Labrador-Island Transmission Link

Environmental Impact Statement

Addendum

nalcor energy
LOWER CHURCHILL PROJECT

NALCOR ENERGY

LABRADOR-ISLAND TRANSMISSION LINK

ENVIRONMENTAL IMPACT STATEMENT ADDENDUM

December 2012

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LIST OF ACRONYMS

Acronym	Description
ACCDC	Atlantic Canada Conservation Data Centre
CEA Agency	Canadian Environmental Assessment Agency
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
dBA	A-weighted Decibels
EIS	Environmental Impact Statement
ELC	Ecological Land Classification
EMF	Electromagnetic Fields
EPP	Environmental Protection Plan
ERCB	Alberta Energy Resources Conservation Board
GHG	Greenhouse Gas
GIS	Geographical Information System
ha	Hectare(s)
ISO	International Organization for Standardization
KI	Key Indicators
km	kilometre(s)
L-I	Labrador – Island
LSA	Local Study Area
m	metre(s)
MMH	Mealy Mountains Herd
N_2O	Nitrous oxide
NAAQO	National Ambient Air Quality Objectives
Nalcor	Nalcor Energy
NL	Newfoundland and Labrador
NLDEC	Newfoundland and Labrador Department of Environment and Conservation
NOx	Nitrogen oxides
PM	Particulate matter
PM_{10}	Particulate matter less than 10 microns in diameter
$PM_{2.5}$	Particulate matter less than 2.5 microns in diameter
ROW	Right-of-Way
RSA	Regional Study Area
RWMH	Red Wine Mountains Herd
SO_2	Sulphur dioxide
Stantec	Stantec Consulting Ltd.

Acronym	Description
the Project	Nalcor's Labrador – Island Transmission Link
TSS	Total Suspended Solids
US EPA	United States Environmental Protection Agency
VEC	Valued environmental component
VOC	Volatile organic compounds
WHO	World Health Organization

1 INTRODUCTION AND UPDATED PROJECT DESCRIPTION

1.1 Introduction

In April 2012, Nalcor Energy (Nalcor) submitted an Environmental Impact Statement (EIS) for the Labrador – Island Transmission Link (the Project) to the provincial and federal governments. Since that time, and as committed to in the EIS, Nalcor has continued with its detailed engineering and analysis with consideration of technical, environmental and socioeconomic factors. As a result of this ongoing work, and detailed design, Project components have been more clearly defined.

1.2 Project Description

Nalcor has evaluated the layout and locations of Project components, based on a variety of engineering and environmental considerations. The following provides the most current description of several of the Project components.

Right-of-way Alignment

The selection of a final right-of-way (ROW) alignment for the Project involved a "filter" approach that determined the final alignment through the consideration of engineering requirements or constraints and the avoidance of environmental, social or cultural issues, where possible and practical, at finer levels of scale, and as more detailed information is collected and considered. The process employed by Nalcor for routing the ROW for the Project is discussed in detail in Section 2.12 of the EIS. Specifically, Section 2.12.1, describes the method of identifying a 10 km wide transmission line study area for the Project based initially on a transmission proposal first made in the 1970s. The study area identified represents the coarsest level of filter. This exercise involved using 1:50,000 scale mapping and digital topographic data, and was undertaken with a view to reducing the line length, while at the same time identifying and avoiding key known technical, environmental and socioeconomic issues and constraints such as difficult topography and severe meteorological conditions, protected areas and other known environmentally sensitive areas, where possible and practical.

As described in Section 2.12.2, a preferred 2 km wide transmission corridor was identified, along with various alternative corridor segments in particular areas. Corridor selection, including the alternative segments, was completed with consideration of the following factors when possible and practical, but at a finer spatial scale than the 10 km wide transmission line study area in order to:

- minimize the length of the transmission line;
- avoid unfavourable meteorological conditions such as heavy icing and/or strong winds;
- avoid difficult terrain;
- minimize the requirement for new access roads and trails;
- minimize watercourse and wetland crossings;
- cross watercourses at right angles;
- avoid interactions with communities, protected areas and other known environmentally and socially important areas; and
- avoid known sites of archaeological and historic importance.

With the submission of this addendum, Nalcor has assessed and evaluated all viable alternatives for the ROW selection, and it consists of an optimum balance between all relevant factors considered.

The proposed 60 m wide ROW is presented in the attached "Labrador – Island Transmission Link Additional Project Description" map series.

Quarries and Borrow Pits

The Muskrat Falls converter station will not require the establishment of a quarry. The rock required for the construction of the converter station will be obtained from existing quarries located in the Muskrat Falls area. At the current stage of engineering, two options are being considered for the Soldiers Pond converter station: 1) the use of an existing nearby quarry, and 2) the establishment of a quarry within the identified footprint for the site at Soldiers Pond. Currently it is expected that option 1 will be implemented by Nalcor.

The rock required for the electrode sites at L'Anse au Diable and Dowden's Point will use existing quarries.

Nalcor predicts the construction and installation of the transmission towers will have a limited requirement for quarry material. The installation of deadend structures and access roads may require the use of quarry material. Where quarry material is required, it will be purchased from a local supplier.

Borrow pits will be required for the installation and construction of transmission towers. The installation of towers in wetlands requires the use of cribs which require the use of borrow material. It is currently expected that only approximately 2% of all transmission towers will be located in wetlands, and thus will require borrow material.

All borrow pits will be established within the ROW, and will be rehabilitated as work is completed in that area. Rehabilitation will include the replacement of unused excavated material, grading to a stable slope, grading to re-establish natural drainage patterns, replacement of topsoil, and installation of erosion control structures, as appropriate.

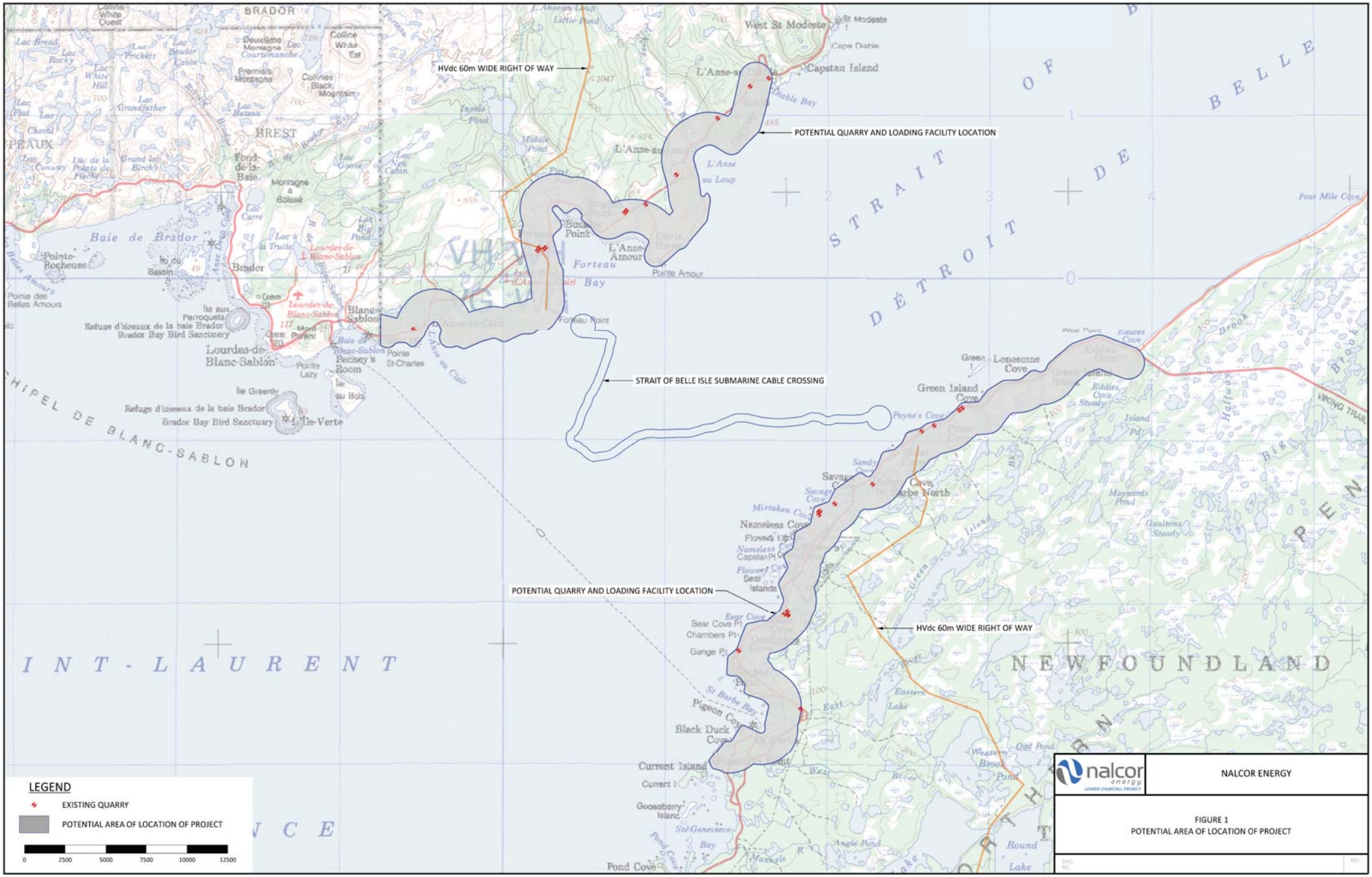
The Strait of Belle Isle submarine cable crossing may require the establishment of a quarry. There are currently limited existing quarries in the Straits area with the specific rock type required (weight, chemically-benign, appropriate mechanical properties) for the purposes of subsea rock protection. The submarine rock design and supply contract has not yet been awarded and is in the pre-qualification stage.

Nalcor notes the successful rock placement contractor will ultimately be responsible for quarrying rock, loading rock on a placement vessel, and constructing protective berms over the submarine cables in the Strait of Belle Isle. A number of options are available to the successful rock placement contractor. At least two quarries on the Island of Newfoundland have marine loading facilities and could be used to supply rock for cable placement. They are:

- Atlantic Minerals Ltd., Lower Cove; and
- Bay Bulls Marine Terminals Inc., Bay Bulls.

Nalcor is also aware that numerous existing quarries occur within the Strait of Belle Isle area that may also be selected for use by the successful contractor. A review of the provincial Department of Natural Resources database for active, existing quarries, identified 16 quarries ranging from 0.5 to 3.0 ha within the Newfoundland study area and 12 quarries ranging from 0.5 to 4.0 ha within the Labrador study area, as shown in Figure 1.

Finally, the establishment of a new quarry in the Strait of Belle Isle area is potentially feasible, as this would minimize the shipping cost of material from the quarry site to the placement location. Nalcor notes that suitable locations exist in the Forteau area, and has completed an assessment of likely effects of the development and operation of a quarry and loading facility in the Forteau area as part of this update. Pursuant to the Quarry Material Regulations, the Minister of Natural Resources has ordered that no new quarry permits be issued in the Forteau area until the location for the supply of rock for the Project has been confirmed.


HVdc 60m WIDE RIGHT OF WAY
POTENTIAL QUARRY AND LOADING FACILITY LOCATION
STRAIT OF BELLE ISLE SUBMARINE CABLE CROSSING
POTENTIAL QUARRY AND LOADING FACILITY LOCATION
HVdc 60m WIDE RIGHT OF WAY
LEGEND
EXISTING QUARRY
POTENTIAL AREA OF LOCATION OF PROJECT
0
2500
5000
7500
10000
12500
NALCOR ENERGY
FIGURE 1
POTENTIAL AREA OF LOCATION OF PROJECT

Although Nalcor believes the development of a quarry in the Straits area will be preferred economically, as it minimizes the shipping time (and cost) from the quarry site to the cable location, the possibility exists that the successful rock placement contractor will (1) use an existing quarry and develop a loading facility, or (2) use an existing quarry and existing marine loading facility. In either case, the effects associated with these supply locations would be less than those associated with a quarry in the Straits area.

In order to ensure the rock placement contractors have a number of options from which to acquire rock, it is important that the worst-case option be assessed, and in the event that the successful contractor selects a different alternative, the effects of that option are less than the alternative assessed during the environmental assessment. Otherwise, defining a single location during assessment would expose Nalcor to unacceptable commercial and design risk.

Thus, at this stage, and due to the expected proximity of the quarry and loading facility to the Strait of Belle Isle crossing, potential site identification for the potential quarry focuses on two areas, one on the Newfoundland side of the Strait (extending from Eddies Cove to Current Island within 2 km of the coastline), and one of the Labrador side from L'Anse au Diable to the Labrador - Quebec border (again within 2 km of the coastline) (see Figure 1).

Access Trails and Roads

For access roads, consideration has been given to the alternative locations of stream crossings and types of crossing structures, and the use of winter roads. As shown in the attached "Labrador – Island Transmission Link Additional Project Description" map series, access roads and winter roads have been preliminarily identified in Labrador and on the Island.

Tower Locations

Nalcor has identified locations for the transmission towers based on the current design. The location of each tower is presented in the attached "Labrador – Island Transmission Link Additional Project Description" map series.

Other Associated Infrastructure

The attached "Labrador – Island Transmission Link Additional Project Description" map series, also indicates the location of the following Project components:

- Muskrat Falls converter station;
- Soldiers Pond converter station, including the access road;
- Forteau Point transition compound, including the access road;
- Shoal Cove transition compound, including the access road;
- Horizontal directional drill location at Forteau Point; and
- Horizontal direction drill location at Shoal Cove.

1.3 Consideration of Updated Project Description on the Effects Assessment

Right-of-Way and Access

At the time of submission of the EIS, Project design, including the ROW alignment, had not been finalized. To inform the assessment, a hypothetical 60 m wide ROW was used, centred within the 2 km wide transmission corridor. The assessment considered that the final ROW alignment could occur anywhere within the 2 km wide transmission corridor, ultimately depending on a number of factors including the avoidance of sensitive environmental features (e.g., wetlands and listed plants), as well as the locations of access trails and some Project components, which would typically be determined during final Project engineering.

For the effects assessment presented in the EIS, it was assumed that 1) the final ROW alignment would deviate from the hypothetical centreline ROW within the corridor, 2) access trails would deviate outside of the ROW, and specific Project components may be constructed outside of the 2 km wide transmission corridor. As well, the approximately 32 km of access roads required will be constructed outside of the 2 km wide transmission corridor. To account for these anticipated alignment deviations and uncertainty related to Project component locations, a conservative 20% contingency was added to distances or areas generated relative to the hypothetical ROW. Considering this, the amount of habitat that could be potentially altered or lost was predicted to be approximately 77 km^2.

The actual ROW for the Project, and the disturbance required to create access roads, winter roads, and access trails as shown in the attached map series, will be less than 75 km^2. Therefore, as stated throughout the EIS, Nalcor's effects assessment was appropriate.

Quarry

The concept of a potential quarry in the Strait of Belle Isle area was not discussed in the Project Description presented in the EIS, and was therefore not assessed in the effects assessment. An assessment of the effects of this potential quarry has been prepared. See attached addendum to the Atmospheric Environment VEC chapter for details on the quarry and its operation.

The predicted effects of the construction and operation of a quarry were considered during the environmental assessment of the appropriate VECs in the EIS. Table 1-1 provides an assessment of the proposed quarry and associated infrastructure in consideration of the additional details provided in the updated Project Description and the Atmospheric Environment addendum.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Atmospheric Environment				
Atmospheric Environment	The changes to climate (GHG emissions), air quality and sound resulting from the Project are unlikely to substantively influence ambient conditions within the Regional Study Area (RSA). Therefore, the Project is not likely to result in significant adverse effects on the Atmospheric Environment.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Terrestrial Environment				
Vegetation	The effects of the Project on the vegetation abundance and diversity, wetlands, riparian shoreline, listed and regionally uncommon plants, and timber resources are not expected to affect any Vegetation KIs such that its continued contribution to ecosystem function within the LSA and the RSA are not sustainable. The likely residual effects of the Project on Vegetation are not significant. The quarry and associated infrastructure will be small (i.e., within the 77 km^2 area used in the original effects assessment) and located to avoid sensitive areas such as wetlands, listed and regionally uncommon plant locations, and timber resource areas. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Caribou	The effects of the Project on woodland caribou are not expected to cause a decline in population, such that the viability or recovery of woodland caribou populations in Central and Southeastern Labrador and Newfoundland are threatened. The likely residual effects of the Project on Caribou are not significant. In recognition of the present status of RWMH, and that other activities and pressures such as poaching and predation may continue, the overall fate is likely one of continued decline with or without the Project. If these existing (pre-Project) factors remain unchecked, the cumulative environmental effects are predicted to be significant, and not a result of the Project effects. The cumulative effects on the remainder of the Caribou herds in the province are rated as not significant. The quarry and associated infrastructure will not be located in areas identified as supporting woodland caribou. Therefore, no change in the effects assessment is predicted	No	No – MMH Yes - RWMH No – Newfoundland	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Furbearers	The effects of the Project on marten, red fox, porcupine and beaver are not expected to result in a decline in the numbers of animals such that a population cannot be maintained within the RSA or in any of the Project regions. The likely residual effects of the Project on Furbearers are not significant. The quarry and associated infrastructure will be small (i.e., within the 77 km^2 area used in the original effects assessment) and located to avoid sensitive habitat for furbearers (e.g., outside of Newfoundland marten areas). Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Avifauna	The effects of the Project on waterfowl, passerines, raptors, upland game birds or other avian species of special conservation status are not expected to cause a population decline for any of the KIs or representative species / guilds therein, such that the viability of that population is not sustainable. The likely residual effects of the Project on Avifauna are not significant. The quarry and associated infrastructure will be small (i.e., within the 77 km^2 area used in the original effects assessment) and located to avoid sensitive habitat for avifauna (e.g., avoid raptor nest locations). Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Freshwater Environment				
Freshwater Resources	The predicted effects on freshwater resources (Water Quality) (i.e., increase in total suspended solids (TSS), nutrients, herbicides, toluene or ethylbenzene in exceedance of guidelines or relative to baseline conditions) during the Construction, and Operations and Maintenance of the Project consider standard, proven, effective mitigation. The effects are well understood, are unlikely to result in a decrease in water quality of a given watercourse, such that applicable guidelines are exceeded or the watercourse cannot sustain its baseline functions over the lifetime of the Project, and are not significant. The quarry and associated infrastructure will be located to avoid effects on freshwater resources. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Fish and Fish Habitat	The predicted effects on Fish Habitat, and Fish Abundance and Species Assemblage during the Construction, and Operations and Maintenance of the Project consider standard, proven, effective mitigation. The effects are well understood, will be localized, are unlikely to affect Fish and Fish Habitat over the life of the Project, and are not significant. The quarry and associated infrastructure will be located to avoid effects on fish and fish habitat. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Marine Environment				
Marine Fish and Fish Habitat	The effects of the Project on the benthic habitat, marine water quality, and marine fish are not expected to affect conditions, populations, distributions or activities (e.g., feeding, spawning, and migration) at a regional scale for a period exceeding one year, and are not significant. No effects on marine fish and fish habitat beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Marine Mammals and Sea Turtles	The effects of the Project on baleen whales, toothed whales, pinnipeds and sea turtles are not expected to result in changes to conditions, populations, distributions or activities at a regional scale for a period exceeding one year, and are not significant. No effects on marine mammals and sea turtles beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Seabirds	The effects of the Project on migrating shorebirds, nesting seabirds, and at-sea seabirds are not expected to result in changes to conditions, populations, distributions or activities at a regional scale over the long-term, and are not significant. No effects on seabirds beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Socioeconomic Environment				
Historic and Heritage Resources	No loss or permanent disturbance of Historic and Heritage Resources, including Archaeological and /or Palaeontological Resources, is predicted as a result of the Project; however, if such resources are disturbed, provincial protocols will be followed to evaluate and document the resource, and it is not expected that the integrity and cultural value of the resource will be diminished or the historical context within the region will be lost. The likely residual effects of the Project on Historic and Heritage Resources are not significant. The effects of the Project on Sites of Cultural-Historical Importance are unlikely to result in the direct disturbance of a known site such that its integrity and cultural value is diminished, and are not significant. No effects on historic and heritage resources beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure.. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Communities	Due to the scale and distribution of Project activities, any adverse effects on Communities throughout the Project will mostly be local and of short duration (e.g., increased demand for transportation infrastructure and community services, noise disturbance) during Construction, or longer duration (e.g., EMF, noise or other disturbance) during Operations. Some localized beneficial effects (e.g., highway improvements, waste disposal revenue) will be long lasting. No effects will result in a detectable and sustained decrease in the overall quality of life and / or health of a population. The likely residual effects of the Project on Communities are not significant. No effects on communities beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Economy, Employment and Business	The overall (net) Project effects on Economy, Employment and Business are overwhelmingly beneficial (i.e., increased employment, incomes, tax revenues and business activity within the province and beyond) throughout the Project; potential exists for adverse effects to local businesses due to labour force competition and wage inflation due to Project-related employment during Construction. The likely residual effects of the Project on Economy, Employment and Business are not significant. No effects on economy, employment and business beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure.. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Land and Resource Use	Considering the effects management measures in place and planned, the Project effects on Land and Resource Use are not expected to negatively affect the successful operation or overall economic viability of commercial enterprises, or the ongoing planned growth of communities, contemporary traditional land use by Aboriginal users or other recreational land and resource users, or the ecological integrity, cultural value and / or societal use and enjoyment of protected areas. The likely residual effects of the Project on Land and Resource Use are not significant. No effects on land and resource use beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Marine Fisheries	Nalcor's planned consultation, ongoing liaison and other effects management response plans and economic compensation programs during Construction for commercial marine fisheries will help ensure that any Project interference with fishing activities will not result in a decrease in overall landings or fishing income as compared to pre-Project levels; and, adverse effects on the successful operation and overall economic viability of fishing enterprises in the area are not likely. The Project is unlikely to have an effect on recreational fisheries that would result in a measurable decrease in overall participation levels in the Strait of Belle Isle or Conception Bay. The likely residual effects of the Project on Marine Fisheries are not significant. No effects on marine fisheries beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

Table 1-1 Changes to Effects on Atmospheric, Terrestrial, Freshwater, Marine and Socioeconomic Valued Environmental Components Considering the Quarry Location and Associated Infrastructure (continued)

VEC	Assessment	Likely Significant Residual Effect[(a)]	Likely Significant Cumulative Effect[(b)]	Change from Original Assessment[(c)]
Tourism	The quality of the tourism experience could be intermittently affected (e.g., noise, dust, visual disturbance, traffic delays, accommodation shortages) during Project Construction, but this is normal with respect to construction activities within the province, and is unlikely to cause a decrease in visitation and expenditures by tourists or negatively affect the successful operation and overall economic viability of tourism enterprises. The transmission system is largely in remote areas, and will not be visible in most regions of the province except the Avalon Peninsula where it parallels already existing structures, thereby having a minor to negligible effect on the quality of the tourism experience. The likely residual effects of the Project on Tourism are not significant. No effects on tourism beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.
Visual Aesthetics	Clearing of the ROW, and installation of the transmission towers and other Project components will result in changes to the existing views to varying degrees during Construction, depending on view location and the stage of Construction, and the Project components (e.g., the ROW, transmission towers, converter stations and shoreline electrode sites) will be visible throughout the life of the Project. However, the Project effect on Visual Aesthetics is predicted to be acceptable and not significant. No effects on aesthetics beyond those identified in the EIS are predicted as a result of the construction and operation of a quarry and associated infrastructure. Therefore, no change in the effects assessment is predicted.	No	No	No change to the residual effects is predicted. No change to the cumulative effects is predicted.

(a) Prediction of likely significant residual effect in the EIS.

(b) Prediction of likely significant cumulative effect in the EIS.

(c) Predicted change in the effects assessment predictions after considering the quarry location provided in the updated Project Description.

SECTION 1 – APPENDIX A

LABRADOR-ISLAND TRANSMISSION LINK ADDITIONAL PROJECT DESCRIPTION MAPS

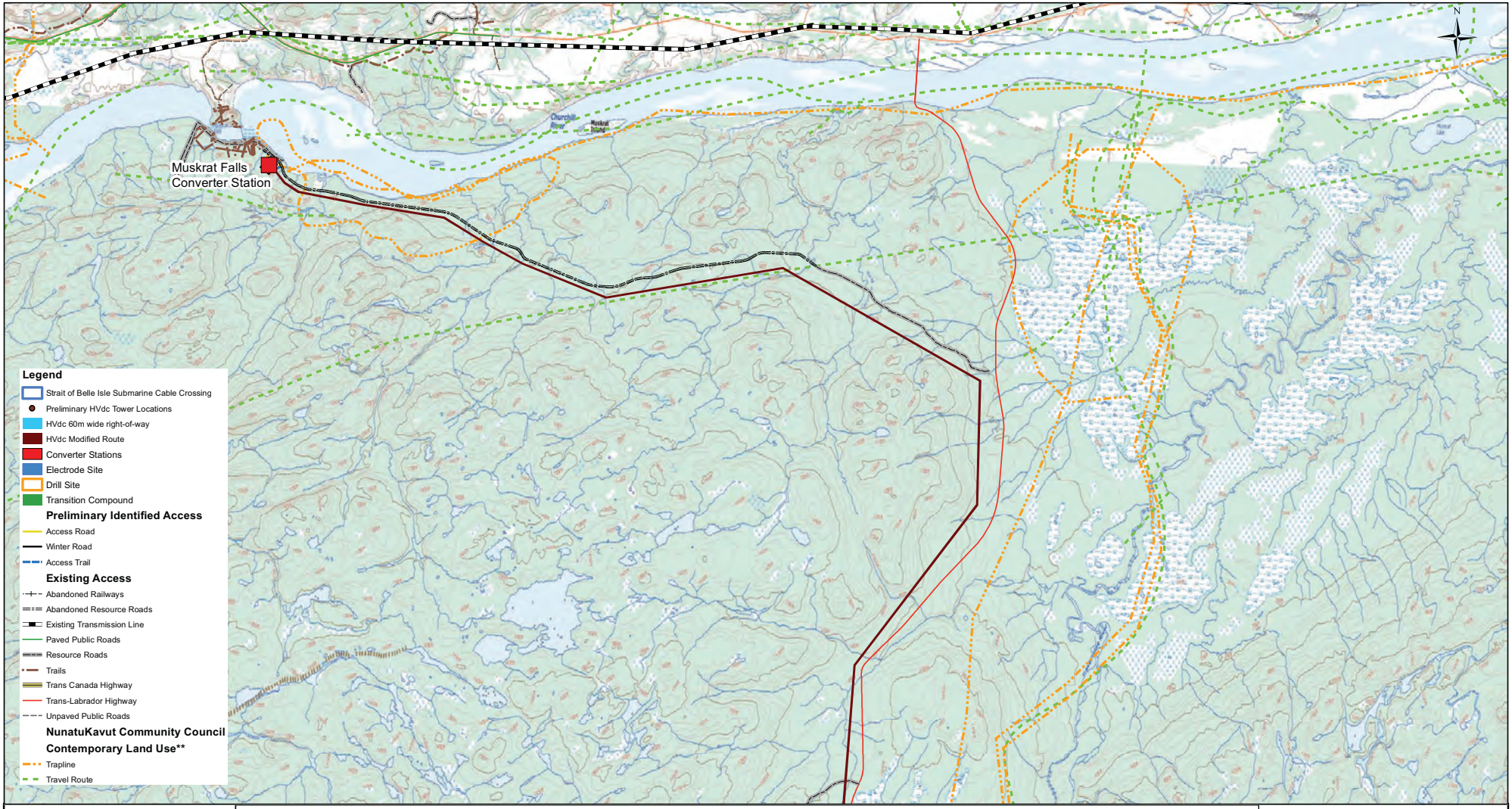


Figure #: 1

Labrador - Island Transmission Link
Additional Project Description*

1:100,000 0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

** Based on surveys conducted in 2011 with members of the NunatuKavut Community Council

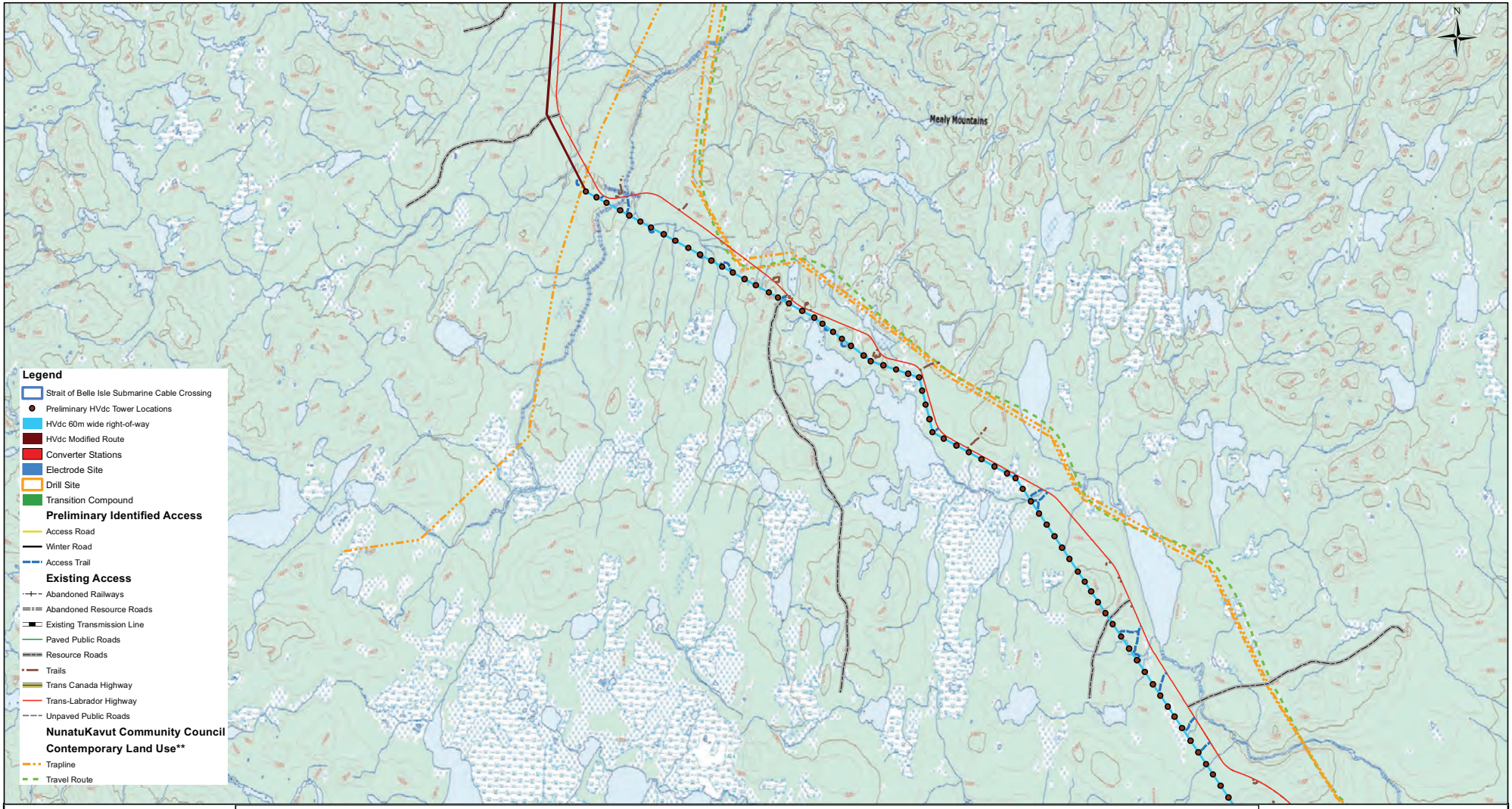


Figure #: 2

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

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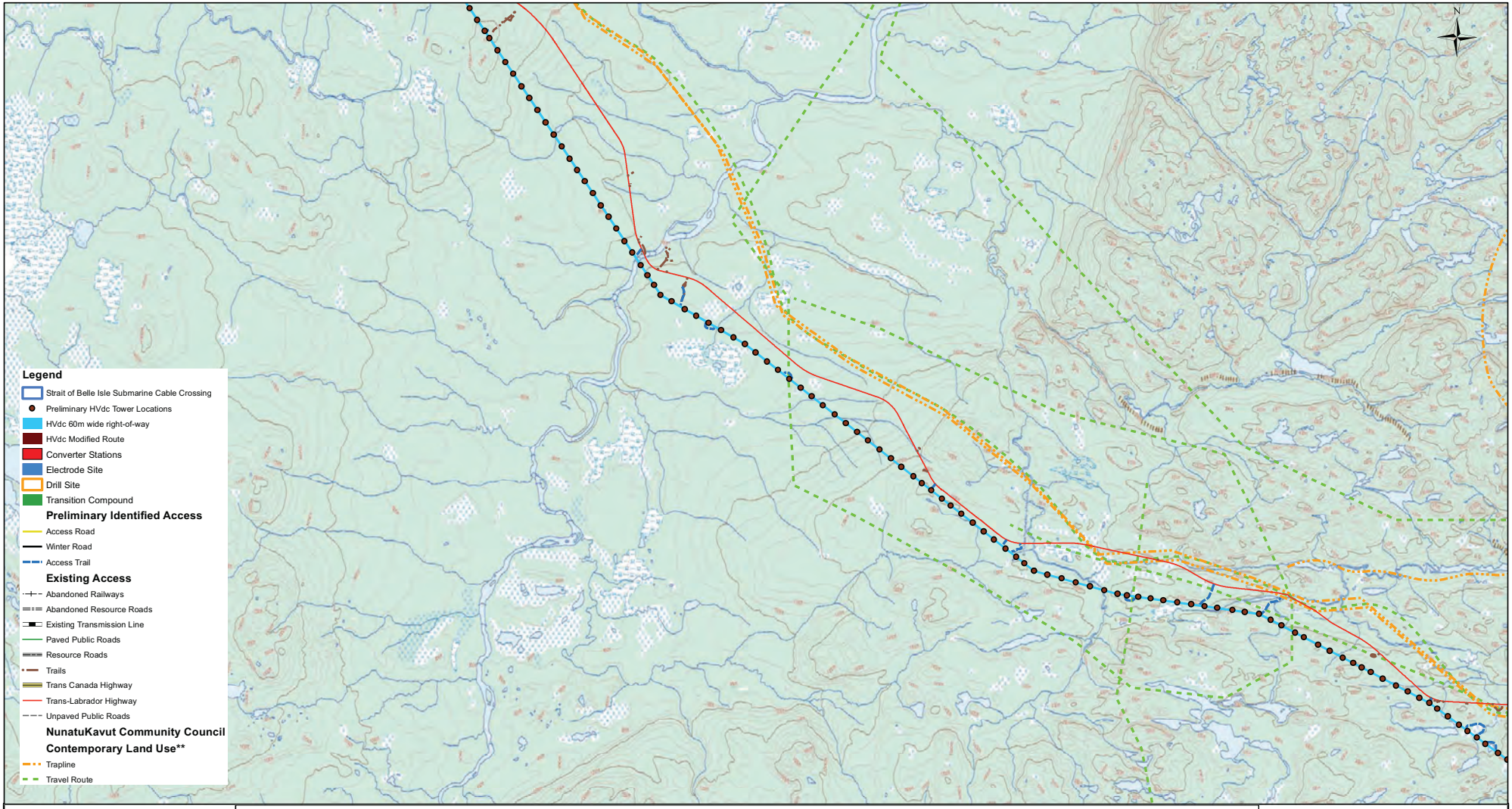

Figure #: 3

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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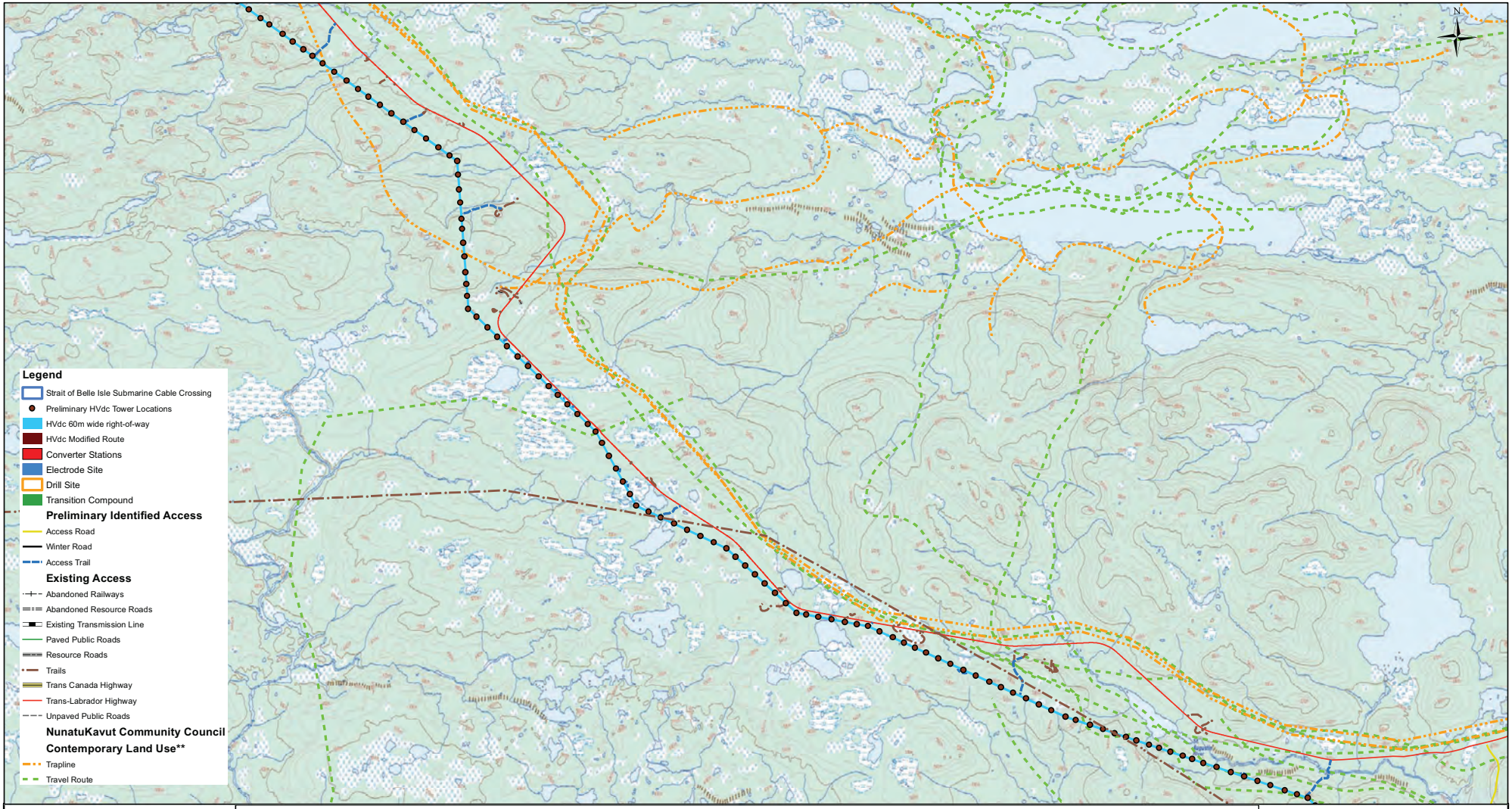

Figure #: 4

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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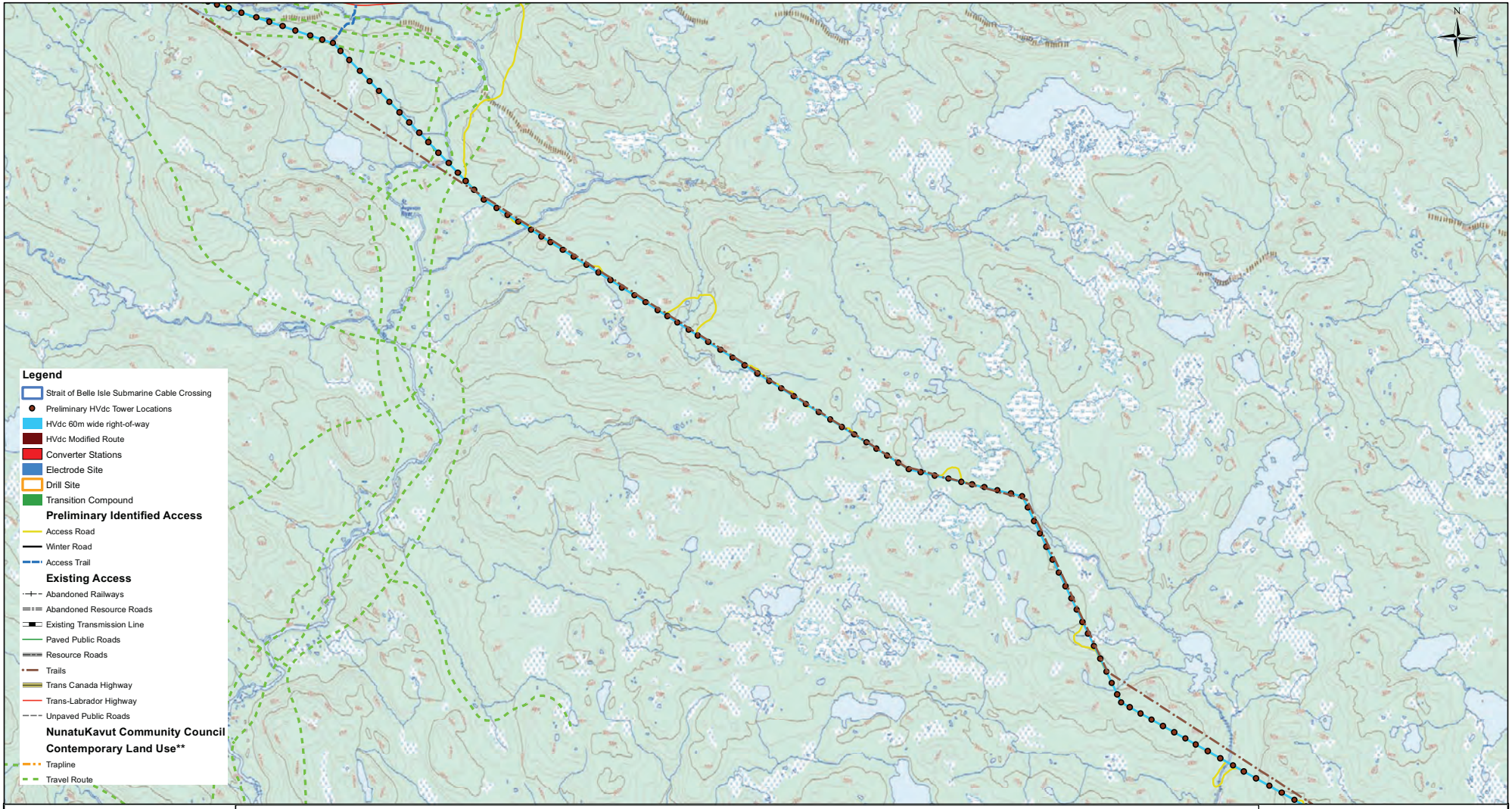

Figure #: 5

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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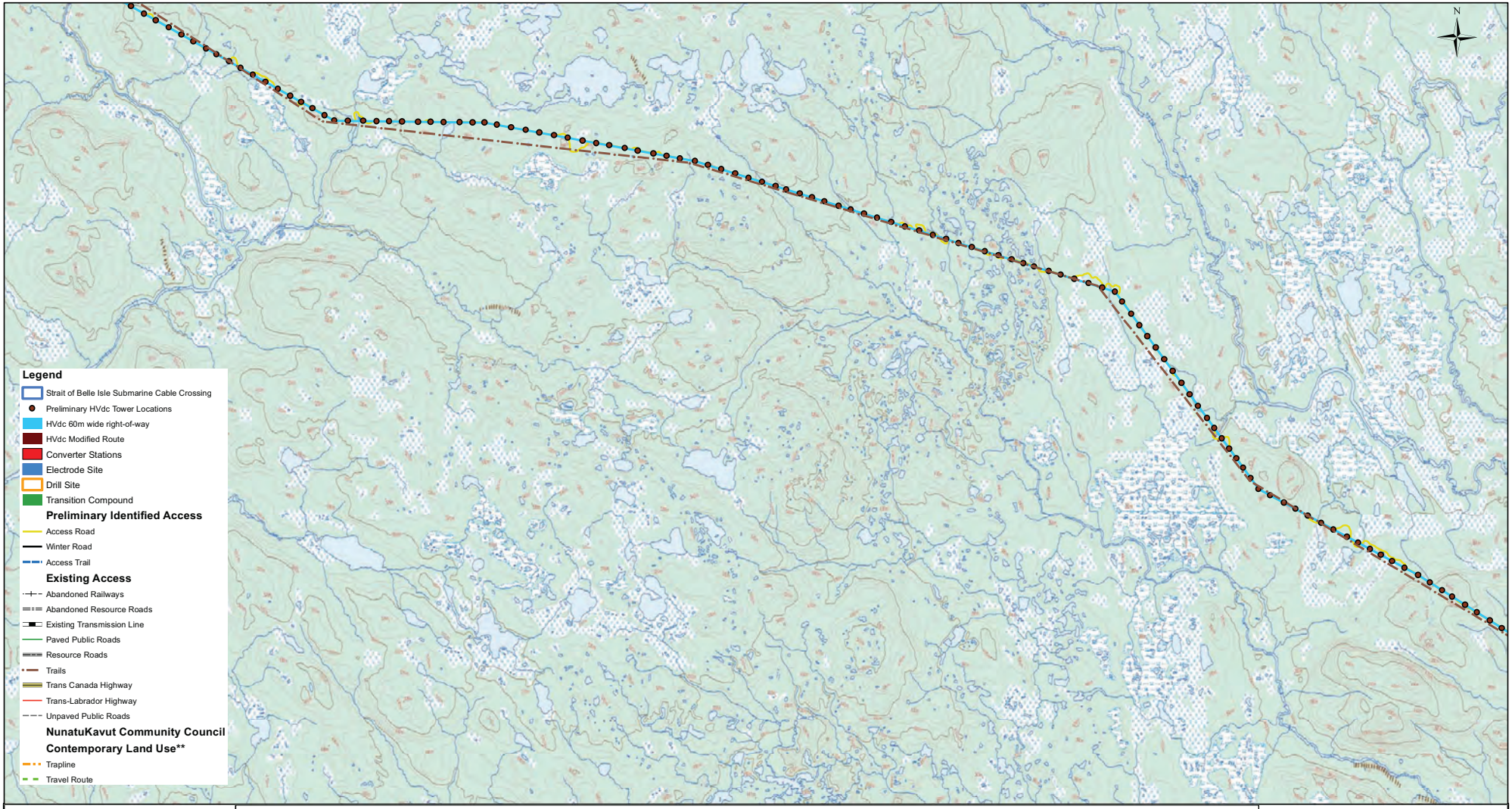

Figure #: 6

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

** Based on surveys conducted in 2011 with members of the NunatuKavut Community Council

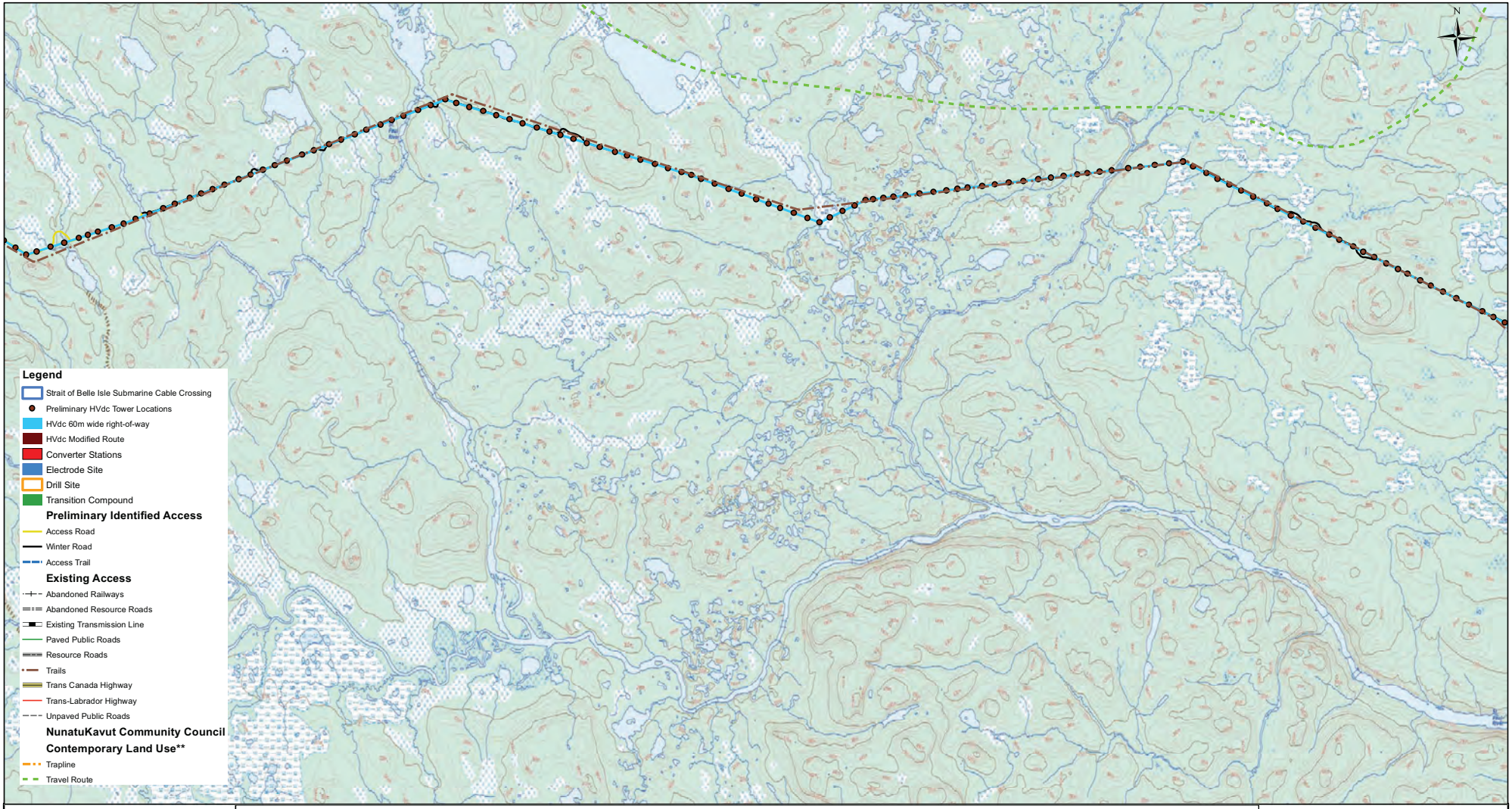

Figure #: 7

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

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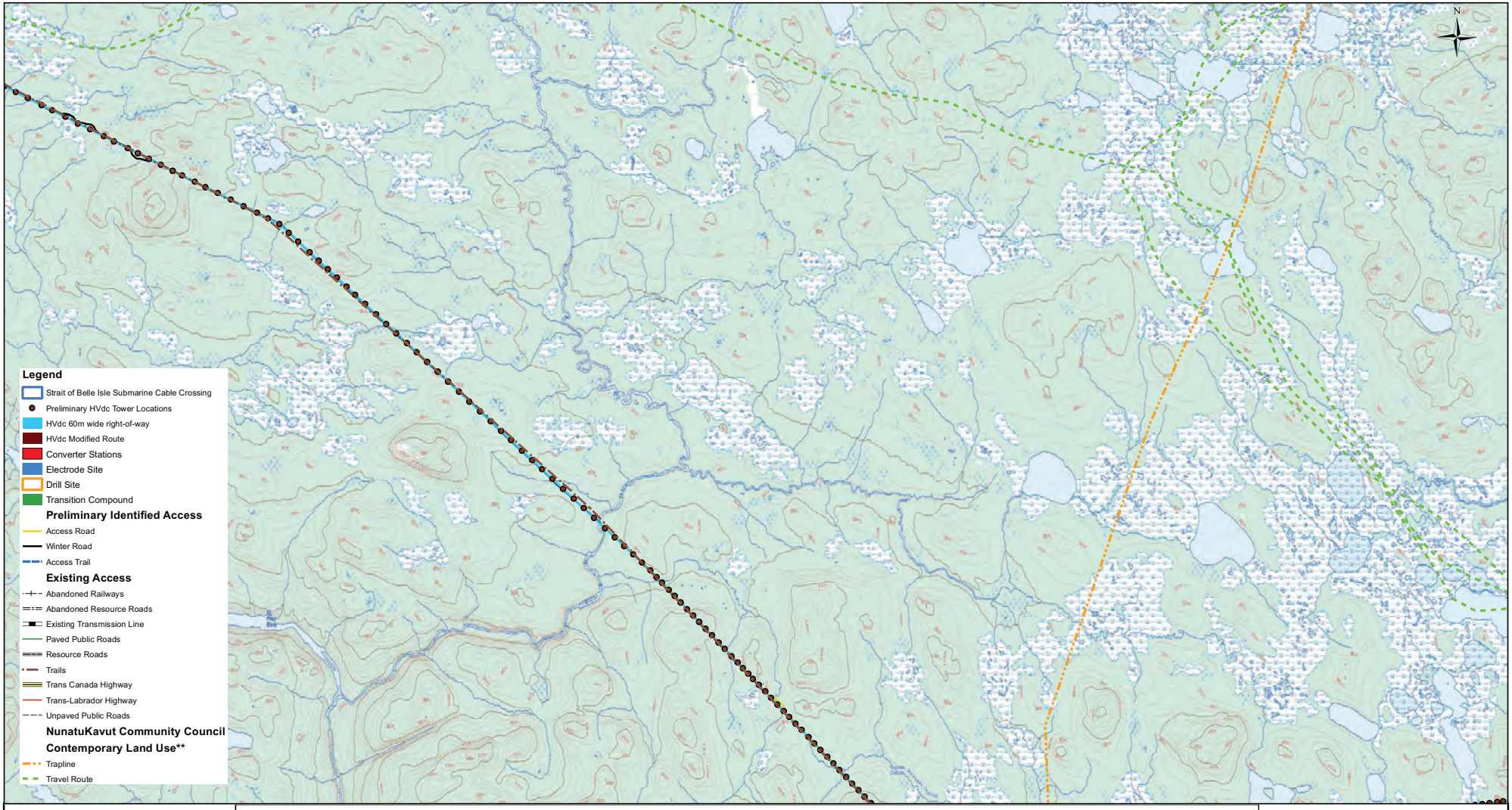


nalcor energy
LOWER CHURCHILL PROJECT

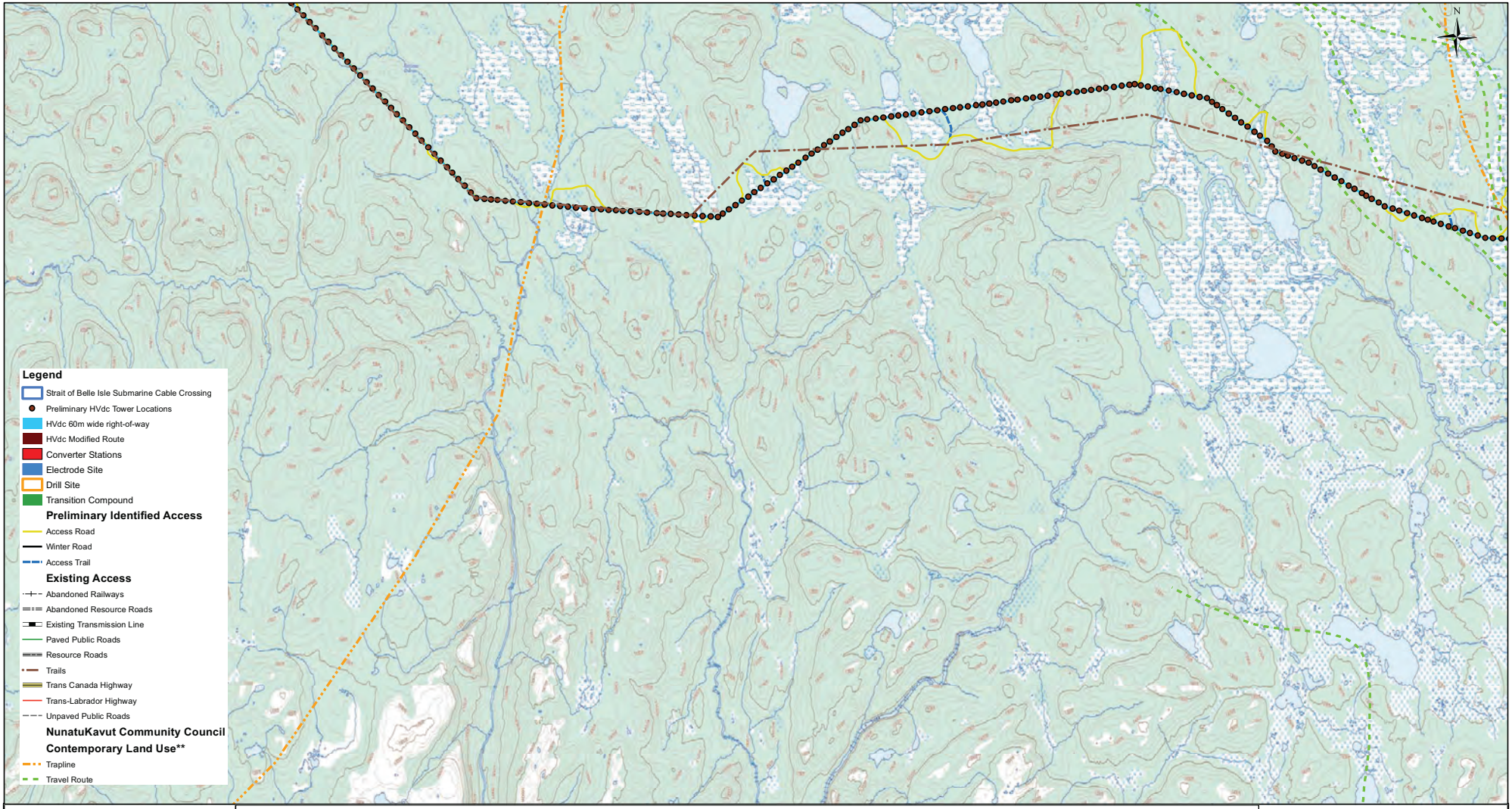
Figure #: 8

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:
* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis
** Based on surveys conducted in 2011 with members of the NunatuKavut Community Council



nalcor energy
LOWER CHURCHILL PROJECT

Figure #: 9

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

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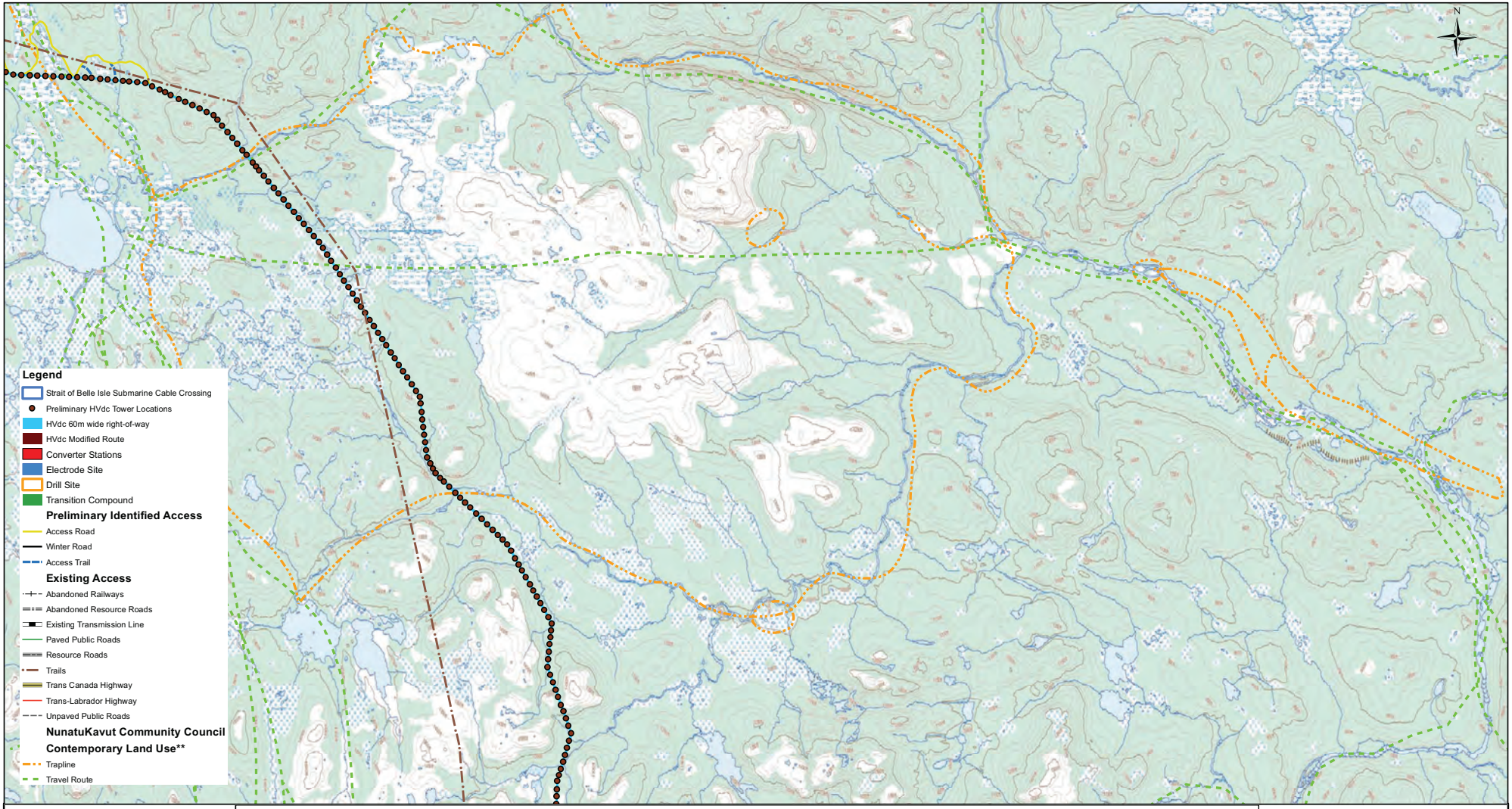

Figure #: 10

Labrador - Island Transmission Link
Additional Project Description*

nalcor energy
LOWER CHURCHILL PROJECT

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

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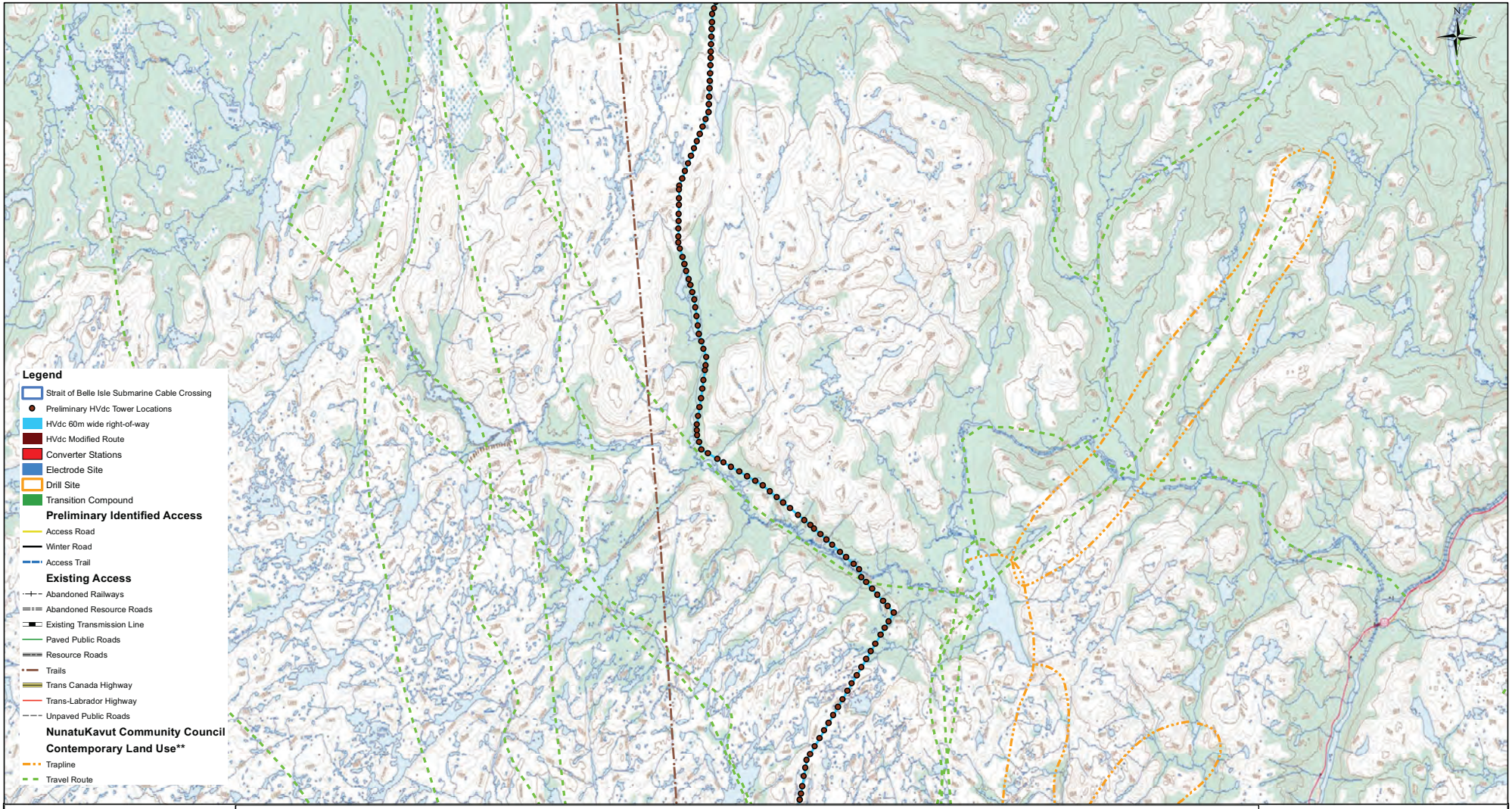

Figure #: 11

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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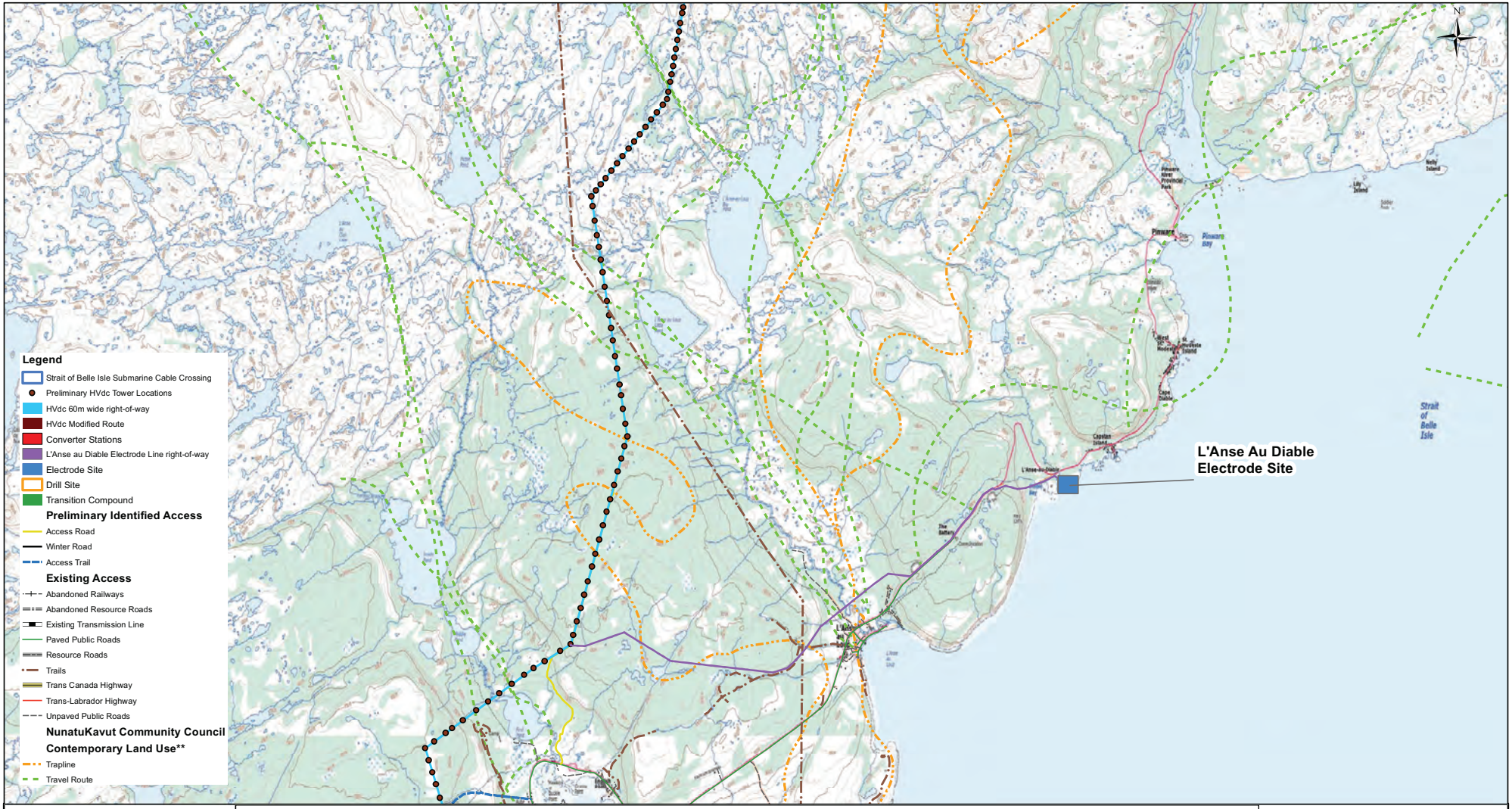

nalcor energy
LOWER CHURCHILL PROJECT

Figure #: 12

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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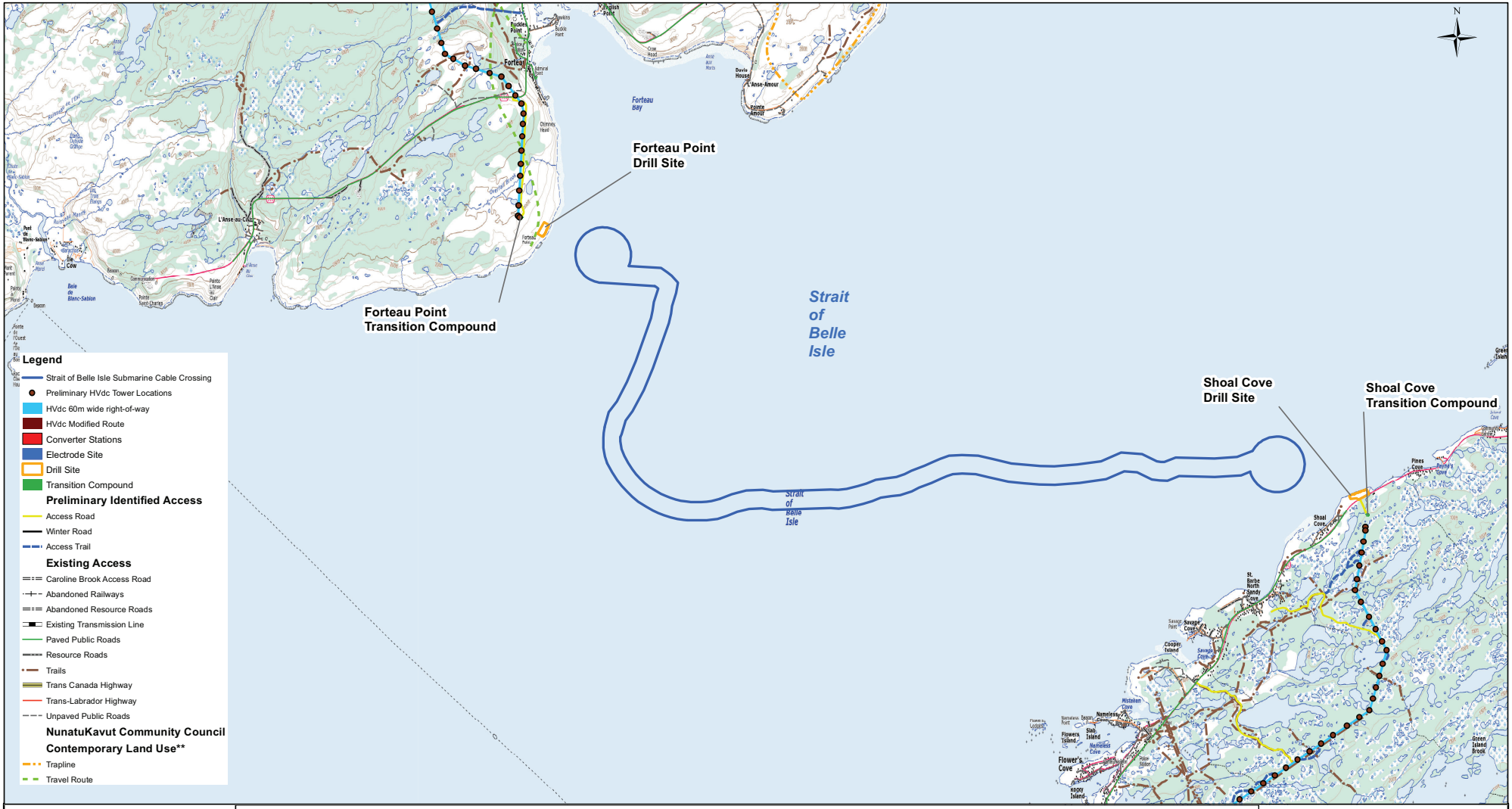

Figure #: 13

Labrador - Island Transmission Link
Additional Project Description*

nalcor energy
LOWER CHURCHILL PROJECT

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

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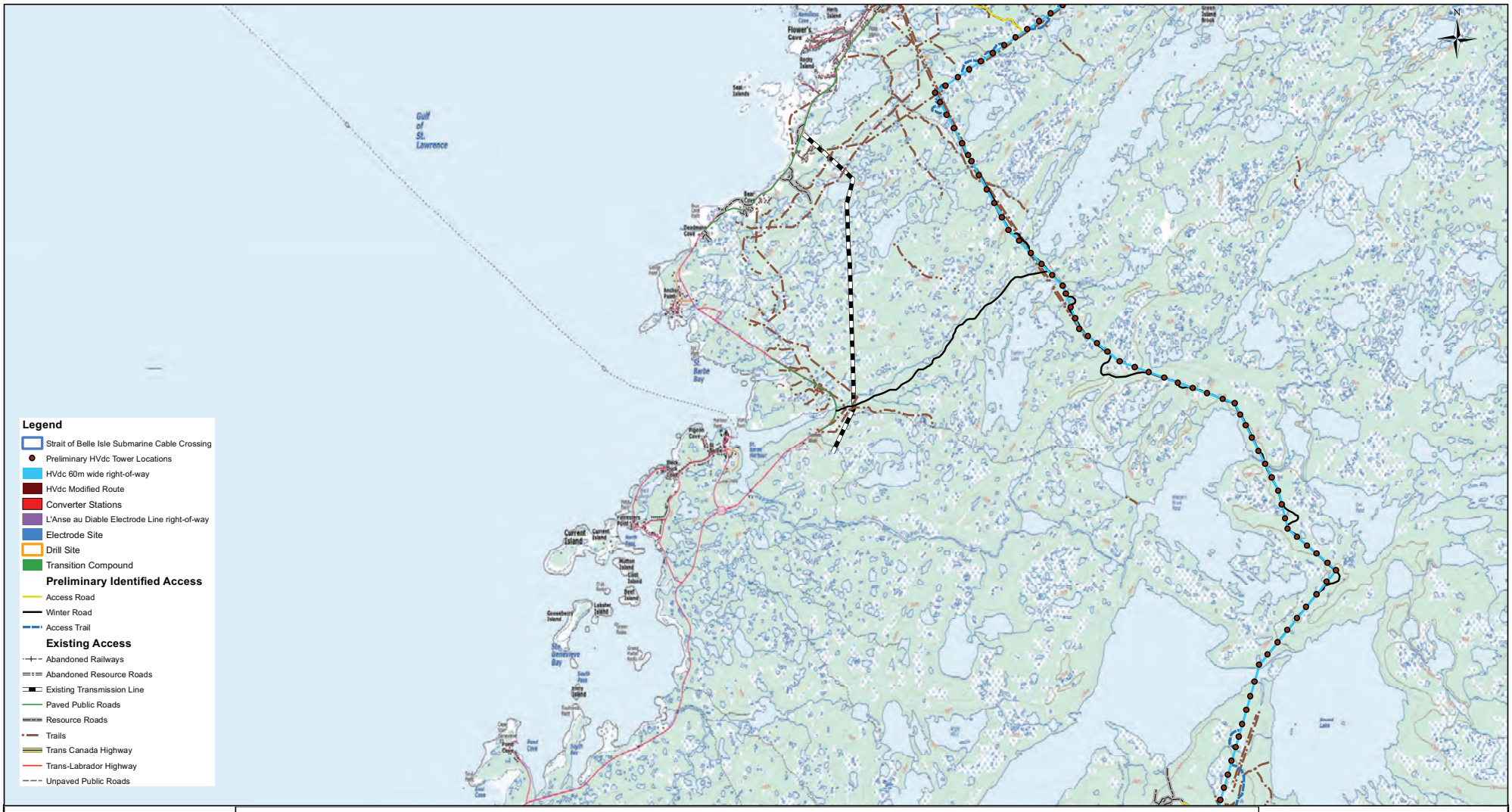


Figure #: 14

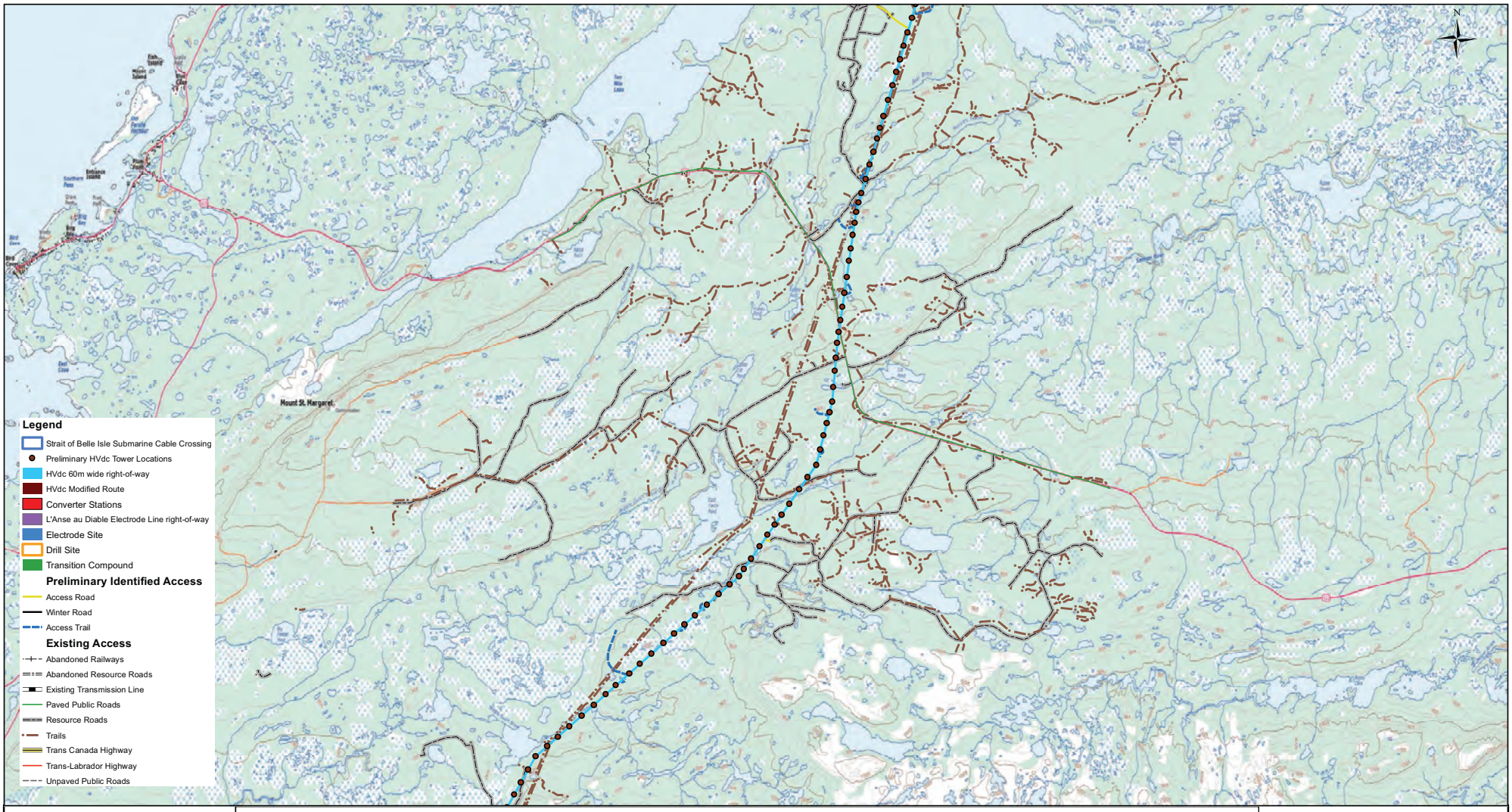
Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis



nalcor energy
LOWER CHURCHILL PROJECT

Figure #: 15

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

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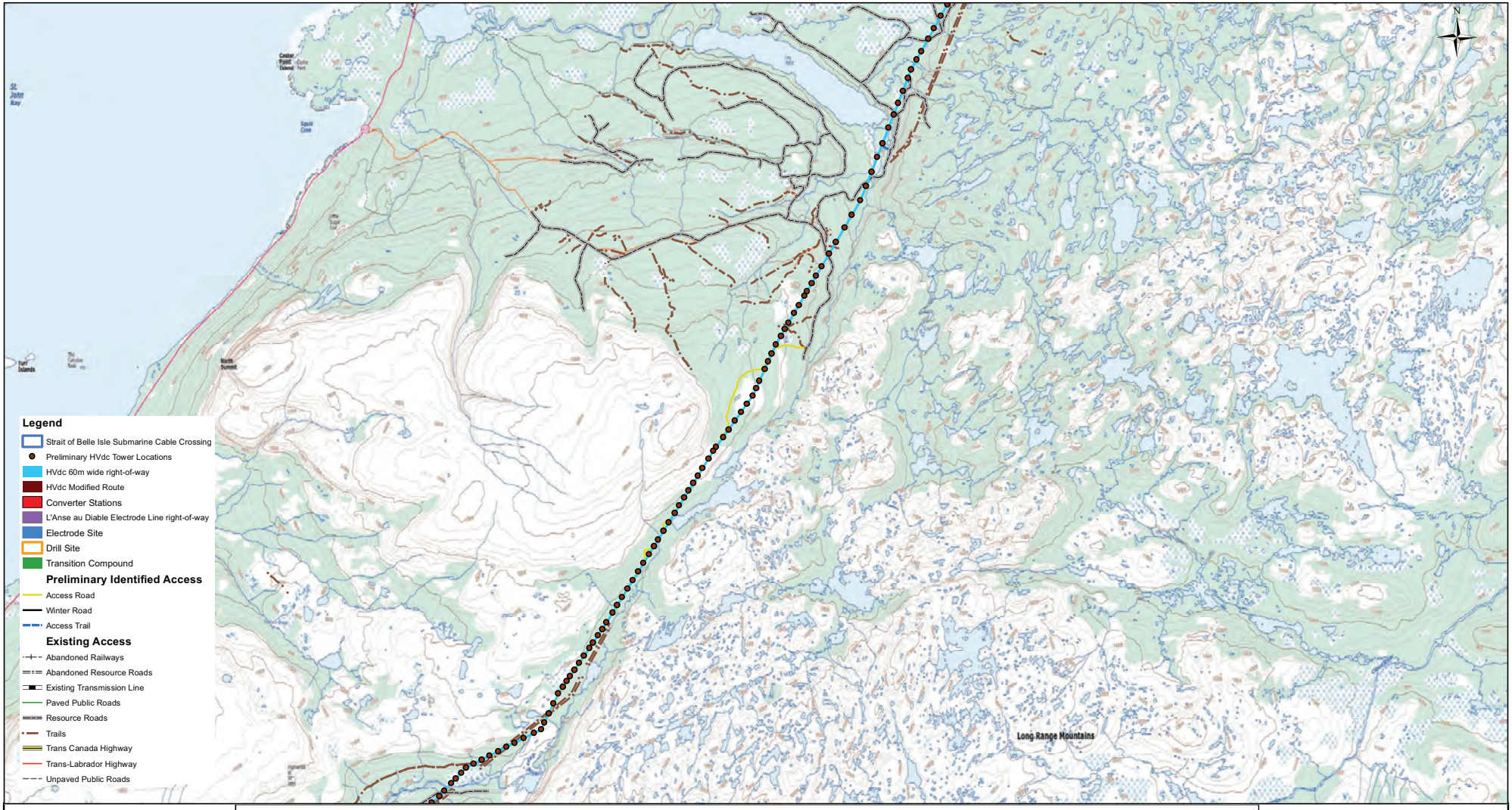

Figure #: 16

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis

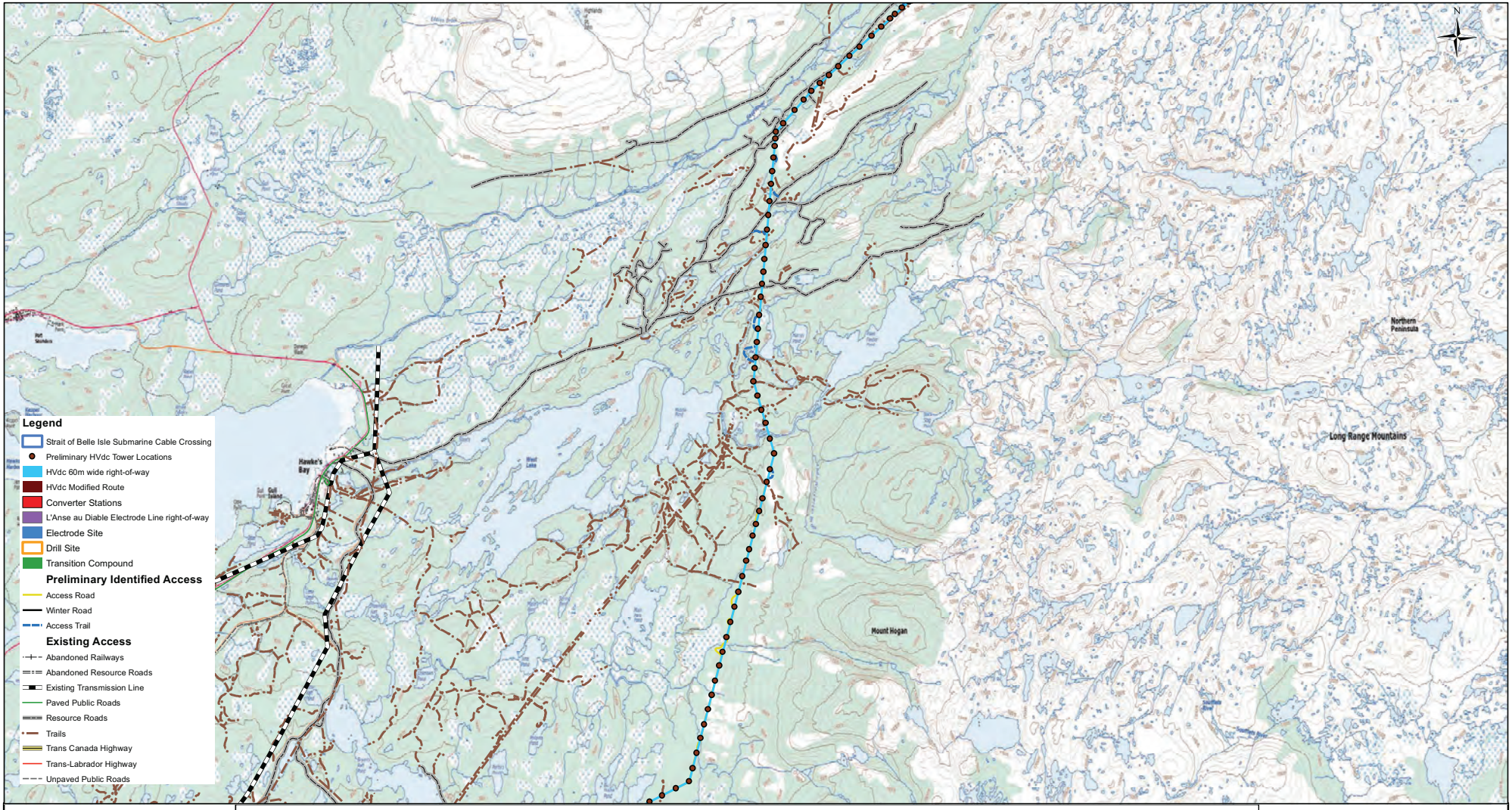

Figure #: 17

Labrador - Island Transmission Link
Additional Project Description*

1:100,000

0 1.25 2.5 5 Kilometers

DISCLAIMER:

* Based on Nalcor's current stage of detailed engineering and design (November 2012) - subject to change based on further analysis