NORTHWEST TRANSMISSION LINE PROJECT

Skeena Substation – Bob Quinn Lake
Preliminary Access Plan

Prepared by:

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List of Abbreviations

4WD	four wheel drive
ATV	All-terrain vehicle
FSR	Forest Service road
km	kilometer(s)
kV	kilovolt (1000 volts)
m	metre(s)
MOFR	Ministry of Forests and Range
RoW	right(s)-of-way
VHF	very high frequency – 30 megahertz (MHz) to 300MHz

Executive Summary

The Project is a new 344-kilometre, 287-kilovolt transmission line connecting the Skeena Substation at Terrace with a proposed substation near Bob Quinn Lake. The Project would provide electrical transmission to support economic development in the area—such as mining and independent power production—and would further British Columbia's goals of electrical self-sufficiency.

The route for the new transmission line would generally follow the Highway 113 corridor in the southern part and the Highway 37 corridor in the northern part of the line. The southern portion of the line, between Skeena Substation and Kitsumkalum River, would run parallel to the existing BC Hydro transmission line (Circuit 1L387). From the confluence of Sterling Creek and Cedar River, BC Hydro is considering two route options: going north through the Nass Valley with the Sterling/Nass option or to the east following the Cedar River up to the Kiteen Valley with the Cedar/Kiteen option. Both route options converge in the Cranberry area and the line would then run north from Cranberry River to northwest of Swan Lake at the headwaters of Kitanweliks Creek. From the headwaters of Kitanweliks Creek, BC Hydro is considering two route options: heading northwest with the Hanna/Tintina option or to the east with the Bell Irving option. Both route options converge immediately north of the first Bell-Irving River crossing by Highway 37 and the line would then run northwest to terminate at Bob Quinn Lake.

The intent of this Preliminary Access Plan is to describe the location, and condition where possible, of the main access roads and tracks to, and along, the routes being considered for the new transmission line as shown by the Drawings in Appendix A.

This report is not intended to be a detailed description of the condition of the access to and along the proposed route. Since the route location has not been finalized this report is also not a detailed plan for developing access, especially where professional design expertise would be required for new water crossings or sections along unstable slopes. Detailed plans including these items would be considered as part of the project design when a final route is selected.

There is access to most portions of the proposed transmission line route by using existing forest roads but there are several major creeks that block continuous access along the proposed routes. The existing road crossings over these creeks are generally several kilometers away from the proposed corridors. There are a few sections of the corridors which are believed to be only accessible by helicopter at this time. Detailed Forest Engineering will either confirm this or find possible road locations. Most of the existing roads are used for logging but are also used by the public for recreational purposes such as fishing, hiking, camping etc.

1.0 Introduction

The Project is a new 344-kilometre, 287-kilovolt transmission line connecting the Skeena Substation at Terrace with a proposed substation near Bob Quinn Lake. The Project would provide electrical transmission to support economic development in the area—such as mining and independent power production—and would further British Columbia's goals of electrical self-sufficiency.

The Project consists of a cleared right-of-way along the route of the new transmission line, the permanent structures of the transmission line itself, a new substation at Bob Quinn, new access roads and improvements to existing roads, and additions to the existing Skeena Substation.

The route for the new transmission line (Figure 1) would generally follow the Highway 113 corridor in the southern part and the Highway 37 corridor in the northern part of the line. The southern portion of the line, between Skeena Substation and Kitsumkalum River, would run parallel to the existing BC Hydro transmission line (Circuit 1L387). From the confluence of Sterling Creek and Cedar River, BC Hydro is considering two route options: going north through the Nass Valley with the Sterling/Nass option or to the east following the Cedar River up to the Kiteen Valley with the Cedar/Kiteen option. Both route options converge in the Cranberry area and the line would then run north from Cranberry River to northwest of Swan Lake at the headwaters of Kitanweliks Creek. From the headwaters of Kitanweliks Creek, BC Hydro is considering two route options: heading northwest with the Hanna/Tintina option or to the east with the Bell Irving option. Both route options converge immediately north of the first Bell-Irving River crossing by Highway 37 and the line would then run northwest to terminate at Bob Quinn Lake.

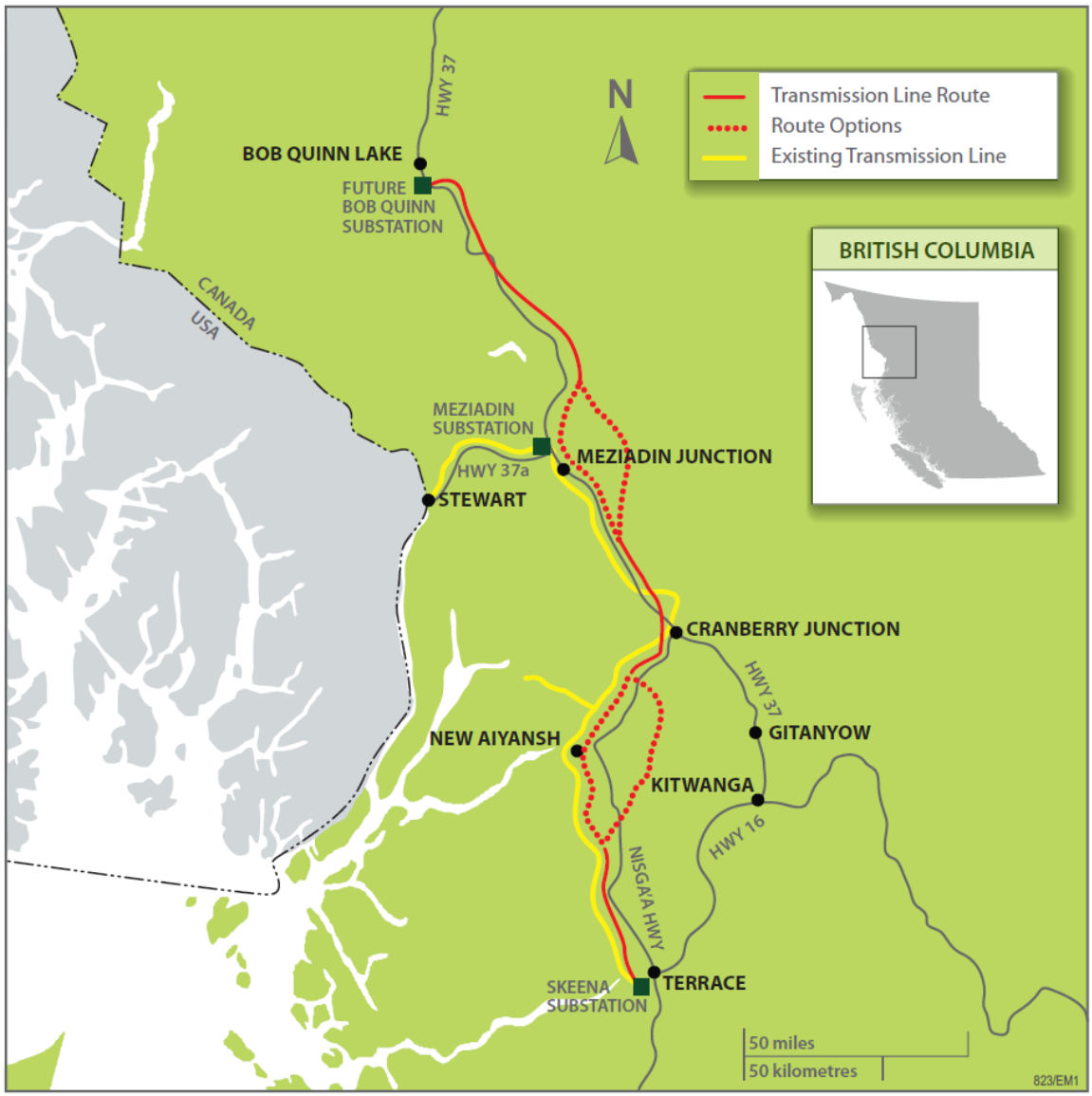

Figure 1: Location of the main components of the Northwest Transmission Line Project.

The proposed transmission line route is primarily across Crown land with the exception of the Nisga'a Lands along the Sterling/Nass route option and some private land near Terrace. The terrain varies from gently rolling forested land to steep valleys. Some sections are located along Highway 37 and several sections are located in close proximity to Highway 37. All route options are intersected by numerous existing public logging roads but there is limited access along the routes. Therefore access along the routes would have to be developed from the existing roads for construction and maintenance but would be discontinuous due to the numerous watercourses in the area.

This Preliminary Access Plan report describes access to, access that may be developed, and access limitations on route options shown in Appendix A. The report is based on orthophoto taken in 2006, Ortho TRIM 2 Photo Mosaic Black and White 1995-2003 (1m) for the Bell Irving route, TRIM mapping, overview terrain stability mapping produced by Rescan Environmental Services Ltd. in 2009 (EAC Application – Appendix 7.5-1), an overview helicopter flight undertaken May 31-June 2, 2010 and a limited field overview undertaken on 20-22 July, 2010 using the existing roads.

2.0 Purpose

Initial clearing and construction activities associated with building, and to a lesser degree maintaining, a transmission line requires ready access to the work sites to deliver heavy equipment, supplies and workers. The goal of the Preliminary Access Plan is to balance the need for new access to reach the worksites with the need to limit access to non-industrial users as the latter often causes concern related to the potential for increased hunting and 4X4/ATV recreational use.

The purpose of this Preliminary Access Plan is to:

- provide a brief description and location of access to, and along, the route options,
- facilitate review by and discussions with the Nisga'a Nation, First Nations, government agencies and stakeholders,
- provide background information to determine legal status of existing roads,
- identify existing and proposed road connections to the public highway system,
- provide information to promote safety and highlight the hazards encountered when accessing the transmission line RoW, and
- provide overview information for Forest Engineering activities.

This is a living document. In general, access design continues to be refined in consultation with the Nisga'a Nation, First Nations, government agencies and stakeholders in accordance with project design and environmental requirements. Actual access construction generally includes main access to, or along the route and access track to individual structures. Access development can include clearing, stump removal, ditching, culvert and/or bridge installation, filter fabric and gravel work, and fencing or gate installations. These activities may take place during timber harvesting and clearing in accordance with contract specifications or during line construction after the route has been cleared.

This report is not intended to be a detailed description of the condition of access to and along the route nor a detailed plan for developing access, especially where professional design expertise would be required regarding unstable slopes and watercourse crossings. Detailed determination of location and measurements for access requirements would be determined during the Forest Engineering phase of the project prior to construction activity. The Forest Engineering phase will determine the suitability of existing roads, upgrade requirements, location of new roads and crossings while taking into account the Construction Environmental Management Plan (CEMP) requirements.

3.0 General

The key principles followed in the development of this plan are to minimize the amount of new road construction and avoid loop roads, which are more attractive to recreational users, by using natural access breaks such as rivers, gullies, ravines, etc, which create dead-end roads.

The field review for this Preliminary Access Plan took place July 20-22, 2010. The weather was sunny and dry with a few light showers and although much of the existing access described in this report are all-weather roads some sections or lengths of roads may deteriorate with repeated use during wet weather. The south end of the corridor is located in the Coastal Western Hemlock biogeoclimatic zone where winters are mild with heavy wet snow and warm moist summers. The north end is characterized by the Interior Cedar – Hemlock biogeoclimatic zone where winters are cold and wet with warm summers. A section of the Cedar/Kiteen route falls within the Mountain Hemlock biogeoclimatic zone which is characterized by short, cool summers and long, cool, wet winters with heavy snow. The elevation range for the entire route is generally between 50 m to 1025 m.

There is generally good existing access to several points along all routes via public forestry roads and public roads that are near to, or cross, the proposed transmission line routes. However, there are several major drainage (i.e. creek) ravines or rocky ridge areas precluding continuous access along the proposed route. To avoid building bridges, which can be very costly, and to avoid creating new access entry into and across areas determined to have high environmental sensitivity, numerous roads must be used to bypass these impediments and continue with access along the proposed transmission line alignments. Appendix A is provided to show the most practical access to the proposed routes or a particular site along the routes using the main existing roads in the area.

Specific concerns regarding terrain, fisheries, wildlife, forestry, land use, properties and heritage values are not discussed but would be addressed when a detailed road location plan is prepared based on an approved centerline alignment.

3.1 Access Road Driving Safety

Access to the proposed transmission line route is often along existing good quality gravel or dirt roads such as the logging road in Photo 1.

Photo 1 – Logging Road

However, some access to the proposed transmission line routes have deteriorated due to temporary deactivation or lack of maintenance. These sections are characterized by deep cross ditches or over-grown vegetation that slows or prevents use of the existing access. Photo 2 is an example of an access road which is over-grown with vegetation.

Photo 2 – Access over-grown with vegetation

Driving on Forest Service Roads (FSR) or industrial logging haul roads requires extreme vigilance. All logging trucks are required to use a VHF radio communication system to report their location on the road. The radio frequency is posted at the beginning of the road as shown in Photo 3. In this way empty trucks can pull off when a loaded truck, which has the right of way, is coming. Vehicles without radios cannot communicate their location and run the risk of being hit by a truck. On active haul roads VHF radios are sometimes mandatory. Always travel these roads with lights on.

Photo 3 – Sign at entry to radio controlled road

Additional care is also needed to avoid “sweepers” which are the long logs that overhang the truck bed and sweep through the on-coming lane around corners.

3.2 Access to the Right-of-Way

There is access to most portions of the proposed transmission line route by using existing forest roads but there are several major creeks that block continuous access along the proposed routes. The existing road crossings over these creeks are generally several kilometers away from the proposed corridors. There are a few sections of corridors which are believed to be only accessible by helicopter at this time. Detailed Forest Engineering will either confirm this or find possible road locations. Most of the existing roads are used for logging but are also used by the public for recreational purposes such as fishing, hiking, camping etc.

It is anticipated that existing roads and tracks would supply the bulk of access to either route such that very little new access would be developed to the right-of-way.

The existing main access roads to the routes are shown on the maps in Appendix A at 1:100,000 scale. More detail access information is provided on the 1:10,000 orthophotos in Appendix B.

3.3 Access along the Right-of-Way

The proposed transmission line is crossed by numerous rivers and incised creeks which would preclude continuous access development along the RoW in many cases. Also the desire to avoid building numerous fish stream crossings precludes continuous access development along the RoW. Therefore, discontinuous access along the RoW would be developed from the numerous existing roads that cross the RoW between the rivers, creeks and ravines.

The proposed location and design for new access development along the RoW would be determined during clearing boundary layout in conjunction with field survey, transmission line design, and environmental and other constraints.

Access development along the RoW would be a combination of permanent and temporary access. Permanent access is generally a main road with a full ditch system and long term water crossings that follows the terrain with mild grades along the RoW to serve many structures. Temporary access is generally a narrower and often steeper track serving only one or two structures. Temporary access would typically have less elaborate water crossing structures. This allows temporary access to be removed and rehabilitated after construction when the transmission line is operating and only infrequent access is then needed. Designation of access status generally occurs at the implementation stage after field survey, environmental studies and negotiation with property owners is complete.

3.4 Properties

The Northwest Transmission Line mostly crosses Crown land but also some private land near Terrace and Nisga'a Lands along the Sterling/Nass route option via a Statutory Right-of-Way Agreement. The RoW Agreement does not normally include ownership of the land. Therefore the land, and its control, remain in the hands of the original owner but are subject to the conditions of the RoW Agreement. Therefore land owner concerns, including requirements for access to and along the approved route must be determined

before construction tenders are issued so suitable conditions can be included in the construction phase. This can often include owners adjacent to the route and proposed transmission facility, where crossing their property is necessary to access the route.

Invasive plants and noxious weed issues would be discussed with owners and procedures to control the spread of undesirable seeds and reproductive plant material, such as pressure washing and inspecting vehicles, would be determined before RoW studies and construction proceeds.

The Ministry of Forests and Range (MOFR) and timber licensees using Forest Service roads (FSR) consider construction of a transmission line an industrial use. Therefore these groups would be advised of any intent to use their roads for construction access.

Site specific requirements for access and permits/approvals/agreements for any development or upgrading of access or water crossings would be determined and obtained prior to the clearing and construction stages on the approved route. Where existing or proposed access lies outside the proposed Statutory RoW, site-specific access arrangements would be required.

4.0 Conclusions

From a review of existing mapping, orthophotos, helicopter overview flight and a brief field reconnaissance of main roads, it appears there are a sufficient number of good quality, existing logging roads and tracks to support transmission line construction. Therefore very little access development would be required to an alignment on the proposed routes. However, although existing roads may at times coincide with the chosen route alignment, extensive access development along the alignment would be required from the existing roads to facilitate the activities associated with transmission line construction such as heavy equipment delivery, logging, clearing, structure delivery and erection, hardware installation, conductor stringing and subsequent maintenance and emergency restoration.