Stage 1: Project Scope

For a Waterpower Project On More Creek

Date: August 11, 2014

File: E6348
Applicant: Alaska Hydro Corp.

TA□LE □□ □□NTENTS

□□E□E□ □TI□E S□MMAR□

The More Creek Hydroelectric Project (the proposed "Project) will be located on More Creek which flows into the Iskut River approximately 130 km north of the town of Stewart in northwestern British Columbia. Road access to the Project will be by Provincial Highway 37 and will require approximately 11.5 km of access roads from the Highway including the construction of a 130 m bridge across the Iskut River.

The Project will store water at the head of the More Creek canyon using an 84 m high concrete dam to create a water storage reservoir. The anticipated size of the water storage reservoir will be approximately 3000 ha at full operating level with a live storage (useable) volume of approximately 870 million m^3.

The maximum output of the Project facility is estimated between 70-75 MW resulting in a Project that would generate approximately 306 GWh of energy per year at the site. Water from the dam will be directed through the intake into to a 1000 m long tunnel to an above ground powerhouse where the water will pass through the generating units and discharge back to More Creek via a short canal. The Project will use a single wood pole 138 kV transmission line to interconnect to a point near Bob Quinn Lake.

The energy will be sold to BC Hydro under a long-term energy purchase agreement to be negotiated.

The water storage created by the Project will be used to seasonally regulate the flows of More Creek through the powerhouse and ensure minimum flow releases are provided to More Creek, downstream of the intake, year-round. A minimum instream flow release will be provided to the diversion reach downstream of the intake to maintain fish and fish habitat in this section of More Creek. Fish screens will be installed at the intake, where required.

□□ □R□ □□NENT IN□□RMATI□N

Alaska Hydro Corp.
BC Incorporation Number: 07771846

The primary contact for the development of the Project is as follows:

Cliff Grandison
Alaska Hydro Corp.
Address: 2633 Carnation Street North Vancouver, B.C. V7H 1H6
Ph. (604) 929 3691
Email: CGrandison@telus.net
Fax: (604) 929 4996

The primary consultant for the Project is:

Sigma Engineering Ltd.
Address: 400- 1444 Alberni Street, Vancouver B.C. V6G 2Z4
Ph. (604) 688-8271 ext. 384
Email: swyness@synex.com
Fax: (604) 688-1286
Contact Name: Sarah Wyness

□□□R□ □E□T □□N□E□T AND DES□RI□TI□N

□□□ □r□□□□□□□□ □□□□□□□□

3.1.1 Reservoir

The elevation at the reservoir during full operating levels will be at 498 m above mean sea level (AMSL). From the dam, the reservoir will extend approximately 20 km upstream and inundate an area of approximately 3000 ha. At full operating levels, the reservoir will store approximately 58% of the mean annual run-off from the More Creek basin at the dam site and provide a live storage of approximately 870 million m^3 of water. Water that is not stored will flow directly through the Project plant or be spilled over the dam.

3.1.2 Dam and Intake

Dam. The dam and intake structure for the Project will be located on the east bank at the entrance to the More Creek Canyon. The crest length of the dam will be approximately 300 m and have an approximate crest width of 4-5 m. The 84 m high gravity structure dam will be constructed from roller compacted concrete (RCC) and will be founded on rock on both abutments and its foundation. The dam structure will include a conventional reinforced concrete spillway/ chute integral. All design features of the dam will be constructed to seismic and flood standards for the expected “High” downstream consequence assessment typically used for moderate-sized dams.

Spillway. A gated overflow type spillway will be designed with redundancy in gates for the estimated flood passage. The spillway design capacity will be approximately 2500 m^3/s and the routed inflow design flood for passage through the spillway will be approximately 1580 m^3/s. Spill from the dam will be directed down the back face of the dam in a reinforced concrete chute where it will discharge to the river channel immediately downstream of the dam. There is no low level release facility proposed for the dam.

Intake. The design flow at the intake is expected to be approximately 80 m^3/s. The design flow for power generation will be directed through the intake to the power tunnel. The intake design will include a gated concrete structure with conventional trashracks.

3.1.3 Construction Diversion

A coffer dam and diversion tunnel will be required to divert all creek flow around the dam during the entire duration of dam construction. The coffer dam and diversion tunnel will be designed for a flow of 800 m^3/s which represents a moderate flood flow condition. Following construction, the upstream coffer dams will be submerged by the reservoir and downstream coffer dams will be removed at the completion of dam construction.

3.1.4 Tunnel and Penstock

Flows for Project generation will be diverted from the dam into the intake and directed from the intake into a 1000 m long, 5.5 m diameter power tunnel excavated into rock. In the upstream section of the power tunnel it will be predominately unlined. The downstream section of the power tunnel will be lined with steel pipe and connect to a short section of steel penstock and branch manifold to direct flows to the generating units of the

powerhouse. At the powerhouse, valves will be installed to allow for the isolation of each generating unit from flow, as may be required.

3.1.5 Powerhouse

A powerhouse will be constructed above-ground and consist of structural steel, corrugated steel and aluminum sheeting. The powerhouse foundation will be constructed of reinforced concrete. Three vertical axis Francis type turbines coupled with salient pole electric generators will be housed in the powerhouse. Each turbine will have a rated output of approximately 22.4 MW, with generators rated at approximately 25 MVA. The main floor will house the control switchgear. Draft tubes will convey the discharging water from the Francis turbines into the tailrace channel. The Francis turbines will be submerged under several meters of water during operation; therefore, vertical steel bulkhead gates will be installed at the downstream end of each draft tube for isolating each of the three draft tubes from the tailrace.

3.1.6 Tailrace

Tailrace discharge will flow from the powerhouse back into the More Creek main channel via an excavated canal. Flows diverted from More Creek at the intake will discharge back to More Creek above its natural existing confluence with the Iskut River.

3.1.7 Switchyard and Transmission Lines

A switchyard will be located adjacent to the powerhouse site. The switchyard will include the transformers, air blast circuit breakers, relays and steel anchorage structure for a transmission line terminal. The 138 kV transmission line will be approximately 13 km long and there are two proposed routes. Each route will be evaluated to determine the optimal route for the Project.

Route One. The transmission line will follow the Project's proposed access road westward to Highway 37 and then along Highway 37 south to the area near Bob Quinn Lake where it will connect to the Bob Quinn Substation.

Route Two. The transmission line will follow a southern routing and connect to the Bob Quinn Substation.

3.1.8 Site Access Roads

An 11.5 km access road will be required for the Project of which approximately 5 km is existing forestry road that intersects Highway 37 just north of Devil Creek and heads east to the ridge above the Iskut River. The 5 km forestry road then turns south and parallels the river for approximately 3 km to the bridge crossing of the Iskut River at a narrow point upstream of the confluence with More Creek. Approximately 6.5 km of new road construction will extend from the forestry road northward to the base of the valley wall and then climb steeply to crest the More Creek canyon ridge. The new road construction would

descend down to More Creek at the dam site and potentially extend further up More Creek valley.

Project Capacity and Energy

The total capacity of the Project is between 70-75 MW and will be generated by three vertical axis Francis type turbines coupled with salient pole electric generators. Each turbine will have a rated output of approximately 22.4 M, with generators rated at approximately 25 MVA.

The maximum quantity of water to be diverted by the units (design flow) is 80 m^3/s.

The maximum and average annual generation of electricity is estimated to be 348 GWh and 205 GWh, respectively.

The estimated monthly distribution of average and annual generation of electricity is provided in Table 1.

Table 1: Energy Generation

Month	Generation in More Creek GWh
January	32.7
February	40.3
March	24.2
April	4.8
May	18.0
June	8.2
July	9.8
August	41.1
September	39.8
October	29.9
November	28.6
December	28.7
Annual	306.2

Watershed Characteristics and Adjacent Watersheds

The More Creek watershed is in hydrologic zone 9A, subzone “S” (Streamflow in the Skeena Region, Ministry of Environment, Lands and Parks, 2001). Zone 9A (Northern Coastal Mountains) is characterized by steep slopes capped by permanent glaciers. Precipitation is high along the entire coast with the moist maritime air rising over the range. Most of the precipitation falls as rain in the lower elevations. However, the presence of many large icefields and snowpacks at higher elevations, affects the hydrograph with spring freshets. Rocks are exposed by repeated periods of glacial erosion. Large amounts of sediment have been deposited in valley bottoms during previous glacial periods (B.C. Streamflow Inventory, Ministry of Environment, Lands and Parks, 1998).

The Project will require water storage and water will be impounded behind a dam to create a reservoir.

More Creek has mean annual discharge (MAD) of approximately 46.95 m3/s based on a 23 year flow record from WSC station 08CG005 (which is located near the mouth of More Creek) developed and monitored by the Water Survey Branch of Canada from 1972 to 1994. Mean Monthly Flows from the gauge record and the proposed monthly distribution of discharges through the plant (not including water naturally spilled) are provided in Table 2.

T□□□□ □□M□□□ M□□□□□□□ I□□□□□ □ □□d M□□□ M□□□□□□ □□□□D□□□□□r□□□

M□□□	**M□□□ M□□□□□□□ □□□□ □ □□**	**M□□□ M□□□□□□□ □□□□□ D□□□□□r□□ □ □□**
January	6.62	51
February	5.82	75
March	5.74	44
April	10.75	10
May	46.7	34
June	111.6	15
July	132.5	15
August	99.8	60
September	66.6	60
October	47.2	43
November	18.00	44
December	8.9	43
M□□□ A□□□□□□□□	46.95	40.9

□□□ □□r□□ □□□r□ □□r □□□ □ □□r□□□□□ □□□ □r□□

No joint water use agreements will be required with other water licence holders for the development of the Project. The Project will store water at the head of the More Creek canyon using an 84 m high concrete dam to create a water storage reservoir. The dam and intake structure will include a spillway such that spill from the dam will be directed into the river channel immediately downstream of the dam. The intake will direct design flows from the storage reservoir into the power tunnel. The approximately 1000 m power tunnel will direct water from the intake to the above-ground powerhouse turbines for power generation. Three Francis type turbines will be installed with generators and all associated controls and switchgear. Draft tubes will convey the discharging water from the Francis turbines back to More Creek via the tailrace channel. An approximately 13 km long power line will interconnect the Project to the Bob Quinn substation. Approximately 6.5 km of new access roads will be constructed for the Project.

□□LIN□AGES □ IT□ □T□ER □R□ □E□TS AND R□ADS

The proposed Project's transmission line will interconnect into the Bob Quinn Substation. The Project is not linked to any other proposed or active projects or developments.

□□ MAR□ET □□R ELE□TRI□IT□

Alaska Power Corp. intends to sell the power generated by the Project to BC Hydro under a long term energy purchase agreement or to an LNG producer. The Proponent will negotiate the agreement.

□□ S□□ED□LE □□R □□M□LETI□N □□ □R□ □E□T

The timeline for design, ordering of materials and construction is estimated at approximately 3 years.

Prior to submission of the Development Plan, approximately 12-24 months of further design and field investigations will be required to meet environmental and permitting requirements.

The preparation and submission of the Development Plan will take approximately one month following the completion of design and field investigations.

Review of the Development Plan by the Water Stewardship Division (WSD) is estimated to take a minimum of 6 months and preparation of the final Project report by WSD is estimated to take a minimum of one month. The WSD and Ministry of Forests, Lands and Natural Resource Operations final decision on the Water Licence application may take anywhere between one and six months.

Authorization for the Construction of Works is estimated to take between one to two months.

Project monitoring for environmental values will be for the duration of Project operations. However, a minimum of two years of baseline environmental investigations is required prior to Project operations.

The More Creek area was extensively studied by BC Hydro from 1977 to 1984, which resulted in comprehensive environmental, geotechnical and hydrological database development. Further environmental baseline studies have been completed for the Galore Creek project undertaken by Nova Gold Corp in 2003-2005.

□□ □IRST NATI□NS IN□□L□EMENT

The Proponent plans to engage in an information sharing process with all First Nations in the general area of the proposed project.

□□ □IS□ AND □ ILDLI□E IN□□RMATI□N

A preliminary overview of fish in the Project area indicates there may be the presence of Dolly Varden char. The Project will include two years of investigative baseline study to determine the fish and fish habitat resources of the area. This information will be used to evaluate the minimum instream flow release required for the Project. It is anticipated that a minimum instream flow release of 5% mean annual discharge will be implemented.

As part of the baseline information requirements, the Project will conduct two years of wildlife and vegetation inventory studies to determine the valued ecological components within the Project footprint.

□□LAND A□□ESS

Access to the project area will be over Crown land. Road access will be from Highway 37, existing forest service roads, and the new construction of approximately 6.5 km of road over Crown lands.

Alaska Hydro Corp.

2633 Carnation St.

North Vancouver, B C.

August 11, 2014

BC FrontCounter
1st Floor, 3726 Alfred Avenue
Smithers, BC V0J 2N0

File: E6348

More Creek Hydroelectric Project Water Licence Application
Letter of Agency

Sigma Engineering Ltd. (Sigma) is the agent for Alaska Hydro Corp. (AHC) for the More Creek Hydroelectric Project. The contact details for the agent are provided below.

Sigma Engineering Ltd.
400 – 1444 Alberni Street
Vancouver, BC
V6G 2Z4
(604) 688 – 8271
Contact: Sarah Wyness ext. 384
Email: swyness@synex.com

The purpose of this appointment is to handle the application for water licencing and related Crown land matters for the More Creek Hydroelectric Project. The term of appointment is until issuance of the document.

Sincerely,

ALASKA HYDRO CORP.

C Grandison
President

SIGMA ENGINEERING LTD

1444 Alberni Street, 4th Floor
Vancouver, B.C. Canada V6G 2Z4
Tel (604) 688-8271 Fax (604) 688-1286

August 20, 2014

FrontCounter BC Smithers
1st Floor – 3726 Alfred Avenue
Smithers, BC
V0J 2N0

File: E6348

MORE CREEK HYDROELECTRIC PROJECT
APPLICATION FOR INVESTIGATIVE USE LICENCE

Please find attached the Investigative Use Plan for Alaska Hydro Corp. More Creek Hydroelectric Project's land tenure application (Tracking No. 100115438). The investigative use licence being applied for is for a 5 year term. Also attached is the transmission line area to be included with the land tenure application (Figure 4).

The remainder of the application (including Figures) was submitted electronically (Tracking No. 100115438) and the payment has been sent by mail. Please note, that the land tenure application area has been revised from 3078 ha to 4803 ha and the reservoir inundation area has been revised from 3000 ha to 2680 ha.

If you have any questions or comments regarding this application, you may contact the undersigned at (604) 688-8271 ext. 384 (email:swyness@synex.com).

Yours Truly,

SIGMA ENGINEERING

Sarah Wyness

Attach. Investigative Use Plan

Investigative Use Plan for More Creek Hydroelectric Project

The Application and any subsequent requests for replacement for the Investigative Licence (IL) on the area noted in the application is for the sole purpose of investigating the viability of land and water resources to evaluate the potential for future development and generation of energy from More Creek.

1. Project Overview and Purpose

A hydroelectric project with reservoir storage is proposed on More Creek approximately 130 km north of the town of Stewart in northwestern British Columbia. More Creek flows primarily in a south easterly direction before discharging into the Iskut River. The Project will store water at the head of the More Creek canyon using an 84 m high concrete dam to create a water storage reservoir. The anticipated size of the water storage reservoir will be approximately 2680 ha (revised from 3000 ha) at full operating level with a live storage (useable) volume of approximately 870 million m^3.

There are no existing water licenses for the purpose of power-general that exist on More Creek. The following is a summary of the More Creek hydroelectric project.

Power Output:	75 MW
Energy Output:	306 GW-hr/yr
Max Diverted Flow:	80 m^3/s
Gross Head:	118 m
Reservoir Elevation:	498 m AMSL
Powerhouse (tailwater elevation):	~ 380 m AMSL
Power Tunnel/penstock Length:	1000 m
Powerline Length/Voltage:	13 km/ 138 kV
Intake Structures:	Dam/ spillway/ integral chute/ intake

Concurrently with this Investigative Use License of Occupation, the Proponent has applied for a Water License Application (Tracking No. 100115402). The purpose of the Investigative Use Licence is to gather the necessary information for a Development Plan in support of the Water Licence Application submitted concurrently with this application, for the More Creek Hydroelectric project. In addition, the Development Plan will also be used to adjudicate the application for the water-power Crown Land Tenure application.

2. Location and Size of Project

A hydroelectric project is proposed on More Creek as shown on the site location map (Figure 1).

The project will consist of an access road, dam, diversion structure, intake, penstock, powerhouse containing three turbines and a fenced switchyard, reservoir, spillway, switch yard, tailrace, transmission line, power tunnel, and laydown and spoil area all located on unsurveyed Crown Land. Access to the powerhouse will be through an 11.5 km access road of which approximately 5 km is existing forestry road that intersects Highway 37 just north of Devil Creek and heads east to the ridge above the Iskut River. The intake will be located approximately 2.5 km upstream of More Creek's confluence with the Iskut River. Intake access will require new road construction from the powerhouse (Figure 2). There will be an approximate 13 km 138 kV transmission line that will connect the project to the Bob Quinn substation. The Bob Quinn substation is owned by BC Hydro and the project connection is subject to a future interconnection study by BC Hydro. The purpose of this hydropower project is to sell power to BC Hydro under the standing offer program or to sell power to a LNG producer. An agreement will be negotiated by the Proponent. The project layout and Crown Land Application area is provided in Figure 3.

The project is located entirely on unsurveyed Crown Land within the Cassiar District. The Investigative Use Licence will allow Alaska Hydro Corp. to undertake the necessary investigations required to complete a more detailed design on all aspects of the project including all the major infrastructure pieces.

The Investigative Use License is for an area of 4803.03 ha. Please note that this area has been revised (previously 3078 ha) since the electronic submission (Tracking No. 11115438). This area encompasses all potential Project works and potential placement options. All investigative work will take place within this area. This area does not represent the final land requirement of the Project. During the detailed design phase, the project footprint will be reduced.

3. Investigation Schedule

The investigation plans are expected to take place over the next 5 years. The following is planned to take place over the 5 year period: water level data collection and discharge measurements, which are required to record a minimum of 2 years worth of *in situ* flow data, necessary impact studies on local wildlife populations near the project site (~ 2 years of studies), fish and fish habitat assessments (~ 2 years of studies), archaeological assessments and a geomorphology study of the Project area. Access in and around the project area for the impact studies will be on foot.

4. Summary of Investigations

Field investigations for the project engineering and environmental impact studies will involve vehicle access to the project area and the transmission line and accessing the locations of proposed project works (intake, powerhouse, power tunnel route, and transmission line) by foot. At this time there are no plans for any test pitting or geotechnical drilling. The Investigative Use Licence will be amended should preliminary site investigations require additional geotechnical investigative work.

The following field investigations relating to the environmental attributes of the project area are planned: flow monitoring, wildlife and vegetation, fish and fish habitat, archaeological assessments and geomorphology. Each of these studies is broken down into further detail below. These lists describe what is typically included in each of the field investigations; they are not necessarily exhaustive.

Water Flow Monitoring

- Installation of (a) stream gauge(s)
- Velocity measurements using portable flow meter or salt dilution.
- Measure the creek depth and velocity using a swoffer meter at multiple sites.
- Conducted over multiple seasons.
- There may be some disturbance to the site during installation of stream gauge, but overall negligible impact to the land.

Wildlife and Vegetation

- View the areas potentially affected by the project.
- Investigate the project site for animal signs.
- Investigate the project site for conspicuous nest sites (e.g., bald eagle and great-blue heron).
- Conduct raptor call-playback surveys for raptors with inconspicuous nests (e.g., Queen Charlotte goshawk and northern pygmy-owl).
- Conducted over multiple seasons (Spring/Summer/Fall)
- Observation of wildlife and wildlife habitats is not expected to have any impacts to the land.

Fish and Fish Habitat

- Conduct sampling to determine fish presence/absence.
- If fish present, conduct sampling to determine fish abundance and distribution.
- Measure creek depth and velocity using a swoffer meter at multiple sites.
- Conducted over multiple seasons (Spring/Summer/Fall)
- Fish and fish habitat assessments are not expected to have any impacts to the land.

Archaeological Assessment

- Site visits by foot.
- Archaeological assessments are not expected to have any impacts to the land.

Geomorphology

- Site visits by foot.
- Geomorphology assessments are not expected to have any impacts to the land.

Site Visits

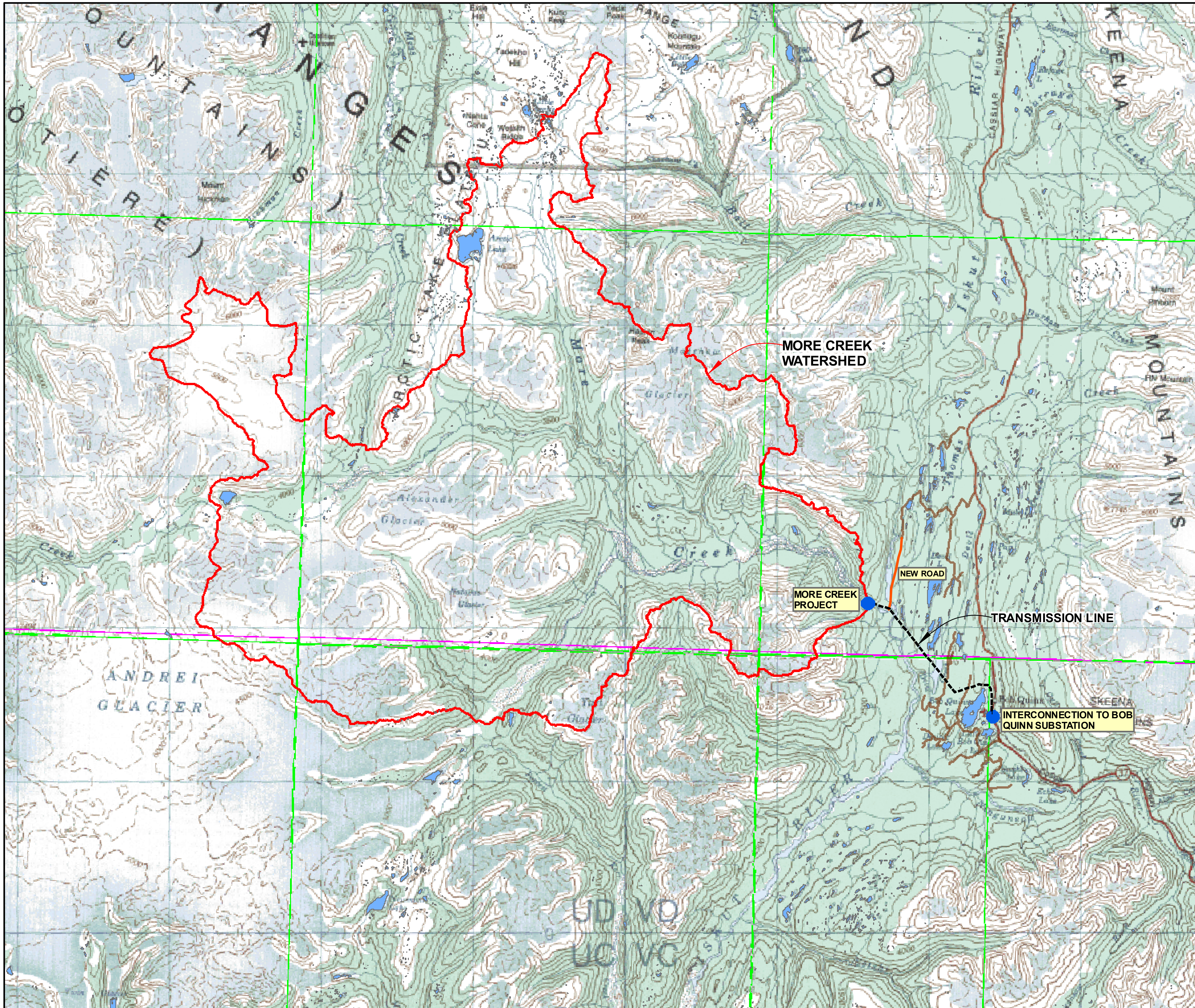
- Consult with agencies, First Nations, and other stakeholders.
- No impacts to the land

Please note that using a vehicle to access the sites has the potential to result in hydrocarbon leakage (soil and water contamination) and wildlife collisions.

Site visits are expected to occur at least once each season for general maintenance of stream gauges and to conduct stream flow tests. Additional visits will be required to undertake the other investigative work listed above.

5. Identification of Site Access

The project is approximately 130 km north of the town of Stewart. Access to More Creek will be by vehicle along Highway 37 and existing forestry roads. Once at the site all the investigation works will be carried out on foot.



NOTE

1. BASE MAP: CANADIAN TOPOGRAPHIC MAPS 1:50,000 AND 1:250,000
2. WATERSHED AREA BASED ON: 1:50,000 MAPS

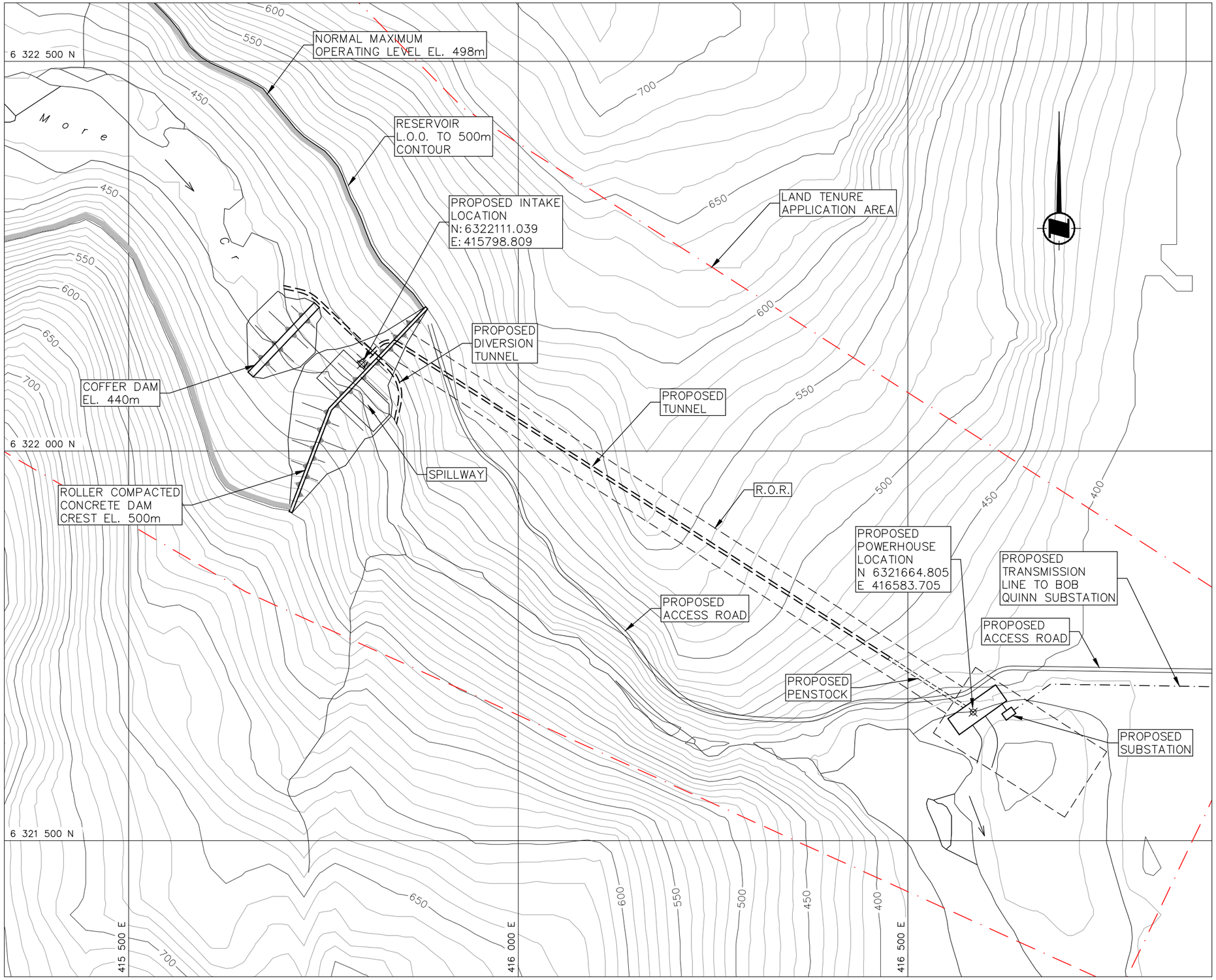
0 2.5 5 10 15 20 km

ALASKA HYDRO CORPORATION

MORE CREEK HYDROELECTRIC PROJECT

MORE CREEK PROJECT LOCATION PLAN & WATERSHED

SCALE	FIGURE NO.	REVISION
AS SHOWN	FIGURE 1	0



NOTES

1. CONTOURS FROM BMGS, ILMB, CANADIAN DIGITAL ELEVATION DATA, GEOBASE 1.0; SOURCE DATA = BC–TRIM; SOURCE SCALE = 1:20,000; CONTOUR INTERVAL SHOWN = 10m
2. WATERCOURSES AND LAKES FROM BMGS, ILMB, CANADIAN HYDRO NETWORK 1.0–CL4–NC4; SOURCE DATA = BC–TRIM; SOURCE SCALE = 1:20,000
3. COORDINATE SYSTEM = UTM ZONE 9, NAD 83

0 100 200 300 400m

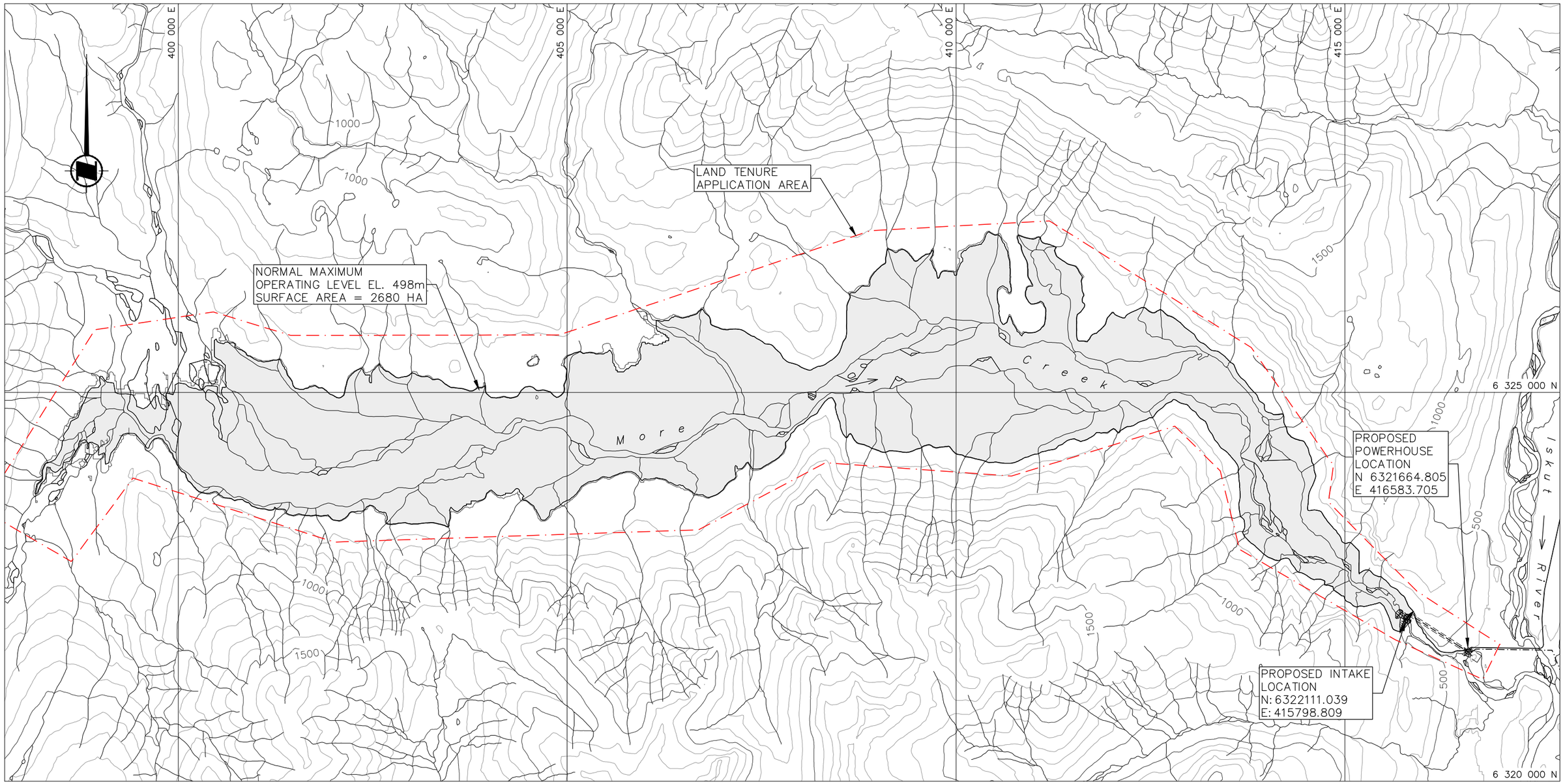
SCALE

SIGMA ENGINEERING LTD

ALASKA HYDRO CORPORATION
MORE CREEK HYDROELECTRIC PROJECT

GENERAL ARRANGEMENT

DATE	AUG 14	PROJ.	E6348
DWN.	DGC	DWG.	FIGURE 2



0 1 2 3 4 km

SCALE

NOTES

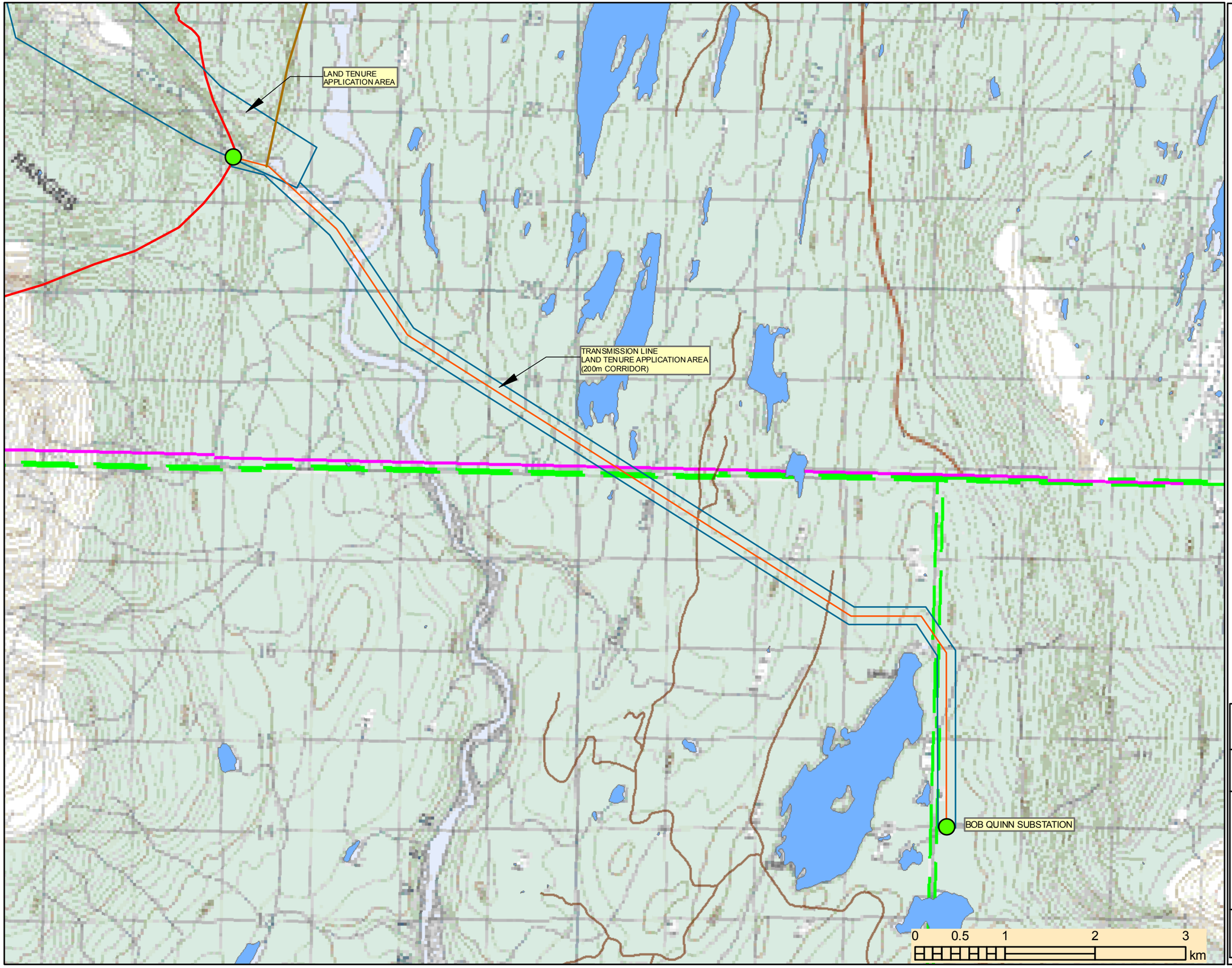
1. CONTOURS FROM BMGS, ILMB, CANADIAN DIGITAL ELEVATION DATA, GEOBASE 1.0; SOURCE DATA = BC–TRIM; SOURCE SCALE = 1:20,000; CONTOUR INTERVAL SHOWN = 100m
2. WATERCOURSES AND LAKES FROM BMGS, ILMB, CANADIAN HYDRO NETWORK 1.0–CL4–NC4; SOURCE DATA = BC–TRIM; SOURCE SCALE = 1:20,000
3. COORDINATE SYSTEM = UTM ZONE 9, NAD 83

SIGMA ENGINEERING LTD

ALASKA HYDRO CORPORATION
MORE CREEK HYDROELECTRIC PROJECT

RESERVOIR INUNDATION MAP

DATE AUG 14	PROJ. E6348
DWN. DGC	DWG. FIGURE 3



ALASKA HYDRO CORPORATION

MORE CREEK HYDROELECTRIC PROJECT

MORE CREEK PROJECT
TRANSMISSION LINE LAND TENURE
APPLICATION AREA

SCALE	FIGURE NO.	REVISION
AS SHOWN	FIGURE 4	0