complete fieldwork, resource documentation, and reporting. Fieldwork will occur in the remaining portions of the study area including Ross Lake, Diablo Lake, Gorge Lake, transmission line ROW, and Skagit River between Newhalem and the confluence with the Sauk River. The results of the second study season will be reported in the USR.

The USR will also include a full report on the 120 cultural resources recorded as of October 14, 2021, and included in this study report. Full reporting will include resource narratives, initial evaluations of eligibility and Project effects, and resource records (e.g., site/isolate inventory forms and HPI forms).

7.0 VARIANCES FROM FERC-APPROVED STUDY PLAN AND PROPOSED MODIFICATIONS

To date, there are no variances from or proposed modifications to the FERC-approved study plan for the Cultural Resources Survey.

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CULTURAL RESOURCES SURVEY INTERIM REPORT

ATTACHMENT A

UPDATED CR-02 CULTURAL RESOURCES SURVEY RESEARCH DESIGN

CR-02 CULTURAL RESOURCES SURVEY RESEARCH DESIGN

SKAGIT RIVER HYDROELECTRIC PROJECT FERC NO. 553

Seattle City Light

October 2021

TABLE OF CONTENTS

List of Figures

List of Tables

List of Attachments

List of Acronyms and Abbreviations

ACHP.....Advisory Council on Historic Preservation
APE.....area of potential effects
APN.....assessor parcel number
ARMMP.....Archaeological Resources Mitigation and Management Plan
ARPA.....Archaeological Resources Protection Act
BIA.....Bureau of Indian Affairs
CFR.....Code of Federal Regulations
City Light.....Seattle City Light
CoSD.....City of Seattle Datum
CR.....Cultural Resources
CRWG.....Cultural Resources Work Group
DAHP.....Department of Archaeology and Historic Preservation
DMS.....Document Management System
DNR.....(Washington) Department of Natural Resources
FERC.....Federal Energy Regulatory Commission
ft.....foot/feet
GLO.....General Land Office
GPS.....Global Positioning System
HPA.....high probability area
HPI.....historic property inventory
HPMP.....Historic Properties Management Plan
HRMMP.....(Skagit) Historic Resources Mitigation and Management Plan
LiDAR.....Light Detection and Ranging
LPA.....low probability area
m.....meter
MPA.....moderate probability area
NAVD 88.....North American Vertical Datum
NHPA.....National Historic Preservation Act
NPS.....National Park Service
NRB.....National Register Bulletin
NRHP.....National Register of Historic Properties

O&M .....operations and maintenance

PAD.....Pre-Application Document

Project .....Skagit River Hydroelectric Project

PSP .....Proposed Study Plan

PTRCI .....properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization

RCW .....Revised Code of Washington

ROW .....right-of-way

RSP .....Revised Study Plan

SHPO .....State Historic Preservation Office or Officer

SOI .....Secretary of the Interior

TCP .....traditional cultural property

U.S.C. .....United States Code

USFS .....U.S. Forest Service

USGS .....U.S. Geological Survey

WDFW .....Washington Department of Fish and Wildlife

WISAARD .....Washington Information System for Architectural and Archaeological Records Data

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1.0 INTRODUCTION

This document presents the draft research design for implementing the CR-02 Cultural Resources Survey (the study). The study includes a cultural resources inventory of the Skagit River Hydroelectric Project (Project). The Project is licensed by the Federal Energy Regulatory Commission (FERC) to The City of Seattle, Washington, and operated through its publicly-owned electric power utility Seattle City Light (City Light). The study is being implemented as part of the FERC relicensing process that is currently underway for continued operations and maintenance (O&M) of the Project under a new FERC license. The research design elements outlined below include the study goals and objectives, background research and research questions, methodology, and expectations.

Relicensing of the Project by FERC is considered a federal undertaking under Section 106 of the National Historic Preservation Act (NHPA), as amended (Section 106), and its implementing regulations (36 Code of Federal Regulations [CFR] § 800). Section 106 establishes a process for federal agencies to identify, and to consider, the effects of their undertakings on historic properties. Historic properties are defined as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance [PTRCI] to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria [36 CFR § 800.16(l)(1)]." Accordingly, the study is being proposed in partial fulfillment of Section 106 requirements. The study will focus on archaeological and built environment resources, while another study, CR-04 Inventory of Historic Properties with Traditional Cultural Significance, will focus on PTRCIs.

As stated in the study plan, findings from this study will be integrated into an overall Historic Properties Management Plan (HPMP) yet to be developed for the new license to provide for management of historic properties, unevaluated resources and the unsurveyed portions of the area of potential effects (APE), which are not included in the current Archaeological Mitigation and Management Plan (ARMMP) and Historic Resources Mitigation and Management lan (HRMMP) for the Project (e.g., CR-02 Cultural Resources Survey Revised Study Plan, City Light 2021a:2-2, 2-3). This study will provide needed information for future planning and the results of the Cultural Resources Survey are expected to include confidential and/or privileged information that is exempt from public release. The confidential and privileged information will be protected, in consultation with the Section 106 consulting parties. State and federal laws exempt certain types of cultural resources information from public disclosure (e.g., Revised Code of Washington [RCW] 42.56.300, 16 United States Code [U.S.C.] 470hh(a)).

This study will be substantial, and provide a basis for appropriate cultural resources protection, mitigation, and enhancement (PME) measures for a future license for the Project (e.g., City Light 2021a:2-2). However, not all Project activities or effects can be anticipated. If additional activities that could cause adverse effects to historic properties are proposed at a future date, City Light commits to full compliance with NHPA Section 106. City Light will evaluate the types of activities and potential effects to historic properties at that time to fulfill their obligations pursuant to NHPA Section 106 (as amended) and implementing regulations 36 CFR § 800.

To date, City Light has identified the following as known and potential Section 106 consulting parties for the Project relicensing (listed alphabetically): Advisory Council on Historic Preservation (ACHP), Bureau of Indian Affairs (BIA), City Light, Confederated Tribes of the Colville Reservation, FERC, Lummi Nation, Muckleshoot Indian Tribe, National Park Service (NPS), Nlaka'pamux Nation Bands Coalition, Nlaka'pamux Nation Tribal Council, Nooksack Indian Tribe, Samish Indian Nation, Sauk-Suiattle Indian Tribe, Skagit County, Snohomish County, Snoqualmie Indian Tribe, Stillaguamish Tribe of Indians, Stó:lō Nation, Swinomish Indian Tribal Community, Suquamish Tribe, Tulalip Tribes of Washington, U.S. Forest Service (USFS), Upper Skagit Indian Tribe, Washington Department of Archaeology and Historic Preservation (DAHP), Washington Department of Natural Resources (DNR). These parties have received Cultural Resources Work Group[1] (CRWG) meeting invitations, announcements, meeting minutes, review requests and Section 106 updates. Of these, several parties have attended CRWG meetings and participated in discussions, review and comment periods for planning documents, and development of the APE, with the exception of ACHP, Lummi Nation, Muckleshoot Indian Tribe, Nooksack Indian Tribe, Skagit County, USFS and. Washington DNR. This research design was first provided to Section 106 consulting parties for review as an attachment to the CR-02 Cultural Resources Survey Study Plan (the study plan) which was included in the Revised Study Plan (RSP) filed by City Light with FERC (City Light 2021a). Comments were received from consulting parties as described in Section 4.0 of this research design. This research design was provided to the Section 106 consulting parties, inviting their review and comment on August 23, 2021 for a 30-day period, followed by submission to DAHP for a 30-day comment and review period prior to finalization.

1.1 Study Area

As per 36 CFR § 800.16(d), the APE for Section 106 is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist." Based on this regulatory definition, City Light proposes to define the APE for the Project relicensing as including all lands within the FERC-approved Project Boundary. The APE also includes lands or properties outside the Project Boundary where Project operations or Project-related recreation activities or other enhancements may cause changes in the character or use of historic properties, if any such properties exist.

The APE is shown in Figures 1.1-1 and 1.1-2. On March 12, 2021, City Light initiated Section 106 consultation with the DAHP and provided a description of its proposed APE for the relicensing efforts. Since that time, City Light has continued to work with DAHP and Section 106 consulting parties to refine the APE. Subsequently, a revised APE was submitted to the consulting parties for review on April 29, 2021 and filed with FERC on May 3, 2021. An update to the APE mapbook was provided to the consulting parties and filed with FERC on May 10, 2021. The DAHP concurred with the APE on June 23, 2021. The APE consists of an area of potential physical effects (the study area), and an area of potential auditory and visual effects. Following the study, City Light will update the APE, as necessary, where demonstrated and reasonably anticipated Project effects have the potential to affect historic properties outside the current APE.

[1] The CRWG is made up of the Section 106 consulting parties and is one of multiple working groups created by City Light for the purpose of organizing coordination with participants engaging in the Project relicensing process.

The proposed study area is the portion of the APE delineated for potential physical effects. If, during the course of study implementation, Project-related physical effects are identified outside the study area and could affect historic properties, the study area will be revised to include the location(s) of those effects.

The study area includes lands owned/managed by the following entities (listed alphabetically):

- City Light (Seattle) and other Cities or Municipalities (including Marblemount, Rockport, Darrington, Oso, Arlington, Marysville, and Bothell)
- County governments: Skagit, Snohomish, and Whatcom County
- North Cascades National Park (Ross Lake National Recreation Area)
- Private
- Tribal government (Sauk-Suiattle Indian Tribe)
- U.S. Forest Service
- Washington Department of Natural Resources
- Washington State Parks and Recreation Commission
- Washington Department of Fish and Wildlife

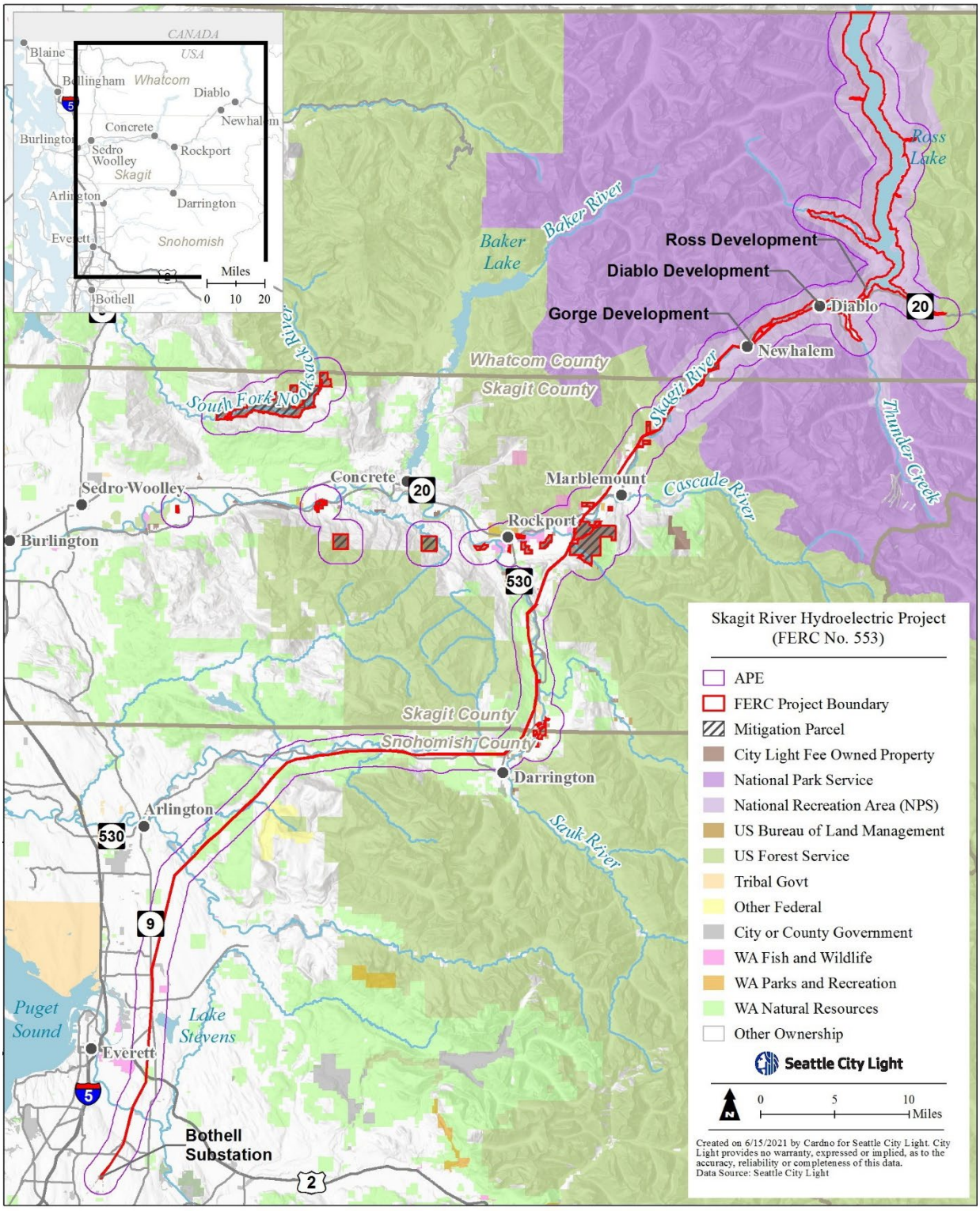

Figure 1.1-1. Location map of the Skagit River Hydroelectric Project APE.

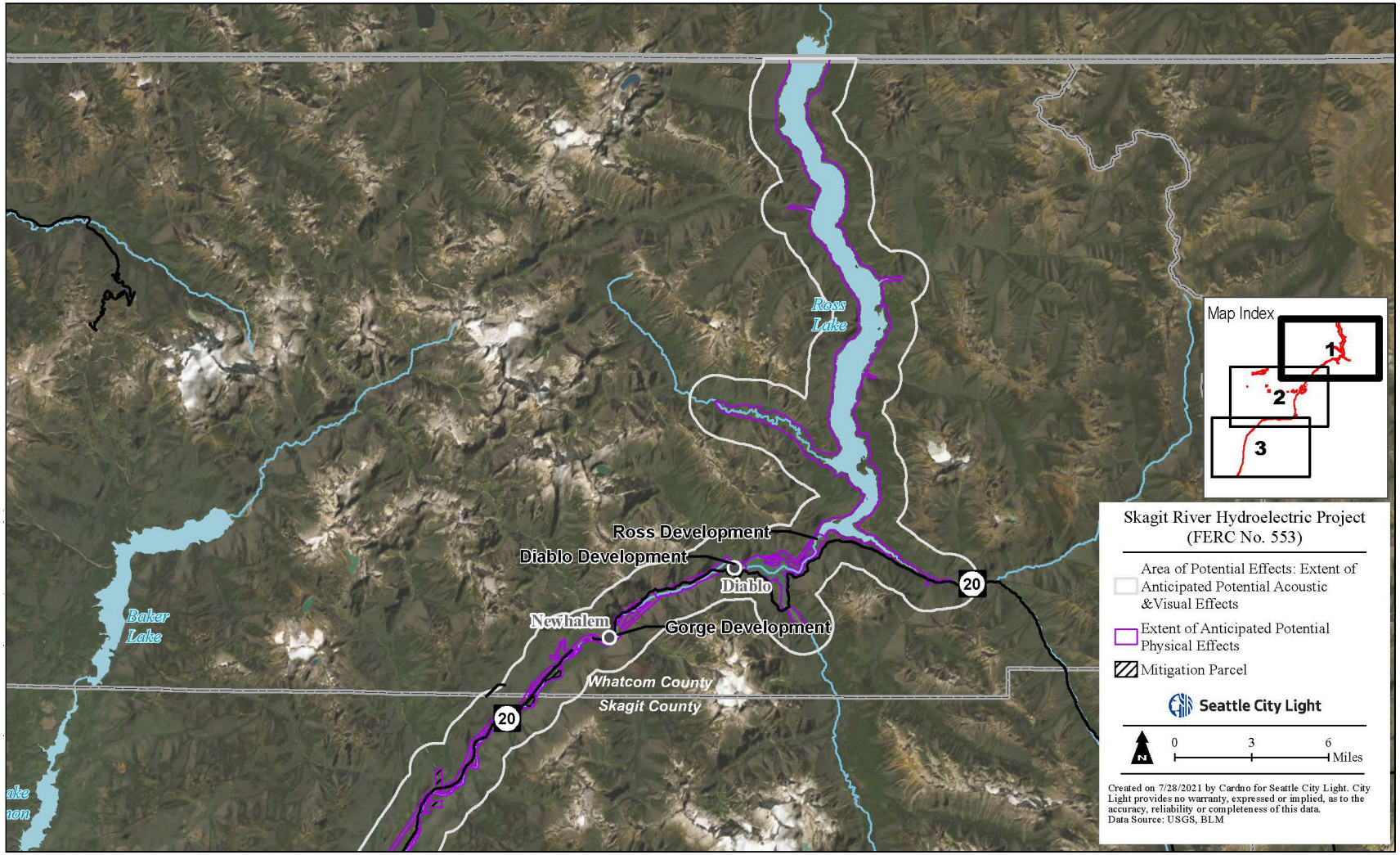

Figure 1.1-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 1 of 3).

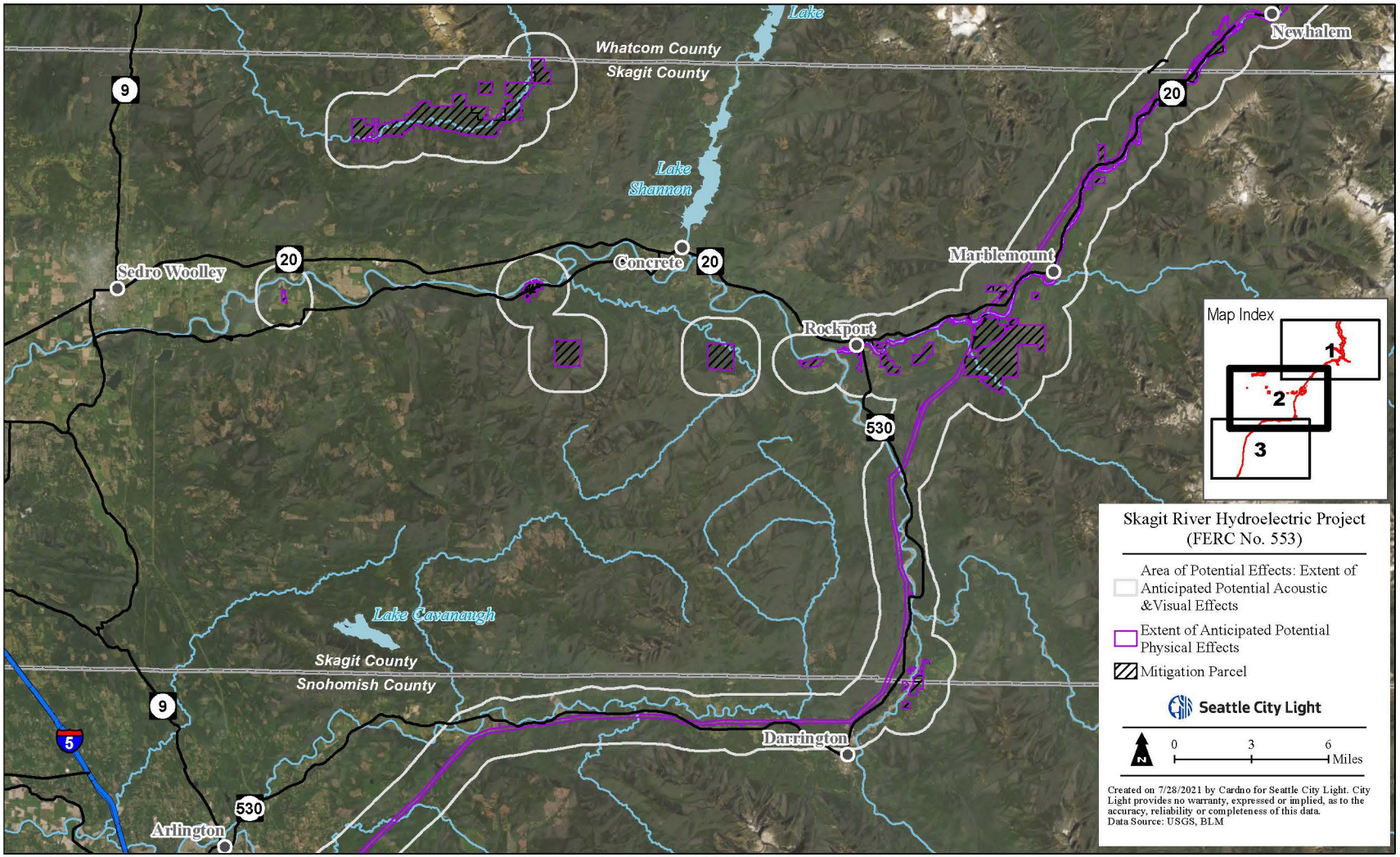

Figure 1.1-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 2 of 3).

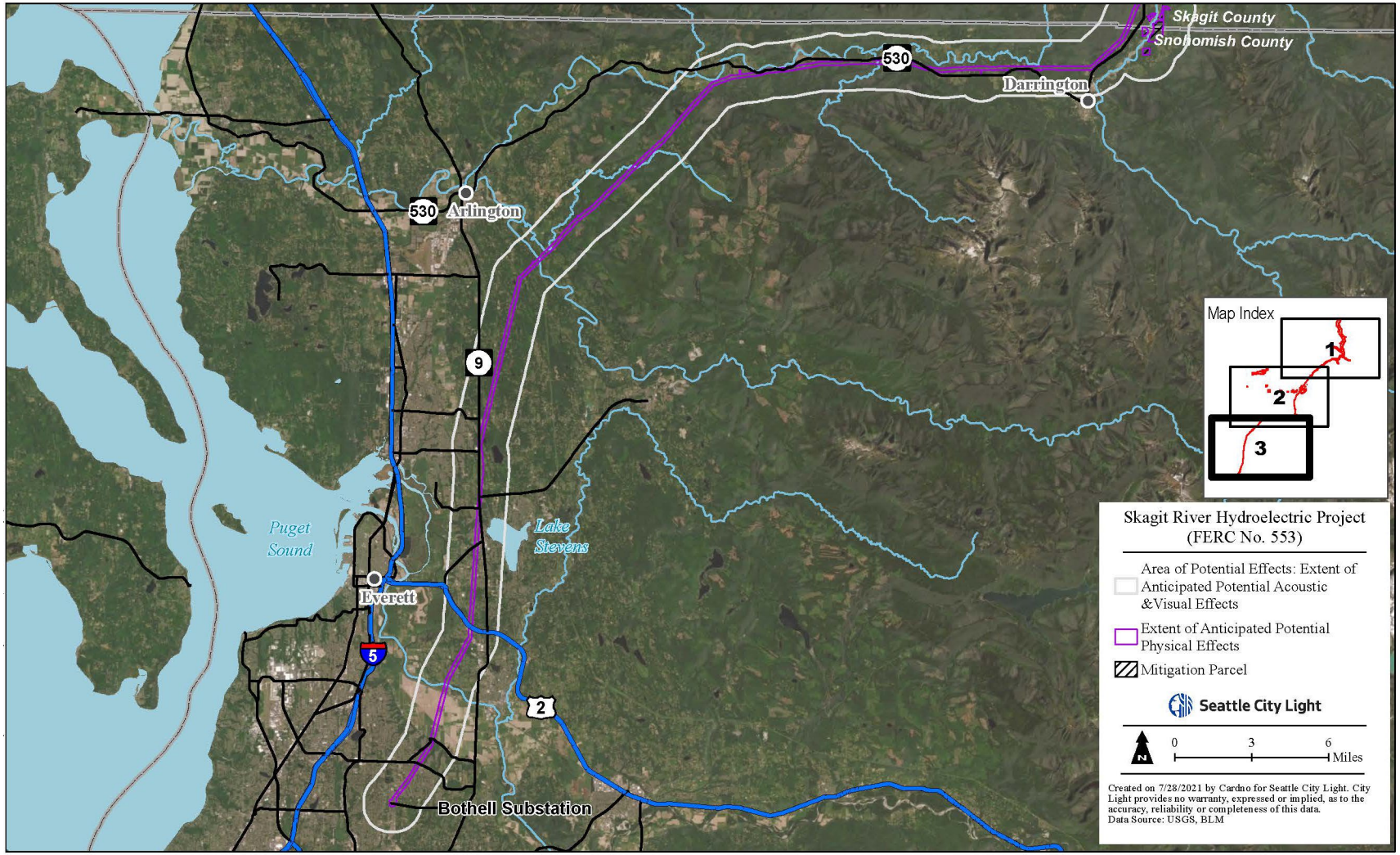

Figure 1.1-2. Skagit River Hydroelectric Project APE depicted on aerial imagery (page 3 of 3).

2.0 GOALS AND OBJECTIVES

City Light's goal for this study, as stated in the study plan, is to identify historic properties in the APE and use this information "when assessing Project effects on historic properties and in determining ways to avoid, minimize, and/or mitigate adverse effects to historic properties as outlined in 36 CFR § 800.6" (City Light 2021a:2-2). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and includes procedures for the "identification…and evaluation of historic properties" (36 CFR § 800.4). This study will help to assess the potential effects of the Project's O&M on cultural resources within the APE that are included in or eligible for listing in the NRHP. The primary objective of the study is to provide sufficient information to assist FERC in compliance with Section 106 of the NHPA and other cultural resources regulations and executive orders by identifying archaeological and historic built environment resources that qualify as historic properties in the study area and assessing potential Project effects to such properties. The results of the study will also be used to develop a HPMP, which will ensure that cultural resources identified within the APE will be appropriately considered and managed based on priorities to avoid, minimize or mitigate Project effects to historic properties during the term of the new FERC license.

3.0 BACKGROUND RESEARCH AND QUESTIONS

This section includes a summary of existing information and summarizes the pertinent research questions for the study area.

3.1 Background and Existing Information

Initial background research was conducted at the Washington Information System for Architectural and Archaeological Records Data (WISAARD) database, managed by the DAHP, as well as City Light's files and records and other online repositories for the development of the Pre-Application Document (PAD) (City Light 2020a) and the Proposed and Revised Study Plans (City Light 2020b, 2021a). These data and additional existing literature gathered and reviewed during the implementation of CR-01 Cultural Resources Data Synthesis for the relicensing (City Light 2021b) were reviewed during the development of this research design to build expectations on the types of cultural resources that may be found and to tailor methods to effectively locate and identify those resources. Some of these background materials are accessible to City Light on its internal Document Management System (DMS) in both confidential and non-confidential sections.

The CR-01 Cultural Resources Data Synthesis provides a detailed review of all existing cultural resources data for the APE (City Light 2021b). Based on compiled data from WISAARD in the Synthesis Study, cultural resources investigations previously completed within the study area include archaeological and historic built environment surveys, archaeological testing and data recovery, monitoring projects and a cultural landscape inventory. However, less than 10 percent of the study area has been surveyed, the majority of the study area is unsurveyed. These previous studies are summarized in the Cultural Resources Data Synthesis Study Report (City Light 2021b). Land management agencies may have additional records documenting cultural resources investigations and findings which have not been uploaded to WISAARD.

According to WISAARD, there are 226 previously recorded archaeological resources within the study area including 220 archaeological sites, 5 archaeological isolates, and 1 archaeological historic district (City Light 2021b). The archaeological resources consist of precontact materials, historic debris and logging or railroad features, and historic power line remnants. The archaeological resources include 18 sites that are listed in the NRHP or have been determined eligible for listing in the NRHP and the NRHP-eligible Upper Skagit River Valley Archaeological District (DT00212) (City Light 2021b). Sixteen of these sites are contributing resources to the Upper Skagit River Valley Archaeological District (DT00212). A total of 193 archaeological resources are unevaluated for listing in the NRHP and 14 resources have been previously determined not eligible (City Light 2021b). These archaeological resources are further summarized in the Cultural Resources Data Synthesis Study Report (City Light 2021b).

According to WISAARD, there are a total of 235 previously recorded historic built environment resources and one built environment historic district within the study area (City Light 2021b). Of the historic built environment resources, 9 are listed in or eligible for listing in the NRHP, 194 are unevaluated, and 32 have been previously determined not eligible for listing in the NRHP (City Light 2021b). The historic built environment resources consist of buildings, structures, single-family residences, hydroelectric facilities, bridges, a locomotive, and the international border. The built environment historic district includes the Skagit River and Newhalem Creek Hydroelectric

Projects (DT00066). These historic built environment resources are further summarized in the Cultural Resources Data Synthesis Study Report (City Light 2021b). As part of the current license, City Light is updating the National Register form for the Skagit River and Newhalem Creek Hydroelectric Projects (DT00066; NR Listing # 11000016) (Erigero 1990; Johnson 2010; NRHP 2011). Any new information available from that update will be incorporated into this study as appropriate.

As part of the Cultural Resources Data Synthesis, published ethnographies were reviewed and consultation with Indian Tribes and Canadian First Nations occurred to identify known ethnographic resources and traditional cultural properties (TCP) within the study area (Curti et al. 2020). These data are discussed in detail in the Cultural Resources Data Synthesis. Properties with this type of significance will be inventoried under the Inventory of Historic Properties with Traditional Cultural Significance. Additionally, archaeological resources may be associated with properties with traditional religious and cultural significance.

In addition, historical General Land Office (GLO) survey plats; Whatcom, Skagit, and Snohomish County atlases (produced by Metsker and Kroll Map Companies); and U.S. Geological Survey (USGS) maps were reviewed to identify landscape modification through time and possible cultural resources features (e.g., homesteads, agricultural fields, mines, trails, rail lines, roads, or trails) within the study area.

Historic aerial imagery and Light Detection and Ranging (LiDAR) data were reviewed to identify areas that may contain cultural resources features (e.g., homesteads, trails, roads). The historic development of the Skagit Hydroelectric Project is visible in the 20th century imagery, and LiDAR data provided information about terrain, which was useful to identify areas for shovel probing.

Further information was obtained, as possible, by interviewing people with relevant cultural resources knowledge of the APE and Project activities that have potential to affect those resources. Parties who provided information included City Light, Washington DNR, Nlaka'pamux Nation Tribal Council, NPS, Sauk-Suiattle Indian Tribe, Stillaguamish Tribe of Indians, Swinomish Indian Tribal Community, and Upper Skagit Indian Tribe.

3.1.1 Archaeological Expectations and Tangible Signatures

A broad range of human activities have occurred across the landscape over millennia, but only some of these are discoverable through the archaeological evidence left behind. Archaeological evidence can augment and corroborate Indian Tribe and Canadian First Nations communities' understandings and can also yield some surprising and fascinating results. Similarly, historic activities may be documented in a written history, yet the archaeological evidence can augment that history, or in some cases, reveal untold, unrecorded stories.

In addition to establishing the likely locations where human activity has occurred based upon known and documented archaeological evidence, written history or mapped features, and types of landforms and features where people have been most drawn to for different activities or resources, the types of lasting tangible evidence which could be left behind are also important to consider when preparing to survey in a particular geographic area. In other words, calibrating to the types of evidence one might find based on the known set of artifacts and feature types for the geographic

area, helps to build an understanding of where evidence could be found on the geographic landscape, and where preservation of evidence is most likely to occur.

The types of known archaeological resources within the APE and near the APE include lithic scatters, historic debris scatters, rockshelters, precontact and historic camps, precontact and historic cairns, precontact and historic features, precontact villages, precontact and historic trails, historic structures, historic homesteads, historic logging features, historic hydroelectric features, and precontact and historic burials. Historic built environment resources include farmsteads, single-family residences, bridges, trails, homesteads, houses, ranger stations, cabins, schools, churches, train stations, and general stores. Similar types of archaeological materials are expected during study implementation.

Preservation of archaeological materials is challenging in the soil types present within the APE. However, cultural materials such as stone artifacts are expected. Locations where preservation of organic materials may occur are in rock shelters or caches, under rock overhangs, and within wet sites and freshwater shell midden matrices. Additionally, certain features may be more visible on the landscape than others, such as house depressions, hearths, and culturally modified trees. It is also expected that places of traditional cultural importance may overlap or incorporate archaeological sites and that the evidence from the Inventory of Historic Properties with Traditional Cultural Significance may be considered relevant to this study and vice versa.

3.2 Research Questions

The study area overlaps a broad geographic area that was important to people throughout the precontact and historic periods and continues to hold significance to Indian Tribes and Canadian First Nations today. Locations of human activity are expressed as tangible archaeological evidence or other tangible clues of traditional cultural practice. Research questions focus on identifying where significant locations of human activity occurred that intersect with current or anticipated Project activities. The study will also seek to identify which of those Project activities or continuing Project practices have the potential to cause adverse effects on archaeological and built environment resources that are eligible for or listed in the NRHP.

General research questions include:

- Are there specific areas where evidence of precontact and historic use is visible? What types of archaeological evidence might be discovered and what type of human activities could be represented? How do these resources inform about indigenous and Euromerican travel routes and settlement in the area?
- Are lithic raw material procurement/transport strategies expressed in the material record? How do these inform about settlement and travel through the study area?
- What are common landform types or conditions where archaeological signatures are typically found in the APE? Are there any landforms or conditions where they are typically not found?
- Are there situations or places where archaeological evidence is more likely or less likely to be preserved as tangible evidence? For example, in acidic soil environments, bone, wood, and other plant remains would decompose fairly rapidly whereas in dry spaces like caverns or within burned features (where materials become carbonized), they can preserve for hundreds

or thousands of years. Wet environments where items may be capped in anerobic conditions is another example of where decomposition is arrested, and preservation can occur.

- How are historic activities (e.g., mining, agriculture) represented across the landscape?
- Where are specific Project activities or the places where Project operations are most likely to put archaeological and historic built environment resources at risk? What types of Project activities are most likely to cause effects to historic properties (e.g., excavating, vegetation/tree clearing, changes in reservoir pool levels)? Where are those types of Project activities occurring or anticipated to occur with continued O&M of the Project (e.g., road maintenance, maintenance associated with Project facilities/housing, reservoir operation, maintenance of transmission towers and corridors, etc.)?
- Where are naturally-caused or human-caused activities that do not stem from the Project operations or activities most likely to trigger a change in operation or maintenance of the Project? For example, channel migration or severe erosional conditions could trigger the need to move a transmission line tower. Moving a tower would involve significant ground disturbance and new visual character in a different location along the transmission line.
- What are the logistical considerations for accomplishing the study (e.g., timing and accessibility/safety, season, special equipment needed, times of year where certain areas of the project are accessible/inaccessible or safe/unsafe)? Are there any techniques or methods most likely to be effective in some areas or for discovery of some types of evidence but not in others? For example, surface survey in heavily vegetated areas is not likely effective for discovery of below ground but could still be effective for above ground historic evidence that could still be visible. Are there rare or less common site types that can be identified through the linear transmission line corridor portion of the survey?
- Did the frequency of sites identified in the high probability areas (HPA), moderate probably areas (MPA), and low probability areas (LPA) correlate with expectations? Were there different factors that should have been considered when developing these predictions?

4.0 METHODOLOGY

The methodology for the study was initially proposed in the study plan (City Light 2021a). The methodology laid out four steps, targeting specific milestones in the FERC relicensing process. These steps included: (1) develop research design and establish the survey areas with the CRWG (which consists of the Section 106 consulting parties); (2) conduct cultural resources field survey; (3) perform post-field documentation and analysis; and (4) report results of the study. As outlined below and in compliance with the study plan, the methodology for completing the study includes field survey of the study area, documentation of archaeological isolated finds or sites and built environment resources encountered. The study also includes NRHP evaluation and assessment of Project-related effects, drafting and finalizing reporting documentation, and curation of any materials collected during the field efforts. The details of this methodology are laid out below.

4.1 Develop Research Design

City Light worked with the CRWG to develop this research design. The draft research design was provided to the consulting parties for review in the RSP on April 7, 2021. Comments on the research design were received from the Nlaka'pamux Nation Tribal Council, Sauk-Suiattle Indian Tribe, and Upper Skagit Indian Tribe, all of which are addressed in this updated research design. This updated research design was provided to the consulting parties for an additional 30-day review and comment period, beginning on August 23, 2021. Comments were addressed (Attachment E), and it was subsequently provided to the DAHP for review. Following any adjustments based on comments received by DAHP, it will be finalized and filed with FERC along with the initial study report (ISR). Confidential portions of this research design will be filed in FERC's privileged files.

The following steps were used to finalize the research design and to refine areas that will be surveyed under the study:

(1) Review DAHP predictability model, which has been condensed into three probability areas (i.e., high, moderate, low) for this study and are viewable as mapbooks and kmz files;

(2) Review and overlay existing survey and resource data from DAHP (previous surveys, archaeological sites/isolated finds and built environment) onto maps and kmz files;

(3) Review relationships between types of landforms and areas or conditions with high incidence of discovery and artifact or archaeological feature preservation;

(4) Review and overlay the Project facilities, roads, and other areas of operations onto maps and kmz files;

(5) Identify the highest potential for O&M activities to affect known and unknown cultural resources;

(6) Refine with detailed geospatial analysis (e.g., slope, large rockfall areas, caches, vertical rock faces, aspect, accessibility and points of access; and soils data); and

(7) Refine with historic records, maps, CR-01 Cultural Resources Data Synthesis Study results, interviews, etc.

4.2 Field Survey of the Study Area

This section describes the areas within the APE where field survey will occur or not occur, along with the methodology that will be implemented during field survey efforts.

4.2.1 Identification of Survey Areas

As outlined above, City Light reviewed the data available through WISAARD, which includes previously recorded cultural resources data and surveys, historic maps, soil data, and the predictive model. City Light also coordinated with the NPS to obtain NPS records for the study area. Additionally, City Light reviewed historical literature/documents, ethnographic data, and other information sources, and consulted with the CRWG to identify locations of specific archaeological concern, and reviewed landform mapping data, where available. Based on these sources, City Light identified high, moderate, and low probability areas for cultural resources sensitivity as described below and shown in the mapbook provided in Attachment A. These probability areas were then overlaid with Project facility locations to determine proposed survey locations. Targeted survey areas include those locations with high and moderate probability and those locations where Project facilities are located.

4.2.1.1 Archaeological Resources

As discussed with the CRWG during the 2019 Study Plan Development Process and 2020-2021 meetings and collaboration, archaeological survey areas will be initially delineated by review of existing historic aerial imagery, historic maps, and LiDAR data within the study area. Additional information from the CR-01 Cultural Resources Data Synthesis was also used to identify survey areas. An archaeological reconnaissance-level pedestrian survey will be conducted throughout the Project transmission line corridor. Other areas in the study area were further refined based on the identification of high, moderate, and low probability areas as described below.

Not all Project activities or effects can be anticipated at this time. City Light commits to full compliance with NHPA Section 106 for all future activities that could have potential Project effects on archaeological resources for the duration of the license.

Identifying Likely Locations for Archaeological Evidence

Examples of likely locations to find precontact archaeological evidence include the following:

- Flat to semi-flat areas with 15 percent slope or less (south-facing aspect can also be key) including river and creek terraces, ridges/ridge toes, saddles, base of slopes, bluffs, natural lake or spring margins, confluence of rivers/streams, alluvial fans
- Areas of identified human activity based on ethnographic and ethnohistoric records that could leave lasting archaeological evidence (e.g., camp sites, villages, ceremonial places; resource gathering areas, identified fishing locales, stream crossings, travel routes, anthropogenic burning)
- Midslope elevation above river channel migration zone (e.g., potential trail/encampment locales, portage areas)
- Accessible rock faces with smooth surfaces (e.g., for rock art)

- Accessible rock faces or bedrock with exposed chert bands or other rock types desirable for flintknapping
- Rocky slopes near other relatively flat topographic features (e.g., places where food caches might be, places near ridge tops where ceremonial sites or pit burials may be)
- Stands of large trees (potential for culturally-modified trees)
- Rock prominences, knolls (or other easily recognizable features during distance travel)
- Areas with large boulders or landslides (i.e., potential overhangs, shelters, burials, food caches)
- Areas where soil is exposed, and erosion has occurred
- Areas next to rivers where large eddies persist
- High preservation environments which intersect likely locations for human activity
- Examples of likely locations to find historic archaeological evidence include the following:
- Flat to semi-flat areas with 15 percent slope or less (South-facing aspect can also be key) including river and creek terraces, ridges/ridge toes, saddles, base of slope, bluffs, natural lake or spring margins, confluence of rivers/streams, alluvial fans
- Midslope elevation above river channel migration zones (e.g., potential trail/encampment locales, portage areas)
- Areas with documented homesteads
- Areas with non-native vegetation (cultivars) typically found around homesteads or other historic buildings or features (e.g., lilacs, iris, roses, non-native domestic fruit trees and shrubs).
- Areas of native vegetation with particular cultural importance and discrete growing conditions (i.e., plant communities which are not ubiquitous) can sometimes signal a pre-contact anthropogenic landscape and may be associated with archaeological evidence
- Areas of historic mining claims
- Historically documented areas of human activity (homesteading, mining, timber harvest, work camps, administrative cabins and facilities)
- Historic travel routes (i.e., trails, roads, railroads)
- Historically documented stream crossings and ferry landings
- High preservation environments which intersect likely locations for human activity

Identification of High Probability Areas (HPA)

HPAs are defined as those with high potential for containing archaeological resources. HPAs were developed through evaluating the existing data and input from the CRWG.

The predictive model available on WISAARD, NPS landform mapping, local topography, soils data, data obtained during the literature review and results of the Cultural Resources Data Synthesis were used to help establish areas with the highest probability for discovery of archaeological evidence. Information also included quantitative data for the distribution of sites

by major landform types in and around Ross Lake (e.g., Mierendorf et al. 1998:78–81; Bob Mierendorf, Upper Skagit Indian Tribe, personal communication with Jennifer Ferris, HDR, July 23, 2021; Kimberly DiCenzo, NPS, personal communication with Andrea Weiser, City Light, and Jennifer Ferris, HDR, July 21, 2021).

Completing Survey in HPAs

Completing archaeological resources surveys in HPAs will be prioritized based on three categories: existing Project effects (i.e., where Project O&M activities are known to occur); potential Project effects (i.e., where Project O&M activities may occur); and no current planned activities or no Project effects. Each of these categories are briefly described below. Surveys within these categories are dependent upon ability to access locations due to topography, inundation, or other safety concerns. Those geographic areas that are incurring Project effects will be surveyed. City Light will work with their consultant team and the CRWG to identify areas where Project activities are known to be occurring that could be affecting historic properties, if any such properties exist in these areas.

(1) Existing Project effects

HPAs that are being affected or have potential to be affected by Project O&M in the new license term will be surveyed. Areas of high potential for Project effects were derived from information collected during the current license period and projections for Project operations in the new license term. Information from concurrent relicensing studies that focus on Project effects on other types of resources (e.g., fisheries, wildlife, recreation, plant communities, water, and air quality, and operations modeling) will aid in formulating a basis for setting priorities for cultural resources surveys that match the scope of the Project's O&M. For example, repeated or periodic maintenance or use could cause direct effects related to ground disturbance where there is high potential for archaeological sites. Sedimentation and erosion along reservoir or river shorelines due to wave action or changes in hydrologic flow could directly affect shorelines and adjacent areas with known or high archaeological potential. Project activities involving ground disturbance could include augmentation of side channel habitat for salmon, vegetation removal, planting, or fencing installations on lands left largely dormant for wildlife.

Areas of direct effects are those locations where Project O&M cause physical, visual, auditory, and/or atmospheric changes at the same time and place with no intervening cause. Examples are provided below. Most examples include a buffer of 5 to 20 m depending upon the activity to allow for any potential impacts beyond the immediate footprint.

- Ground disturbing work associated with Project O&M.
- Widening or maintenance outside the footprint of existing study roads plus a 20-meter (m) (66 feet [ft]) buffer from both shoulders of roads to be widened or maintained.
- Development of new staging/stockpiling/maintenance yards or expansion beyond the existing footprint plus a 20 m (66 ft) buffer.
- Development of new access trails for maintenance work or maintenance outside the existing footprint plus a 20 m (66 ft) buffer from both shoulders of trail.

- Replacement or moving transmission towers – survey extent would cover the footprint of the new tower pad plus 20 m (66 ft) buffer, plus staging area and access road as outlined above.
- Hazardous fuel reduction (i.e., vegetation clearing) plus a 20 m (66 ft) buffer around location of reduction.
- O&M work on Project facilities plus a 10 m (33 ft) buffer.
- Use/maintenance in existing footprint of study roads plus a 5 m (16 ft) buffer from both shoulders of roads.
- Use of existing staging/stockpiling/maintenance yards plus a 5 m (16 ft) buffer.
- Maintenance in existing footprint of existing access trails plus a 5 m (16 ft) buffer from both shoulders of trail.
- Maintenance in existing footprint of transmission line right-of-way (ROW) plus a 76 m (250 ft) buffer from both sides of outside shoulders.

(2) Potential Project effects

HPAs where there is immediate potential for Project-related effects to occur will be surveyed. Potential for Project effects will be informed by O&M, emergency response, and information regarding Project activities gathered from other relicensing studies. Examples of these areas would include any new/unexpected fluctuations in the flood storage area of Project reservoirs any construction related to transmission line structure replacements, ground-disturbing maintenance at facility locations (e.g., vegetation management, road maintenance, etc.).

(3) No current planned activities or no Project effects

This study will focus on HPAs that are incurring or will likely incur Project effects.

HPAs that are not incurring Project effects will not be prioritized for survey. However, City Light will survey these as feasible, and management of these areas will be outlined in the HPMP for the new license.

Over the course of the new license period, individual undertakings not anticipated during relicensing would follow the standard Section 106 process and can be surveyed at the time an unanticipated undertaking is proposed.

Identification of Moderate Probability Areas (MPA)

Areas with moderate probability for containing cultural resources were identified through evaluation of source materials (i.e., known archaeological, ethnographic and ethnohistoric data and former survey results, archaeological expectations, and types/nature of archaeological evidence most likely to be found given the body of archaeological expectations).

Within the transmission line portion of the study area, MPAs will be pedestrian surveyed in full. In other portions of the study area, MPAs will be pedestrian surveyed where existing and anticipated Project effects may occur and will not be surveyed where Project effects do not occur and are not anticipated. Select MPAs are included in the subsurface survey areas shown in Attachments A and B.

MPAs will be surveyed where they incur Project effects. Areas with moderate probability where there are no current or anticipated Project effects will not be surveyed. Over the course of the new license period, individual undertakings not anticipated during relicensing would follow the standard Section 106 process and can be surveyed at the time an unanticipated undertaking is proposed.

Identification of Low Probability Areas (LPA)

Areas with low probability for containing cultural resources were identified during the development of the research design.

Within the transmission line portion of the study area, LPAs will be pedestrian surveyed in full. In other portions of the study area, LPAs will only be pedestrian surveyed where existing and anticipated Project effects may occur and will not be surveyed where Project effects do not occur and are not anticipated.

4.2.1.2 Historic Built Environment Resources

Age of historic built environment resources, i.e., whether they are 40 years old or older, and whether they have any specific age information, will be determined using existing records and construction dates.

All historic built environment resources within the study area, estimated to be 40 years old or older, will be identified and reviewed to help prioritize fieldwork locations for the historic built environment survey associated with this study. Some historic built environment resources will already have recent records (i.e., within the last 10 years) which will not need to be updated as part of this study. For example, the Skagit River and Newhalem Creek Hydroelectric Projects historic district (DT0066) nomination form is currently being updated in 2021 and 2022 as part of the current license requirements outlined in the HRMMP. This study will coordinate with the National Register nomination form update team and summarize historic built environment document results regarding resources already managed in the HRMMP. This study will also support field efforts associated with the historic district, as appropriate.

Not all Project activities or effects can be anticipated at this time. City Light commits to full compliance with NHPA Section 106 for all future activities that could have potential Project effects on historic built environment resources for the duration of the license.

4.2.2 Cultural Resources Survey Implementation

City Light and/or its consultant and subconsultants will acquire necessary archaeological permits and rights-of-entry to implement the study. City Light's consultant and subconsultants will conduct cultural resources surveys in the prioritized areas for both archaeological and historic built environment resources in compliance with the Washington State Standards for Cultural Resources Reporting (DAHP 2020), NPS guidelines, Archaeological Resources Protection Act (ARPA), Organic Act, and Section 106 of the NHPA. The study will be overseen by cultural resources specialists who meet the Secretary of the Interior's (SOI) Professional Qualifications Standards for archaeology and architectural history and/or historic architecture (36 CFR § 61), as appropriate.

As noted in Section 1.1 of this research design, the study area crosses lands owned or managed by City Light, North Cascades National Park, Sauk-Suiattle Indian Tribe, Skagit County, Snohomish County, USFS, WDFW, Washington DNR, Washington State Parks and Recreation Commission, Whatcom County, other municipalities and various private landowners. The appropriate permits will be obtained for each landowner or manager, as applicable (see Table 4.2-1).

Table 4.2-1 List of permits for implementing the study.

Landowner/Land Manager	Type of Permit
City Light	N/A
North Cascades National Park	ARPA permit (previously issued; PWR-1979-16-WA-06 North Cascades National Park)
Private (Various)	Right of Entry
Sauk-Suiattle Indian Tribe	To be determined
Skagit County	N/A
Snohomish County	N/A
U.S. Forest Service	ARPA permit
WDFW	Research Permit, Right of Entry
Washington DNR	Land Use License Application
Washington State Parks and Recreation Commission	To be determined
Whatcom County	N/A

Given that not all of the lands within the study area are public lands and not all the survey area is within existing easements or rights-of-way held by City Light, City Light will attempt to gain access to privately-owned lands in the study area where survey is prioritized; however, access may not be granted. If access is not granted to privately-owned lands, then survey work will not be conducted in those areas. Unsurveyed lands, including the reasons why they were not surveyed, will be documented in the study reports as described in Section 4.4, and subsequent management of these areas will be outlined in the HPMP for the new license.

Areas where high potential for historic properties intersects with potential Project O&M activities are prioritized for survey. Logistics, seasonal timing, and safety are considerations for prioritizing timing of surveys in different areas throughout the study period. Representatives of Indian Tribes and Canadian First Nations have been invited to participate in the cultural resources surveys as either paid technicians or volunteer observers.

Any discovery of bone will be ascertained by a professional to differentiate between potential human and non-human remains. If human remains are suspected or identified, work at that location will cease immediately, and the unanticipated discovery plan will be followed to protect the find (Attachment C). Such discoveries will be treated with dignity and respect while next steps are determined through consultation with FERC, DAHP, affected Indian Tribes and/or First Nations, and applicable agencies.

4.2.2.1 Archaeological Resources

The archaeological survey will be implemented as described below. It will be completed in two field seasons, as feasible. This study will not duplicate previous or ongoing work, for example, implementation of the ARMMP which is undertaken as part of the current Skagit Project license, but will summarize findings from other efforts. Archaeological survey will be conducted using surface and subsurface techniques for archaeological discovery.

To prioritize potential areas to conduct survey, archaeological records were reviewed to find patterns in overlap between known archaeological resources and topographic features. Project-related activities were also reviewed to aid in selecting locations for survey which are most likely to incur Project-related effects. The transmission line corridor will be surveyed in full, where it can be safely accessed and where landowner permission is granted.

Reconnaissance-level surface survey (i.e., pedestrian survey) will be used initially to identify cultural resources and note observations of Project effects. More intensive survey will be initiated in areas where additional investigation is necessary such as to identify site boundaries or Project effects. Based on desktop review, areas were selected for subsurface survey where documented archaeological resources, landforms with potential archaeological sensitivity, and potential for Project effects intersect.

Pedestrian Survey

A pedestrian survey will be conducted by archaeologists walking on foot and visually inspecting the ground surface. The pedestrian survey will be conducted in safely accessible areas of the HPA, MPA, and LPA that are prioritized for survey as well as along the entire Project transmission line corridor (including low probability areas) within the study area (Table 4.2-2; Attachments A and B).

Accessible survey areas in Ross Lake, in particular, will be dependent upon water levels at the time fieldwork is conducted. Fieldwork will be timed to coincide with the lowest predicted drawdown periods of each year. The proposed pedestrian survey areas in Ross Lake are based upon available information. The upper extent is the normal maximum water surface elevation (1,608.26 feet North American Vertical Datum [NAVD 88; 1,602.5 feet City of Seattle datum (CoSD)]) plus 2.5 additional feet for potential surcharge elevation to the top of the spill gates if needed for flood storage (see City Light 2020a Section 3.5.1.1 page 3-49). In addition, the survey will extend into the lower extent of the High Ross Inundation Zone in a few key areas to enable surveyors to observe signs of recreation activities adjacent to and within the reservoir. The low elevation extent used for delineation of the proposed pedestrian survey areas is based upon the average low drawdown elevation in Ross Lake of 1530 feet, using the City Light datum. This average low has been used as a planning tool to delineate areas reasonably likely to be accessible (i.e., not inundated) during pedestrian survey in the next two field seasons. If Ross Lake elevations below 1,530 feet CoSD can be reached at the time of fieldwork, they will be prioritized for survey. Diablo Lake and Gorge Lake fluctuations are minimal compared to Ross Lake but will influence survey scheduling and accessibility,

Areas throughout the transmission line corridor will be surveyed except where City Light does not conduct any activities and where landowner permission could not be obtained for the study are excluded (e.g., areas where the transmission line spans rivers or ravines).

Roadside and boat reconnaissance will be completed prior to survey along the study area as feasible to ground-truth access routes and potential areas for survey (i.e., steep vs. gently sloping areas, minimal to dense vegetation, etc.) and view areas suggested for shovel probing, which are based on desktop review and are shown as polygons outlined in blue in the attached mapbooks (Attachments A and B). Roadside and boat reconnaissance will also be used to identify areas that would be suitable for visual assessment using spotting scopes/binoculars. Boats will be used to access shorelines along the Skagit River. Surveyors will observe the riverbanks for exposed profiles and HPAs to stop and survey.

HPA/MPA survey areas will include unsurveyed lands, as well as previously surveyed lands where the date of survey is older than 10 years. The survey will be completed as follows:

- Parallel transects will be set at intervals of 20 m or less depending upon survey width, topography, and sensitivity. Irregular transects may be necessary due to steep, uneven terrain and to avoid natural hazards in the survey area.
- Anchor points on transects will be recorded by a hand-held Global Positioning System (GPS) unit that achieves submeter accuracy in the field. For areas where submeter accuracy cannot be achieved using GPS[2], alternate traditional mapping methods will be used to achieve the greatest accuracy possible.
- Transects will be marked by hand on field maps and will be digitized later for inclusion in the survey results to illustrate survey coverage in the technical report which will document the study results as described in Section 4.4 of this research design.
- Overview photographs will be taken of all survey areas. Surrounding vegetation and ground visibility will be documented and representative examples will be photographed.
- Unsafe, steep slopes will not be surveyed. Generally, slopes greater than 30 degrees may be unsafe to traverse. Slopes of 30 to 40 degrees will be considered for survey or access by the Field Director based upon visual inspection, local conditions, and safety. Survey will also exclude areas that are too vegetated to safely survey or are inundated.
- Slopes that are not surveyed will be visually assessed from above or below the slope as feasible.

[2] Satellite reception for the handheld GPS units may be limited in the study area due to the surrounding steep terrain and heavy tree cover.

Table 4.2-2 Areas targeted for pedestrian survey as part of Cultural Resources Survey.

Probability Area	Existing Project Effects	Anticipated Project Effects [1]	No Project Effects Anticipated
HPA	Yes	Yes	Yes
MPA	Yes	Yes	No[2]
LPA	Yes	Yes	No[2]

1 The potential flood storage area above Ross Lake (i.e., 2.5 feet above normal maximum water surface elevation) will be surveyed as will the other portions of the High Ross Inundation Zone which show particular potential for recreation effects where archaeological sites have been recorded.

2 The transmission line portion of the study area will be surveyed in full, which includes MPAs and LPAs regardless of whether Project effects are anticipated. The High Ross Inundation Zone above normal maximum water surface elevation of Ross Lake will not be surveyed except in areas as described above.

Subsurface Survey

A subsurface archaeological survey will be conducted within HPAs and MPAs that are prioritized for survey as described above and summarized in Table 4.2-3 and shown in Attachments A and B. Any additional subsurface archaeological survey will also incorporate the results of on-the-ground inspection during surface survey. Surveyors will ground-truth the shovel probe areas for feasibility. These proposed shovel probe locations are shown as polygons outlined in blue in the attached mapbooks (Attachments A and B). Additional areas may be identified during the field survey and will be shovel probed at that time. The subsurface survey will occur concurrently with and after the pedestrian survey, depending upon the location. The subsurface survey will include the elements outlined below. If a subsurface survey is unable to be completed during the study period, in these targeted areas, further intensive level survey will be provided for in the HPMP.

- Subsurface probes using a shovel or auger will be placed at the discretion of the Field Director(s). The shovel probes will be placed in approximate 20 m intervals as possible where sediments are not inundated and in areas that are not too steep. Shovel probe transect intervals may be tightened in areas of higher probability.
- Small diameter soil cores (e.g., an Oakfield soil probe with < 2 cm bit diameter) may be used in some areas to help refine where subsurface probes could yield subsurface archaeological data, by identifying whether buried intact sediments are or are not present.
- Shovel probes will measure approximately 40–50 centimeters in diameter, will be excavated to the maximum extent reasonably possible (generally 1 m), and observations on soil types and stratigraphic changes will be described.
- Some of the shovel probes may be supplemented by hand-operated bucket auger probes to reach depths not feasible with shovel alone, if possible, and at the discretion of the Field Director(s). It is expected that shovel and auger probes together may reach a maximum depth of 2 m.
- Shovel probe excavation will be terminated if glacial deposits or impenetrable materials (e.g., cobbles or roots) are encountered.
- All materials excavated in shovel probes will be screened through ¼ inch mesh.

- A sediment profile will be recorded for each of the excavated probes using standard field methods (see Thien 1979). All probes will be photographed.
- The locations of all probes will be recorded on a survey map and with a GPS unit that achieves submeter accuracy in the field, or otherwise recorded if satellite reception is poor.
- Subsurface probes using a shovel or auger will be used to identify presence/absence of archaeological sites and to define site boundaries. No excavations (e.g., testing or data recovery) will occur within previously recorded archaeological sites as part of the survey.
- Newly identified site boundaries will be delineated by the excavation of shovel probes in cardinal directions 20 m from the farthest identified artifacts. If those shovel probes are negative, then additional probes will be excavated at 10 m or 5 m (to be determined by recovery) away from the farthest identified artifacts. If the 20 m probes are positive for cultural materials, then another 20 m buffer will be added and additional probes will be excavated in cardinal directions.
- For previously recorded sites, no shovel probes will be excavated within 25 m of known site boundaries.

A subsurface survey along the transmission line corridor will focus on locations of proposed or anticipated Project-related activities, such as repairs to City Light owned/maintained roads or anticipated transmission line tower relocations. Seven such locations have been identified and will be shovel probed in the first study season. These seven locations are shown in the attachments (Attachments A and B). Additional locations suitable for subsequent shovel probing along the transmission line will be identified during the pedestrian survey and excavations may occur in the second study season, if time allows.

Table 4.2-3 Areas targeted for subsurface survey as part of Cultural Resources Survey.[1]

Probability Area	Existing Project Effects	Anticipated Project Effects	No Project Effects Anticipated
HPA	Yes	Yes	Yes
MPA	Yes	Yes	No
LPA	No	No	No

1 Subsurface survey will not be conducted within previously recorded archaeological site boundaries or in the High Ross Inundation Zone above the potential flood storage (i.e., 2.5 feet above high normal maximum water surface elevation of Ross Lake).

Site Recordation and Collection

A map showing the locations of previously recorded archaeological resources within the study area, associated with this research design, is exempt from public disclosure (Attachment D). Locational information related to archaeological resources is confidential and should not be released to the public, therefore the attachment is confidential and will have limited distribution and will be filed in FERC's privileged files.

In the State of Washington, an archaeological site is defined as a geographic locality that contains two or more artifacts and/or features of human construction (DAHP 2020). An archaeological site may span multiple time periods and could include multiple components consisting of historic and

precontact resources, as well as associated historic built environment resources. An isolated artifact consists of a single item without associated features or deposits (DAHP 2020). Newly observed and revisited archaeological resources will be recorded on State of Washington Site/Isolate Inventory Forms. Site/Isolated Inventory Forms will be updated for all revisited archaeological resources. Documentation will be updated to include all newly identified cultural materials and features, and will report on resource condition, and integrity as well as any materials or features that are no longer visible or present. All newly discovered archaeological resources estimated to be 40 years old or older within the survey areas will be documented during pedestrian and subsurface survey. Previously recorded archaeological resources within the survey areas which are lacking essential information or where substantial changes have occurred since the resource was last documented, will be revisited as part of the pedestrian survey. Records will be updated as described in DAHP guidelines (DAHP 2020:37).

In addition, all archaeological resources within the study area will be documented in a master list. The master list will include the site/isolate trinomial, field ID, location, ownership, right-of-entry, age, site type, initial assessment of seven aspects of integrity, State Historic Preservation Officer (SHPO) eligibility status, field recorder recommendation of eligibility, digital photo, date recorded, name of field recorder, and any previous site forms.

No collection will occur on private, county, or state lands in accordance with the Revised Code of Washington. Artifact collection on federal lands will only occur if authorized by appropriate permits from federal land managing agencies (e.g., NPS and USFS). The ARPA permit issued by the NPS to City Light includes limited collection of artifacts that are uncovered during excavation and those that are at risk of being illegally collected. Any collected artifacts will be curated in accordance with federal and state laws, as applicable (see below).

All artifacts that are not being collected will be left on site or in shovel probes will be noted on field forms. The artifacts will be recorded and photographed in the field and their locations will be noted.

- For NPS lands, identified artifact(s) will be:
  - Left on the ground unless they are at risk of looting, erosion, or if they are temporally diagnostic.
  - All precontact artifacts identified in shovel probes will be collected.
  - Diagnostic historic artifacts identified in shovel probes with unique identifiers (e.g., maker's marks) will be collected. If there are multiple artifacts of the same type (e.g., bottles of the same make), an approximate 10 percent sample of the artifact type will be collected.

All collected artifacts will be noted, bagged, tagged, and inventoried prior to transport off site.

Historic artifacts identified in shovel probes will not be collected if they are 1) non-diagnostic (e.g., glass fragments without maker's marks) or, 2) are datable but do not have unique identifiers (e.g., bricks and nails). They will be recorded, catalogued, and photographed in the field. After recordation, they will be reburied in their respective shovel probe(s). Descriptive and metric attributes for all artifacts that are left in the field will be recorded on field forms. Photographs will

be taken for those artifacts left in the field with scale and date stamps, if available. All photographs will be noted on a photo log. Representative photographs will be taken for those artifact types that have many samples at a given site, such as historic glass fragments, fire-modified rock, or lithic debitage. The locations of any artifacts left on site or in shovel probes will be noted on field forms.

The condition of each resource will be documented to assist in integrity assessments that will occur following the field effort. Documenting the condition of each resource will include identifying Project and non-Project effects, which will also be used to facilitate future management recommendations. Modern recreation trails and roads in and adjacent to archaeological resources will also be noted for subsequent assessment of effects. The presence of modern recreation trails and roads have the potential to increase risk of damage to archaeological resources due to accessibility, frequent use, maintenance, or other Project-related effects. See Section 4.3.2 of this research design for further discussion of identifying Project effects.

4.2.2.2 Historic Built Environment Resources

The historic built environment resources in the study area including buildings, structures, objects, historic districts/sites and cultural landscapes will be surveyed at the reconnaissance-level as follows. Historic built environment resources will be identified in the study area based on existing records and construction dates.

All historic built environment resources estimated to be 40 years old or older within the study area will be documented in a master list. Resources managed in the HRMMP (City of Seattle 1991) will be included as necessary. The master list will include the historic property ID, assessor parcel number (APN), address, ownership, right-of-entry, date of construction, initial assessment of integrity, SHPO eligibility status, field recorder recommendation of eligibility, digital photo, date recorded, name of field recorder, and if there is an associated historic property inventory (HPI) form.

For those historic built environment resources that have not been previously recorded or updated within the last 10 years and are located within the study area, HPI forms will be completed at the reconnaissance level.

Where Project-related activities occur (e.g., vegetation management, road improvement, infrastructure upgrades, etc.), enough detail will be documented on HPI forms to provide a recommendation regarding NRHP eligibility.

Intensive-level survey and NRHP nominations are not part of this study. The architectural historian's recommendations based on the reconnaissance-level survey will be used to inform whether any further evaluation is necessary in the future.

The survey will include an analysis of the physical characteristics of the historic built environment resource's exterior, including an architectural description of those characteristics, including but not limited to:

- Building plan, size, and layout;
- Foundation;

- Form type;
- Exterior cladding;
- Roof type and material;
- Structural system;
- Windows and entrances; and
- Other pertinent physical characteristics, features, and materials.

Each resource will be photographed and address or location will be recorded on a map with a hand-held GPS unit that achieves submeter accuracy in the field. For areas where satellite reception is poor for effective use of GPS, alternate traditional mapping methods will be used to achieve the greatest accuracy possible.

Physical descriptions will be supported by existing historic photographs and maps, ownership history, and historic use if/when such records are available.

This study will not duplicate previous or ongoing work but will summarize findings from other efforts, as appropriate, such as City Light's ongoing efforts related to the HRMMP requirements under the current FERC license.

4.3 Post-field Documentation and Analysis

Post-field documentation and analysis will consist of completing archaeological site forms and HPI forms, data/artifact analysis, and development of resource and report maps, and cultural contexts for identified archaeological and historic built environment resources. Identified resources will also be evaluated for NRHP eligibility, if possible, and potential Project effects will be preliminarily assessed. All collected artifacts will be analyzed in the laboratory. Descriptive and metric attributes will be collected and included in the study reports described in Section 4.4 of this research design. The remainder of this section outlines the process for evaluating NRHP eligibility and identifying and assessing Project-related effects.

4.3.1 Evaluating NRHP Eligibility

Recommendations of NRHP eligibility will be developed based on the contexts, background information, integrity, and field data, as feasible. Resources listed in the NRHP include districts, sites, buildings, structures, and objects that are significant in American history, prehistory, architecture, archaeology, engineering, and culture and that possess integrity of location, design, setting, material, workmanship, feeling, and association.

The NRHP is maintained by the NPS on behalf of the SOI. The DAHP administers the statewide NRHP program under the direction of the Washington SHPO, located in Olympia, Washington. The NPS has developed NRHP Criteria for Evaluation (36 CFR § 60.4) to guide the evaluation of cultural resources that may be either listed in or eligible for the NRHP. Section 106 requires the determination of eligibility for the NRHP as a tool for identifying significant historic properties. If a property is determined eligible for the NRHP under the Section 106 process, it does not automatically result in the listing of the property in the NRHP. As described in the NPS's National

Register Bulletin (NRB) 15 "How to Apply the National Register Criteria for Evaluation," the four criteria used to determine eligibility are that the property (NPS 1997):

- Criterion A: Is associated with events that have made a significant contribution to the broad patterns of our history; or
- Criterion B: Is associated with the lives of persons significant in our past; or
- Criterion C: Embodies the distinctive characteristics of a type, period, or method of construction or represent the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; or
- Criterion D: Has yielded, or may be likely to yield, information important in prehistory or history.

NRB 15, "How to Apply the National Register Criteria for Evaluation" and NRB 36, "Guidelines for Evaluating and Registering Archaeological Resources," provide guidance on evaluating resources for listing in the NRHP (NPS 1997, 2000). For a property to be eligible under Criteria A, the property must be associated with an event, a series of events, or a trend important in the defined historic context of the property. The event or trends must clearly be important within the associated context, which can mark an important moment in American prehistory or history or a pattern of events or a historic trend that made a significant contribution to the development of a community, a state, or the nation (NPS 1997:12). To be considered for listing under Criterion B, a property must be associated with individuals whose specific contributions to history can be identified and documented. Such persons "significant in our past" are those individuals whose activities are demonstrably important within a local, state, or national historic context (NPS 1997:14). Criterion C applies to properties significant for their physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork (NPS 1997:17). Under Criterion C, a property must meet at least one of the requirements listed above, and described as follows. The first requirement, that properties "embody the distinctive characteristics of a type, period, or method of construction," refers to the way in which a property was conceived, designed, or fabricated by a people or culture in past periods of history (NPS 1997:17). "The work of a master" refers to the technical or aesthetic achievements of craftsman or architect (NPS 1997:17). "High artistic values" relates to the expression of aesthetic ideals or preferences and applies to aesthetic achievement (NPS 1997:17). The last requirement under Criterion C, "resources that represent a significant and distinguishable entity whose components may lack individual distinction" refers to districts defined under Criterion C (NPS 1997:17). Lastly, to be considered for listing under Criterion D, a property must have the potential to answer, in whole or in part, research questions that contribute to our understanding of human history (NPS 1997:21). Importantly, this criterion necessitates that those questions are answered through the actual physical materials of cultural resources (NPS 1997:21). Archaeological sites are primarily assessed under Criterion D though may qualify under the other criteria.

In addition to these criteria, for a property to be determined eligible for the NRHP, it must continue to possess sufficient physical characteristics that reflect its historical significance, defined as "integrity" (NPS 1997). Integrity is the ability of a property to convey its significance whereby historic properties either retain integrity or they do not. The NRHP criteria recognize seven aspects or qualities that, in various combinations, define integrity. There are seven aspects of integrity, as listed below:

- Location
- Design
- Setting
- Materials
- Workmanship
- Feeling
- Association

To retain historic integrity, a property will always possess several, and usually most, of these aspects. The significance of a property must be established before historic integrity can be assessed. As outlined in NRB 15 (NPS 1997), the steps in assessing integrity are:

- Define the essential physical features that must be present for a property to represent its significance;
- Determine whether the essential physical features are visible enough to convey their significance;
- Determine whether the property needs to be compared with similar properties; and
- Determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the property being nominated and if they are present. Ultimately, the question of integrity is answered by whether or not the property retains the identity for which it is significant.

Amendments to Section 106 of the NHPA specify that properties of religious and cultural significance (including TCPs) may be determined to be eligible for inclusion in the NRHP. In carrying out their responsibilities under Section 106, federal agencies are required to consult with any Indian Tribe that attaches religious or cultural significance to any such properties (NRB 38 [Parker and King 1998]). These types of properties will be studied under CR-04 Inventory of Historic Properties with Traditional Cultural Significance.

If additional fieldwork is required to complete recommendations of NRHP eligibility, the resource(s) would be considered unevaluated for the purposes of this study. If Project effects are anticipated on any unevaluated resources, those resources will either be evaluated for NRHP eligibility at that time or future assessment of effects will be addressed under the HPMP.

4.3.2 Identifying and Assessing Effects on NRHP Eligible Properties

Potential effects that may be associated with this undertaking include any Project-related effects associated with the day-to-day O&M of the Project and any new activity proposed under the new license. Types of effects may include direct (i.e., the result of Project activities at the same time and place with no intervening cause), indirect (i.e., the result of Project activities later in time or further removed in distance but reasonably foreseeable), and/or cumulative (e.g., caused by a Project activity in combination with other non-Project past, present, and foreseeable future activities) (ACHP 2019). City Light will document existing conditions, ongoing effects, and potential effects on historic properties.

Section 106 of the NHPA requires lead federal agencies to consider direct, indirect, and cumulative adverse effects of their undertakings on historic properties. In this case, the undertaking is FERC's issuance of a new license for the Project. As required under 36 CFR 800.5, and as delegated by FERC, City Light will identify and assess, in consultation with Section 106 consulting parties, any adverse effects on historic properties or potential historic properties resulting from the Project. 36 CFR § 800.5(a)(1) states that:

> An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.

City Light will document existing conditions, ongoing effects, and potential effects on historic properties. If evaluations of Project effects are not feasible, a future assessment of effects will be provided for under the HPMP.

4.4 Report

The results of the survey and post-field documentation and analysis will be presented in two study reports that comply with Section 106 of the NHPA, NPS, and DAHP reporting guidelines. Archaeological resources data will be reported upon separately from historic built environment resources due to confidentiality for sensitive archaeological resources. A description of any archeological features or artifacts unearthed during the course of this study, including the depth and characteristics of the find, will be included in a confidential document. Due to confidentiality requirements for archaeological site locations, distribution of the reports will be restricted as per RCW 42.56.300. The archaeological study report(s) will be filed with FERC as privileged and confidential.

Initial assessments of Project effects on historic properties and NRHP eligibility recommendations will be included in the reports, as feasible. The initial assessment of Project effects will include discussion of ways to avoid or minimize adverse effects on NRHP-eligible or listed cultural resources (i.e., historic properties), which may include treatment, such as site protection, fencing, and/or monitoring. The site and HPI forms will be included as appendices in the reports, as appropriate. The findings in the reports will be used to inform the development of the HPMP for the new license. If evaluations of NRHP eligibility and Project effects are not feasible, the reports will provide recommendations regarding ways to accomplish those evaluations. Unevaluated resources will be treated as if they are historic properties until or unless they are formally evaluated for the NRHP.

The study reports will include, at a minimum, an introduction, cultural and natural contexts, methodology, results of the field surveys and post-field documentation and analysis, as described above, and any management recommendations. The draft reports will be provided to the consulting Indian Tribes and Canadian First Nations, NPS, USFS, and other agencies as appropriate for review and comment. After comments are addressed, the revised draft reports will be provided to

DAHP for review and comment in order to seek concurrence on NRHP eligibility evaluations. The final reports will be filed with FERC; the archaeological reports will be submitted as privileged and confidential.

4.5 Curation

Collected artifacts will be curated at one of several facilities, based upon the landownership status. All collected artifacts from within the North Cascades National Park will be prepared for curation at the NPS curation facility in Marblemount according to the issued ARPA permit. City Light will coordinate with additional federal land managers regarding disposition of collected artifacts as needed. Curation will comply with the federal standards as presented in 36 CFR Part 79, Curation of Federally-owned and Administered Archaeological Collections. Cataloged specimens will be housed in archival clear, self-sealing polyethylene bags with a minimum thickness of 4 mil. Every cataloged item will be accompanied by a bag label listing the bag contents and provenience information. The bag labels will be printed on archival acid-free and lignin-free paper. All associated documentation related to the field effort and final report will be submitted with the specimen collection for permanent storage at the repository.

No artifacts will be collected from private, county, or state lands.

5.0 EXPECTED RESULTS

City Light anticipates that a substantial body of precontact and historic archaeological resources and historic built-environment resources will be recorded as part of this study. Much of the APE has not been previously surveyed so these results will help to fill data gaps within this geographic region and help to inform development of a HPMP for the new license.

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CULTURAL RESOURCES SURVEY RESEARCH DESIGN

ATTACHMENT A

STUDY AREA MAPBOOK SHOWING PREDICTIVE MODEL

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- Major Facilities
- Study Area
- Shovel Probe Areas
- Not Planned for Survey During the Study

DAHP Predictive Model

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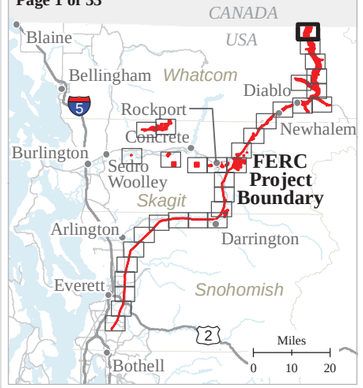
Page 1 of 33



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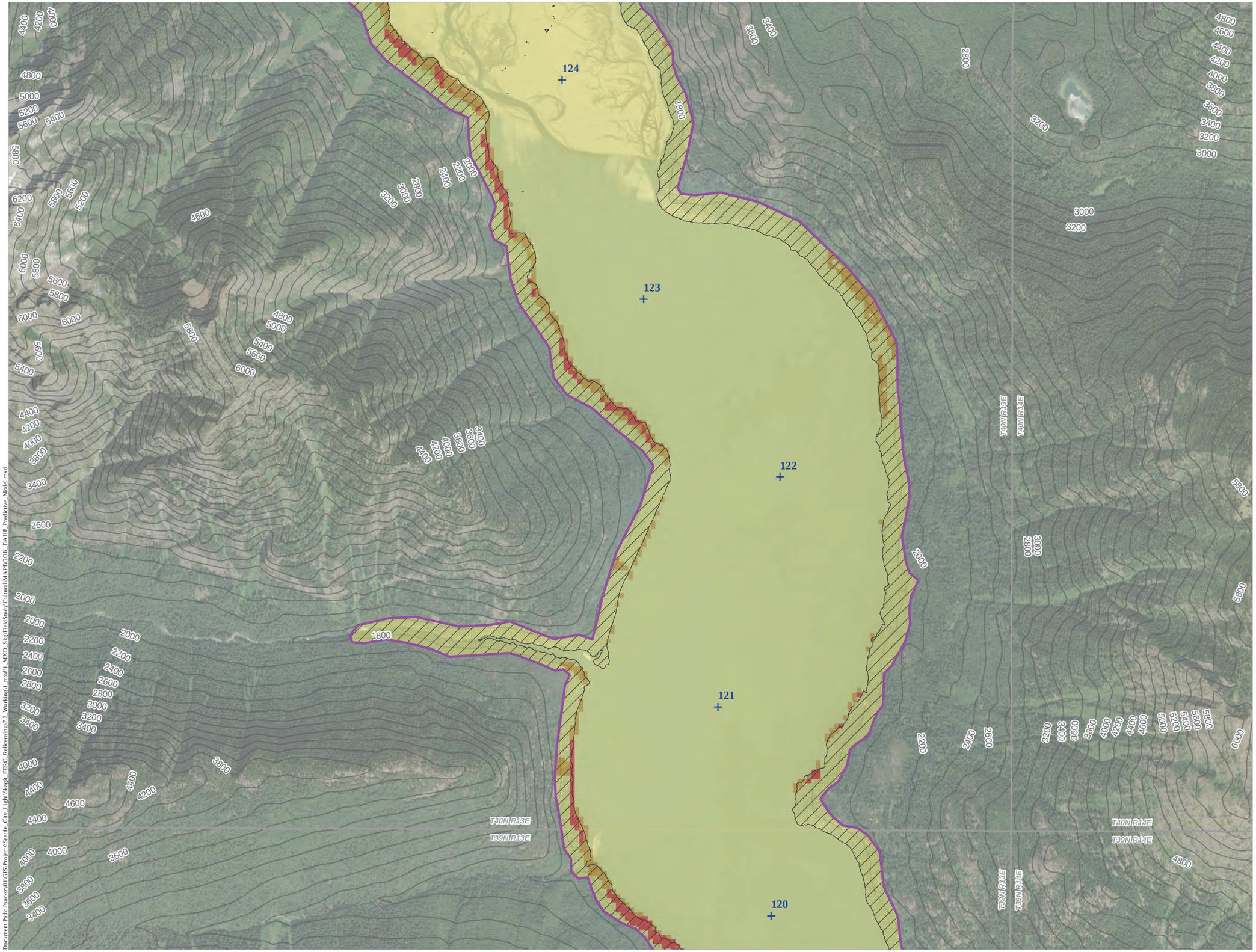

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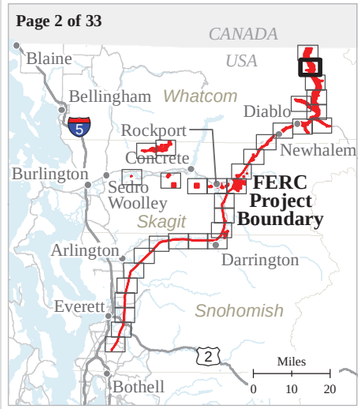

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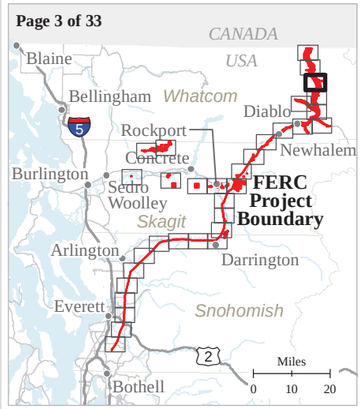

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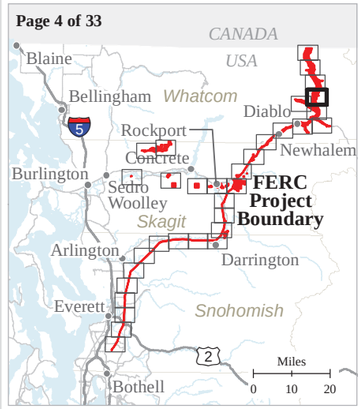

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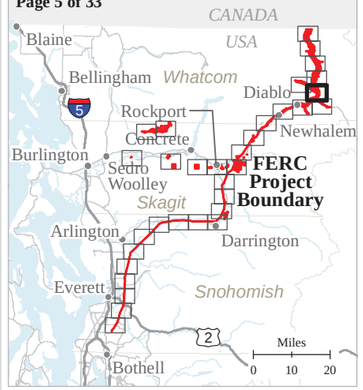

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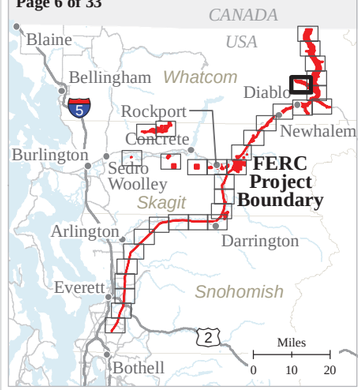

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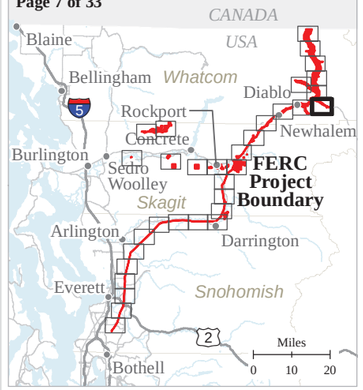

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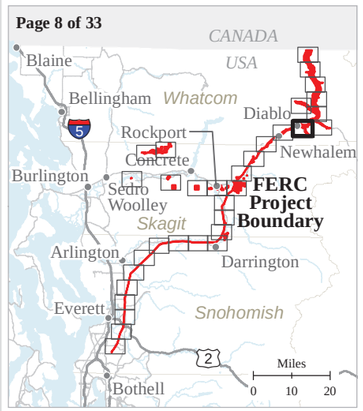

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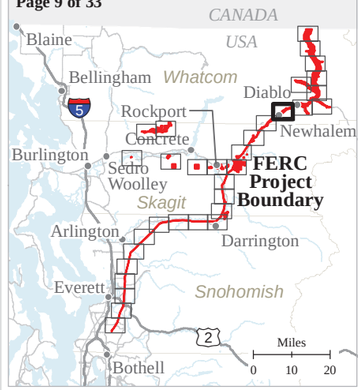

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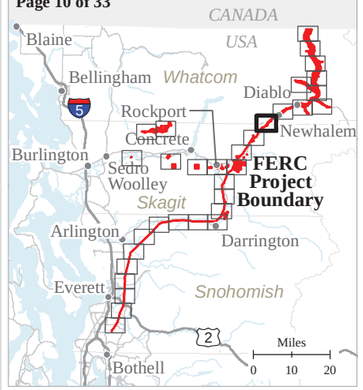

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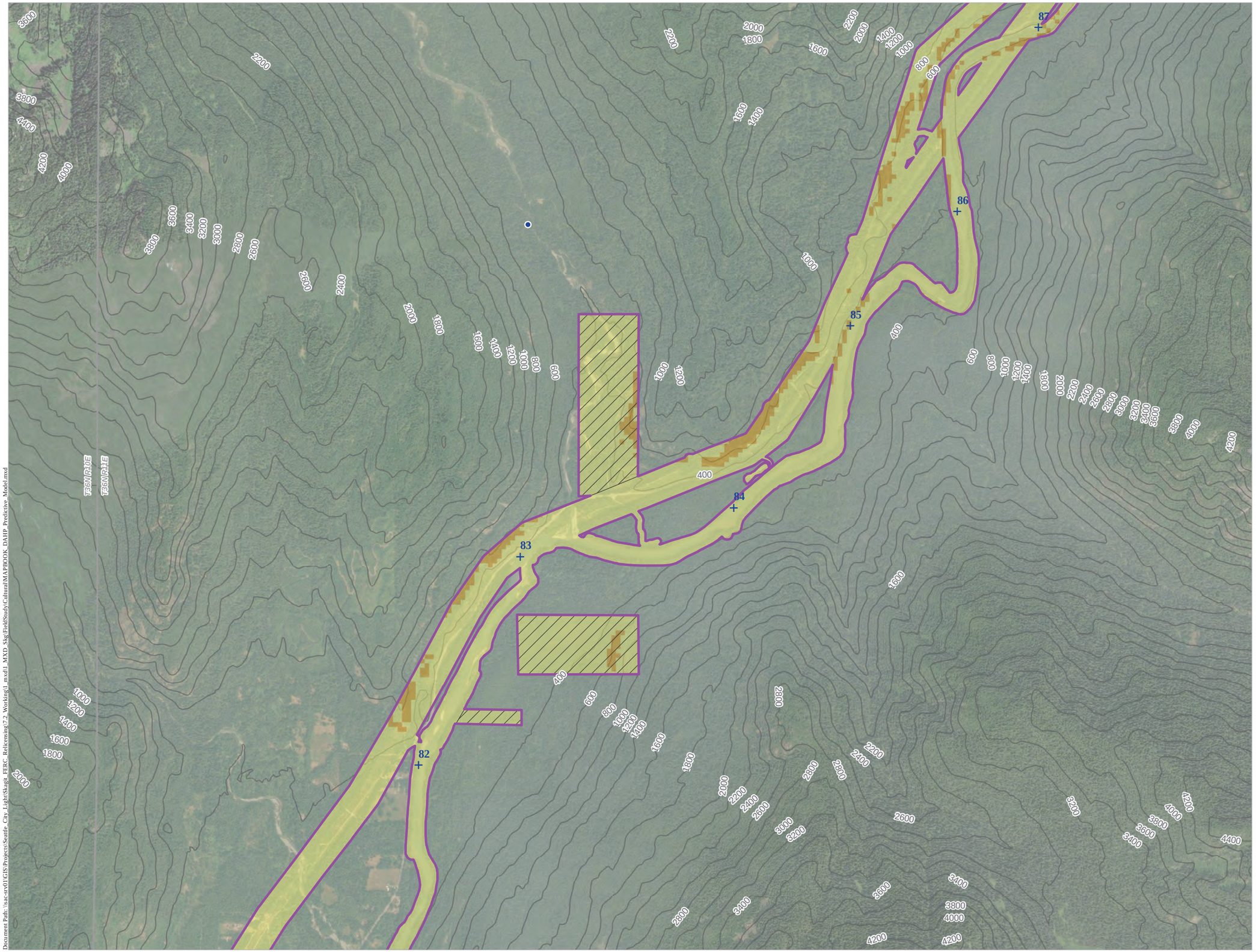

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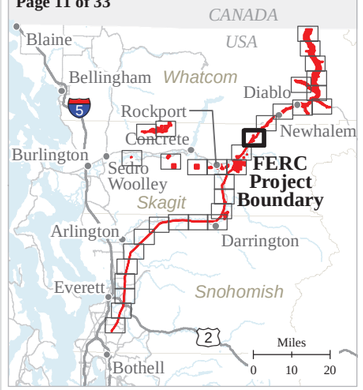

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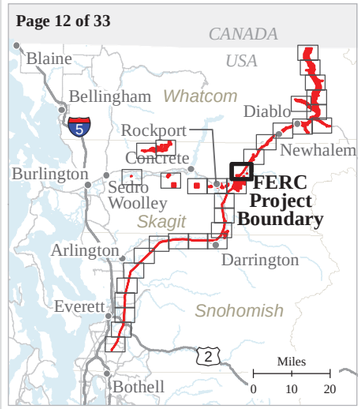

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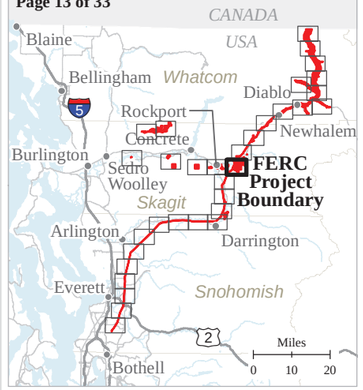

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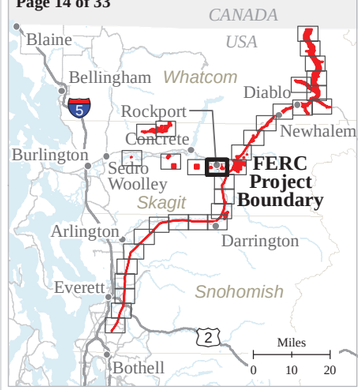

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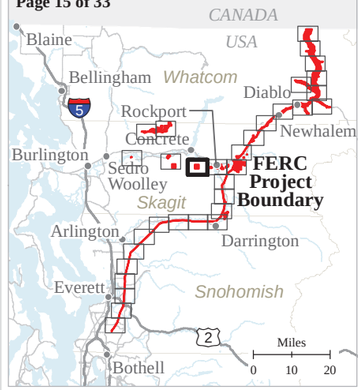

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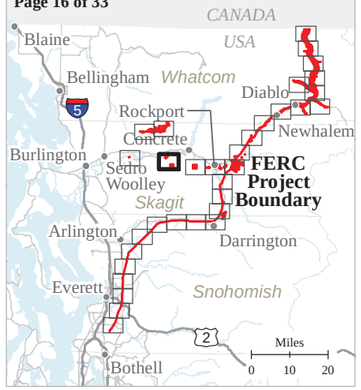

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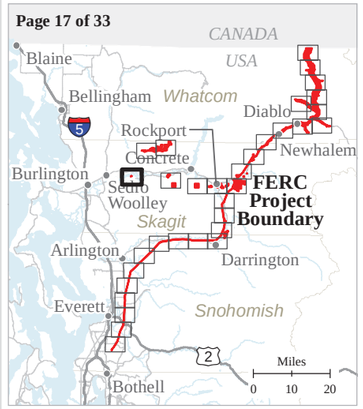

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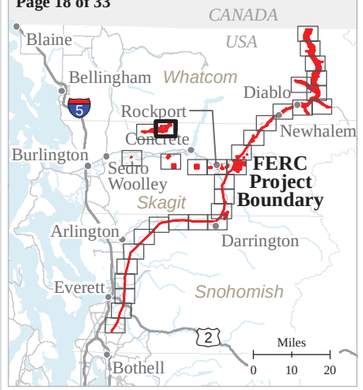

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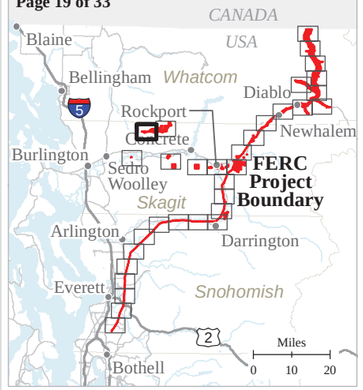

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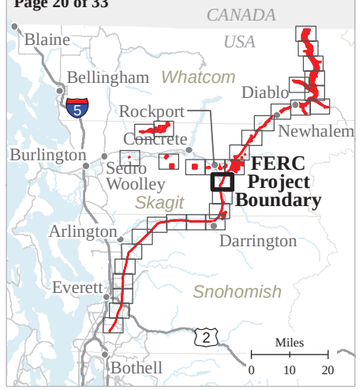

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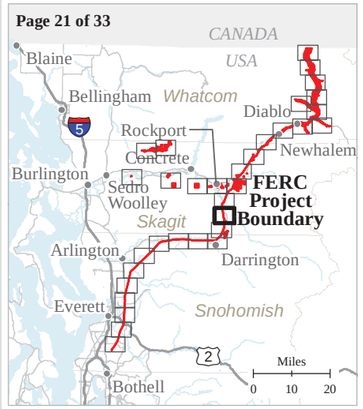

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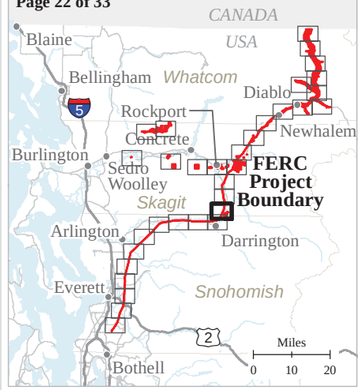

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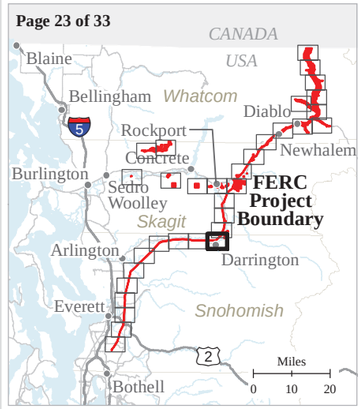

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Skagit County
Snohomish County
T32N R10E
T32N R09E
Darrington

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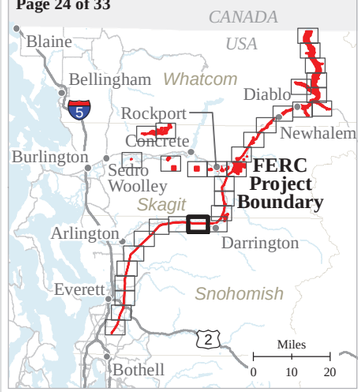

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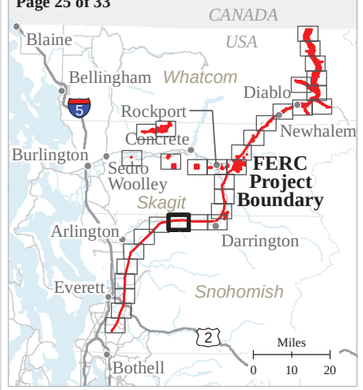

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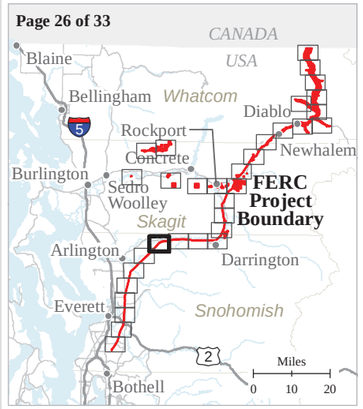

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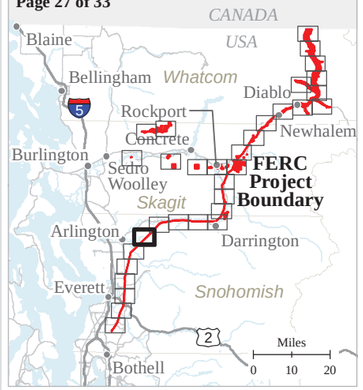

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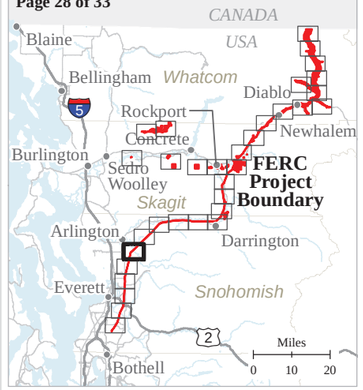

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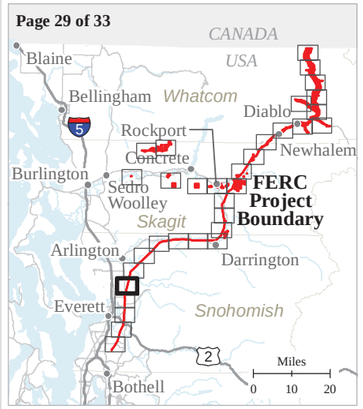

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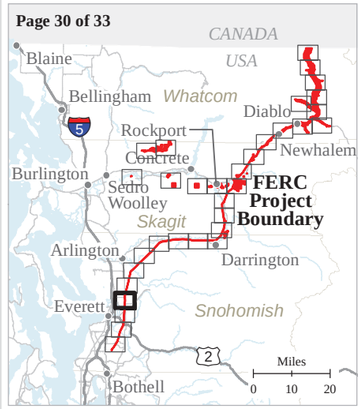

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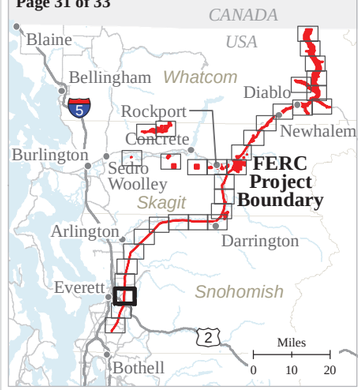

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CR-02 STUDY AREA AND DAHP MAPBOOK

- Project River Miles (PRM)
- Major Facilities
- Study Area
- Shovel Probe Areas
- Not Planned for Survey During the Study

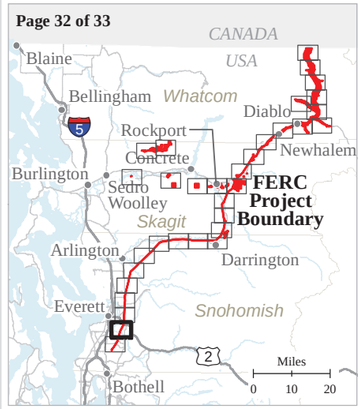
DAHP Predictive Model

- High Probability Area (HPA)
- Moderate Probability Area (MPA)
- Low Probability Area (LPA)

If additional activities that could cause adverse effects to historic properties are proposed at a future date, City Light commits to full compliance with NHPA Section 106.

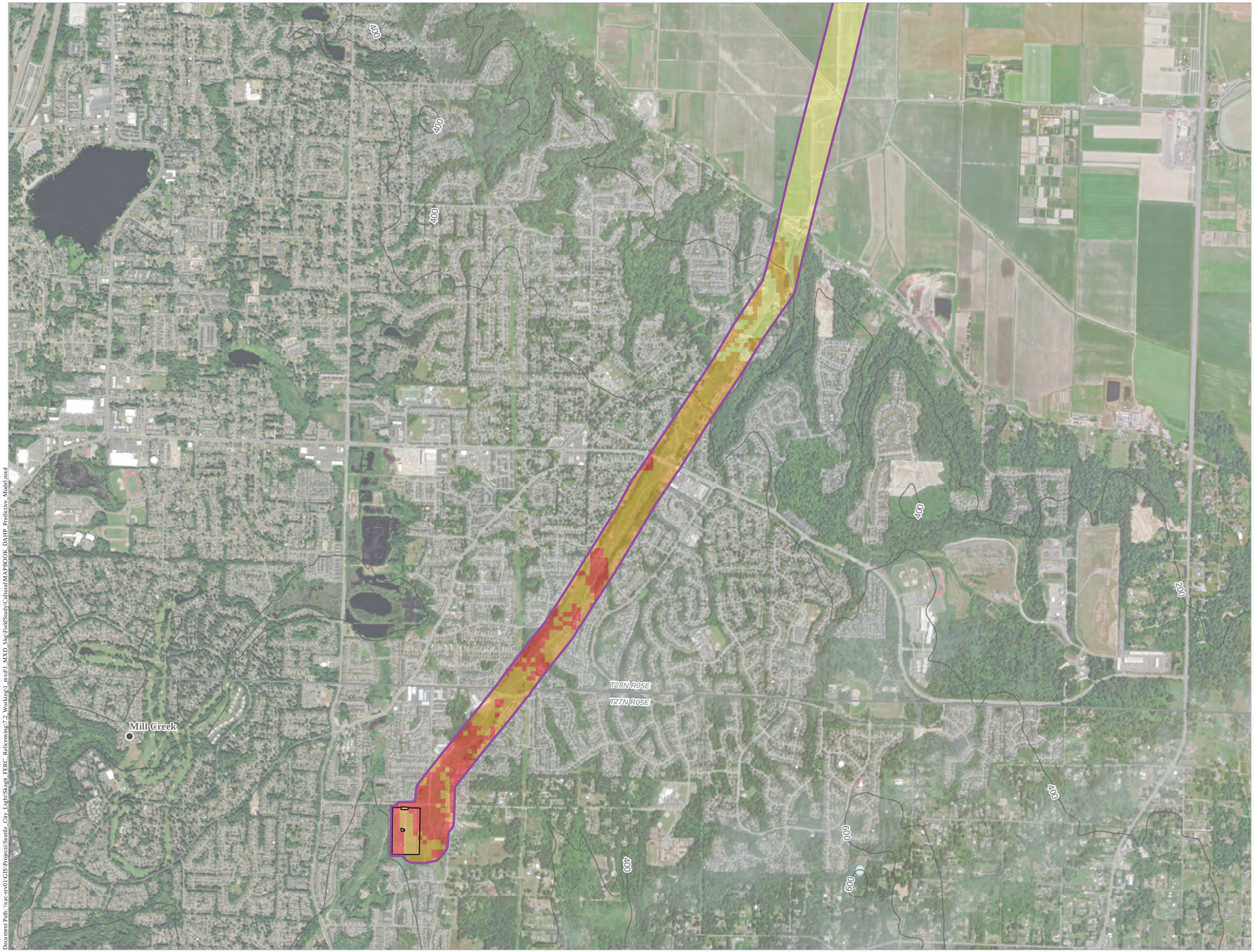
N

0 1,000 2,000 Feet



Seattle City Light

SKAGIT RIVER HYDROELECTRIC PROJECT (FERC NO. 553)



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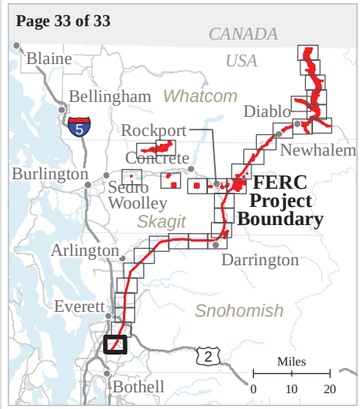

Seattle City Light

SKAGIT RIVER HYDROELECTRIC PROJECT (FERC NO. 553)

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