APPLICATION for CAPACITY-RELATED AMENDMENT

BLUE LAKE HYDROELECTRIC PROJECT (FERC No. 2230) EXPANSION

VOLUME 1 of 2 (EXHIBITS A,B,C,D,F and G)

Prepared By:

CITY and BOROUGH of SITKA, ALASKA

March, 2010

INITIAL STATEMENT

BEFORE THE FEDERAL ENERGY REGULATORY COMMISSION

Application for Capacity-Related Amendment of FERC License

Blue Lake Hydroelectric Project Expansion

FERC No. 2230
City and Borough of Sitka Electric Department
Sitka, Alaska

March, 2010

The City and Borough of Sitka Electric Department (City) of Sitka, AK, applies to the Federal Energy Regulatory Commission (FERC) for a capacity-related Amendment to the existing FERC license for the Blue Lake Hydroelectric Project ("Project", FERC No. 2230) as described in the attached Exhibits.

The exact name, business address and telephone number of the Licensee is:

City & Borough of Sitka
100 Lincoln Street
Sitka, Alaska, 99835
Phone: 907-747-3294

The exact name, business address and contact numbers of the person authorized to act as agent for the Licensee is:

City & Borough of Sitka, Electric Department
Attn: Christopher Brewton, Utility Director
105 Jarvis Street
Sitka, Alaska 99835
Phone: 907-747-1870
Fax: 907-747-3208

The applicant is a municipality, licensee for the water power project, designated as Project No. 2230 in the records of the Federal Energy Regulatory Commission, issued on the first day of July 10, 2007.

REASONS for AMENDMENT

Recent energy needs analyses conducted by the City have shown that, in order to assure continued delivery of low cost electrical power in the face of rising energy needs in Sitka, it must expand its electrical generating base. Among other alternatives, the City is examining expansion of their Blue Lake hydroelectric project ["Project", Federal Energy Regulatory Commission (FERC) No. 2230] near Sitka, Alaska.

DESCRIPTION of ACTION

The primary actions of the Project expansion would be: 1) installing a new powerhouse and three, new, larger, generating turbines near the existing Project powerhouse (the existing turbines would be removed); and 2) raising the height of the Project dam. Together, these actions would result in more efficient use of Blue Lake and Sawmill Creek water resources and a significant gain in electrical generation potential.
The powerhouse/turbine replacement component is referred to in this document as the "New Powerhouse" and raising the Project dam is referred to as the "Dam Raise". Collectively, these actions and their related infrastructure and construction are referred to as the "Blue Lake Project Expansion", or simply "Expansion".

STATUTORY and REGULATORY REQUIREMENTS

The City has conducted three-stage consultation as required by USC 4.38, including initial consultation, study planning, report review and Scoping. Following are the statutory and regulatory requirements of Alaska that affect the project as proposed with respect to bed and banks and to the appropriation, diversion, and use of water for power purposes:

Water Quality Certification

In Alaska, Water Quality Certification leading to Clean Water Act (CWA) Section 401 Certification is routinely waived for hydroelectric project proposals in the initial licensing and permitting phases. Instead, after the Commission has accepted the final application for amendment, CBS will initiate Coastal Zone Management Act Consistency review. Under this review, conducted by Alaska Department of Natural Resources (ADNR), all CWA requirements, including the possible need for 401 Certification, will be addressed among all potentially-responsible agencies, including US Army Corps of Engineers, (USCOE), Alaska Department of Environmental Conservation (ADEC) and ADNR.

Federal Power Act (FPA) Section 18 Prescriptions

Based on comments and issue deification throughout initial consultation and Scoping, agencies responsible for Section 18 (fish passage) Prescriptions (US Fish and Wildlife Service and National Marine Fisheries Service) have not indicated that they will make such prescriptions.

FPA Section 4(e) Conditions

At the time of this draft EA, USFS, the only agency with Section 4(e) authority on this action, has not discussed terms and conditions or 4(e) status. We expect to begin more intensive consultation with USFS after submittal of the Draft Amendment Application.

FPA Section 30(c) Conditions

We expect no Section 30 (c) conditions.

FPA Section 10(j) Recommendations

As with Section 4(e) conditions, above, we have not begun the process of negotiating terms and conditions with applicable agencies.

Endangered Species Act

Endangered species will be studied as part of the fish, wildlife and botanical field and literature reviews. During the study phase of these studies, our researchers will contact US Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS) and US Forest Service (USFS) to determine list of threatened, endangered or candidate plant or animal species, as well as species noted in the Alaska Natural Heritage Program (AKNHP) and other species of special concern. Draft resource reports will contain sections on these species. Prior to license application, CBS will determine, in consultation with USFWS, NMFS and USFS, the potential need for one or more Biological Evaluations and decide on whether CBS or the respective agencies will prepare these documents. The PDEA contains a section on Threatened and Endangered Species, in which we document presence of such species based on results of our literature review, studies and agency documentation.

Coastal Zone Management Act (CZMA)

In Alaska, CZMA consistency review is done by the Alaska Department of Natural Resources (ADNR), and serves as "one stop shopping" for all state and federal permits necessary for construction. Recent experience has shown that, after a hydro project license or amendment application has been noticed for filing by FERC (after all additional information requests from final application are fulfilled) the applicant or owner will submit to ADNR a "Coastal Project Questionnaire" including detailed project descriptions and referencing all licensing documents at that time. Based on the described action, ADNR will at that time involve other agencies which may need to issue permits, including US Army Corps of Engineers (USACOE) for such permits as CWA Section 404, Alaska Department of Environmental Conservation (ADEC) water quality permits, ADF&G Habitat

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ACRONYMS AND ABBREVIATIONS

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
af	acre foot or feet
ALP	Alternative Licensing Process
APC	Alaska Pulp Company
APE	Area of Potential Effect (cultural resources)
BLU	Blue Lake (generating) Unit
cfs	Cubic foot or feet per second
CZMA	Coastal Zone Management Act
EA	Environmental Assessment
EIS	Environmental Impact Statement
FERC	Federal Energy Regulatory Commission
FPA	Federal Power Act
FVU	Fish Valve Unit
FWS	United States Fish and Wildlife Service
ICD	Initial Consultation Document
kW	kilowatt
kWh	kilowatt hour
mgd	Million gallons per day
MW	Megawatt
MWh	Megawatt hour
NEPA	National Environmental Policy Act
NGO	Non-governmental Organization
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
PDEA	Preliminary Draft Environmental Assessment
PMFU	Pulp Mill Feeder Unit
SCIP	Sawmill Cove Industrial Park
SD1	Scoping Document 1
SD2	Scoping Document 2
SHPO	State Historic Preservation Office
SM	Stream Mile
STA	Sitka Tribe of Alaska
USFS	United States Forest Service
USGS	United States Geological Survey

EXHIBIT A

DESCRIPTION OF THE PROJECT

In this Exhibit we first describe the existing Blue Lake Project as a basis for clarifying Expansion-related changes. We next describe the proposed changes and their associated construction.
Throughout this Exhibit, elevations are referenced as heights in feet above or below mean low sea level, denoted by the term "El". Reservoir and stream directions (left or right) are looking downstream. Project features on Sawmill Creek are described relative to their Stream Mile (SM), or the centerline distance on Sawmill Creek upstream from the Creek's mouth at tidewater, as determined from the project map.

DESCRIPTION of the EXISTING PROJECT

The Blue Lake Project is located approximately 5 miles east of the City of Sitka, Alaska, on Sawmill Creek, formerly the Medvetche River (Figure A-1). The Project consists of: the dam, a submerged intake structure, a power conduit, three powerhouses, a switchyard and a primary and two secondary transmission lines (Figure A-2).

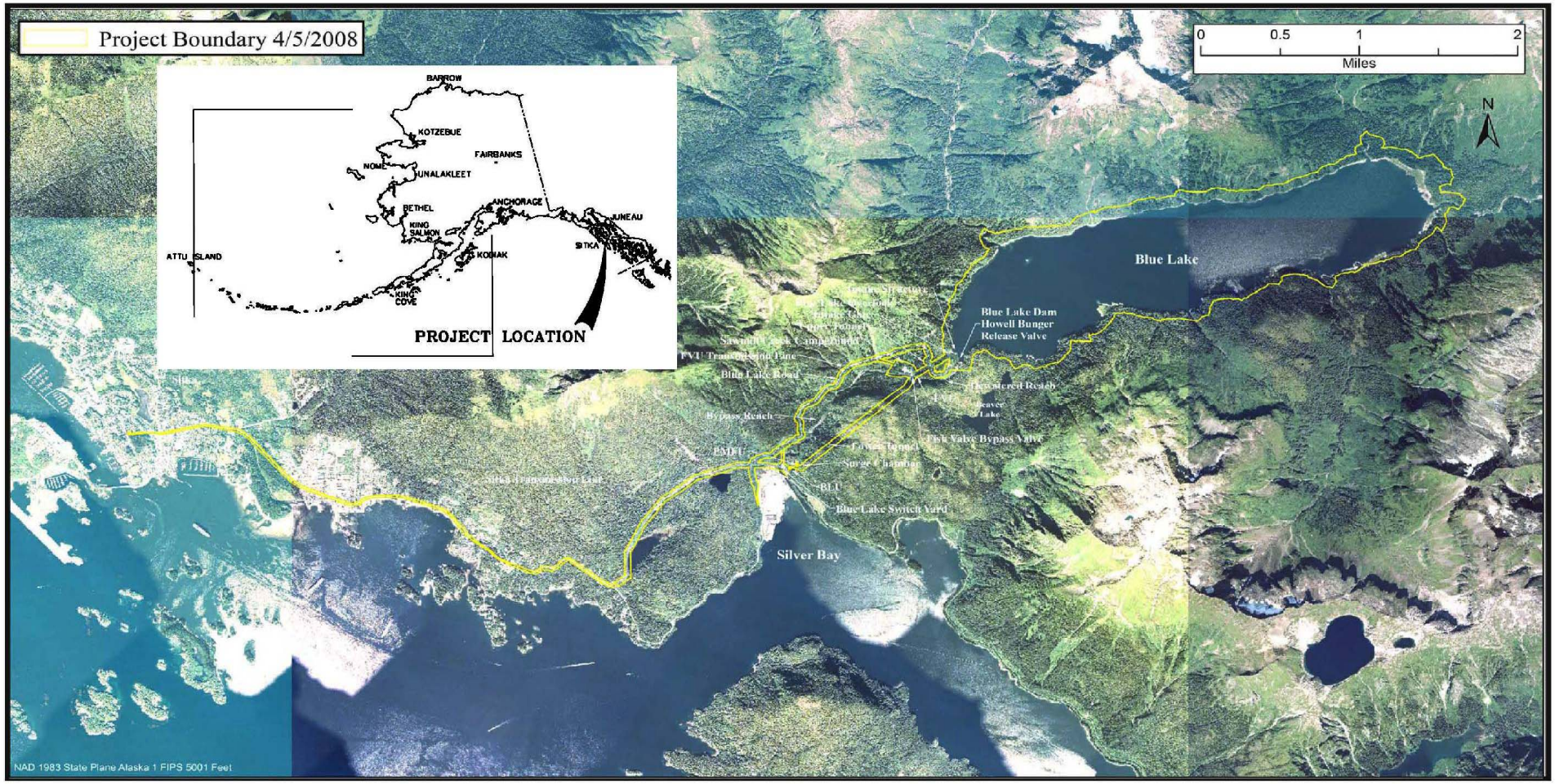


Figure A-1 Blue Lake Project Area Map

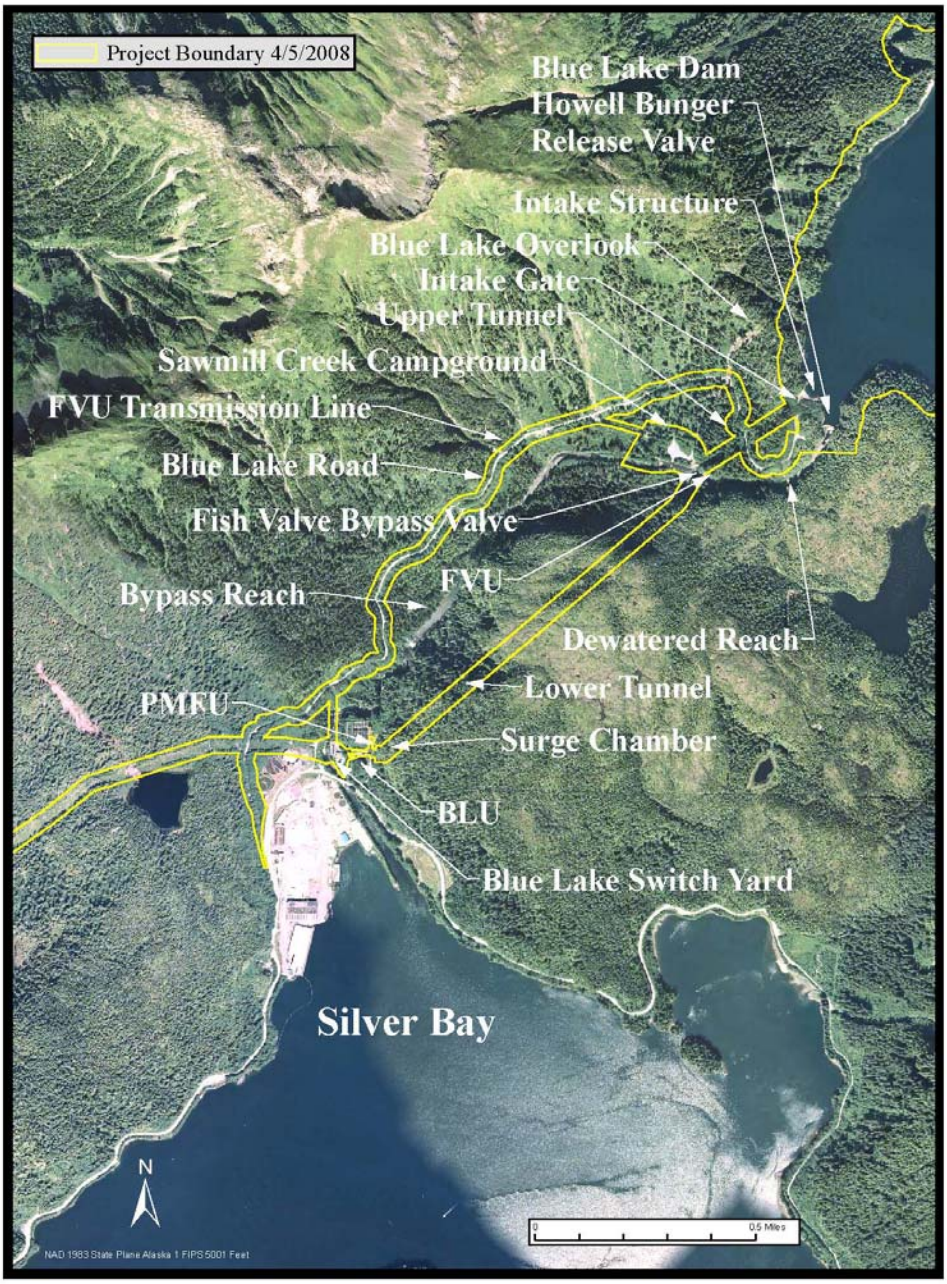


Figure A-2. Blue Lake Project Map Showing Project Features and Waterways.

Dam

Located at SM 2.31 on Sawmill Creek, the existing concrete arch dam is 211 ft high with a base width of 25 ft and a crest width of 256 ft. The 140 ft wide spillway at El 342 is centrally located in the dam, and is sized to discharge 14,000 cubic feet per second (cfs). A release valve, installed at the base of the dam, is used to release water when the reservoir is below the spillway elevation. The valve capacity varies between 450 cfs and 650 cfs depending on lake level. A natural plunge pool is located downstream of the dam, to dissipate energy from the spillway discharge.

Reservoir

Blue Lake Reservoir was created when the dam raised the natural Blue Lake water surface from El 208 to El 342 and increased the lake surface area from 490 to 1,225 surface acres. Blue Lake is 3.25 mi long and 0.63 mi in average width. The deepest point is at El minus 126 at a depth of 468 feet below the lake surface at spill elevation. The reservoir has a gross storage capacity of 145,200 acre/feet (af) and a usable storage of 102,200 af at spill level. A submerged concrete intake structure is located approximately 400 feet north of the dam at invert El 204.

Power Conduit

A 7,110 ft. long power conduit extending from the intake structure to the Blue Lake powerhouse branches to provide water to the various powerhouses and other facilities described below. Figure A-3 is a schematic representation of the Blue Lake Project power conduit system and associated taps and branches.

The power conduit consists of an upper tunnel with an unlined, 11.5 ft. diameter modified horseshoe cross-section extending 1,500 feet from the intake structure to the upper penstock on the right side of Sawmill Creek. The upper penstock, an 84 in. diameter, 460 ft. long, steel pipe crosses the stream supported on concrete piers and enters the lower tunnel on the left side of Sawmill Creek. The 4,650 ft. lower tunnel has an unlined, 10 ft. diameter modified horseshoe cross-section and extends to the lower penstock.

The lower penstock, an 84 in. diameter, 500 ft. long, steel pipe, has two taps immediately below the lower tunnel portal. A 36 in. tap supplies water to the Pulp Mill Feeder Unit and a 24 in. tap supplies water to the Sawmill Cove Industrial Park (SCIP), site of the former Alaska Pulp Company (APC) mill.

Approximately 90 feet below these two pipes is a 20 in. tap (the “water supply tap”) leading into the adjacent water treatment plant for municipal water supply. Approximately 50 ft below this tap is an 84 in. butterfly valve which allows shutdown of the main powerhouse and dewatering of the turbines while maintaining water to the

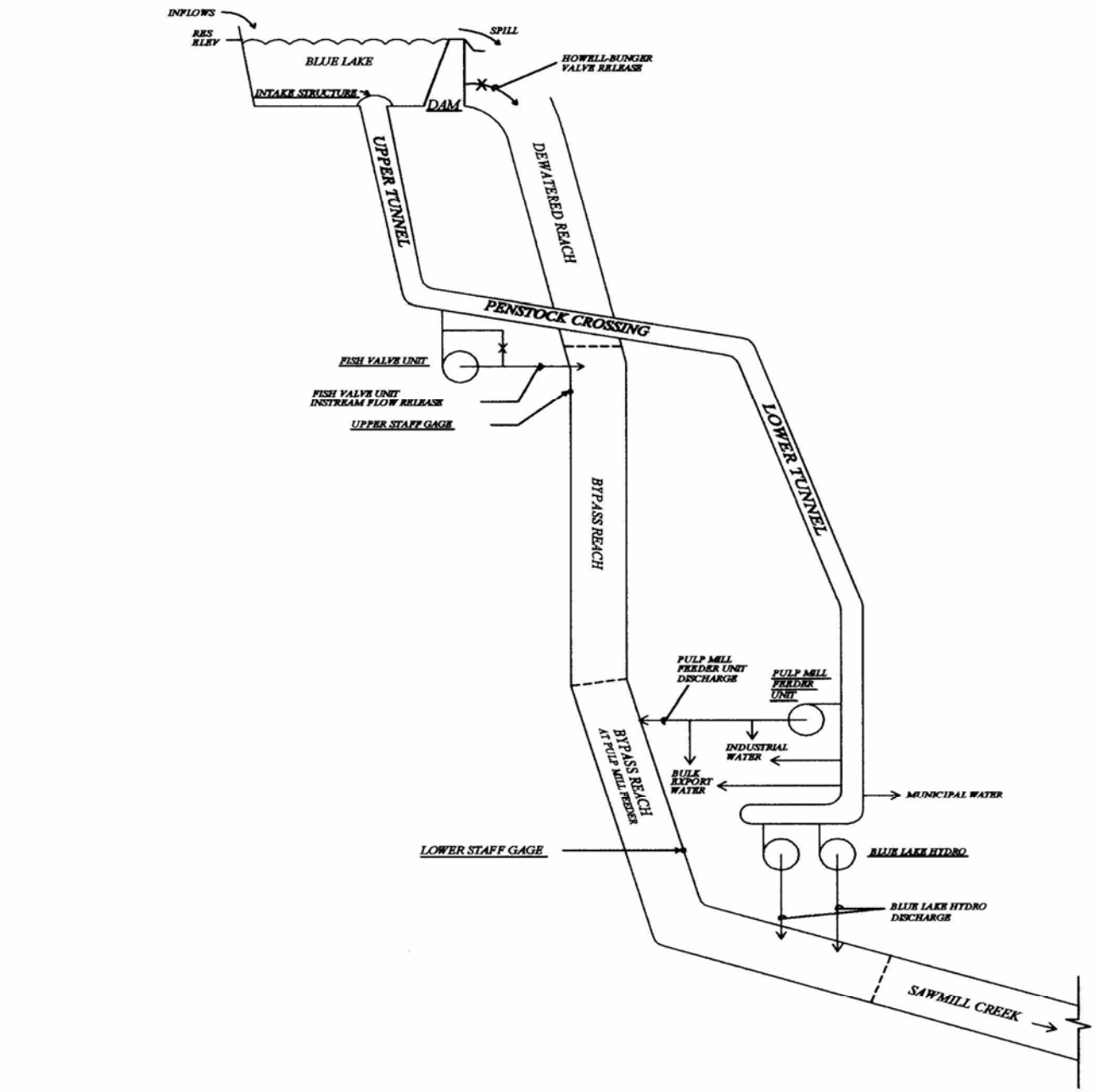


Figure A-3. Blue Lake Project Power Conduit Schematic

Sawmill Creek Industrial Park and the Water Treatment Plant.
At the end of the lower penstock is a manually operated 24 in. conduit drain valve which discharges into Sawmill Creek.

Project Powerhouses

The existing project generates power using the Blue Lake Unit (BLU), Fish Valve Unit (FVU) and Pulp Mill Feeder Unit (PMFU) powerhouses. The BLU is the primary generating facility. The other two powerhouses provide additional generation capacity, as described in detail below.

BLU

The BLU houses the primary Project generating units. It is located on the left bank of Sawmill Creek at SM 0.32 and is a 35 ft. X 70 ft. building with steel superstructure, precast walls and concrete foundation structure. The powerhouse contains two horizontal shaft Francis turbines each rated at 3000 kilowatts (kW) with provision for future installation of a third unit (Figure A-4). The turbines discharge water into the approximately 150 ft long tailrace which carries water from the turbines to Sawmill Creek.

The Blue Lake Switchyard, located adjacent to the powerhouse, receives generation energy from the Blue Lake powerhouse, and the two small hydro components described below. The switchyard includes two 12.47/4.16 kilovolt (kV) transformer banks comprised of a total of seven 2500 kilovolt amp (kVA) single phase, 4.16/69 kV transformers, with associated bus-work and disconnect switches. This provides for redundant installed transformers and a total capacity of 15,000 kVA. Power from the Green Lake Project, FERC No. 2818, another hydroelectric facility owned by the City of Sitka, is also transmitted to the Blue Lake switchyard at 69 kV.

Small Hydro Components

By License Amendment dated September 6, 1991, the Project was modified to include two additional generating units, the Fish Valve Unit (FVU) and the Pulp Mill Feeder Unit (PMFU), as described in the following:

FVU

The FVU, located at SM 1.62, generates power from flows released for instream purposes through a valve located about 1900 ft. downstream of the dam.. It is housed in a concrete powerhouse located approximately 175 feet below the upstream end of the upper penstock on the right side of the stream. A 36 in. diameter wye branch on the upper penstock supplies water to the FVU. An automatic bypass valve opens when the Fish

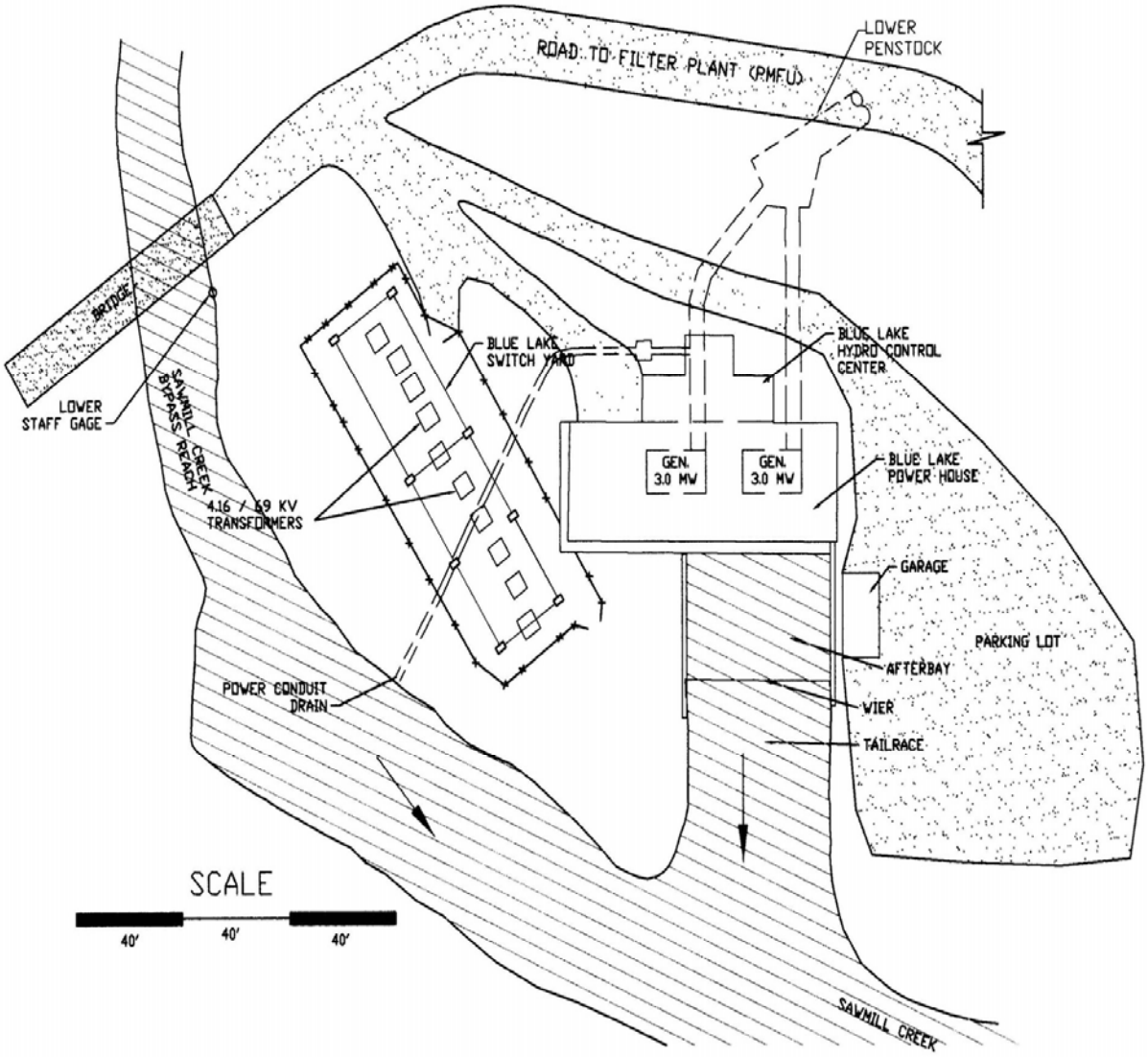


Figure A-4. Blue Lake Generating Unit

Valve Unit is tripped off-line to maintain the required flow of 50 cfs in the stream at all times. A single Francis turbine spins a generator rated at 670 kW.

PMFU

The 870 kW PMFU generates power from the water supply to the former Alaska Pulp Corporation (APC) filter plant. Regular PMFU operation was discontinued in 1993 because of shutdown of the APC mill. The unit was returned to intermittent service in August, 2003.

Transmission Facilities

Existing transmission facilities are comprised of three separate lines. The primary transmission line connects the Blue Lake switchyard to distribution system in Sitka and two secondary lines connect the FVU and PMFU to the primary facilities at the BLU, as described in more detail below.

Blue Lake (Sitka) Transmission Line.

A 69 kV Blue Lake (Sitka) transmission line extends 5 mi. from the Blue Lake Switchyard to the Jarvis Street and Marine Street substations in Sitka. The line is carried on both H-frame and single pole wood structures. The transmission line right of way occupies 67.7 acres of land, 12.8 acres of lands administered by the U.S. Department of Agriculture Forest Service (USFS). The remainder of land within the primary transmission corridor is owned by the State of Alaska, the City of Sitka, and various private land owners.

Pulp Mill Feeder Unit Transmission Line.

Power from the PMFU is transmitted at 4.16 kV over a 470 ft. long, underground transmission line to the Blue Lake Powerhouse and connected to the main generation bus.

Fish Valve Unit Transmission Line.

Power from the FVU is transmitted over a 12.47 kV transmission line 7,700 ft. long to the Blue Lake switchyard where it is transformed to 4.16 kV and connected to the main generation bus. The first 1,400 feet of the transmission line through the U.S. Forest Service Sawmill Creek recreation area is underground. The remaining portion is overhead.

Access Roads

The dam access road is USFS road No. 5755 (Blue Lake Road) and extends 2.18 miles to the dam from Sawmill Creek Road. Just downstream of the FVU, a footbridge bridge crosses Sawmill Creek at SM 1.57. Access to the Blue Lake powerhouse and the PMFU is along a licensee-owned road connected to Sawmill Creek Road at mile 5.5; access to the FVU is via USFS road No. 5755. At SM 0.38, the Blue Lake Powerhouse bridge crosses Sawmill Creek just upstream of the Blue Lake powerhouse.

Project Lands

The existing facilities of the Blue Lake Project occupy a total of 1784.3 acres, consisting of 1670.3 acres of U.S. lands administered by USFS and 114.0 acres of non- federal lands.

The project lies within the U.S. Geological Survey (USGS) Sitka A-4 and A-5 Quadrangle maps, within the land descriptions presented in Table A-1.

Table A-1. Land Descriptions of Blue Lake Project Features.

Project Features	Map Locations
Dam, Spillway and Intake Structure	Section 35 of T55S, R64E, Copper River Meridian.
Power Conduit	Sections 34 and 35 of T55S, R64E, Copper River Meridian.
Fish Valve Unit	Section 34 of T55S, R64E, Copper River Meridian.
Pulp Mill Feeder Unit	Section 34 of T55S, R64E, Copper River Meridian.
Blue Lake Powerhouse	Section 34 of T55S, R64E, Copper River Meridian.
Primary Transmission Line	Section 33 & 34 of T55S, R64E, Copper River Meridian; Section 4, 5 and 6 of T56S, R64E, Copper River Meridian; Section 1 of T56S, R63E, Copper River Meridian; Section 35 & 36 of T55S, R63E, Copper River Meridian.

3.2 FEATURES EXPECTED to CHANGE or to be ADDED UNDER BLUE LAKE PROJECT EXPANSION

In the following design graphics, green is an existing feature, red is a proposed feature. Exact plans for decommissioning the existing powerhouse and generators have not been developed at this time.

3.2.1 Powerhouse Area Changes

3.2.1.1 New Powerhouse and Generators

The current proposal is to replace the existing BLU powerhouse and two generators with a new powerhouse and three new generators. The new powerhouse, approximately 65 by 140 feet in area and 40 feet tall, would be located on Sawmill Creek's left bank about 20 yards downstream from the existing BLU powerhouse (Figures A-5 and A-6).

The new powerhouse would house three new Francis turbine-generators with installed capacities of approximately 5.3 MW each. The turbines would release water into an afterbay and then into Sawmill Creek via a tailrace similar to that at the existing powerhouse.

Power Conduit

Due to the increased pressure associated with the dam raise the steel liners at the portals of the power conduit must be lengthened. In order to decrease pressure drop within the tunnel these modifications will only be noticeable inside the tunnel.

The existing lower penstock is 7 feet diameter, in order to decrease the pressure drop in this penstock a replacement 9 foot diameter penstock will be constructed between the lower portal and the new power house.

3.2.1.2 Surge Chamber

An underground 25 foot diameter surge chamber would be constructed near the lower portal (Figure A-7). The surge chamber would be vented to the surface at about El 465. The surge chamber would be necessary to decrease water pressure in the power conduit resulting from load rejection and a consequent pressure spike which might damage the power conduit and generating equipment. The surge chamber would allow system operation at a higher average pressure and would improve the electrical frequency response of the Blue Lake Project. The surge chamber will be constructed from an adit located near the PMFU.

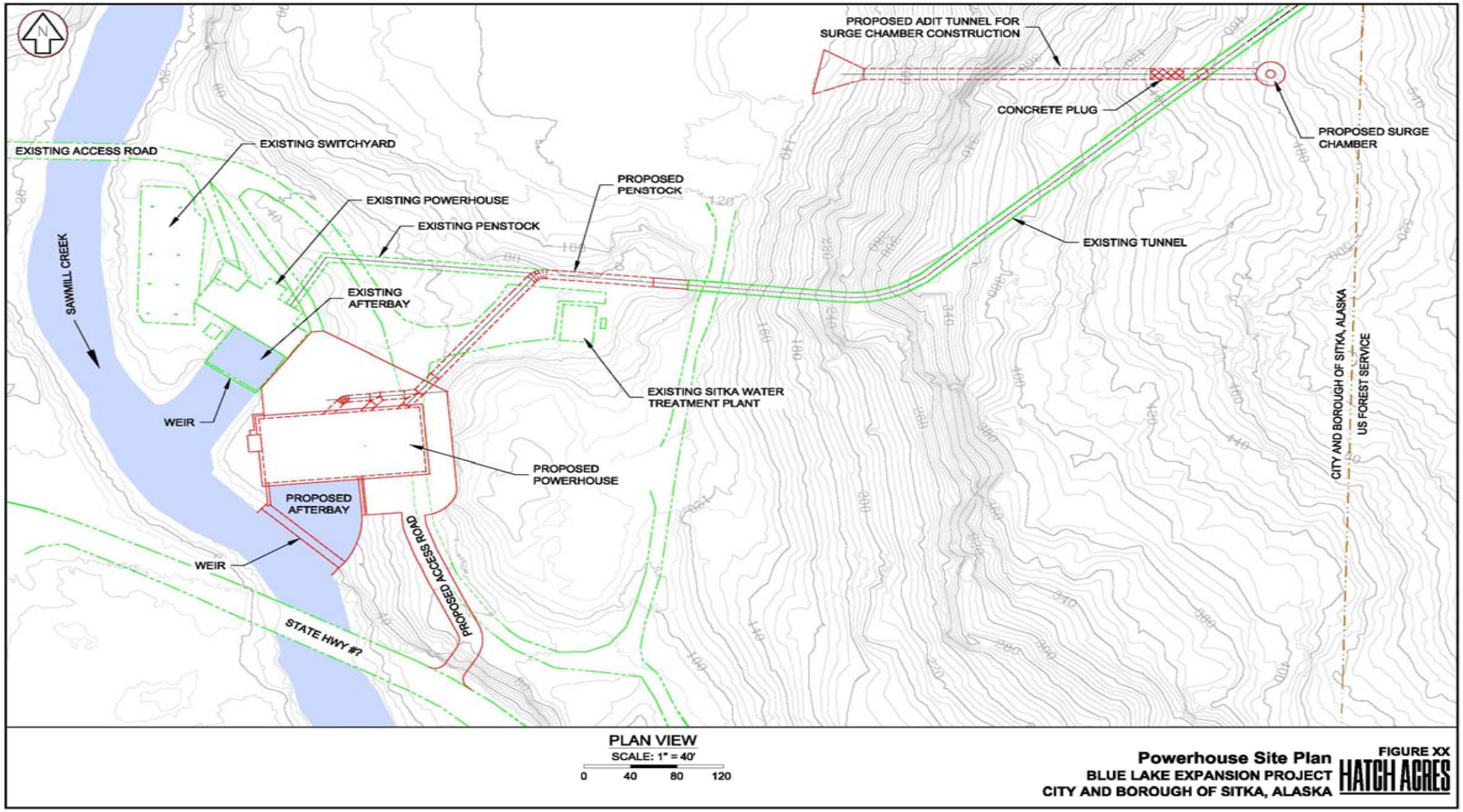


Figure A-5. Powerhouse Area Revised Site Plan

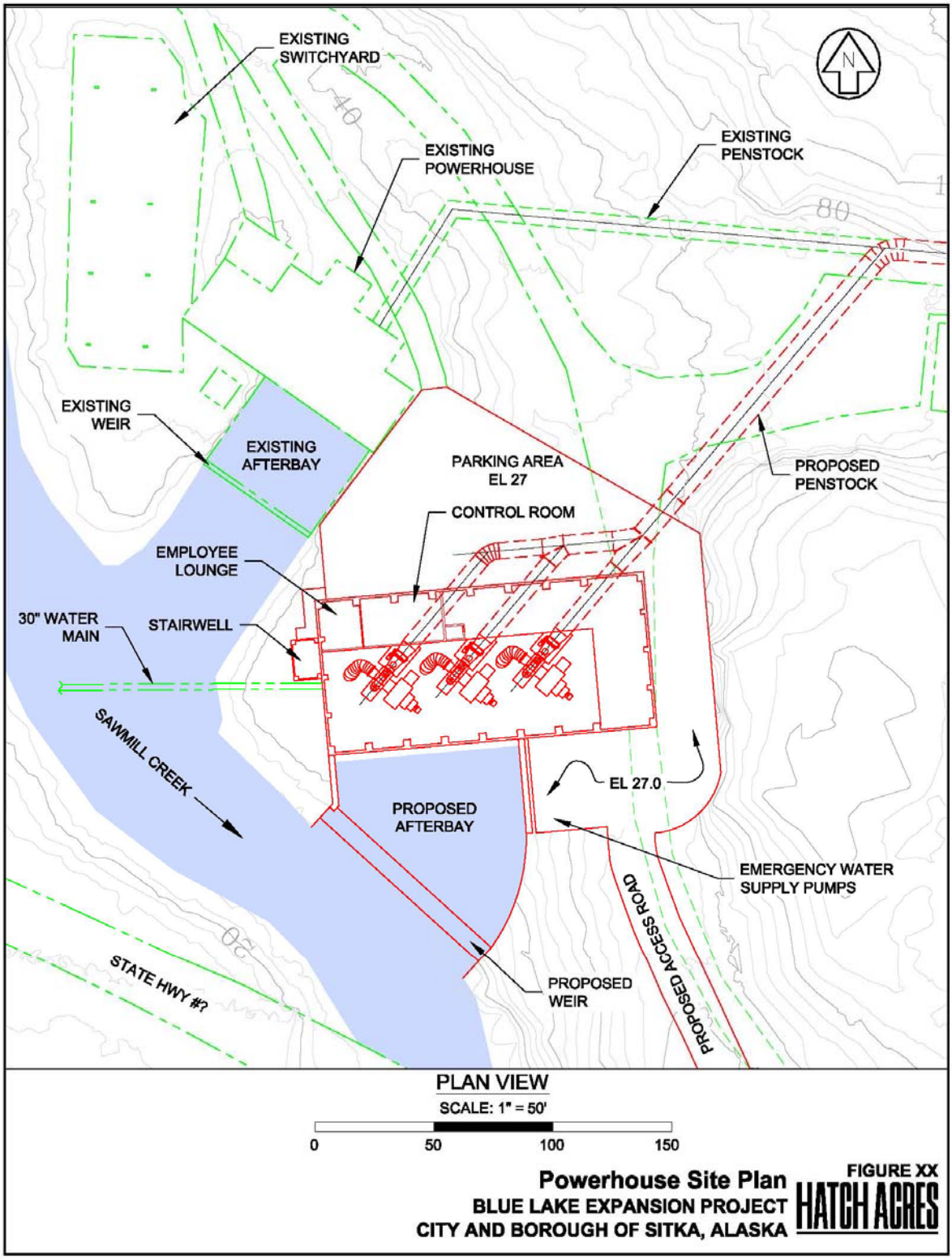


Figure A-6. Detail of Powerhouse and Afterbay Arrangement.

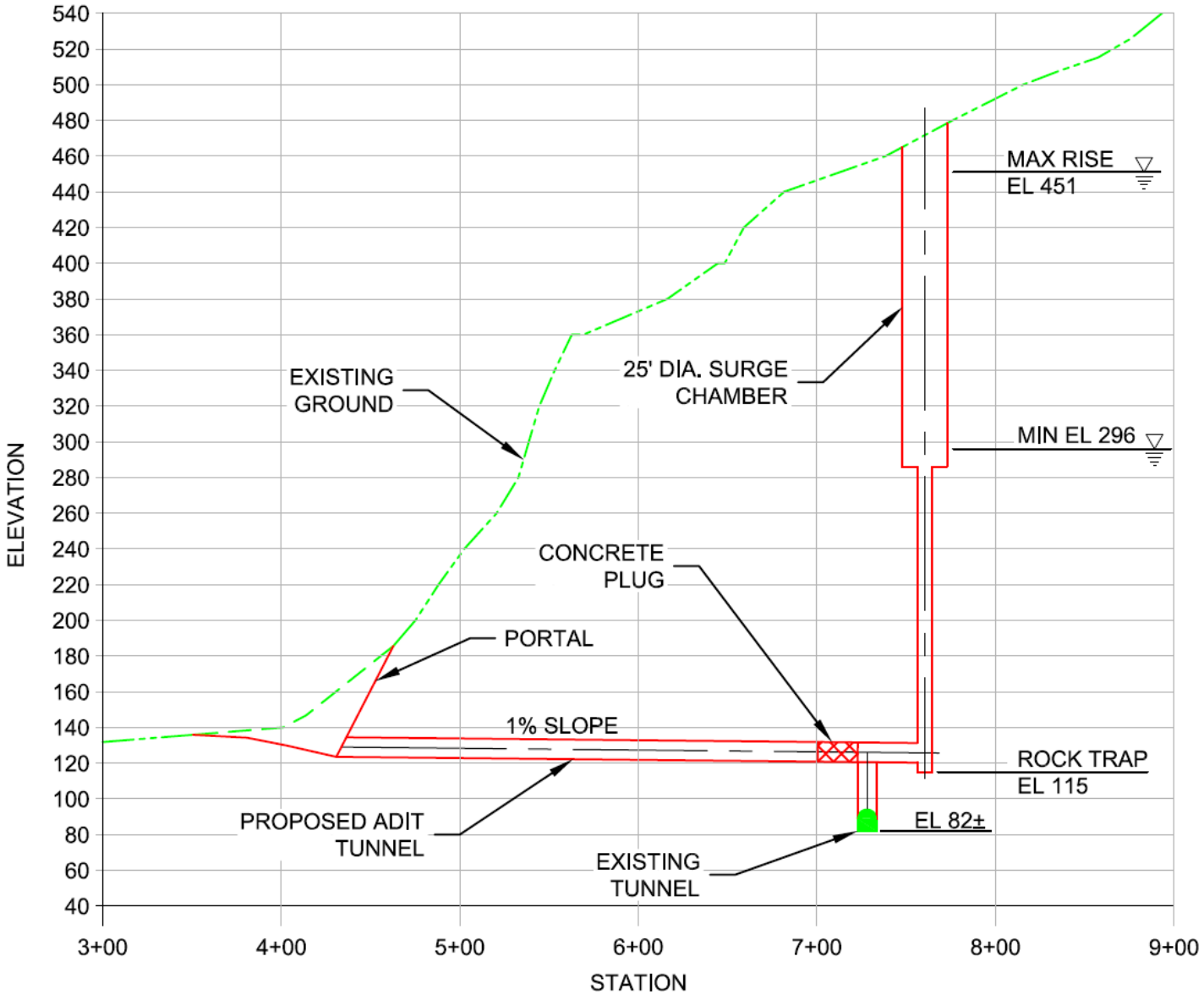


Figure A-7. Surge Chamber Profile

3.2.1.3 Switchyard

A new switchyard would be constructed in the location of the existing switchyard next to the existing powerhouse (See Figure 5). The switchyard would transform the generation voltage (12.47 kV) to transmission voltage (69kV) and would connect to the existing transmission line from the Green Lake powerhouse.

3.2.2. Changes at Blue Lake

Expansion-related work in the Blue lake area would include 1) development of equipment access and staging facilities; 2) dam raising; 3) construction of new intake facilities; and 4) timber clearing around the reservoir and in the Blue Lake Creek valley. These actions are described in detail in the following.

3.2.2.1 Development of New Access and Equipment Staging Facilities for Dam Raising

Dam raise construction would generally be done using cranes positioned on the right abutment and at the downstream base of the existing dam (Figure A-8). Access would be primarily via existing roads with some upgraded road construction leading to the right abutment and staging areas. An approximately 1.5 acre construction staging area would be developed by leveling a hill just south and west of the current Blue Lake overlook to EL 460. This area would be leveled and supplied with an appropriately-sized gravel base to support dam raising equipment. Reusable spoils will be used on site. Organic material will be disposed of off site.

3.2.2.2. Proposed Dam Raising

It is the city's goal to raise the dam to the highest structurally feasible level because each foot of increased dam height would generate an additional 241 megawatt/hours per year (MWh/yr) of electricity. A dam height of El 425 would increase the Blue Lake Project average annual generation by 50 percent.

Geologic and engineering evaluations have suggested that the existing dam could be raised to El 425, (a raise of 83 feet above the existing spillway elevation) and that the existing dam would be competent to serve as the base of any dam structure rising to that height.

Figure A-9 shows an elevation view of the existing dam with spillway at El 342 and the proposed dam with spillway at El 425. At that height, the raised dam top width would be about 215 feet.

3.2.2.3 Intake Structure Modifications

If the existing intake location and structure were retained, water temperature at the intake, and hence in Sawmill Creek below the FVU and BLU would be significantly colder than at present. In addition, the City wishes to replace the current intake because of difficulty in maintaining it (possible only by divers) and to decrease the likelihood that construction-related contaminants and other inputs would compromise drinking water quality. The existing intake structure is located in an area that receives considerable overland runoff during rainstorms and snowpack melt. Because the intake is located at a juncture with the flat lake bottom, sediment and organic material tend to accumulate and impede the intake. Under the new design and location, the intake would be located on a steep slope, past which overland runoff material would continue without settling out.

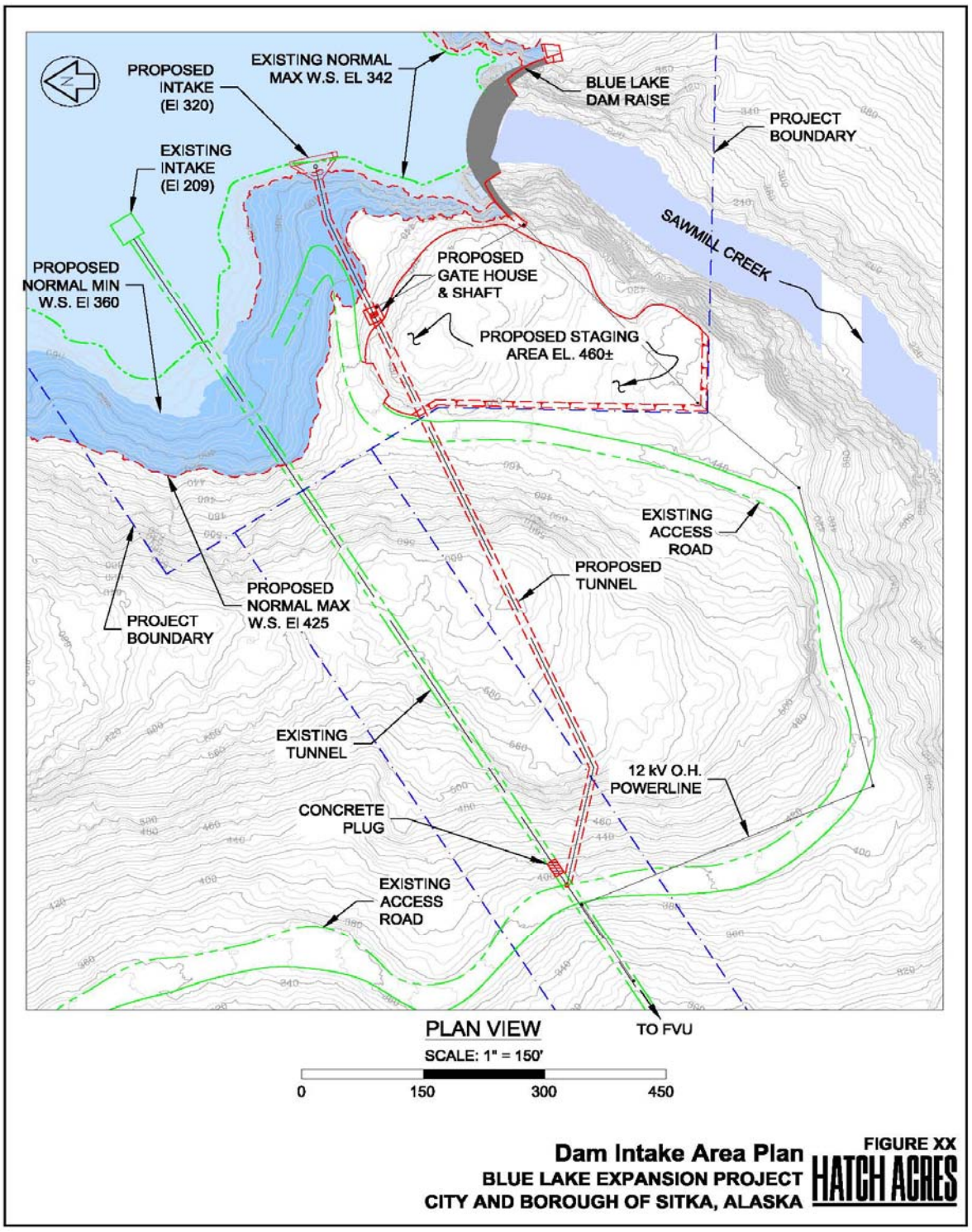


Figure A-8. Dam Intake Area Plan

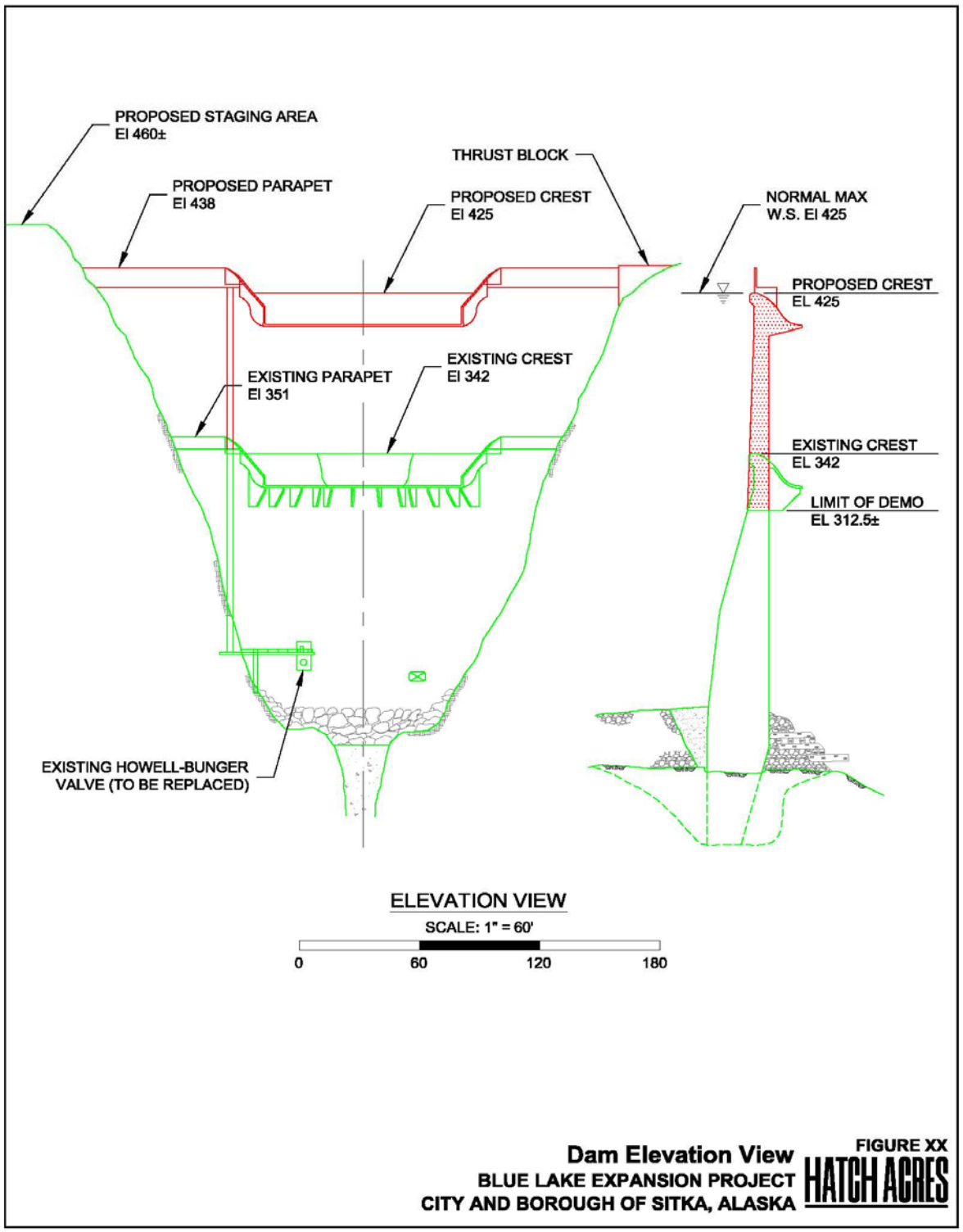


Figure A-9. Elevation View of Existing and Expansion-Related Dam at El 425.

The existing intake gate would be replaced with a new fixed wheel intake gate located within a gate shaft and a bulkhead gate at the intake location.(Figure A-10). The new intake arrangement and gates would offer a more reliable seal than the existing gate. The existing intake gates and winch house would be removed from service.

3.2.2.4 Electrical Distribution Facilities

To operate the new gate winch, a 1400 ft-long 12.4 kV electrical distribution line would run from the FVU along the tunnel alignment to the Blue Lake Road, and would follow the Blue Lake road to the damsite. This line would be carried on overhead wood poles along its entire length.

3.2.2.5 Timber Clearing Around The Reservoir and in Blue Lake Creek Valley

Prior to reservoir filling, timber and other large vegetation in the potentially-inundated area will be removed. Large merchantable timber will be felled, yarded and stored in the inundation area at the east end of the lake. The timber will be floated to a retrieval area near the access road after the lake has been filled to El 425. Timber volume in the Blue Lake Creek valley has been cruised under USFS guidelines. The volume of timber is approximately 5000 MBF. Slash, utility, and understory material will be burned at the east end of the lake.

3.3 Affected Reservoir Area and Energy Production

Inundated area of Blue Lake reservoir would increase by approximately 35 percent with a dam height of El 425 (Table A-2, Figure A-11). Energy would increase by 32,000 MWh per year or 50 percent.

Table A-2. Potential Energy and Inundated Area for Dam Height of El 425

Dam Height	Existing Reservoir Surface Area (acres)	Additional Inundated Area (acres)	Additional Inundated Area (percent)	Existing Energy Generation (MWh)	Energy Increase (MWh)	Energy Increase (Percent)
425	1,655	430	35	62,500	32,000	50

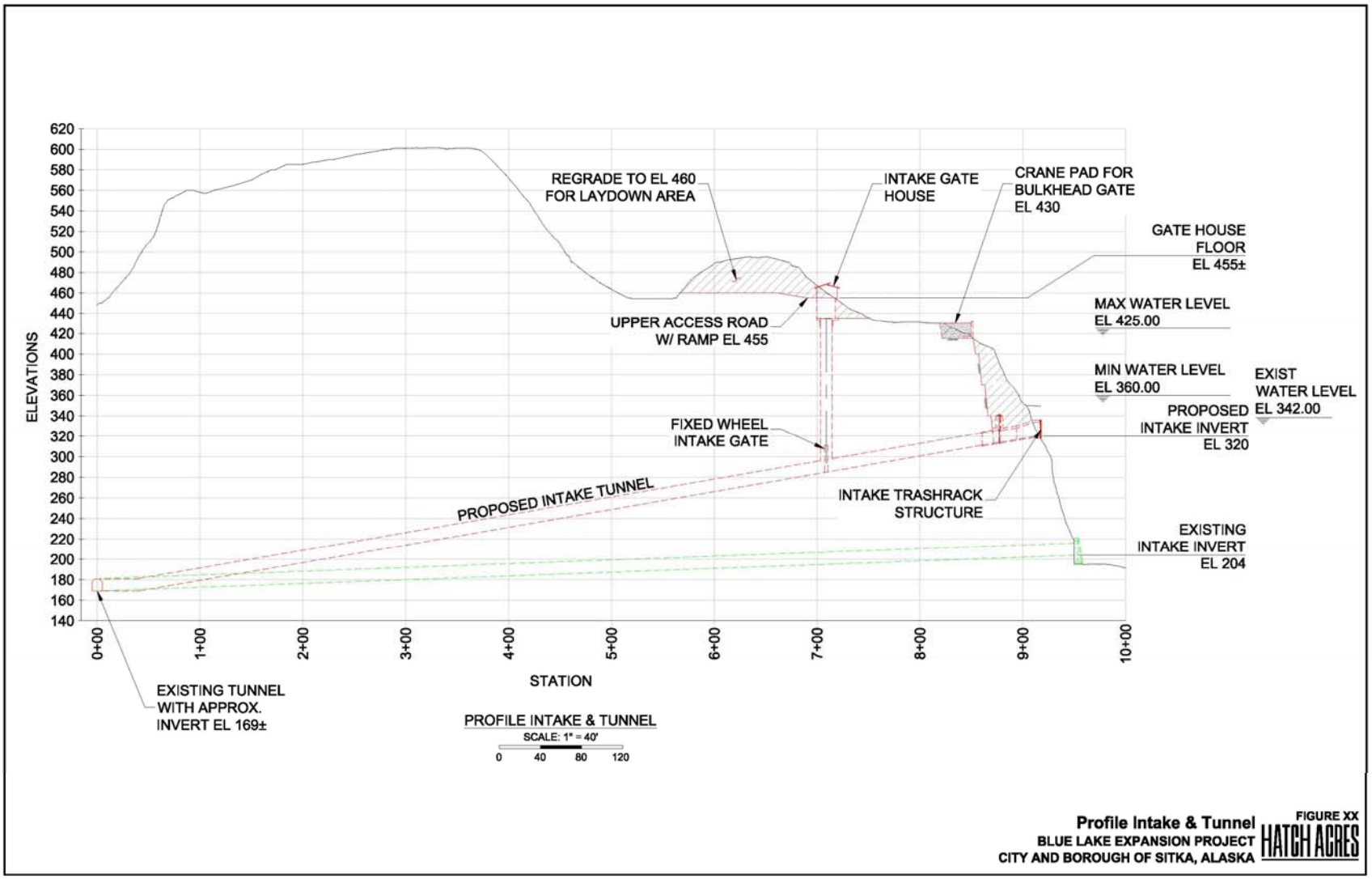


Figure A-10. Profile of Existing and Proposed Intake Structures

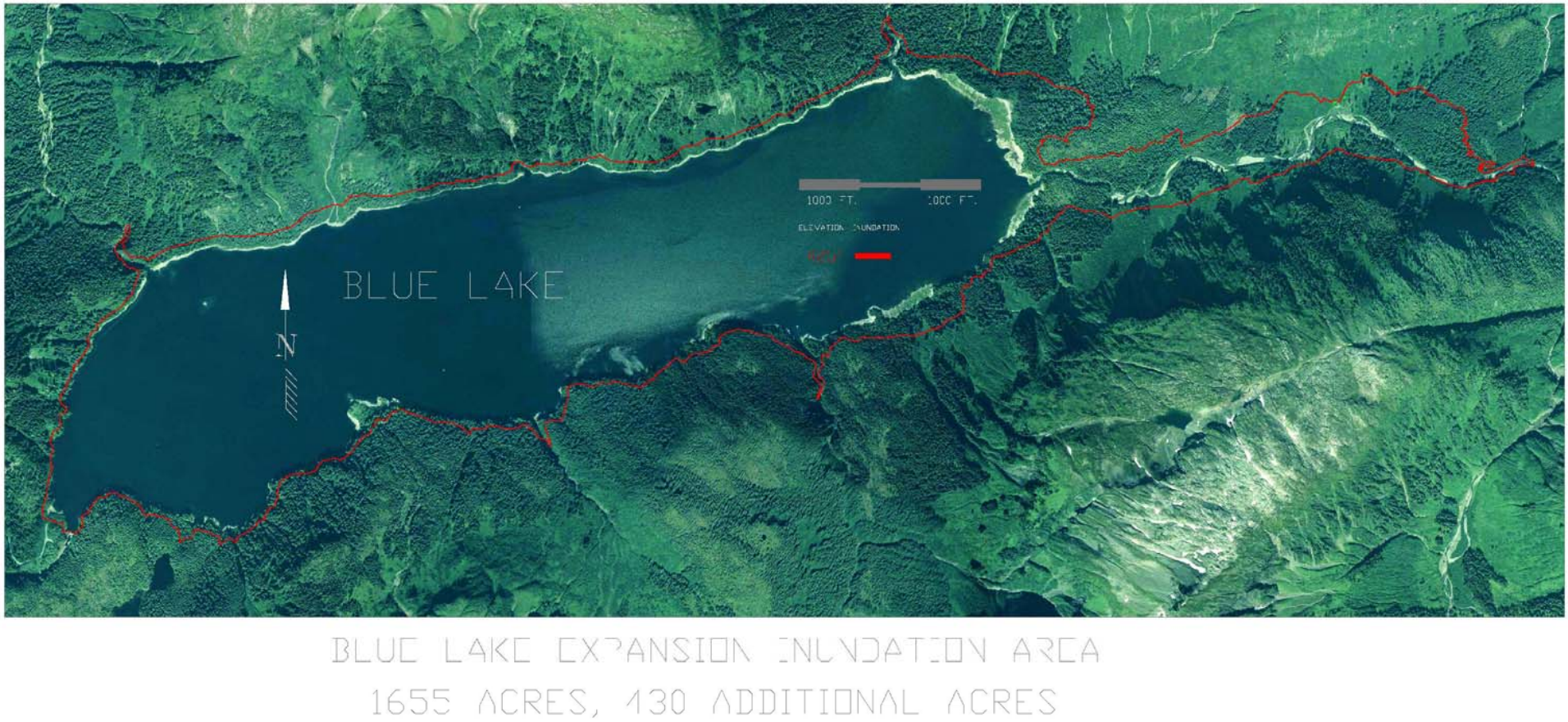


Figure A-11. Orthophoto of Blue Lake showing Existing (spill at El 342) and Post-Expansion (spill at El 425) Water Surface Elevations and Inundated Areas

3.3.1 Expansion-Related Project Lands

Lands within the proposed Expansion Project Boundary would consist of the acreages shown in Table A-3. Federal lands would all be on USFS lands of the Tongass National Forest. Non-Federal lands are largely owned by the City and Borough of Sitka.

Table A-3. Land Ownership of Areas Within Proposed Expansion Project Boundary.

Area Description	Area in Acres
Total Within Project Boundary	1912
Federal Land	1797
Transmission Lines on Federal Land	25
Non-Federal Land	115

The proposed features of the Blue Lake Project Expansion will all be constructed on City property except for 1400 ft. of the 12kV distribution line that will supply power to the dam site. This distribution line will follow the tunnel alignment and Blue Lake Road.

3.3 PROJECT OPERATION CHANGES

The City proposes no change in the existing instream flow release or ramping rate patterns at both the FVU and the BLU. Under the typical Expansion operation, the seasonal drawdown will be 55 to 65 feet, which is significantly less than the 70 to 80-ft drawdown typical of operations with the existing dam height.

After expansion, the Blue Lake project would more effectively serve to balance system electrical load between the Blue Lake and Green Lake projects. Generating units would be operated as the load following generator and all other generators would be base loaded. The load following generator continuously adjusts its output to match the load while the base loaded generators have a fixed output. With the addition of the new turbines operated as a load following generator, the city would have multiple base loaded generators providing a wider range of efficient operation.

As explained previously, a goal of the Expansion is to improve the electrical system frequency with the installation of the surge chamber. The city will also investigate the addition of other frequency improving features such as improved governors on existing generators, a synchronous motor and flywheel, and interruptible resistance loads.

EXHIBIT B

PROJECT OPERATION and RESOURCE UTILIZATION

Current operation of the Blue Lake Project was prescribed in Articles and Conditions in the new FERC license issued in July of 2007. The City proposes no change in the existing instream flow release or ramping rate patterns at both the FVU and the BLU. Under the typical Expansion operation, the seasonal drawdown would be 55 to 65 feet, which is significantly less than the 70 to 80-ft drawdown typical of operations with the existing dam height.

After expansion, the Blue Lake project would more effectively serve to balance system electrical load between the Blue Lake and Green Lake projects. Blue Lake generating units would be operated as the load following generators and all other generators would be base loaded. The load following generators continuously adjusts its output to match the load while the base loaded generators have a fixed output. With the addition of the new turbines operated as a load following generators, the city would have multiple base loaded generators providing a wider range of efficient operation.

Manual or Automatic Operation

Plant will be manned at all time with an operator to oversee automatic load following operation. the plant factor is 1.33 based on the net design head and flow or 1.7 based on maximum flow.

Dependable Capacity and Average Annual Energy Production

In an average water year the estimated energy available after the Expansion would be 94,000 MWh/year. The total electric system (Blue Lake and Green Lake Projects combined) will be capable of generating about 154,000 MWh/yr

Minimum, Mean, and Maximum Recorded Flows

The minimum, mean and maximum recorded Sawmill Creek flows at the location of the lower staff gage are:

Minimum	9.1 cfs
Mean monthly	441 cfs
Maximum	7100 cfs

Maximum and minimum average daily flows measured at USGS gage No. 15088000 are shown in Table B-1.

Table B-1. Maximum and Minimum Average Daily Flows in Sawmill Creek, by Month, for 29-year Period of Record. Original USGS Gage 15088000.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Max	2,270	2,410	1,250	1,050	1,640	1,780	2,170	4,940	4,980	5,500	4,430	3,770
Min	24	16	11	14	57	308	311	200	71	84	46	34

Three recent floods have had the following estimated flows:

Oct. 1972 12000 cfs
Aug. 1992 12000 cfs
Nov. 1993 10400 cfs

Flow Duration Curves

The streamflow duration curve based on water years 1921 and 1922 and the period 1929 through 1957, derived from USGS gage 15088000 is shown in Figure B-1. Figure B-2 shows average, minimum, and maximum monthly flows during the same data.

The minimum annual Blue Lake inflow recorded during the 1951 water year was 300 cfs. The maximum annual Blue Lake inflow recorded during the 1936 water year was 678 cfs.

Area Capacity and Rule Curve

Figure B-3 shows an Area-Capacity Curve for the Post-Expansion reservoir. The Plant will be operated based on the average year rule curve shown in Figure B-4, in conjunction with the Sitka electric system generation model which models the Blue Lake project and Green Lake projects to optimize total generation energy. During a drier year the reservoir will be drawn down less than the average year rule curve and during a wet year it may be drawn down slightly more. The objective is to operate both projects so that they both refill to spill elevation each year. Shown in Figure B-5 is a curve showing powerplant capability versus head and specifying maximum, normal, and minimum heads.

Tailwater Rating Curve

The Relationship between tailwater discharge and tailwater water surface elevation is depicted in Figure B-6.

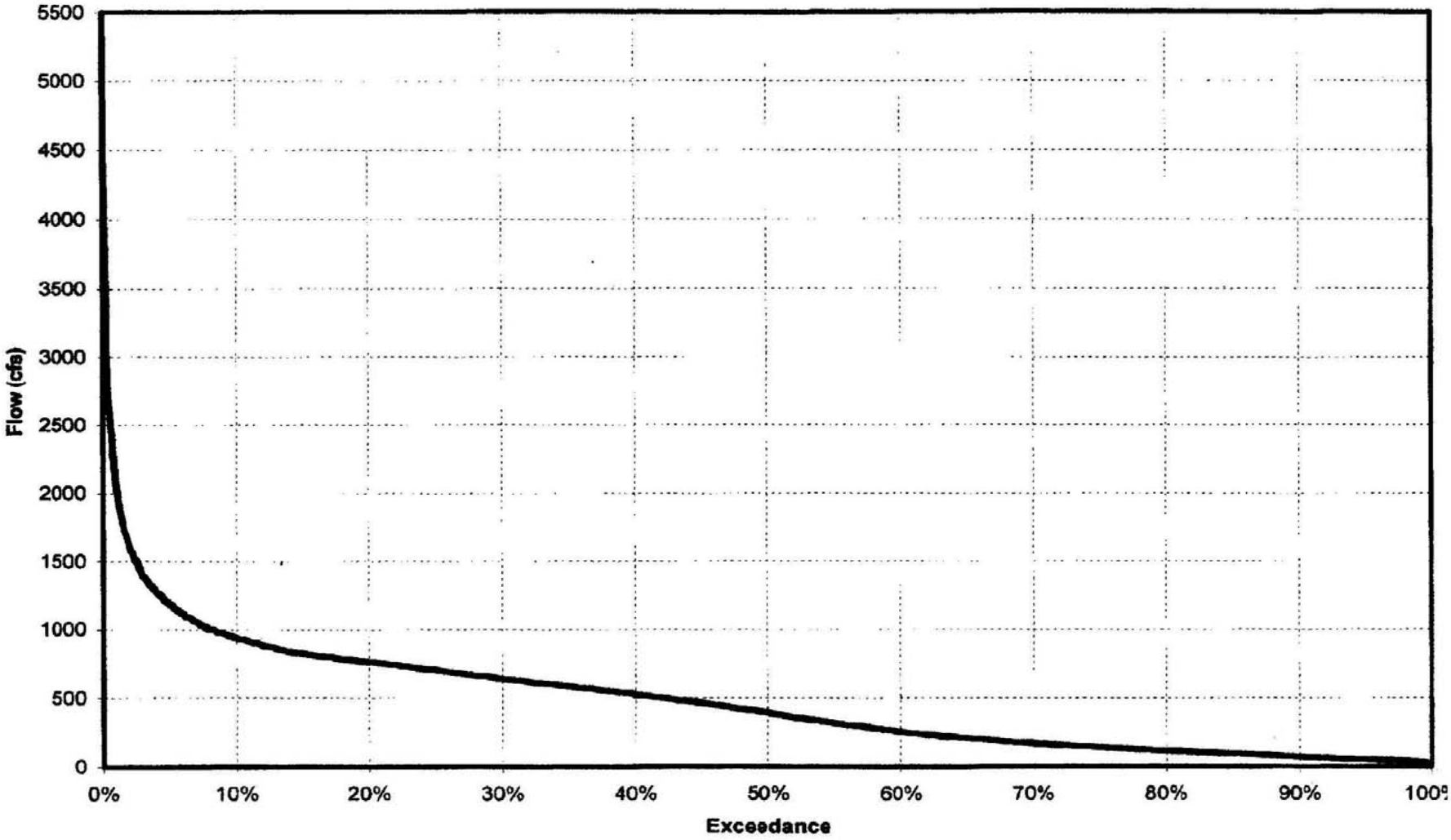


Figure B-1. Sawmill Creek Flow Duration Curve

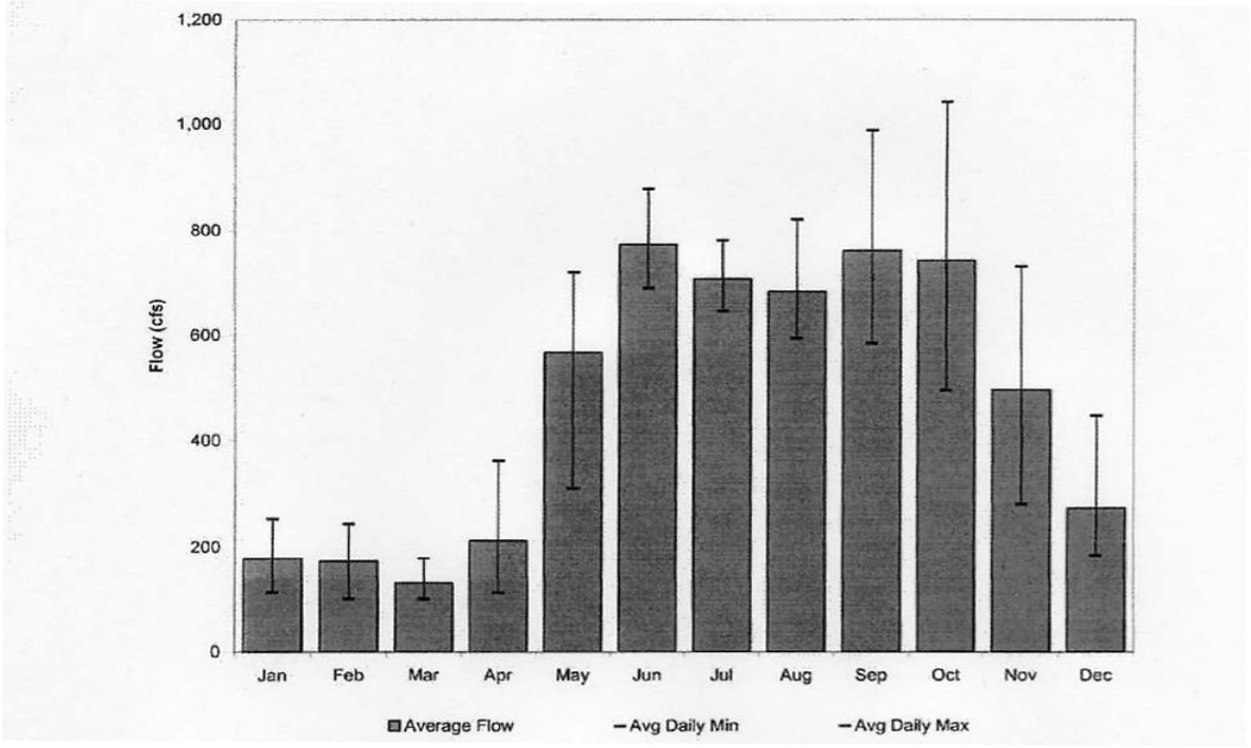


Figure B-2. Mean, Max and Min Sawmill Creek Flows

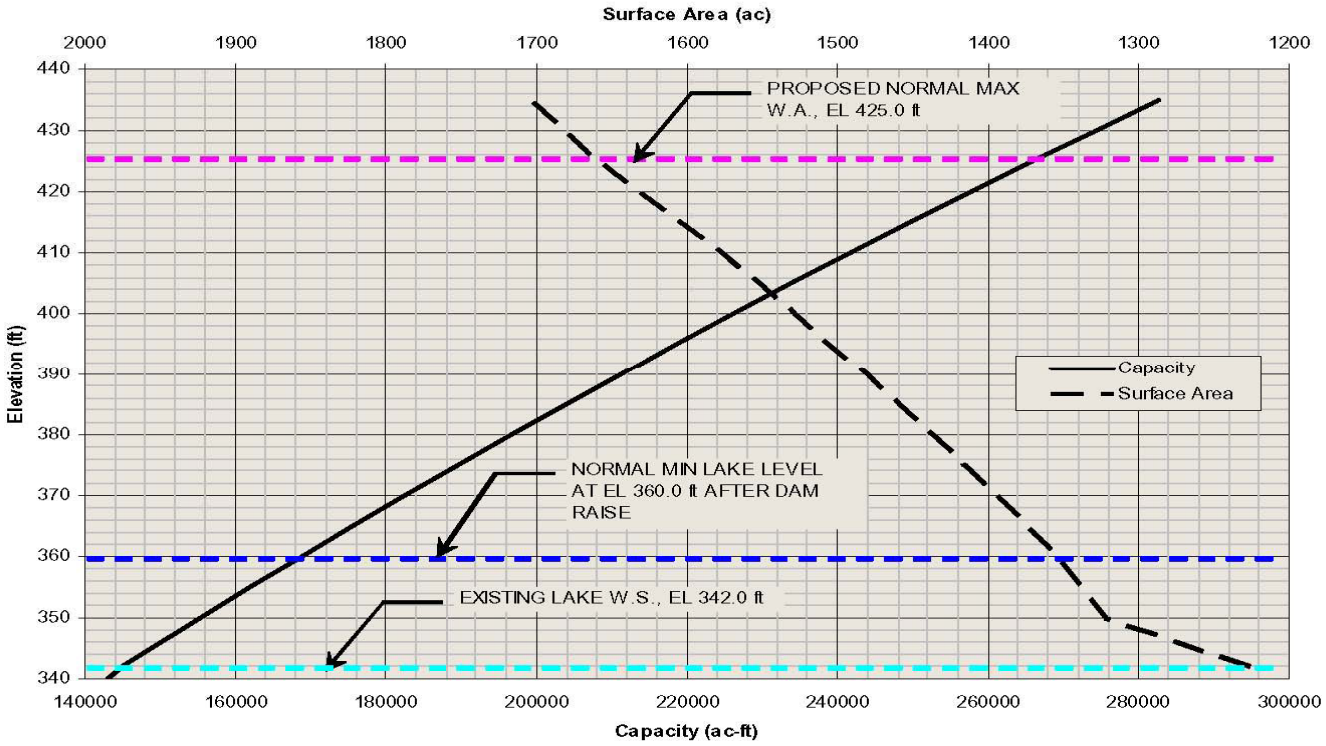


Figure B-3. Elevation-Capacity and Area-Capacity Curves for Blue Lake Reservoir Post-Expansion Conditions.

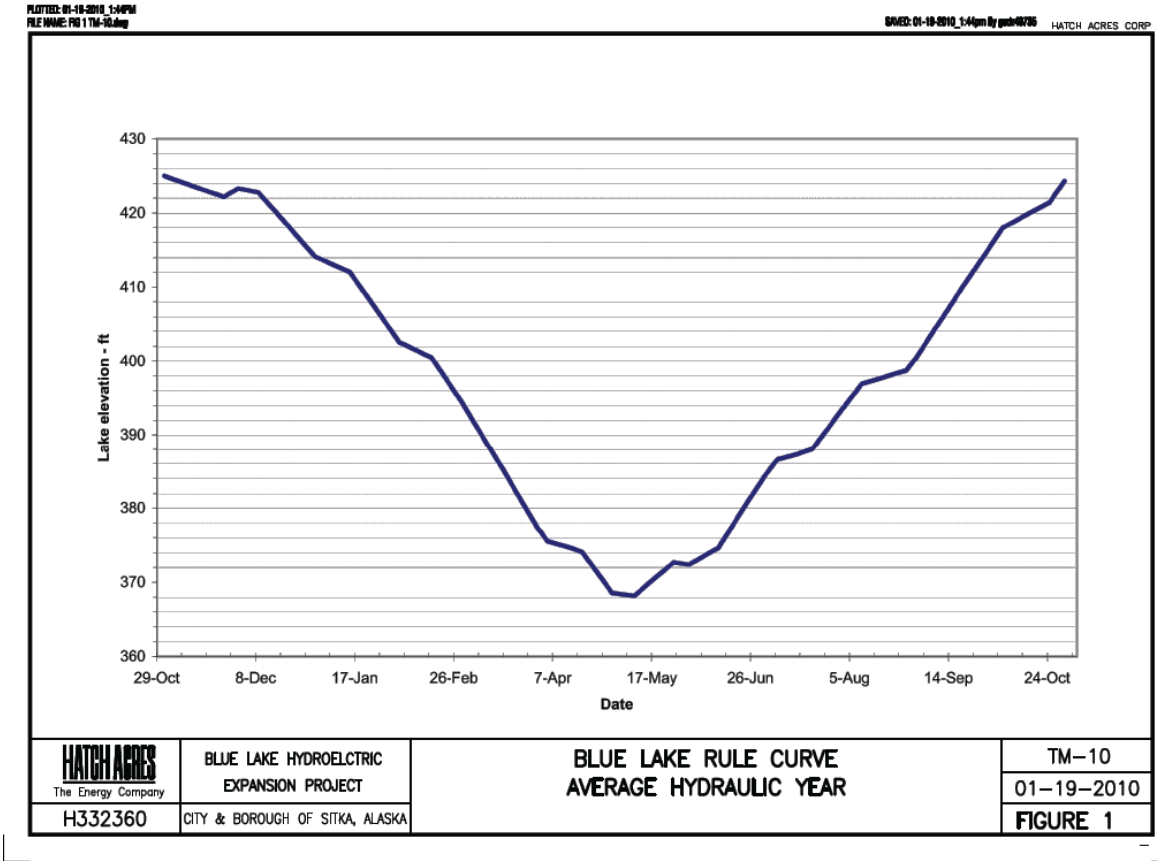


Figure B-4. Rule Curve for Average Hydrologic Conditions

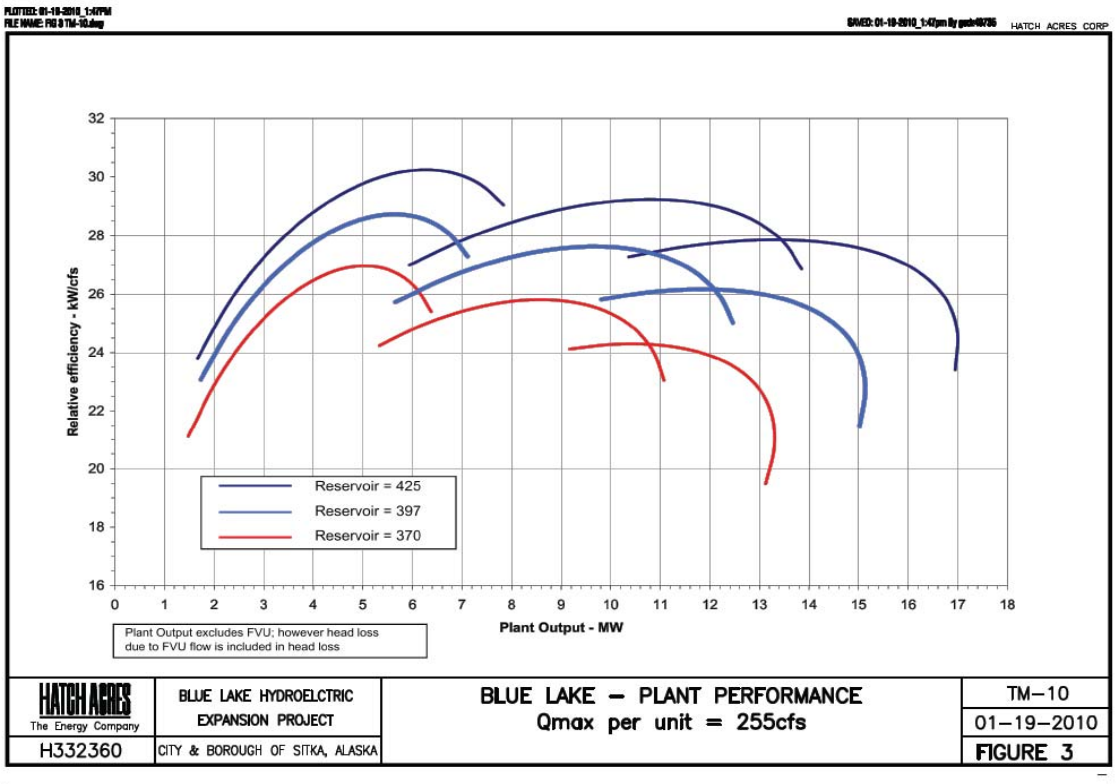


Figure B-5. Powerplant Capability Curve

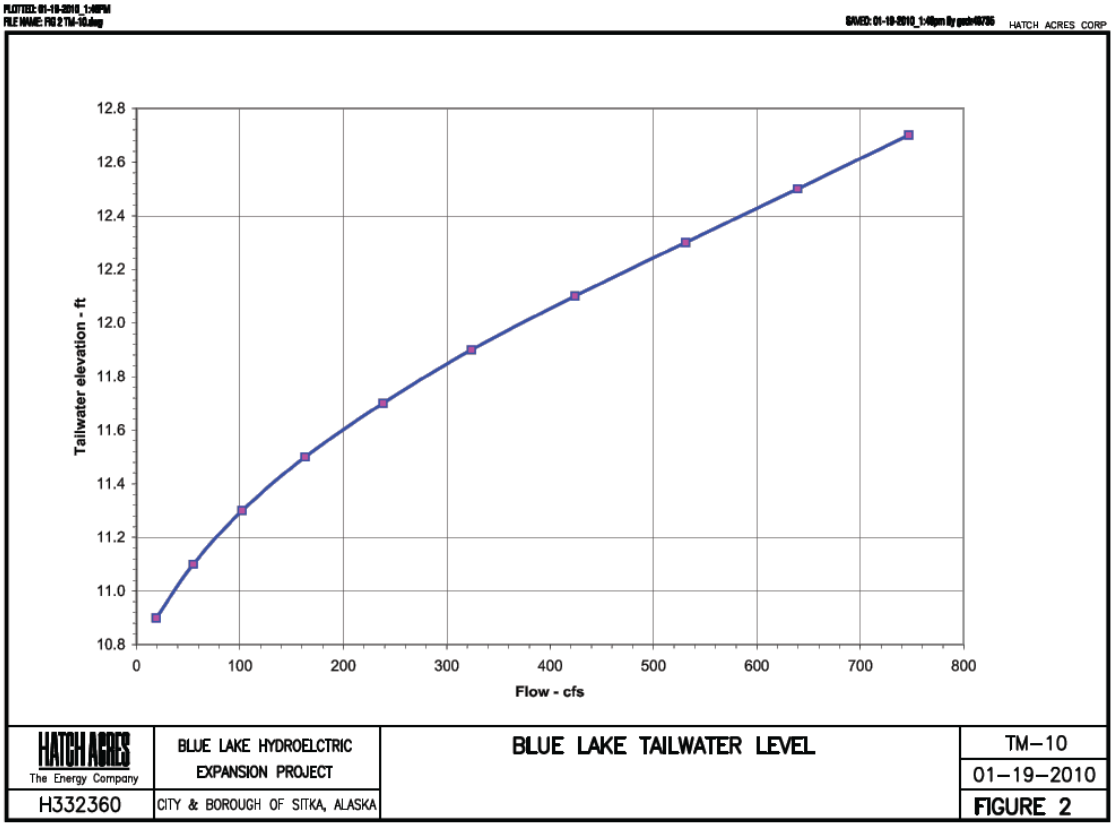


Figure B-6. Tailwater Rating Curve

Manner in Which The Power Generated at the Project is to be Utilized

All power generated at this facility must be sold to the municipal rate payers within the City and Borough of Sitka. The amount of power generated is dependent strictly on the requirements of this load. Table B-2 shows is a predicted monthly load distribution vs. maximum system generation capacity during an average water year under Expansion conditions.

Table B-2. Monthly Percent Load Distribution under Expansion-Related Generating Conditions.

Month	Percent of Annual Load	Load (MWh)
Jan	9.4	14,500
Feb	8.3	12,800
Mar	9.6	14,800
Apr	7.7	11,900
May	7.6	11,700
Jun	7.1	10,900
Jul	7.6	11,700

Aug	8.1	12,500
Sept	7.4	11,400
Oct	8.3	12,800
Nov	8.9	13,700
Dec	10.0	15,400
Total	100	154,100

The current system load is 124,000 MWh/yr, the Blue Lake Project supplies 62,000 MWh/yr of this load.
The Sitka electrical system is not interconnected to an electrical grid outside the Sitka area. Less than 1 percent of gross generation is used for station service power. System losses are estimated to be 5 percent.

Applicant's Plans for Future Development

The City currently holds a FERC Preliminary Permit for the Takatz Lake hydroelectric project (FERC No. 13234). This proposed 27 MW Project would supplement generation at Blue Lake and Green Lake and would help provide hydroelectric generation to meet load requirements beyond those met by the existing system.

EXHIBIT C

CONSTRUCTION HISTORY and PROPOSED CONSTRUCTION SCHEDULE

Work on the Blue Lake Project Expansion has progressed as follows:

- Feasibly studies conducted by Sitka and contractors in late 2007;
- The Notice of Intent was filed March 10, 2008;
- Resource study plans were prepared and resource studies were conducted in 2008;
- Scoping was conducted in November, 2008; and
- The Design Development study began in April 2009.

Generation Outage Constraints:

Due to reservoir and system load management, construction timing, and reservoir inflow constraints the Blue Lake Project Expansion, generation outage must take place during the rainy months of September and October of any year. This is because a portion of the Project Expansion includes installing a new intake at a higher elevation in the lake. The new intake must be submerged during the rainy season in conjunction with the generation outage (Figure C-1). If the outage is conducted at any other time of the year there will be inadequate inflow to submerge the intake and provide adequate water for the following seasons operation. The generation outage must be conducted in September and October of any year.

Following is a graphic representation on the Blue and Green Lake reservoir in conjunction with the expansion construction, generation outage and filling of the reservoirs.

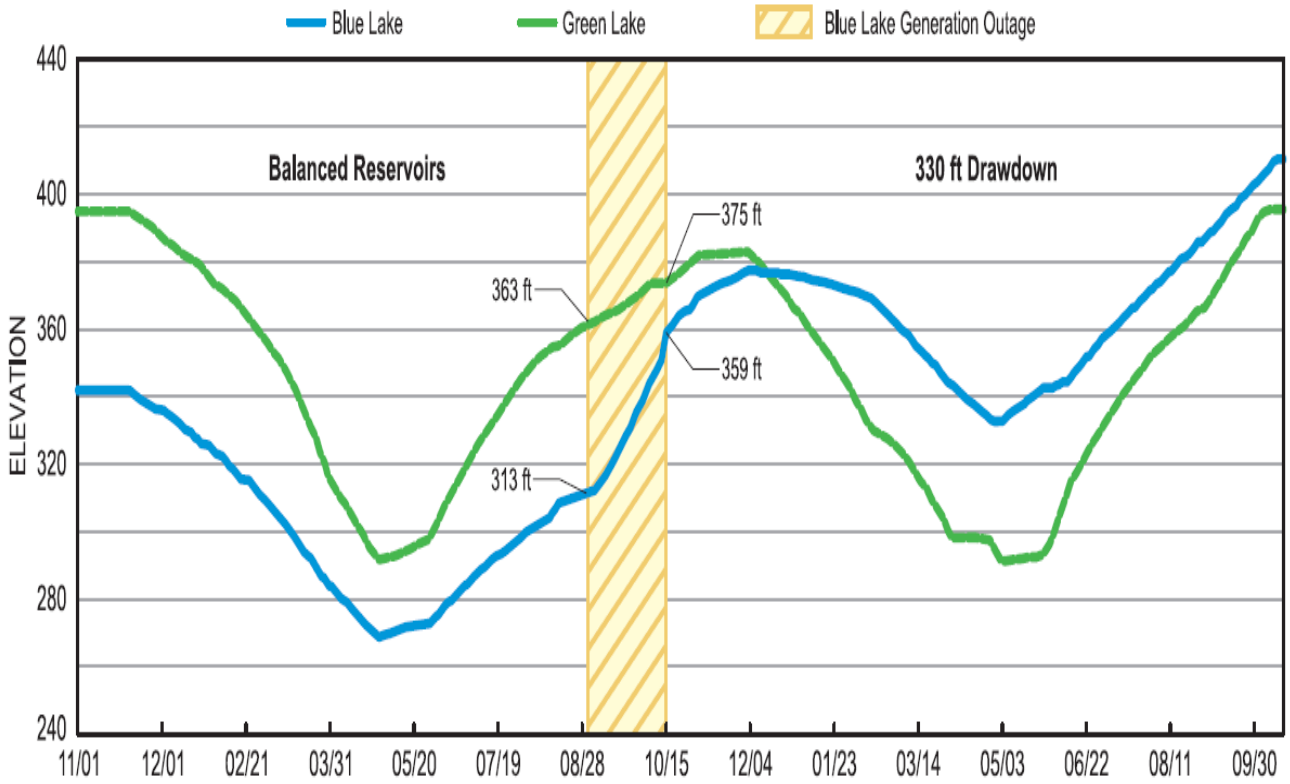


Figure C-1. Construction Schedule Showing Necessary Conditions for Generation Outage.

Based on the reservoir filling parameters it is planned to commission the Blue Lake Project Expansion in October, 2013. The following schedule has been developed to meet this commissioning date. Any delay in achieving the generation outage in September would delay the project by a full year.

Following are major milestones in several areas, including FERC amendment application and various engineering and construction activities.

Amendment Application

- Submit Draft Amendment Application March 1, 2010;
- Submit Final Amendment Application November 1, 2010;
- FERC review November, 2010- October 2011; and
- Amendment issued November 1, 2011.

Engineering

- Final Design March 2010 – September 2011;
- Issue Turbine Generator and Penstock contracts April 2010; and
- Issue other owner supplied equipment contracts November 1, 2011.

Construction

- City relocates utilities in powerhouse area: July, 2011;
- City runs 12.4kV distribution to dam site: October, 2011;
- Issue Notice to Proceed to General and Underground Contractors: January, 2012;
- General contractor begins work at Powerhouse site: February, 2012;
- Underground contractor begins work at intake area: February, 2012;
- Underground contractor completes underground work: July, 2012;
- General contractor begins work at dam site: October, 2012;
- General Contractor begins structural work at intake site and installs gates: March, 2013; and
- Intake structure and gates operational: July, 2013.

Generation Outage (September–October, 2013)

- Install steel tunnel linings;
- Remove existing lower penstock;
- Install new lower penstock;
- Connect surge chamber to lower tunnel;
- Connect new intake tunnel to upper tunnel; and
- Commission Blue Lake Unit 5.

Reservoir work

- Reservoir clearing: December, 2012 – February, 2013;
- Reservoir filling: October 2013- December, 2014;
- Manage floating debris: October, 2013- December, 2016; and
- Remove Timber: January, 2015.

The above schedule is illustrated on the Gantt chart shown in Figure C-2. It should be noted that due to the long lead times on certain equipment, the City plans to order some equipment (such as the turbine generator package and penstock manifold) and to relocate the project utilities with Sitka crews and local contractors prior to receiving the license amendment. This is necessary to avoid a one year delay in conducting of the generation outage prior to filling the reservoir as mentioned above.

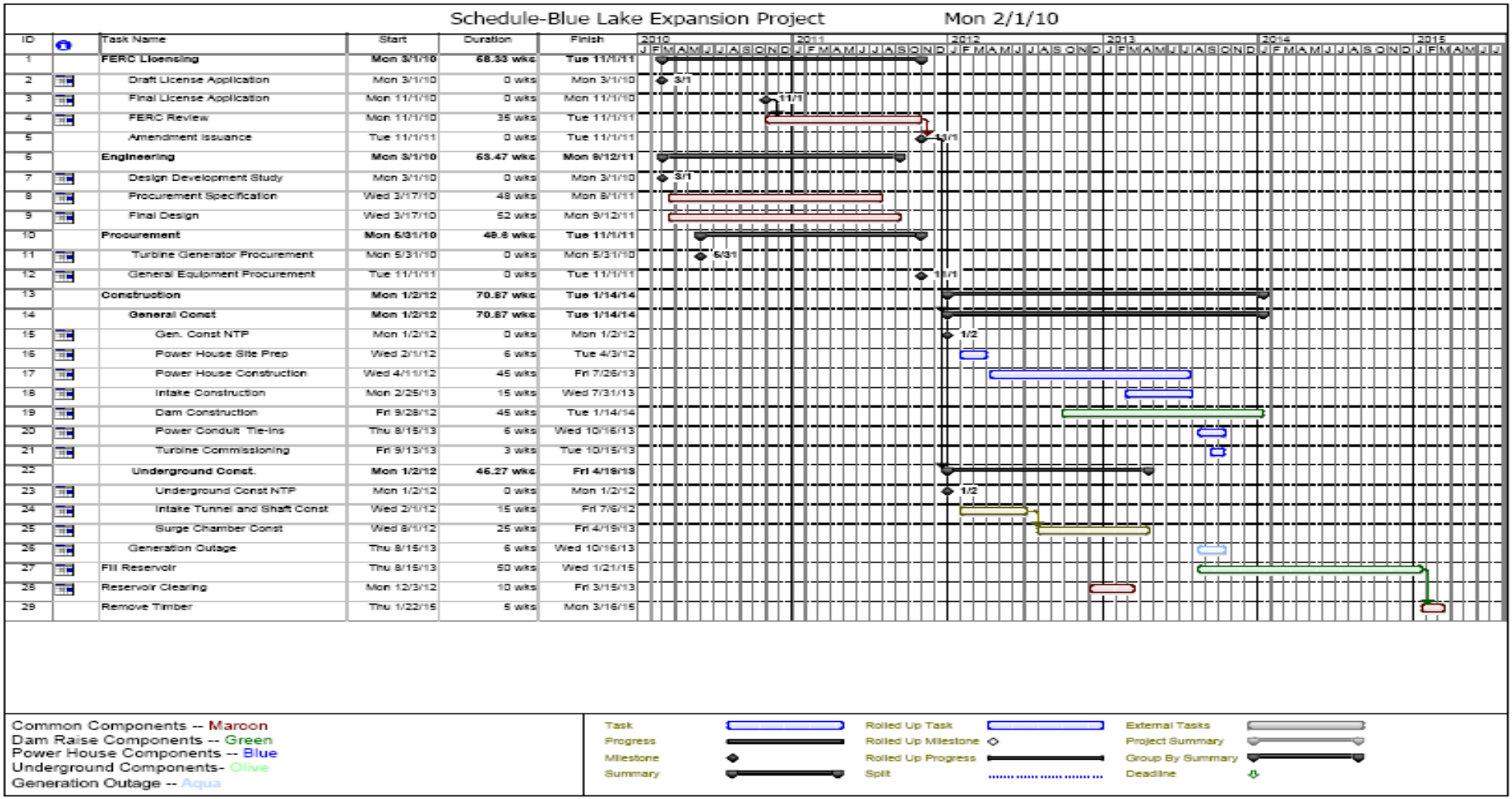


Figure C-2. Proposed Blue Lake Expansion Regulatory and Construction Schedule.

EXHIBIT D COSTS and FINANCING

1. GENERAL

Construction costs were principally based on calculated quantities, prevailing labor rates, estimated production levels, and material and equipment requirements for construction. For miscellaneous items not estimated in this manner, quantities were generated, to which unit prices were applied. Mechanical and electrical equipment items were based on recent budget bid pricing for similar projects. Construction costs for tunnel and shaft excavation were provided by Redpath Construction.
The equipment cost estimates were prepared based on historical suppliers' prices for similar projects, but adjusted to a January 2010 bid price level. These costs were considered to have built-in escalation over a two-year period, which would permit the cost to reflect an in-service date of October 2012. The civil-works cost estimates prepared by Hatch and Redpath do not include such built in escalation during construction and this was thereby added. The total cost estimate was then further escalated over a 2-year period to reflect the scheduled completion of the Project works in October 2014.

2. BASIS of COST

2.1 Direct Construction Cost

This cost includes the total of all costs directly chargeable to the construction of the Project and in essence represents a contractor's bid.
Indirect costs are defined as those which are added to the Direct Construction Cost to result in the Total Construction Cost. Indirect costs include an allowance for contingencies, engineering and owner administration, and escalation where necessary.

2.2 Contingencies

To allow for unforeseen difficulties during construction and items not reflected in the estimate, an allowance of 25% for contingencies was applied to the Direct Construction Cost. Contingencies include but are not limited to risks from changes in market conditions during the bid process, changes from final design changes and from unforeseen conditions associated with the construction effort. Typically 15% is applied for when geotechnical investigations are completed; however, the 25% level of contingencies is provided to provide better cost certainty regarding several items not yet included in the estimate, e.g. diesel fuel for the generation outage.

2.3 Engineering and Owner Administration

The engineering and owner administration costs are based on actual experience with similar work. This item includes all preliminary engineering work, project feasibility and environmental studies, field investigations, processing of required permits and licenses, final design and preparation of construction contract documents, inspection of

construction, and owner administration. An allowance of 12.5% of the sum of the Direct Construction Cost plus contingencies is considered a reasonable estimate for this item. This amount includes the engineering, licensing and field investigations performed over the past 2 years.

2.4 Escalation

As discussed above, the Direct Construction Cost for the civil works components does not contain built-in escalation for their respective construction periods, and must be included. It was assumed to be 3% per year of its estimated cash flow. The construction and supply contracts were then further escalated from their bid price levels at 3% per year to reflect an early completion date of October 2014. Escalation of the preliminary works contract was ignored due to its small contract size even though this work would be completed 2 years earlier.

2.5 Total Construction Cost

The Total Construction Cost includes the Direct Construction Cost plus contingencies and engineering and owner administration costs.

2.6 Interest During Construction

Interest During Construction was determined from a cash flow analysis developed from the construction schedule. Interest during the construction period was based on an annual rate of 6%, which is the maximum value established for state financing of a municipal bond. While a portion of the Project payment would be from State and possibly Federal Grant, this payment contribution was ignored.

2.7 Total Investment Cost

The Total Investment Cost is the sum of the Total Construction Cost plus Interest During Construction. The Total Capital Requirements for a loan, including the reserve funds, are described in the Economic Analysis section.

3. CONSTRUCTION COST ESTIMATE

A cost estimate summary is shown in Table 1. The estimated Total Investment Cost for the Project with a bid date of January 2010 (current price level), corresponding to a construction completion in October 2012, is $88,320,000. The corresponding Total Investment Cost for the scheduled completion date of October 2014, is $93,700,000. The Total Capital Requirements of the loan from a municipal bond, assuming 100% financing, are $100,360,000.

Table D-1. Project Cost Estimate Summary

Item	Description	Amount
1	Preparatory Work	$8,320,000
2	Arch Dam Raise	$8,900,000
3	Intake Tunnel & Gate Shaft Excavation	$3,730,000
4	Surge Chamber Excavation	$4,060,000
5	Intake Civil Works & Equipment	$1,530,000
6	Tunnel Refurbishment	$1,950,000
7	New Penstock	$3,750,000
8	Powerhouse Civil and Access Road	$7,646,000
9	Powerhouse Mechanical Equipment	$8,938,000
10	Powerhouse Electrical Equipment	$8,500,000
11	Switchyard Upgrade	$1,732,000
SUBTOTAL (rounded)		**$59,060,000**
	Escalation During Construction	$780,000
DIRECT CONSTRUCTION COST		**$59,840,000**
	Contingencies (25%)	$14,960,000
	Engineering & Owner Admin. (12.5%)	$9,350,000
TOTAL CONSTRUCTION COST (Jan 2010 bid)		**$84,150,000**
	Interest During Construction	$4,170,000
TOTAL INVESTMENT COST (Jan 2010 bid)		**$88,320,000**
	Escalation	$5,380,000
TOTAL INVESTMENT COST (Jan 2012 bid)		**$93,700,000**

4. ECONOMIC ANALYSIS

4.1 General

The economic feasibility of the Project was determined based on a comparison of the annual costs with that of the most economic alternative generating source. For CBS, the most economical alternative source of generation is a diesel-electric unit located near the load center.

The cost of power is the estimated annual cost of construction and operation of the Project.

4.2 Project Capital Requirements

As described in the Construction Cost Estimate section, estimates of total construction costs were made for the Project on the basis of contract bids for the major items of work being received in January 2012, which corresponds to a commercial operation date for the Project in October 2014. A cash flow during construction was developed to permit determination of interest during construction payments. Project financing has been assumed based on municipal bond financing of 100% of the Total Capital Requirements. Interest payment of 6% was assumed over a 30-year bond repayment period.
The Total Capital Requirements consists of the Total Investment Cost plus a reserve fund equal to ½-year of interest on the debt plus the cost of issuance, assumed to be 3% of the Total Capital Requirements. The amount of the Total Capital requirements is derived below:

TOTAL INVESTMENT COST (Jan 2012 bid)	**$93,700,000**
Reserve Account	$3,650,000
Cost of Issuance	$3,010,000
TOTAL CAPITAL REQUIREMENTS	$100,360,000

Project Annual Cost and Cost of Power

Debt service was calculated for the 30-year bond period. Credit from the investment of the reserve was assumed at a 6% annual rate, the same rate interest rate as the bond.
In order to maintain a conservative approach to the economic analysis, it has been assumed that annual costs for operation and maintenance, administrative and general, insurance and interim replacements were assumed to be equivalent as for the current BLU. Both maintenance and interim replacement costs would undoubtedly be much higher for the existing project. Insurance costs would likely be lower, but not on par with these other costs.

For estimating the cost of energy, only the incremental margin above current average annual energy production of 63,680 MWh was assumed for the Blue Lake Project, inclusive of the FVU and PMFU. This ignores the fact that the new facilities should have a longer service life than for the existing facilities.

ANNUAL COSTS @6 percent Financing)	
Amortization of Debt:	
Annual Debt Service……	$7,291,000
less Interest Credit on Reserve……..	-219,000
Net Amortization Costs……..	$7,072,000
Incremental Energy Gain (MWh)…….	32,000
Cost of Energy (cents/kWh)……	22.1

The cost of average annual energy generated by the Project is estimated to be 22.1 cents/kWh at its on-line date of October 2013. This cost is based on full utilization of the Project output, which, for the initial operating years, is an unreasonable reasonable assumption as it will take about 2½ years to fill Blue Lake to normal maximum pool El. 425 and because the expanded Project combined with the Green Lake Project will produce more hydroelectric energy than required by the CBS system load in the initial 10-years of operation based on load forecast projections. Nevertheless, this cost is significantly less than the 35 cents/kWh cost for diesel fuel alone (see Cost of Diesel Alternative) and, after 30 years of debt service payment, the incremental Project operating cost over existing operating expenses is zero.

4.3 Cost of Diesel Alternative

There are many cost components in overall diesel energy generating costs. All these components are taken at full value if the diesel power plant is operated at a high loading factor. Costs are divided into the two major categories:

- Fixed Costs, which are mostly independent of energy production and include investment related costs to build the plant (debt service, depreciation, etc.), administrative costs, building maintenance, administration, lighting and preheat costs, etc.; and

- Variable Costs, which are mostly directly related to running the plant to producing energy, including fuel, lube oil, engine/generator maintenance/overhaul, etc.

Labor is part of fixed cost for a standby plant with very low usage, but if the plant has extended periods of time, say days or weeks of operation per year required, additional labor or overtime can contribute to cost.

The most likely scenario related to the Sitka system is increasing diesel use until the expanded Project comes on line. Diesel will drop to emergency use only when the expanded Project is complete until the system load again rises to require it. As the percentage of diesel generated energy increases during those years, the increase in cost will limit system load growth. In a long range view, the cost of inefficiencies related to the expanded Project will be realized when the diesel generation is base loaded and not as a standby plant. There will be increased labor cost because the plant will need to run for months out of the year. Investment costs and depreciation will not apply because CBS would not run any particular machine enough to require replacement -- just overhauls.

The most significant unknown related to diesel generation cost is the cost of fuel oil. While substantial swings in price will likely occur, the five year outlook for diesel energy cost, assuming $3.30 delivered fuel price, and about 10,000 MWh of diesel generation per year would yield a cost per kWh of $0.35.

5. BENEFIT/COST RATIO

For the initial 30 years of Project operation, the resulting benefit/cost ratio for the Project is the ratio of the total net-present value of the diesel fuel cost stream ($139,759,000) to the total net-present value of the Project debt service ($79,615,000), which equals 1.76, as shown in Table D-2.

6. OPERATION and MAINTENANCE EXPENSES

The operation and maintenance expenses will not be significantly different than on the existing project because the project expansion will replace the existing project. The existing annual cost of operation and maintenance is about $3,000,000.

7. ESTIMATE of COST to DEVELOP the LICENSE APPLICATION;

The cost of licensing is included in the 12.5% Engineering & Owner Administration Cost. The licensing cost is estimated at $2,100,000.

8. ON-PEAK and OFF-PEAK VALUES of PROJECT POWER

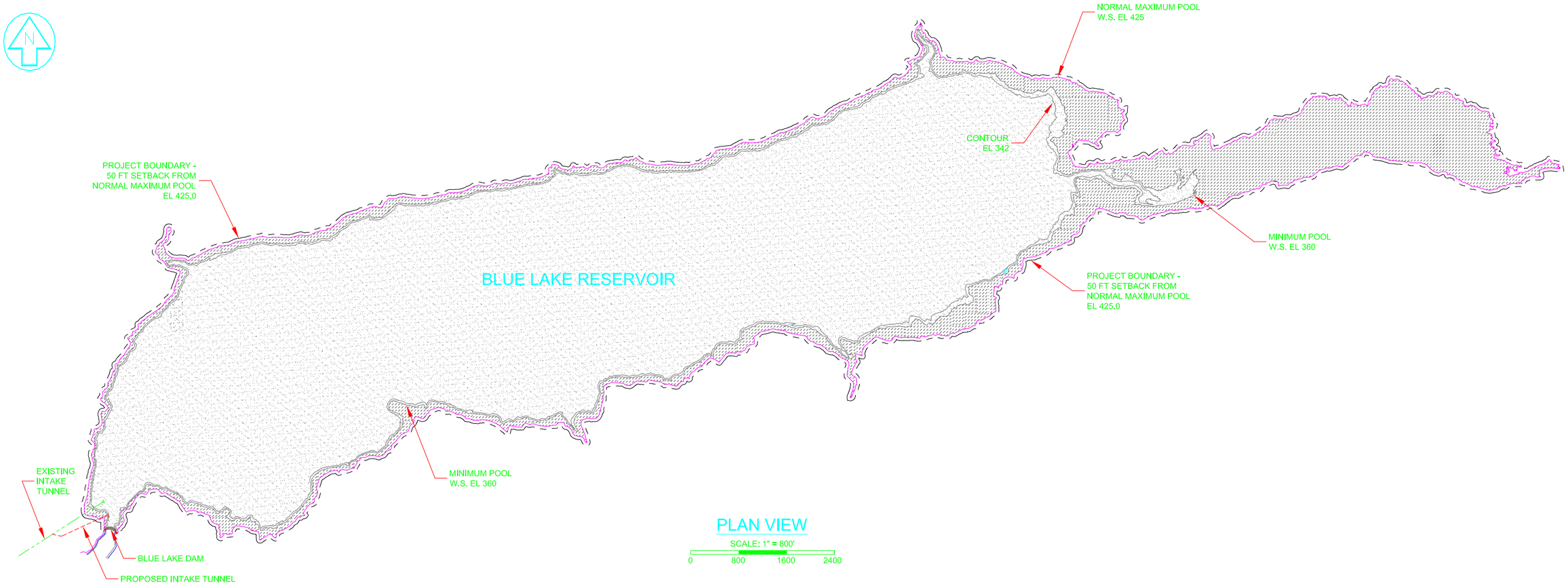
The nominal sales price to the rate payer is approximately $0.09/kWh and the incremental cost of the project expansion power is $0.22/kWh, as noted above. The aggregate cost to the rate payer will be about $0.12/kWh. The actual cost will likely be less than this because the bonds for the Green Lake Project will be retired at about the same time the Project expansion goes on line.

Table D-2. Present-Worth Analysis of the Project Development

Year	Load (MWh)	BLU (MWh)	Add'l BLU (MWh)	Diesel Fuel Cost ($000)1	Debt Service ($000)	Net Cash Flow ($000)
2014	140,567	136,300	12,300	$4,305	$7,072	-$2,767
2015	143,392	143,392	19,392	$6,957	$7,072	-$115
2016	145,392	145,392	21,392	$7,866	$7,072	$794
2017	146,951	146,951	22,951	$8,651	$7,072	$1,579
2018	148,254	148,254	24,254	$9,370	$7,072	$2,298
2019	150,070	150,070	26,070	$10,324	$7,072	$3,252
2020	151,492	151,492	27,492	$11,159	$7,072	$4,087
2021	153,019	153,019	29,019	$12,073	$7,072	$5,001
2022	154,560	154,560	30,560	$13,032	$7,072	$5,960
2023	155,987	155,987	31,987	$13,982	$7,072	$6,910
2024	157,509	156,000	32,000	$14,337	$7,072	$7,265
2025	158,902	156,000	32,000	$14,695	$7,072	$7,623
2026	160,450	156,000	32,000	$15,063	$7,072	$7,991
2027	161,872	156,000	32,000	$15,439	$7,072	$8,367
2028	163,433	156,000	32,000	$15,825	$7,072	$8,753
2029	164,864	156,000	32,000	$16,221	$7,072	$9,149
2030		156,000	32,000	$16,626	$7,072	$9,554
2031		156,000	32,000	$17,042	$7,072	$9,970
2032		156,000	32,000	$17,468	$7,072	$10,396
2033		156,000	32,000	$17,905	$7,072	$10,833
2034		156,000	32,000	$18,353	$7,072	$11,281
2035		156,000	32,000	$18,811	$7,072	$11,739
2036		156,000	32,000	$19,282	$7,072	$12,210
2037		156,000	32,000	$19,764	$7,072	$12,692
2038		156,000	32,000	$20,258	$7,072	$13,186
2039		156,000	32,000	$20,764	$7,072	$13,692
2040		156,000	32,000	$21,283	$7,072	$14,211
2041		156,000	32,000	$21,815	$7,072	$14,743
2042		156,000	32,000	$22,361	$7,072	$15,289
2043		156,000	32,000	$22,920	$7,072	$15,848
		Net Present Value2		$139,759	$79,615	$60,143

The cost of diesel fuel was assumed to be 35 cents/kWh in the first year of operation and escalates annually at 2.5% thereafter.
Discount rate was assumed to be 8% annually.

EXHIBIT F – PRELIMINARY DESIGN DRAWINGS



PLAN VIEW

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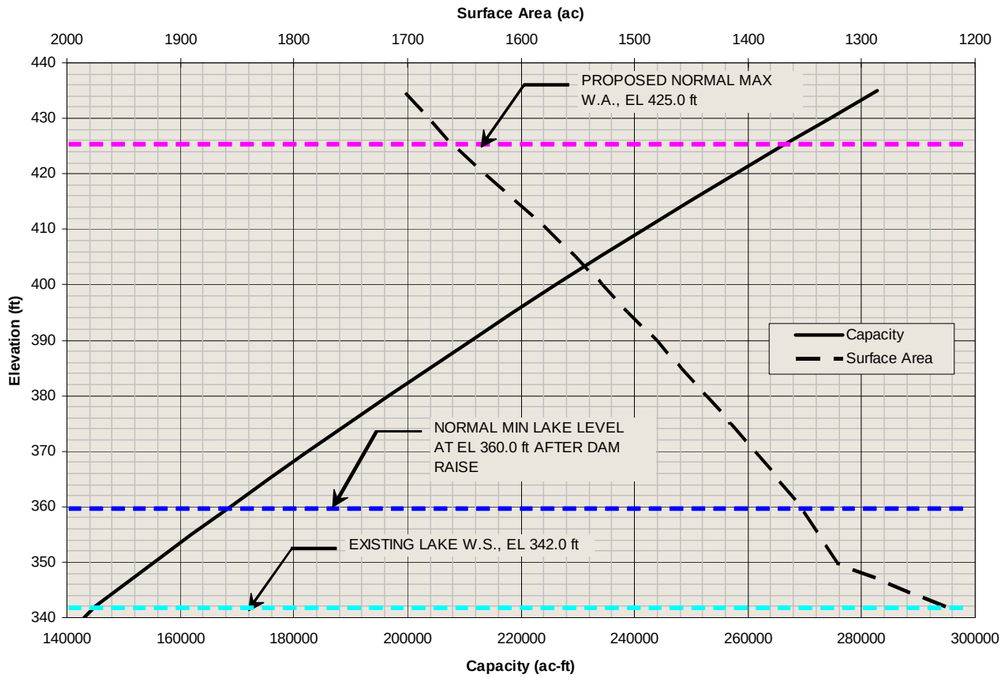


HATCH ACRES
The Energy Company

HATCH ACRES CORPORATION
6 NICKERSON STREET
ANN BUILDING, SUITE 101
SEATTLE, WA 98109
Tel 206-352-5730 / fax 206-352-5734
www.hatchenergy.com

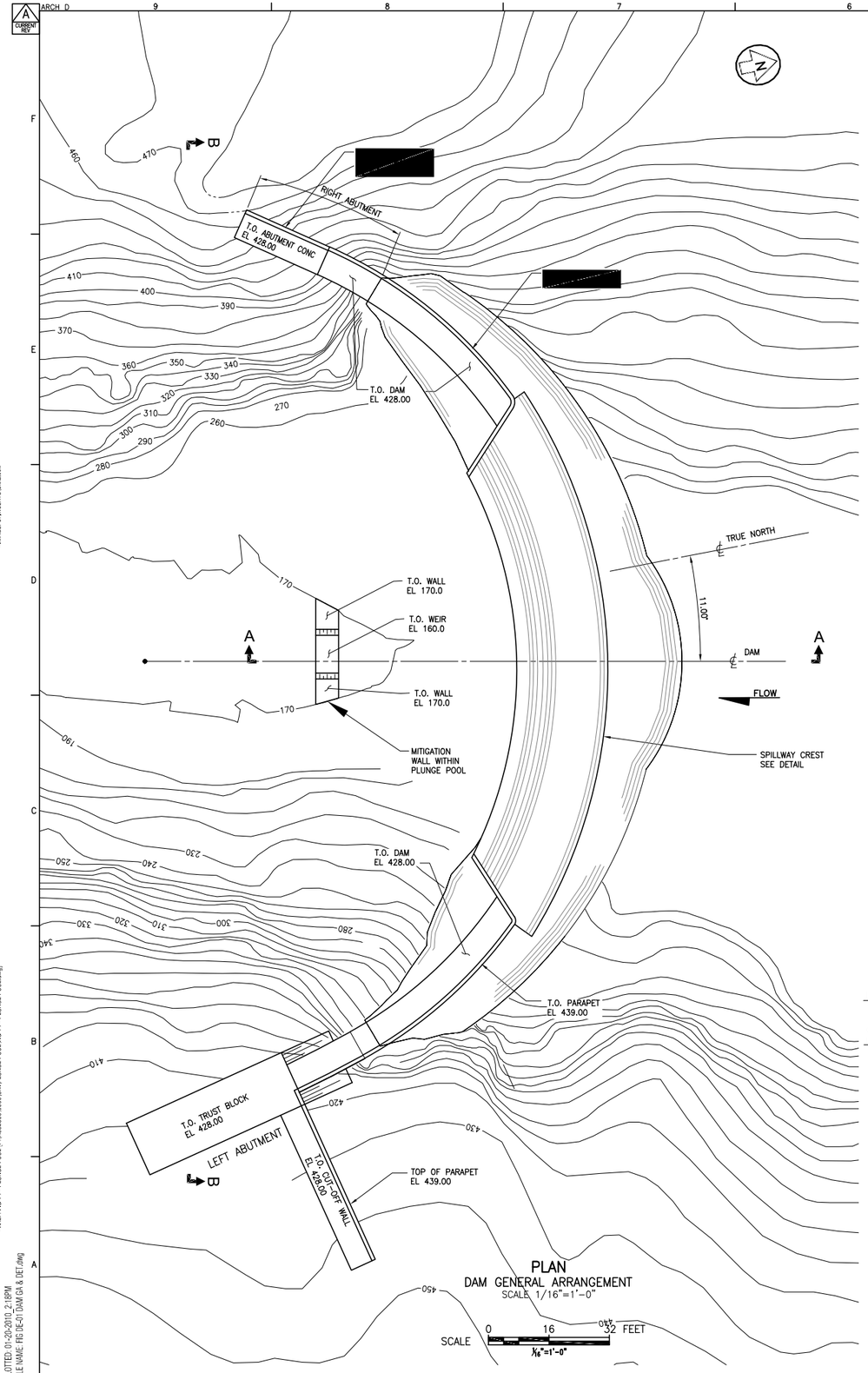
BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

BLUE LAKE
RESERVOIR AND AREA CAPACITY

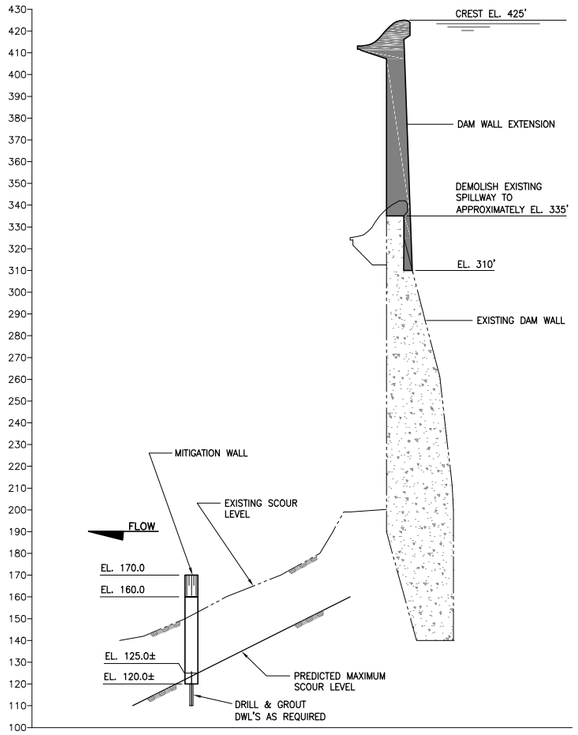
ISSUE DATE
01-28-2010

FIGURE NUMBER
FIGURE R-01



PLAN
DAM GENERAL ARRANGEMENT
SCALE 1/16"=1'-0"

SCALE 0 16 32 FEET
1/16"=1'-0"



SECTION A–A
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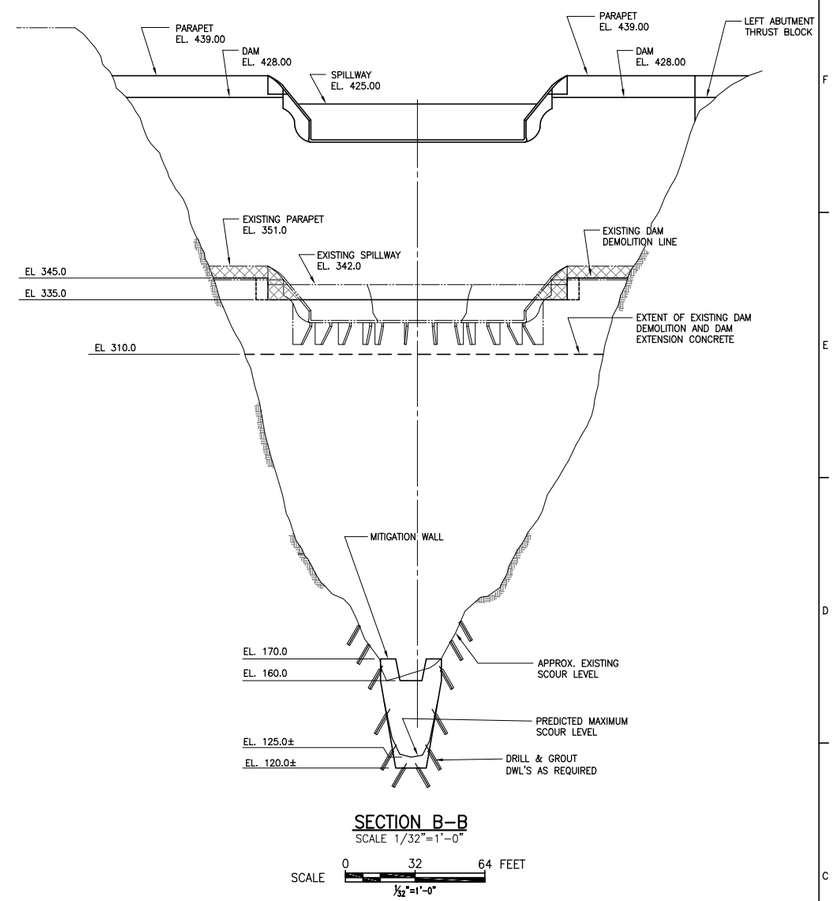
SCALE 0 32 64 FEET
1/32"=1'-0"



SECTION B–B
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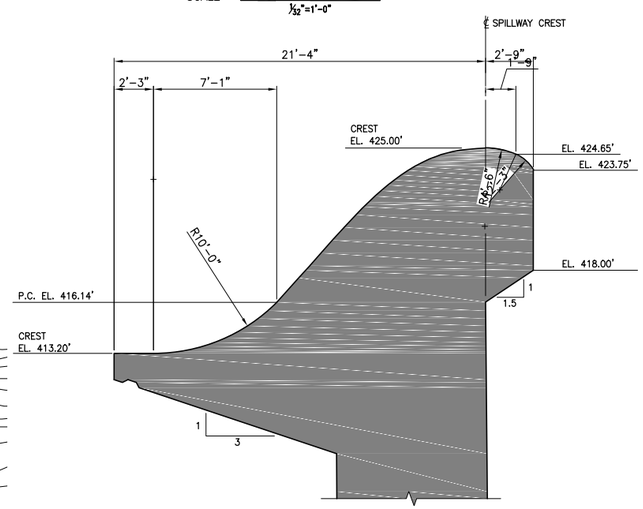
1/32"=1'-0"



SPILLWAY CREST DETAIL
SCALE 1/4"=1'-0"

SCALE 0 4 8 FEET
1/4"=1'-0"

NOTE:

FOR EXISTING DAM WALL GEOMETRY SEE CITY OF SITKA BLUE LAKE HYDRO PROJECT DWGS 5918-10, 5918-11 AND 5918-12

REV	DATE	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	HYDRAE COORD	FIELD ENGR
A	01/20/10	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER	DE
DATE	DED
DESIGN CHECKED BY	DCK
DATE	DCKD
DRAWN BY	DRB
DATE CREATED	DSD
DRAWING CHECKED BY	DWG CK
DATE	DRCKD
PROJSP1A	PROJSP1
PROJSP2A	PROJSP2
DISCIPLINE LEAD ENGINEER	CIVIL
DATE	DLED
PROJECT ENGINEER	PROJENG
DATE	PED
PROJECT MANAGER	PROJMAN
DATE	PMD

HATCH ACRES
The Energy Company
HATCH ACRES CORPORATION
6 NICKERSON STREET
ANN BUILDING, SUITE 101
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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

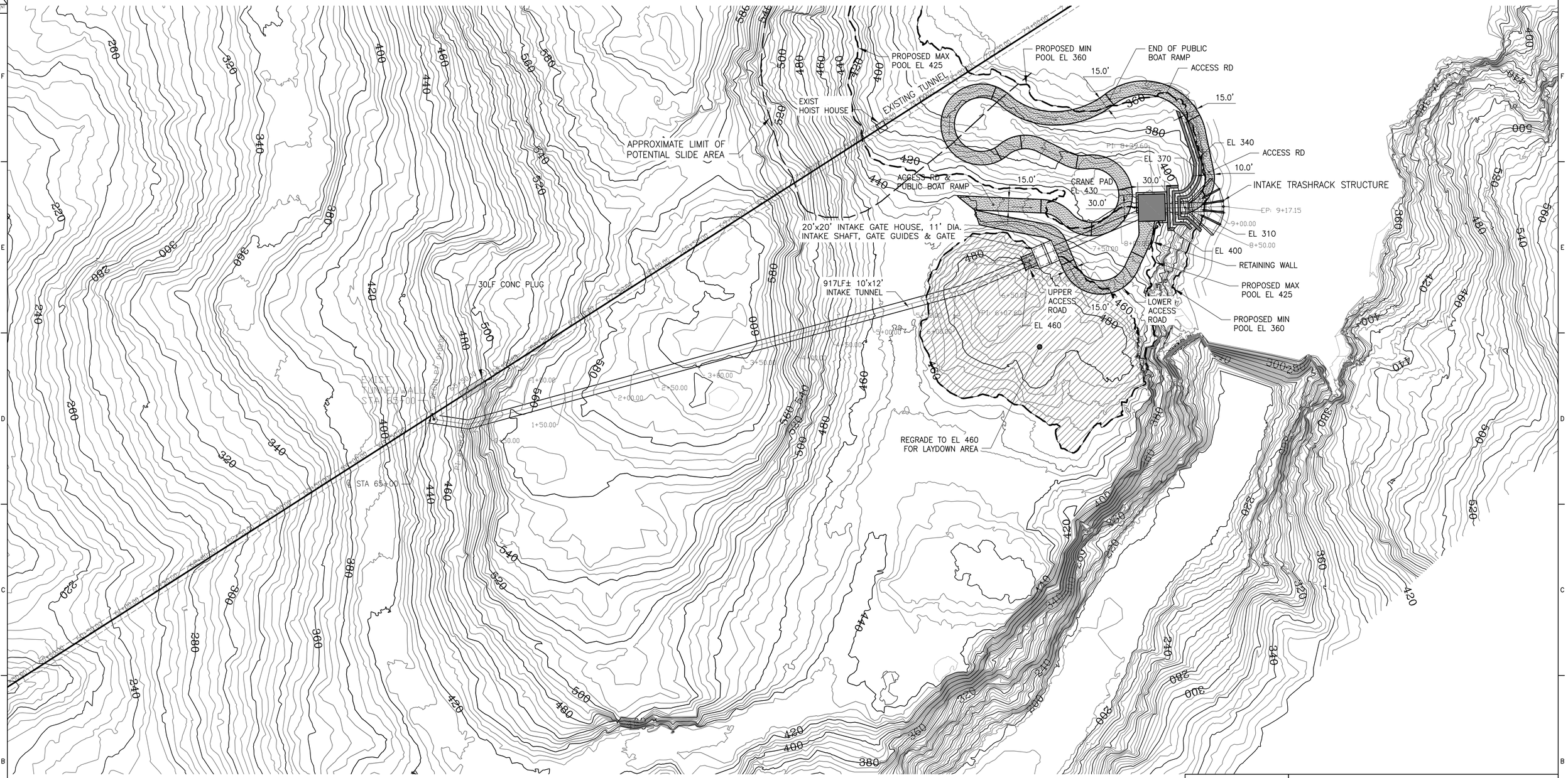
CITY AND BOROUGH OF SITKA, ALASKA

DAM EXTENSION
DAM WALL GEOMETRY
GA PLAN, SECTIONS & DETAIL

FIGURE DE-01

DRAWING NUMBER H332360-FRGA-42 – A CURRENT REV

ARCHITECTURAL AR ARD | CIVIL CR CRD | ELECTRICAL ER ERD | MECHANICAL MR MRD | GEOTECHNICAL GR MRD | OPTIONAL OPT OPTD



SCALE 0 50 100 FEET
1"=50'

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	PRIME COORD	PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER / DATE	DE / DED
DESIGN CHECKED BY / DATE	DCK / DCKD
DRAWN BY / DATE CREATED	DRB / DSD
DRAWING CHECKED BY / DATE	DWG CK / DRCKD
PROJSP1A / PROJSP2A	PROJSP1 / PROJSP2
DISCIPLINE LEAD ENGINEER / DATE	CIVIL / DLED
PROJECT ENGINEER / DATE	PROJENG / PED
PROJECT MANAGER / DATE	PROJMAN / PMD

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BLUE LAKE HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

INTAKE TUNNEL PLAN

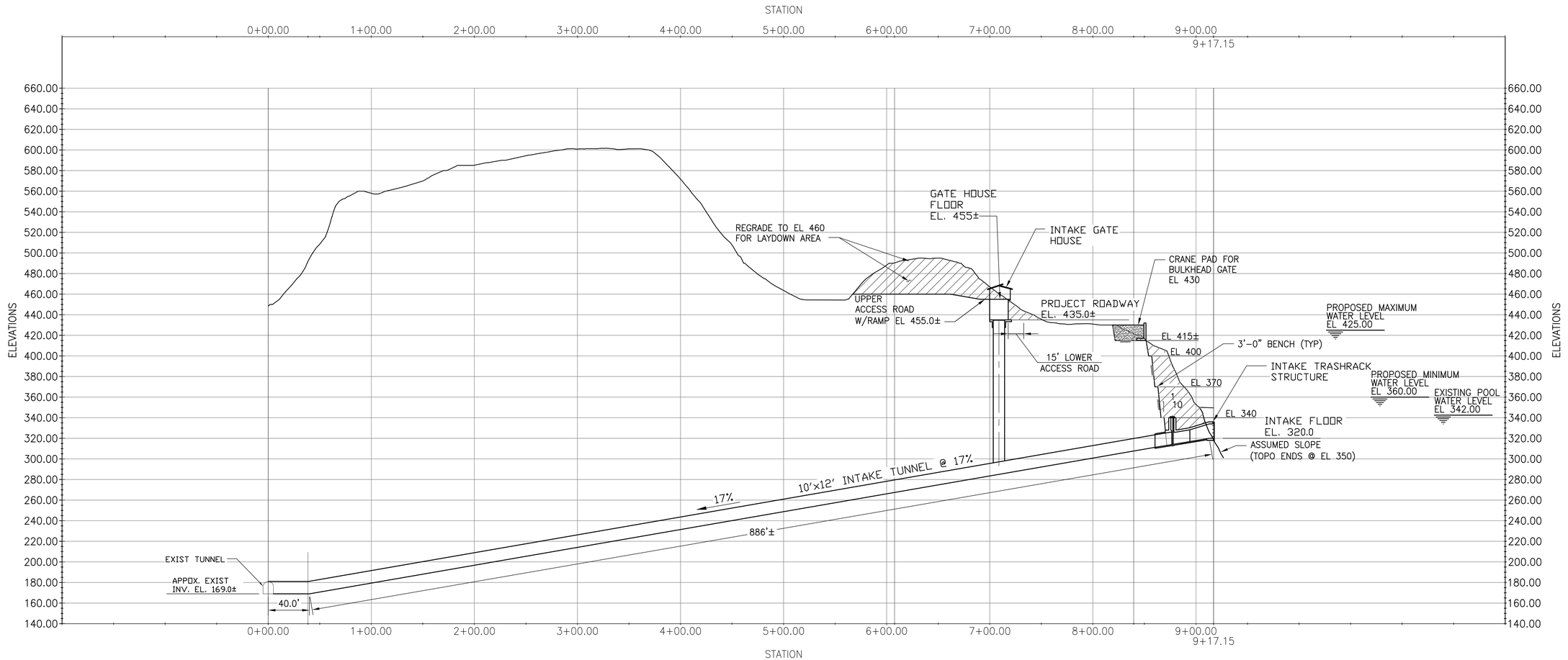
FIGURE IT–01

DRAWING NUMBER – A (CURRENT REV)

ARCHITECTURAL		CIVIL		ELECTRICAL		MECHANICAL		GEOTECHNICAL		OPTIONAL	
AR	ARD	CR	CRD	ER	ERD	MR	MRD	GR	MRD	OPT	OPTD

PLOTTED: 01-15-2010 4:02PM
FILE NAME: F01T-01 TUNNEL PLAN.dwg
SAVED: 01-15-2010_4:02pm By godz49735

PROFILE INTAKE & TUNNEL



SCALE 0 50 100 FEET
1"=50'

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	PRIME COORD	PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER / DATE	DE / DED
DESIGN CHECKED BY / DATE	DCK / DCKD
DRAWN BY / DATE CREATED	DRB / DSD
DRAWING CHECKED BY / DATE	DWG CK / DRCKD
PROJSP1A / PROJSP2A	PROJSP1 / PROJSP2
DISCIPLINE LEAD ENGINEER / DATE	CIVIL / DLED
PROJECT ENGINEER / DATE	PROJENG / PED
PROJECT MANAGER / DATE	PROJMAN / PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

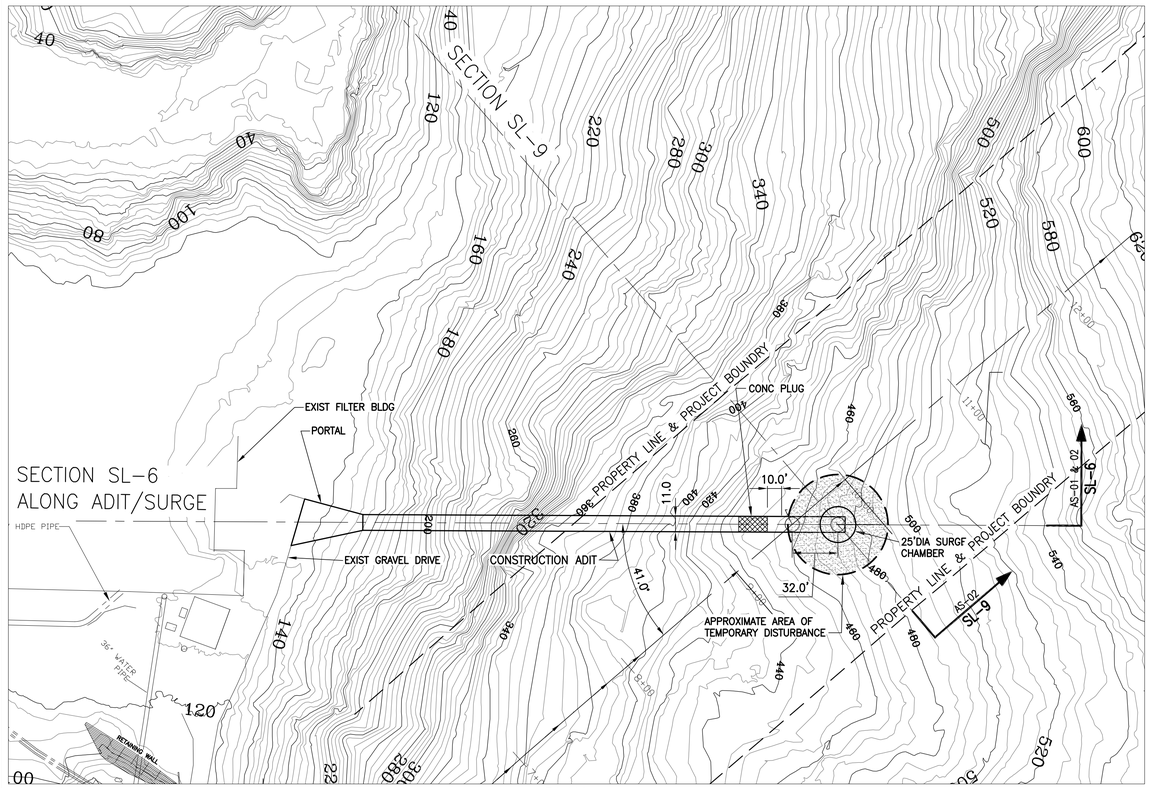
INTAKE TUNNEL PROFILE

FIGURE IT-02

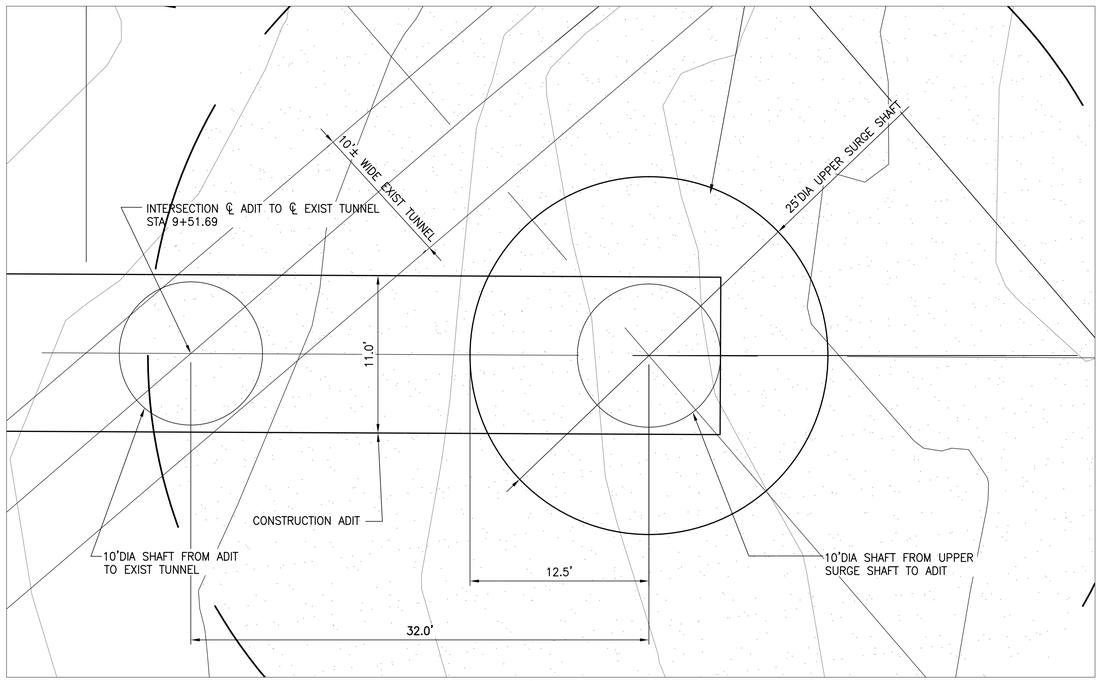
DRAWING NUMBER – A CURRENT REV

ARCHITECTURAL		CIVIL		ELECTRICAL		MECHANICAL		GEOTECHNICAL		OPTIONAL	
AR	ARD	CR	CRD	ER	ERD	MR	MRD	GR	MRD	OPT	OPTD

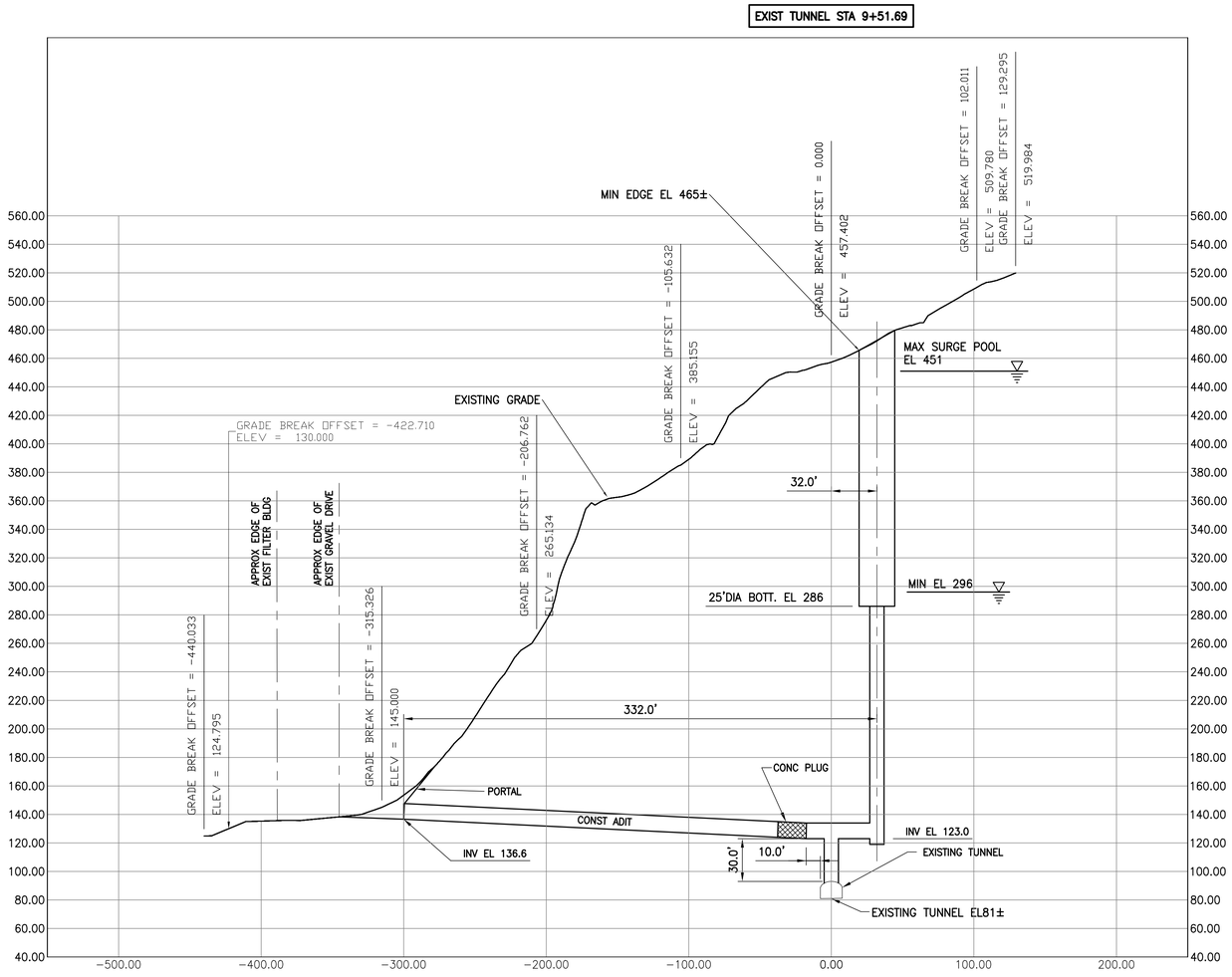
PLOTTED: 01-15-2010_4:02PM
FILE NAME: FIG IT-02 TUNNEL PROFILE.dwg
SAVED: 01-15-2010_4:02pm By godz49735



PLAN
ADIT & SURGE SHAFT
SCALE A



PLAN
AT SURGE SHAFT
SCALE B



SECTION SL-6
ALONG ADIT & SURGE SHAFT
SCALE A

SCALE B 0 5 10 FEET (1"=5')

SCALE A 0 50 100 FEET (1"=50')

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	PRIME COORD	PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER	DE
DATE	DED
DESIGN CHECKED BY	DCK
DATE	DCKD
DRAWN BY	DRB
DATE CREATED	DSD
DRAWING CHECKED BY	DWG CK
DATE	DRCKD
PROJSP1A	PROJSP1
PROJSP2A	PROJSP2
DISCIPLINE LEAD ENGINEER	CIVIL
DATE	DLED
PROJECT ENGINEER	PROJENG
DATE	PED
PROJECT MANAGER	PROJMAN
DATE	PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

ADIT/SURGE SHAFT PLAN AND SECTION

FIGURE AS-01

DRAWING NUMBER H332360-CIVIL-04-42

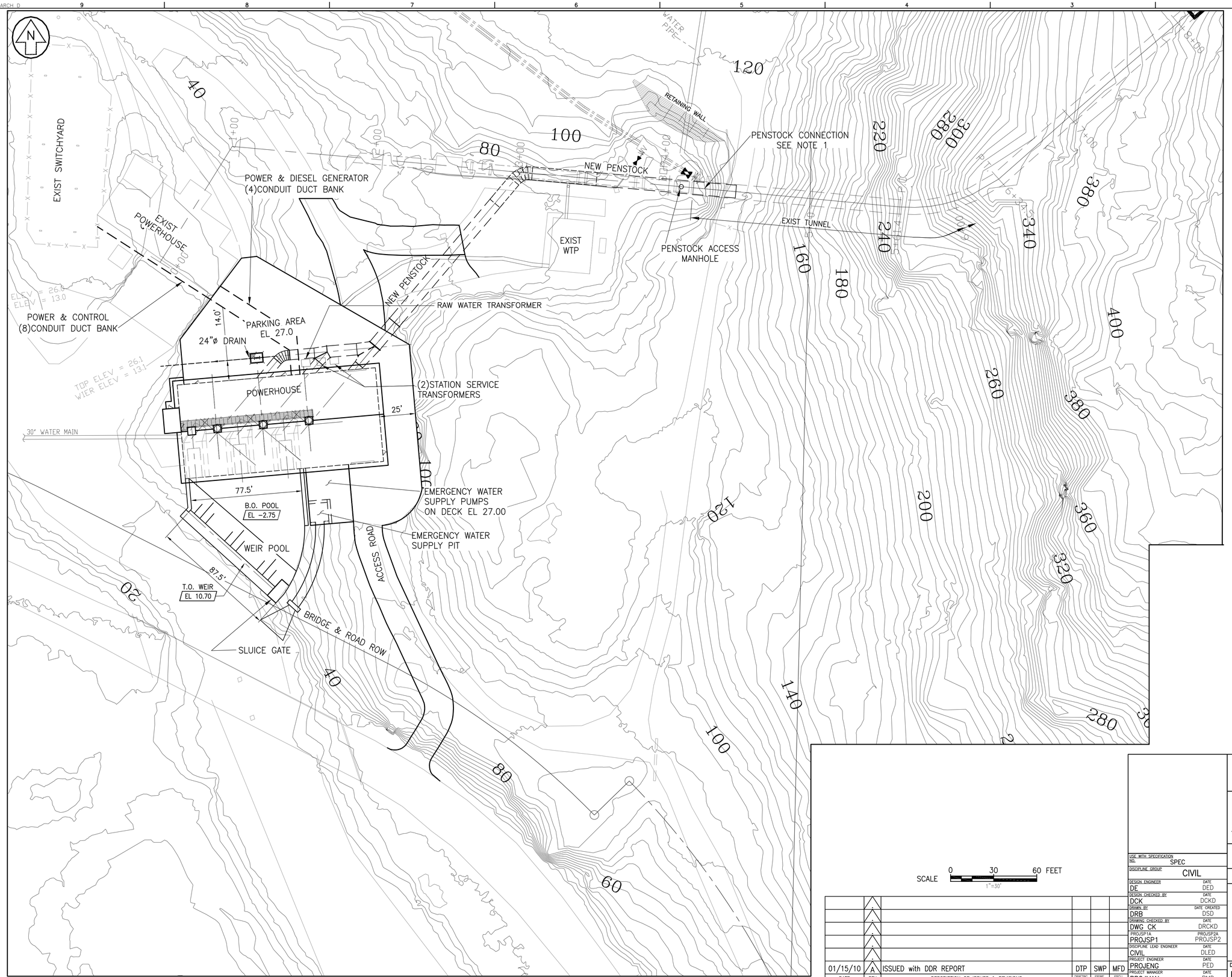
SHT 1 OF 1

CURRENT REV A

ARCHITECTURAL | CIVIL | ELECTRICAL | MECHANICAL | GEOTECHNICAL

PLOTTED: 01-15-2010_4:40PM
FILE NAME: F:\G\AS-01 Adit Surge 2D.dwg

SAVED: 01-15-2010_4:40pm By godz49735



NOTES

1. NEW PENSTOCK CONNECTS TO EXISTING PENSTOCK AT TUNNEL PORTAL (STA 4+26).
2. EXCAVATION DETAILS ARE SHOWN ON FIGURE EX-01

SCALE 0 30 60 FEET
1" = 30'

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	PRIME COORD	PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER / DATE	DE / DED
DESIGN CHECKED BY / DATE	DCK / DCKD
DRAWN BY / DATE CREATED	DRB / DSD
DRAWING CHECKED BY / DATE	DWG CK / DRCKD
PROJSP1A / PROJSP2A	PROJSP1 / PROJSP2
DISCIPLINE LEAD ENGINEER / DATE	CIVIL / DLED
PROJECT ENGINEER / DATE	PROJENG / PED
PROJECT MANAGER / DATE	PROJMAN / PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

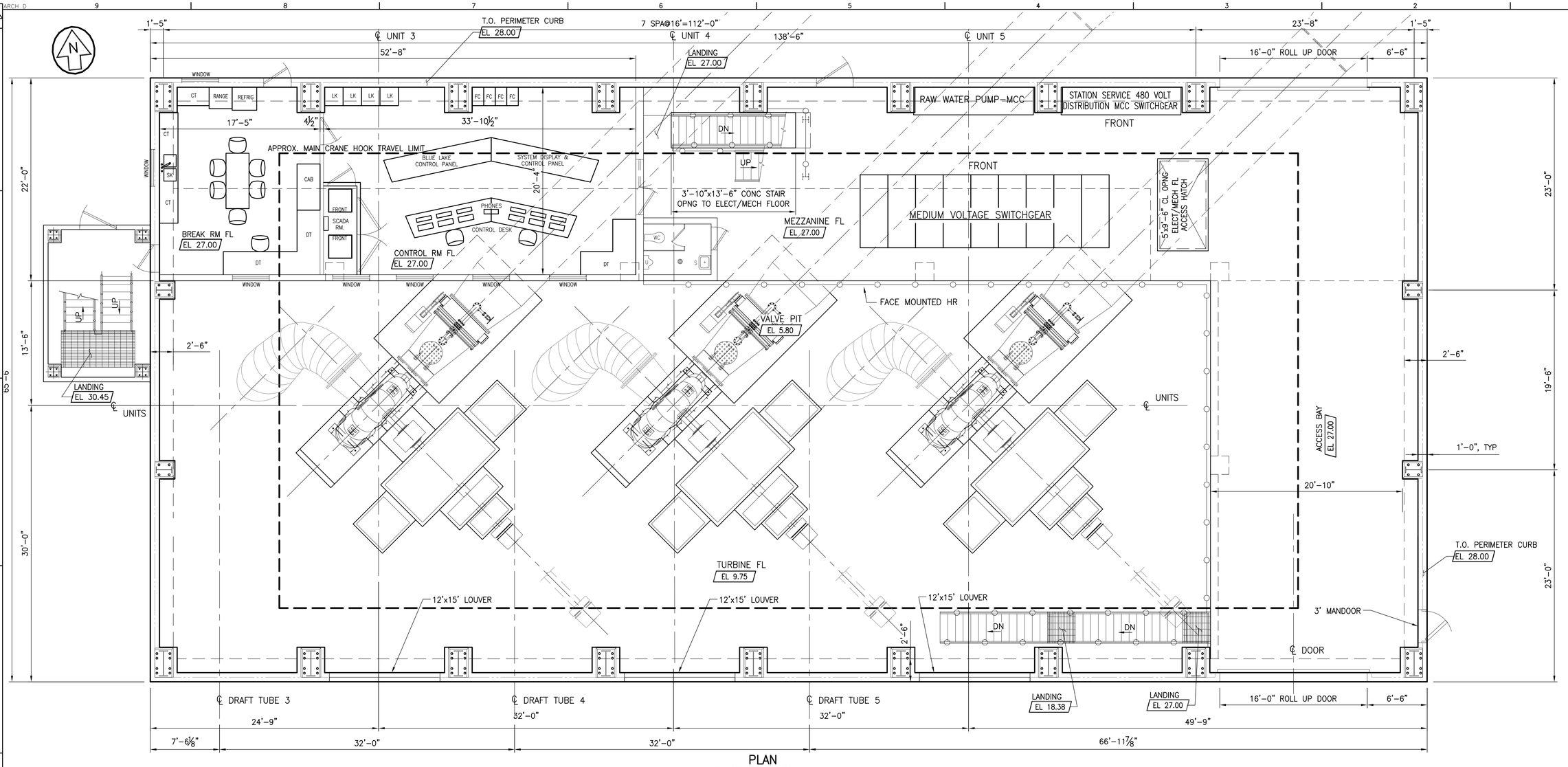
GENERAL ARRANGEMENT
PENSTOCK, POWERHOUSE & WEIR POOL
SITE PLAN

FIGURE GA-01

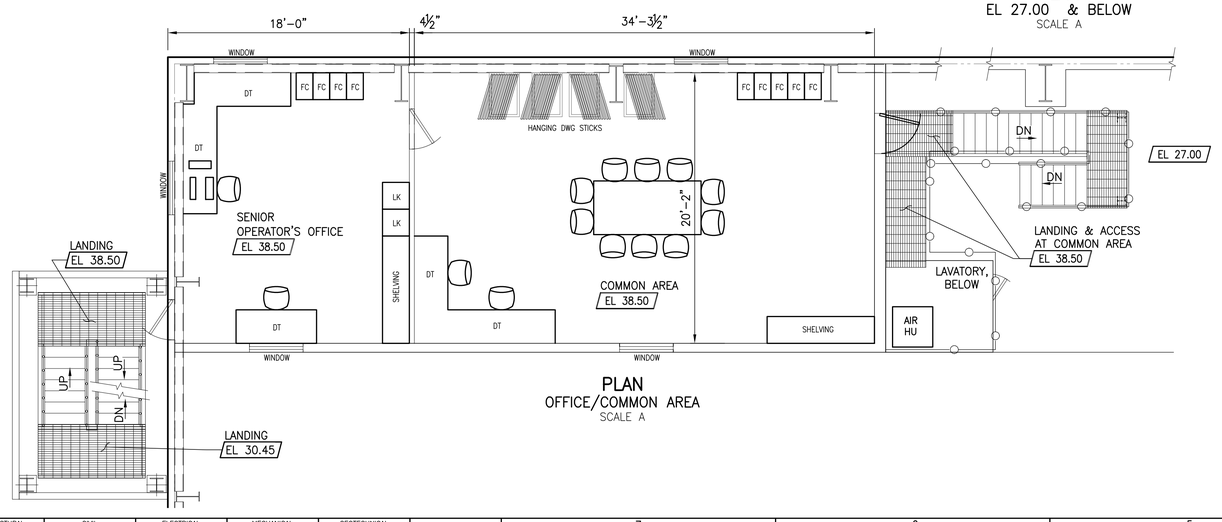
DRAWING NUMBER H332360-FRGA-042
SHT 1 OF 1
CURRENT REV A

ARCHITECTURAL | CIVIL | ELECTRICAL | MECHANICAL | GEOTECHNICAL

PLOTTED: 01-15-2010 4:01PM
FILE NAME: FIG GA-01 PH SITE PLAN.dwg
SAVED: 01-15-2010 4:01pm By godz49735



PLAN
EL 27.00 & BELOW
SCALE A



PLAN
OFFICE/COMMON AREA
SCALE A

NOTES

1. UNIFORM LIVE LOADS TO BE APPLIED TO DESIGN OF THE FOLLOWING:

TURBINE/SHOP FLOOR AT EL 9.75 –	1000 psf
ELECT/MECH FLOOR AT EL 14.35 –	1000 psf
ACCESS BAY AT EL 27.00 –	1000 psf
MEZZANINE FLOOR AT EL 27.00 –	300 psf
FLOOR AT EL 38.50 –	300 psf
INT. ROOF AT EL 47.70 –	300 psf

SCALE 0 8 16 FEET
3/16"=1'-0"

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DTP DRAFTING COORD	SWP PRIME COORD	MFD PROJ. ENGR
	B				
	A				
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER / DATE	DE / DED
DESIGN CHECKED BY / DATE	DCK / DCKD
DRAWN BY / DATE CREATED	DRB / DSD
DRAWING CHECKED BY / DATE	DWG CK / DRCKD
PROJSP1A / PROJSP2A	PROJSP1 / PROJSP2
DISCIPLINE LEAD ENGINEER / DATE	CIVIL / DLED
PROJECT ENGINEER / DATE	PROJENG / PED
PROJECT MANAGER / DATE	PROJMAN / PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

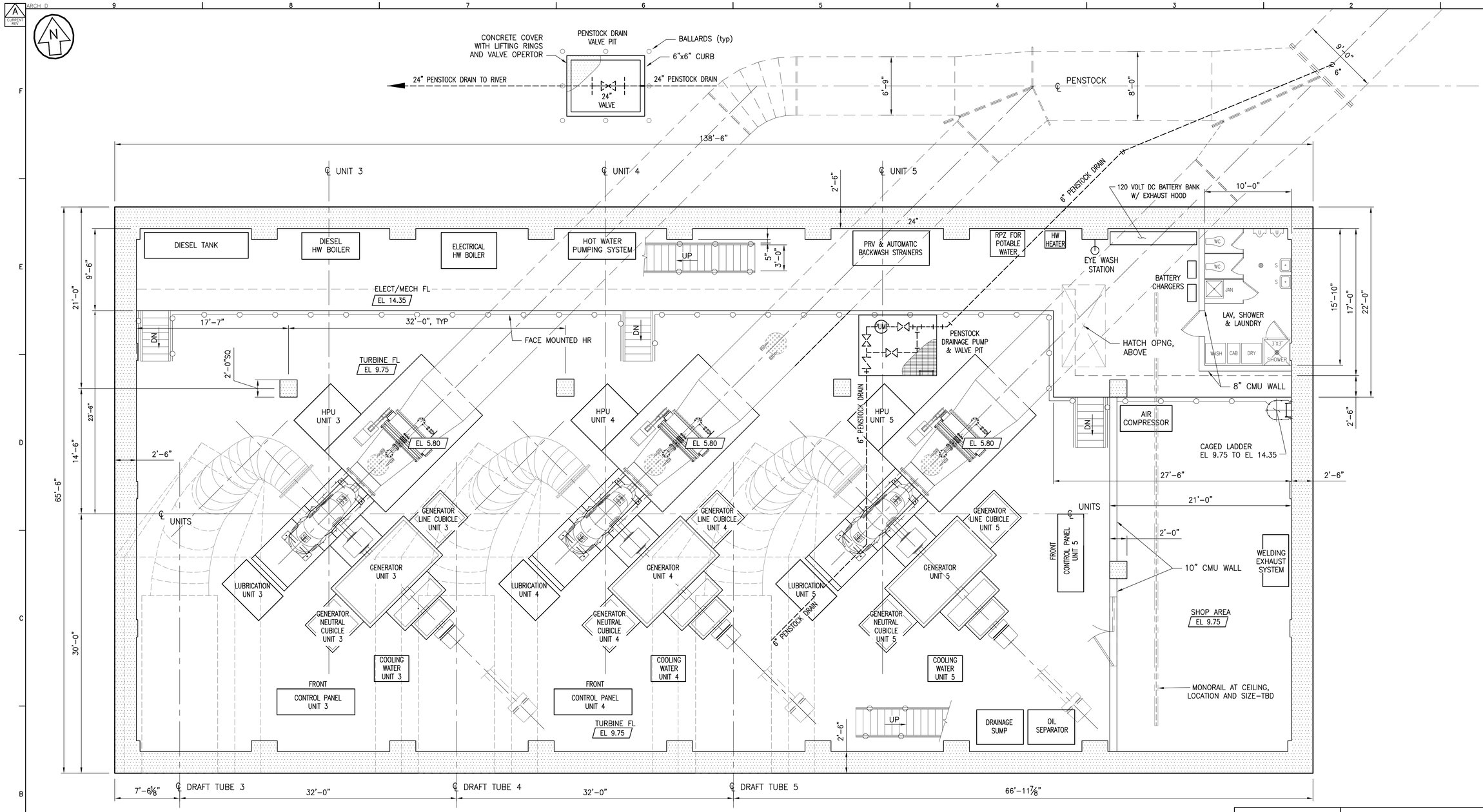
CITY AND BOROUGH OF SITKA, ALASKA

GENERAL ARRANGEMENT
POWERHOUSE
PLANS BELOW EL37

FIGURE GA-03

DRAWING NUMBER H332360-FRGA-042
SHT 1 OF 1
B CURRENT REV

PLOTTED: 01-15-2010 4:02PM
FILE NAME: FIG GA-03 PH ARCH PL EL37.dwg



PLAN
EL 14.35 & EL 9.75
SCALE A

SCALE 0 8 16 FEET
3/16" = 1'-0"

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DTP DRAFTING COORD	SWP PRIME COORD	MFD PROJ ENGR
11/16/09	A	ISSUED FOR CLIENT REVIEW			

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

GENERAL ARRANGEMENT
POWERHOUSE
PLAN AT EL 14.35 and EL 9.75

FIGURE GA–04

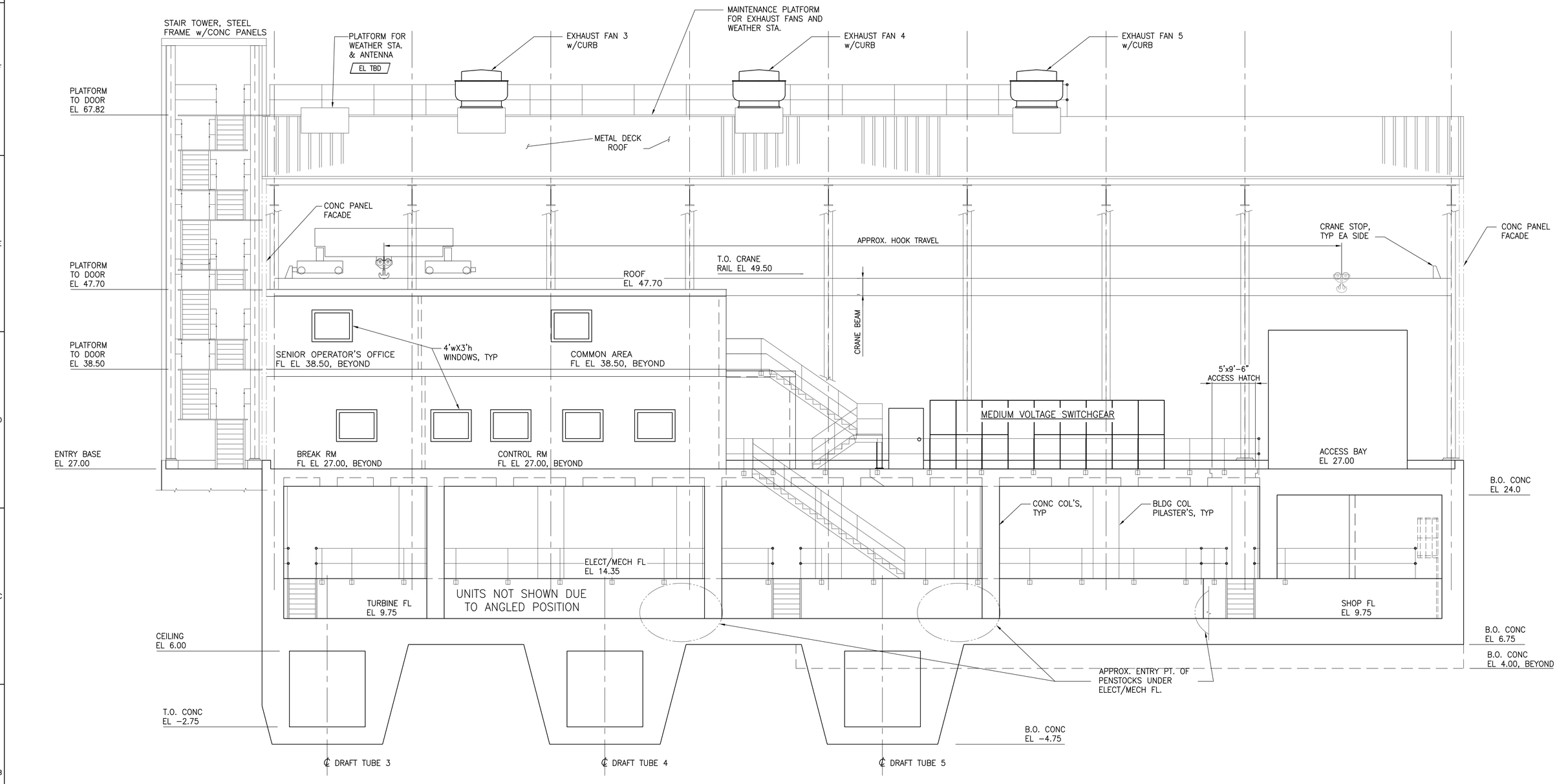
USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER	DE
DATE	DED
DESIGN CHECKED BY	DCK
DATE	DCKD
DRAWN BY	DRB
DATE CREATED	DSD
DRAWING CHECKED BY	DWG CK
DATE	DRCKD
PROJSP1	PROJSP1
PROJSP2	PROJSP2
DISCIPLINE LEAD ENGINEER	CIVIL
DATE	DLED
PROJECT ENGINEER	PROJENG
DATE	PED
PROJECT MANAGER	PROJMAN
DATE	PMD

DRAWING NUMBER H332360–FRGA–042
SHT 1 OF 1
A CURRENT REV

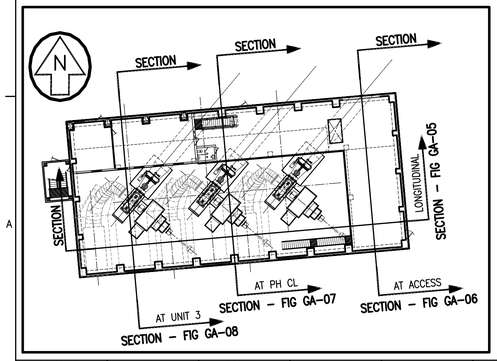
ARCHITECTURAL | CIVIL | ELECTRICAL | MECHANICAL | GEOTECHNICAL

PLOTTED: 01-15-2010 4:02PM
FILE NAME: F:\BG-GA-04\PH ARCH PL EL14.dwg

SAVED: 01-15-2010_4:02pm By godz49735



SECTION
LONGITUDINAL
POWERHOUSE
SCALE A



SCALE A 0 8 16 FEET
3/16"=1'-0"

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DTP DRAFTING COORD	SWP PRIME COORD	MFD PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT			

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER	DE
DATE	DED
DESIGN CHECKED BY	DCK
DATE	DCKD
DRAWN BY	DRB
DATE CREATED	DSD
DRAWING CHECKED BY	DWG CK
DATE	DRCKD
PROJSP1A	PROJSP1
PROJSP2A	PROJSP2
DISCIPLINE LEAD ENGINEER	CIVIL
DATE	DLED
PROJECT ENGINEER	PROJENG
DATE	PED
PROJECT MANAGER	PROJMAN
DATE	PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

GENERAL ARRANGEMENT POWERHOUSE LONGITUDINAL SECTION

FIGURE GA–05

DRAWING NUMBER H332360–FRGA–042

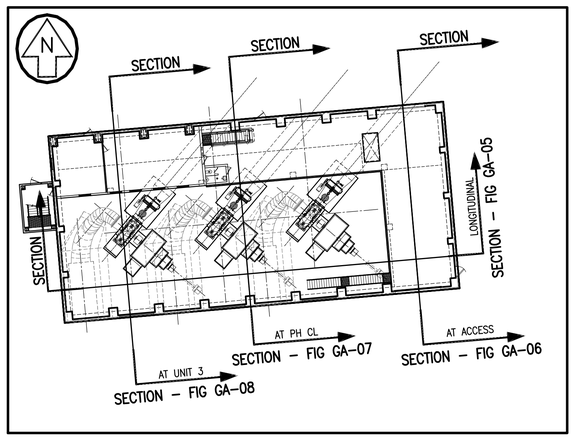
1 OF 1

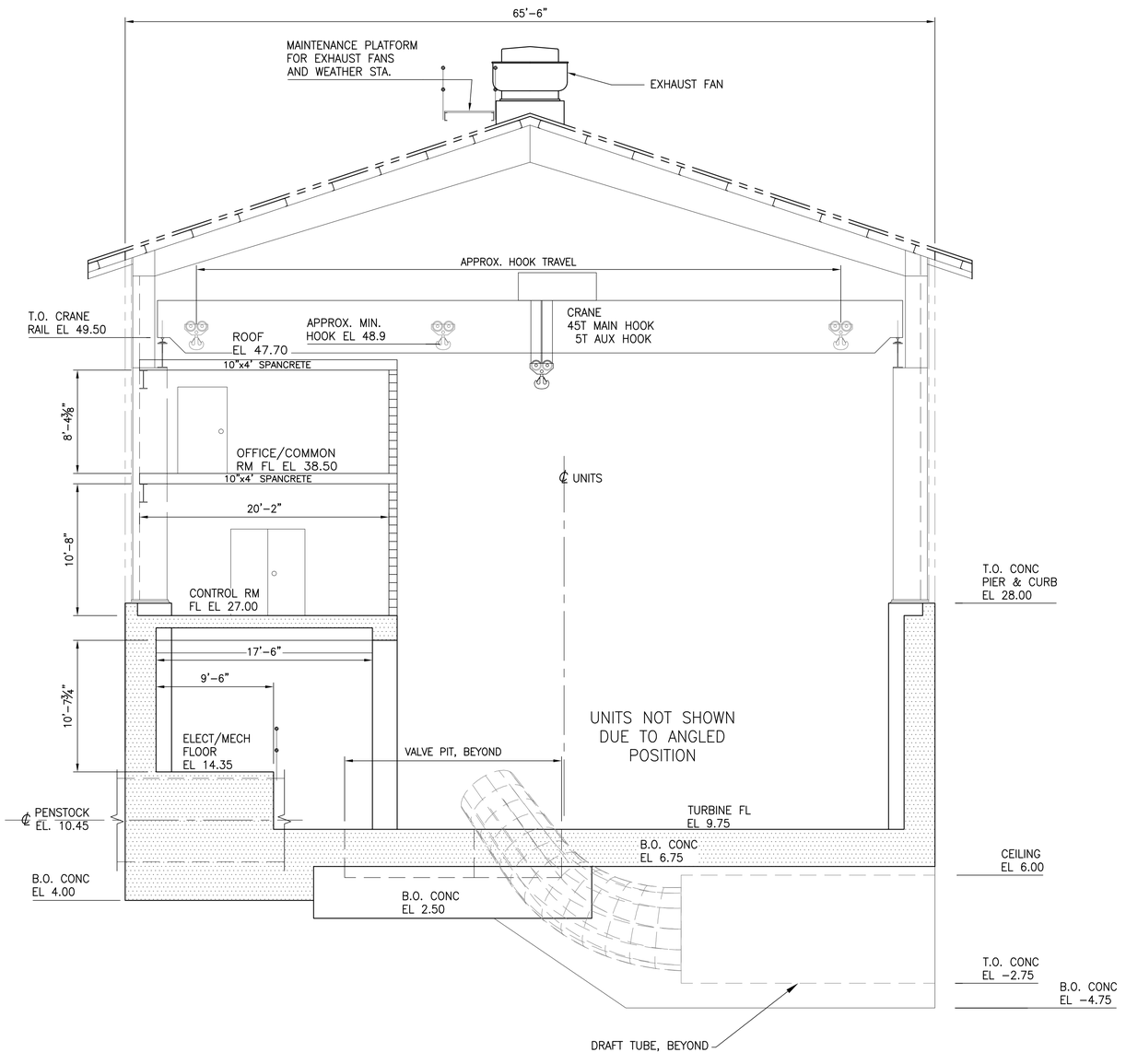
CURRENT REV A

ARCHITECTURAL		CIVIL		ELECTRICAL		MECHANICAL		GEOTECHNICAL		OPTIONAL	
AR	ARD	CR	CRD	ER	ERD	MR	MRD	GR	MRD	OPT	OPTD

PLOTTED: 01-15-2010 4:02PM
FILE NAME: FIG GA-05 PH SECTalLONGITUDINAL.dwg

SAVED: 01-15-2010 4:02pm By godzi49735





SECTION
AT UNIT 3
POWERHOUSE
SCALE A

SCALE A 0 8 16 FEET
3/16"=1'–0"

DATE	REV	DESCRIPTION OF ISSUES & REVISIONS	DRAFTING COORD	PRIME COORD	PROJ ENGR
01/15/10	A	ISSUED with DDR REPORT	DTP	SWP	MFD

USE WITH SPECIFICATION NO.	SPEC
DISCIPLINE GROUP	CIVIL
DESIGN ENGINEER	DE
DATE	DED
DESIGN CHECKED BY	DCK
DATE	DCKD
DRAWN BY	DRB
DATE CREATED	DSD
DRAWING CHECKED BY	DWG CK
DATE	DRCKD
PROJSP1A	PROJSP1
PROJSP2A	PROJSP2
DISCIPLINE LEAD ENGINEER	CIVIL
DATE	DLED
PROJECT ENGINEER	PROJENG
DATE	PED
PROJECT MANAGER	PROJMAN
DATE	PMD

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BLUE LAKE
HYDROELECTRIC EXPANSION PROJECT

CITY AND BOROUGH OF SITKA, ALASKA

GENERAL ARRANGEMENT POWERHOUSE SECTION AT UNIT 3

FIGURE GA–08

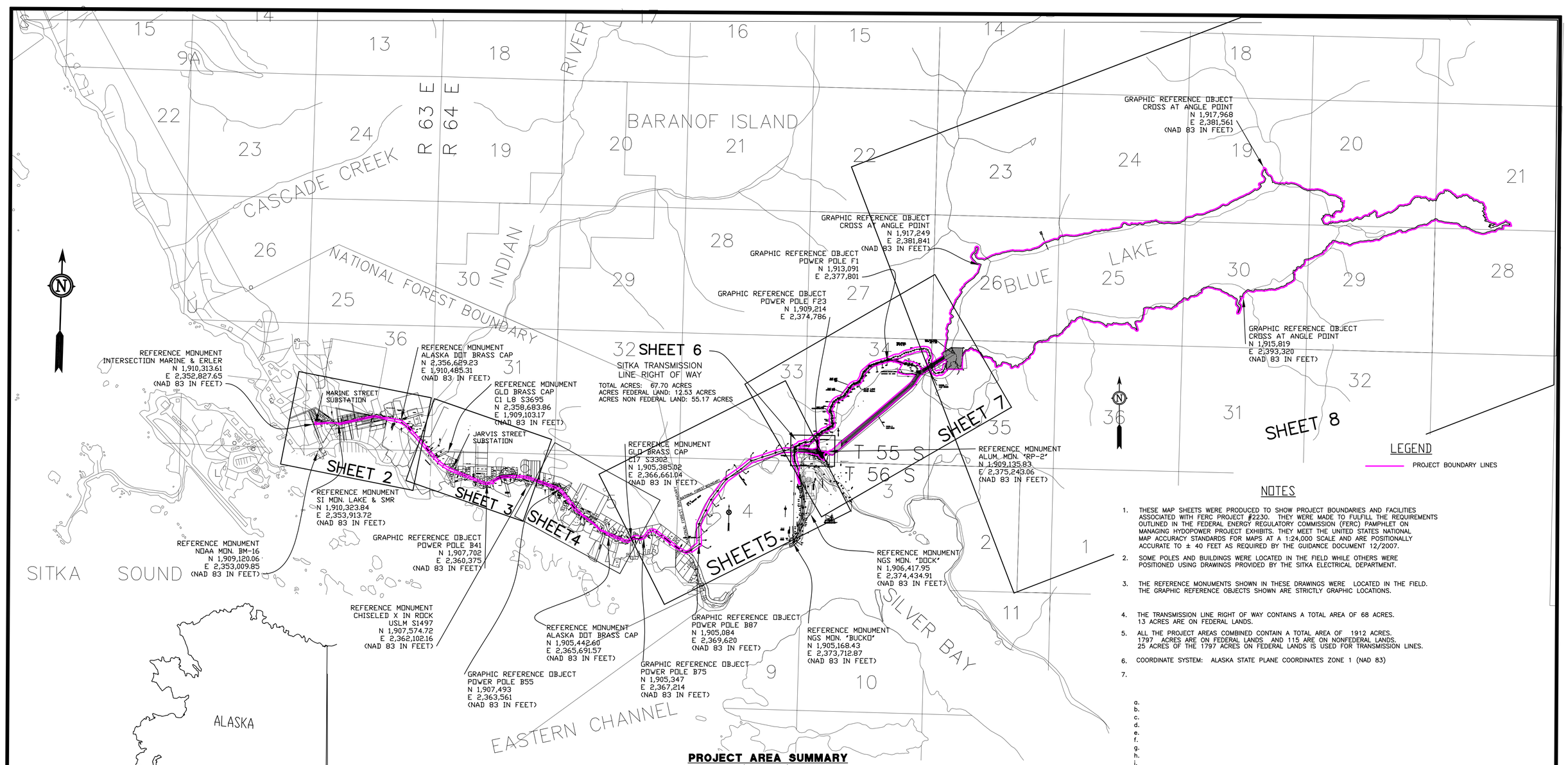
DRAWING NUMBER H332360–FRGA–042
1 OF 1
CURRENT REV A

ARCHITECTURAL		CIVIL		ELECTRICAL		MECHANICAL		GEOTECHNICAL		OPTIONAL	
AR	ARD	CR	CRD	ER	ERD	MR	MRD	GR	MRD	OPT	OPTD

PLOTTED: 01-15-2010 4:02PM
FILE NAME: FRGA-08 PH SECTAtUNIT3.dwg

SAVED: 01-15-2010 4:02pm By godz49735

EXHIBIT G – PROJECT LOCATION AND PROJECT BOUNDARY DRAWINGS



PROJECT AREA SUMMARY

(AREAS IN ACRES)

UNIT	GROSS AREA	GROSS IN NON-FEDERAL LANDS	OVERLAYS UNIT	OVERLAYS AREA	NET IN NON-FEDERAL LANDS	GROSS IN FEDERAL LANDS	OVERLAYS UNIT	OVERLAYS AREA	NET IN FEDERAL LANDS	NET PROJECT AREA
BLUE LAKE ROAD ROW			SAWMILL CREEK ROAD	−1.97			PARCELL F	−0.96		
			SITKA TRANSMISSION LINE EASEMENT	−0.54			PARCELL G	−0.28		
				−0.41			FISH VALVE UNIT TRANS	−9.61		
	53.05	8.19	TOTAL	−2.92	5.27	44.86	TOTAL	−10.85	34.01	
SITKA TRANSMISSION	67.70	55.17			55.17	12.53			12.53	
FISH VALVE UNIT TRANS	12.27					12.27			12.27	
SMC CAMP GROUND WITH ACCESS ROAD	10.65					10.65	FISH VALVE UNIT TRANS	−2.18	8.47	
SMC CAMP GROUND WITH ACCESS ROAD	5.66	5.66			5.66					
PARCELL C	2.22	2.22			2.22					
PARCELL D	0.32	0.32			0.32					
PARCELL E	3.10	3.10			3.10					
PARCELL B	22.08	22.08			22.08					
PARCELL F	4.96	4.96			4.96					
PARCELL G	15.94	15.94			15.94					
RESERVOIR	1729.87					1729.87			1729.87	
TOTALS		117.63		−2.92	114.71	1810.18		−13.03	1797.15	1911.9

NOTES

1. THESE MAP SHEETS WERE PRODUCED TO SHOW PROJECT BOUNDARIES AND FACILITIES ASSOCIATED WITH FERC PROJECT #2230. THEY WERE MADE TO FULFILL THE REQUIREMENTS OUTLINED IN THE FEDERAL ENERGY REGULATORY COMMISSION (FERC) PAMPHLET ON MANAGING HYDOPOWER PROJECT EXHIBITS. THEY MEET THE UNITED STATES NATIONAL MAP ACCURACY STANDARDS FOR MAPS AT A 1:24,000 SCALE AND ARE POSITIONALLY ACCURATE TO ± 40 FEET AS REQUIRED BY THE GUIDANCE DOCUMENT 12/2007.
2. SOME POLES AND BUILDINGS WERE LOCATED IN THE FIELD WHILE OTHERS WERE POSITIONED USING DRAWINGS PROVIDED BY THE SITKA ELECTRICAL DEPARTMENT.
3. THE REFERENCE MONUMENTS SHOWN IN THESE DRAWINGS WERE LOCATED IN THE FIELD. THE GRAPHIC REFERENCE OBJECTS SHOWN ARE STRICTLY GRAPHIC LOCATIONS.
4. THE TRANSMISSION LINE RIGHT OF WAY CONTAINS A TOTAL AREA OF 68 ACRES. 13 ACRES ARE ON FEDERAL LANDS.
5. ALL THE PROJECT AREAS COMBINED CONTAIN A TOTAL AREA OF 1912 ACRES. 1797 ACRES ARE ON FEDERAL LANDS AND 115 ARE ON NONFEDERAL LANDS. 25 ACRES OF THE 1797 ACRES ON FEDERAL LANDS IS USED FOR TRANSMISSION LINES.
6. COORDINATE SYSTEM: ALASKA STATE PLANE COORDINATES ZONE 1 (NAD 83)
7.

a.
b.
c.
d.
e.
f.
g.
h.
i.
j.

k.

l.

m.

LEGEND

PROJECT BOUNDARY LINES

ELECTRONIC FILE NAME: 30015-29B.DWG

2000 1000 0 2000 4000 6000

SCALE IN FEET

N.I.P. MAT'L

SCALE: 1:24,000

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BND LAYER
WAD	7/27/06	2	CHANGED PROJECT AREA
WAD	8/25/06	3	CORRECTED PROJECT AREA
WAD	11/05/07	4	ADDED BLUE LAKE ROAD ROW AND SAWMILL CREEK CAMP GROUND WITH ROAD
WAD	3/24/08	5	ADDED MORE REFENCE OBJECTS WITH ASSOC. NOTES. CHANGED TITLES
WAD	10/23/09	6	CHANGED FOR BLUE LAKE EXPANSION

RECORD OF REVISIONS

STATE OF ALASKA 49TH WAYNE A. DYE LS 9458 REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 23 NOV 09
SCALE: 1" = 2,000'
DRAWING NAME: GENERAL PLAN
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT–NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

23 NOV 09
DATE

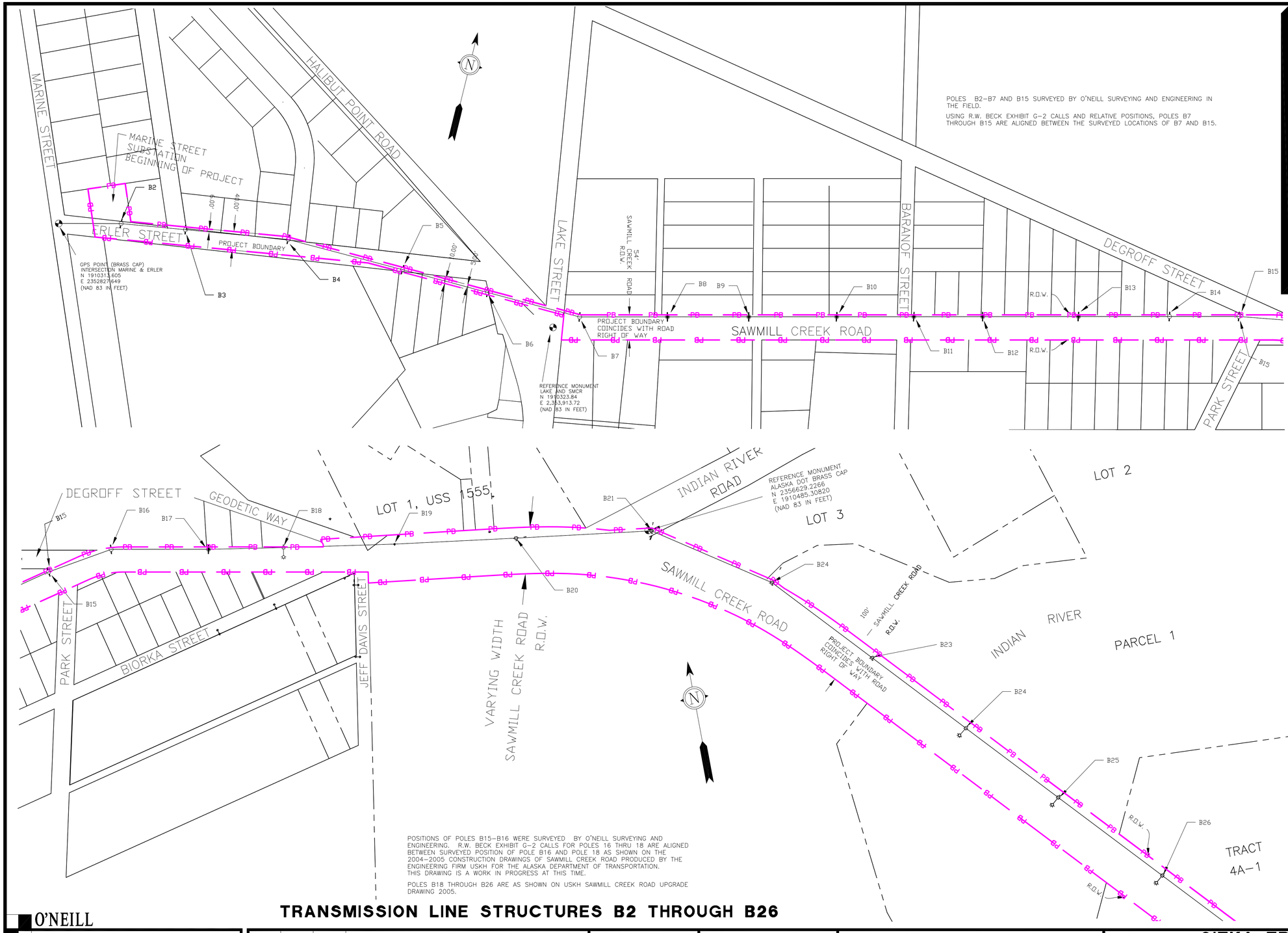
Wayne A. Dye
WAYNE A. DYE LS 9458

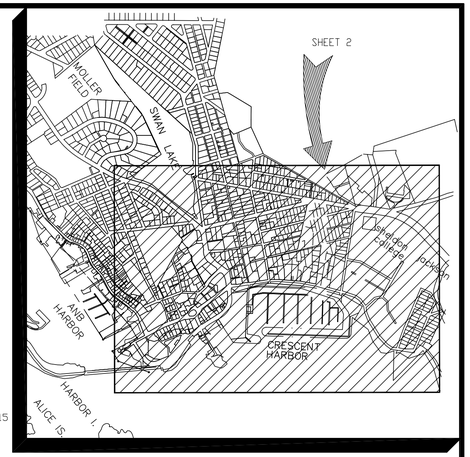
PROJECT BOUNDARY MAP

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-1, FERC DRAWING No. 2230-1015-6

CLIENT: CITY AND BOROUGH OF SITKA, ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 1 OF 9





VICINITY MAP

SCALE 1"=1,000'

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- DR — POWER POLE SURVEYED BY USKH
- POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- PB PB PB PB — PROJECT BOUNDARIES

TRANSMISSION LINE TRAVERSE DATA

FROM	TO	DIRECTION (NAD 83 GRID)	DISTANCE (NAD 83 GRID)
BC M & E	B2	N 77°41'08" E	134.12'
B2	B3	N 83°00'19" E	138.99'
B3	B4	N 83°01'09" E	222.14'
B4	B5	S 87°37'21" E	254.16'
B5	B6	S 87°25'43" E	189.30'
B6	B7	S 87°29'37" E	204.74'
B7	B8	N 77°32'29" E	188.94'
B8	B9	N 77°32'30" E	174.94'
B9	B10	N 77°32'29" E	188.94'
B10	B11	N 77°32'29" E	165.94'
B11	B12	N 77°32'29" E	147.95'
B12	B13	N 77°32'32" E	205.93'
B13	B14	N 77°32'33" E	195.93'
B14	B15	N 77°36'01" E	149.26'
B15	B16	N 82°01'49" E	142.78'
B16	B17	S 78°10'09" E	209.56'
B17	B18	S 79°22'36" E	161.12'
B18	B19	S 79°54'28" E	239.04'
B19	B20	S 80°53'28" E	261.57'
B20	B21	S 81°11'16" E	291.68'
B21	B22	S 54°50'12" E	281.97'
B22	B23	S 41°14'50" E	269.18'
B23	B24	S 41°09'48" E	252.07'
B24	B25	S 41°14'15" E	248.28'
B25	B26	S 41°14'10" E	279.65'

NOTES

PROJECT COORDINATE SYSTEM:
ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)

ELECTRONIC FILE NAME: 30015-29A.DWG

100 75 50 25 0 100 200 300

SCALE IN FEET

SCALE 1:1,200

N.I.P. MAT'L

TRANSMISSION LINE STRUCTURES B2 THROUGH B26

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BOUNDARY LAYER
WAD	3/24/08	2	ADDED REFERENCE OBJECTS & REVISED TITLE BLOCK

RECORD OF REVISIONS

STATE OF ALASKA 49TH WAYNE A. DYE LS 9458 REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 4 NOV 09
SCALE: 1" = 100
DRAWING NAME: SITKA TRANSMISSION LINE

PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT-NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

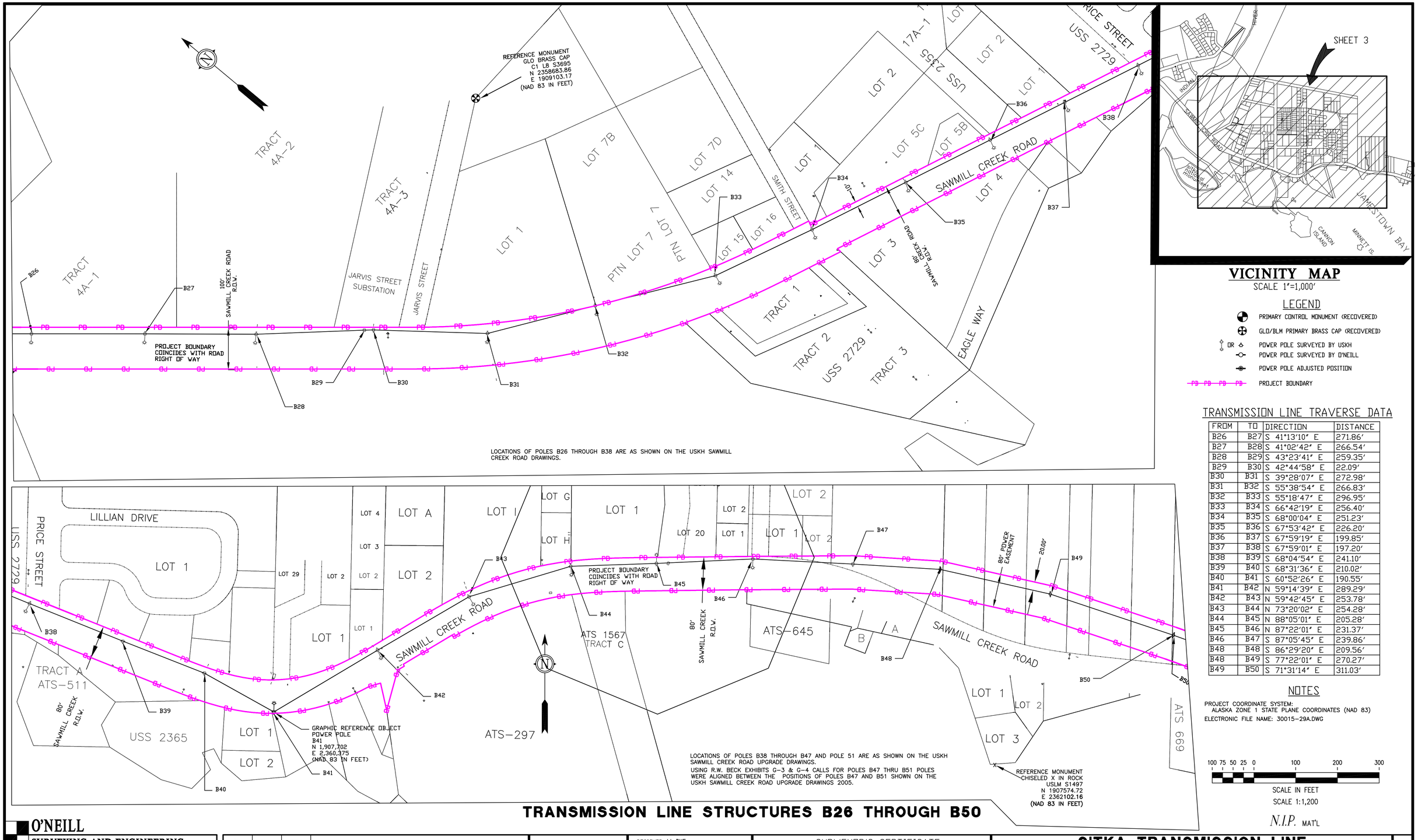
4 NOV 09
DATE

Wayne A. Dye
WAYNE A. DYE LS 9458

SITKA TRANSMISSION LINE PROJECT BOUNDARY

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-2, FERC DRAWING No. 2230-1016-02

CLIENT: CITY AND BOROUGH OF SITKA, ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835



VICINITY MAP

SCALE 1"=1,000'

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- OR POWER POLE SURVEYED BY USKH
- POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- PB PB PB PB PROJECT BOUNDARY

TRANSMISSION LINE TRAVERSE DATA

FROM	TO	DIRECTION	DISTANCE
B26	B27	S 41°13'10" E	271.86'
B27	B28	S 41°02'42" E	266.54'
B28	B29	S 43°23'41" E	259.35'
B29	B30	S 42°44'58" E	22.09'
B30	B31	S 39°28'07" E	272.98'
B31	B32	S 55°38'54" E	266.83'
B32	B33	S 55°18'47" E	296.95'
B33	B34	S 66°42'19" E	256.40'
B34	B35	S 68°00'04" E	251.23'
B35	B36	S 67°53'42" E	226.20'
B36	B37	S 67°59'19" E	199.85'
B37	B38	S 67°59'01" E	197.20'
B38	B39	S 68°04'54" E	241.10'
B39	B40	S 68°31'36" E	210.02'
B40	B41	S 60°52'26" E	190.55'
B41	B42	N 59°14'39" E	289.29'
B42	B43	N 59°42'45" E	253.78'
B43	B44	N 73°20'02" E	254.28'
B44	B45	N 88°05'01" E	205.28'
B45	B46	N 87°22'01" E	231.37'
B46	B47	S 87°05'45" E	239.86'
B48	B48	S 86°29'20" E	209.56'
B48	B49	S 77°22'01" E	270.27'
B49	B50	S 71°31'14" E	311.03'

NOTES

PROJECT COORDINATE SYSTEM:
ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)
ELECTRONIC FILE NAME: 30015-29A.DWG

100 75 50 25 0 100 200 300
SCALE IN FEET
SCALE 1:1,200

N.I.P. MAT'L

TRANSMISSION LINE STRUCTURES B26 THROUGH B50

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BOUNDARY LAYER
WAD	3/24/08	2	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK

RECORD OF REVISIONS

STATE OF ALASKA 49TH WAYNE A. DYE LS 9458 REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 4 NOV 09
SCALE: 1" = 100'
DRAWING NAME: SITKA TRANSMISSION LINE
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT-NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

4 NOV 09
DATE

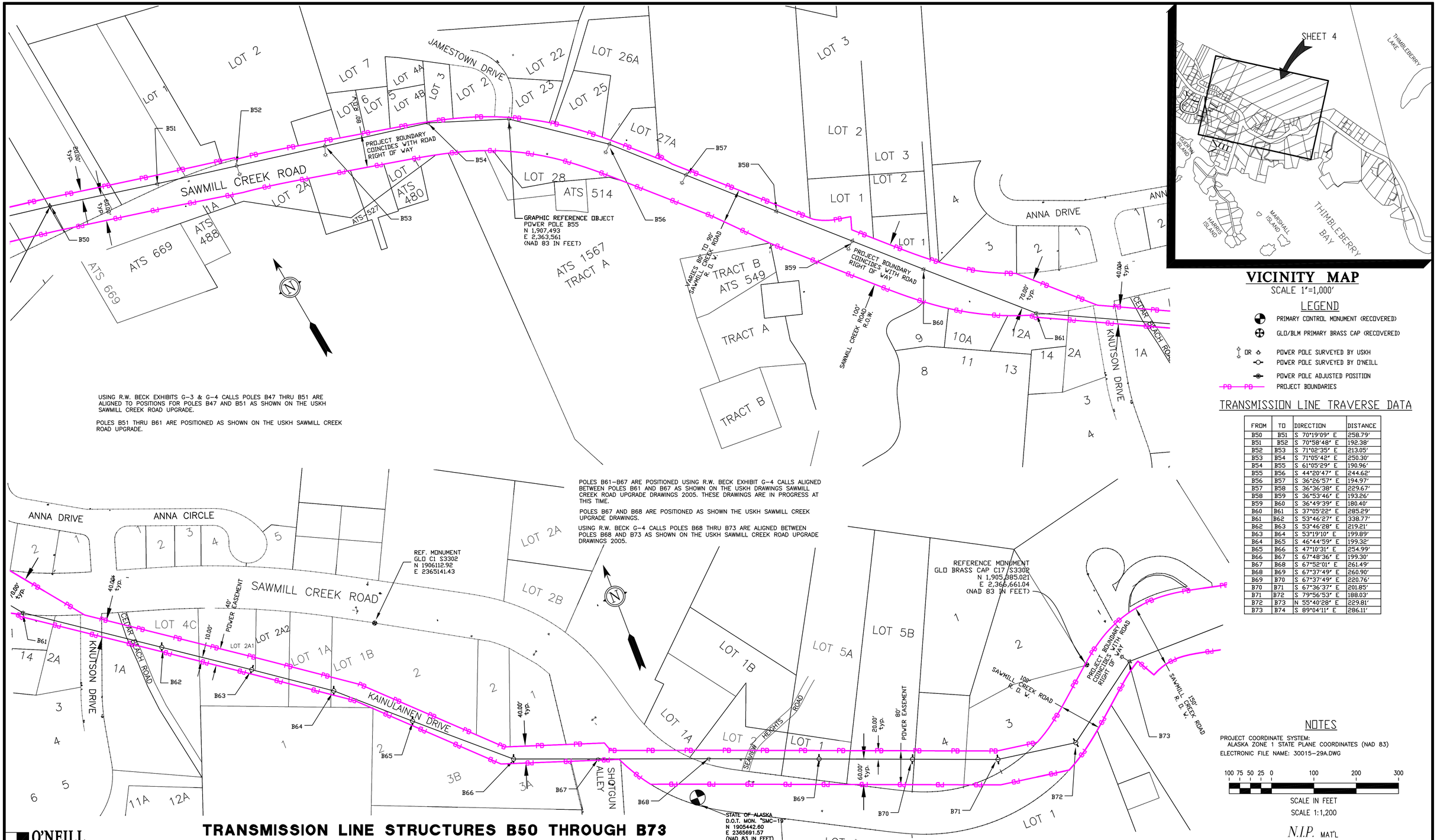
Wayne A Dye
WAYNE A. DYE LS 9458

SITKA TRANSMISSION LINE PROJECT BOUNDARY

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-3 FERC DRAWING No. 2230-1017-02

CLIENT: CITY AND BOROUGH OF SITKA, ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 3 OF 9



USING R.W. BECK EXHIBITS G-3 & G-4 CALLS POLES B47 THRU B51 ARE ALIGNED TO POSITIONS FOR POLES B47 AND B51 AS SHOWN ON THE USKH SAWMILL CREEK ROAD UPGRADE.

POLES B51 THRU B61 ARE POSITIONED AS SHOWN ON THE USKH SAWMILL CREEK ROAD UPGRADE.

POLES B61-B67 ARE POSITIONED USING R.W. BECK EXHIBIT G-4 CALLS ALIGNED BETWEEN POLES B61 AND B67 AS SHOWN ON THE USKH DRAWINGS SAWMILL CREEK ROAD UPGRADE DRAWINGS 2005. THESE DRAWINGS ARE IN PROGRESS AT THIS TIME.

POLES B67 AND B68 ARE POSITIONED AS SHOWN THE USKH SAWMILL CREEK UPGRADE DRAWINGS.

USING R.W. BECK G-4 CALLS POLES B68 THRU B73 ARE ALIGNED BETWEEN POLES B68 AND B73 AS SHOWN ON THE USKH SAWMILL CREEK ROAD UPGRADE DRAWINGS 2005.

VICINITY MAP

SCALE 1"=1,000'

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- ☆ OR ○ POWER POLE SURVEYED BY USKH
- POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- PB—PB PROJECT BOUNDARIES

TRANSMISSION LINE TRAVERSE DATA

FROM	TO	DIRECTION	DISTANCE
B50	B51	S 70°19'09" E	258.79'
B51	B52	S 70°58'48" E	192.38'
B52	B53	S 71°02'35" E	213.05'
B53	B54	S 71°05'42" E	250.30'
B54	B55	S 61°05'29" E	190.96'
B55	B56	S 44°20'47" E	244.62'
B56	B57	S 36°26'57" E	194.97'
B57	B58	S 36°36'38" E	229.67'
B58	B59	S 36°53'46" E	193.26'
B59	B60	S 36°49'39" E	180.40'
B60	B61	S 37°05'22" E	285.29'
B61	B62	S 53°46'27" E	338.77'
B62	B63	S 53°46'28" E	219.21'
B63	B64	S 53°19'10" E	199.89'
B64	B65	S 46°44'59" E	199.32'
B65	B66	S 47°10'31" E	254.99'
B66	B67	S 67°48'36" E	199.30'
B67	B68	S 67°52'01" E	261.49'
B68	B69	S 67°37'49" E	260.90'
B69	B70	S 67°37'49" E	220.76'
B70	B71	S 67°36'37" E	201.85'
B71	B72	S 79°56'53" E	188.03'
B72	B73	N 55°40'28" E	229.81'
B73	B74	S 89°04'11" E	286.11'

NOTES

PROJECT COORDINATE SYSTEM:
ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)
ELECTRONIC FILE NAME: 30015-29A.DWG

100 75 50 25 0 100 200 300
SCALE IN FEET
SCALE 1:1,200

N.I.P. MAT'L

TRANSMISSION LINE STRUCTURES B50 THROUGH B73

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BND LAYER
WAD	3/24/08	2	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK

RECORD OF REVISIONS

STATE OF ALASKA 49TH
WAYNE A. DYE #LS 9458
REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 4 NOV 09
SCALE: 1" = 100'
DRAWING NAME: SITKA TRANSMISSION LINE
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT-NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

4 NOV 09
DATE

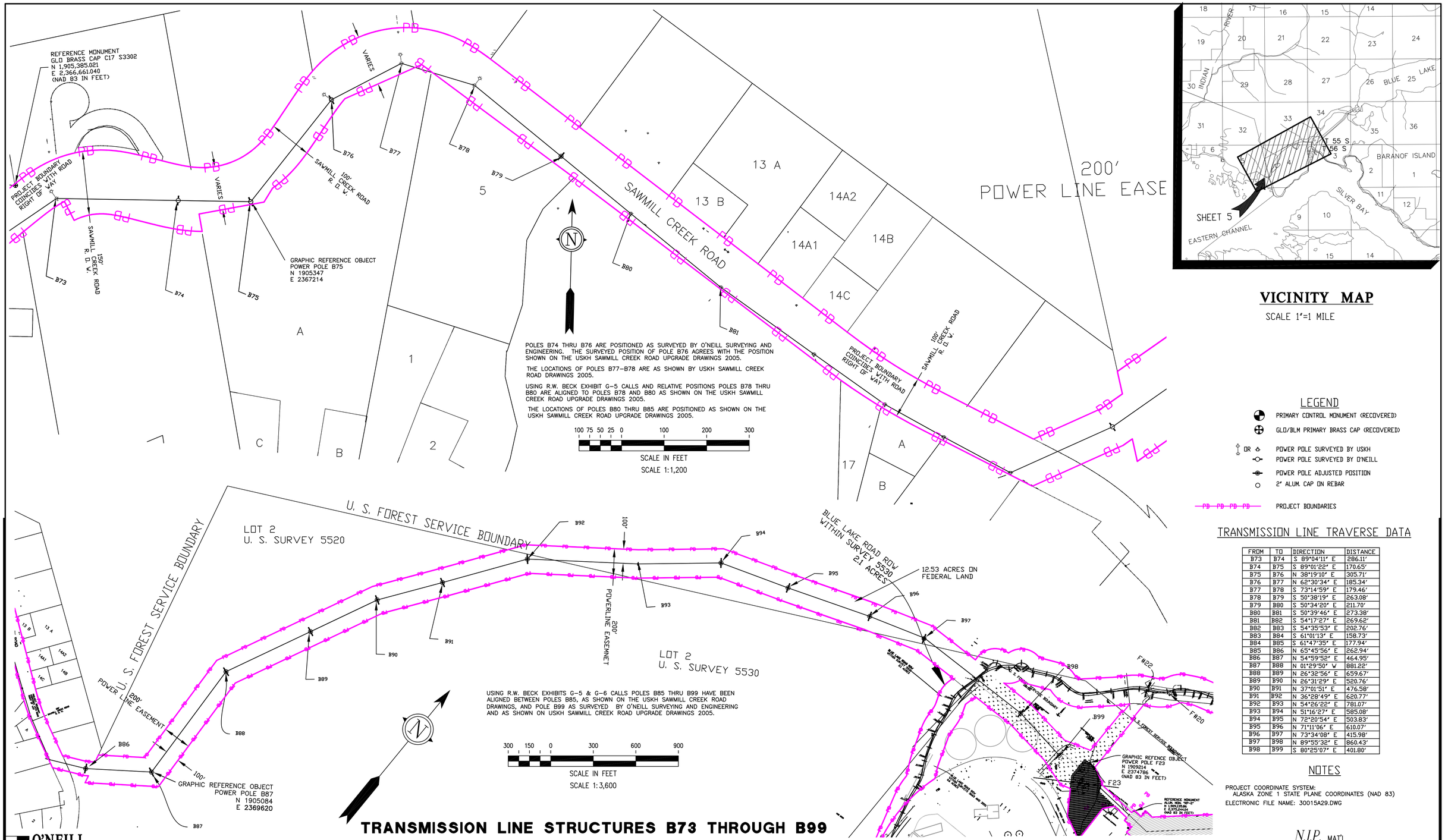
Wayne A. Dye
WAYNE A. DYE LS 9458

SITKA TRANSMISSION LINE PROJECT BOUNDARY

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-4 FERC DRAWING No. 2230-1018-02

CLIENT: CITY AND BORDUGH OF SITKA, ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 4 OF 6



VICINITY MAP

SCALE 1"=1 MILE

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- OR POWER POLE SURVEYED BY USKH
- POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- 2" ALUM. CAP ON REBAR
- PB PB PB PB PROJECT BOUNDARIES

TRANSMISSION LINE TRAVERSE DATA

FROM	TO	DIRECTION	DISTANCE
B73	B74	S 89°04'11" E	286.11'
B74	B75	S 89°01'22" E	170.65'
B75	B76	N 38°19'10" E	305.71'
B76	B77	N 62°30'34" E	185.34'
B77	B78	S 73°14'59" E	179.46'
B78	B79	S 50°38'19" E	263.08'
B79	B80	S 50°34'20" E	211.70'
B80	B81	S 50°39'46" E	273.38'
B81	B82	S 54°17'27" E	269.62'
B82	B83	S 54°35'53" E	202.76'
B83	B84	S 61°01'13" E	158.73'
B84	B85	S 61°47'35" E	177.94'
B85	B86	N 65°45'56" E	262.94'
B86	B87	N 54°59'52" E	464.95'
B87	B88	N 01°29'50" W	881.22'
B88	B89	N 26°32'56" E	659.67'
B89	B90	N 26°31'29" E	520.76'
B90	B91	N 37°01'51" E	476.58'
B91	B92	N 36°28'49" E	620.77'
B92	B93	N 54°26'22" E	781.07'
B93	B94	N 51°16'27" E	585.08'
B94	B95	N 72°20'54" E	503.83'
B95	B96	N 71°11'06" E	610.07'
B96	B97	N 73°34'08" E	415.98'
B97	B98	N 89°55'32" E	860.43'
B98	B99	S 80°25'07" E	401.80'

NOTES

PROJECT COORDINATE SYSTEM:
ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)
ELECTRONIC FILE NAME: 30015A29.DWG

N.I.P. MAT'L

TRANSMISSION LINE STRUCTURES B73 THROUGH B99

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BOUNDARY LAYER
WAD	11/05/07	2	IMPROVED AREA COMPUTATION
WAD	3/24/08	3	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK
WAD	10/23/09	4	CHANGED FOR BLUE LAKE EXPANSION

RECORD OF REVISIONS

STATE OF ALASKA 49TH WAYNE A. DYE #LS 9458 REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 23 NOV 09
SCALE: AS SHOWN
DRAWING NAME: SITKA TRANSMISSION LINE
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT-NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

23 NOV 09
DATE

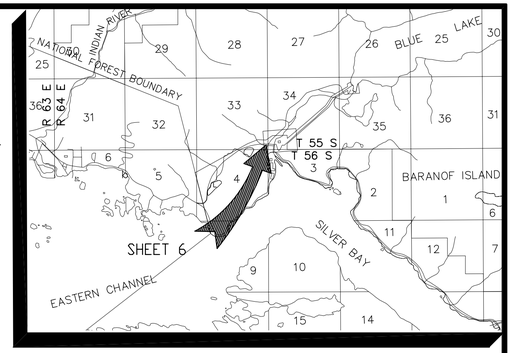
Wayne A Dye
WAYNE A. DYE LS 9458

SITKA TRANSMISSION LINE PROJECT BOUNDARY

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-5 FERC DRAWING No. 2230-1019-04

CLIENT: CITY AND BOROUGH OF SITKA, ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 5 OF 9



VICINITY MAP
SCALE 1 : 1 MILE

U. S. FOREST SERVICE BOUNDARY

U. S. FOREST SERVICE BOUNDARY

US SURVEY 1763

US SURVEY 3665

USS 3665

BLUE LAKE ROAD

GRAPHIC REFERENCE OBJECT
POWER POLE F23
N 1,909,214
E 2,374,786
(NAD 83 IN FEET)

ELECTRICAL VAULT D

EASE 9

EASE 1

100' EASEMENT

EASEMENT THRU
US SURVEY 3665 AND
US SURVEY 3551
5.65 ACRES

GRAPHIC REFERENCE OBJECT
POWER POLE B98
N 1,909,189
E 2,374,189
(NAD 83 IN FEET)

BLUE LAKE
HYDRO
ACCESS ROAD

US SURVEY 3551

TAILRACE

SWITCH YARD

PARCEL C
1.45 ACRES

PARCEL D
0.32 ACRES

PARCEL E
3.08 ACRES

WATER TREATMENT PLANT

UNDERGROUND ELECTRICAL

ELECTRICAL VAULT E

OVERHEAD ELECTRICAL

VALVE HOUSE

REFERENCE MONUMENT
ALUM. MON. "RP-B"
N 1,909,135.86
E 2,375244.04
(NAD 83 IN FEET)

PULPMILL FEEDER UNIT
ACCESS ROAD CENTERLINE

EMERGENCY
ACCESS ROAD
CENTERLINE

SAWMILL CREEK ROAD

EASEMENT THROUGH
US SURVEYS 3551 & 3665

Node ID	Northing	Easting
400	1908966.49	23747118.00
401	1909031.91	2374519.47
402	1909082.78	2374183.72
403	1909083.45	2373802.22
404	1909275.51	2373806.55
405	1909283.41	2373814.00
406	1909282.75	2374198.92
407	1909229.73	2374548.96
408	1909285.50	2374736.99
409	1909643.39	2374743.76
410	1909641.20	2374843.68
411	1909209.15	2374835.58
412	1909211.16	2374745.25
413	1909066.11	2374742.00
414	1908985.91	2374791.97
TOTAL ACRES: 5.66 NON FEDERAL		

PARCEL C

Node ID	Northing	Easting
436	1909208.95	2374842.64
412	1909211.16	2374745.25
413	1909066.11	2374742.00
479	1908822.01	2374894.11
478	1908802.67	2374932.45
481	1908764.04	2375008.58
482	1908735.50	2375057.66
483	1909015.04	2375057.66
484	1909080.59	2374932.45
417	1909094.16	2374963.90
480	1909158.73	2374939.13
TOTAL ACRES: 2.22 NON FEDERAL		

PARCEL D

Node ID	Northing	Easting
415	1909119.49	2375237.15
416	1909146.18	2374943.94
417	1909094.16	2374963.90
418	1909069.69	2375232.61
TOTAL ACRES: .32 NON FEDERAL		

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- POWER POLE SURVEYED BY USKH
- POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- PROJECT BOUNDARIES

NOTES

THESE MAP SHEETS WERE PRODUCED TO SHOW PROJECT BOUNDARIES AND FACILITIES ASSOCIATED WITH FERC PROJECT No. 2230. THEY WERE MADE TO FULFILL THE REQUIREMENTS OUTLINED IN THE FEDERAL ENERGY REGULATORY COMMISION(FERC) PAMPHLET ON MANAGING HYDOPOWER PROJECT EXHIBITS. THEY MEET THE UNITED STATES NATIONAL MAP ACCURACY STANDARDS FOR MAPS AT A 1:24,000 SCALE AND ARE POSITIONALLY ACCURATE TO * 40 FEET AS REQUIRED BY THE FERC PAMPHLET.

THIS DRAWING IS AN ENLARGEMENT OF A 1:12,000–SCALE MAP.

SOME POLES AND BUILDINGS WERE LOCATED AS PART OF THIS PROJECT IN THE FIELD WHILE OTHERS WERE POSITIONED USING DRAWINGS PROVIDED BY THE SITKA ELECTRICAL DEPARTMENT.

PROJECT COORDINATE SYSTEM:
ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)

ELECTRIC FILE NAME: 30015–29A.DWG

60 45 30 15 0 60 120 180
SCALE IN FEET

SCALE 1 : 720

N.I.P. MAT'L

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BOUNDARY LAYER
WAD	7/27/06	2	ADDED TAILRACE & TAILRACE TO PROJECT BOUNDARY TO PMFU
WAD	11/21/07	3	ADDED BLUE LAKE ROAD R. O. W. AND IMPORVED AREA CALCULATIONS
WAD	3/24/08	4	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK
WAD	10/23/09	5	CHANGED FOR BLUE LAKE EXPANSION

RECORD OF REVISIONS

STATE OF ALASKA 49TH
WAYNE A. DYE #LS 9458
REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: P. O'NEILL
DRAWN: WAD/ACAD
CHECKED: PKO
DATE OF PLAT: 23 NOV 09
SCALE: 1" = 60'
DRAWING NAME: HYDRO PLANT

PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT–NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

23 NOV 09
DATE

WAYNE A. DYE LS 9458

BLUE LAKE HYDRO & PULP MILL FEEDER UNIT PROJECT BOUNDARY

BLUE LAKE HYDRO; FERC PROJECT No. 2230
EXHIBIT G-6 FERC DRAWING No. 2230-1020-06

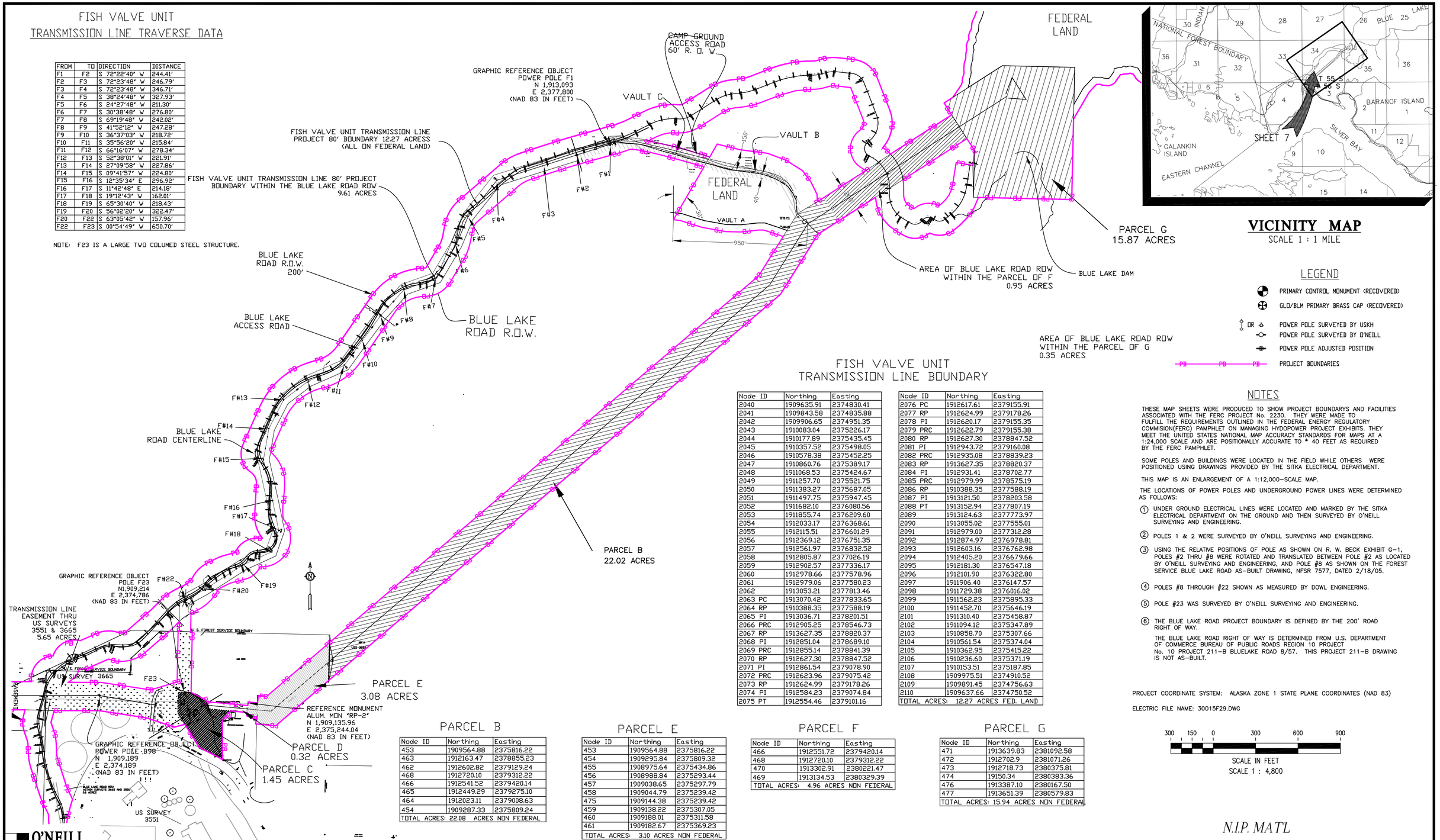
CLIENT: CITY AND BOROUGH OF SITKA , ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 6 OF 6 6

FISH VALVE UNIT
TRANSMISSION LINE TRAVERSE DATA

FROM	TO	DIRECTION	DISTANCE
F1	F2	S 72°22'40" W	244.41'
F2	F3	S 72°23'48" W	246.79'
F3	F4	S 72°23'48" W	346.71'
F4	F5	S 38°24'48" W	327.93'
F5	F6	S 24°27'48" W	211.30'
F6	F7	S 30°38'48" W	276.80'
F7	F8	S 69°19'48" W	242.02'
F8	F9	S 41°52'12" W	247.28'
F9	F10	S 36°37'03" W	218.72'
F10	F11	S 35°56'20" W	215.84'
F11	F12	S 66°16'07" W	278.34'
F12	F13	S 52°38'01" W	221.91'
F13	F14	S 27°09'58" W	227.86'
F14	F15	S 09°41'57" W	224.80'
F15	F16	S 12°35'34" E	296.92'
F16	F17	S 11°42'48" E	214.18'
F17	F18	S 19°12'43" W	162.01'
F18	F19	S 65°30'40" W	218.43'
F19	F20	S 56°02'20" W	322.47'
F20	F22	S 63°05'42" W	157.96'
F22	F23	S 00°54'49" W	650.70'

NOTE: F23 IS A LARGE TWO COLUMED STEEL STRUCTURE.



VICINITY MAP
SCALE 1 : 1 MILE

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- POWER POLE SURVEYED BY USKH
- OR POWER POLE SURVEYED BY O'NEILL
- POWER POLE ADJUSTED POSITION
- PROJECT BOUNDARIES

FISH VALVE UNIT
TRANSMISSION LINE BOUNDARY

Node ID	Northing	Easting
2040	1909635.91	2374830.41
2041	1909843.58	2374835.88
2042	1909906.65	2374951.35
2043	1910083.04	2375226.17
2044	1910177.89	2375435.45
2045	1910357.52	2375498.05
2046	1910578.38	2375452.25
2047	1910860.76	2375389.17
2048	1911068.53	2375424.67
2049	1911257.70	2375521.75
2050	1911383.27	2375687.05
2051	1911497.75	2375947.45
2052	1911682.10	2376080.56
2053	1911855.74	2376209.60
2054	1912033.17	2376368.61
2055	1912115.51	2376601.29
2056	1912369.12	2376751.35
2057	1912561.97	2376832.52
2058	1912805.87	2377026.19
2059	1912902.57	2377336.17
2060	1912978.66	2377578.96
2061	1912979.06	2377580.23
2062	1913053.21	2377813.46
2063 PC	1913070.42	2377833.65
2064 RP	1910388.35	2377588.19
2065 PI	1913036.71	2378201.51
2066 PRC	1912905.25	2378546.73
2067 RP	1913627.35	2378820.37
2068 PI	1912851.04	2378689.10
2069 PRC	1912855.14	2378841.39
2070 RP	1912627.30	2378847.52
2071 PI	1912861.54	2379078.90
2072 PRC	1912623.96	2379075.42
2073 RP	1912624.99	2379178.26
2074 PI	1912584.23	2379074.84
2075 PT	1912554.46	2379101.16

Node ID	Northing	Easting
2076 PC	1912617.61	2379155.91
2077 RP	1912624.99	2379178.26
2078 PI	1912620.17	2379155.35
2079 PRC	1912622.79	2379155.38
2080 RP	1912627.30	2378847.52
2081 PI	1912943.72	2379160.08
2082 PRC	1912935.08	2378839.23
2083 RP	1913627.35	2378820.37
2084 PI	1912931.41	2378702.77
2085 PRC	1912979.99	2378575.19
2086 RP	1910388.35	2377588.19
2087 PI	1913121.50	2378203.58
2088 PT	1913152.94	2377807.19
2089	1913124.63	2377773.97
2090	1913055.02	2377555.01
2091	1912979.00	2377312.28
2092	1912874.97	2376978.81
2093	1912603.16	2376762.98
2094	1912405.20	2376679.66
2095	1912181.30	2376547.18
2096	1912101.90	2376322.80
2097	1911906.40	2376147.57
2098	1911729.38	2376016.02
2099	1911562.23	2375895.33
2100	1911452.70	2375646.19
2101	1911310.40	2375458.87
2102	1911094.12	2375347.89
2103	1910858.70	2375307.66
2104	1910561.54	2375374.04
2105	1910362.95	2375415.22
2106	1910236.60	2375371.19
2107	1910153.51	2375187.85
2108	1909975.51	2374910.52
2109	1909891.45	2374756.63
2110	1909637.66	2374750.52

TOTAL ACRES: 12.27 ACRES FED. LAND

PARCEL B

Node ID	Northing	Easting
453	1909564.88	2375816.22
463	1912163.47	2378855.23
462	1912602.82	2379129.24
468	1912720.10	2379312.22
466	1912541.52	2379420.14
465	1912449.29	2379275.10
464	1912023.11	2379008.63
454	1909287.33	2375809.24

TOTAL ACRES: 22.08 ACRES NON FEDERAL

PARCEL E

Node ID	Northing	Easting
453	1909564.88	2375816.22
454	1909295.84	2375809.32
455	1908975.64	2375434.86
456	1908988.84	2375293.44
457	1909038.65	2375297.79
458	1909044.79	2375239.42
475	1909144.38	2375239.42
459	1909138.22	2375307.05
460	1909188.01	2375311.58
461	1909182.67	2375369.23

TOTAL ACRES: 3.10 ACRES NON FEDERAL

PARCEL F

Node ID	Northing	Easting
466	1912551.72	2379420.14
468	1912720.10	2379312.22
470	1913302.91	2380221.47
469	1913134.53	2380329.39

TOTAL ACRES: 4.96 ACRES NON FEDERAL

PARCEL G

Node ID	Northing	Easting
471	1913639.83	2381092.58
472	1912702.9	2381071.26
473	1912718.73	2380375.81
474	19150.34	2380383.36
476	1913387.10	2380167.50
477	1913651.39	2380579.83

TOTAL ACRES: 15.94 ACRES NON FEDERAL

NOTES

THESE MAP SHEETS WERE PRODUCED TO SHOW PROJECT BOUNDARYS AND FACILITIES ASSOCIATED WITH THE FERC PROJECT No. 2230. THEY WERE MADE TO FULFILL THE REQUIREMENTS OUTLINED IN THE FEDERAL ENERGY REGULATORY COMMISION(FERC) PAMPHLET ON MANAGING HYDOPOWER PROJECT EXHIBITS. THEY MEET THE UNITED STATES NATIONAL MAP ACCURACY STANDARDS FOR MAPS AT A 1:24,000 SCALE AND ARE POSITIONALLY ACCURATE TO * 40 FEET AS REQUIRED BY THE FERC PAMPHLET.

SOME POLES AND BUILDINGS WERE LOCATED IN THE FIELD WHILE OTHERS WERE POSITIONED USING DRAWINGS PROVIDED BY THE SITKA ELECTRICAL DEPARTMENT.

THIS MAP IS AN ENLARGEMENT OF A 1:12,000–SCALE MAP.

THE LOCATIONS OF POWER POLES AND UNDERGROUND POWER LINES WERE DETERMINED AS FOLLOWS:

1. UNDER GROUND ELECTRICAL LINES WERE LOCATED AND MARKED BY THE SITKA ELECTRICAL DEPARTMENT ON THE GROUND AND THEN SURVEYED BY O'NEILL SURVEYING AND ENGINEERING.
2. POLES 1 & 2 WERE SURVEYED BY O'NEILL SURVEYING AND ENGINEERING.
3. USING THE RELATIVE POSITIONS OF POLE AS SHOWN ON R. W. BECK EXHIBIT G–1, POLES #2 THRU #8 WERE ROTATED AND TRANSLATED BETWEEN POLE #2 AS LOCATED BY O'NEILL SURVEYING AND ENGINEERING, AND POLE #8 AS SHOWN ON THE FOREST SERVICE BLUE LAKE ROAD AS–BUILT DRAWING, NFSR 7577, DATED 2/18/05.
4. POLES #8 THROUGH #22 SHOWN AS MEASURED BY DOWL ENGINEERING.
5. POLE #23 WAS SURVEYED BY O'NEILL SURVEYING AND ENGINEERING.
6. THE BLUE LAKE ROAD PROJECT BOUNDARY IS DEFINED BY THE 200' ROAD RIGHT OF WAY.

   THE BLUE LAKE ROAD RIGHT OF WAY IS DETERMINED FROM U.S. DEPARTMENT OF COMMERCE BUREAU OF PUBLIC ROADS REGION 10 PROJECT No. 10 PROJECT 211–B BLUELAKE ROAD 8/57. THIS PROJECT 211–B DRAWING IS NOT AS–BUILT.

PROJECT COORDINATE SYSTEM: ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)

ELECTRIC FILE NAME: 30015F29.DWG

300 150 0 300 600 900
SCALE IN FEET
SCALE 1 : 4,800

N.I.P. MAT'L

O'NEILL
SURVEYING AND ENGINEERING

BOX 1849 SITKA, ALASKA 99835
PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	7/21/06	1	ADD PROJECT BOUNDARY LAYER
WAD	11/7/07	2	ADD BLUE LAKE ROAD ROW & SAWMILL CREEK CAMP GROUND WITH ROAD
WAD	3/24/08	3	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK
WAD	11/6/09	4	CHANGED PROJECT BOUNDARY FOR BLUE LAKE EXPANSION
WAD	10/23/09	5	CHANGED FOR BLUE LAKE EXPANSION

RECORD OF REVISIONS

STATE OF ALASKA — 49TH — Wayne A. Dye — WAYNE A. DYE #LS 9458 — REGISTERED PROFESSIONAL LAND SURVEYOR

DESIGNED: W. DYE
DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 23 NOV 09
SCALE: 1" = 300'
DRAWING NAME: FISH VALVE UNIT
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT–NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

23 NOV 09 — DATE

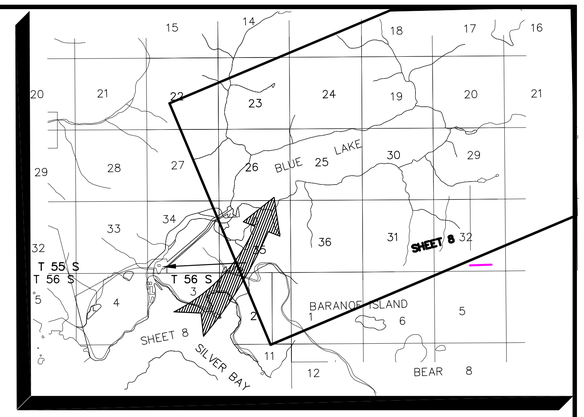
Wayne A. Dye — WAYNE A. DYE LS 9458

BLUE LAKE HYDRO & FISH VALVE UNIT PROJECT BOUNDARY

BLUE LAKE HYDRO FERC PROJECT No. 2230
EXHIBIT G-7 FERC DRAWING No. 2230-1021-5

CLIENT: CITY AND BOROUGH OF SITKA , ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 7 OF 9



VICINITY MAP

SCALE 1 : 1 MILE

GRAPHIC REFERENCE OBJECT
CROSS AT ANGLE POINT
N 1,917,249
E 2,381,841
(NAD 83 IN FEET)

GRAPHIC REFERENCE OBJECT
CROSS AT ANGLE POINT
N 1,917,968
E 2,381,561
(NAD 83 IN FEET)

RESERVIOR PARCEL BOUNDARY

RESERVIOR SPILL ELEVATION (425')

RESERVIOR PROJECT AREA
AREA = 1,729.87 ACRES
ACRES FEDERAL LAND = 1,729.87 ACRES

FEDERAL LAND

GRAPHIC REFERENCE OBJECT
CROSS AT ANGLE POINT
N 1,915,819
E 2,393,320
(NAD 83 IN FEET)

N

LEGEND

- PRIMARY CONTROL MONUMENT (RECOVERED)
- GLO/BLM PRIMARY BRASS CAP (RECOVERED)
- PB PB PB PB — PROJECT BOUNDARY LINES

NOTES

THESE MAP SHEETS WERE PRODUCED TO SHOW PROJECT BOUNDARIES AND FACILITIES ASSOCIATED WITH THE FERC PROJECT No. 2230. THEY WERE MADE TO FULFILL THE REQUIREMENTS OUTLINED IN THE FEDERAL ENERGY REGULATORY COMMISION(FERC) PAMPHLET ON MANAGING HYDOPOWER PROJECT EXHIBITS. THEY MEET THE UNITED STATES NATIONAL MAP ACCURACY STANDARDS FOR MAPS AT A 1:24,000 SCALE AND ARE POSITIONALLY ACCURATE TO ± 40 FEET AS REQUIRED BY THE FERC GUIDENCE DOCUMENT 12/2007.

THE RESERVOIR BOUNDARY SHOWN ON THIS MAP IS A 50' HORIZONTAL OFFSET FROM A 425' ELEVATION CONTOUR DETERMINED BY USING INFORMATION TAKEN FROM THE 2007 LIDAR SURVEY OF BLUE LAKE.

THE BLUE LAKE RESERVOIR WAS ADDED TO THE PROJECT BOUNDARY PRIOR TO SECOND TERM OF THE LICENSE IN 2008.

PROJECT COORDINATE SYSTEM: ALASKA ZONE 1 STATE PLANE COORDINATES (NAD 83)

ELECTRIC FILE NAME: 30015-29A.DWG

1000 750 500 250 0 1000 2000 3000

SCALE IN FEET

SCALE 1 : 12,000

N.I.P. MAT'L

O'NEILL
SURVEYING AND ENGINEERING

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PHONE: (907) 747-6700
FAX: (907) 747-7590
EMAIL: sitkasurveys@worldnet.att.net

BY	DATE	REV	DESCRIPTION OF CHANGE
WAD	11/05/07	1	IMPROVED AREA CALCULATIONS
WAD	3/24/08	2	ADDED MORE REFERENCE OBJECTS & REVISED TITLE BLOCK
WAD	11/4/09	3	CHANGED PROJECT BOUNDARY FOR BLUE LAKE EXPANSION

RECORD OF REVISIONS

STATE OF ALASKA 49TH WAYNE A. DYE LS 9458 REGISTERED PROFESSIONAL LAND SURVEYOR

DRAWN: WAD/ACAD
CHECKED: PKD
DATE OF PLAT: 4 NOV 09
SCALE: 1" = 1000'
DRAWING NAME: BLUE LAKE RESERVIOR
PROJECT NO. 30015-29

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A REGISTERED SURVEYOR, LICENSED IN THE STATE OF ALASKA, AND THAT IN SEPT-NOV 2005 A SURVEY OF THE HEREIN DESCRIBED LANDS WAS CONDUCTED UNDER MY DIRECT SUPERVISION AND THAT THIS PLAT IS A TRUE AND ACCURATE REPRESENTATION OF THE FIELD NOTES OF SAID SURVEY, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT ACCORDING TO SAID FIELD NOTES.

4 NOV 09 — DATE

Wayne A Dye — WAYNE A. DYE LS 9458

BLUE LAKE RESERVOIR PROJECT BOUNDARY

BLUE LAKE HYDRO FERC PROJECT No. 2230
EXHIBIT G-8 FERC DRAWING No. 2230-1022-3

CLIENT: CITY AND BORDUGH OF SITKA , ELECTRICAL DEPARTMENT
105 JARVIS STREET
SITKA, ALASKA 99835

SHEET 8 OF 9