

Before the
FEDERAL POWER COMMISSION

APPLICATION FOR LICENSE

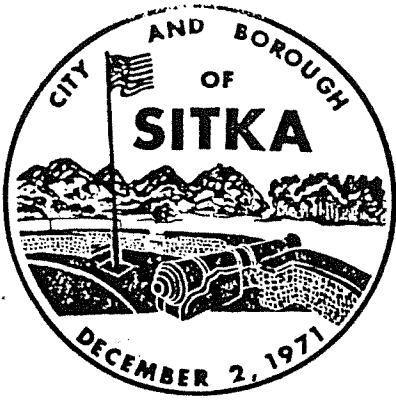
for the

GREEN LAKE PROJECT

CITY AND BOROUGH OF SITKA

SITKA, ALASKA

SEPTEMBER 1977



City and Borough of Sitka

P.O. BOX 79 . SITKA, ALASKA . 99835

September 14, 1977

Kenneth F. Plumb
Secretary
Federal Power Commission
825 N. Capitol Street N.E.
Washington D.C. 20426

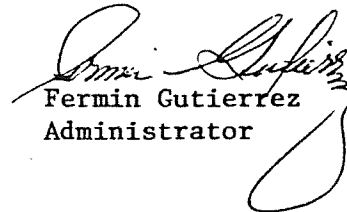
Subject: Green Lake Project: Application for Federal Power Commission License

Dear Sir:

Transmitted herewith, in accordance with the Federal Power Act and Title 18 of the Code of Federal Regulations are an original and nine (9) conformed copies of our Application for License for the Green Lake Project.

As we have related to in appropriate portions of the Application our need for the power from the Project is very urgent. In order to meet the August, 1981 on-line date, it is necessary to begin project construction by March 1978. Under these time limitations we will appreciate whatever efforts can be made by the Commission to expedite procuring the license.

Very truly yours,


Fermin Gutierrez
Administrator

FG:mm

Enclosures

BEFORE THE FEDERAL POWER COMMISSION
APPLICATION FOR LICENSE

1. The City and Borough of Sitka, hereinafter referred to as the "Applicant", a municipality organized under the Laws of the State of Alaska, and having its office and principal place of business at Sitka, in the State of Alaska, hereby makes Application to the Federal Power Commission for a License to authorize the construction, operation and maintenance of certain project works fully described herein.

2. The name, title and post office address of the person to whom correspondence in regard to this Application shall be addressed is as follows:

Mr. Fermin Gutierrez, Administrator
City and Borough of Sitka
Post Office Box 79
Sitka, Alaska 99835

copy to:

James V. Williamson
Assistant Manager, Western Design Office
R. W. Beck and Associates, Inc.
200 Tower Building
Seattle, Washington 98101

3. The Applicant is a City/Borough organized under the Laws of the State of Alaska.

4. The measure of control or ownership exercised by the Applicant in any other organization or over the Applicant by any other organization is as follows:

The Applicant has full control and ownership of the electrical generation and distribution system serving the area in and around the City and Borough of Sitka, Alaska.

5. The Applicant operates and/or proposes to operate in the following states:

The Applicant operates and proposes to continue operating only within the State of Alaska.

6. A concise general description of the Green Lake Hydroelectric Project and principal project works is as follows:

a. General

The Green Lake Hydroelectric Project (Project) is located in Southeast Alaska on the west central portion of Baranof Island approximately 10 air miles southeast of Sitka. The Project will consist of a dam at the outlet of Green Lake, a power tunnel and a powerhouse situated at tidewater on Silver Bay.

b. Dam and Reservoir

The dam will be a double-curvature, concrete arch structure located about 80 feet downstream from the mouth of the existing Green Lake. The dam will have a maximum height of 230 feet above the estimated bottom of the foundation excavation and a crest length of 460 feet at El 400.0 (MSL). It will have a crest thickness of 10 feet, bottom thickness of 23 feet, and a center-line radius at the crest of 240 feet.

An uncontrolled ogee spillway section 100 feet in length with a crest at El 390 (MSL) will be centrally located in the dam crest. The crest will flip the flows into the streambed downstream. Due to the excellent quality of the rock in the streambed no stilling basin will be provided; however, a natural control section in the river just downstream of the dam will create a natural plunge pool which will assist in dissipating the energy of spills. The spillway will discharge 11,000 cfs at a reservoir elevation of 399.3 (MSL).

A power intake will be located on the upstream face of the dam to the north of the spillway section. The intake invert will be at El 260 (MSL). Trashracks will protect the power intake from trash and debris during operation. A 7-foot by 9-foot fixed-wheel gate will be provided for emergency closure and to permit draining of the power conduit for inspection and maintenance. A single lane roadway, for operation and maintenance access, will extend from the north abutment along the crest of the dam to a point over the power intake.

A low level outlet works facility containing a 12-inch Howell-Bunger valve and a 14-inch butterfly guard valve will be located at El 250 (MSL) in the dam near the center of the stream channel.

The Green Lake Reservoir, at the proposed normal reservoir elevation of 390 (MSL) feet, will have a surface area of 1,000 acres and an active storage capacity of 74,000 acre-feet. The reservoir will be approximately four miles long by one-half mile wide and extend about three miles up the Vodopad River Valley from the present upper end of Green Lake. The proposed minimum reservoir elevation is to be 280 (MSL) feet with a corresponding surface area of 400 acres.

c. Water Conduit

The power conduit will extend approximately 1,900 feet, from the power intake in the dam to the powerhouse and will have a maximum hydraulic capacity of 744 cfs at a normal reservoir elevation of 390 (MSL). The power conduit will be a circular tunnel constructed in rock at approximately a 15% grade, partially concrete lined at the portals and areas of poor quality rock, and unlined elsewhere. The "A" line diameter of the unlined section will be 10.6 feet, and the concrete-lined sections will have an inside diameter of 8 feet. The tunnel will terminate in a horizontal length of steel and concrete-lined tunnel about 50 feet upstream of the powerhouse, where it will bifurcate into a manifold of two 5.6-foot diameter steel-lined sections each extending to a generating unit within the powerhouse.

d. Powerhouse

The powerhouse will be an indoor-type surface installation, located on Silver Bay about 350 feet north of the mouth of the Vodopad River. It will set into a side hill excavation and will be anchored to the rock slope. A rock trap will be provided at the top of the cut slope to provide additional protection for the powerhouse against rockfalls. The structure will be reinforced concrete, 32-feet wide, 82-feet long, and 70-feet high. It will contain two unit bays and a service bay. The unit bays will house two vertical Francis turbines, each having a best gate output of 11,300 horsepower under a net head of 349 feet (average conditions), resulting in a total installed plant capacity of 16,500 kW. The discharge through each unit under these conditions will be 310 cfs. Generators will be umbrella-type operating at a speed of 514 rpm.

The substation will be located over the tailrace on a covered concrete deck. Single-phase transformers will transform the voltage from 13.8-kV to the 69-kV transmission voltage, and a spare transformer will be provided. The plant will be remotely controlled from the Blue Lake Powerhouse.

e. Access Road

The access road will extend from the end of the existing highway at Herring Cove a distance of 7.4 miles to the project site. For economic and environmental reasons, the road will be of single lane construction with turnouts and will be constructed to minimum standards, adequate only for construction access and for maintenance of the Project. Since the road will not be built to public use standards, public vehicular access to the Project will not be allowed and a permanent barricade at Herring Cove will bar unauthorized vehicular traffic.

The road alignment will proceed generally at or near tidewater paralleling the shoreline. From Herring Cove south the first three miles will vary between a half bench cut and a full embankment section. The remaining portion of the road extending to the project site will require a full bench cut for most of its length. As the road approaches the project area it will divide with one branch extending to the dam site right abutment area and the other to the powerhouse. Roadway width will be 14 feet. Maximum grade will be 15% and minimum curve radius will be 100 feet.

f. Transmission Line

The transmission line will be 69-kV, generally paralleling the access road and extending from the Green Lake Powerhouse to the Blue Lake Project substation. Structures will be single wood poles with a wishbone crossarm configuration.

The existing 4-mile, 34.5-kV transmission line from the Blue Lake Project (FPC Project No. 2230) to the Marine Street sub-station in Sitka will be upgraded to 69 kV by amendment to the Blue Lake Project License.

7. The location of the Project is as follows:

- a. In the State of Alaska
- b. In the Borough of Sitka
- c. On the following stream; Vodopad River, carrying no commerce.
- d. In the region of the following-named City: Sitka.

8. Lands of the United States

The project site is located on lands presently owned by the United States and administered by the U.S. Forest Service as part of the Tongass National Forest. However, the State of Alaska is in the process of selecting approximately 5,700 acres of land, of which the project area is a part, under Section 6(a) of the Alaska Statehood Act (PL 85-508) which allows for the State selection of National forest lands for the purpose of economic development of cities and communities.

9. The proposed initial and ultimate scheme of development for the Project is as follows:

The Green Lake Project, a conventional hydroelectric development with a total installed capacity of 16,500 kilowatts, is expected to produce an average annual energy output of approximately 64,900,000 kWh delivered to the load center. This is considered to be the ultimate development of the water resources in

the Green Lake-Vodopad River drainage area and no additional future power installation is contemplated.

10. The proposed use or market for the power to be developed is as follows:

The power produced by the proposed Green Lake Project will be used to augment the output of the Applicant's existing system presently serving the government, military, commercial, industrial and residential users of Sitka, Alaska. As the Green Lake Project contributes to the Applicant's overall system, the market available to the Project is that of the entire system.

11. The location, a brief description and capacity of all power plants or other electric facilities owned or operated by the Applicant, the market supplied thereby and the relation thereof to the Project applied for, are briefly described as follows:

a. Hydroelectric Facilities

The Applicant owns and operates the Blue Lake Project (FPC Project No. 2230), a conventional hydroelectric development on Blue Lake approximately 5 miles east of Sitka by highway. The Project consists of a reservoir, concrete arch dam, intake structure, two tunnels which are connected by a steel penstock, powerhouse, substation and transmission line to the load center. The Blue Lake Project became operational in 1961.

The dependable capacity from the Project is considered to be 6,500 kW. A previous study⁽¹⁾ has determined that a firm delivered energy of 32,000,000 kWh and an annual average delivered

(1) City and Borough of Sitka. Electric Utility System, Analysis of Electric System Requirements, prepared by R. W. Beck and Associates, Inc., April, 1974.

energy of 44,000,000 kWh can be expected from the Project. The Blue Lake Project presently operates as a base load facility and is expected to continue as such when the Green Lake Project becomes operational.

b. Diesel Generating Facilities

Although hydroelectric power is the major source of energy within the Applicant's system, the balance of the Applicant's generation facilities presently is diesel-fired internal combustion units located near the center of Sitka. There are presently 2 units rated at 300 kW each, one at 500 kW and another at 2,050 kW for a total combined capacity of 3,150 kW. The smaller units are old and essentially used for standby capacity reserves. The 2,050-kW unit was installed in 1968. Operation of the diesel units has been to supply system reserves. However, with the projected increase in load in the near future, this situation is expected to change drastically. It is planned to install two new 2,500-kW diesel units to be on-line by late 1978 to meet system demand and maintain system integrity.

When the Green Lake Project comes on-line in late 1981, the more costly to operate diesel capacity will be retired to a system reserve status.

12. The following exhibits are filed herewith and are hereby made a part of this Application:

Exhibit A Organization Papers

Exhibit B Resolution Authorizing the Filing of
Application for License

- Exhibit C Statement as to Special Hydroelectric,
Water Power or Irrigation Laws of the
State of Alaska Pertaining to the Con-
struction of the Project
- Exhibit D Statement that the Applicant has Com-
plied with the Laws of the State of Alaska
with Respect to Bed and Banks, its Use of
the Water and its Right to Engage in the
Business of Developing, Transmitting and
Distributing Electric Power
- Exhibit E Statement of the Nature, Extent and
Ownership of the Water Rights for the
Project
- Exhibit F Summary of the Nature and Extent of the
Applicant's Title to or Rights to Occupy
or Use the Private Lands Necessary to
Develop, Operate and Maintain the Proj-
ect
- Exhibit G Statement of the Financial Ability of
Applicant to Develop and Operate the Project
- Exhibit H Statement of the Proposed Operation of
the Project During Periods of Low, Normal
and Flood Streamflow
- Exhibit I Statement of the Estimated Dependable
Capacity and the Average Annual Energy
Produced by the Project

Exhibit J General Project Map

Exhibit K Detailed Project Maps

Exhibit L General Design Drawings

Exhibit M General Description of Mechanical, Elec-
 trical, and Transmission Equipment

Exhibit N Estimated Cost of Project Development

Exhibit O Statement of the Estimated Time Required
 to Complete Project Works

Exhibit P Not Required

Exhibit Q Not Required

Exhibit R Project Recreation Plan

Exhibit S Statement of the Effect of the Project
 on Fish and Wildlife Resources

Exhibit T Statement Justifying the Development of
 the Project by the Applicant Rather than
 by the Federal Government

Exhibit U Not Required

Exhibit V Statement of the Protection, Enhancement
 of Natural, Historic and Scenic Features
 in the Design, Location, Construction
 and Operation of Project Features

Exhibit W Environmental Report

IN WITNESS WHEREOF the Applicant has caused its name to be here-
unto signed by Fermin Gutierrez its Administrator and its seal to
be hereto affixed by _____ its Clerk there-
unto duly authorized, this _____ day of _____, 1977.

CITY AND BOROUGH OF SITKA

By _____
Administrator

Attest:

Clerk

VERIFICATION

State of Alaska

City and Borough of Sitka, ss:

SS:

Fermin Gutierrez being first duly sworn deposes and says that he is the Administrator of the City and Borough of Sitka, the Applicant for a License, that he has read the foregoing Application and knows the contents thereof; that the same are true to the best of his knowledge and belief.

Administrator

Subscribed and sworn to before me this _____ day of _____
19__.

(SEAL)

(Notary Public)

My commission expires _____.

EXHIBIT A
ORGANIZATION PAPERS

**HOME RULE
CHARTER OF THE
CITY AND BOROUGH OF SITKA**

**City and Borough of Sitka, Alaska
Box 79 Sitka, Alaska 99835**

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PREAMBLE

We, the people of the Greater Sitka area, in order to form an efficient and economical government with just representation, do hereby ordain and establish this Charter of the City and Borough of Sitka.

ARTICLE I

NAME, BOUNDARIES AND POWERS

Section 1.01 Name

The municipal corporation shall be known as "Sitka." Whenever it deems it in the public interest to do so, the municipality may use the name "City and Borough of Sitka."

Section 1.02 Boundaries

The boundaries of the municipality shall be the same as the boundaries of the Greater Sitka Borough as they exist on the date of ratification of this Charter or hereafter are legally modified.

Section 1.03 Powers

The municipality may exercise all powers of home rule cities or boroughs not prohibited by law or by this charter.

ARTICLE II

THE ASSEMBLY

Section 2.01 Composition

The Assembly elected by the qualified voters of the municipality shall be composed of seven assemblymen, one of whom shall be the mayor.

Section 2.02 Powers

The governing body of the municipality shall be the Assembly. Except as otherwise provided by law or this Charter, the Assembly shall exercise all powers of the municipality and shall provide for the performance of all duties and obligations imposed upon the municipality.

Section 2.03 Terms and Representation

(a) **Term.** The term of office of all assemblymen except the mayor shall be three years. The term of office of the mayor shall be two years.

(b) **Representation at First Election.** At the first election under this charter, six assemblymen and a mayor shall be elected. Two assemblymen and the mayor shall be elected at large by the qualified voters of the municipality. Four shall be known as district assemblymen; two each from Districts A and B. They shall be nominated and elected by the qualified voters of their respective districts which shall be as follows: The boundaries of District A shall be the same as the boundaries of the City of Sitka as they existed immediately prior to ratification of this charter. District B shall consist of all the area within the municipality excepting that in District A.

(c) **Terms of First Assemblymen.** At this first election, two at-large assemblymen shall be elected for a term of one year each. The one district assemblyman from each district receiving the highest number of votes shall serve a three-year term, and the one district assemblyman from each district receiving the next highest number of votes shall be elected for a two-year term.

(d) **Representation at Subsequent Elections.** At all subsequent regular elections, the election to fill positions of assemblymen and mayor as their terms expire shall be at large and they shall be elected by the qualified voters of the municipality at large for three and two-year terms respectively

Section 2.04 Qualifications

Only a qualified voter of the municipality who has been a resident of the municipality for at least one year immediately preceding his election or appointment to office shall be qualified for elective municipal office. A district assemblyman shall be a resident of the district from which he is elected at the time of his election and during his term.

The Assembly shall be the judge of the election and qualifications of its members and of the grounds for forfeiture of their office and for that purpose shall have power to subpoena witnesses, administer oaths and require production of evidence. A member charged with conduct constituting grounds for forfeiture of office shall be entitled to a public hearing on demand. Decisions made by the Assembly under this section shall be subject to review by the courts.

Section 2.05 Vacancies and Forfeiture of Office.

The office of an elected municipal official shall become vacant upon death, resignation, removal from office in any manner authorized by law or by this Charter, or by forfeiture of his office.

An elected municipal official shall forfeit his office if he:

1. Is convicted of a felony or a crime involving moral turpitude.
2. Fails to comply with all qualifications prescribed by this Charter.
3. Knowingly violates any prohibitions of this Charter.
4. Fails to attend three consecutive regular meetings of the Assembly without being excused by the Assembly.

The Assembly shall by ordinance provide the procedures for filling of vacancies.

A vacancy shall be filled by the Assembly which shall elect a qualified person within 20 days after the vacancy occurs to be acting assemblyman until the next regular election and until a successor is elected and qualified to fill the remainder of the unexpired term.

Section 2.06 Organization and Officers

The mayor shall preside at meetings of the assembly, shall be recognized as head of the municipal government for all ceremonial purposes and by the governor for purposes of military law, but shall have no administrative duties. The mayor shall be a member of the Assembly with all the powers and duties of that office.

The Assembly shall meet immediately following certification of the election. At such meeting or within seven days thereafter, the Assembly shall elect from its membership a deputy mayor who shall act as mayor during the absence or disability of the mayor and if a vacancy occurs, shall become mayor for the remainder of the unexpired term. The Assembly shall provide by ordinance for the interim order of succession of its members to the offices of mayor and deputy mayor.

Section 2.07 Salaries and Compensation

The Assembly by ordinance shall determine the salary of the Mayor and other assemblymen. An increase in salary shall not take effect until the Assembly meeting following the regular election after the ordinance has been adopted. With the approval and authorization of the Assembly, assemblymen shall also receive their actual and necessary expenses incurred in the performance of their duties of office.

Section 2.08 Meetings

The Assembly shall meet regularly at least twice in every month at such times and places as shall be prescribed by rule. Special meetings may be held on the call of the Mayor or of four or more members and, whenever practicable, upon no less than six hours notice to each member.

No action by the Assembly shall have legal effect unless the motion for the action and the vote by which it is disposed of take place at proceedings open to the public.

Section 2.09 Rules and Record

The Assembly shall by ordinance determine its own rules and order of business and shall maintain a journal of its proceedings as a permanent public record.

Section 2.10 Voting

Four members of the Assembly shall constitute a quorum, but a smaller number may adjourn from time to time and may compel the attendance of absent members in the manner and subject to the penalties prescribed by the rules of the Assembly. No Assembly action shall be valid or binding unless adopted by an affirmative vote of four or more members.

A roll call vote shall be taken on authorizations for the expenditures of funds and on the passage of ordinances. Upon request of an assemblyman, a roll call vote shall be taken on any question, and a record of the ayes and nays shall be entered in the journal.

A vote by secret ballot shall be taken only to elect Assembly officers and fill Assembly vacancies.

Unless otherwise prohibited by this Charter, each assemblyman shall vote on each question before the Assembly for consideration unless excused by an affirmative vote of all remaining assemblymen able to vote on the question.

Section 2.11 Prohibitions

(a) **Other Public Office or Employment.** After December 2, 1971 no elected municipal officer shall hold any other elective public office, municipal office, or municipal employment during his term of office, nor shall he hold any compensated appointive municipal office or municipal employment for a period of one year after vacating his office, other than membership on a board or commission. The relationship of independent contractor for goods or services established through

competitive bidding does not constitute municipal employment for the purposes of this section.

(b) **Relationship with Employees.** The Assembly shall not recommend or direct the appointment or removal of any officer or employee of the municipal administration except as otherwise provided by this Charter. Except for the purpose of inquiry, neither the Assembly nor an individual assemblyman may give, either publicly or privately, orders on administrative matters to a subordinate to the administrator.

(c) **Representation of Client.** No assemblyman may represent any client before any municipal department or agency.

Section 2.12 Investigations

The Assembly may make investigations into the affairs of the municipality and the conduct of any municipal department, office or agency and for this purpose may subpoena witnesses, administer oaths, take testimony and require production of evidence. Any person who fails or refuses to obey a lawful order issued in the exercise of these powers by the Assembly shall be guilty of a misdemeanor.

Section 2.13 Clerk and Special Advisors

(a) **Clerk.** There shall be a municipal clerk. He shall attend all Assembly meetings, unless excused, keep the journal of its proceedings, give notice of Assembly meetings to the members and the public and perform such other duties as may be assigned.

(b) **Advisors.** The Assembly may appoint special legal and financial advisors for bond issues and shall retain such legal counsel as it requires.

(c) **Municipal Attorney.** There shall be a municipal attorney appointed who shall serve at the pleasure of the Assembly.

(d) **Boards and Commissions.** The Assembly may appoint and establish by ordinance boards and commissions, which ordinance shall prescribe their duties, purpose and functions; also qualifications and condition of service of the appointed members. A quorum of any board or commission, and the number of members required to approve an action, shall be a majority of its membership.

(e) **Committee of the Whole.** By ordinance the Assembly may create, or designate itself to be a board of review, adjustment or equalization.

ARTICLE III LEGISLATION

Section 3.01 Action Requiring an Ordinance.

In addition to other acts required by law or by this charter to be done by ordinance, those acts of the Assembly shall be done by ordinance which:

(1) Adopt or amend an administrative code or establish, alter, or abolish any municipal department, office or agency.

(2) Provide for a fine or other penalty or establish a rule or regulation for the violation of which a fine or other penalty is imposed.

- (3) Levy taxes or establish service areas.
- (4) Grant, renew or extend a franchise.
- (5) Regulate, not to exceed the amount permitted by state law, the rates charged by a municipal or other public utility.
- (6) Authorize the borrowing of money.
- (7) Convey or lease or authorize the conveyance or lease of any lands of the municipality.
- (8) Propose amendments to this Charter.
- (9) Adopt with or without amendment ordinances proposed under initiative powers.
- (10) Fix the compensation of members of the Assembly.
- (11) Make supplemental appropriations or transfer appropriations as provided in Sections 11.10 and 11.11.
- (12) Adopt or modify the official map, platting, or subdivision controls or regulations, or the zoning plan.
- (13) Amend or repeal any ordinance previously adopted except as otherwise provided in Section 6.01 with respect to repeal of ordinances reconsidered under the referendum power.
- (14) Establish a formal procedure for acquisition from the state of land or rights in land and disposal of those lands or rights in land.

Section 3.02 Ordinances in General

(a) **Enactment Procedure.** Except as otherwise provided in this Article, the following procedure shall govern the enactment of all ordinances: An ordinance may be introduced by any member or committee of the Assembly at any regular or special meeting of the Assembly. Upon introduction of any ordinance, sufficient copies shall be furnished to the clerk in order for him to immediately distribute at least one copy each to the assembly members. After an ordinance has been introduced, and unless it is rejected at the same meeting by the affirmative votes of not less than a majority of the Assembly members, the Assembly shall promptly cause the ordinance to be published, together with a notice setting out the time and place for a public hearing on the ordinance and for its consideration by the Assembly. The public hearing on any ordinance not rejected shall follow the required publication by at least seven days and it may be held separately or in connection with a regular or special Assembly meeting and may be adjourned from time to time. At the public hearing held in accordance with the notice, copies of the ordinance shall be distributed to all persons present who request them, and the ordinance shall be read in full. All persons interested shall have an opportunity to be heard. After the hearing, the Assembly shall consider the ordinance and may adopt it with or without amendment, or reject it. But if upon consideration, the Assembly amends the ordinance as to its substance, it may not adopt the amended ordinance until the ordinance or its amended sections have been published and until the ordinance has been subjected to hearing and to all other procedures required in the case of a newly introduced ordinance. The same procedure shall govern if the amended ordinance is again amended as to its substance.

(b) **Effective Date.** Except as otherwise provided in this Article, every adopted ordinance shall become effective at the expiration of 30 days after adoption or at any date specified in the ordinance.

(c) **Meaning of "Publish".** As used in this section, the term "published" means that:

- (1) At least the title, which shall be a brief summary

of the ordinance or sections concerned, together with any required notice, has been published in one or more newspapers of general circulation in the municipality;

(2) Copies of the ordinance or sections concerned, together with any required notice, have been mailed to the same newspapers and, in accordance with Assembly regulations, to additional newspapers of general circulation in the municipality;

(3) Copies of the ordinance or sections concerned, together with any required notice, have been posted conspicuously for public inspection.

Section 3.03 Emergency Ordinances.

To meet a public emergency affecting life, health, welfare or property, the Assembly may adopt emergency ordinances; but emergency ordinances shall not be used to levy taxes, to grant, renew or extend a franchise, to acquire or dispose of property, or to regulate the rate charged by any public utility for its services.

Every emergency ordinance shall be designated as such and shall contain, after the enacting clause, a declaration stating that an emergency exists and describing the emergency in specific terms. An emergency ordinance may be adopted with or without amendment or rejected at the meeting at which it is presented. The affirmative votes of at least five Assembly members shall be required for adoption of an emergency ordinance. After adoption of an emergency ordinance, the Assembly shall have it printed as prescribed for other adopted ordinances. An emergency ordinance shall become effective upon adoption or as otherwise provided in the ordinance. An emergency ordinance shall expire 61 days after adoption but this shall not prevent re-enactment of the ordinance in the manner specified in this section if the emergency still exists.

Section 3.04 Codes of Technical Regulations

The Assembly may adopt any standard code of technical regulations, or may adopt the provisions of any portion of the statutes of the State of Alaska by reference thereto in an adopting ordinance, provided that the matter adopted by reference is made available to the public in the manner prescribed by Assembly rule.

Section 3.05 Administrative Code

The Assembly shall adopt by ordinance an administrative code which shall include provisions for establishing qualifications for employment and a merit system; establishing a pay plan for all municipal positions; permitting appeal; recognizing employee organizations; protecting municipal employees from arbitrary discharge and safe guarding against nepotism.

Section 3.06 Authentication and Recording; Codification; Printing

(a) **Authentication and Recording.** The mayor and clerk shall authenticate, as ministerial acts, by signature and date all ordinances and resolutions adopted by the Assembly and cause them to be bound or recorded in full in properly indexed books, one of which shall be open to the public in the clerk's office during business hours.

(b) **Codification.** Within two years of the effective date of this Charter the Assembly shall cause a code to be prepared containing all of the ordinances of the municipality which are appropriate for continuation as law. The code shall be kept current through integration of ordinances and resolutions as adopted.

(c) **Printing.** The Assembly with the advice and assistance of the legal counsel shall cause each ordinance and resolution having the force and effect of law and each amendment to this charter to be printed as promptly as possible following its adoption; each of the e to be made available to the public at a reasonable price set by the Assembly.

ARTICLE IV

ADMINISTRATOR — EXECUTIVE

Section 4.01 Appointment, Qualifications, Compensation

The Assembly shall appoint a municipal administrator for an indefinite term and fix his compensation. The administrator shall serve at the pleasure of the Assembly and be appointed solely on the basis of his executive and administrative qualifications. He need not be a resident of the municipality or state at the time of his appointment.

Section 4.02 Removal; Suspension

The Assembly may remove the administrator from office in accordance with the following procedures:

(a) **Preliminary Resolution.** The Assembly shall adopt by affirmative vote of a majority of its members a preliminary resolution which must state the reasons for removal; and may suspend the administrator for a period of not to exceed 30 days. A copy of the resolution shall be delivered promptly to the administrator.

(b) **Public Hearing.** Within 5 days after a copy of the resolution is delivered, the administrator may file with the Assembly a written request for a public hearing. The hearing shall be held at an assembly meeting not earlier than 10 days or later than 20 days after the request is filed. The administrator may file with the Assembly a written reply not later than 5 days before the hearing.

(c) **Final Resolution.** If the administrator has not filed a request for public hearing, the Assembly may adopt a final resolution of removal, which may be made effective immediately, by an affirmative vote of a majority of its members, at any time after five days from the date when a copy of the preliminary resolution was delivered to the administrator. If a public hearing is requested, final resolution may be adopted any time thereafter.

(d) **Continuation of Salary.** The administrator shall continue to receive his salary until the effective date of a final resolution of removal. The action of the Assembly shall not be subject to review by any court or agency.

Section 4.03 Acting Municipal Administrator

If the administrator is absent from the municipality or is unable to perform his duties; if the Assembly suspends the administrator; or if there is a vacancy in the office of administrator, the Assembly may appoint an acting administrator to serve until the administrator returns, until his disability or suspension ceases, or until another administrator is appointed. The Assembly shall replace the acting administrator with a permanent administrator within a reasonable time, and in no case may he serve as acting administrator for more than one year.

Section 4.04 Powers and Duties of Administrator

The administrator shall be the chief administrative officer of the municipality and shall be responsible to the Assembly. He shall execute the provisions of this Charter, all ordinances of the municipality and all applicable laws. Without limiting the foregoing or excluding other or broader powers consistent therewith, the administrator shall:

(1) Except as otherwise provided by this Charter, with the approval of the Assembly appoint or remove all heads of administrative departments, subject to such personnel regulations as the Assembly may adopt;

(2) Direct the care and custody of all municipal property;

(3) Direct and supervise the construction, maintenance and operation of municipal public works;

(4) Prepare from departmental submissions the annual budget and capital improvements program and submit them to the Assembly;

(5) Keep the Assembly fully advised on the financial condition and needs of the municipality;

(6) At the beginning of each fiscal year, submit to the Assembly a report on the financial and administrative activities of the municipality for the preceding fiscal year; within three months after the end of each fiscal year, prepare and make available to the public, at such reasonable price as the Assembly may direct, an annual report on the municipal affairs during the preceding fiscal year;

(7) Unless excused, attend all Assembly meetings and shall have the right to take part in the discussion of all matters, but may not vote.

ARTICLE V

NOMINATIONS -- ELECTIONS

Section 5.01 General Requirements

(a) **Regular Elections.** A regular election shall be held annually on the first Tuesday in October.

(b) **Special Elections.** The Assembly shall provide by ordinance for special elections.

(c) **Notice of Elections.** At least 30 days published notice shall be given of a regular or special election. The notice shall state the purpose of the election.

(d) **Qualifications of Voters.** To be eligible to vote at any municipal election, at the time of the election a person shall be:

- (1) Qualified to vote in state elections;
- (2) A resident of the municipality for at least 30 days immediately preceding the election.

(e) **Nomination.** Candidates for elective office shall be nominated by a petition signed by at least 25 qualified voters of the municipality. All nomination papers comprising a petition shall be assembled and filed in person with the clerk during office hours as one instrument not earlier than 90 or later than 25 days before the election. No nominating petition may be accepted unless accompanied by a signed acceptance of the nomination.

(f) **Election Procedures.** All elections shall be non-partisan. The Assembly shall prescribe the general rules for the conduct of municipal elections as set forth by the Alaska Election Code.

(g) **Determination of Election Results.** The candidates receiving the greatest number of votes shall be declared elected to the vacancies. In case of a tie, the election shall be determined by lot from among the candidates tying, at a meeting of the Assembly and under its direction.

(h) **Election Districts.** There shall be two election districts known as A and B, as provided by Section 2.03 of this Charter.

(i) **Absentee Voting.** The Assembly shall provide by ordinance for absentee voting.

ARTICLE VI

INITIATIVE, REFERENDUM AND RECALL

Section 6.01 Initiative and Referendum

The powers and rights of the initiative and referendum are reserved to the people of the municipality as prescribed by law. The Assembly by ordinance shall regulate the procedure for their exercise, but such regulation shall require that a petition to initiate action be signed by qualified voters of the municipality equal in number to at least 20 per cent of the total number of electors voting at the last regular annual election and the subject of the petition shall be submitted to the voters at an election not later than 90 days after submission of the petition. A vote of a majority of the electors who vote on the question shall be required. An ordinance adopted by the initiative procedure may not be amended or repealed by the Assembly for a period of one year after the date of the election at which it was adopted, and should two or more ordinances adopted at the same election have conflicting provisions, the one receiving the largest affirmative vote shall prevail. Ordinances repealed by referendum shall be null and void from the day following the day of the election.

Section 6.02 Recall

(a) **Elected Officials Subject to Recall.** All elected public officials of the municipality are subject to recall by the voters of the municipality. Procedures and grounds for recall shall be as prescribed by State Statutes and this Charter.

(b) **Petition.** Any five qualified municipal voters may commence recall proceedings by petition. The petition shall be signed by a number of qualified municipal voters equal to at least twenty per cent of the votes cast in the municipality at the preceding regular municipal election.

(c) **Election.** There shall be an election on a recall petition within forty days of certification of the petition. If a vacancy occurs in the office in question after a recall petition is filed, the petition shall not be submitted to the voters.

(d) **Subsequent Recall.** If an official is not recalled at the recall election, a petition to recall the same official shall not be filed sooner than one year after the recall election, unless grounds for recall occur subsequent to the date of the filing of the last recall petition.

(e) **Filling of Vacancy.** If the voters recall an official the vacant office shall be filled in the manner prescribed by Section 2.05 of this Charter.

ARTICLE VII

POLICE AND FIRE COMMISSION

Section 7.01 Police and Fire Commission

(a) **Membership.** The Police and Fire Commission shall consist of three members who shall be appointed by the Assembly.

(b) **Term.** The Police and Fire Commission members shall be appointed for a term arranged by the Assembly so that one term expires each year.

(c) **Procedure.** The Commission shall establish rules of procedure for the conduct of its business.

(d) **Duties.** The Police and Fire Commission shall appoint or remove, subject to such personnel regulations as the Assembly may adopt, the Chief of Police and the Fire Chief and shall outline the policies of the police and fire departments.

(e) **Retention.** Not earlier than one year nor later than three years following unification of the municipality there shall be a municipal referendum to determine whether the Police and Fire Commission shall or shall not be retained in this Charter.

ARTICLE VIII

PLANNING

Section 8.01 Planning Commission

(a) **Membership.** There shall be a Planning Commission, consisting of five members who shall be appointed by the Assembly from among the qualified voters of the municipality and who shall serve at the pleasure of the Assembly. Members shall hold no other municipal office.

(b) **Term.** The Assembly shall prescribe the terms of office of the members of the Planning Commission, and shall provide for the selection of its officers and technical advisors.

(c) **Compensation.** Members of the Planning Commission shall serve without compensation, but shall receive their necessary expenses incurred in the performance of their duties.

(d) **Powers and Duties.** The Planning Commission shall:

- (1) Report its recommendation and advice to the Assembly on all proposals submitted to it by the Assembly and on such other matters pertaining to planning and zoning as the Commission may desire or the Assembly may request.
- (2) Formulate and develop planning proposals for submission to the Assembly whenever requested to do so by the Assembly or upon its own motion.
- (3) Keep informed on all matters pertaining to planning and hold hearings concerning such matters whenever necessary.
- (4) Promote public interest in, and understanding of, municipal comprehensive plan and related matters.
- (5) Perform such other advisory functions and duties and exercise such other powers as the

Assembly may establish or are prescribed by law.

Section 8.02 Comprehensive Plan

(a) **Planning Commission Recommendation.** Upon receipt from the administrator of a proposed comprehensive plan or proposed modification of the existing plan, the Assembly shall refer such proposal to the Planning Commission which shall within a time specified by the Assembly report its recommendations thereon.

(b) **Hearing and Adoption.** After receipt of the recommendations of the Planning Commission, the Assembly shall hold a public hearing on the proposed comprehensive plan, or modification thereof, and shall thereafter adopt it by resolution with or without amendment.

(c) **Purpose.** The comprehensive plan shall serve as a guide to all future Assembly action concerning land use and development regulations, urban renewal programs and expenditures for capital improvements.

(d) **Implementation.** The Assembly shall by ordinance adopt land use and development, rehabilitation, conservation and renewal programs for:

- (1) The alleviation or prevention of slums, obsolescence, blight or other conditions of deterioration.
- (2) The achievement of the most appropriate use of land.
- (3) Before acting on any proposed ordinance concerning land use and development regulations, urban renewal or expenditures for capital improvements, where such ordinance refers to a matter covered by the comprehensive plan, the Assembly may refer the proposal to the Planning Commission, which shall within a time specified by the Assembly and prior to the public hearing on the proposed ordinance, report its recommendations thereon.
- (4) Upon adopting any such ordinance, the Assembly shall make findings and report on the relationship between the ordinance and the comprehensive plan, and in the event that the ordinance does not accord with the comprehensive plan, the plan shall be deemed to be amended in accordance with such findings and report.

ARTICLE IX

MUNICIPAL UTILITIES

Section 9.01 Operating Standards

Each municipal utility shall be operated in accordance with the general standards common to utilities providing the same utility service.

Section 9.02 Accounting

Each municipal utility shall have a separate budget within the annual municipal budget and the accounts of the utilities shall be separately kept and classified in

accordance with the uniform accounts generally prescribed for public utilities providing the same utilities service.

Section 9.03 Management

The operating and administrative manager of each municipal utility shall be chosen solely on the basis of his demonstrated training and experience in utility operations. The administrator shall insure that the utilities are operated in accordance with rules and regulations approved by the Assembly.

ARTICLE X

EDUCATION

Section 10.01 Public School System

There shall be a system of public education for the municipality conducted in a manner prescribed by Title 14 "Education" of the Alaska Statutes. It shall be operated by a school board of five elected members or such number required of home rule municipalities by law.

Section 10.02 School Board

(a) **Qualifications.** To be eligible for nomination for the office of school board member and to serve in that capacity, a person shall have the qualifications of a municipal voter under Section 2.04 of this Charter and shall reside in the municipality.

(b) **Term.** The term of a school board member shall be three years, and said terms shall be staggered to allow for the uninterrupted continuation of the school board functions.

(c) **Continuity.** School board terms shall expire in the same sequence as those of the Greater Sitka Borough School Board in office at the time of unification. Board members in office at the time of unification may continue to hold office until expiration of the term for which they were elected.

(d) **Vacancies.** The office of school board member shall become vacant upon death, resignation, or removal from office in any manner authorized by law or by this Charter, or by forfeiture of office as prescribed for Assemblymen in Section 2.05 of this Charter. Vacancies shall be filled in a manner prescribed by Title 14 of the Alaska Statutes.

(e) **Powers and Duties.** The powers and duties of the school board shall be those set forth in Title 14 "Education" of the Alaska Statutes.

Section 10.03 Budget

The superintendent of schools shall submit an annual budget which shall first be approved by the school board; and public hearings shall be held prior to the submission of said budget to the Assembly. The budget shall be submitted to the Assembly at a date no later than that prescribed by State law, in order for the Assembly to determine the amount to be made available from local sources for school purposes.

ARTICLE XI

FINANCE

Section 11.01 Fiscal Year

The fiscal year of the municipality shall begin on the first day of July and end on the thirtieth day of June of the following year. The Assembly may change the fiscal year provided that the ordinance doing so is adopted not less than one year before the beginning of the first fiscal year affected.

Section 11.02 Submission of Budget, Capital Improvements Program and Message

Not later than 60 days before the end of the current fiscal year, the administrator shall submit to the Assembly a budget for the following fiscal year, a capital improvements program and an accompanying explanatory message of both. The Assembly may grant an extension of not to exceed 30 days if compelling reasons exist.

Section 11.03 Scope of Budget.

(a) **Complete Financial Plan.** The budget shall be a complete financial plan for all the operations of the municipality, showing all reserves, all estimated revenues from all sources, and all proposed expenditures for all purposes.

(b) **Form.** The budget shall contain at least the following:

- (1) A comparative statement of actual expenditures and actual revenues for the preceding fiscal year.
- (2) Estimated expenditures and estimated revenues for the current fiscal year.
- (3) A brief explanation of each item.

(c) **Balanced Budget.** Proposed expenditures shall not exceed total estimated revenues and reserves.

Section 11.04 Scope of Capital Improvements Program.

The capital improvements program shall be a plan for capital improvements proposed for the following 6 fiscal years, together with the estimated cost of each improvement and the proposed method of financing it. It shall contain at least the following:

- (1) A summary of current capital improvements which are unfinished.
- (2) A simple, clear summary of the detailed contents of the program.
- (3) Capital improvements pending or proposed to be undertaken within the ensuing fiscal year, together with the estimated cost of each improvement and the proposed method of financing it.

Capital improvements to be financed in the following fiscal year shall be included in the budget as well as in the capital improvements program.

Section 11.05 Scope of Message

The administrator's message shall contain an explanation of the budget both in fiscal terms and in terms of work to be done, a description of the important features of the budget, an outline of the proposed financial policy of the municipality for the following fiscal year, and an explanation of each capital improvement to be undertaken within the following six fiscal years

Section 11.06 Hearing.

Not later than 15 days before the end of the current fiscal year, a public hearing shall be held on the budget and capital improvements program. All persons interested shall have an opportunity to be heard. At least 10 days prior to the hearing the Assembly shall:

(1) Publish in a newspaper of general circulation in the municipality a summary of the budget and capital improvements program and a notice setting out the time for a public hearing.

(2) Make the budget, the capital improvements program and message a public record available for public inspection and for distribution at such reasonable price as the Assembly may direct.

(3) Deliver copies of the notice and summary of the budget and capital improvements program and the message to newspapers of general circulation in the municipality and to the commercial radio and television stations operating in the municipality.

Section 11.07 Assembly Action on Budget.

(a) **Budget Adoption.** The Assembly by ordinance shall adopt a budget not later than 10 days before the end of the current fiscal year. If it fails to do so, the budget submitted by the administrator shall be deemed adopted by the Assembly as the budget for the following year.

(b) **Tax Levies.** Prior to the end of the current fiscal year, the Assembly shall make the tax levies deemed necessary to finance the budget for the ensuing fiscal year. Shall it fail to do so the expenditures proposed in the budget shall become the appropriations for that year.

Section 11.08 Assembly Action on Capital Improvements Program

The Assembly by resolution shall adopt a capital improvements program not later than 10 days before the end of the current fiscal year. If it fails to do so, the capital improvements program submitted by the administrator shall be deemed adopted by the Assembly.

Section 11.09 Certification and Distribution.

(a) **Certification.** The budget and capital improvements program as adopted shall be certified by the mayor and clerk and shall be a public record.

(b) **Distribution.** Copies of the budget and capital improvements program as so certified shall be made available at the clerk's office for distribution to the public at such reasonable prices as the Assembly may direct.

Section 11.10 Supplemental and Emergency Appropriations.

(a) **Supplemental Appropriations.** If during any fiscal year there are available revenues received from sources not anticipated in the budget for that year or revenues received in excess of budget estimates, the Assembly by ordinance may make supplemental appropriations for the year up to the amount of the additional revenues.

(b) **Emergency Appropriations.** Upon declaration by the Assembly that a public emergency exists and describing the emergency in clear and specific terms, the Assembly may make emergency appropriations. Such appropriations may be made by emergency ordinance. If there are no available funds to meet such

appropriations the Assembly may provide for supplemental tax levies by an ordinance which shall be introduced at the same meeting at which the emergency appropriation is approved and enacted under the procedures outlined in Section 3.02 of this Charter.

Section 11.11 Reduction and Transfer of Appropriations

(a) **Reduction of Appropriations.** If during the fiscal year it appears that revenues available will be insufficient to meet the amount appropriated, the administrator shall report to the Assembly without delay. The Assembly by resolution may reduce any appropriation, except for debt service. No appropriation may be reduced by more than the amount of the unencumbered balance.

(b) **Transfer of Appropriations.** The administrator may transfer part or all of any unencumbered balance between classification of expenditures within a department, office or agency. The Assembly by ordinance may transfer part or all of any unencumbered balance from one department, office, or agency to another. No transfer may be made from appropriations for debt service.

Section 11.12 Lapse of Appropriations and Surpluses.

Every unencumbered surplus of the general fund or a service area shall lapse at the close of the fiscal year to the general fund or service area, respectively. An appropriation for a capital improvement shall not lapse until its purpose has been accomplished or abandoned.

Section 11.13 Administration of Budget

(a) **Assembly Approval.** Obligations incurred (not including those to be met through payrolls as authorized by the budget) shall be presented to the Assembly for approval and no payment shall be legal except upon four affirmative votes of the Assembly.

(b) **Signatures Required.** All checks and orders, except for those concerned with administration of the school budget, shall be signed by the Mayor or other elected officer designated by the Assembly, and the administrator, finance officer or other administrative officer designated by the Assembly.

(c) **Appropriation and Unencumbered Balance Required.** No payment may be made and no obligation incurred against the municipality except in accordance with appropriations duly made. No payment may be made and no obligation incurred against any appropriation unless the administrator ascertains that there is a sufficient unencumbered balance in the appropriation and that sufficient funds are or will be available to cover the obligation.

(d) **Illegal Acts.** Every obligation incurred and every authorization of payment in violation of this charter shall be void. Every payment made in violation of the provisions of this charter shall be illegal. All officers or employees of the municipality who authorize or make such payments shall be jointly and severally liable to the municipality for the full amount so paid. The administrator shall proceed forthwith to collect the indebtedness unless otherwise directed by the Assembly.

(e) Notwithstanding Section 11.13(c) of this charter, the Assembly by ordinance may authorize payment of funds in later fiscal years for a contract, lease or federal or state program or grant that the municipality might not otherwise be able to participate in.

(f) **Central Treasury.** Except as otherwise provided by the Assembly by ordinance, the Assembly shall provide that all funds of the municipality from whatever source shall be deposited in a central treasury.

(g) **Centralized Accounting.** Except for the school accounting system, the Assembly shall provide for centralized accounting for the municipality. However, at the request of the school board, the Assembly shall incorporate the school accounts in the centralized system.

(h) **Centralized Purchasing.** Except for the purchasing required for school purposes, the Assembly shall provide for centralized purchasing, storage and distribution of any supplies, material and equipment for the municipality and its departments. However, at the request of the school board, the Assembly shall incorporate purchasing for the schools in the centralized system.

Section 11.14 Competitive Bidding

The Assembly by ordinance shall provide for competitive bidding and procedures for competitive bidding.

(a) **Purchases.** Contracts for public improvements and whenever practicable other purchase of supplies, materials, equipment and services, except professional services and services of officers and employees of the municipality, shall be by competitive bid and awarded to the lowest qualified bidder. All contracts and purchases exceeding an amount to be established by ordinance shall require prior Assembly approval.

(b) **Disposals.** The municipality may sell, lease or otherwise dispose of municipal property. Such disposal shall be by competitive bid and awarded to the highest qualified bidder. Disposals exceeding an amount to be established by ordinance shall require prior Assembly or voter approval.

Section 11.15 Enterprise Funds.

Revenues from a municipal enterprise whether established before or after the ratification of this charter shall be first used for debt retirement, construction, acquisition, operation, maintenance, repair and capital improvement of the enterprise. Other uses of such revenues shall be only as authorized by ordinance or by budgetary action.

Section 11.16 Independent Audit.

The Assembly shall provide for an annual independent audit of the accounts and other evidences of financial transactions of the municipality and may provide for more frequent audits as it deems necessary.

The audit shall be made by a certified public accountant who has no personal interest, direct or indirect, in the fiscal affairs of the municipality or any of its departments.

ARTICLE XII BORROWING

Section 12.01 Authority

The municipality may borrow money and issue such evidence thereof (herein called "obligations") as the Assembly may determine necessary.

Section 12.02 Restrictions on Borrowing

(a) **General Obligations of the Municipality.** No general obligation bonded indebtedness may be incurred unless authorized for capital improvements by the Assembly and ratified by a majority vote of those in the municipality voting on the question.

(b) **General Obligations of Service Areas.** No obligation secured by a pledge of taxes to be levied in a service area may be issued unless authorized for capital improvements by the Assembly and ratified by a majority of the qualified voters in the service area voting on the question. In a service area where there are no qualified voters to vote on the question, voter ratification shall not be required. Obligations secured by a pledge of taxes to be levied in a service area may be additionally secured by a pledge of the full faith and credit of the municipality when so provided by the Assembly and ratified by a majority of the qualified voters voting on the question.

Section 12.03 Notice of Bond Election.

In calling any election required by this article, the Assembly shall cause a notice to be published at least once a week for at least three consecutive weeks in a newspaper of general circulation in the municipality. The notice shall contain the following information:

(1) The amount of the bonds, purpose of their issuance, and length of time within which the bonds shall mature.

(2) The estimated annual debt service on the proposed bonds.

(3) The current total general obligation indebtedness of the municipality, including authorized but unsold general obligation bonds.

(4) The current year's debt service on the outstanding general obligation bonds of the municipality.

(5) The current total assessed valuation within the municipality.

For bonds secured by a pledge of taxes to be levied in a service area the notice shall also contain the information required in (3), (4) and (5) relative to the service area.

Errors contained in information required in (2), (3), (4) and (5) with regard to the municipality or a service area shall not invalidate any election unless such errors are substantial. Actions challenging the sufficiency of any notice of election must be brought within the time provided in Section 12.06 of this Charter.

Section 12.04 Manner of Sale

General obligation bonds and bonds secured by a pledge of taxes to be levied in a service area must be sold at public sale. Notice of public sale shall be given at such time and in such manner as the Assembly shall prescribe. All other obligations may be sold in such manner as the Assembly shall provide. Nothing in this section shall be construed to prevent a negotiated purchase by the state or federal government of municipal bonds or notes, provided that the fact of the negotiation is made public; and nothing in this section shall be construed to prohibit the negotiated sale to private parties in the event that a public sale produces no bids acceptable to the Assembly.

Section 12.05 Sale to Financial Consultants Prohibited

No person retained by the municipality to perform

services relating to financial programming or the issuance and sale of obligations may bid on such obligations, directly or indirectly. Violation of the provisions of this section shall not invalidate the obligations.

Section 12.06 Actions Challenging the Validity of Obligations.

No action challenging the authority or proceedings for or the validity of, the issuance of obligations, a bond ratification election, or the levy of taxes to pay obligations, may be commenced or maintained unless instituted within thirty days from the date of certification of the results of the election ratifying the issuance, or of the adoption of the ordinance or resolution authorizing the issuance when ratification is not required.

Section 12.07 Interest and Profits from Investments

All interest and profits derived from the investment of the proceeds from the sale of any obligations shall be used solely for the purposes for which such obligations were issued, or for their retirement.

ARTICLE XIII TAXATION

Section 13.01 Tax Procedures

The Assembly shall prescribe by ordinance the procedures for tax assessment and collection.

(a) **Property Assessment.** Such procedures shall provide for the assessment of property at its full and true value and for notice of assessment, administrative appeal, and judicial review.

(b) **Property Tax First Lien.** Any property tax, together with collection charges, penalties, and interest, is a first lien on that property.

(c) **Sales and Use Tax.** Any sales or use tax or change in rate thereof shall be by ordinance ratified by a majority of the qualified voters voting on the question.

Section 13.02 Private Interests Taxable.

Private leaseholds, contracts or interests in land or property owned or held by the United States, the state, or other political subdivisions, shall be taxable to the extent of the interests. This paragraph shall have no effect on the right of the municipality to tax other property and no lien provided for in this article shall be construed as an exclusive remedy for the collection of taxes.

Section 13.03 Property Tax Limit

Any ordinance levying ad valorem property taxes for any fiscal year in excess of three percent of the assessed valuation of the property to be taxed shall not be valid until ratified by a majority of the voters voting on the question at a general or special election held in the area affected.

ARTICLE XIV

SERVICE AREAS

Section 14.01 Purpose

Service areas may be established to provide services not provided on an areawide basis or to provide a higher level of service than that provided on an areawide basis.

Section 14.02 Establishment

(a) **By Ordinance.** The Assembly by ordinance may establish, alter, consolidate, or abolish service areas. The Assembly by ordinance may add or eliminate services to a service area. The ordinance shall contain the following:

- (1) Boundaries and area to be included;
- (2) Service to be provided or be eliminated; and
- (3) Other provisions the Assembly includes.

(b) **By Petition.** Procedures for the establishment by petition, or in protest, of a service area shall be in accordance with Section 6.01 of this Charter as it would apply to the area in question. If a petition of protest is filed, the ordinance is suspended until ratified by a majority of those in the service area voting on the question. Each new service or each service to be eliminated shall be placed separately on the ballot.

Section 14.03 Criteria

Service areas shall be established according to criteria of need and economic operating efficiency and shall comprise the area to which the services shall be provided. A new service area shall be established only after Assembly determination that such services cannot be provided reasonably by an existing service area or by alteration of an existing service area.

Section 14.04 Financing

The Assembly may levy taxes, assessments, or other charges within a service area to finance the services, and funds thereby raised shall not be used for any purpose outside of the service area.

ARTICLE XV

LOCAL IMPROVEMENT DISTRICTS

Section 15.01 Purpose

Local improvement districts may be established in a limited and determinable area to confer the special benefits of any municipal improvement. All or any part of the costs of the improvement may be paid out of the proceeds of special assessments levied against the benefitted property.

Section 15.02 Local Improvement Procedure

The Assembly by ordinance shall prescribe procedures for establishment of local improvement districts and for agreements for furnishing capital improvements and the extension thereof in lieu of assessments.

Section 15.03 Assessment in Proportion to Benefit

The Assembly by ordinance shall establish the method of apportioning and assessing the cost of improvements upon benefitted real property. Costs shall be assessed against real property specially benefitted in proportion to the benefits.

Section 15.04 Lien

A special assessment, together with collection and interest charges, is a lien on the property assessed second in priority only to property taxes and prior special assessments. The assessment lien shall be enforceable in the same manner as a lien for municipal taxes.

Section 15.05 Protests

If protests as to the necessity for any local improvement are made within the time allowed by ordinance by the owners of real property that will bear at least fifty percent of the estimated cost to be borne by the benefitted property, the improvement shall not proceed until the protests have been reduced below fifty percent.

Section 15.06 Limitation on Actions

No special assessment procedure may be contested by an action at law or in equity unless commenced within sixty days after the confirmation of the special assessment roll.

Section 15.07 Property Liable.

All real property, including property exempt from taxation as provided by law, shall be liable for the cost of local improvements unless specifically exempted by ordinance of general effect.

Section 15.08 Receipts

Accounts for local improvement districts shall be kept separate from other municipal accounts. Revenues from a special assessment shall be used solely to pay the cost of the improvements or the principal and interest on indebtedness incurred for the improvements.

ARTICLE XVI

CHARTER AMENDMENT

Section 16.01 Proposal

Amendments to this charter may be proposed:

1. By ordinance of the Assembly containing the full text of the proposed amendment, or
2. By report of an elected charter commission created by Assembly ordinance or by initiative ordinance, or
3. By initiative petition.

Section 16.02 Election.

Proposed amendments shall be submitted to the qualified voters of the municipality at the next regular or special election occurring more than forty-five days after the adoption of the ordinance, the final report of the charter commission, or certification of the initiative petition. A notice containing the full text of each proposed amendment shall be published.

Section 16.03 Effective Date.

If a majority of the qualified voters voting on a proposed amendment approve, the amendment shall become effective at the time fixed therein or, if no time is so fixed, thirty days after certification of the election.

ARTICLE XVII

GENERAL PROVISIONS

Section 17.01 Personal Financial Interest

(a) **Prohibition.** No elected official may vote on any question on which he has a substantial financial interest. Any municipal officer, employee, or assemblyman who has a substantial financial interest in any contract with the municipality or in the sale of any land, material, supplies or services to the municipality or to a contractor supplying the municipality shall make known that interest and shall refrain from participating in his capacity as a municipal officer, employee, or assemblyman in the making of such sale or in the making or performance of such contract.

(b) **Punishment.** Any municipal officer, employee or assemblyman who conceals such financial interest or willfully violates the requirements of this section shall be guilty of malfeasance in office and shall forfeit his office or employment. Violation of this section with the knowledge express or implied of the person contracting with or making a sale to the municipality shall render the contract or sale to the municipality voidable by the administrator or the Assembly.

(c) **Additional Rules.** The Assembly by ordinance may prescribe additional rules and penalties to prevent conflicts of interest.

Section 17.02 Prohibitions

(a) **Discrimination.** No person may be discriminated against in any municipal appointment, employment, or promotion because of race, sex, color, political or religious affiliation, or national origin.

(b) **Personnel Regulations.** No person may willfully falsify any test, certification or appointment under the personnel regulations, or in any manner commit or attempt to commit any fraud to prevent the impartial execution of such regulations.

(c) **Undue Influence.** No person may offer, give, or receive any money, service, or other valuable thing to influence or attempt to influence any action of an officer or employee in the performance of his municipal duties.

(d) **Solicitation.** No assemblyman, municipal officer or administrative employee may directly or indirectly solicit a contribution for any political party or purpose from any person holding a compensated municipal position.

Section 17.03 Surety Bonds

The municipal administrator, the municipal clerk or such other officers and employees as the Assembly may designate, before entering upon their duties, shall be bonded, by individual and or group bonds, for the faithful performance of their respective duties, payable to the municipality, in such form and in such amounts as the Assembly may prescribe, with a surety company

authorized to operate within the state. The municipality shall pay the premiums on such bonds.

Section 17.04 Oath of Office.

Every officer of the municipality, before entering upon his duties, shall take the oath or affirmation required by section 5 of Article XII, Constitution of the State of Alaska. The Assembly may require designated employees to take such oath before entering upon their employment. Oaths of office shall be filed with the municipal clerk.

Section 17.05 Continued Office.

Every officer who is elected or appointed for a term ending at a definite time shall continue to serve until his successor qualifies and takes office, except in the case of death, resignation, or termination by law or this charter.

Section 17.06 Municipal Proceedings

The Assembly by ordinance shall establish procedures governing administrative proceedings in which the legal rights, duties, privileges or penalties of persons are to be determined; insure fair and equal treatment of all persons involved in such proceedings; and provide for the conduct of such proceedings in an orderly and uniform manner.

Section 17.07 Records to be Public

All records of the municipality shall be public except as otherwise provided by law. Records shall be available at municipal offices for public inspection and for distribution at such reasonable price as the Assembly may direct. Copies certified by the clerk shall be prima facie evidence of their contents.

Section 17.08 Adverse Possession

The municipality may not be divested of title to real property by adverse possession.

Section 17.09 Actionable Claims

Except as provided in Section 17.10 of this charter, provisions of law governing claims against municipal corporations apply to claims actionable against the municipality.

Section 17.10 Claims for Injuries.

(a) **Notice of Injury.** The municipality shall not be liable in damages for injury to person or property by reason of negligence or gross negligence unless, within four months after the injury occurs, the person damaged or his representative serves written notice to an officer upon whom process may be served. The notice shall state that the person intends to hold the municipality liable for damages and shall set forth with clarity the time and place of the injury, the manner in which it occurred, the nature of the act or defect complained of, the extent of the injury so far as known, and the names and addresses of witnesses known to the claimant.

(B) **Presentation of Claim.** No person may bring an action against the municipality for damages to person or property by reason of negligence or gross negligence unless the action is brought within the period prescribed by law and he has first presented to the administrator a claim in writing under oath setting forth specifically the nature and extent of the injury

and the amount of damages claimed. The administrator shall promptly present the claim to the Assembly for action.

(c) **Failure Bars Action.** Failure to give notice of injury or to present a claim within the time and in the manner provided shall bar an action upon the claim.

(d) **Defense of Immunity.** This section does not waive any defense of immunity which the municipality may have from claims for damages to persons or property.

Section 17.11 Notice of Lien

When any lien other than for ad valorem taxes or special assessments is placed by the municipality on any real property, notification of the lien shall be sent by registered or other special mail to the person whose name appears as owner of the property on the most recent tax assessment roll.

Section 17.12 Regulation of Water and Submerged Lands

The Assembly may regulate the use and development of all waters and submerged lands which are subject to the jurisdiction of the municipality.

Section 17.13 Separability

If any provision of this charter is held invalid, other provisions shall not be affected. If the application of this or any of its provisions to a person or circumstance is held invalid, the application of this charter or any of its provisions to other persons or circumstances shall not be affected.

ARTICLE XVIII TRANSITIONAL PROVISIONS

Section 18.01 Effective Date

Except as provided for in Sections 18.02 and 18.03 which shall be effective upon ratification, the newly elected municipal assembly will assume full control of the area unified by this charter on its effective date, December 2, 1971, at which time the former governments shall cease to exist.

No elected positions shall be placed before the electorate by the governments to be unified after ratification of this charter.

Any elections concerning bonds propositions pending prior to ratification of this charter shall be held only under authority of this charter.

Section 18.02 Election

The first election after ratification of this charter shall take place on November 2, 1971 and shall be for the purpose of electing the first Assembly and to elect school board members to replace those whose terms ordinarily would have expired in October, 1971. The election shall be held subject to and regulated by Sections 2.03 and 10.02 of this charter. The borough clerk shall act ex-officio as election clerk.

Section 18.03 First Meeting of Assembly

The Assembly shall meet and organize within seven days of certification of the election subject to and regulated by Section 2.06 of this charter. From the time

of the first meeting of the Assembly the provisions of this charter shall be in effect insofar as they are applicable to the selection of an administrator, administration of existing budgets and general organization of the municipality.

Section 18.04 Costs

Costs incurred in the administration of this charter from the date of ratification to December 2, 1971, shall be paid from area-wide funds of the Greater Sitka Borough upon proper verification.

Section 18.05 Cooperation of Local Governments

To provide a period for an orderly transition and for the new municipal government to organize, the governments being unified shall continue to function in their respective areas until December 2, 1971. All officers, employees, departments, offices, committees, boards and commission of local governments shall cooperate with and assist the Assembly to facilitate unification in the most efficient and orderly fashion. All records, files and other data in possession of both local governments to be dissolved shall be available for inspection by the Assembly and shall become the property of and be in the control of the municipality on December 2, 1971.

Section 18.06 Transitional Budgets

Following ratification of this charter, the municipality shall operate under the budgets of the governments to be unified until June 30, 1972.

Before December 2, 1971, the local governments affected by this charter whose fiscal years end on December 31, 1971 shall prepare budgets covering the six-month period from January 1, 1972, to June 30, 1972. The municipal Assembly shall provide for tax levies sufficient to meet the requirements of these budgets.

Section 18.07 Transitional Audits

Transitional audits of the local governments to be dissolved shall be performed within 30 days after December 2, 1971, and presented to the municipal Assembly on completion. Any audit which would have normally been made at December 31, 1971, shall be postponed until June 30, 1972.

Section 18.08 Continuation of Employment

All employees of governments being unified shall continue in employment until the Assembly adopts by ordinance an administrative code; current employees of the former governments may be terminated only for cause. Salaries and benefits enjoyed under their former employment shall continue until the new code is effective.

Current employees of the former governments shall be given preference in municipal employment. Such current employees affected by the unification of duplicative agencies of the former governments are entitled to preference in other municipal employment in comparable capacities, without loss of income. Pension plans, collective bargaining agreements, and other existing employee benefits shall not be diminished by the adoption of this charter.

Section 18.09 Administrative Code and Personnel Policy

By July 1, 1972, the Assembly shall adopt by ordinance an administrative code and personnel policies, subject to and regulated by Section 3.05 of this charter.

Section 18.10 Boards, Committees and Commissions

Except for those provided for by this charter, all appointed committees, commissions and boards in effect at the time this charter is ratified shall be dissolved one year after the effective date of this charter unless sooner abolished or specifically continued by ordinance.

Section 18.11 Ordinances and Resolutions

To the extent not inconsistent with the charter, ordinances, resolutions and orders of local governments to be dissolved shall continue in full force and effect in their respective jurisdictions until no later than 2 years after ratification of this charter when they shall expire, unless, after substantive review by the Assembly, each ordinance, resolution, or order has been expressly reaffirmed, revised, or repealed. The administrator and municipal attorney shall, eighteen months after ratification of this charter, submit a comprehensive substantive study of remaining pre-unification ordinances and resolutions to aid the Assembly in the adoption of an integrated code.

Section 18.12 Pre-unification Assets, Liabilities, Sales Taxes, Reserves and Franchises

(a) **Assets and Liabilities.** The municipality shall succeed to all the assets and liabilities of the local governments. Bonded indebtedness incurred before unification shall remain the tax obligation of the area which contracted the debt, except that the tax obligation shall be spread over a larger area by vote of the Assembly if the asset, for which the bonded indebtedness or other liability was incurred, is used for the benefit of a larger area.

(b) **Sales and Use Taxes.** All revenues from sales and use taxes in effect at the time this charter goes into effect shall continue to be allocated in accordance with existing ordinances until changed as provided by Section 13.01(c) of this charter.

(c) **Reserves.** Any pledged reserve accounts of the prior local governments shall remain committed to the purposes for which they were originally dedicated.

(d) **Franchises.** All existing franchises of the governments to be unified shall continue after ratification of this charter until they expire, are extended, renewed, or revoked by the municipal Assembly.

Section 18.13 Functions to Continue

Subject to Article XIV of this charter, service areas and local improvement districts in existence at the time of enactment of this charter shall continue to exist. The area of the City of Sitka shall comprise a service area. The functions of local government and service areas being exercised immediately prior to enactment of this charter may continue insofar as consistent with this charter, except that the Assembly may alter, consolidate, or abolish service areas and may add or eliminate services as provided by Article XIV of this charter.

Section 18.14 Continuance of Actions

The adoption of this charter shall not abate or otherwise affect any action, cause of action, claim, or proceeding, civil or criminal, by or against a local government to be dissolved and which had accrued at the time of the effective date of this charter. All applications, petitions, hearings, and other proceedings pending on the effective date before a local government to be dissolved shall be continued before the municipality.

Section 18.15 Salaries

Assemblymen shall receive an initial monthly salary of \$25.00 per regular meeting attended, \$5.00 per special meeting attended, and \$10.00 per work session attended. In addition to payment for meetings attended, the Mayor shall receive \$150.00 per month.

Section 18.16 Penalties

By July 1, 1973, the Assembly by ordinance shall prescribe penalties for violations of this charter if no penalty is prescribed by this charter.

We, the duly elected members of the Sitka Charter Commission, having been empowered pursuant to Title 29, Chapter 85, of the statutes of the State of Alaska to prepare a home rule charter, do, on this twelfth day of August, nineteen hundred and seventy one, hereby present the foregoing charter for the City and Borough of Sitka for adoption by the voters of the Greater Sitka Borough.

(signed)
Ben F. Grussendorf
(Chairman)
Margaret Ballard
Justin Fager
Judson R. Lanier
John MacDonald
Virgil J. Wright

E. M. Calhoun
(Vice-Chairman)
Harvey Marvin
Kenneth Marvin
James T. Poulson
Gordon Whitcomb

EXHIBIT A-1
CERTIFICATION OF CITY CHARTER

CERTIFICATION

I, Myrtle V. Flynn, do hereby certify that I am Clerk of the City and Borough of Sitka, duly qualified and appointed; that the attached Charter is a true and correct copy of the Home Rule Charter of the City and Borough of Sitka as adopted by electorate of the City and Borough at a special election held on the 21st day of Sept., 1971, and duly recorded in my office; that said election was held in all respects in accordance with law, and to the extent required by law, due and proper notice of such election was given.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed the seal of the City and Borough of Sitka, this 14th day of Sept., 1977.

Myrtle V. Flynn, Clerk

EXHIBIT B

RESOLUTION AUTHORIZING THE FILING OF
APPLICATION FOR LICENSE

CITY AND BOROUGH OF SITKA

RESOLUTION NO. 77-95

A RESOLUTION OF THE CITY AND BOROUGH OF SITKA, ALASKA, AUTHORIZING THE ADMINISTRATOR TO PROCEED IMMEDIATELY WITH FILING THE NECESSARY DOCUMENTS AND EXHIBITS WITH THE FEDERAL POWER COMMISSION IN ORDER TO OBTAIN THE LICENSE TO AUTHORIZE THE CONSTRUCTION AND OPERATION OF THE GREEN LAKE HYDROELECTRIC PROJECT.

WHEREAS, the power requirements of the City and Borough of Sitka have demonstrated a rapid and substantial growth, and

WHEREAS, the City and Borough of Sitka has foreseen this requirement and has accomplished an extensive series of studies to determine the most economical and beneficial means to improve the reliability of its power supply, and

WHEREAS, the final recommendations of the Consultants retained by the City and Borough of Sitka are contained in the recently completed report titled Evaluation Report for the Green Lake Project, and

WHEREAS, upon thorough review of the report by the Assembly of the City and Borough of Sitka, it is concluded that the best alternate plan to satisfy the latest forecast of developing power requirements is that plan identified in the report titled Evaluation Report for the Green Lake Project as the Green Lake Project.

WHEREAS, the City and Borough of Sitka will require a license from the Federal Power Commission in order to authorize the construction and operation of the Project,

NOW, THEREFORE, BE IT RESOLVED THAT, the City and Borough of Sitka hereby authorizes its Administrator to proceed immediately with filing the necessary documents and exhibits with the Federal Power Commission in order to obtain the license to authorize the construction and operation of the Green Lake Hydroelectric Project.

PASSED, APPROVED AND ADOPTED by the Assembly of the City and Borough of Sitka, Alaska on this 10th day of MAY, 1977.

Ben F. Grussendorf, Mayor

ATTEST:

Esther Middleton, Acting Clerk

EXHIBIT B-1

CERTIFICATION OF APPLICANT'S RESOLUTION

CERTIFICATION

I, Esther Middleton, do hereby certify that I am Acting Clerk of the City and Borough of Sitka, a municipality organized and existing under the laws of the State of Alaska; that the foregoing is a complete and correct copy of the Resolution adopted at a meeting of the Assembly of this City and Borough, duly and properly called and held on the 10th day of MAY, 1977; that a quorum was present at the meeting; that the Resolution is set forth in the minutes of the meeting and has not been rescinded or modified.

IN WITNESS WHEREOF, I have hereunto subscribed my name and affixed the seal of the City and Borough of Sitka this 13th day of MAY, 1977.

Esther Middleton, Acting Clerk

CITY AND BOROUGH OF SITKA

EXHIBIT C

STATEMENT AS TO SPECIAL LAWS OF THE STATE OF ALASKA
PERTAINING TO THE CONSTRUCTION OF THE PROJECT

There are no special hydroelectric, water power, or irrigation laws in the State of Alaska which pertain to the Project for which a license is applied for herein.

EXHIBIT D

STATEMENT THAT THE APPLICANT HAS COMPLIED
WITH THE LAWS OF THE STATE OF ALASKA
WITH RESPECT TO BED AND BANKS, ITS USE
OF THE WATER AND ITS RIGHT TO ENGAGE IN
THE BUSINESS OF DEVELOPING, TRANSMITTING
AND DISTRIBUTING ELECTRIC POWER

The Applicant has complied with the requirements of the laws of the State of Alaska with respect to the right to engage in the business of developing, transmitting and distributing electrical power, and in any other business, necessary to effect the purpose applied for in the License. The Applicant is currently acquiring the necessary State franchises with respect to bed and banks and will submit a full disclosure of these items to the Commission as they become available.

EXHIBIT E

STATEMENT OF THE NATURE, EXTENT AND OWNERSHIP OF THE WATER RIGHTS FOR THE PROJECT

The Applicant has made application to the Alaska Division of Lands and Water for a Certificate of Appropriation for the water rights necessary to develop the Project and a copy of the application is contained in Exhibit E-1. Upon receipt of the Certificate of Appropriation the Applicant will submit the necessary copies, with certification as required, to the Commission.

EXHIBIT E-1

WATER RIGHTS CERTIFICATE APPLICATION

State of Alaska
Department of Natural Resources
Division of Lands
Water Resources Section

Application for Water Rights

ADL No. _____

Please type or print

Name(s) of applicant(s) and mailing address(es) City and Borough of Sitka, P.O. Box 79
Sitka, Alaska 98835 Attn: Mr. Fermin Gutierrez, Administrator

Source from which water will be or is being taken:

- (a) Ground water (i.e., drilled or excavated well): Yes _____ No X
(b) Surface water (check appropriate space): Stream _____ River X Lake X Spring _____

NOTE: If dam or other alteration of water body is planned, Form 10-12C must also be completed.

(c) Geographical name of surface water source (if unnamed so state): Vodopad River and Green Lake

Legal description of property where water is taken:

- (a) Fractional part see Appendix A, Section _____, Township _____, Range _____, Meridian _____
(b) If applicable, also state U. S. Survey number, and block and lot number, or Subdivision and block and lot numbers: _____

Does applicant own the land at point of taking: Yes _____ No X

If "No", name and address of present owner: United States Government

Has easement or right of way been acquired to cross these lands: Yes _____ No X (If "Yes", supply copy of same)

Legal description of property where water is used:

- (a) Fractional part SW1/4 NW1/4, Section 29, Township 56S, Range 65E, Copper River Meridian _____
(b) If applicable, also state U. S. Survey number, and block and lot number, or Subdivision and block and lot number: N/A

Does applicant own the land at the point of use: Yes _____ No X; Patented _____ Unpatented mineral claims _____

If "No", name and address of present owner: United States Government

State type of use: Full time X; Part time _____ Fully describe the use The water will be used to generate
Example of types: Domestic, i.e., family or multifamily

electric power for the City and Borough of Sitka, Alaska
residential, recreation cabin, commercial, industrial, agricultural, mining, municipal, community system, power generation, etc. Use separate page
Non-consumptive use.

If necessary.

State type of structure(s) presently in use or which will be used for withdrawal, impoundment, diversion, and/or transport of water: _____ Give dimensions

See Appendix B

and specifications, using separate page if necessary.

Estimated amount of water to be used, or if already in operation, amount used. Express in gallons per day (gpd) or cubic feet per second (cfs), using Quantity Reference Sheet attached to this form. (Give basis for amount on Quantity Reference Sheet.)

310 cfs

State time required to perfect your use for amount of water requested see Appendix B

If application is for a surface water source, state names and addresses of any persons who may be affected by your withdrawal giving their location of use (i.e., 500 feet upstream, one mile downstream, lakeshore property owner, etc.).

see Appendix C

If application is for a ground water source, state names and addresses of any other persons using ground water within 1500 feet of your point taking, including their location of use (i.e., 1200 feet north, 1500 feet south, etc.).

N/A

(a) If application is for ground water source presently in use, attach copy of driller's log with name and address of driller.

(b) If no driller's log, supply all known information Intake depth, screened, static level, drawdown, total depth.

Is the location of your water taking and use within a borough: Yes X No _____

If "Yes", give name of borough Greater Sitka Borough

Date when your water use first began or is expected to begin June 1981

THE APPLICANT HEREBY CERTIFIES THAT THE STATEMENTS APPEARING HEREIN ARE TO THE BEST OF HIS KNOWLEDGE TRUE AND CORRECT.

[Handwritten Signature]
Signature of applicant

June 20, 1977
Date application completed

Filed and sworn to before me this 20th day of June, 19 77

[Handwritten Signature]
Notary Public
State of Alaska
My Commission Expires 3/20/80

This application will not be considered unless it is accompanied by:

1. (a) A filing fee of ten dollars (\$10.00) if the use is less than 5,000 gallons per day.
- (b) A filing fee of twenty dollars (\$20.00) if the use exceeds 5,000 gallons per day, and
2. A sketch plat sufficiently detailed to accurately locate the point of water taking and use. The sketch should show any special or rectangular survey boundaries, streams, lakes, etc., and the dimensions of any structures used, such as dams or weirs, including the length and size of pipelines or diversion ditches, etc. Use Page 4 for sketch plat.

Checks are to be payable to the Alaska Department of Revenue.

Quantity Reference Sheet
For Purposes of Estimating Amount of Water Used

Fire fighting is not an appropriate use. No quantity should be computed.

Express quantity in gallons per day (gpd), cubic feet per second (cfs) or acre feet.

HOMES, RESORTS, HOTELS, TRAILER COURTS, ETC.		Your Estimate
Yard and garden	Dimensions _____	_____ gpd
Fully plumbed unit	100 gpd per person.....	_____ gpd
Partially modern unit	40 gpd per person.....	_____ gpd
Outside supply only	15 gpd per person.....	_____ gpd

IRRIGATION

Per acre cultivated: 1.0 to 1.5 acre feet/per acre/per year _____ acre ft.

LIVESTOCK

Dairy cows	30 gpd per head	_____ gpd
Hosing out dairy barn	35 gpd per head	_____ gpd
Range cattle	15 gpd per head	_____ gpd
Horses	15 gpd per head	_____ gpd
Sheep	2 gpd per head	_____ gpd
Goats and hogs	3 gpd per head	_____ gpd
Poultry, rabbits, etc.	1 gpd per head	_____ gpd

COMMERCIAL - INDUSTRIAL - MINING

Type of operation and methods. Explain in detail
 basis for quantity of water requested..... 310 (~~xxx~~) (cfs)

The most economically feasible project configuration for this site is designed to utilize all available runoff from the reservoir drainage basin which is estimated to be 310 cfs.

TOTAL AMOUNT OF WATER REQUESTED 310 cfs

Table of Equivalents

One second-foot expresses a rate of flow of water equal to one cubic foot each second and is equivalent to the following:

- 1 cfs = 7.48 U.S. gallons per second
- = 448.8 U.S. gallons per minute
- = 646,317 U.S. gallons per day
- = 1.98 acre feet per day
- = 40 standard (statute) miner's inches

One acre-foot expresses a definite volume of water which will cover one acre to a depth of one foot and is equivalent to the following:

- 1 acre foot = 43,560 cubic feet
- = 325,851 U.S. gallons
- 1,000,000 U.S. gallons per day = 1.55 second-feet
- 1,000,000 U.S. gallons = 3.07 acre feet

APPENDIX A

CITY AND BOROUGH OF SITKA, ALASKA
GREEN LAKE PROJECT
APPLICATION FOR WATER RIGHTS

LEGAL DESCRIPTION OF PROPERTY WHERE WATER IS TAKEN

<u>Project Feature</u>	<u>Description</u>
Green Lake Reservoir and Dam Site	S-1/2 SW1/4: SEC 21 T56S R65E S-1/2 SW1/4: SEC 26 T56S R65E SW1/4 NW1/4, SW1/4, SE1/4: SEC 27 T56S R65E NW1/4, SE1/4, S1/2 NE1/4, N1/2 SW1/4: SEC 28 T56S R65E NE1/4, SE1/4 NW1/4: SEC 29 T56S R65E NE1/4 NE1/4: SEC 33 T56S R65E NE1/4, N1/2 NW1/4: SEC 34 T56S R65E NW1/4, NE1/4, N1/2 SW1/4, N1/2 SE1/4, SE1/4 SE1/4: SEC 35 T56S R65E SW1/4 NW1/4, S1/2 SW1/4, NW1/4 SW1/4: SEC 36 T56S R65E
Copper River Meridian	

Note:

The Project is located on unsurveyed U.S. Government lands and the above description is based on land lines projected by the Alaska Division of Lands.

May 27, 1977

APPENDIX B
CITY AND BOROUGH OF SITKA, ALASKA
GREEN LAKE PROJECT
BROCHURE OF PRELIMINARY PROJECT DATA

Compiled as supportive data
for Water Rights Application

May 23, 1977

R. W. BECK AND ASSOCIATES, INC.
Engineers and Consultants

Seattle, Washington

Orlando, Florida

Denver, Colorado

Columbus, Nebraska

Wellesley, Massachusetts

Phoenix, Arizona

Indianapolis, Indiana

CITY AND BOROUGH OF SITKA, ALASKA

GREEN LAKE PROJECT

PROJECT DESCRIPTION

The Green Lake Project is a hydroelectric development designed to help meet Sitka's growing power needs in the early 1980's. The Project will be located at Green Lake on the Vodopad River near its confluence with Silver Bay. The Project site is located about ten (10) air miles southeast of Sitka.

The Project will consist of the following features: a 250-foot high concrete arch dam immediately downstream of the outlet of Green Lake, a 1,900-foot long power tunnel, a powerhouse located near Silver Bay containing 16,600 kW of installed capacity, a 6.5-mile single-lane construction access road which will connect to the existing highway at Herring Cove, and an 8-mile long 69-kV transmission line generally paralleling the access road and connecting with the existing upgraded transmission system at Sawmill Cove.

Access road construction is scheduled to start in the spring of 1978 with major project construction starting in the spring of 1979. The Project is scheduled to be on-line in late 1981.

PROJECT DATA SUMMARY

VODOPAD RIVER HYDROLOGY

Drainage Area, sq. mi.	28.2
Average Annual Precipitation (at Sitka), in. ...	96.0
Average Annual Runoff:	
cfs	310
cfsm	11.0
Probable Maximum Flood:	
Peak Inflow, cfs	42,600
Volume, ac-ft.	43,200

PROJECT FEATURES

Green Lake Reservoir

Normal Maximum Pool Elevation (MSL)	390
Minimum Reservoir Elevation (MSL)	280
Reservoir Area @ Normal Maximum Pool, acres	1,000
Active Storage Capacity, acre-feet	74,000

Dam

Type - Double Curvature Concrete Arch	
Crest Elevation (MSL)	400
Crest Length, ft.	435
Height Above Foundation, ft.	230

Spillway

Type - Ungated, Ogee Weir Located in the Dam Crest	
Crest Length, ft.	100
Crest Elevation (MSL)	390
Maximum Capacity/Head, cfs/ft.	12,000/10

Power Tunnel

Type - A Circular Partially Concrete-Lined Tunnel with a Steel-Lined Penstock Section Near the Powerhouse.	
Unlined Tunnel:	
Length, ft.	1,200
Diameter, ft.	11
Concrete-Lined Tunnel:	
Length, ft.	660
Diameter, ft.	8

Power Tunnel (cont.)

Steel-Lined Penstock Section:	
Length, ft.	50
Diameter, ft.	5.6

Powerhouse Structure

Type - Reinforced Concrete Above-Ground Structure.	
Length, ft.	78
Width, ft.	29
Height (Minimum), ft.	30

Turbine-Generators

No. of Units	2
Turbine Type	Vertical Shaft Francis
Total Installed Capacity (kW)	16,600

Switchyard

Type - Conventional - Three (3) Transformers with One (1) Spare, One (1) Oil Circuit Breaker and Related Equipment.	
Transformer Rating (Each) kVA	3,815

Transmission System

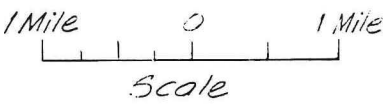
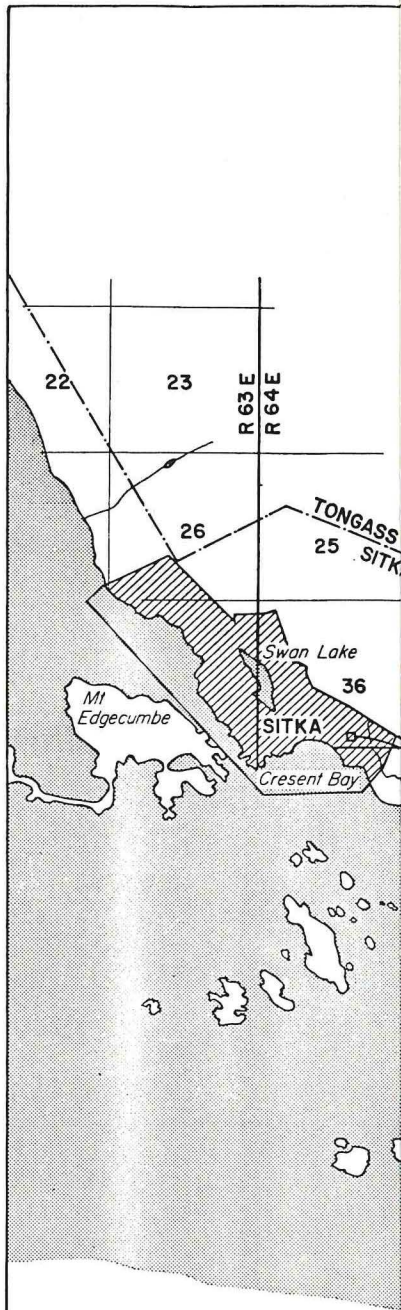
Type - Single Wood-Pole Construction with Crossarms, Line Extending from Powerhouse to Interconnection with Upgraded Existing System at Sawmill Cove.	
Voltage, kV	69
Length, mi.	7.5

Access Road

Type - Single-Lane Construction with Turnouts, Extending from the Project Site and Connecting with Existing Road at Herring Cove. Public Vehicle Access to be Prohibited by Locked Gate and Chain at Herring Cove.	
Length, mi.	6.58
Width:	
Traveled Way, ft.	14
Turnouts, ft.	22

R. W. BECK AND ASSOCIATES, INC.

May 23, 1977



R. W. BECK and ASSOCIATES		
GREEN LAKE PROJECT		
PROJECT MAP		
Dwn.	Date	Sketch#
DRB	MAR 77	462-K-9.B

APPENDIX C

CITY AND BOROUGH OF SITKA, ALASKA
GREEN LAKE PROJECT
APPLICATION FOR WATER RIGHTS

INFORMATION REGARDING PERSONS WHO MAY BE
AFFECTED BY WITHDRAWAL

On August 19, 1970, the State of Alaska issued Certificate of Appropriation of Water No. 533 to the Edgecumbe Exploration Company, Inc., Box 758, Sitka, Alaska 99835. This certificate granted the company the right to use 1,619,800 gallons of water per day from the public waters of the State of Alaska for the purposes of mining and power generation. The water was to be taken from the Green Lake outlet through a concrete and rock diversion dam and flume intake to be used for a sawmill and power plant on an Edgecumbe Exploration Company site approximately 1,500 feet downstream from the outlet.

An inspection by the Applicant's engineer in the fall of 1976 showed no use or provision for use of the said water appropriation right.

May 27, 1977

EXHIBIT F

SUMMARY OF THE NATURE AND EXTENT OF THE
APPLICANT'S TITLE TO OR RIGHTS TO
OCCUPY OR USE THE PRIVATE LANDS NECESSARY
TO DEVELOP, OPERATE AND MAINTAIN THE
PROJECT

The Applicant is acquiring title to approximately 5,700 acres of Tongass National Forest land upon which to develop the Project. The acquisition is authorized under Section 6(a) of the Alaska Statehood Act (PL 85-508), which allows for selection of national forest lands for economic development purposes. A full description of the lands being selected and the extent to which the Project will occupy those lands, is provided in Table F-1.

Upon completion of the selection and transfer of title to the Applicant, the Project will be located wholly on private lands owned by the Applicant. Full details of the selection will be submitted to the Commission in accordance with Commission regulations.

GREEN LAKE PROJECT

DESCRIPTION OF SELECTED AND PROJECT LANDS

Unsurveyed Lands

T.56S., R.64E, Copper River Meridian (CRM) Protracted.

<u>Section</u>	<u>Aliquot Parts</u>	<u>Selected Acres</u>	<u>Project Acres</u>	<u>Exhibit</u>
2	W-1/2 E-1/2, W-1/2	390	24	K-1
3	E-1/2, E-1/2 NW-1/2	190 ⁽¹⁾	36 ⁽²⁾	K-1
11	E-1/2, NW-1/4	180	26	K-1
12	S-1/2 NW-1/4, SW-1/4 NW-1/4 SE-1/4, S-1/2 SE-1/4	325	13	K-1
13	E-1/2, N-1/2 NW-1/4	186	38	K-1, K-2
24	NE-1/4	40	12	K-2

T.56S., R.65E. CRM (Protracted).

18	N-1/2, SW-1/4, NW-1/4 SE-1/4	503	17	K-2
19	SW-1/2 NE-1/4, W-1/2, SE-1/4	390	23	K-2
20	S-1/2 S-1/2	160	0	K-3
21	S-1/2 SW-1/4	80	4	K-3
26	NW-1/4 SW-1/4, S-1/2 SW-1/4, SW-1/4 SE-1/4	160	6	K-4
27	NW-1/4 NW-1/4, S-1/2 NW-1/4, S-1/2	440	233	K-3, K-4
28	All	560	325	K-3
29	All	609	142	K-3
30	N-1/2 NE-1/4 N-1/2 S-1/2 NE-1/4	40	16	K-2
33	NE-1/4 NE-1/4	40	2	K-3
34	NE-1/4, N-1/2 NW-1/4, SE-1/4 NW-1/4, NE-1/4 SE-1/4	320	151	K-3, K-4
35	N-1/2, N-1/2 SW-1/4, SE-1/4 SW-1/4, SE-1/4	600	366	K-4
36	W-1/2 NW-1/4, SW-1/4, W-1/2 SE-1/4	320	50	K-4

GREEN LAKE PROJECT
DESCRIPTION OF SELECTED AND PROJECT LANDS

<u>Section</u>	<u>Aliquot Parts</u>	<u>Selected Acres</u>	<u>Project Acres</u>	<u>Exhibit</u>
T.57S., R.66E., CRM (Protracted).				
3	NW-1/4 NW-1/4, W-1/2 NE-1/4 NW-1/4	60	0	K-4
4	N-1/2 NE-1/4, E-1/2 NE-1/4 NW-1/4	100	1	K-4

NOTES:

- (1) Excluding U.S. Surveys 3551 and 3665.
- (2) Including right-of-way through U.S. Surveys 3551 and 3665.
- (3) All lands are unpatented, including U.S. Surveys, U.S. Mineral Surveys, islands, pinnacles and rocks, except as excluded above.
- (4) Selected lands to contain 5,693 acres more or less.
- (5) Elevations based on Mean Sea Level (MSL) datum.

EXHIBIT G

STATEMENT OF THE FINANCIAL ABILITY OF THE APPLICANT TO DEVELOP AND OPERATE THE PROJECT

Financing for development of the Project will be either from a loan from the Alaska Water Resources Revolving Loan Fund Alaska Statutes 45, Chapter 86, or the issue of bonds. Upon final selection of the method of financing full details including the cost of financing will be submitted to the Commission in accordance with Commission regulations.

The Applicant represents that it is financially able to construct, operate and maintain the Project and submits the following in support of this statement:

1. Economic and financial analysis of the Project has shown it to be the most desirable generation alternative available to the Applicant.

2. The Applicant anticipates a load growth such that the project's power output will be fully utilized within about 10 years of its on-line date.

3. The Applicant anticipates establishing a rate structure consistent with the needs to meet the on-going costs of debt service, project operation and maintenance.

4. The Applicant has annually submitted financial statements to the Commission on FPC Form 1 demonstrating its financial ability to construct, operate and maintain its existing power system.

EXHIBIT H

STATEMENT OF THE PROPOSED OPERATION OF THE PROJECT DURING PERIODS OF LOW, NORMAL AND FLOOD STREAMFLOWS

1. GENERAL

The proposed Green Lake Project is located near the outlet of the Green Lake-Vodopad River drainage, approximately 10 air miles southeast of Sitka, Alaska. The basin is elongated in shape, approximately 9.5 miles long by 4.5 miles wide and drains an area of 28.2 square miles. The mean basin elevation is about 2,150 feet (MSL) with extremes ranging from 230 feet (MSL) to over 4,000 feet (MSL) and slopes are typically fairly steep. Permanent snow or glacier cover only extends over an insignificant portion of the watershed.

The Vodopad River is the main watercourse in the basin and extends its full length. The gradient of the river is about 36% in the upper 1.9 miles and flattens to 3% in the lower 4.7 miles to Green Lake. From the lake, the river discharges into Silver Bay through a series of falls and rapids in a narrow canyon. The average annual streamflow was determined to be 310 cfs.

The basin shape, relatively steep and narrow, makes it especially responsive to runoff events. High runoff periods normally occur during the rainy fall months while low flow periods occur during winter and early spring months. Only a minor portion of the total runoff comes from glacier contribution.

A concrete arch dam in the narrow canyon at the mouth of Green Lake with the spillway crest at El 390 (MSL) will increase the surface area of the lake from its present size of 173 acres to the proposed 1,000 acres. This will provide an active storage capacity of 74,000 acre-feet which will allow about 95% regulation of the watershed runoff.

2. STREAMFLOW

Ten years of streamflow records from 1915 to 1925 are available for the Vodopad River. The average runoff from the historic records is 215,000 acre-feet per year and recorded daily flows range from a minimum of 10 cfs to a maximum of 3,300 cfs. Since the existing Vodopad River flow data form an insufficient period of record to conduct meaningful long-term operation studies, it was necessary to extend the available data by statistical means. The available data were extended to provide 42 years of streamflow by correlating flows at Green Lake Basin with those at nearby Blue Lake Basin as well as with long-term precipitation data at Sitka. A summary of the historical as well as synthesized flows is shown in Table H-1.

3. PROJECT OPERATION

The Project will be operated as a conventional hydroelectric plant. It will be operated in conjunction with the Blue Lake Project with Blue Lake being operated as a base load unit and Green Lake supplying the remainder of system requirements. The reservoir operation will be such that water will only be drawn from storage to deliver firm energy (see Table H-2) and secondary energy will be generated only at times when the reservoir is full and there is excess flow available. During years of high runoff little water will be drawn from storage and the reservoir will be at higher levels.

During low runoff years, the reservoir will be drawn down as required to deliver firm energy so that maximum reservoir drawdowns will occur during these adverse hydrological periods. The resulting pattern of reservoir fluctuation is illustrated graphically in Exhibit H-1 which shows envelopes of extremes of reservoir levels and the average reservoir levels, by month, for the flow data period studied.

4. FLOOD CONTROL

The reservoir will not be operated for flood control purposes. Accordingly, none of the active reservoir storage volume has been reserved for flood storage and the Project has been designed to safely pass all floods, up to and including the Probable Maximum Flood (PMF).

A flood with one-half the peak inflow and volume of the PMF, the Spillway Design Flood (SDF), will be contained within the ungated overflow spillway located in the dam crest. Larger floods will overtop the dam crest.

The PMF was developed using a synthesized unitgraph derived by Clark's method and applying the unitgraph to the Probable Maximum Precipitation (PMP) in combination with snowmelt for the area. Since the regional drainage characteristics have not been developed for the Green Lake Basin, an area near the Siskiyou Mountains in California, with basin characteristics similar to the Green Lake Basin, was used in the unitgraph derivation. Several methods were used to arrive at a time of concentration which was ultimately fixed at 2.5 hours. The unitgraph derived has a peak inflow of 3,060 cfs and a duration of 30 minutes.

The PMP was developed from information contained in Technical Paper No. 47.⁽¹⁾ The PMP included a compensating adjustment

(1) U.S. Department of Commerce, Technical Paper No. 47, "Probable Maximum Precipitation and Rainfall - Frequency Data for Alaska, for Areas to 400 Square Miles, Durations to 24-Hours, and Return Periods from 1 - 100 Years" 1963.

for drainage area size and resulted in a total rainfall of 29.2 inches over the 24-hour PMP storm period. Snowmelt contribution was derived from criteria developed by the Corps of Engineers⁽²⁾ (Manual No. EM-1110-2-1406) and was calculated to be 5 inches during the 24-hour PMP storm period.

Runoff losses were assumed initially to be approximately equal to precipitation plus snowmelt contribution until the cumulative loss totaled 10% of the rainfall portion; thereafter a constant loss rate of 0.1 inches per hour was used for the remainder of the storm period. By this method the net excess precipitation was determined to be 28.73 inches.

The PMF has a peak inflow of 42,300 cfs and a volume of 43,000 acre-feet. Because of the infrequency of occurrence of the PMF, it was determined that a portion of this flood could be allowed to pass over the non-overflow portion of the dam crest and that the dam crest spillway section would be designed to pass a smaller more frequently occurring flood. With the reservoir at El 390 (MSL), the PMF flood inflow resulted in a peak routed discharge of 32,600 cfs and maximum reservoir surface of El 404.9 (MSL). This resulted in the non-overflow section of the dam being overtopped for about 15 hours. Because of the type of dam structure being used and the quality of the foundation rock, it was determined that nominal overtopping under these conditions could be tolerated without danger to the structure.

The Spillway Design Flood, one-half of the PMF, has a peak inflow of 21,150 cfs and a volume of 21,500 acre-feet. The flood would have an estimated return frequency of about once in

(2) U.S. Army Corps of Engineers, Division of Engineering and Design, Manual No. 1110-2-1406, "Runoff from Snowmelt", January 5, 1960.

5,000 years and when routed, resulted in a peak discharge of 11,000 cfs at reservoir El 399.3 (MSL). The hydrographs for the PMF and Spillway Design Flood are shown in Exhibit H-2.

5. IRRIGATION, MUNICIPAL AND DOMESTIC WATER SUPPLY

No use of the project waters is anticipated for irrigation or water supply.

6. NAVIGATION

The Project will have no effect on commercial navigation since there is none on the Vodopad River or Green Lake. The Vodopad River is not classified as navigable by the U.S. Army Corps of Engineers. The magnitude of the discharge velocity, which will be a maximum of approximately 7 fps during project operation, will not be of an order great enough to present a hazard to navigation in Silver Bay. Resulting turbulence is expected to be minimal.

7. WATER QUALITY

a. Introduction

This section of the Exhibit will discuss the probable effects of the Green Lake Project operation on the water quality of Green Lake and Silver Bay. Construction related impacts on water quality are specifically discussed in Exhibit W, Sections 3 and 4.

While specific effects on water quality as a result of the impoundment are difficult to predict, some conclusions concerning potential and probable effects can be drawn by using the Blue Lake Project (FPC Project No. 2230) as a model.

b. Blue Lake Project

The Blue Lake Project, a conventional hydroelectric development similar in scope to the Green Lake Project and located about eight miles north of Green Lake, was completed and operational in 1961. A chemical similarity between the two lakes was shown in a 1974 limnological study by the Alaska Department of Fish and Game.⁽³⁾ Table H-3 illustrates the physical similarity between Blue Lake and the proposed Green Lake Reservoir. A geological and hydrological similarity may be inferred from the relative proximity of the two lakes and similar mean basin elevations. For these reasons Blue Lake is felt to provide an excellent model of the effects on water quality by the Green Lake Reservoir.

c. Effects of Impoundment

The following effects are considered probable either by reason of simple physical effects of the impoundment or by use of the Blue Lake model.

The degree of thermal stratification in the Green Lake Reservoir can be expected to increase with an attendant drop in atmospheric reaeration as a result of increased depth and reduced velocities in the reservoir. The limnological study indicates a marked thermal stratification in Blue Lake was apparent by late August after being isothermal in May.

A shallow bar (1 to 3 feet below the present surface of Green Lake) separates the lake into east and west basins. Circulation within the lake should greatly improve as a result of the "elimination" of the two-basin effect.

(3) Water Resources in Alaska, "Limnological Investigations of Six Lakes in Southeast Alaska", WRI 76-122, prepared by the U.S. Department of the Interior, Geological Survey in Cooperation with the Alaska Department of Fish and Game.

Although the limnological study of Green Lake indicates low turbidity, natural levels increase markedly under certain conditions. Specific sightings by Artwin Schmidt (Sept. 14-15, 1975) and R. W. Beck personnel (Oct., 1976) have shown pronounced turbidity in Silver Bay and Green Lake after periods of heavy rains. This turbidity is felt to be caused by silt from stream scouring in the Vodopad River Valley during periods of high runoff. This turbidity during these periods is felt to be short-term, up to several days, due to the low retention time in Green Lake and flushing action of the tidal flow in Silver Bay.

A beneficial effect on water quality as a result of impoundment will be a reduction of this turbidity due to the inundation of much of the silt producing areas along the Vodopad River Valley. Sediments flowing into the Green Lake Reservoir will most likely settle there due to the lower velocities and longer detention time in the reservoir. However, the volume of silt flowing into the proposed reservoir is expected to be small and will not have any adverse effect on project operation.

"The relative productivity of Green Lake is expected to increase temporarily as decomposing organic material creates additional nutrients to serve as a food source for the resident brook trout population. Blue Lake showed an increased productivity for a period of about 10 years before stabilizing at a comparatively low nutrient level. A similar evolution in productive capacity can be anticipated for the proposed Green Lake Reservoir."⁽⁴⁾

(4) Investigation of the Biotic Communities in the Vicinity of Green Lake, Baranof Island, Alaska, Prepared for R. W. Beck and Associates, Inc., by Dr. David T. Hoopes, July 15, 1977.

d. Silver Bay

Turbidity during construction is expected to be the major project-related effect on the water quality in Silver Bay. Turbidity will exceed State limits for short periods of time during construction. The Applicant is aware of the effects of excessive turbidity on sight-feeding aquatic life and birds and measures will be taken to lessen the impact of turbidity (see Exhibit W, Sections 3 and 4). However, no permanent damage to either population is expected.

Project operation is expected to have little or no effect on the water quality or thermal regime of Silver Bay.

e. Conclusion

No significant adverse effect on the water quality of either Green Lake or Silver Bay is expected to result from the operation of the Green Lake Project. The continued operation of the Blue Lake Project with no deterioration of water quality is considered to provide adequate evidence of that conclusion and no further water quality monitoring is considered necessary or justified.

8. RECREATION

The effects of project operation on recreation in the area are described in Exhibits R and W.

9. FISH AND WILDLIFE

The effects of project construction and operation on the fish and wildlife resources in the area are described in Exhibit W.

10. CONSULTATION WITH FEDERAL, STATE AND LOCAL AGENCIES
HAVING RESPONSIBILITY FOR WATER QUALITY CONTROL

The following consultations with Federal, State and local agencies were conducted with regard to water for the Project:

(1) U.S. Army Corps of Engineers (COE), Alaska District

Date/Time: March 8, 1977/10:00 a.m.

Type: Meeting

Participants: R. W. Beck and Associates, Inc. (RWB) representing
the City and Borough of Sitka.
Steen and Matlock, Inc., Access Road Consultants

Subjects

discussed: Section 10 of River and Harbor Act of 1899
Section 404 of Federal Water Pollution Control Act
(FWPCA)
Section 401 of FWPCA

Date: April 14, 1977

Type: Meeting

Participants: RWB representing City and Borough of Sitka
Steen & Matlock, Inc.

Subjects

discussed: Section 10 of River and Harbor Acts
Section 404 of FWPCA
Section 401 of FWPCA

(2) Environmental Protection Agency, Region X, Alaska
Operations Office (EPA)

Date: April 14, 1977

Type: Meeting

Participants: RWB representing the City and Borough of Sitka
Steen & Matlock, Inc.

Subjects

discussed: National Pollution Discharge Elimination System
(NPDES)

Date: April 15, 1977

Type: Telephone Conference

Participants: RWB representing the City and Borough of Sitka

Subjects

discussed: Effects of construction on water quality in the
project area.

(3) Alaska Division of Lands and Water Management (ADL)

Date: March 9, 1977

Type: Meeting

Participants: RWB representing the City and Borough of Sitka,
Steen & Matlock, Inc.

Subjects

discussed: Water Rights Application
State Tidelands Permit
Access to Navigable or Public Waters
Section 401 of FWPCA

(4) Alaska Department of Environmental Conservation

Date: April 14, 1977

Type: Telephone Conference

Participants: RWB representing the City and Borough of Sitka

Subjects

discussed: Current water quality studies and the effects of
construction on the project area waters.

(5) Alaska Department of Fish and Game

Date: December 16, 1976
Type: Telephone Conference
Participants: RWB representing the City and Borough of Sitka
Subjects
discussed: Limnological data available for Green Lake

Date: March 18, 1977
Type: Telephone Conference
Participants: RWB representing City and Borough of Sitka
Subject
discussed: Title 16 Permit

11. UTILIZATION OF THE RESOURCE

The Project as described herein, will fully develop and utilize the water resource in the best public interest for power, recreation and fish and wildlife purposes. Exhibit I describes the power development; Exhibits R and S describe the recreational and fish and wildlife plans respectively, associated with this project development. The fullest practicable utilization of the streamflow and head available will be accomplished by this Project.

GREEN LAKE PROJECT

GREEN LAKE MONTHLY INFLOWS
(cfs)

YEAR	JULY	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUNE	AVERAGE
1915-16*	452	510	573	487	188	117	23	73	41	116	283	568	286
1916-17*	445	499	564	471	210	97	82	120	50	74	310	475	283
1917-18*	491	526	620	652	636	78	127	40	18	75	296	582	345
1918-19*	600	489	492	420	378	190	231	38	15	126	255	358	299
1919-20*	488	452	500	392	181	128	217	83	27	41	172	479	263
1920-21*	445	437	330	282	254	74	64	112	58	69	285	542	246
1921-22*	387	309	416	571	160	293	91	36	27	83	352	466	266
1922-23*	462	500	551	246	400	82	31	110	117	219	341	510	297
1923-24*	390	250	648	292	484	182	98	119	90	159	479	688	323
1924-25*	674	539	698	437	285	162	34	25	50	86	474	520	332
1925-26	560	395	340	434	299	184	155	78	49	124	296	492	284
1926-27	484	441	547	400	276	169	143	72	46	114	273	454	285
1927-28	446	407	504	460	317	195	165	83	52	131	314	522	300
1928-29	512	468	580	458	316	194	164	82	52	131	313	520	316
1929-30	510	466	577	449	529	118	106	74	47	110	358	590	328
1930-31	590	480	553	484	570	127	115	80	51	118	386	636	349
1931-32	637	518	597	470	324	199	168	85	54	134	321	533	337
1932-33	524	478	592	398	215	90	53	100	47	83	286	517	282
1933-34	429	429	514	456	314	193	163	82	52	130	311	517	299
1934-35	508	464	575	523	616	138	124	86	55	128	417	687	360
1935-36	688	560	645	612	721	161	145	101	64	150	488	804	428
1936-37	805	655	754	614	723	162	145	101	65	150	490	807	456
1937-38	808	657	757	468	322	198	167	84	53	134	320	531	375
1938-39	521	476	590	502	592	132	119	83	53	123	401	660	354
1939-40	661	538	619	446	307	189	160	80	51	127	305	506	332
1940-41	497	453	562	319	172	72	42	80	37	67	229	414	245
1941-42	343	343	411	458	316	194	164	82	52	131	313	520	277
1942-43	510	466	577	432	298	183	155	78	49	123	295	490	305
1943-44	481	439	545	414	285	175	148	75	47	118	283	470	290
1944-45	461	421	522	449	529	118	106	74	47	110	358	590	315
1945-46	590	480	553	400	276	169	143	72	46	114	273	454	296
1946-47	446	407	504	517	610	136	123	85	54	127	413	680	342
1947-48	681	554	638	480	566	126	114	79	51	118	383	631	368
1948-49	632	514	592	497	586	131	118	82	52	122	397	653	365
1949-50	654	532	613	412	223	93	55	103	48	87	296	536	304
1950-51	444	444	532	277	150	63	37	69	32	58	199	360	222
1951-52	299	299	358	406	220	92	54	102	48	85	292	528	232
1952-53	438	438	524	478	329	202	171	86	54	137	327	542	311
1953-54	533	486	603	404	278	171	145	73	46	115	276	458	299
1954-55	450	411	509	442	305	187	158	80	50	126	302	501	293
1955-56	492	449	557	360	195	82	48	90	42	76	259	468	260
1956-57	388	388	465	404	278	171	145	73	46	115	276	458	267
AVERAGE	520	464	552	442	363	148	119	81	50	113	326	541	310

September 1977

TABLE H-1

* Recorded flows. All others are synthesized.

GREEN LAKE PROJECT
FIRM ENERGY DELIVERED BY MONTH

<u>Month</u>	<u>Firm Energy Delivered, kWh</u>
July	2,982,000
August	3,065,000
September	3,162,000
October	3,566,000
November	3,669,000
December	4,039,000
January	4,090,000
February	3,283,000
March	3,783,000
April	3,365,000
May	3,305,000
June	2,926,000

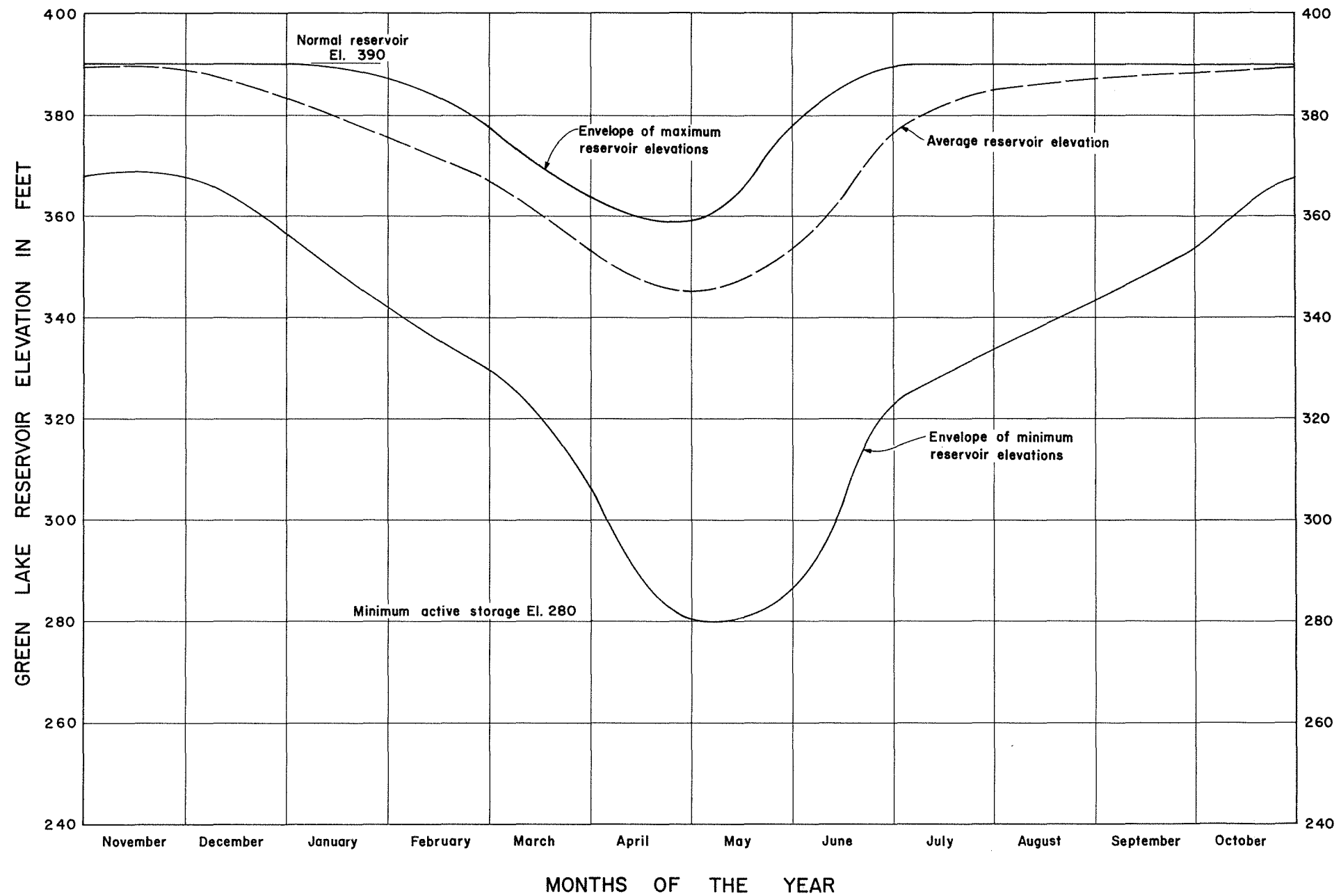
NOTE: Firm energy based on power studies using historic and synthetic streamflow (Table H-1) and having a 1 in 42-year frequency.

TABLE H-3

GREEN LAKE PROJECT
RESERVOIR PHYSICAL CHARACTERISTICS

<u>Feature</u>	<u>Blue Lake Reservoir</u>	<u>Green Lake Reservoir</u>
Maximum depth	463 feet	246 feet
Average depth	171 feet	200 feet
Drainage area	37 square miles	28.2 square miles
Surface area	1,334 acres	1,000 acres
Volume	227,800 acre-feet	97,000 acre-feet
Altitude	350 feet (MSL)	390 feet (MSL)

NOTE: All data based on normal reservoir elevations of 350 feet (MSL) for Blue Lake and 390 feet (MSL) for Green Lake.



NOTES:

1. Curves show results of reservoir operation studies based on historical load data for Sitka and recorded and synthesized streamflow data for the Vodopad River. Study period from 1916 - 1957.
2. Recorded streamflow data from U.S.G.S. Water Supply Paper Volume 1372, Gage 37 "Green Lake Outlet near Sitka" water years 1916-1925.
3. Synthesized streamflows developed from (a) precipitation data at Sitka from Climatic Summary of the United States, Alaska; Bulletin W, and Bulletin W Supplements for 1931-1952 and 1951-1960, U.S. Weather Bureau, and (b) streamflow data on Sawmill Creek from U.S.G.S. Water Supply Papers Volumes 1372 and 1740, Gage 36 and 880 "Sawmill Creek near Sitka" water years 1920-1922, 1928-1942 and 1946-1957.
4. Elevations based on Mean Sea Level (MSL) datum.

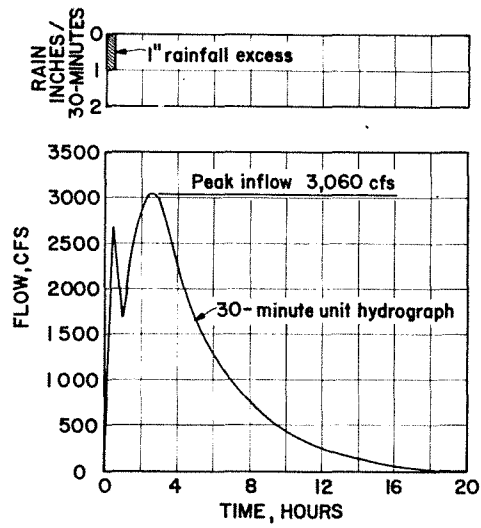
THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977

CONSULTING ENGINEER:
R.W. BECK & ASSOCIATES, INC.
SEATTLE, WASHINGTON

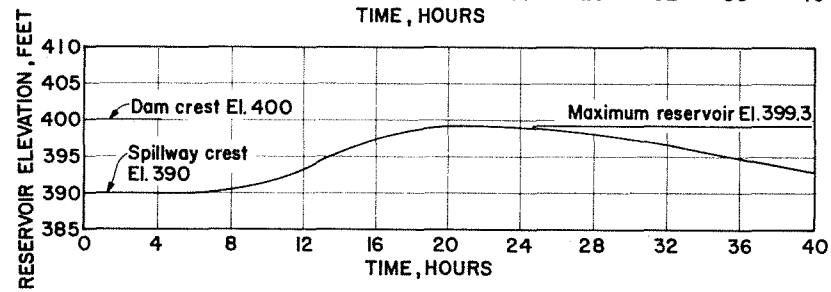
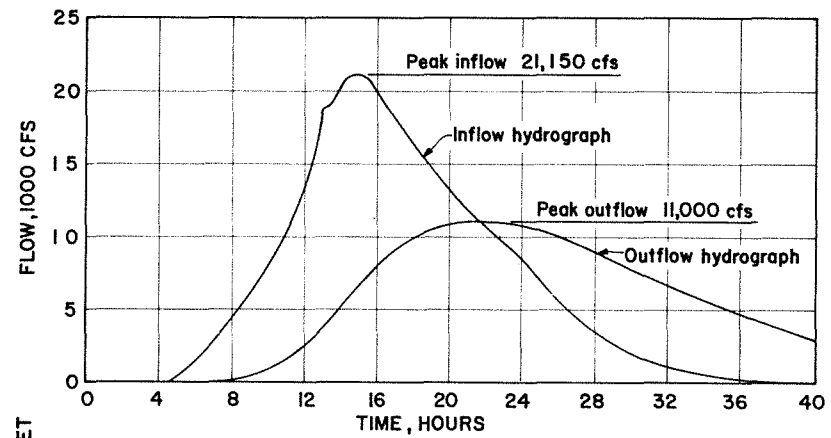
APPROVED BY James C. Williams
DATE September 6, 1977
DRAWING NO. 462-P-1

BY James C. Williams
(ADMINISTRATOR)

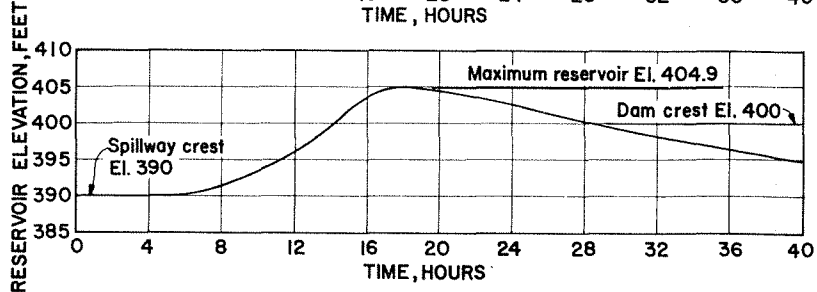
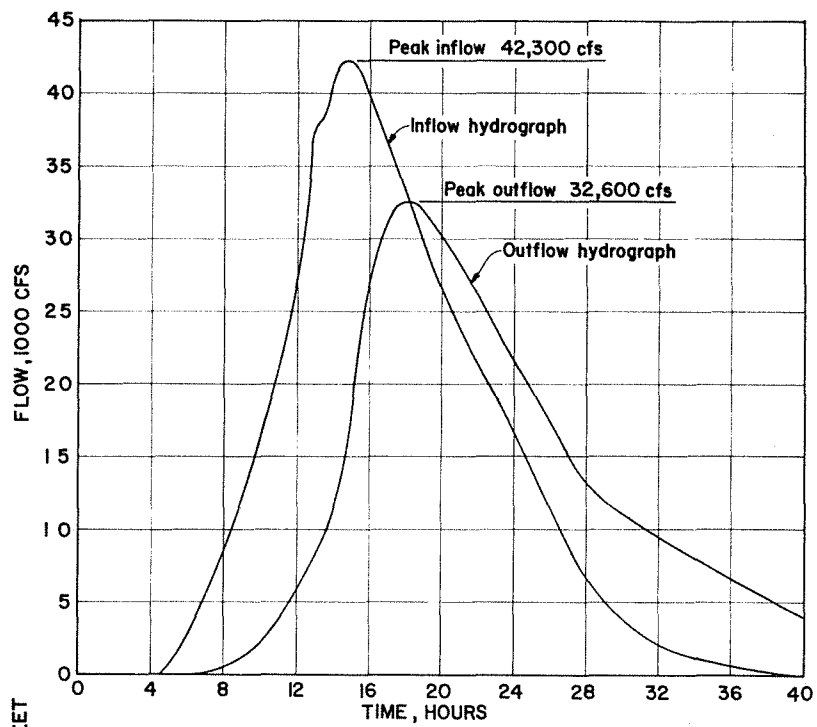
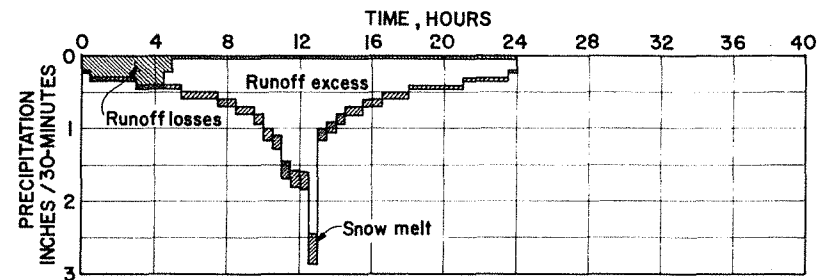
GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT H - 1
GREEN LAKE RESERVOIR
OPERATION STUDY RESULTS



ONE-HALF HOUR UNIT HYDROGRAPH



SPILLWAY DESIGN FLOOD



PROBABLE MAXIMUM FLOOD

NOTES:

1. Probable maximum flood was derived using probable maximum precipitation from U.S. Weather Bureau Technical Paper 47 and the Corps of Engineers snowmelt formula from Manual No. EM 1110-2-1406.
2. Spillway Design Flood inflow is one half probable maximum flood.
3. Elevations based on Mean Sea Level (MSL) datum.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977.

CONSULTING ENGINEER: R. W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON

APPROVED BY: *[Signature]* DATE: September 5, 1977

BY: *[Signature]* (ADMINISTRATOR) DRAWING NO. 462-P-2

GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA

EXHIBIT H-2
FLOOD HYDROGRAPHS

EXHIBIT I

STATEMENT OF THE ESTIMATED DEPENDABLE CAPACITY AND THE AVERAGE ANNUAL ENERGY PRODUCED BY THE PROJECT

1. DEPENDABLE CAPACITY AND AVERAGE ANNUAL ENERGY

The dependable capacity and average annual energy delivered to the load center are estimated at 13,500 kW and 64,900,000 kWh respectively. Power studies were conducted using historical and synthesized streamflows shown in Table H-1 and reservoir area-capacity data shown in Figure I-1. In conducting the power studies an allowance of 15 cfs in losses has been provided to account for inflows not available for power generation such as seepage, evaporation, etc., which might occur. Based on the power studies made, the lowest reservoir level (El 280 [MSL]) corresponding to the driest year is reached only once in 42 years and the second lowest reservoir level (El 286 [MSL]) only twice in this period. At the lowest level, the dependable capacity at plant is 11,800 kW and at the second lowest reservoir level, the output is 13,700 kW. Considering that the life of an alternative equivalent capacity diesel plant is comparable to the 21-year period, it is considered reasonable to use the second lowest year as the basis for determining the dependable capacity. The dependable capacity delivered to the load center for the proposed Project is estimated to be 13,500 kW.

From the 42-year period studied, the energy output delivered annually to the load center ranged from a minimum of 41,200,000 kWh to a maximum of 97,900,000 kWh and averaged 64,900,000 kWh.

The second lowest annual energy production was 44,500,000 kWh which has about a 1 in 20-year frequency occurrence and this was adopted as the value for firm energy for the same reasons as described in the preceding paragraph. However, by mutual exchange of energy between Sitka and Alaska Lumber and Pulp Company (ALP) as is now done with Blue Lake or by infrequent operation of Sitka's diesel resources during drier spells, the firm energy can be supplementally firmed up to the amount of the average annual energy. On this basis, the total average energy output of the Project is considered available to meet energy loads. Due to the project size and the characteristics of the Vodopad River watershed, it is not contemplated at this time that additional hydro facilities will be constructed in this drainage basin. However, future needs and economic considerations may reverse this determination.

2. SYSTEM LOADS

Sitka presently has very limited peaking reserves. With the proposed addition of two 2,500-kW diesel units by 1978 it will be able to meet the demand until the Project comes into service by late 1981. When the Project comes on-line, the diesels will be used as standby reserve and to firm up hydroelectric secondary energy generation when required. Based on forecasted loads, it is expected that the Project will satisfy the system load requirements with little diesel generation until about 1992. Historical peak and energy loads and projected loads are shown in Figure I-2. Power projections in the Alaska Power Survey of 1969⁽¹⁾ predict an average growth rate in Southeast Alaska of about 13% up to the 1980's and about 7% from the 1980's to year 2000. Short-term projections of load growth

(1) Alaska Power Survey, A Report of the Technical Advisory Committee on Economic Analysis and Load Projections for the Alaska Power Survey and the Federal Power Commission, in four volumes, 1974.

made by the Sitka Electric Department averaged about 10% in capacity and energy growth. These projections included 2,500-kW of demand which will be required before 1978 by the new Coast Guard facility and by various other planned major business developments. Considering historic growth, a reasonable long-term growth rate projection of 6% from 1978 on was developed as being appropriate for planning purposes.⁽²⁾

In the early years of operation, the output of the Project will exceed Sitka's load requirements. During this period, it is planned to sell the excess power to ALP on a retractable basis. ALP has agreed in principle to purchase the power and is proceeding with the capacity expansion of the intertie with Sitka to permit its delivery.

3. FLOW DURATION CURVES

The flow duration curves for Green Lake monthly inflows are shown in Exhibit I-1. These curves were developed using the same historic and synthesized streamflows that were used for the power studies which are shown in Table H-1.

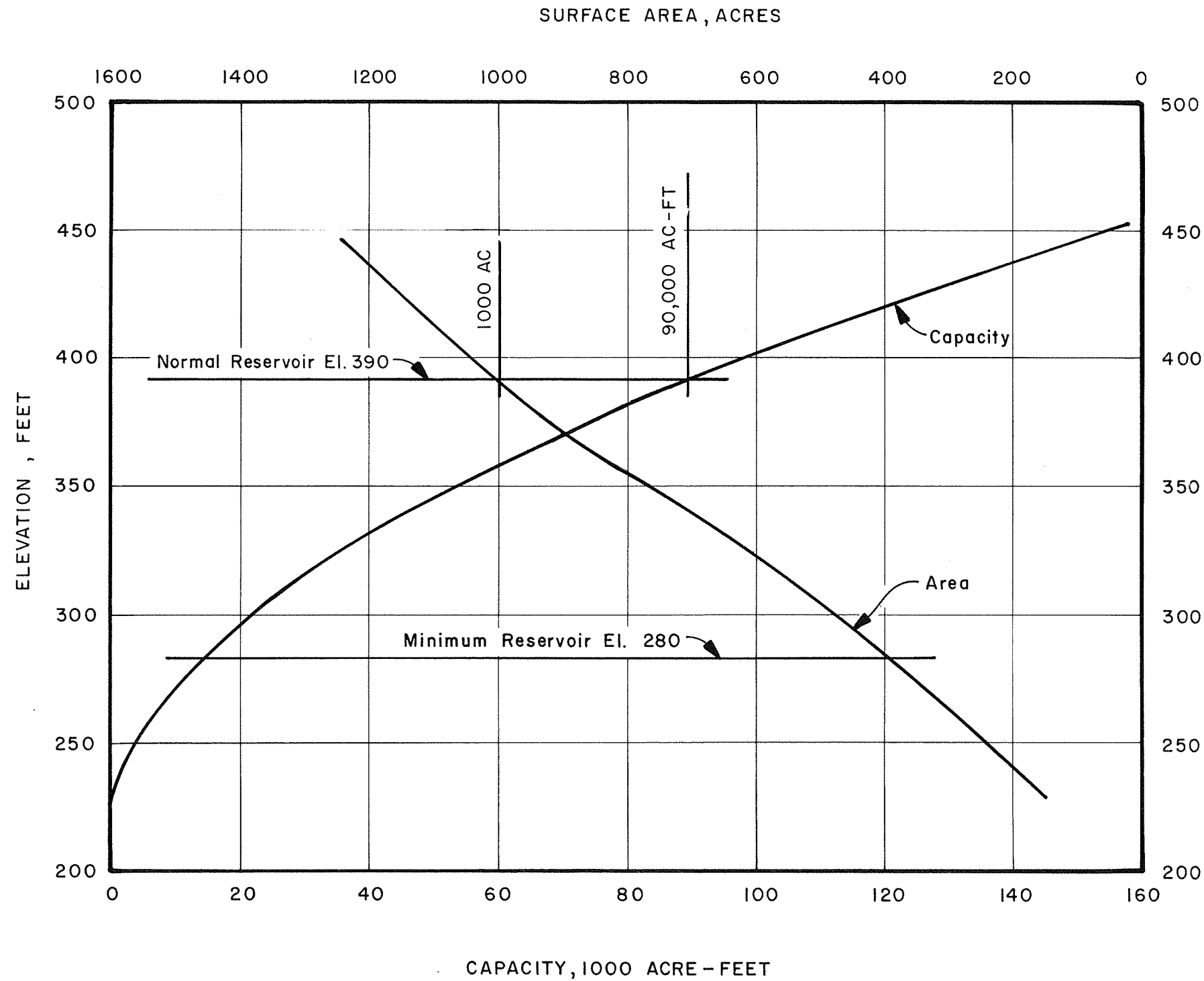
4. TAILWATER RATING

The power plant will discharge directly into Silver Bay where normal tidal fluctuation ranges from El -5.2 (mean lower low water) to El +4.7 (mean higher high water) with mean sea level (El 0.0) used as datum. A weir in the tailrace channel just downstream of the powerhouse will control the tailwater when tidal elevation is below or slightly above the weir crest (El -2.3 [MSL]). Under this condition, the tailwater level at maximum discharge is El 0.7 (MSL).

(2) City and Borough of Sitka. Re-Evaluation of Alternatives for Electric Generation Program, prepared by R. W. Beck and Associates, Inc., September 1976.

When the tidewater elevation is 2 feet or more above the weir crest, the tailwater will be controlled by the tidewater elevation. Under this condition the tailwater elevation will equal tidewater elevation for the entire range of power plant discharges and will fluctuate about 5 feet. Thus, the maximum range of tailwater fluctuation will be about 7 feet which represents only a small percentage of the average net head for the Project (349 feet). Since tidewater elevation controls tailwater elevation over the majority (5 feet) of the range of tailwater fluctuation, and since the remaining weir controlled portion (2 feet) of the range is insignificant compared to the average net project head, a tailwater rating curve has not been included.

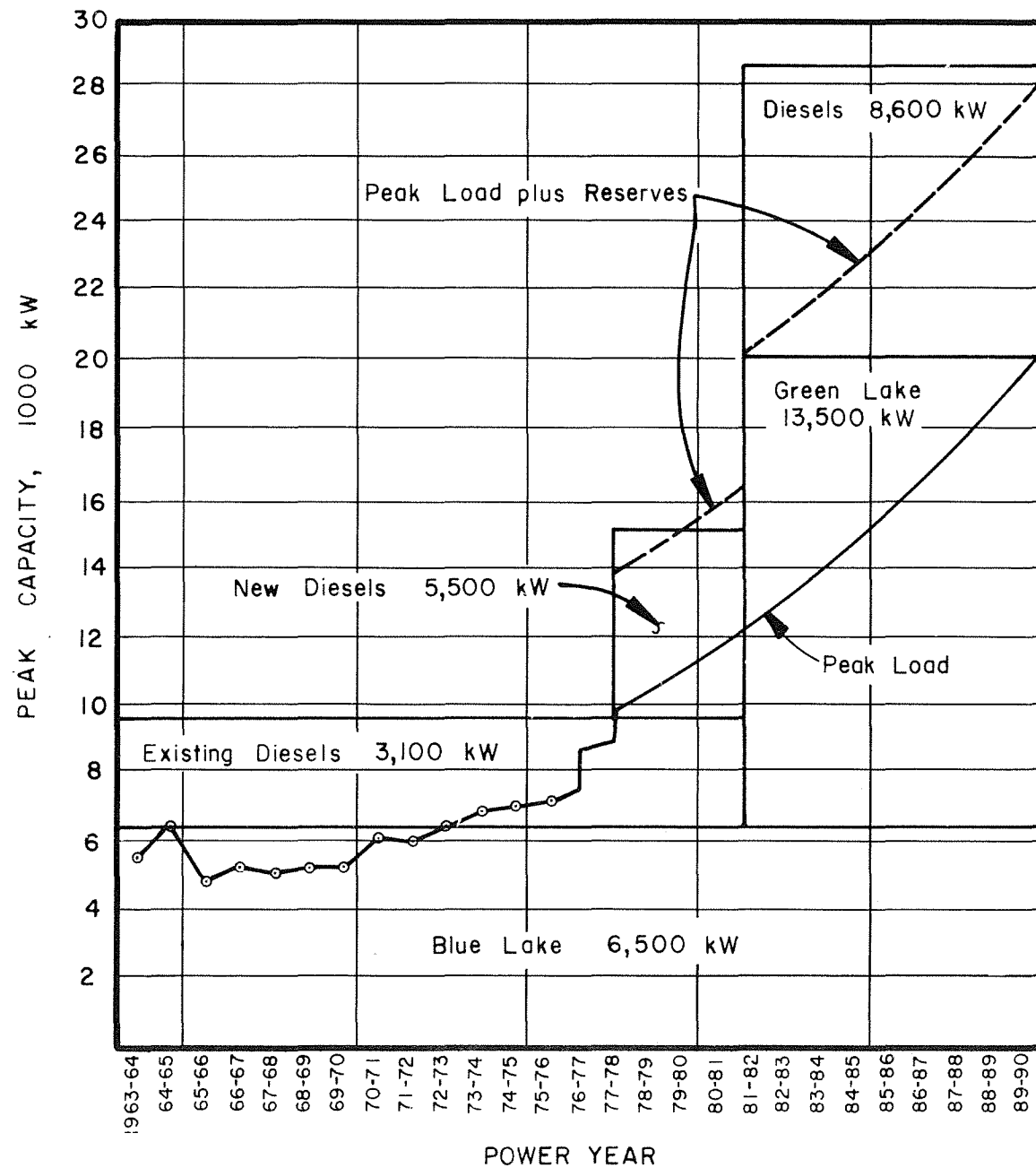
GREEN LAKE PROJECT RESERVOIR AREA-CAPACITY CURVE



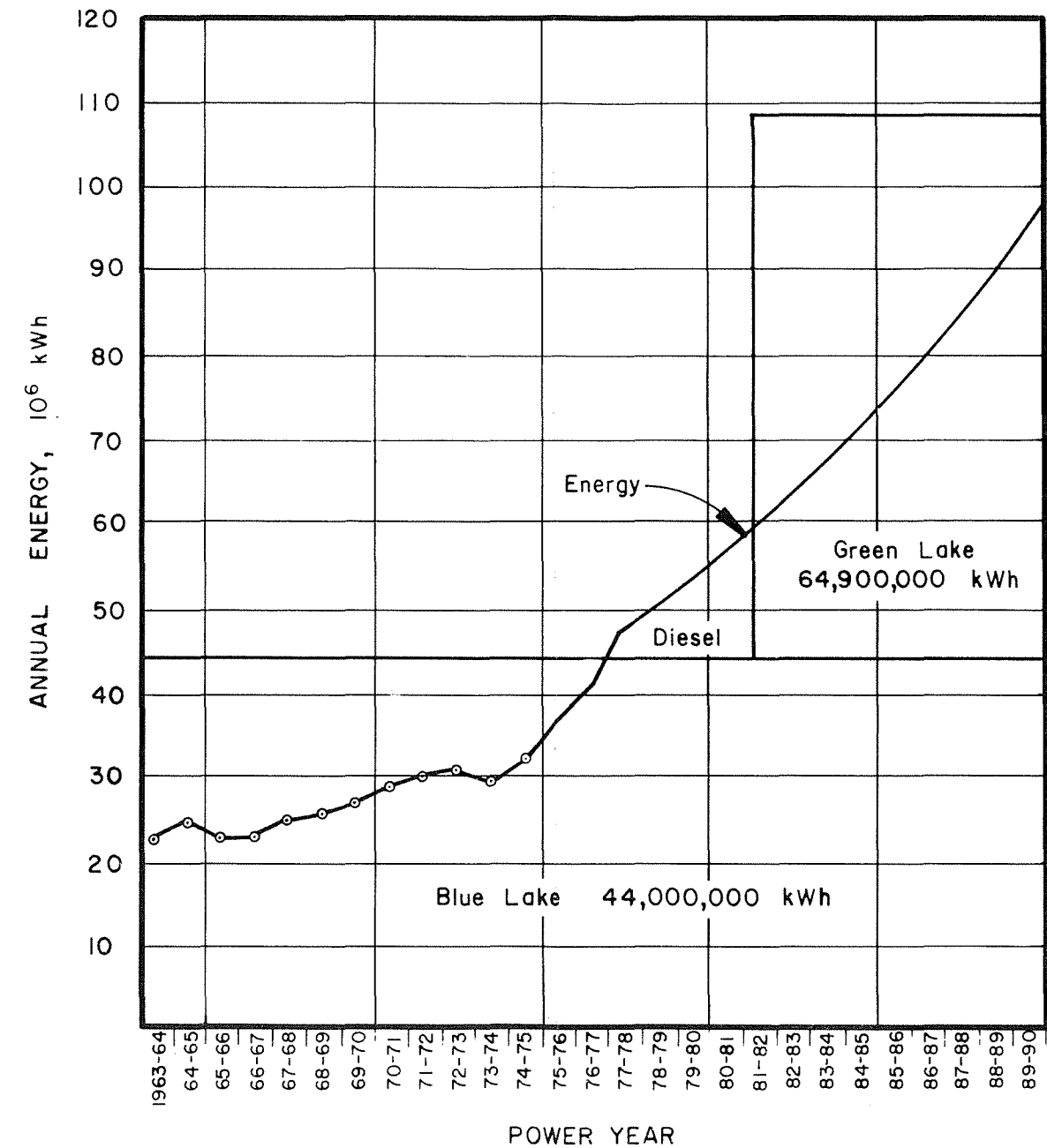
NOTE:

1. Based on topography prepared by H.G. Chickering, Jr., January 1975. Vertical and horizontal control based on U.S.G.S. Quadrangle control.
2. Elevations based on Mean Sea Level (MSL) datum.

GREEN LAKE PROJECT LOADS AND RESOURCES



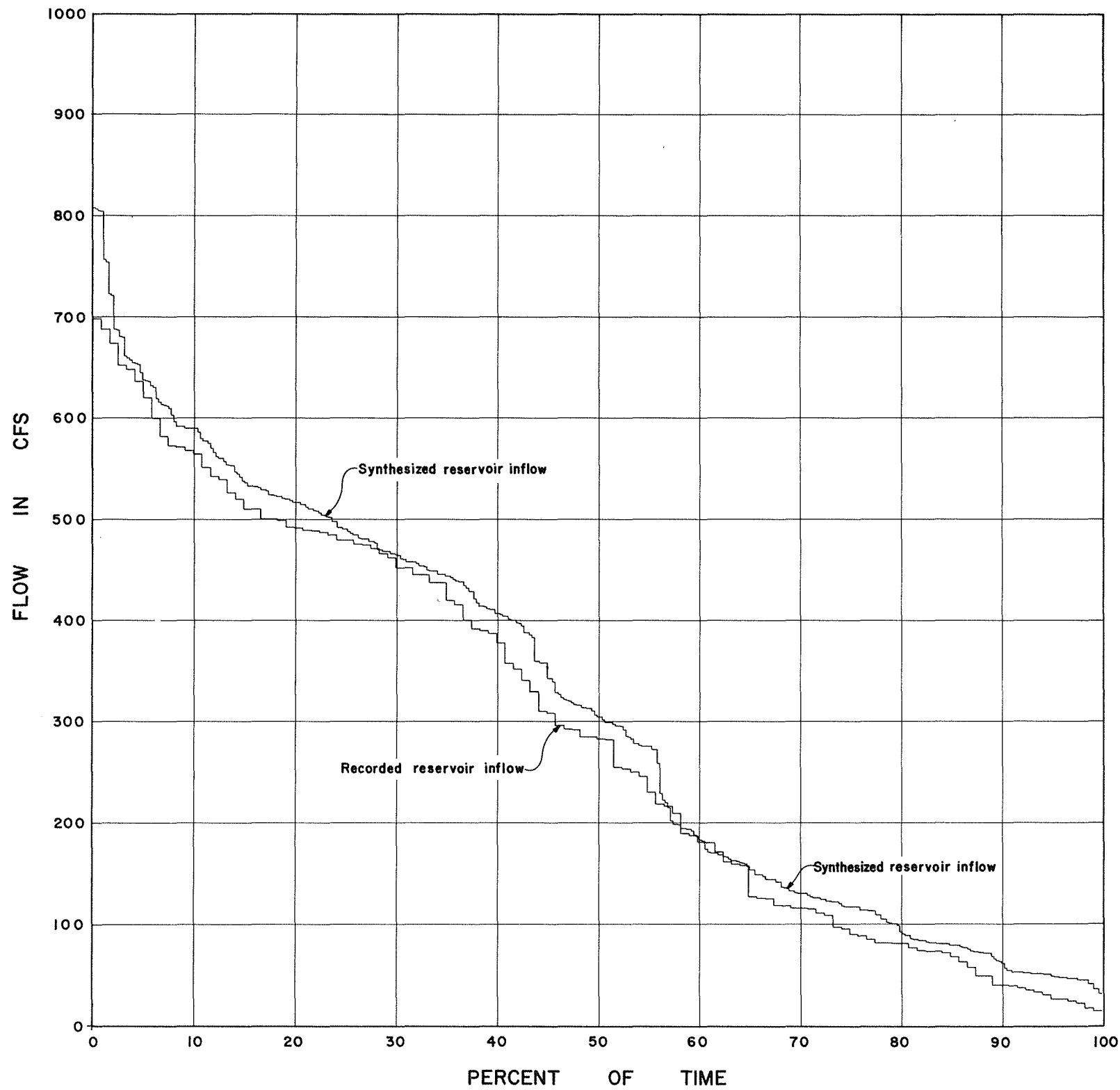
**PEAK LOADS
AT LOAD CENTER**



**ENERGY REQUIREMENTS
AT LOAD CENTER**

NOTES:

1. Hydroelectric plant energy is average annual delivered at load center.
2. Plant capacities are dependable delivered.
3. Power years extend from July 1 through June 30.
4. ○ indicates actual value.
5. Growth rate 6% for projected peak loads and energy requirements.



NOTES:

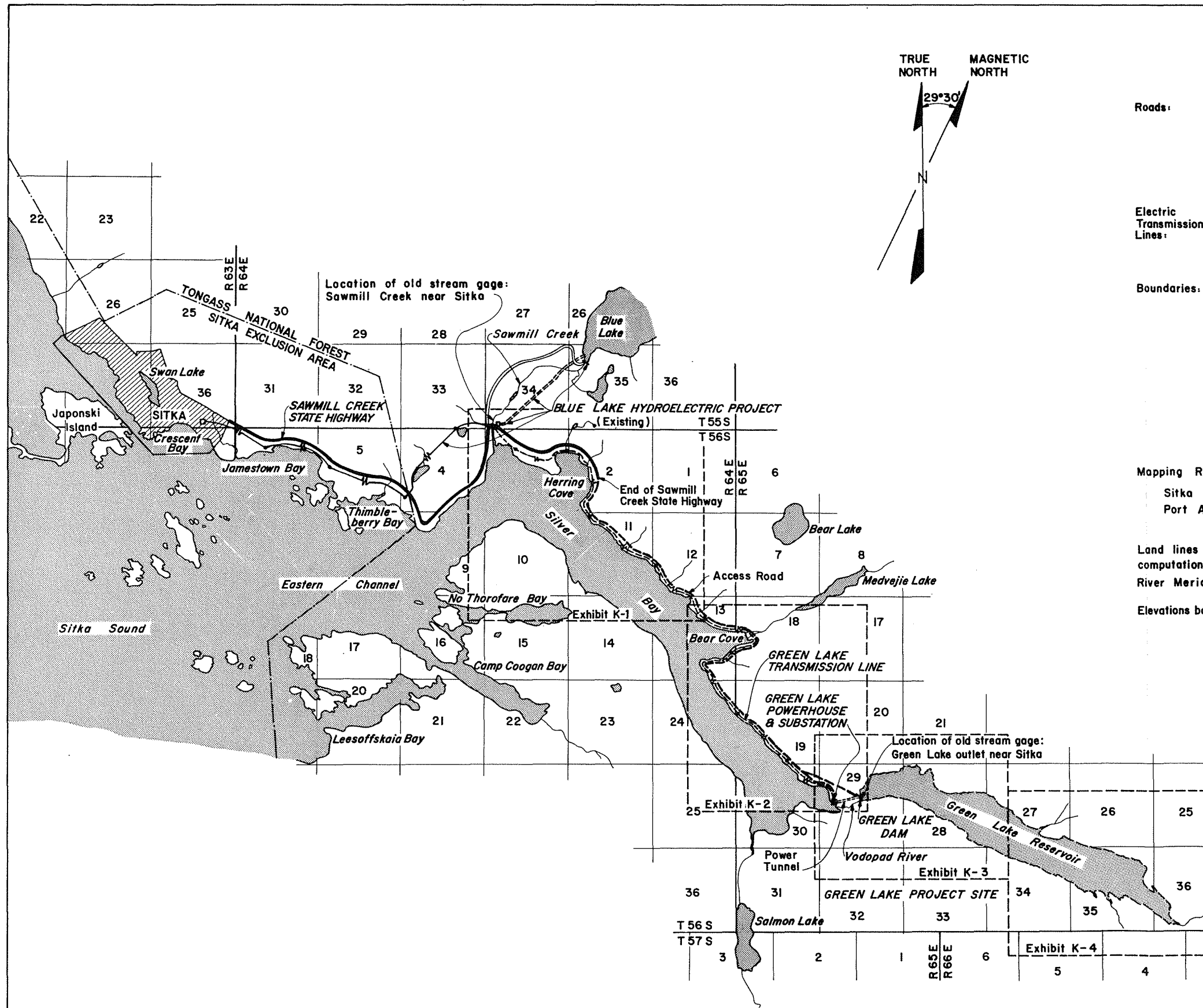
1. Recorded reservoir inflow data from U.S.G.S. Water Supply Paper Volume 1372, Gage 37 "Green Lake Outlet near Sitka" water years 1916-1925.
2. Synthesized reservoir inflow developed from (a) precipitation data at Sitka from Climatic Summary of the United States, Alaska, Bulletin W, and Bulletin W Supplements for 1931-1952 and 1951-1960, U.S. Weather Bureau, and (b) streamflow data on Sawmill Creek from U.S.G.S. Water Supply Papers Volumes 1372 and 1740, Gage 36 and 880 "Sawmill Creek near Sitka" water years 1920-1922, 1928-1942 and 1946-1957.
3. Years of record 1916 to 1957.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977

CONSULTING ENGINEER:
R.W. BECK & ASSOCIATES, INC.
SEATTLE, WASHINGTON
APPROVED BY: *[Signature]*
DATE: September 6, 1977
DRAWING NO. 462-P-3

GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT I
VODOPAD RIVER
FLOW DURATION CURVES

EXHIBIT J
GENERAL PROJECT MAP



LEGEND

	<u>Existing</u>		<u>Proposed</u>
Roads:	—	Paved	
	=	Unclassified	
	-	Project	---
Electric Transmission Lines:	—+—		—+—
Boundaries:	---	Tongass National Forest	
	---	Unsurveyed Land Lines	
	▨	City of Sitka	

Mapping Reference - U.S.G.S. Quadrangles:
 Sitka (A-4), Alaska 1951 minor revisions 1965
 Port Alexander (D-4), Alaska 1951 minor revisions 1965

Land lines represent unsurveyed and unmarked locations from computations by the State of Alaska, Division of Lands, Copper River Meridian.

Elevations based on Mean Sea Level (MSL) datum.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977

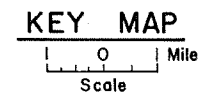
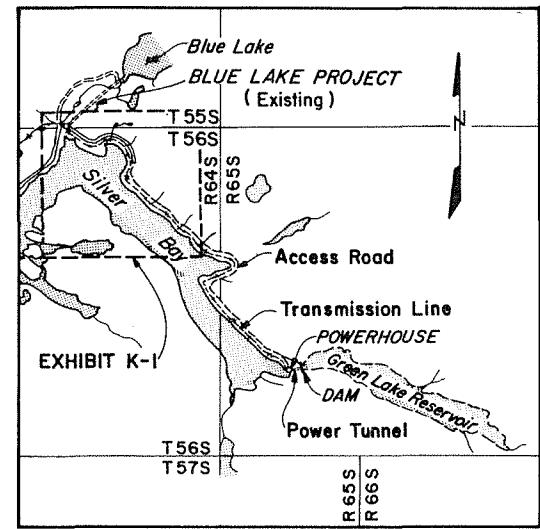
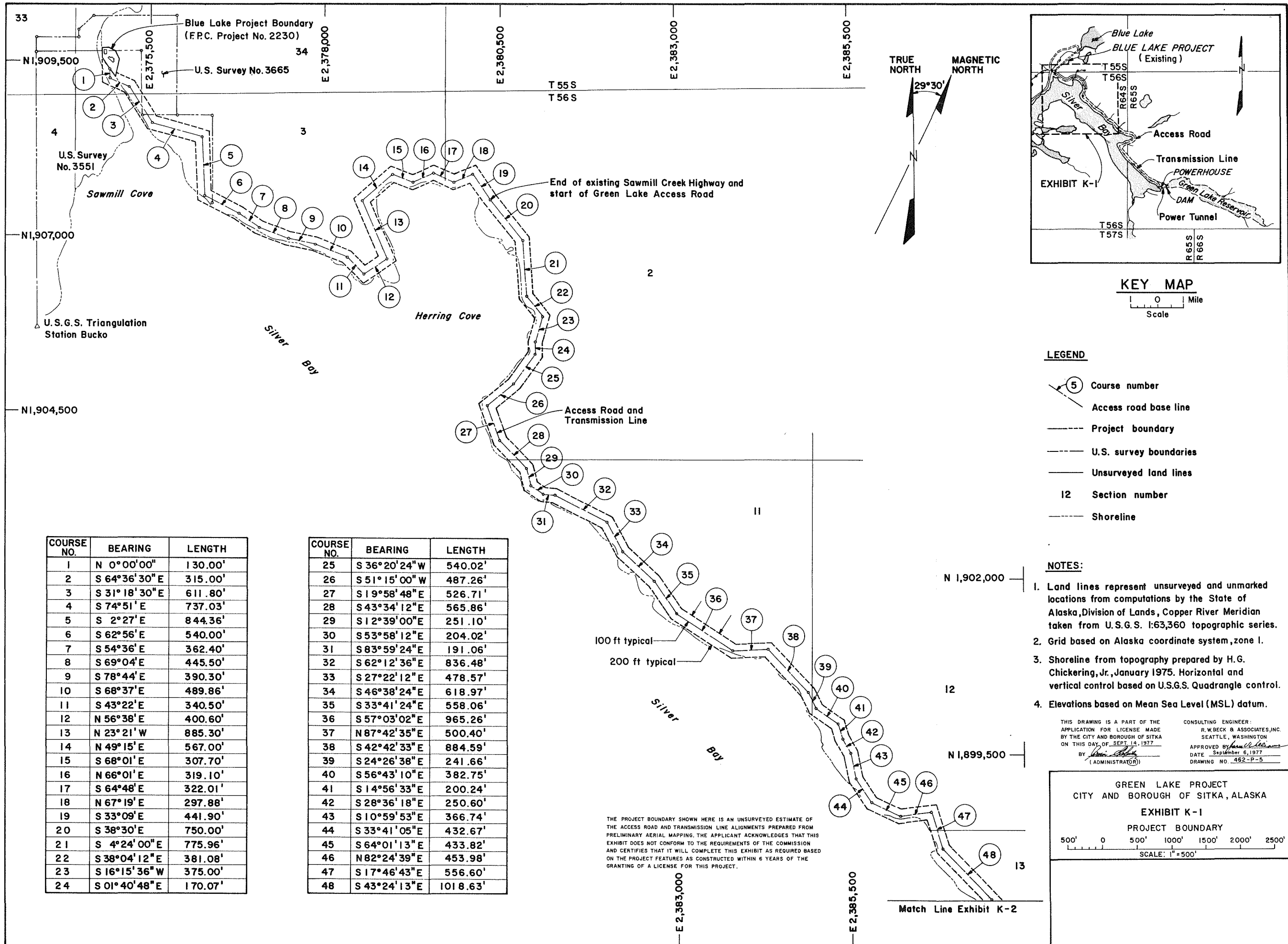
CONSULTING ENGINEER:
 R.W. BECK & ASSOCIATES, INC.
 SEATTLE, WASHINGTON

APPROVED BY: *[Signature]*
 DATE: September 6, 1977
 (ADMINISTRATOR) DRAWING NO. 462-P-4

GREEN LAKE PROJECT
 CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT J
 GENERAL PROJECT MAP

SCALE: 1" = 1/2 MILE

EXHIBIT K
DETAILED PROJECT MAPS



LEGEND

- ⑤ Course number
- Access road base line
- - - Project boundary
- - - U.S. survey boundaries
- Unserved land lines
- 12 Section number
- - - Shoreline

NOTES:

1. Land lines represent unsurveyed and unmarked locations from computations by the State of Alaska, Division of Lands, Copper River Meridian taken from U.S.G.S. 1:63,360 topographic series.
2. Grid based on Alaska coordinate system, zone I.
3. Shoreline from topography prepared by H.G. Chickering, Jr., January 1975. Horizontal and vertical control based on U.S.G.S. Quadrangle control.
4. Elevations based on Mean Sea Level (MSL) datum.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977 BY *[Signature]* (ADMINISTRATOR)

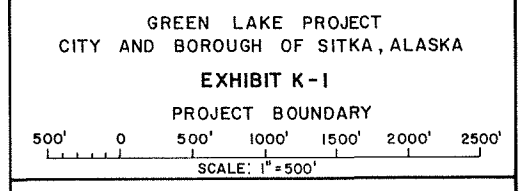
CONSULTING ENGINEER: R.W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON
 APPROVED BY *[Signature]* DATE September 6, 1977
 DRAWING NO. 462-P-5

COURSE NO.	BEARING	LENGTH
1	N 0°00'00"	130.00'
2	S 64°36'30"E	315.00'
3	S 31°18'30"E	611.80'
4	S 74°51'E	737.03'
5	S 2°27'E	844.36'
6	S 62°56'E	540.00'
7	S 54°36'E	362.40'
8	S 69°04'E	445.50'
9	S 78°44'E	390.30'
10	S 68°37'E	489.86'
11	S 43°22'E	340.50'
12	N 56°38'E	400.60'
13	N 23°21'W	885.30'
14	N 49°15'E	567.00'
15	S 68°01'E	307.70'
16	N 66°01'E	319.10'
17	S 64°48'E	322.01'
18	N 67°19'E	297.88'
19	S 33°09'E	441.90'
20	S 38°30'E	750.00'
21	S 4°24'00"E	775.96'
22	S 38°04'12"E	381.08'
23	S 16°15'36"W	375.00'
24	S 01°40'48"E	170.07'

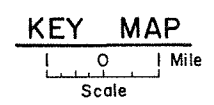
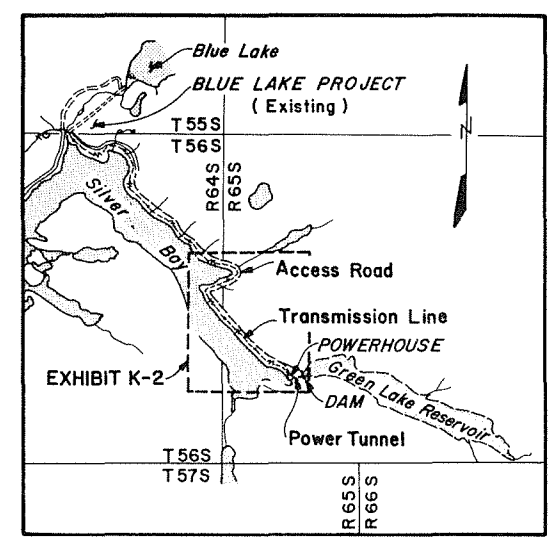
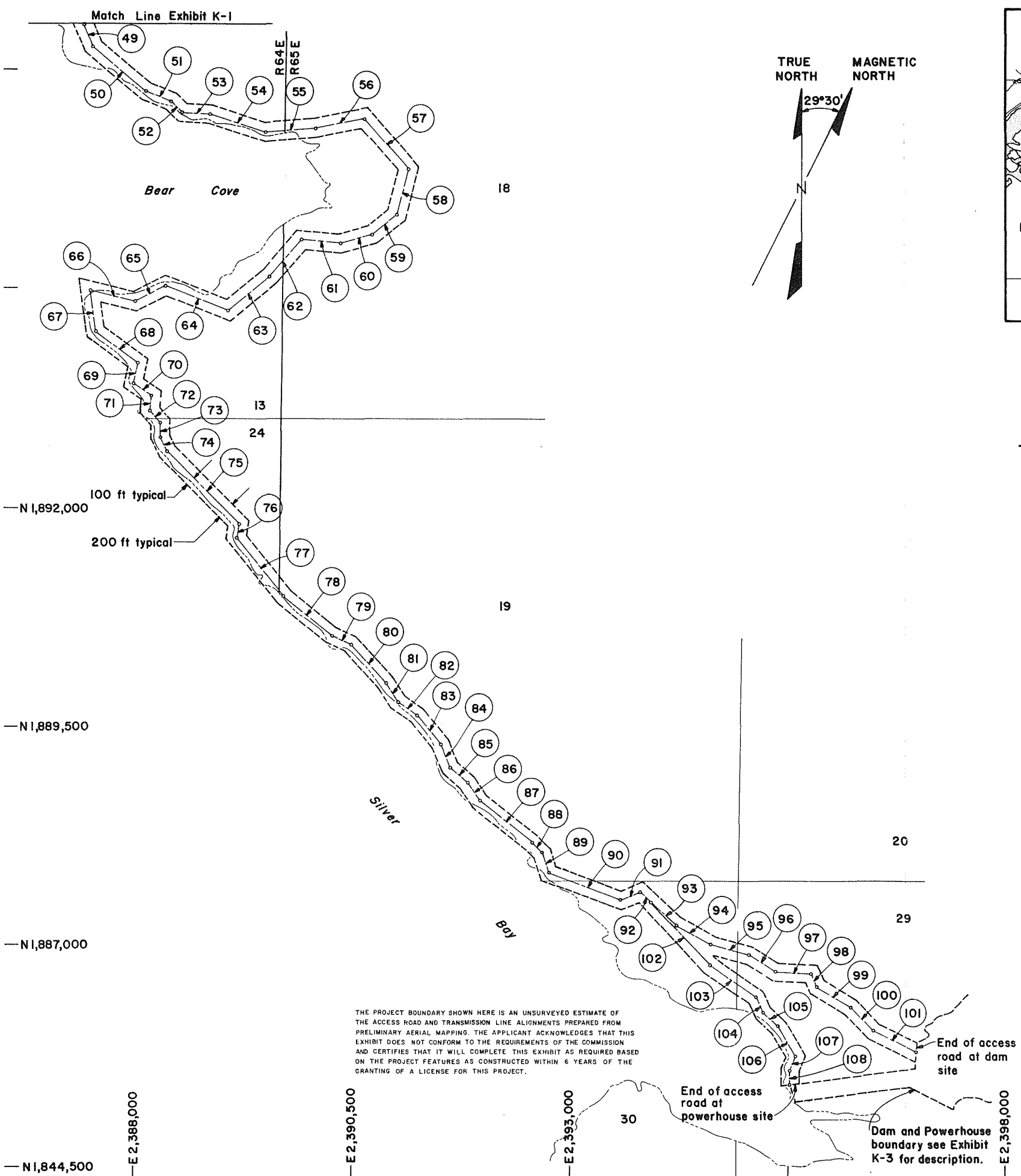
COURSE NO.	BEARING	LENGTH
25	S 36°20'24"W	540.02'
26	S 51°15'00"W	487.26'
27	S 19°58'48"E	526.71'
28	S 43°34'12"E	565.86'
29	S 12°39'00"E	251.10'
30	S 53°58'12"E	204.02'
31	S 83°59'24"E	191.06'
32	S 62°12'36"E	836.48'
33	S 27°22'12"E	478.57'
34	S 46°38'24"E	618.97'
35	S 33°41'24"E	558.06'
36	S 57°03'02"E	965.26'
37	N 87°42'35"E	500.40'
38	S 42°42'33"E	884.59'
39	S 24°26'38"E	241.66'
40	S 56°43'10"E	382.75'
41	S 14°56'33"E	200.24'
42	S 28°36'18"E	250.60'
43	S 10°59'53"E	366.74'
44	S 33°41'05"E	432.67'
45	S 64°01'13"E	433.82'
46	N 82°24'39"E	453.98'
47	S 17°46'43"E	556.60'
48	S 43°24'13"E	1018.63'

100 ft typical
200 ft typical

THE PROJECT BOUNDARY SHOWN HERE IS AN UNSURVEYED ESTIMATE OF THE ACCESS ROAD AND TRANSMISSION LINE ALIGNMENTS PREPARED FROM PRELIMINARY AERIAL MAPPING. THE APPLICANT ACKNOWLEDGES THAT THIS EXHIBIT DOES NOT CONFORM TO THE REQUIREMENTS OF THE COMMISSION AND CERTIFIES THAT IT WILL COMPLETE THIS EXHIBIT AS REQUIRED BASED ON THE PROJECT FEATURES AS CONSTRUCTED WITHIN 6 YEARS OF THE GRANTING OF A LICENSE FOR THIS PROJECT.



COURSE NO.	BEARING	LENGTH
49	S 22°55'58" E	282.31'
50	S 51°27'34" E	754.32'
51	S 66°34'19" E	326.96'
52	S 42°42'06" E	176.92'
53	S 88°09'11" E	310.16'
54	S 72°23'17" E	660.98'
55	N 86°07'15" E	591.35'
56	N 77°28'14" E	553.17'
57	S 41°49'15" E	764.85'
58	S 12°59'38" W	533.67'
59	S 51°20'22" W	384.19'
60	S 74°28'30" W	373.63'
61	N 84°55'17" W	451.77'
62	S 40°29'06" W	539.07'
63	S 50°18'48" W	610.74'
64	N 68°45'03" W	772.53'
65	S 61°23'18" W	375.90'
66	N 76°13'07" W	545.71'
67	S 9°27'45" E	486.62'
68	S 53°54'07" E	594.05'
69	S 11°46'05" W	245.15'
70	S 57°05'42" E	202.48'
71	S 6°20'24" W	181.11'
72	S 42°42'34" E	176.92'
73	S 3°10'47" W	180.28'
74	S 25°27'48" E	232.59'
75	S 45°21'54" E	1160.00'
76	S 10°37'11" W	162.79'
77	S 39°14'44" E	916.79'
78	S 51°50'34" E	712.18'
79	S 66°48'05" E	228.47'
80	S 42°16'25" E	594.64'
81	S 32°28'16" E	260.77'
82	S 57°31'44" E	260.77'
83	S 39°59'13" E	404.60'
84	S 21°26'52" E	300.83'
85	S 49°38'08" E	262.49'
86	S 34°59'31" E	244.13'
87	S 51°40'00" E	748.18'
88	S 50°12'34" E	351.46'
89	S 17°02'08" E	256.22'
90	S 69°29'51" E	870.20'
91	N 68°11'01" E	242.33'
92	S 47°34'04" E	180.79'
93	S 47°34'04" E	374.84'
94	S 59°56'47" E	439.09'
95	S 75°31'31" E	459.62'
96	S 56°59'28" E	357.81'
97	S 86°31'32" E	410.77'
98	S 23°12'49" E	152.32'
99	S 59°20'46" E	499.93'
100	S 42°48'45" E	367.97'
101	S 64°38'51" E	550.00'
102	S 42°50'36" E	965.59'
103	S 55°56'02" E	633.76'
104	S 23°57'45" E	196.98'
105	S 46°50'51" E	219.32'
106	S 30°50'15" E	350.16'
107	S 21°30'05" W	177.34'
108	S 3°21'59" W	170.29'



LEGEND

- (35) Course number
- Access road base line
- Project boundary
- Unserved land lines
- 19 Section number
- Shoreline

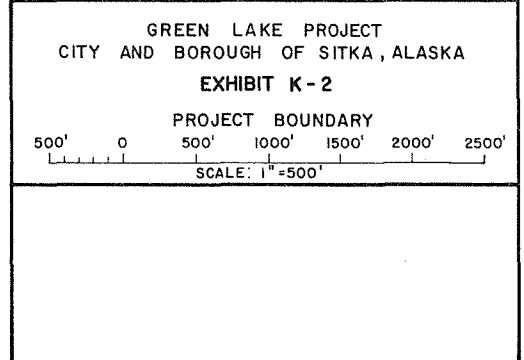
NOTES:

1. Land lines represent unsurveyed and unmarked locations from computations by the State of Alaska, Division of Lands, Copper River Meridian taken from U.S.G.S. 1:63,360 topographic series.
2. Grid based on Alaska, coordinate system, zone I.
3. Shoreline from topography prepared by H. G. Chickering, Jr., January 1975. Horizontal and vertical control based on U.S.G.S. Quadrangle control.
4. Elevations based on Mean Sea Level (MSL) datum.

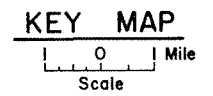
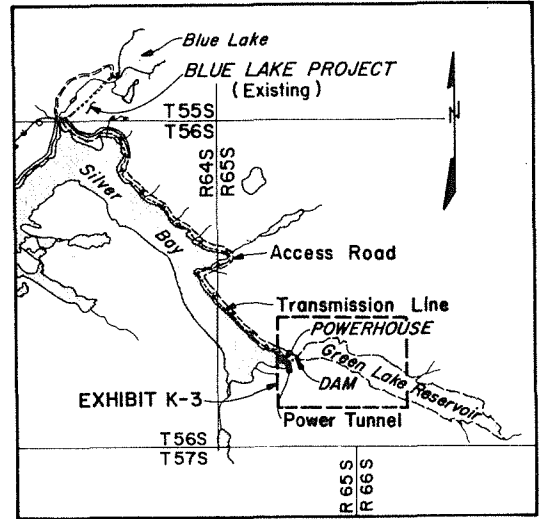
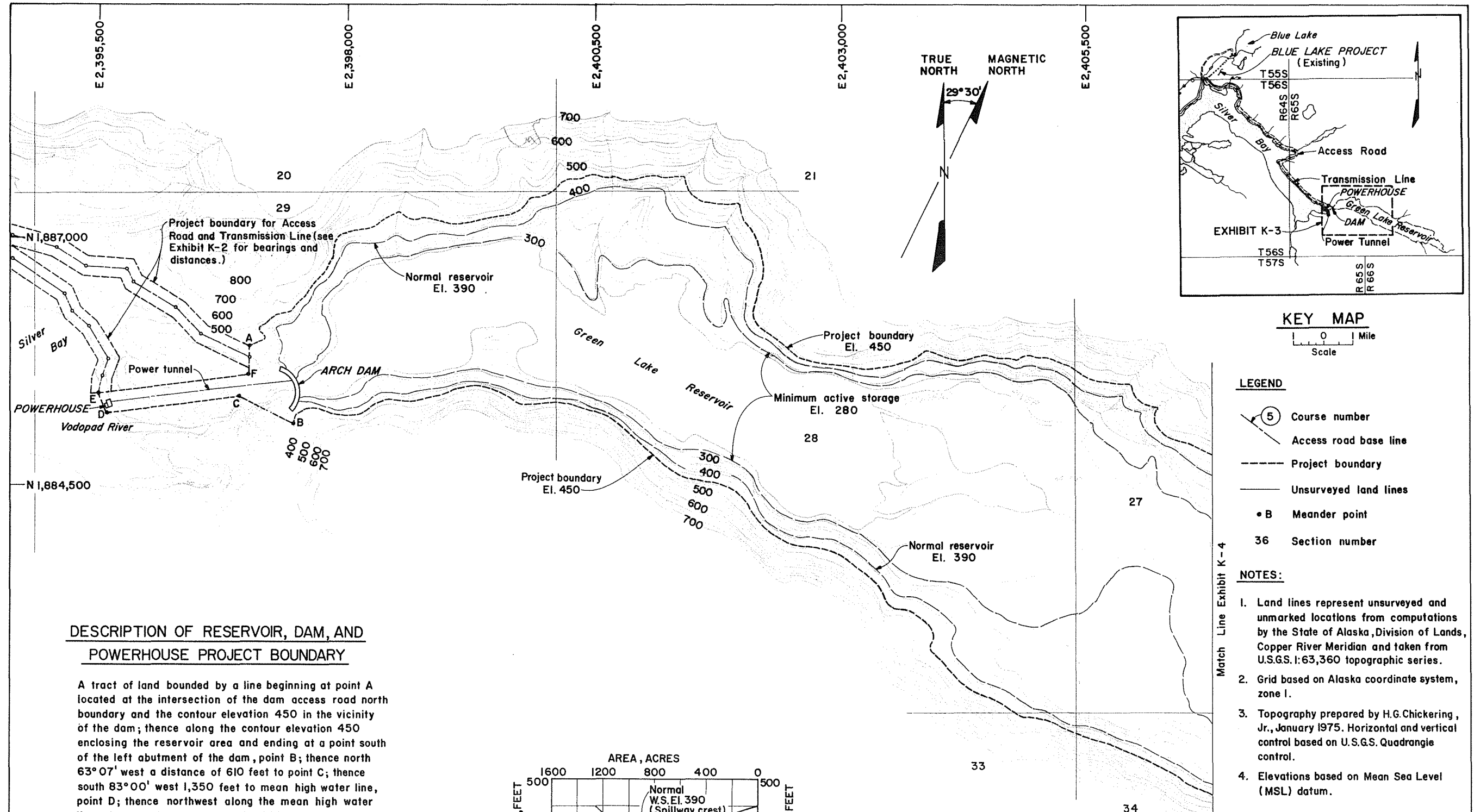
THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977

CONSULTING ENGINEER: R.W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON

APPROVED BY: [Signature] DATE: September 6, 1977 DRAWING NO. 462-P-6



THE PROJECT BOUNDARY SHOWN HERE IS AN UNSURVEYED ESTIMATE OF THE ACCESS ROAD AND TRANSMISSION LINE ALIGNMENTS PREPARED FROM PRELIMINARY AERIAL MAPPING. THE APPLICANT ACKNOWLEDGES THAT THIS EXHIBIT DOES NOT CONFORM TO THE REQUIREMENTS OF THE COMMISSION AND CERTIFIES THAT IT WILL COMPLETE THIS EXHIBIT AS REQUIRED BASED ON THE PROJECT FEATURES AS CONSTRUCTED WITHIN 6 YEARS OF THE GRANTING OF A LICENSE FOR THIS PROJECT.



LEGEND

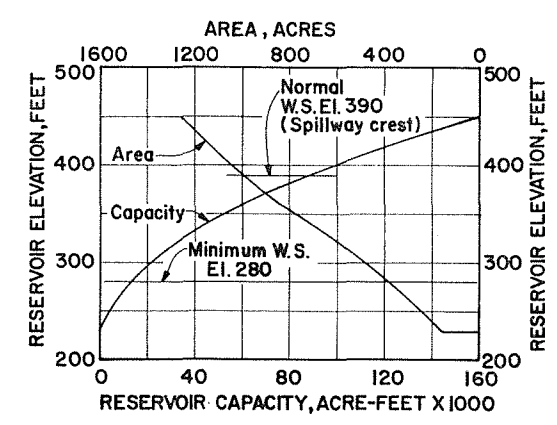
- ⑤ Course number
- Access road base line
- Project boundary
- Unserved land lines
- B Meander point
- 36 Section number

NOTES:

1. Land lines represent unsurveyed and unmarked locations from computations by the State of Alaska, Division of Lands, Copper River Meridian and taken from U.S.G.S. 1:63,360 topographic series.
2. Grid based on Alaska coordinate system, zone 1.
3. Topography prepared by H.G. Chickering, Jr., January 1975. Horizontal and vertical control based on U.S.G.S. Quadrangle control.
4. Elevations based on Mean Sea Level (MSL) datum.

DESCRIPTION OF RESERVOIR, DAM, AND POWERHOUSE PROJECT BOUNDARY

A tract of land bounded by a line beginning at point A located at the intersection of the dam access road north boundary and the contour elevation 450 in the vicinity of the dam; thence along the contour elevation 450 enclosing the reservoir area and ending at a point south of the left abutment of the dam, point B; thence north 63°07' west a distance of 610 feet to point C; thence south 83°00' west 1,350 feet to mean high water line, point D; thence northwest along the mean high water line of Silver Bay approximately 220 feet to point E located on the end of the access road to the powerhouse boundary; thence north 83°00' west 1,540 feet to point F; thence north 2°10' east 290 feet to the point of true beginning, being point A.



AREA-CAPACITY CURVE

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977

CONSULTING ENGINEER: R. W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON

APPROVED BY: *[Signature]* DATE: September 6, 1977

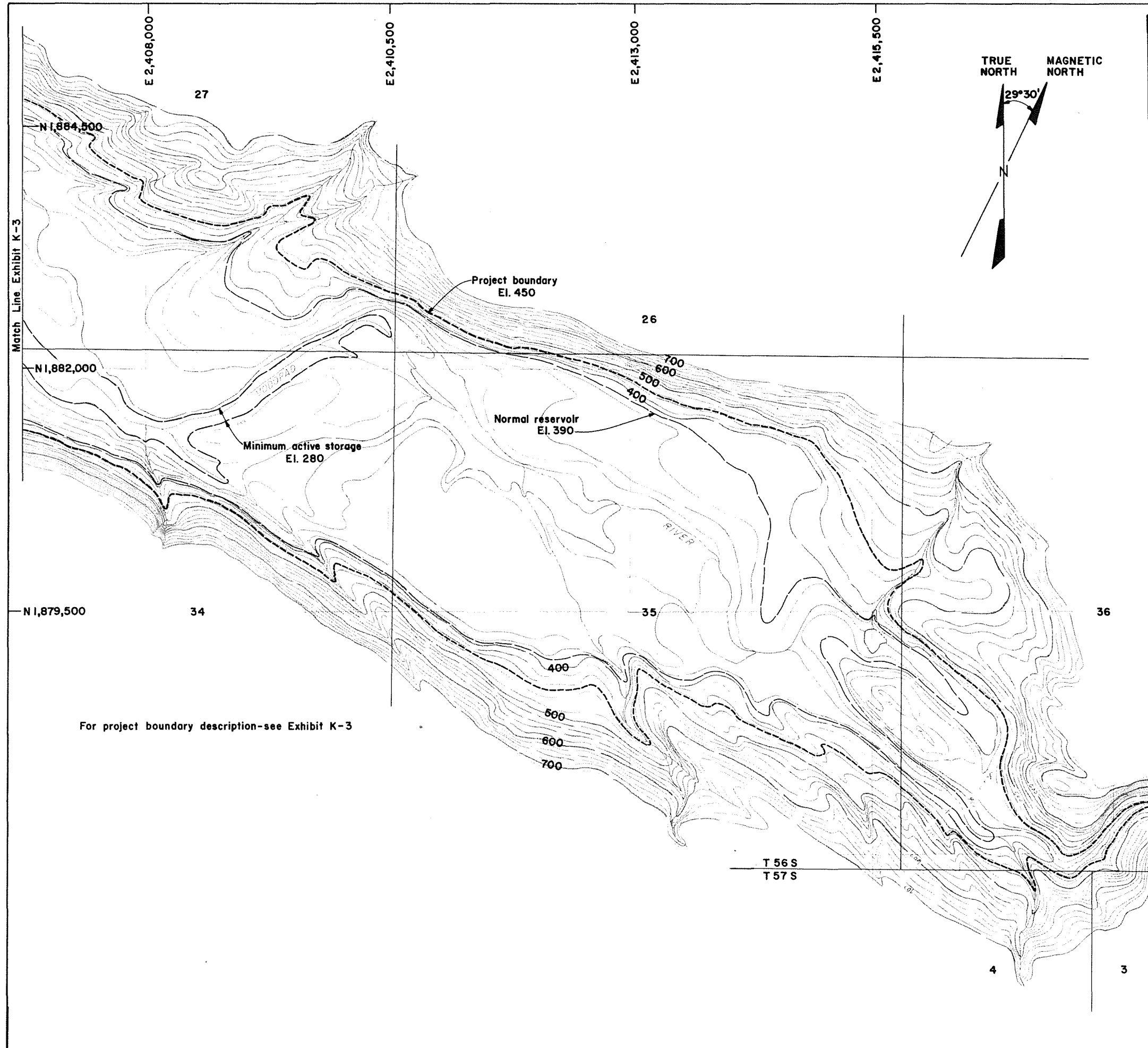
BY: *[Signature]* (ADMINISTRATOR) DRAWING NO. 462-P-7

GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA

EXHIBIT K-3

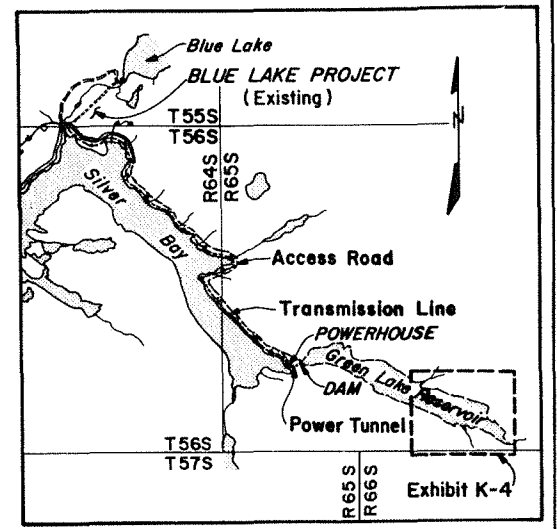
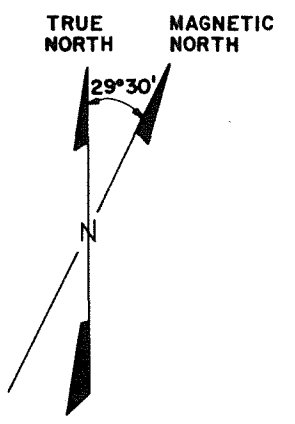
PROJECT BOUNDARY

THE PROJECT BOUNDARY SHOWN HERE IS AN UNSURVEYED ESTIMATE OF THE POWERHOUSE AND DAM LOCATIONS AND THE ALIGNMENTS OF THE POWER TUNNEL, ACCESS ROAD, AND TRANSMISSION LINE PREPARED FROM PRELIMINARY AERIAL MAPPING. THE APPLICANT ACKNOWLEDGES THAT THIS EXHIBIT DOES NOT CONFORM TO THE REQUIREMENTS OF THE COMMISSION AND CERTIFIES THAT IT WILL COMPLETE THIS EXHIBIT AS REQUIRED BASED ON THE PROJECT FEATURES AS CONSTRUCTED WITHIN 6 YEARS OF THE GRANTING OF A LICENSE FOR THIS PROJECT.

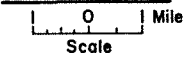


Match Line Exhibit K-3

For project boundary description-see Exhibit K-3



KEY MAP



LEGEND

- Project boundary
- Unsurveyed land lines
- 35 Section number

NOTES:

1. Land lines represent unsurveyed and unmarked locations from computations by the State of Alaska, Division of Lands, Copper River Meridian taken from U.S.G.S. 1:63,360 topographic series.
2. Grid based on Alaska coordinate system, zone I.
3. Topography prepared by H.G. Chickering, Jr., January 1975. Horizontal and vertical control based on U.S.G.S. Quadrangle control.
4. Elevations based on Mean Sea Level (MSL) datum.

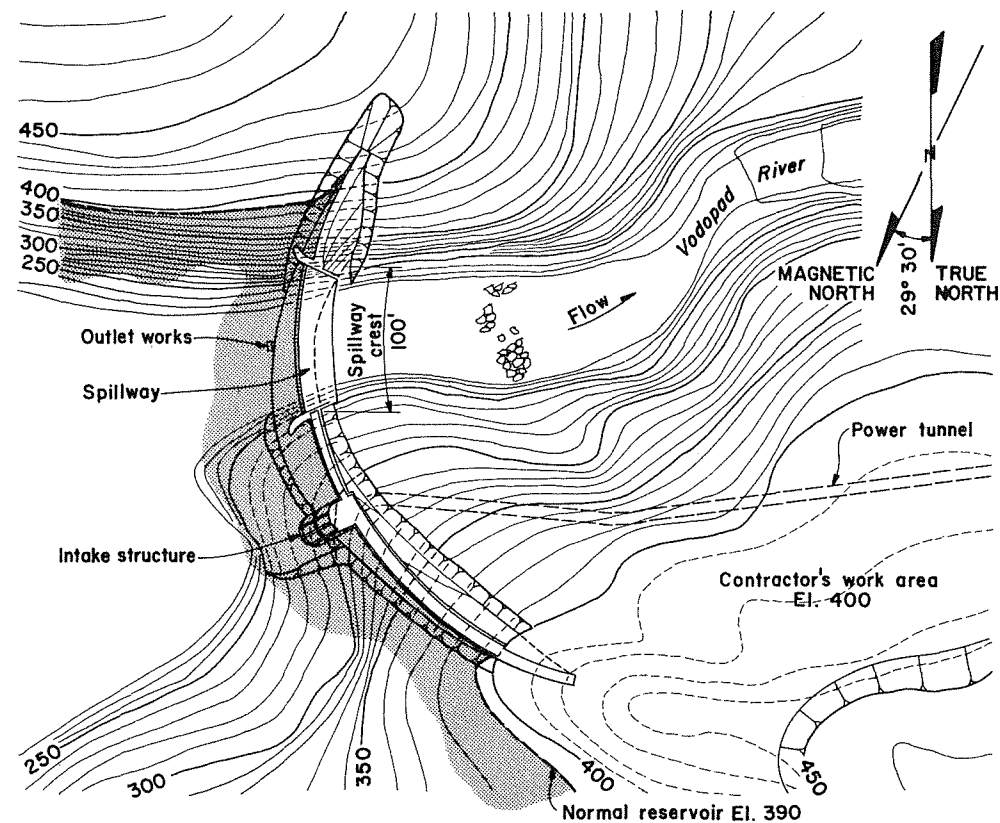
THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977 BY *[Signature]* (ADMINISTRATOR)

CONSULTING ENGINEER, R.W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON APPROVED BY *[Signature]* DATE September 5, 1977 DRAWING NO. 462-P-B

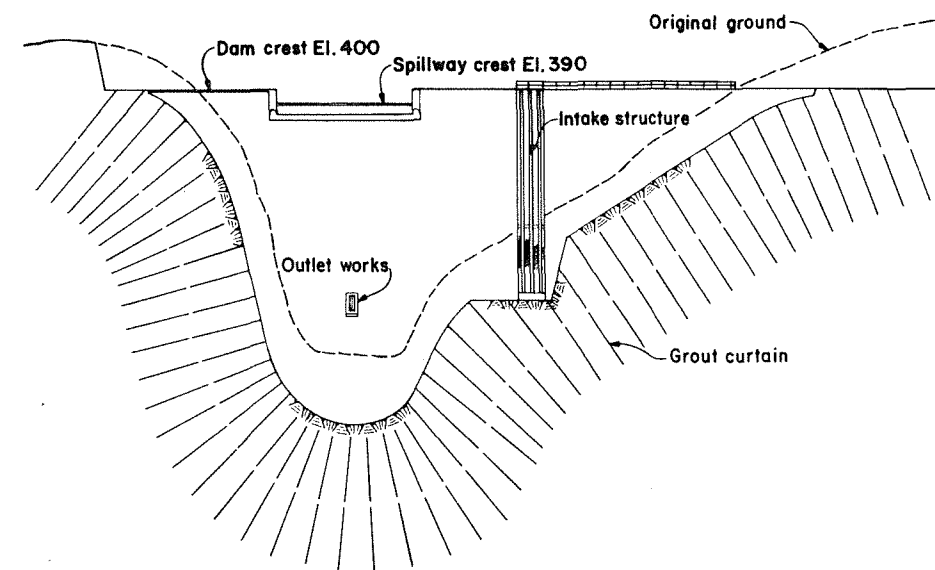
**GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT K-4
PROJECT BOUNDARY**

SCALE: 1" = 400'

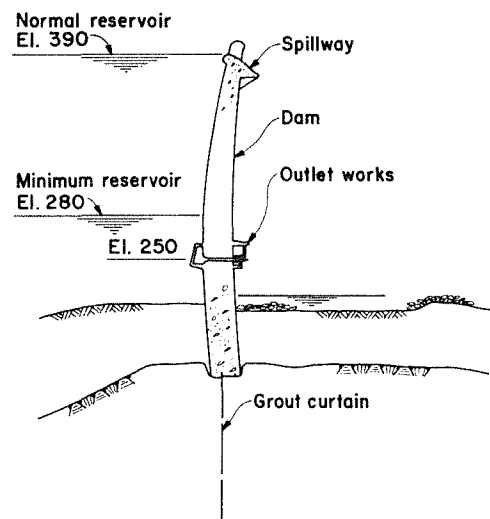
EXHIBIT L
GENERAL DESIGN DRAWINGS



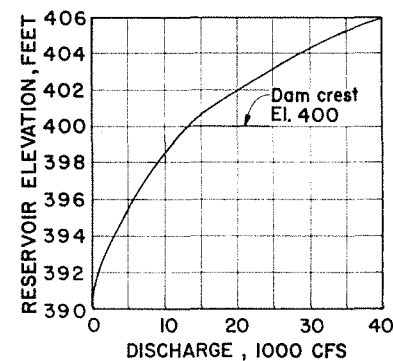
DAMSITE - PLAN
 Scale: 1" = 50'



DAM - ELEVATION
 Scale: 1" = 50'



DAM - MAXIMUM SECTION
 Scale: 1" = 50'



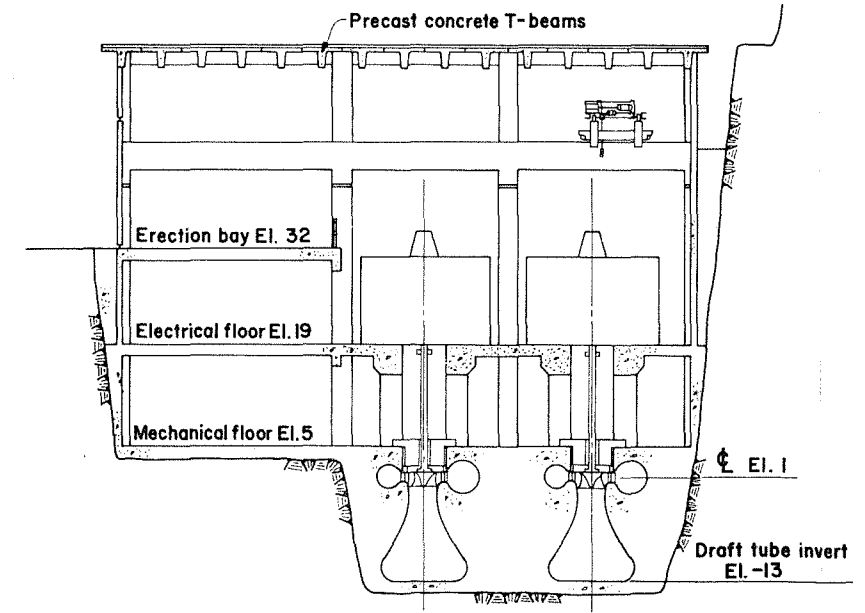
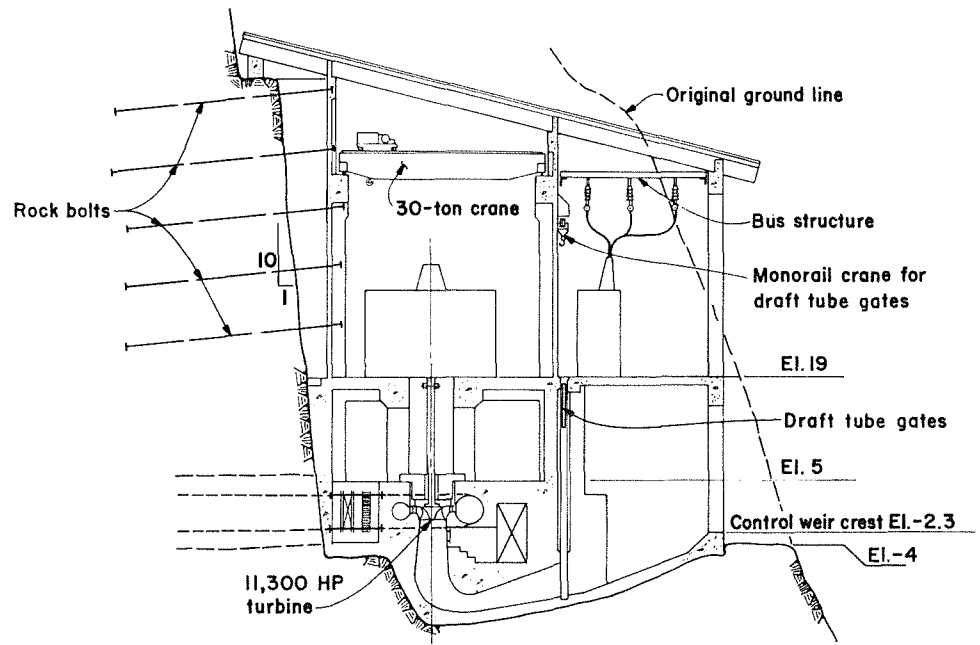
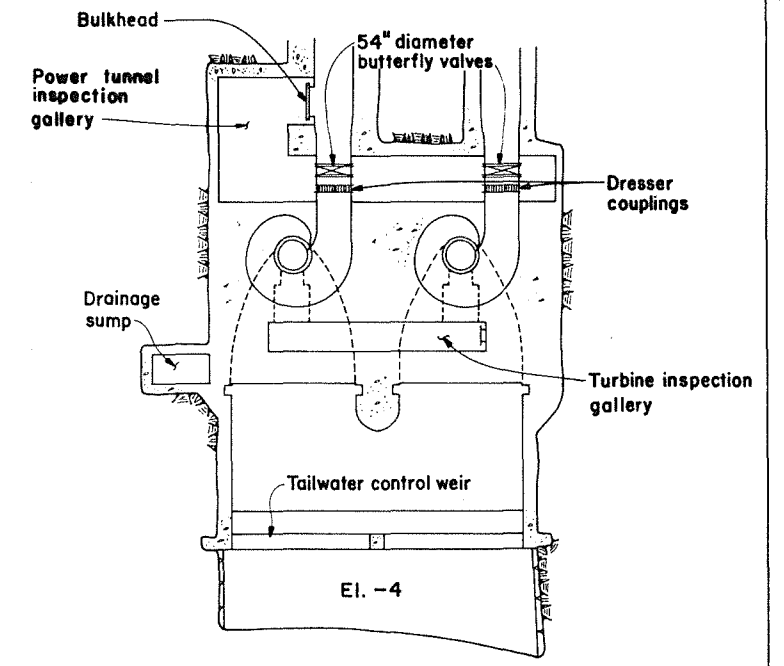
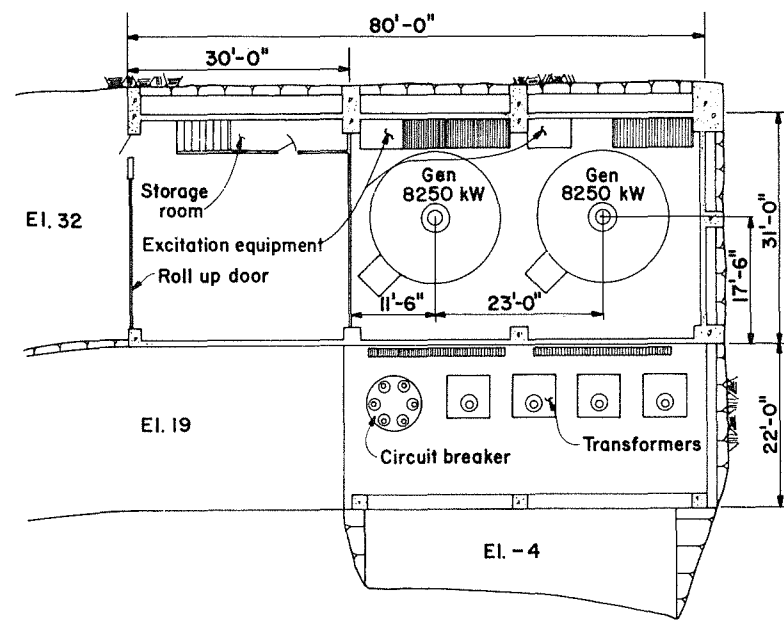
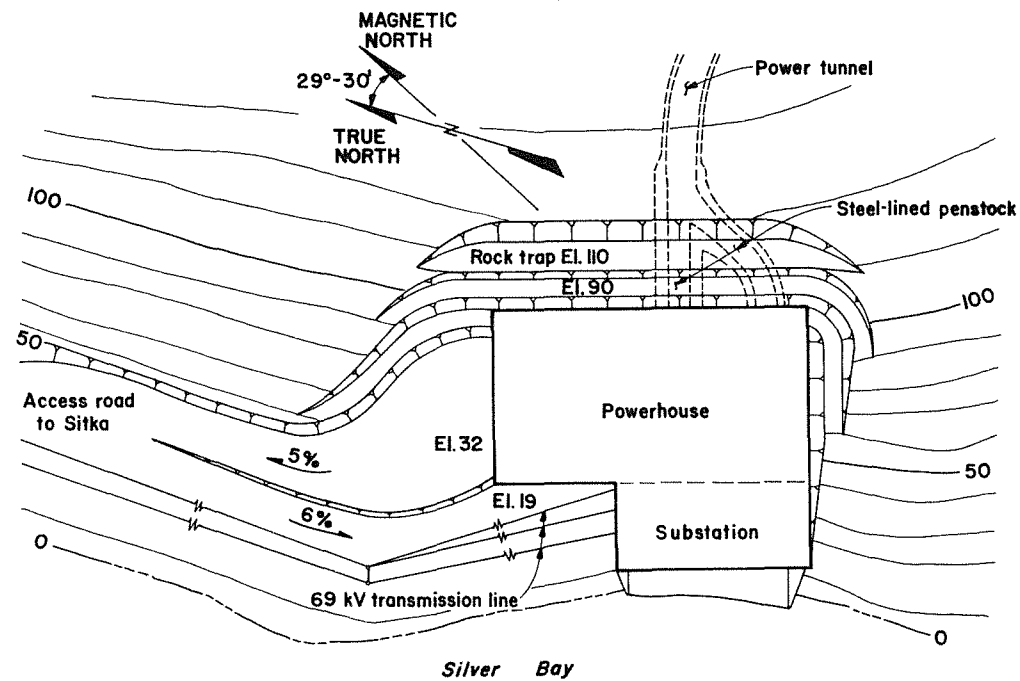
SPILLWAY RATING CURVE

NOTES:

1. Topography prepared by H.G. Chickering, Jr. January 1975. Horizontal and vertical control based on U.S.G.S. Quadrangle control.
2. Elevations based on Mean Sea Level (MSL) datum.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977
 CONSULTING ENGINEER: R. W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON
 APPROVED BY: *[Signature]* DATE: SEPT. 14, 1977
 BY: *[Signature]* (ADMINISTRATOR) DRAWING NO. 462-P-9

GREEN LAKE PROJECT
 CITY AND BOROUGH OF SITKA, ALASKA
 EXHIBIT L-1
 DAM PLAN, ELEVATION AND SECTION
 Scale as noted



- NOTES:**
1. Topography prepared by H. G. Chickering, Jr. January 1975. Horizontal and vertical control based on USGS. Quadrangle control.
 2. Elevations based on Mean Sea Level (MSL) datum.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977.

CONSULTING ENGINEER:
R. W. BECK & ASSOCIATES, INC.
SEATTLE, WASHINGTON

APPROVED BY: *[Signature]*
DATE: September 8, 1977
BY: *[Signature]* (ADMINISTRATOR) DRAWING NO. 462-P-11

GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT L-3
POWERHOUSE AND SUBSTATION PLANS AND SECTIONS

0 1 2 3 4 5 6
Scale as noted

EXHIBIT M

GENERAL DESCRIPTION OF MECHANICAL, ELECTRICAL AND TRANSMISSION EQUIPMENT

A general description of the mechanical, electrical and transmission equipment to be installed in the Project is given in this Exhibit.

1. DAM

A low level outlet works facility will be provided near the center of the stream channel in the concrete arch dam. The outlet works will be equipped with a trashrack on the upstream face of the dam to exclude trash and debris from the outlet valves. A 12-inch diameter fixed-cone dispersion valve will be installed on the downstream end of the outlet works to regulate and control releases through the outlet works. The dispersion valve will be protected by a 14-inch butterfly valve installed in the conduit upstream of the dispersion valve. Both valves will be remotely controlled using electric motor-driven valve operators. The operators will also be arranged for local manual and electrical operation at the outlet works.

A power intake will be located on the upstream face of the dam, adjacent to the spillway section. Trashracks will protect the power intake from trash and debris during operation. The power intake will be equipped with a single 7-foot wide by 9-foot high fixed-wheel gate for emergency closure and maintenance of the power conduit. The gate will be operated by a hydraulic cylinder at the crest of the dam. Hydraulic pressure for the gate operation will be

provided by an electric motor-driven hydraulic power unit located in an enclosure adjacent to the gate hoist. The controls for the gate will be arranged for remote operation. Local operation will also be provided.

2. POWERHOUSE

The powerhouse, located at the downstream terminus of the power conduit, will house two generating units. The prime movers will be vertical shaft Francis turbines rated at 11,300 horsepower, each at 349-foot head. Each unit will be controlled by a standard hydraulically operated governor controlling the turbine wicket gates to maintain turbine speed under varying load. A 54-inch butterfly valve will be installed in the conduit upstream of each turbine for emergency shutdown and to permit maintenance of the units. The butterfly valves will be hydraulically operated by a hydraulic power unit located between the two penstocks. The hydraulic power unit will be driven by an electric motor. The valves will be arranged for remote operation.

Each of the turbines will be directly connected to a vertical shaft synchronous generator rated at 8,250 kW, 0.9 power factor, 13.8-kV, 3-phase, 60 Hertz. The generators will operate at 514 rpm and will be equipped with all necessary auxiliaries, controls and safety features for a reliable power generating facility.

Water will be discharged from each turbine through an elbow-type draft tube into Silver Bay. The draft tubes will be arranged for the installation of a bulkhead gate to permit dewatering and maintenance of the turbines. A single draft tube bulkhead will be provided for installation in either draft tube. The bulkhead gate will be handled by a monorail crane installed above the draft tube deck.

The powerhouse will be equipped with a 30-ton traveling crane to facilitate maintenance on the equipment in the building. An air compressor will be provided for generator air brakes as well as routine plant use.

The output of the powerplant will be transformed to 69-kV in a substation adjacent to the powerplant. The substation will contain 4 single-phase (1 spare) 13.8 to 69-kV grounded-wye transformers rated at 5,500-kVA each. The 69-kV circuit breakers, disconnect switches and related equipment to safely handle the power will be provided. The plant will be remotely controlled from the Blue Lake power plant.

3. TRANSMISSION

The power will be transmitted over a 69-kV transmission line extending from the Green Lake power plant to the Blue Lake power plant substation and then on to the City. The transmission line between Green Lake and Blue Lake power plants will be supported on single wood poles with wishbone crossarms. The existing Blue Lake transmission line will be upgraded to carry the additional power from the Project.

EXHIBIT N

ESTIMATED COST OF PROJECT DEVELOPMENT

The estimated cost for the construction of the Green Lake Project, for a September 1981 on-line date is:⁽¹⁾

Land and Land Rights	0
Powerplant Structures and Improvements	1,888,000
Reservoirs, Dams and Waterways	16,122,000
Water Wheels, Turbines and Generators	3,910,000
Accessory Electric Equipment	444,000
Miscellaneous Power Plant Equipment	850,000
Roads and Bridges	5,699,000
Transmission Facilities	<u>871,000</u>
Subtotal - Direct Construction	29,784,000
Sales Tax	<u>0</u>
DIRECT CONSTRUCTION COST	29,784,000
Contingencies, 15%	<u>4,468,000</u>
Subtotal	34,252,000
Engineering	<u>4,282,000</u>
TOTAL CONSTRUCTION COST	38,534,000
Interest During Construction	<u>3,361,000</u> ⁽²⁾
CAPITAL INVESTMENT COST	41,895,000

- (1) Estimated construction costs are based on January 1977 bid price levels and were then escalated at 7% per year to their respective bid dates.
- (2) Interest during the construction period is based on an annual rate of 5% and was determined from a cash flow developed for the construction schedule.

EXHIBIT O

STATEMENT OF THE ESTIMATED TIME
REQUIRED TO COMPLETE PROJECT WORKS

EXHIBIT O

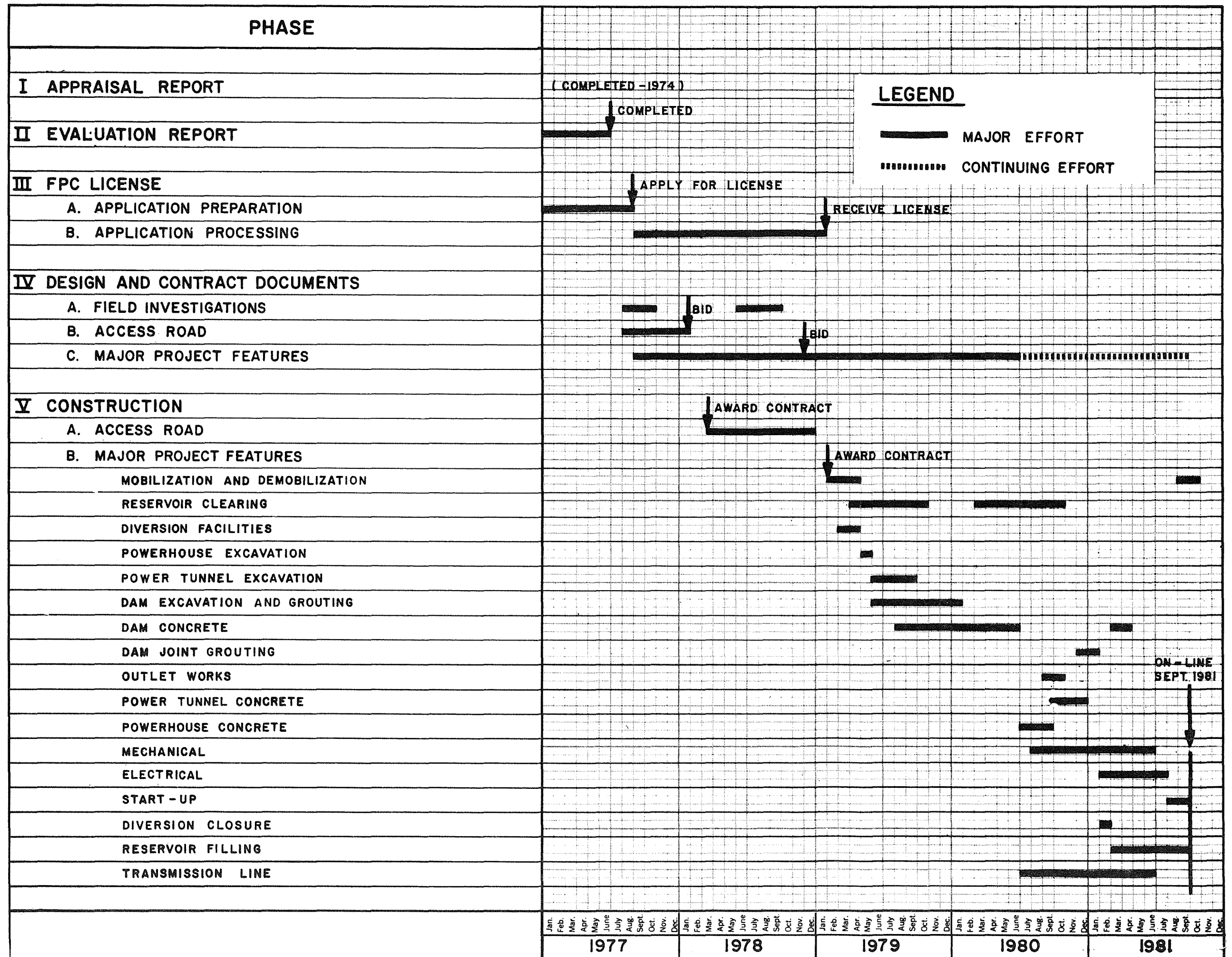


EXHIBIT R

RECREATION PLAN

1. GENERAL

The Green Lake Project site is located on Baranof Island southeast of Sitka near the head of Silver Bay. The Project will consist of a dam and reservoir on Green Lake, with the powerhouse, access road and transmission line located along the shoreline of Silver Bay. The topography of both Green Lake and Silver Bay is typical of Southeast Alaska with precipitous side slopes rising from the waterline. The vegetation of the area extends from shoreline to timberline (2,250 ft.) and consists of heavy stands of Sitka Spruce and Western Hemlock with undergrowth shrubs and young conifers. The open, less precipitous slopes support scrub conifers, muskeg and moss-type vegetation. Wildlife of the area is again typical of the region with the larger mammals being Alaska Brown Bear, Sitka Deer, and Mountain Goats at the higher elevations.

The project area, while in a rugged and scenic setting, is not unique in comparison to other local areas and in fact is somewhat limited in its recreational potential because of the ruggedness of these features. The reservoir will provide a good trout fishing area but Green Lake Valley will be of little value from a hiking and camping standpoint due to the steep terrain. The portion of the project area along the access road alignment has similar terrain restraints on its recreational potential. Since public vehicular access must be prohibited on the access road it will serve, from a recreational standpoint, only as a hiking trail.

The Applicant fully realizes the limitations of the project area from a recreational standpoint and will demonstrate in this exhibit that there are other areas in the Sitka vicinity which

will more satisfactorily fulfill the recreational needs. The following discussion explains the regional recreational needs and the Applicant's plans to meet those needs.

2. SOUTHEAST ALASKA RECREATION

The State of Alaska, in its current outdoor recreation plan, has defined the supplies and demands for recreation facilities for the major geographical regions of the State.

To define the type of demand placed upon outdoor recreation, the State conducted a variety of resident and non-resident recreation surveys from 1966 through 1969. The analysis of this data established the levels of participation in outdoor recreation activities on a State and regional basis. The results indicate that trail related activities lead in participation on both a State and regional level. These were followed by activities such as sightseeing, driving for pleasure, picnicking, fishing, boating, camping, swimming, and hunting. The Alaska Outdoor Recreation Plan further indicates that the greatest majority of resident participation is "activities carried out near the participant's home when he has only a few hours available for outdoor recreation."

For the Southeast Alaska Region, the State plan has identified 2,811,225 acres of available land already dedicated to recreation and recreation facilities as of July 1973. But, some 2,810,640 acres, (approximately 99.97%) of this land are under State and Federal jurisdiction and are categorized as "extended trip acreage", where the term "extended trip" relates to facilities which are further than one hour travel time from most users.

In carrying out its study the State has used the supply and demand information to define the recreation needs of the various regions. In defining the needs for the future recreation facilities for Southeastern Alaska, the State plan established that

facilities and acreage available in 1975 will supply thirty-one percent (31%) of the total outdoor recreation needs. For the southeast region the largest deficit in available wilderness-type facilities has been identified as the need for trail systems. The plan shows that the 1975 trail facilities available will supply only 14% of the 1975 need, leaving an 86% deficit. This is followed by deficits of 78% for picnic units, 60% for outdoor game areas and 35% for camp units.

3. CITY AND BOROUGH RECREATION

To further refine the State's outdoor recreation plan on a local level, the City and Borough of Sitka (Applicant) prepared a comprehensive recreation plan designed to identify the specific needs of and the resources available to the residents of the Sitka area. The plan is currently in a draft stage, but is the best information available to define local needs.

Sitka, as a highly mobile water-oriented community, could not afford to restrict its study to the Sitka Exclusion Area but was obliged to review existing and potential resources within the much larger physical area considered accessible to the majority of the community. Like most Southeast Alaska communities, Sitka is completely surrounded by the Tongass National Forest. As a result, most of the existing and potential recreational facilities are located on lands owned by the United States and administered by the U.S. Forest Service (USFS). Therefore the City and Borough of Sitka has relied heavily on the usage and expansion of existing USFS facilities in the Study Area.

Drawing Exhibit R identifies the existing and proposed regional trail system, cabins and alpine shelters, major anchorages, green belt/protected areas and proposed/potential general recreation sites contained within the Sitka Study Area. The recreational facilities shown in that exhibit were chosen to provide the community with a full range of activities in the out-of-doors.

A regional trail system, identified by the State as the one recreational facility needing the most development, appears very feasible in the Sitka area, due to the amount and wide variety of existing logging roads. A variety of existing and proposed trails are shown in Drawing Exhibit R that would provide a trail system ranging in type from low or cross-country to alpine. This system would provide access to and interconnect many of the unique and popular recreation areas, such as the Mount Edgecumbe/Fumerole Camp Area on Kruzof Island and the glacier area east of Sitka on Baranof Island.

4. SILVER BAY RECREATION

The Salmon Lake/Lake Redoubt recreation area is located at the head of Silver Bay, just west of the Green Lake Project. The existing trail leads from Silver Bay, along Salmon Creek past Salmon Lake and ends at the USFS hiker's cabin at the head of Lake Redoubt.

The Salmon Creek/Salmon Lake segment is popular for its hiking and fishing resources. Salmon Creek is an anadromous stream, supporting annual salmon migrations, and Salmon Lake is a popular freshwater fishing lake.

Redoubt Lake lies in a steep-walled, scenic glacial basin. The lake is a miromictic lake with a distinctive tidewater outfall between Redoubt Bay and Redoubt Lake. It is an excellent sport fishery and is being proposed as a wilderness study area. The Applicant has proposed that the existing cabin at the tidewater outfall be rebuilt and the trail system extended from the existing cabin near the head of the lake. This proposal would, however, rely on U.S. Forest Service implementation.

5. PROJECT RECREATION

In view of the existing and proposed recreational facilities available in the greater Sitka area, the Green Lake Project is not considered to be a major recreational resource. There are no unique scenic, archaeological, or geologic features within the project area and the topography of the site severely limits the range of recreational uses which can feasibly be developed.

Discussions with the U.S. Forest Service, U.S. Bureau of Outdoor Recreation, Alaska Division of Parks and the National Park Service have established that there have been no recreational use studies conducted in the project area. Thus, there are no official agency estimates of present or projected recreational use. Based on its own knowledge, the Applicant estimates that the project area presently receives approximately 15 visitors annually with the predominant use of the area being trout fishing. It is expected that this use pattern will continue in the future and the Applicant believes that the future recreational usage will be closely associated with level of fish population in Green Lake. The proposed reservoir will increase the nutrient levels in the lake, due to the decomposition of flooded organic materials, which will provide an increased food source for the existing brook trout population. The increase in nutrient level is expected to peak within 1 to 3 years after the inundation of the reservoir and return to present nutrient levels in about 15 years. The vitality of the resident fish population and hence recreational fishing use, is expected to follow a similar cycle. The Applicant estimates that during the 1 to 3-year period, recreational use will double to approximately 30 visitors annually. From that time visitor use is expected to decrease, as fish population decreases, until use returns to approximately the same levels occurring presently. The above is predicated on the maintenance of the fish population upon filling of the reservoir. It is recognized, however, that raising the lake level may

also result in the loss of the trout spawning grounds at the head of the existing lake. The proposed institution of an appropriate trout stocking program through the Alaska Department of Fish and Game would mitigate the loss of the spawning grounds and provide a good freshwater trout lake. More complete plans for this program will be submitted to the Commission upon culmination of formal agreement between the Applicant and the Alaska Department of Fish and Game.

While the above estimates indicate the expected low recreational usage of the project area, it is felt that some enhancement of access to Green Lake would be provided. Public vehicular access via the single lane access road will be prohibited for safety reasons and the costs involved in bringing the access road up to public use standards would seriously compromise the financial integrity of the Project. Additionally, public vehicular traffic in such proximity to the several existing eagle nests identified along Silver Bay could disrupt nesting activities to the point where abandonment of the nests would occur and realignment of the road would not be economically feasible.

To facilitate access to the Green Lake Reservoir from Silver Bay, a mooring buoy will be installed near the powerhouse to provide anchorage for up to two (2) moderate sized pleasure craft. Due to the low expected visitor usage of the project area, the Applicant believes that a dock structure is unwarranted. Access to shore will be via a small dingy commonly carried aboard such craft locally. Usually, the dingy is drawn up on shore and tied to a nearby tree or rock. The existing hiking trail, shown in Detail Z of Drawing Exhibit R, and the portion of the access road from the powerhouse to the dam will provide alternative hiking accesses to Green Lake Reservoir from the tidewater. The hiking trail will require rehabilitation and upgrading. In addition the project access road will provide hiking access from Herring Cove to the project site.

Should usage resulting from the enhanced access increase beyond that expected, the Applicant will consider providing skiffs at the lake or other appropriate measures at that time.

It is expected that the on-site (project-related) recreational development cost for the Project will be \$12,000, itemized as follows:

Mooring buoy	- \$ 2,000
Trail rehabilitation	- \$10,000

The cost of the access road even though it can be used for hiking has not been allocated to recreation.

Due to the above constraints on the already limited recreational potential of the Project and the existence of the nearby Salmon Lake/Lake Redoubt recreational area, Green Lake will be retained in much the same recreational capacity as it has served prior to the project development, that is, as a trout fishing lake.

6. CONSULTATIONS WITH FEDERAL, STATE AND LOCAL AGENCIES
HAVING RESPONSIBILITY FOR RECREATION

The following consultation with Federal, State and local agencies were conducted with regard to recreation for the Project.

a. Bureau of Outdoor Recreation

Date: August 18, 1977
Type: Meeting
Participants: R. W. Beck and Associates (RWB) representing the City and Borough of Sitka
Subjects: Review of Draft Exhibit R for BOR comments.

b. U.S. Forest Service

Date: June 7, 1977
Type: Telephone Conversation
Participants: RWB representing the City and Borough of Sitka
Subjects: Forest Service Recreational Plans for the Green Lake Area.

c. Bureau of Outdoor Recreation

Date: May 2, 1977
Type: Telephone Conversation
Participants: RWB representing the City and Borough of Sitka
Subjects: Criteria and Guidelines for Planning for Recreational Facilities in Southeast Alaska.

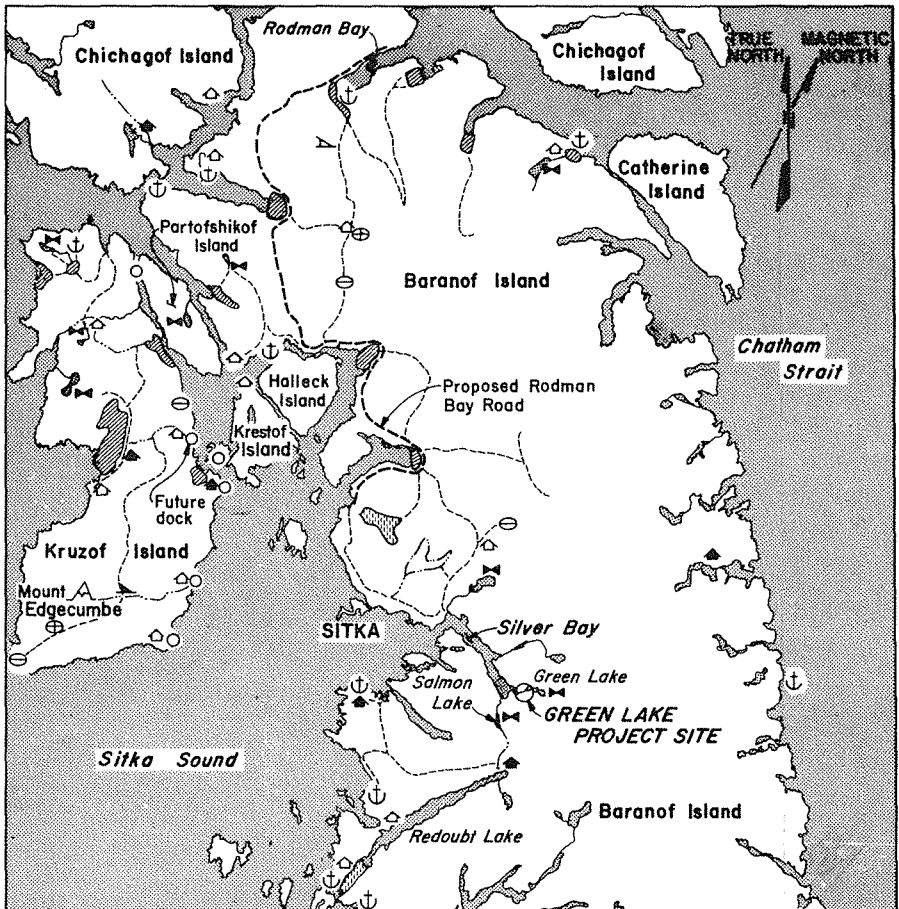
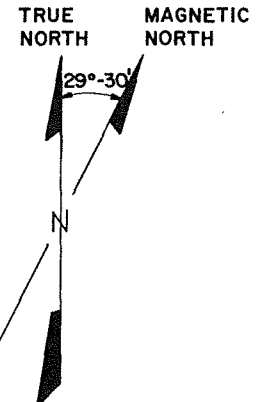
d. Alaska Division of Parks

Date: May 2, 1977
Type: Telephone Conversation
Participants: RWB representing the City and Borough of Sitka
Subjects: State Recreation Plans for the Green Lake Area and State Guidelines or Criteria for Recreation Planning.

Date: March 9, 1977
Type: Meeting
Participants: RWB representing the City and Borough of Sitka
Subject: Project Recreation Planning

e. City and Borough of Sitka

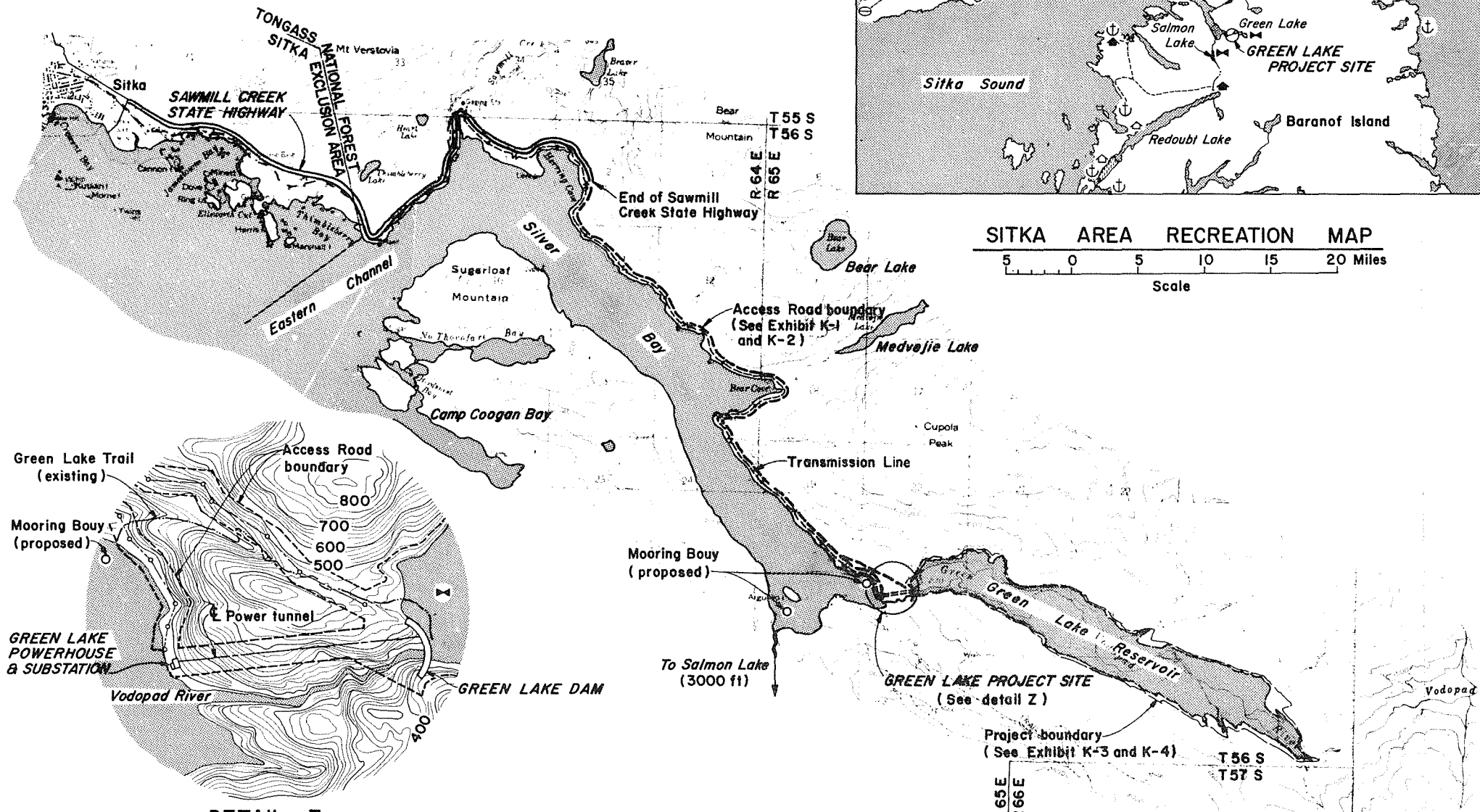
Date: Various Dates
Type: Meetings and Telephone Conversations
Participants: RWB
Subject: City and Borough Recreation Planning for the
Green Lake Area.



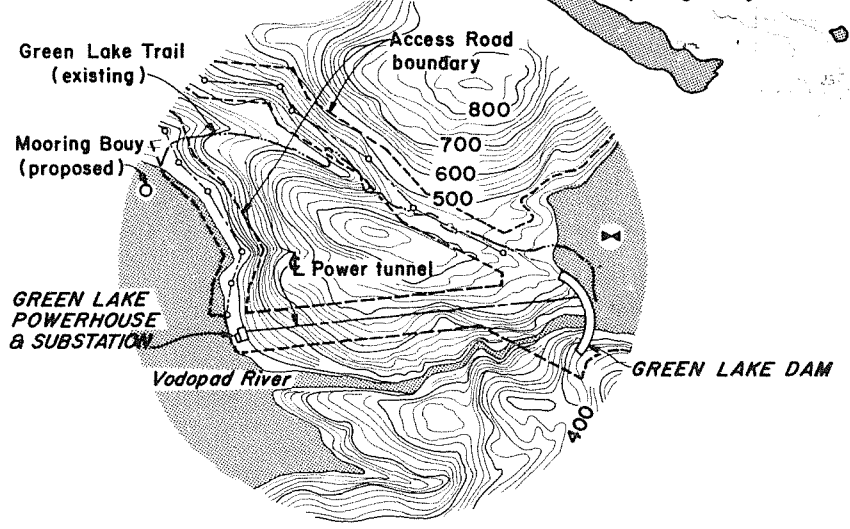
LEGEND

	Existing	Proposed	Potential
Boat anchorage	⊕		
Bouy	●	○	
Trail	---	---	
Cabin	▲	△	
Shelter	▶	▶	
Fresh water fishing	⋈		
Park		▨	
Green belt		▨	
Recreation		⊕	⊕

NOTE:
Elevations based on Mean Sea Level (MSL) datum.



SITKA AREA RECREATION MAP
Scale 0 5 10 15 20 Miles



**DETAIL Z
GREEN LAKE PROJECT SITE**
Scale 400' 0 400' 800' 1200' 1600' 2000'

GREEN LAKE PROJECT RECREATION MAP
Scale 0 1 2 Miles

MAPPING REFERENCES

Sitka Area Recreation Map
U.S.G.S. Quadrangles, 1:250,000:
Sitka, Alaska 1951
Port Alexander, Alaska 1951

Green Lake Project Recreation Area
U.S.G.S. Quadrangles, 1:63,360:
Sitka (A-4), Alaska 1951
Port Alexander (D-4), Alaska 1951

Green Lake Project Site
Topography prepared by H.G. Chickering,
Jr. January 1975. Horizontal and vertical
control based on U.S.G.S. Quadrangle control.

THIS DRAWING IS A PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY AND BOROUGH OF SITKA ON THIS DAY OF SEPT. 14, 1977 BY *[Signature]* (ADMINISTRATOR)

CONSULTING ENGINEER: R.W. BECK & ASSOCIATES, INC. SEATTLE, WASHINGTON
APPROVED BY *[Signature]* DATE September 6, 1977 DRAWING NO. 462-P-13

GREEN LAKE PROJECT
CITY AND BOROUGH OF SITKA, ALASKA
EXHIBIT R
PROJECT RECREATION PLAN
Scale as noted

EXHIBIT S

FISH AND WILDLIFE

1. INTRODUCTION

Due to the undeveloped nature of the Green Lake Project area, the main impact of project construction and operation will be felt by the biotic community in the vicinity. To inventory the wildlife resources and assess the impact of the Project on these resources, the Applicant retained Dr. David T. Hoopes to perform this study. As the first in-depth study of the biotic resources of the Green Lake-Vodopad River-Silver Bay community, this study became the baseline data for use in the preparation of Exhibits S and W. The report, entitled, "An Investigation of the Biotic Communities in the Vicinity of Green Lake, Baranof Island, Alaska", is presented in its entirety in Appendix W-10 of this Application.

Based on this preliminary baseline data, possible effects of the Project on the fish and wildlife resources and habitat were noted, and protective and mitigation measures were proposed. The following is a summary of the major findings of the above study and mitigation measures proposed by the Applicant. Specifics of the fish and wildlife resources in the area and the anticipated impact on those resources are presented in Appendix W-10.

2. SUMMARY OF MAJOR FINDINGS OF ENVIRONMENTAL STUDIES

a. Rare or Endangered Species

No resident rare or endangered species are known to inhabit or use any area adjacent to Green Lake or Silver Bay. However, humpback whales have been known to frequent the Silver Bay area. It is

recognized that the humpback whale is an endangered species and has received international protection since 1966. Also, two active eagle nest trees and a third inactive nest were found during field investigation in 1977. The bald eagle is a protected species by the National Bald Eagle Act of June 8, 1940 (as amended).

b. Critical Habitat

The only habitat area of any concern which has been identified by Alaska Department of Fish and Game biologists is the outlet of Bear Creek into Silver Bay in the vicinity of the proposed access road. This stream is considered important as a sport fishing and anadromous fish stream.

c. Impacts of Proposed Green Lake Project on Fish and Wildlife

A complete discussion of the impacts of the Project on fish and wildlife is given in the report by Dr. David T. Hoopes in Appendix W-10.

3. MITIGATION AND PROTECTION MEASURES

a. By Federal law, a radius of 330 feet around the eagle nest tree will be maintained unless authorization from the U.S. Department of Interior (Fish and Wildlife Service) is granted.

b. Bear Creek will be bridged, by Alaska Department of Fish and Game request, so as not to inhibit passage of anadromous fish.

c. Insulators on power transmission poles will be spaced so as to prevent electrocution of eagles and other large birds that might be attracted to the poles for use as perching sites.

d. Measures to mitigate the loss of the trout spawning grounds will be considered following further consultation with the Alaska Department of Fish and Game.

4. CONSULTATION WITH FEDERAL, STATE, AND LOCAL AGENCIES

The Applicant has consulted with concerned Federal, State and local agencies both directly and through its Engineer. Specific reference to those consultations are found in Section 10 and Appendix W-10 of Exhibit W.

EXHIBIT T

STATEMENT JUSTIFYING THE DEVELOPMENT
OF THE PROJECT BY THE APPLICANT
RATHER THAN THE FEDERAL GOVERNMENT

The Green Lake Project site is located relatively near the City of Sitka in a remote, largely-unsettled portion of south-east Alaska. All of the population to be served by the Project is concentrated in a relatively-small area within or adjacent to the City limits. As such, the Project will not directly benefit interstate or foreign commerce.

The Applicant has demonstrated its capability to construct and operate a project of this scope and magnitude through its development and successful operation of the Blue Lake Project (FPC Project No. 2230) for a period of over 16 years.

As is discussed further in other portions of this Application, the Applicant is experiencing a rapid growth of its electric load which will result in a critical need for the project power output by late 1981. Historically, development of similar projects by the Federal Government in Alaska has not always been on a timely basis if at all and in this case delay will necessitate purchase of additional fossil-fueled power generation resources.

The Applicant further wishes to obtain the Project power output at the least possible cost, and at present, financing is available to the Applicant through the State of Alaska Water Resources Revolving Loan Fund at more favorable terms than are available to Federal Government projects.

The Applicant believes that public recreation needs can best be served by local resources other than the Project and has

thus emphasized development of power benefits in favor of greater recreational development (see Exhibit R).

For the above reasons it is believed that development of the Project by the Applicant rather than the Federal Government is best suited to implementing a comprehensive plan for developing the project waterway for the improvement and utilization of water-power development, and for other beneficial public uses, including recreational purposes.

EXHIBIT V

STATEMENT OF THE PROTECTION, ENHANCEMENT OF NATURAL, HISTORIC AND SCENIC FEATURES IN THE DESIGN, LOCATION, CONSTRUCTION AND OPERATION OF PROJECT FEATURES

1. INTRODUCTION

In southeastern Alaska the mountainous forest setting predominates the scenery. While the Green Lake Project is located in the midst of this setting, it does not encompass any unique or exceptional historic, natural or scenic values. The Applicant's development of the Green Lake Project includes facility design and location considerations balanced by engineering requirements and reliability for visual acceptability. These considerations can assure preservation of the natural features in the project area consistent with construction and operation requirements. In discussing the required subject matter, this exhibit develops criteria for the construction and operation of the Project including temporary facilities (such as construction roads, borrow areas and coffer dams) and reservoir clearing. Each element of the Project is discussed in as much detail as present information permits.

The Applicant's planning included meetings with State and Federal agencies along with representatives of local civic and conservation groups to determine their concerns.

2. PROJECT WORKS

The following measures will be taken during construction and operation of the Project to minimize the impact to the environment and preserve scenic values.

a. Reservoir Area

At normal reservoir elevation, the proposed reservoir will inundate approximately 1,000 acres of the Green Lake, Vodopad River Valley.

The primary concerns for the reservoir area are to minimize the effects of reservoir clearing, aggregate borrow areas and construction access roads. The reservoir will be cleared of all trees and brush within the area of normal reservoir fluctuation (El 390 [MSL] to El 294 [MSL]). Further, it is planned that all marketable timber below El 294 (MSL) will be cleared from the reservoir area. To minimize conflict with scenic values and minimize environmental damage, the debris and non-marketable material from the clearing operation will be disposed of primarily by controlled burning conforming to current air pollution regulations. All floating debris will be removed from the reservoir as the water rises. There do not appear to be any potentially unstable slopes which would result in landslides in the reservoir area, but care will be taken to minimize any erosion in the cleared zone before the reservoir is filled.

Within the reservoir area will be located the proposed borrow areas for the aggregates to be used in concrete batching, the coffer dams utilized during construction of the arch dam and the general construction roads that will be required for the Project. These above mentioned items, except for one portion of construction road, will all be inundated upon filling of the reservoir and will not create any visual impact in the project area. A portion of the construction road that leads from the contractor's work area to the upstream toe of the dam will be visible due to normal reservoir fluctuations.

b. Dam

The dam will be a double-curvature, concrete arch structure located about 80 feet downstream from the mouth of the existing Green Lake. The dam will have a maximum height of 230-feet above the estimated bottom of the foundation excavation and a crest length of 460 feet at El 400.0 (MSL). In the vicinity of the dam there are several project features which will have a visual impact upon the area. The dam itself will be a permanent feature of the landscape but due to its location it should not create an adverse visual impact. The type of structure will offer a low profile when viewed from the reservoir side and the difficult terrain and topography will generally preclude any viewing from the downstream side.

The contractor's work area, to be located on the north abutment, will be utilized heavily during construction. This area, except that required for project operation, will be regraded, contoured, and seeded upon completion of construction.

c. Power Conduit

The power conduit will be a 1,900-foot long, entirely underground structure and will have no adverse visual effect on the area. This mitigating effect is a consequence of normal engineering consideration and will require no additional funds for aesthetics.

d. Powerhouse

The powerhouse will be an indoor-type surface installation, located on Silver Bay about 350-feet north of the mouth of the Vodopad River. Due to its location and size, the powerhouse

will be visible to boat traffic in the southern end of Silver Bay. The most apparent view of the structure will be the front elevation behind which the substation will be housed. This elevation will be treated architecturally in a manner so as to blend with, to the extent possible, the surrounding environment. The forest cover will be maintained as close to the powerhouse as possible from an operation and maintenance standpoint and still provide masking to the structure.

e. Access Road

The access road will be a single-lane, minimum standard road of 7.4 miles in length and will extend along the northeast shore of Silver Bay from Herring Cove to the project site. The road will consist of both half and full bench cut sections. Due to the required location and steep topography along Silver Bay, portions of the access road and the uphill cut slopes will be visible to boat traffic. The natural masking of the forest cover will be maintained as much as possible and where necessary and practical, re-seeding of low growth forest cover will take place. On the full bench cut sections, most of the rock material will be wasted into Silver Bay where it will create no visual impact and be readily assimilated into the environment (see Exhibit W, Section 3). In order to maintain natural scenic and environmental aspects along the road alignment, all natural drainages will be maintained either by culverts or bridges as appropriate. Bridges will be utilized over anadromous fish streams (Bear Cove drainage) and will be of log stringer type construction. This type of bridge will serve two purposes. It will be more economical to construct and it will provide a bridge more naturally pleasing to the forest scene.

In general the access road will be maintained as required to allow for access for operation and maintenance of the dam, powerhouse and transmission line while unauthorized vehicular traffic will not be permitted.

f. Transmission Line

The transmission line utilized will be 69-kV on single wood poles with a wishbone crossarm configuration. The selected line arrangement (see Exhibit J) will closely parallel the access road alignment and portions of the existing Sawmill Creek Highway to a terminus at the substation of the Blue Lake Project. While the single pole arrangement is typical for this voltage, it will have the added benefit of blending more readily into the forest scenery. The Commission's "Guidelines for the Protection of Natural, Historic, Scenic, and Recreational Values in the Design and Location of Rights-of-Way and Transmission Facilities" have been utilized where they are applicable to the project environment. The use of transmission line and access road on the same right-of-way will minimize excess clearing and maintain as much of the existing tree cover as practical. Clearing for the transmission line will be carried out in a similar manner as was done for the access road, with the marketable timber being sold and the slash being disposed of in an environmentally acceptable manner. Operation of the Project will require periodic maintenance of the transmission line in the removal of what is termed "danger trees". Since the transmission line will generally be located on the downhill side of the access road alignment, this type of maintenance is expected to be minimal. The paralleling alignments of the transmission line and access road will provide dual primary use of the single right-of-way. The use of the access road as a hiking trail will be the only secondary usage of the right-of-way.

Since there are no existing transmission line right-of-ways in the project area it was required that route selection be based on economic, reliability and environmental considerations. The selected line route utilizing the transmission line and access

road along the same right-of-way has been described above. This arrangement was chosen because it offers highest reliability at a lower capital cost. It is expected that this arrangement will have some visual impact along Silver Bay. These impacts will be mitigated as much as possible by natural or re-seeded forest cover. The selected transmission alternative will tie into the existing Blue Lake transmission line at the substation near the Blue Lake Powerhouse. This existing Blue Lake transmission line will be upgraded from this point into Sitka but is not considered part of this Application.

The second transmission line arrangement considered was an overland transmission line with no access road. This arrangement, while in the same general area as the previous one, would involve some line locations at higher elevations along Silver Bay. This scheme was ruled out from a reliability and economic standpoint. The reliability suffers from the difficulty of access during severe weather (most outages would occur during these periods). Elimination of the access road has a very significant effect on construction of the major project features. All construction access would have to be by water and a port facility would have to be developed to facilitate unloading equipment, materials and labor.

Although the costs of access road construction would be saved, ultimately higher project costs are accrued due to the more expensive construction camp or ferrying system that must be used to bring material and personnel to the project site. The transmission line for this alternative would be more visible than the selected arrangement because of the higher location along the mountain side.

The third alternative considered would utilize an underwater transmission cable laid on the bottom of Silver Bay. The alternative of continuing the underwater line on into Sitka was ruled out because it would cross the shipping lane to the ALP mill which would expose it to the additional hazard of ship and barge anchors. For reliability, it would be necessary for the underwater transmission line to have two separate circuits, each consisting of a three-conductor armoured copper cable laid in parallel, directly on the bottom an average distance of 250-feet apart with a minimum of 50-feet apart where necessary. Elimination of the access road has the same effect on the cost of construction of the major project features of this alternative as the previous alternative.

This alternative has the same disadvantage for maintenance of the dam and power plant in the event of an outage as does the previous alternative. In addition, this alternative has a greater disadvantage in that maintenance of underwater transmission lines is very expensive and requires a long period to accomplish repair work. It is estimated that at mid-1977 cost level, a single repair of one of the cables would cost \$250,000 and would take approximately 30 days to complete under the best conditions of availability of equipment and labor. A specialized cable laying boat and equipment are required which must be brought in and difficulties are frequently encountered in locating the cable on the bottom and hauling it to the surface for repair.

Although the visual impact of this alternative would be less along Silver Bay, this alternative was judged unfeasible for the above-stated reasons.

3. ARCHAEOLOGICAL STUDY

An archaeological study has been completed for the project area by Dr. Robert E. Ackerman, of the Arctic Research Section, Laboratory of Anthropology, Washington State University. This report can be found in Appendix W-11. The study concludes that there is no evidence of any significant archaeological sites found in the area. Further, there are no listed natural or historic sites located in the project area that would be affected by the proposed hydroelectric development.

In the event that any previously unidentified archaeological sites are encountered during construction, the appropriate authorities will be notified and their guidance sought concerning the significance of the site and the removal of data.

