

Land Use and Infrastructure Study

Proposed Bay d'Espoir to Western Avalon Transmission Line (TL 267)

FINAL REPORT

Prepared for:

Newfoundland and Labrador Hydro
A Nalcor Energy Company
Hydro Place, 500 Columbus Drive
PO Box 12400
St. John's, Newfoundland and Labrador
A1B 4K7 Canada

Prepared by:

Amec Foster Wheeler Environment & Infrastructure
A Division of Amec Foster Wheeler Americas Limited
133 Crosbie Road, PO Box 13216
St. John's, Newfoundland and Labrador
A1B 4A5 Canada

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EXECUTIVE SUMMARY

Newfoundland and Labrador Hydro (Hydro) is proposing to develop a transmission line (TL 267) across southeastern Newfoundland, from Bay d'Espoir to the Western Avalon Peninsula (the Project). The early identification and consideration of environmental components, issues and potential interactions in project planning are key in the design and construction of electrical transmission infrastructure. As planning and design work for the proposed TL 267 Project proceed (including route finalization, the placement of towers and other project infrastructure, etc), it will be important to ensure that adequate information on key environmental features and any associated sensitivities is available.

This Land Use and Infrastructure Study has involved a GIS mapping exercise to identify, gather and plot available environmental information within the identified (40 m wide) transmission line right of way and surrounding (1 km wide) Study Area related to key environmental features and potential considerations that would be relevant at this geographic scale (primarily 1:50,000) and at this stage of Project design. This includes spatial information related to a wide and varied range of environmental components, particularly those associated with the human environment and associated anthropogenic features and land and resource uses, where these are known and "mappable" from existing and available information sources and datasets.

The results of the Study indicate that the proposed TL 267 right of way will cross over or somewhat near a number of such activities and components, including, for example:

- Several municipal boundaries, planning areas and other development control areas;
- Public water supplies and a wetland stewardship area;
- Highways / roads and other easements;
- Communications towers and utility easements;
- Mineral exploration licenses;
- Quarries;
- Agricultural facilities, development areas and areas of interest;
- Outfitting operations (and particularly, their associated activities);
- Wildlife management (hunting and trapping) zones;
- Cabins, a large cottage planning area and campgrounds;
- Other Crown issued titles for personal and commercial use;
- Snowmobile and ATV trails;

- Forest management areas and forestry access roads;
- Scheduled salmon rivers and trout angling areas;
- Canoe and kayaking routes, including a Canadian Heritage River;
- The T'Railway Provincial Park and other multi-use and hiking trails; and
- A portion of the current area of the Bay du Nord Wilderness Reserve.

In some cases, information on other, select environmental components (particularly those related to the biophysical environment and archaeology) is being provided through other environmental studies which were completed concurrently with this one.

This information will assist Hydro and its design team and contractors in further identifying and seeking to proactively avoid or reduce any adverse interactions with these features. This information is also useful in support of the Environmental Assessment (EA) registration and review of the Project, and for use in subsequent environmental permitting and other regulatory processes.

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1.0 INTRODUCTION

Newfoundland Labrador Hydro (Hydro) owns and operates an extensive electrical generation and transmission system on the Island of Newfoundland, which includes a 613 megawatt (MW) hydroelectric generation station at Bay d'Espoir in the south-central portion of the Island, as well as several transmission lines that extend between it and other electrical infrastructure and load centres across the Island. This includes two existing transmission lines that run from that facility to Sunnyside which were constructed in the late 1960s, as well as a transmission system between Sunnyside and Chapel Arm.

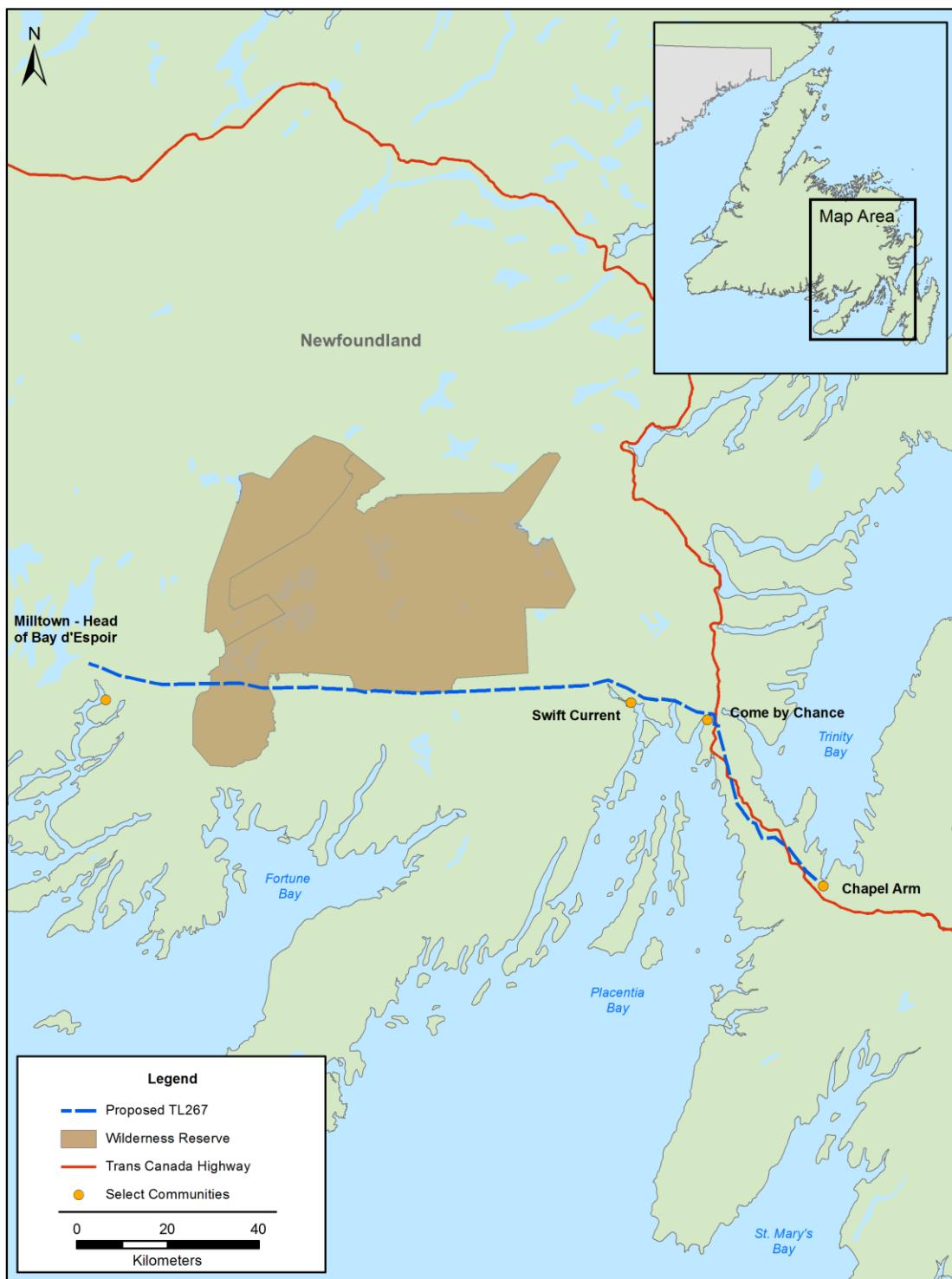
The proposed development project that is the subject of this study includes the construction and operation of a new 230 kilovolt (kV) transmission line that will be approximately 188 km long and connect the existing Bay d'Espoir and Western Avalon Terminal Stations (hereinafter also referred to as the "Project" or "TL 267"). The proposed TL 267 will parallel existing transmission line infrastructure (TL 202 and TL 206) from Bay d'Espoir to Come by Chance and further parallels TL 203 from Come by Chance to the Western Avalon substation in Chapel Arm (Figure 1). Along with the proposed development of TL 267, upgrades to existing infrastructure at the Bay d'Espoir and Western Avalon terminal stations will also be completed as part of this Project. The existing transmission lines (TL 202, 203 and 206) were cleared and constructed within the boundaries of the easement granted to Hydro by Government at the time of their development, as will the proposed TL 267.

Given that this new transmission line and associated infrastructure will follow entirely along existing transmission lines and other infrastructure in the region, the Project is expected to have few if any environmental issues associated with it. Hydro is, however, committed to ensuring that Project construction and operations are conducted in an environmentally acceptable manner, in full compliance with associated environmental regulations and permits, as well as the company's own environmental policies, plans and standards.

The Proponent has therefore planned and completed an environmental study program in relation to the proposed Project, in order to obtain and compile information on key aspects of the existing biophysical and socioeconomic environments within and near the Project area. The information provided through this study program is intended to support the Project's Environmental Assessment (EA) registration and review, and will be used in on-going Project planning and design, as well as in the eventual permitting and construction / mitigation planning for the Project.

This *Land Use and Infrastructure Study* comprises one component of that environmental study program.

Figure 1 - The Proposed Bay d'Espoir to Western Avalon Transmission Line (TL 267)



1.1 Study Purpose and Objectives

The early identification and consideration of environmental features, issues and potential interactions in project planning is key in the design and construction of electrical transmission infrastructure. As planning and design work for the proposed TL 267 Project proceed (including route finalization, the placement of towers and other Project infrastructure, etc.), it will be important to ensure that adequate and appropriate information on key aspects of the biophysical and socioeconomic environments and any associated sensitivities are available. This will assist the design team and contractors in further identifying and seeking to proactively avoid or reduce any adverse interactions with these features. Although a great deal of applicable and useful information is available for this purpose, it exists in multiple and widespread sources and somewhat inconsistent and incompatible formats.

The objective of this study is to identify and obtain relevant (spatial) environmental information, and to compile this information into a useable format and mapping product through integration into a geographic information system (GIS) , in support of the EA Registration and for use in on-going Project design and planning.

2.0 APPROACH AND METHODS

The following sections describe the general approach used in the completion of this Land Use and Infrastructure Study, including the Study Area, data sources, and the overall methods used to compile and present the resulting environmental information.

2.1 Study Area

The proposed Project will include construction and operation of a new electrical transmission system along existing transmission lines and roadways in south-central and eastern Newfoundland for a total distance of approximately 188 km. In completing the analysis, the study has focused upon identifying, reviewing and presenting information and analysis at a number of geographic scales, including:

Project Area or Transmission Line Right of Way: A specific routing has been selected for the transmission line, which will involve a cleared right of way approximately 40 m wide.

Study Area: The larger (1 km wide) Study Area extends 500 m on either side of the centre line of the identified right of way for the proposed TL 267, as described above. This surrounding area is considered in order to provide relevant, regional context for the analysis, as well as address the potential for Project-related activities to occur outside the 40 m wide transmission line routing itself.

Detailed mapping for identified environmental features within the above described geographic areas are presented in a series of map atlases which are included in this report as Appendices A to E. For large-scale environmental features, additional mapping is also provided for Newfoundland as a whole where relevant (Appendix F).

2.2 Data Sources and Mapping

This Land Use and Infrastructure Study was undertaken to identify, compile, review, analyze and map existing and available spatial data related to key environmental features within the Study Area and the Project Area. This study used a variety of datasets and information, which primarily use available data at a scale of 1:50,000 to describe the existing environment. Information sources included previous environmental studies, government mapping databases and others. An overview is provided in Table 1.

This study employed a standard mapping approach regularly used in transmission line planning in Canada and elsewhere. The study team conducted background research on the Study Area to identify, obtain and review up-to-date relevant spatial data pertaining to key environmental (particularly, socioeconomic) components and features within the Study Area. A geographic information system (GIS) was used to prepare a geo-database to store, analyze and map the spatial data.

Table 1 – Key Spatial Data Sources for Environmental Components Found in the Study Area

Category	Component or Feature	Information Source(s)
Communities and Related Infrastructure	Municipalities	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas
	Protected Roads	
	Waste Disposal Sites	
	Public Water Supplies	NL Department of Environment and Conservation. (2015). Water Resources Portal
Transportation, Utility and Communication Infrastructure	Roads and Highways	Natural Resources Canada. (2015). National Topographic System 1:50,000 Series
	Utilities	Nalcor Energy Geodatabase of Crown Issued Titles
	Communications Infrastructure	Nalcor Energy Geodatabase of Crown Issued Titles Industry Canada, Spectrum Direct
Parks and Protected Areas	Provincial Parks and Provincial Park Reserves	NL Department of Environment and Conservation, Parks and Natural Areas. (2015). GIS Data
	Provincial Wilderness, Ecological and Wildlife Reserves	
	Canadian Heritage Rivers	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas
	Wetland Stewardship Areas	
Recreational Land and Resource Use	Hunting: Moose, Black Bear, Small Game, Migratory Game Birds	NL Department of Environment and Conservation <i>2015-2016 Hunting and Trapping Guide</i> <i>Canada NL Migratory Birds Hunting Regulations, 2014-2015</i>
	Scheduled Salmon Rivers	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas Fisheries and Oceans Canada <i>Newfoundland and Labrador Angler's Guide 2014-2015</i>
	Cabins and Cottage Developments	Nalcor Energy Geodatabase of Crown Issued Titles
	Campgrounds and Recreational Vehicle Parks	NL Department of Business, Tourism, Culture, and Rural Development – Newfoundland and Labrador Tourism Website
	Trails	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas Nalcor Energy Geodatabase of Crown Issued Titles Mussio Ventures Ltd. (2014). Newfoundland & Labrador: Adventure Topographic Maps & Guide 1st Edition.

Category	Component or Feature	Information Source(s)
		NL Department of Natural Resources. (2015). GeoScience OnLine
	Canoe and Kayaking Routes	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas Mussio Ventures Ltd. (2014). Newfoundland & Labrador: Adventure Topographic Maps & Guide 1st Edition.
Commercial and Other Land Use	Mining and Quarrying	NL Department of Natural Resources. (2015). GeoScience OnLine
	Agriculture	NL Department of Natural Resources. (2015). Digital Agricultural Lands Inventory Nalcor Energy Geodatabase of Crown Issued Titles
	Forestry	NL Department of Municipal and Intergovernmental Affairs. (2015). NL Land Use Atlas
	Trapping	NL Department of Environment and Conservation 2015-2016 <i>Hunting and Trapping Guide</i>
	Other Land Use	Nalcor Energy Geodatabase of Crown Issued Titles

This report presents the results of that exercise, and includes a series of detailed maps presenting combinations of environmental features grouped by major theme as appropriate. To allow for optimal presentation and analysis of key environmental features within the Study Area, this linear region has also been sub-divided into a series of 5 km long segments and environmental features within each are illustrated and described.

The Crown Lands Administration Division of the NL Department of Municipal and Intergovernmental Affairs manages and allocates provincial Crown Land for various purposes including personal and commercial or industrial use. Crown Land is made available for industry, business, settlement, recreation and conservation uses under the *Lands Act*. The Department may also reserve an area of Crown Land for potential future developments (NLMIA-L 2015). A number of Crown Issued Titles exist in the Study Area and in the region surrounding it, which include a variety of licenses, grants, leases and permission to occupy for plots of land and easements for residences, municipal use, communications, utilities, ATV trails, cottages, remote cottages, commercial uses, agriculture and others. The maps illustrate all Crown Issued Titles that intersect the Study Area (1 km wide) and also show cabins (cottages and remote cottages) within 5 km of either side of the centre of the proposed transmission line right of way. Only those Crown Issued titles that are within the Study Area are discussed in this report, with particular emphasis on those that intersect with the proposed 40 m wide right of way. Where the purpose of the Crown Issued Titles is known these are illustrated and discussed in the relevant sections of the report. All Crown Issued Titles within the Study Area for which the purpose is not known are illustrated as "Other".

3.0 RESULTS

The following sections summarize the key results and findings of the Land Use and Infrastructure Study. This includes information from existing and available sources pertaining to relevant components and features of the socioeconomic environment, particularly those related to communities, transportation, utilities, communications, protected areas, recreation and commercial activities.

The associated map index (Appendix A) and map atlases (Appendices B to E) present this information in detail, with relevant environmental components and features grouped according to general theme. This report discusses only those features that fall within the Study Area itself, although the accompanying maps may illustrate elements and activities outside of the proposed Study Area where these are known and included in the relevant data sets used.

In some cases, information on other, select environmental components and features (particularly those related to the biophysical environment and archaeology) is being provided through the other environmental studies which were completed concurrently with this one.

3.1 Communities and Related Infrastructure

This section discusses community development within and outside of municipalities for those communities that fall within the Study Area. Community related infrastructure such as water supplies and waste disposal sites are also presented.

3.1.1 Municipalities

The NL Department of Municipal and Intergovernmental Affairs, through the Engineering and Land Use Planning Division, administers land use planning in incorporated municipalities and other areas. Under the *Urban and Rural Planning Act, 2000*, a city or town council may prepare a 10-year Municipal Plan and Development Regulations within their respective municipal boundaries and planning areas. Development permits are required within municipal boundaries as defined by the Municipal Plan and Development Regulations for the particular area. Development permits are also required within municipal planning area boundaries that may be designated to protect local interests such as water supplies (NLHOA 2000; NLDMIA 2015a).

The Study Area crosses the Municipal Boundaries and/or Municipal Planning Area boundaries of the Towns of Come By Chance, Sunnyside, Chapel Arm and Norman's Cove-Long Cove (Appendix B). A Crown Issued lease for an easement belonging to the Town of Southern Harbour and a grant for a residential property are also present within the Study Area, the latter of which is within the Town of Come By Chance. The transmission line right of way intersects with the Towns of Come By Chance, Arnold's Cove, Southern Harbour and Chapel Arm (Table 2).

Table 2 – Municipalities Crossed by the Proposed Transmission Line

Community	Municipal Boundary	Municipal Planning Area
Town of Come By Chance	•	•
Town of Arnold's Cove		•
Town of Southern Harbour		•
Town of Chapel Arm	•	•

3.1.2 Protected Roads

Through the *Protected Road Zoning Regulations* (of the *Urban and Rural Planning Act, 2000*), the NL Department of Municipal and Intergovernmental Affairs may apply land use control measures on roadways in Newfoundland and Labrador. These *Regulations* were established to ensure traffic efficiency, public safety and consistent development along roadways. Under the *Regulations*, a building control line is established and a zoning plan may be developed. Currently 36 major and secondary highways have been designated as protected roads and 17 have protected road zoning plans. A provincial development permit is required to build on or develop land, whether Crown or privately owned, within the building control lines of a Protected Road. Development applications within these areas are reviewed to ensure compliance with the *Regulations*, and the protected road zoning plan if one has been prepared. Relevant government departments, agencies, officials and persons are consulted about proposed developments. A variety of types of developments may be permitted within protected road zoning areas but development in Protected Road Buffers is limited (Service NL 2015; NLHOA 2012; NLMIA-PR 2015).

The Study Area crosses and/or aligns with Protected Roads and Protected Road Buffers on Route 361 St. Alban's Road and Route 360 Bay d'Espoir Highway near Milltown-Head of Bay d'Espoir. In the eastern part of the Study Area it intersects with Route 210 Burin Peninsula Highway near Swift Current and Route 1 Trans-Canada Highway at Come By Chance, Arnold's Cove and along the Isthmus of the Avalon Peninsula (Appendix B). The proposed transmission line right of way intersects with Route 361, Route 360, Route 210 and Route 1 (Table 3).

Table 3 – Protected Roads Crossed by the Proposed Transmission Line

Road	Protected Road	Protected Road Buffer
Route 361 St. Alban's Road	•	•
Route 360 Bay d'Espoir Highway	•	•
Route 210 Burin Peninsula Highway	•	•
Route 1 Trans-Canada Highway	•	•

3.1.3 Public Water Supplies

The majority of people in the province of Newfoundland and Labrador receive drinking water from public surface water supplies that have been designated as protected under the *Water Resources Act (2002)*. Under the Act, water resources are designated as either protected public water supply areas (surface water supplies) or protected wellheads (groundwater supplies). In addition, unprotected water supply areas may also be identified as the entire natural drainage area of a current or future potential water supply. The Province provides data and information

including digital mapping resources that identify all protected and unprotected public water supply and wellhead areas (NLDEC-WRM 2013; NLDEC-WRM 2015).

Any proposed development within a protected water supply area is subject to the Provincial *Policy for Land and Water Related Developments in Protected Water Supply Areas* and proponents must submit an application for a Permit for a Development Activity in a Public Water Supply Area. The Department of Environment and Conservation reviews applications in consultation with other relevant agencies, including the municipal government, and may approve particular activities as outlined in the Policy. If issued, a Certificate of Approval will contain specific terms and conditions (NLDEC-WRM 2013).

Drinking water supplies and potential future water supplies may also be protected by a municipality under a municipal plan and land use bylaws. The area around a drinking water supply can be designated as a protected area and use of the waterbody and the surrounding land area may be regulated through land use zoning. In designated areas, buffer zones (usually between 30 and 150 m) are maintained around drinking water supplies.

The Study Area crosses five protected public water supply areas in the eastern portion of the province near the head of Placentia Bay and on the Isthmus of the Avalon. These are identified as Black Duck Pond (Swift Current), Butchers Brook (Come By Chance), Steve's Pond (Arnold's Cove), Brigades Pond (Southern Harbour) and John Newhook's Pond (Norman's Cove-Long Cove) (see Appendix B). The proposed transmission line right of way crosses Black Duck Pond, Steve's Pond, Brigade's Pond and John Newhook's Pond.

3.1.4 Waste Disposal Sites

The NL Department of Environment and Conservation permits municipal and regional waste disposal sites that are operated by municipalities, regional waste management agencies or private operators. Since 2002, the number of waste disposal sites in the province have been reduced by at least 63 percent (148 of 236 sites had been operationally closed as of March 2014). Many of these sites (at least 40 percent) have also been closed to provincial environmental standards (GNL 2014). These closed sites still exist and are identified with surrounding buffers due to their potential for long term environmental and/or geotechnical concerns.

The Study Area crosses the buffers of waste disposal sites near Swift Current and in Norman's Cove (Appendix B). The waste disposal sites of both of these communities have been operationally closed and the Swift Current (Garden Cove) site is environmentally closed, meaning that certain environmental protection measures have been employed (GNL 2014). The proposed transmission line right of way crosses the land fill buffer near Swift Current.

3.2 Transportation, Utility and Communication Infrastructure

The Island of Newfoundland is served by various road, air and marine transportation networks. The Study Area does not intersect with any airports, aerodromes, heliports, landing strips, ports

or harbours. The following sections describe transportation and communications infrastructure that are within the Study Area.

3.2.1 Roads and Highways

Through the *Works, Services and Transportation Act*, the Department of Transportation and Works is responsible for the provincial road system. The Transportation Branch administers design, construction and maintenance of provincial government managed roads (NLDTW-T 2015). Municipalities maintain roads within their boundaries, particularly where these roads are not provincial highways.

The Study Area crosses a number of roads and highways in south-central and eastern Newfoundland. These include Route 361 St. Alban's Road, Route 360 Bay d'Espoir Highway, Route 210 Burin Peninsula Highway, Route 1 Trans-Canada Highway, Route 210-13 Garden Cove, Route 210-11 North Harbour and Route 2-1-1 Little Harbour (Appendix B). It also crosses various roads such as those that lead to Come By Chance, Bull Arm, Jack's Pond, Southern Harbour, Bellevue, Chapel Arm and other unnamed roads. The proposed transmission line right of way intersects Routes 361, 360, 210, 1, 210-11, 2-1-1, roads leading to Come By Chance, Bull Arm, Bellevue and several unnamed roads.

3.2.2 Utilities and Communications

In Newfoundland and Labrador, electric power is supplied to consumers by two utilities, Hydro and Newfoundland Power (NLDNR 2014). Nalcor Energy is currently constructing a new transmission line from Muskrat Falls, Labrador to Soldiers Pond on the Avalon Peninsula. Construction is anticipated to occur in the segment from Port Blandford to Soldiers Pond from spring 2015 to fall 2017 depending on the activity (Nalcor-MF 2015). The proposed TL 267 right of way intersects with Crown Issued leases for Hydro easements / commercial sites for existing transmission lines within the Study Area (Appendix B). It also intersects with the easement lease for the future Labrador-Island Transmission Link. Hydro Crown Issued titles are crossed by the proposed TL 267 right of way in several areas.

Industry Canada regulates radio communications and broadcasting services through the Canadian *Radiocommunication Act*. Under this Act, proponents must gain the approval of Industry Canada for the site placement of all masts, towers and other antenna-supporting structures, as well as inform and consult with the public, build any new towers within three years following consultation, cooperate with the relevant land use authority to determine and comply with local requirements and meet the Government of Canada's technical and safety requirements (Industry Canada 2015a). Various communications sites and infrastructure are located in the region and several Crown Issued land grants exist within the Study Area.

Bell Aliant is the largest provider of telephone, mobility, internet and television services in Atlantic Canada. The company was formed in 1999, when NewTel Enterprises (formerly Newfoundland Telephone) merged with other Atlantic Canadian providers to form Aliant Inc. which was subsequently merged with Bell in 2006 (NSEG 2013). The Study Area crosses three Bell Aliant Crown Land leases, two of which are listed as commercial operations and the other is

an easement (Appendix B). A communications tower is located on a Bell Aliant lease within the Study Area near Southern Harbour (Industry Canada 2015b). The proposed transmission line right of way does not cross any of the existing Bell Aliant leases.

In 1854, the New York, Newfoundland and London Telegraph Company was granted a 50-year telegraphy monopoly for Newfoundland. This contract was subsequently assumed by the Anglo-American Telegraph Company (AAT) which had installed lines to connect various areas of the Island by 1867. Over time, the telecommunications industry underwent consolidation, technology evolved and the operating company eventually became NewTel Enterprises (HNL 2015; NSEG 2013). The Study Area intersects with New York, Newfoundland and London Telegraph Company Crown Issued grants in two locations (Appendix B). The proposed transmission line right of way also crosses these grants, which are likely easements for cables that are no longer active.

3.3 Parks and Protected Areas

In Canada, all three levels of government establish and administer parks, reserves and other types of protected areas. These include provincial and federal lands, which may be designated, protected and managed for conservation and/or recreation purposes. Municipal parks and protected areas may also be established within community boundaries. Both the provincial and federal governments apply a natural areas systems approach to identify, establish and manage areas for conservation due to environmental sensitivity or to represent and protect biodiversity and natural heritage. This section discusses protected areas that fall within the Study Area.

3.3.1 Provincial Parks and Provincial Park Reserves

The Government of Newfoundland and Labrador establishes provincial parks under the *Provincial Parks Act* for human use and enjoyment and also for environmental protection. The province has 13 parks with overnight camping facilities, seven scenic parks for day use, one waterway park, the T'Railway Provincial Park and 10 provincial park reserves (NLDEC-P 2014a). One provincial park is located partially within the Study Area.

Between 1995 and 1997, the provincial government decommissioned a number of parks or portions of parks but still maintains land holdings for various properties as provincial park reserves. Some former parks were sold to private interests and portions of other former parks are now campgrounds managed by private operators. One of these sites, Jack's Pond Provincial Park Reserve near Arnold's Cove, was originally established to protect rare plants and habitats including barrens, wetlands and a forested stream valley (NLDEC-P 2014b). The Study Area passes through the decommissioned portion of the former Jack's Pond Provincial Park but not through the Provincial Park Reserve (Appendix C).

The T'Railway Provincial Park is a linear system that occupies nearly 900 km of the former Canadian National Railway bed from St. John's to Port aux Basques. The Park corridor is a recreational resource for various activities, a part of the province's built heritage and provides access to natural and scenic landscapes (NLDEC-P 2014c). The Study Area intersects with the T'Railway in areas where both traverse through the Isthmus of the Avalon (Appendix C). The

proposed transmission line right of way crosses the T'Railway Provincial Park three times, in Come by Chance, near Jack's Pond and near Chance Cove.

3.3.2 Provincial Wilderness, Ecological and Wildlife Reserves

The Government of Newfoundland and Labrador designates wilderness and ecological reserves under the *Wilderness and Ecological Reserves Act*. Eighteen wilderness and ecological reserves have been created since the Act was passed in 1980. As a key element of the Province's conservation strategy, wilderness and ecological reserves conserve wilderness, wildlife habitat and biodiversity and also provide outdoor venues for learning, research and leisure activities. Wildlife Reserves are established through the *Wild Life Act* to protect important wildlife habitats (NLDEC-P 2014e). The Study Area crosses the Bay du Nord Wilderness Reserve but not the Middle Ridge Wildlife Reserve (Appendix C).

The 2,895 km² Bay du Nord Wilderness Reserve was officially designated under the *Wilderness and Ecological Reserves Act* in 1990 to help protect habitat (primarily wintering) for the Middle Ridge caribou herd. The Reserve also protects a representative portion of the Maritime Barrens-Central Barrens subregion and includes the largest protected river system in the province as well as the largest Canada goose habitat in Newfoundland. Entry permits are required (no facilities and amenities are provided) and the area is used for canoeing, kayaking, wilderness camping, angling, hunting, bird / wildlife watching and outdoor photography. Snowmobiling is permitted but not within the caribou winter habitat range from December 15 to March 15 (NLDEC-P 2014e). A portion of the proposed transmission line right of way crosses the Bay du Nord Wilderness Reserve.

3.3.3 Canadian Heritage Rivers

The Canadian Heritage Rivers System (CHRS) was established in 1984 by federal, provincial and territorial governments to recognize and manage Canadian rivers with outstanding natural, cultural and recreational importance, and to encourage public enjoyment and appreciation. Through this program, 38 Canadian Heritage Rivers have been designated (another four have been nominated) under various legislations. Newfoundland and Labrador currently has two Heritage Rivers: the Main River and the Bay du Nord River (CHRB 2011). The Study Area crosses the Bay du Nord River (Appendix C).

The Bay du Nord River system (approximately 997 km²) was officially designated as a *Canadian Heritage River* in 2005. The system is protected by provincial legislation as about 96 percent of the river falls within the Bay du Nord Wilderness Reserve and the Middle Ridge Wildlife Reserve. The remaining four percent is anticipated to be protected through a co-operative effort among resource agencies. The Bay du Nord Heritage River is recognized for its natural heritage such as Smokey Falls and the Hermitage Fault. The river is also favoured for its beauty as well as other features of the Bay du Nord Wilderness Reserve and the Middle Ridge Wildlife Reserve. The river is used for canoeing, kayaking, river rafting and fishing as well as other activities on land in the two Reserves (NLDEC-P 2014d). The proposed transmission line right of way crosses the Bay du Nord Heritage River.

3.3.4 Wetland Stewardship Areas

Newfoundland and Labrador's Wetland Habitat Stewardship program works within the context of the Eastern Habitat Joint Venture to secure, enhance and restore important wetland areas for waterfowl and other wildlife species. Under this program, Wetland Stewardship Agreements are developed and signed with municipalities that manage important habitats within their planning area boundaries.

The Town of Come By Chance signed a Municipal Stewardship Agreement with Eastern Habitat Joint Venture in 1995. This Agreement protects the Come by Chance Estuary, which is a spring and fall staging habitat for various waterfowl species including black duck, green-winged teal and Canada goose. The Estuary is also used as a habitat for nesting ducks, geese and shorebirds, and green-winged teal use the area for nesting and rearing young (NLDEC-W 2014a). The northern portion of the Come by Chance Estuary is crossed by the Study Area and the proposed transmission line right of way (Appendix C).

3.4 Recreational Land and Resource Use

A number of other land and resources use activities occur throughout the Study Area and larger surrounding region, including various recreational, traditional and subsistence pursuits. The accompanying maps (Appendix D) show recreational land use activities and elements (e.g., scheduled salmon rivers, cabins, cottage developments, campgrounds and RV parks, trails and canoe routes) within the Study Area where these are known and are "mappable" from existing and available spatial databases. Due to large size of some resource management areas, these areas are shown at the provincial scale in Appendix F.

3.4.1 Hunting

The NL Department of Environment and Conservation regulates hunting and trapping under the *Wild Life Act*. The Wildlife Division manages these resources through annual management plans for big game, small game and furbearers. Plans are informed by the results of wildlife population surveys, trend data from hunting and trapping license returns (effort and success rates) and input from hunters, trappers, Conservation Officers, non-government organizations and the general public. This information is used to set quotas and establish seasons depending on the health and abundance of populations (NLDEC-W 2015a).

Each year the Department publishes a hunting and trapping guide that outlines license requirements, hunting areas, seasons, quotas and bag / possession limits. The province is divided into three types of big game management areas (moose, black bear and caribou) and small game management areas and zones apply to a variety of species. Waterfowl and murre hunting are governed by the federal *Migratory Birds Regulations* of the *Migratory Birds Convention Act*. The Fish and Wildlife Enforcement Division of the Department of Justice and Public Safety enforces provincial regulations related to wildlife, all-terrain vehicles, snowmobiles, endangered species and wilderness reserves, and federal legislation where empowered to do so (NLDJPS undated; EC-CWS 2014; NLDEC-W 2015a).

Moose

Moose hunting is a popular recreational activity and moose meat is an important part of the Newfoundland and Labrador diet, with applications for licenses typically exceeding the number available. For the 2015-2016 hunting season (September 13 to March 8), the province is divided into 76 Moose Management Areas (MMAs) of which 54 are located on the Island of Newfoundland. In this hunting season, the number of overall licenses issued (32,430) for Newfoundland was decreased by 1,425 or 4.5 percent (NLDEC-W 2015a). The proposed Study Area and the proposed transmission line right of way cross Moose Management Areas 25 Bay d'Espoir, 26 Jubilee Lake, 28 Black River, 30 Burin Peninsula Knee and 44 Bellevue (Appendix F).

In 2015, the NL Wildlife Division published its 2015 to 2020 Moose Management Plan, which addresses management of the moose population as a food resource as well as an issue on highways and in agricultural areas. The strategy outlines measures to reduce moose-vehicle collisions on highways including a three kilometer area either side of the shoulder of the Trans-Canada Highway between St. John's and Clarenville called the Avalon Moose Reduction Zone - Moose Management Area 100. This area will have an earlier season opening and 300 additional licenses in the 2015-2016 season, which will be from September 19, 2015 to January 31, 2016 (NLDEC-W 2015b). This measure will result in increased fall hunting activity along the Trans-Canada Highway in Eastern Newfoundland.

Black Bear

The Province has 48 Black Bear Management Areas, of which two are in Labrador and 46 are in Newfoundland. Eight of the Newfoundland black bear management areas are currently closed and seven of these are on the Avalon Peninsula and the Isthmus. Black bear are mainly hunted for sport and license holders may capture two bears annually during a spring season that begins in early May and ends in early July (NLDEC-W 2015a). Management areas on the Island of Newfoundland correspond spatially with MMAs which means that the Study Area and the proposed transmission line right of way also cross 25 Bay d'Espoir, 26 Jubilee Lake, 28 Black River, 30 Burin Peninsula Knee and 44 Bellevue (Appendix F). Black Bear Management Area 44 is currently closed to hunting (NLDEC-W 2015a).

Caribou

Caribou populations have been declining in Newfoundland and Labrador and as of January 2013, all caribou hunting zones in Labrador are currently closed. Presently, some sub-populations of Newfoundland woodland caribou appear to be stabilizing or increasing but five of the 19 Island Caribou Management Areas (CMA) are currently closed to hunting (NLDEC-W 2015a).

The Study Area and the proposed transmission line right of way both cross CMAs 64, 67 and 73, the latter of which is currently closed for hunting (Appendix F). Opening and closing dates vary depending on location, and the 2015-2016 season for open areas is from September 12 to December 6, 2015 (NLDEC-W 2015a).

Small Game

Newfoundland and Labrador has regulated areas for hunting various small game species with associated bag and possession limits. The Island of Newfoundland has open areas for hunting willow and rock ptarmigan, ruffed and spruce grouse and snowshoe hare. The Study Area and the proposed transmission line right of way cross Swift Current (SC), Burin, Avalon and Remainder of Island (ROI) management areas for willow and rock ptarmigan, Island of Newfoundland management area for ruffed and spruce grouse and ROI management area (i.e., all of the Island of Newfoundland) for snowshoe hare (Appendix F). Within the Study Area, fall and winter hunting seasons are available for ptarmigan and grouse, generally from September to December for shooting and October to March for snaring. The 2015-2016 snowshoe hare hunting season is open between mid-October and mid-March for shooting and snaring. Currently, all areas of the Island are closed for hunting Arctic hare (NLDEC-W 2015a).

Migratory Birds

Bird hunting in Newfoundland and Labrador includes waterfowl (ducks, geese and snipe) and murre species (EC-CWS 2014). The Study Area and the proposed transmission line right of way cross the Southern Inland and the Avalon-Burin Inland Waterfowl and Snipe Hunting Zones (Appendix F).

3.4.2 Angling

In Newfoundland and Labrador, recreational sport and subsistence fishing occurs in both freshwater and marine environments. Fisheries and Oceans Canada (DFO) regulates and manages coastal and inland fisheries through the *Newfoundland and Labrador Fishery Regulations*, which provide for recreational angling opportunities. Legislation and regulations are enforced by DFO Fishery Officers and the NL Department of Justice's Fish and Wildlife Enforcement Division (DFO 2014).

The annual Newfoundland and Labrador Angler's Guide lists applicable regulations, seasons, locations, retention and possession limits as well as catch and release procedures. Salmon and trout management plans and various watershed management plans establish season dates and catch limits. These plans are developed in consultation with user-groups and stakeholders including anglers, outfitters, conservationists, aboriginal groups and the Provincial Government (DFO 2014).

Salmon

DFO manages recreational salmon fishing in 15 management zones in Newfoundland and Labrador. Each zone has a spring season that generally opens in June and closes in September. Fall angling is available on the Gander, Exploits and Humber Rivers only. Retention limits are applied based on river classification and range between zero and six fish in a season (DFO 2014). The Study Area crosses various scheduled salmon rivers as identified in Table 4 below (see also Appendix D). All of these rivers except for 92 Watson's Brook are also crossed by the proposed transmission line right of way.

Table 4 – Scheduled Salmon Rivers Crossed by the Proposed Transmission Line

Zone	River	Management Considerations
Zone 11	116 Conne River and Tributaries including Bernard's Brook and Twillick Brooks, Bay d'Espoir	Watershed management plan with closed areas
	110 Long Harbour River and Tributary Streams, Fortune Bay	
Zone 10	95 Piper's Hole River	
	94 Black River, Placentia Bay (below falls)	Closed area
	93 Northeast River, Placentia Bay	
	92 Watson's Brook, Placentia Bay	
	91 Come by Chance River	
Zone 6	71 Bellevue River, Trinity Bay	Closed area

Source: DFO (2014)

Trout

The entire Island of Newfoundland is designated as Zone 1: Insular Newfoundland under the *Newfoundland and Labrador Fishery Regulations*. Angling is available for trout (speckled trout, brown trout, rainbow trout, ouananiche, Arctic char and smelt) in winter (February 1 to April 15) and summer (May 15 to September 7) in the 2014-2015 season. Anglers must comply with bag and possession limits, which apply to trout and Arctic char but not to smelt (DFO 2014). Trout angling is generally not monitored for location and level of activity.

Trout fishing likely occurs in lakes, ponds, rivers, streams and the ocean throughout and near the Study Area, except within remote areas will little or no access. These trout (brown trout and sea-run brown and rainbow trout) angling locations may include Chance Cove Pond, Chance Cove River and Chapel Arm River in coastal areas along the Isthmus of the Avalon (MVL 2014).

3.4.3 Cabins and Cottage Developments

Residents of the Newfoundland and Labrador own cabins in various areas, and many recreational activities such as hunting, fishing, boating and snowmobiling occur in conjunction with cabin use. Many of these recreational properties are located on Crown Land managed (under the *Lands Act*) by the Crown Lands Administration Division of the Department of Municipal and Intergovernmental Affairs (NLDMIA 2015b).

Recreational cottage grants are available in rural areas accessible by conventional motor vehicle or within areas that have been designated for recreational cottage development. In high demand areas, applications are invited through public cottage lot draws. Remote recreational cottage licenses (five year renewable term) are available for land in remote areas (NLDMIA 2015b).

The Study Area crosses a designated Cottage Planning Area around Big Gull Pond, Beaver Pond and Blue Gull Pond on the Isthmus of the Avalon (Appendix D). Forty individual cabins (i.e., cottages and remote cottages) are also found in the Study Area in various areas with the most dense and accessible cabin developments found on the Isthmus of the Avalon.

3.4.4 Campgrounds and Recreational Vehicle Parks

While a number of government operated parks provide facilities for camping and recreational vehicles in the province, there are also a number of privately owned and operated parks and campgrounds for these purposes. In some cases, these parks are located within decommissioned provincial parks (provincial park reserves or privatized former provincial parks). Jack's Pond Park & Campgrounds, is a privately operated facility located within the decommissioned portion of Jack's Pond Provincial Park (JPPC 2011). The Study Area crosses a portion of Jack's Pond Park & Campgrounds (Appendix D). It also crosses the Snook's Creek Trailer Park Association Crown Issued grant for a commercial operation, which is located near the junction of Route 360 Bay d'Espoir Highway and Route 365 Conne River Road. No other information is available on this operation. The proposed transmission line right of way bypasses both of these private parks.

The Study Area crosses a second former provincial park (i.e., Piper's Hole Provincial Park) that was decommissioned and sold to private interests in 1995 (Appendix D). The area is no longer protected under provincial jurisdiction and was operated as a private campground until it was abandoned sometime before 2008.

3.4.5 Trails and ATV Use

The Province regulates the use of motorized recreational vehicles. Snowmobile and ATV use are regulated by the NL Department of Natural Resources under the *Motorized Snow Vehicles and All-Terrain Vehicles Act* (NLDNR-F 2015a; NLHOA 2013). Most areas of the province also have networks of resource access and infrastructure maintenance roads / trails that may be used for operating motorized vehicles. Forestry access roads, which may also be used for recreational purposes, are illustrated in Appendix E and discussed below.

Snowmobiling is a popular winter activity in central and eastern Newfoundland, and is a sport in and of itself as well as being used to support other activities such as accessing remote cabins, ice-fishing and firewood-cutting. The Mount Sylvester Snowmobile Trails system may be accessed from Jipujikuei Kuespem Provincial Park Reserve, at Terra Nova or via the T'Railway from Clarenville. The approximately 125 km main trail from Terra Nova to Jipujikuei Kuespem crosses the Bay du Nord Wilderness Reserve (MVL 2014). The Mount Sylvester Trail follows the existing transmission line for about 10 km and thus intersects with the Study Area and the proposed TL 267 right of way.

Trails within or near the Study Area are used for a variety of activities, including the Newfoundland T'Railway Provincial Park which is used for hiking, riding ATVs, bicycling, snowmobiling, cross country skiing, snowshoeing and accessing areas for other activities. The T'Railway intersects with the Study Area in several locations. The Come by Chance Mountain Bike Trail is used for hiking, mountain biking, cross-country skiing and snowshoeing (MVL 2014). Portions of this trail may also intersect with the Study Area.

While the Bay du Nord Wilderness Reserve does not include developed hiking trails, the area has various hiking opportunities. As there are no amenities or directional signage, experienced

hikers enjoy this area for wilderness adventures including viewing caribou from strategic points such as the top of Mount Sylvester and the Middle Ridge Woodland Caribou Wildlife Viewing Area. Hikers enter the Bay du Nord Wilderness Reserve via the Jipujikuei Kuespem Provincial Park Reserve, the Mount Sylvester Snowmobile Trail or a trailhead in the former Piper's Hole Provincial Park near Swift Current (MVL 2014).

ATVs are used as transportation along roads and trails mainly outside of the winter season for activities such as hunting, fishing, trapping, wood cutting and accessing remote cabins. ATV trails exist in various locations throughout the province and some of these are located on Crown Land with access granted to individuals and groups. The Study Area intersects with a number of ATV trails including Crown Issued licenses for ATV Trails to various groups including: Art Shack Trail Association, Head of Bay d'Espoir ATV Association, Bay L'Argent ATV Association, Dunn's Brook ATV Association and Grand Le Pierre ATV Association (Appendix D). ATV trails in the Study Area provide access to remote locations. These ATV trails cross the proposed transmission line right of way in some areas, particularly where they connect to the existing transmission lines at the centre of some portions of the Study Area.

3.4.6 Canoe and Kayak Routes

Recreational boating and navigation are regulated by Transport Canada through the *Small Vessel Regulations* of the *Canada Shipping Act (2001)* which addresses safety concerns for boaters (GC 2010; TC 2014). Canoeing and kayaking may occur on any of the numerous ponds, lakes and rivers in Newfoundland and Labrador. Within the Study Area, the Bay du Nord River provides canoeing opportunities including a five to seven day trip from Kepenkeck Lake to Fortune Bay. In early spring when water levels are highest, the lower Bay du Nord River offers challenging white water kayaking experiences. Other canoeing routes are available in the area, including the systems of the Salmon, North East and North West Rivers and through the many ponds of the Bay du Nord Wilderness Reserve (CHRB 2011). An alternate route is located to the east of the Bay du Nord River beginning at Jubilee Lake and continuing to North East Brook (MVL 2014). The proposed transmission line right of way crosses the Bay du Nord River and the Northeast River and thus these canoe and kayak routes (Appendix D).

3.5 Commercial and Other Land Uses

Newfoundland and Labrador is a natural resource rich area with activity in quarrying, mining and forestry occurring throughout the province. Agriculture and outfitting are small but important industries especially in particular rural areas. Fur trapping occurs throughout the province and the industry varies depending on market trends. Mining, quarrying, agriculture and outfitting are illustrated in the following commercial land use maps, but no outfitters are located within the proposed Study Area. In some cases, information on specific harvesting activities is not available at a scale relevant to the Map Atlases provided in this report. For this reason, Appendix F shows larger scale, regional maps highlighting key management areas associated with forestry and trapping.

3.5.1 Mining and Quarrying

Mineral exploration and mining activities are regulated and managed under the provincial *Mineral Act* and *Mineral Regulations*, and the *Mining Act* and *Mining Regulations*. Quarrying is managed by the Quarry Materials Administration under the *Quarry Materials Act, 1988* (NLDNR-M 2010).

Quarries (rock, gravel and sand) are located throughout the Study Area, mainly along roads and highways where they may have been developed for road building (Appendix E). The Study Area does not intersect with any mining leases but crosses staked claims for mineral exploration, which are located mainly in its eastern and western portions. These include licenses granted to individuals around Milltown-Head of Bay d'Espoir, Little River, Bellevue and Collier Bay. Gold and antimony have been discovered at Mountain Lake Minerals Inc.'s Little River property (MLM 2015). The proposed transmission line right of way does not cross any quarries but crosses five mineral exploration licenses.

3.5.2 Agriculture and Aquaculture

The NL Department of Natural Resources, Agrifoods Development Branch is responsible for promoting the expansion and diversification of the agriculture and agrifoods sector in the province. The agriculture and food production industries are governed by various acts and regulations that support the industry and protect public health. The Study Area crosses the Bay d'Espoir Agriculture Development Area and Area of Interest which includes agricultural land use and agricultural land use within this area (Appendix E). Agricultural land use areas are also located within the Study Area near Swift Current, Come By Chance, Southern Harbour and Chapel Arm. The proposed transmission line right of way crosses the Bay d'Espoir Agricultural Development Area and the Area of Interest as well as agricultural land use contained within these areas.

Agricultural land leases include aquaculture operations and Cold Ocean Salmon Inc. holds Crown Issued agricultural leases for its facility on Route 316 near Milltown-Head of Bay d'Espoir. The facility is used as a nursery to grow smolts from salmon fry produced at the company's hatchery in Daniel's Harbour (NLDFA, undated). The salmon nursery operation is located within the Study Area (Appendix E), and the proposed transmission line right of way crosses Crown Issued leases for Cold Ocean Salmon Inc.

3.5.3 Forestry

Under the *Forestry Act*, the NL Department of Natural Resources has subdivided the province into various forest management regions and districts (NLDNR-F 2015b). The Study Area is within the Eastern Newfoundland Forest Management Region and crosses Forest Management Districts 1: Avalon Peninsula, District 2: Bonavista Peninsula, District 3: Burin Peninsula and District 7: Bay d'Espoir.

Forestry activity (including silviculture, commercial harvesting and domestic cutting) occurs at both the western and eastern ends of the Study Area around Milltown-Head of Bay d'Espoir and

from Come By Chance to Chapel Arm (NLDMIA 2015c). The proposed transmission line right of way also crosses most of these areas of forestry activity.

Forestry access roads throughout the region are used for forestry, mining and other activities such as installation and maintenance of utilities and communications infrastructure. These may also be used for accessing remote areas for other activities such as hunting, fishing or use of cabins. Several of these access roads intersect with the proposed transmission line on the Isthmus of the Avalon (Appendix E). Forestry access roads exist in the eastern and western portions of the Study Area and the proposed transmission line right of way intersects them in several areas.

3.5.4 Trapping

Trapping in Newfoundland and Labrador is managed and regulated through the *Wild Life Act*. Trapping quotas, like those for hunting, are established based on the results of wildlife population surveys, trend data from trapping license returns (effort and success rates), and input from trappers, Conservation Officers and others. Trapping requirements are published in the annual Hunting and Trapping Guide (NLDEC-W 2015a). Due to the scale of the activity and the large size of the associated trapping zones, these areas are shown in Appendix F. The Island of Newfoundland is a single management zone for trapping beaver, muskrat, otter, mink, coyote, fox (coloured and white), ermine (weasel) and squirrel. For lynx trapping, the Island is divided into two zones, Zone A and Zone B (Zone B is currently closed to trapping). In Newfoundland, the trapping season varies but is generally open from October to April (NLDEC-W 2015a). The Study Area and the proposed transmission line right of way cross Zones A and B for lynx trapping and the Island of Newfoundland Management Zone for all other species (Appendix F).

3.5.5 Other Land Use

A number of other Crown Issued titles exist in the region and are mainly within communities or associated with them. The remaining Crown Issued titles within the Study Area are illustrated and labeled as Other (Appendix E). These include grants, leases, licenses and permission to occupy for individuals and businesses, for which the particular usage is essentially unknown. Between Sunnyside and Arnold's Cove, a Crown Issued lease for a large parcel of land intersects with the proposed Study Area (Appendix E). This site contains Nalcor Energy's Bull Arm Fabrication Facility, which is used for major fabrication, industrial and manufacturing projects mainly for the oil and gas industry (Nalcor-BA 2015). This area is also crossed by the proposed transmission line right of way.

3.6 Summary of Identified Features by Transmission Line Segment

To allow for optimal presentation and analysis of key environmental features within the areas of interest, the Study Area has been sub-divided into a series of 5 km long segments. A “segment by segment” inventory and summary of the key environmental features that have been identified within each is provided in Table 5. Items shown in **bold text** are located within the 40 m wide proposed transmission line right of way.

Table 5 – Identified Environmental Features by Study Area / Right of Way Segment

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
Km 0 - 5		Newfoundland and Labrador Hydro		MMA 25 BMA 25 CMA 25 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	Mineral Exploration Forestry Activity
Km 5 - 10				ATV Trail MMA 25 BMA 25 CMA 25 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	Mineral Exploration Bay d'Espoir Agricultural Development Area and Area of Interest Forestry Activity
Km 10 - 15	Route 361 St. Alban's Road Protected Road and Buffer Route 360 Bay d'Espoir Highway Protected Road and Buffer	Route 361 St. Alban's Road Route 360 Bay d'Espoir Highway		Conne River and Tributaries Scheduled Salmon River MMA 25 BMA 25 CMA 25 / 64 Grouse - Island S. Hare - Island Ptarmigan - ROI	Bay d'Espoir Agricultural Development Area and Area of Interest Agricultural Land Use Forestry Activity

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	
<i>Km 15 - 20</i>	Route 360 Bay d'Espoir Highway Protected Road and Buffer	Route 360 Bay d'Espoir Highway		Cabin Snook's Creek Trailer Park MMA 25 BMA 25 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	Mineral Exploration Bay d'Espoir Agricultural Development Area and Area of Interest Forestry Activity Quarry
<i>Km 20 - 25</i>				MMA 25 / 26 BMA 25 / 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A Mount Sylvester Snowmobile Trail	Mineral Exploration Forestry Activity
<i>Km 25 - 30</i>		Newfoundland and Labrador Hydro	Bay du Nord Heritage River	ATV Trail Bay du Nord River	Mineral Exploration

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
			Bay du Nord Wilderness Reserve	Canoe Route MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A Mount Sylvester Snowmobile Trail	
<i>Km 30 - 35</i>			Bay du Nord Heritage River Bay du Nord Wilderness Reserve	Bay du Nord River Canoe Route MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	
<i>Km 35 - 40</i>		Newfoundland and Labrador Hydro	Bay du Nord Heritage River Bay du Nord Wilderness Reserve	MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Trapping - Island Lynx Zone A	
Km 40 - 45			Bay du Nord Heritage River Bay du Nord Wilderness Reserve	MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	
Km 45 - 50				MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A North East Brook Alternative Canoe Route	
Km 50 - 55		Newfoundland and Labrador Hydro		Cabins MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	
<i>Km 55 - 60</i>			Bay du Nord Wilderness Reserve	MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone A	
<i>Km 60 - 65</i>		Newfoundland and Labrador Hydro	Bay du Nord Wilderness Reserve	MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
<i>Km 65 - 70</i>			Bay du Nord Wilderness Reserve	Long Harbour River and Tributary Streams Scheduled Salmon River MMA 26 BMA 26 CMA 64 Grouse - Island	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				S. Hare - Island Ptarmigan - ROI Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone A / B	
Km 70 – 75			Bay du Nord Wilderness Reserve	ATV Trail MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
Km 75 - 80			Bay du Nord Wilderness Reserve	MMA 26 BMA 26 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
Km 80 - 85			Bay du Nord Wilderness Reserve	ATV Trail MMA 26 28 BMA 26 / 28 CMA 64	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
Km 85 - 90				ATV Trails Cabins MMA 28 BMA 28 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
Km 90 - 95				ATV Trails Cabin MMA 28 BMA 28 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
<i>Km 95 - 100</i>				ATV Trails MMA 28 BMA 28 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
<i>Km 100 - 105</i>				ATV Trails MMA 28 BMA 28 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
<i>Km 105 - 110</i>				ATV Trails MMA 28 BMA 28 CMA 64 / 73 Grouse - Island S. Hare - Island Ptarmigan - SC Migratory Birds - Southern Inland Trapping - Island	

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Lynx Zone B	
Km 110 - 115	Route 210 Burin Peninsula Highway Protected Road Buffer Route 210 Burin Peninsula Highway Protected Road	Newfoundland and Labrador Hydro	Former Pipers Hole Provincial Park (decommissioned)	MMA 28 BMA 28 CMA 64 / 73 Grouse - Island S. Hare - Island Ptarmigan - ROI Ptarmigan - SC Ptarmigan - Burin Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	Quarries
Km 115 - 120	Route 210 Burin Peninsula Highway Protected Road Buffer Route 210 Burin Peninsula Highway Protected Road	Newfoundland and Labrador Hydro	Former Pipers Hole Provincial Park (decommissioned)	Pipers Hold River Scheduled Salmon River MMA 28 BMA 28 CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Ptarmigan - Burin Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	Forestry Activity Other Crown Issued Title
Km 120 - 125	Route 210 Burin Peninsula Highway Protected Road and Buffer Black Duck Pond – Swift Current Water Supply	Newfoundland and Labrador Hydro		Black River Scheduled Salmon River MMA 28 BMA 28	Forestry Activity Other Crown Issued Title

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
	Waste Disposal Site Buffer			CMA 64 Grouse - Island S. Hare - Island Ptarmigan - ROI Ptarmigan - Burin Ptarmigan - Avalon Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	
Km 125 - 130	Route 210 Burin Peninsula Highway Protected Road and Buffer Waste Disposal Site Buffer (same one as above)	Route 210 Burin Peninsula Highway Route 210-13 Garden Cove Route 210-11 North Harbour Newfoundland and Labrador Hydro		MMA 28 BMA 28 Grouse - Island S. Hare - Island Ptarmigan - ROI Ptarmigan - Avalon Migratory Birds - Southern Inland Trapping - Island Lynx Zone B	Forestry Activity
Km 130 - 135		Newfoundland and Labrador Hydro		Northeast River Scheduled Salmon River Cabins MMA 28 BMA 28 Grouse - Island S. Hare - Island Ptarmigan - Avalon	Forestry Activity

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	
Km 135 - 140	Town of Come By Chance Municipal and Planning Area Boundaries	Newfoundland and Labrador Hydro	T'Railway Provincial Park Come By Chance Estuary	Come By Chance River Scheduled Salmon River Cabins Watson's Brook Scheduled Salmon River MMA 28 / 44 BMA 28 / 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Forestry Activity
Km 140 - 145	Town of Come By Chance Municipal and Planning Area Boundaries Town of Arnold's Cove Planning Area Boundary Route 1 Trans-Canada	Route 1 Trans-Canada Highway Come By Chance Road Labrador-Island Link Limited	T'Railway Provincial Park	MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin	Bull Arm Fabrication Site Other Crown Issued Titles (2)

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
	Highway Protected Road and Buffer Town of Sunnyside Municipal and Planning Area Boundaries Butcher's Brook – Come by Chance Water Supply Crown Grant – Residential	Partnership Bell Aliant (2) Newfoundland and Labrador Hydro		Inland Trapping - Island Lynx Zone B	
Km 145 - 150	Town of Arnold's Cove Planning Area Boundary Steve's Pond – Arnold's Water Supply	Bull Arm Road Labrador-Island Link Limited Partnership		MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Forestry Activity Bull Arm Fabrication Site Mineral Exploration
Km 150 - 155	Town of Arnold's Cove Planning Area Boundary Route 1 Trans-Canada Highway Protected Road Buffer Steve's Pond – Arnold's Cove Water Supply Route 1 Trans-Canada Highway Protected Road	Route 1 Trans-Canada Highway Jacks Pond Park Road Southern Harbour Road Labrador-Island Link Limited Partnership	T'Railway Provincial Park Jack's Pond Provincial Park (decommissioned)	MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Forestry Activity Other Crown Issued Titles (4)

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
	Town of Southern Harbour Crown Issued Easement	Bell Aliant Communications Tower			
Km 155 - 160	Town of Southern Harbour Planning Area Boundary Route 1 Trans-Canada Highway Protected Road and Buffer Brigades Pond – Southern Harbour Water Supply	Route 1 Trans-Canada Highway Labrador-Island Link Limited Partnership New York, NFLD & London Telegraph Co.(2 land parcels)		MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	
Km 160 - 165		Route 2-1-1 Little Harbour New York, NFLD & London Telegraph Co. Labrador-Island Link Limited Partnership	T'Railway Provincial Park	Cottage Planning Area Cabins MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Forestry Activity Quarry
Km 165 - 170		Newfoundland and Labrador Hydro	T'Railway Provincial Park	Cottage Planning Area MMA 44	Mineral Exploration Forestry Activity

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
		Labrador-Island Link Limited Partnership		BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	
Km 170 - 175	Route 1 Trans-Canada Highway Protected Road and Buffer	Bellevue Road Labrador-Island Link Limited Partnership Newfoundland and Labrador Hydro		Cottage Planning Area Cabins MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Forestry Activity Other Crown Issued Title (1)
Km 175 - 180	Route 1 Trans-Canada Highway Protected Road and Buffer	Route 1 Trans-Canada Highway Labrador-Island Link Limited Partnership		Cottage Planning Area Bellevue River Scheduled Salmon River MMA 44 BMA 44	Forestry Activity

Study Area / Right of Way Segment	Category / Theme				
	Communities and Related Infrastructure	Transportation, Utility and Communication Infrastructure	Parks and Protected Areas	Recreational Land and Resource Use	Commercial and Other Land Use
				Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	
Km 180 – 188	Town of Chapel Arm Municipal and Planning Area Boundaries Route 1 Trans-Canada Highway Protected Road Buffer John Newhooks Pond – Norman's Cove-Long Cove Water Supply Town of Norman's Cove-Long Cove Municipal and Planning Area Boundaries Route 1 Trans-Canada Highway Protected Road Waste Disposal Site Buffer	Route 1 Trans-Canada Highway Newfoundland and Labrador Hydro Labrador-Island Link Limited Partnership Chapel Arm Road		Cottage Planning Area MMA 44 BMA 44 Grouse - Island S. Hare - Island Ptarmigan - Avalon Migratory Birds - Avalon/Burin Inland Trapping - Island Lynx Zone B	Mineral Exploration Forestry Activity Agricultural Land Use Other Crown Issued Titles (2)

4.0 CONCLUSION

The early identification and consideration of environmental components, issues and potential interactions in project planning are key in the design and construction of electrical transmission infrastructure. As planning and design work for the proposed TL 267 Project proceed (including route finalization, the placement of towers and other project infrastructure, etc), it will be important to ensure that adequate information on key environmental features and any associated sensitivities is available. This information will assist the design team and contractors in further identifying and seeking to proactively avoid or reduce any adverse interactions with these features. This information is also useful in support of the EA registration and review of the Project, and for use in subsequent environmental permitting and other regulatory processes.

The Land Use and Infrastructure Study has involved a GIS mapping exercise to identify, gather and plot available environmental information within the identified (40 m wide) transmission line right of way and surrounding (1 km wide) Study Area related to key environmental features and potential considerations that would be relevant at this geographic scale (primarily 1:50,000) and at this stage of Project design. This includes spatial information related to a wide and varied range of environmental components, particularly those associated with the human environments and associated anthropogenic features and land and resource uses, where these are known and “mappable” from existing and available information sources and datasets. In some cases, information on other, select environmental components (particularly those related to the biophysical environment and archaeology) is being provided through other environmental studies which were completed concurrently with this one.

The GIS system and associated map atlases developed through this study can also be progressively updated to incorporate additional environmental data gathered as the Project moves forward, and it can also function as a repository for spatial information gathered during any future Project environmental and engineering studies.

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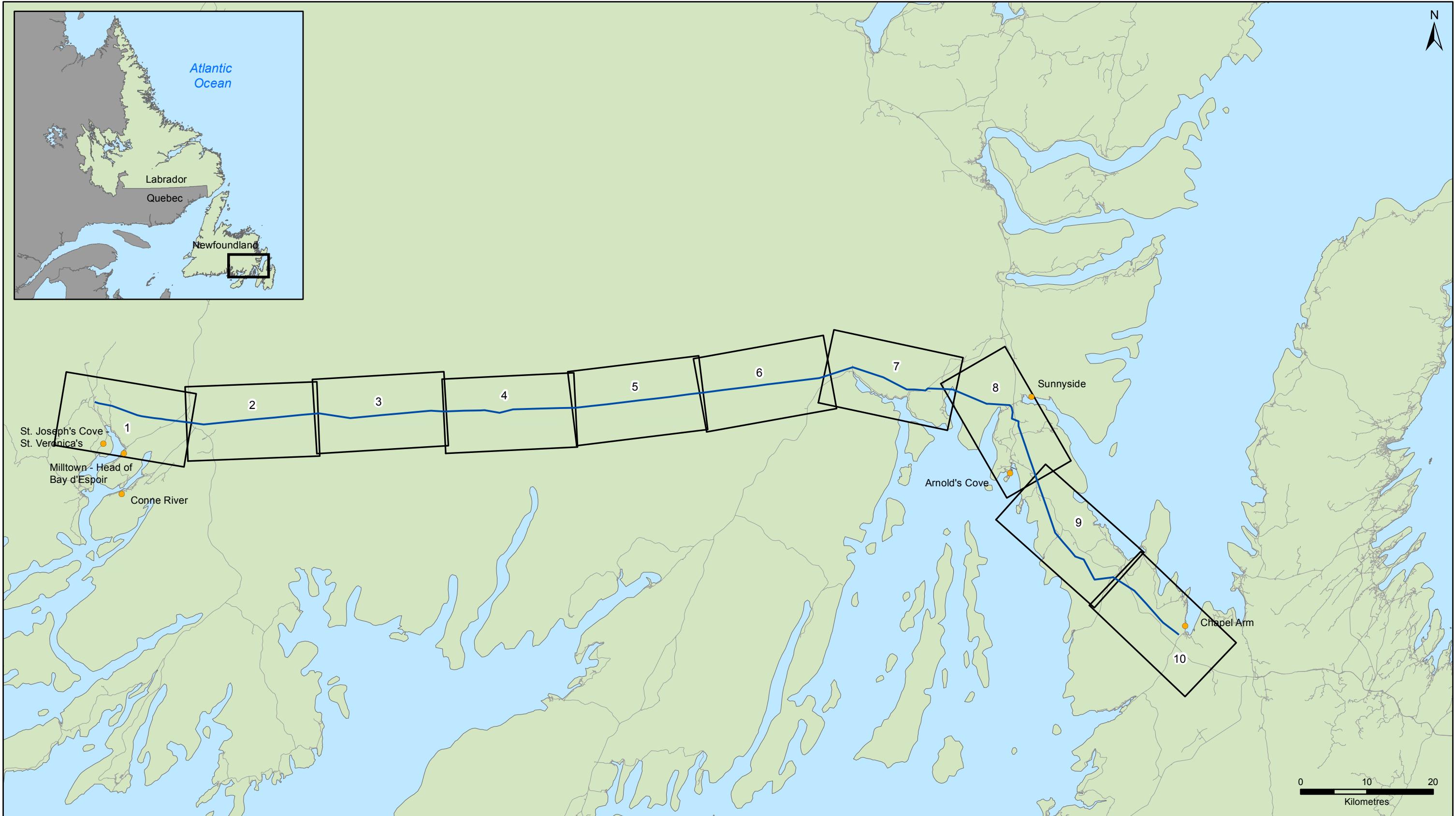
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Appendix A

Map Index

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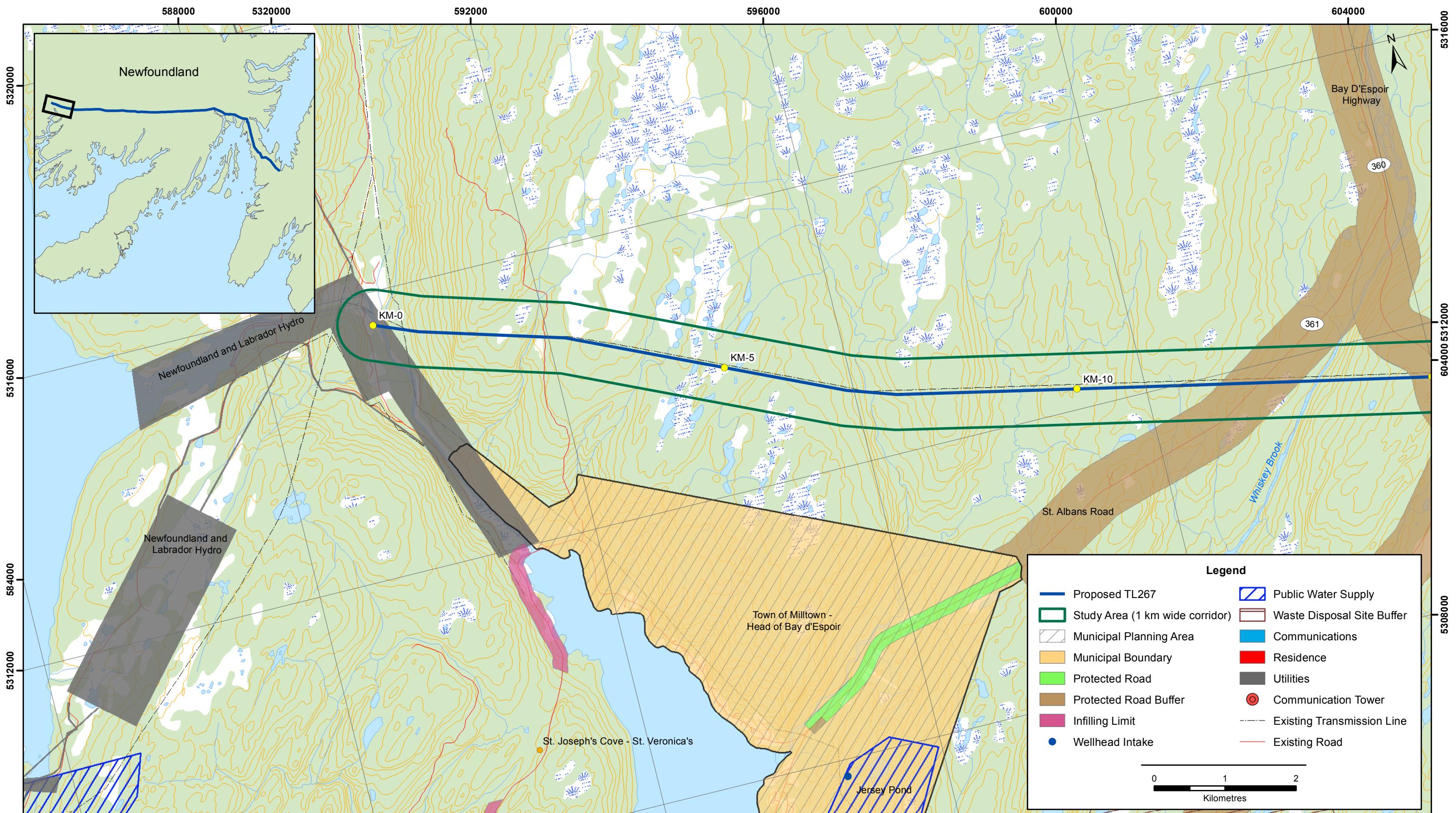


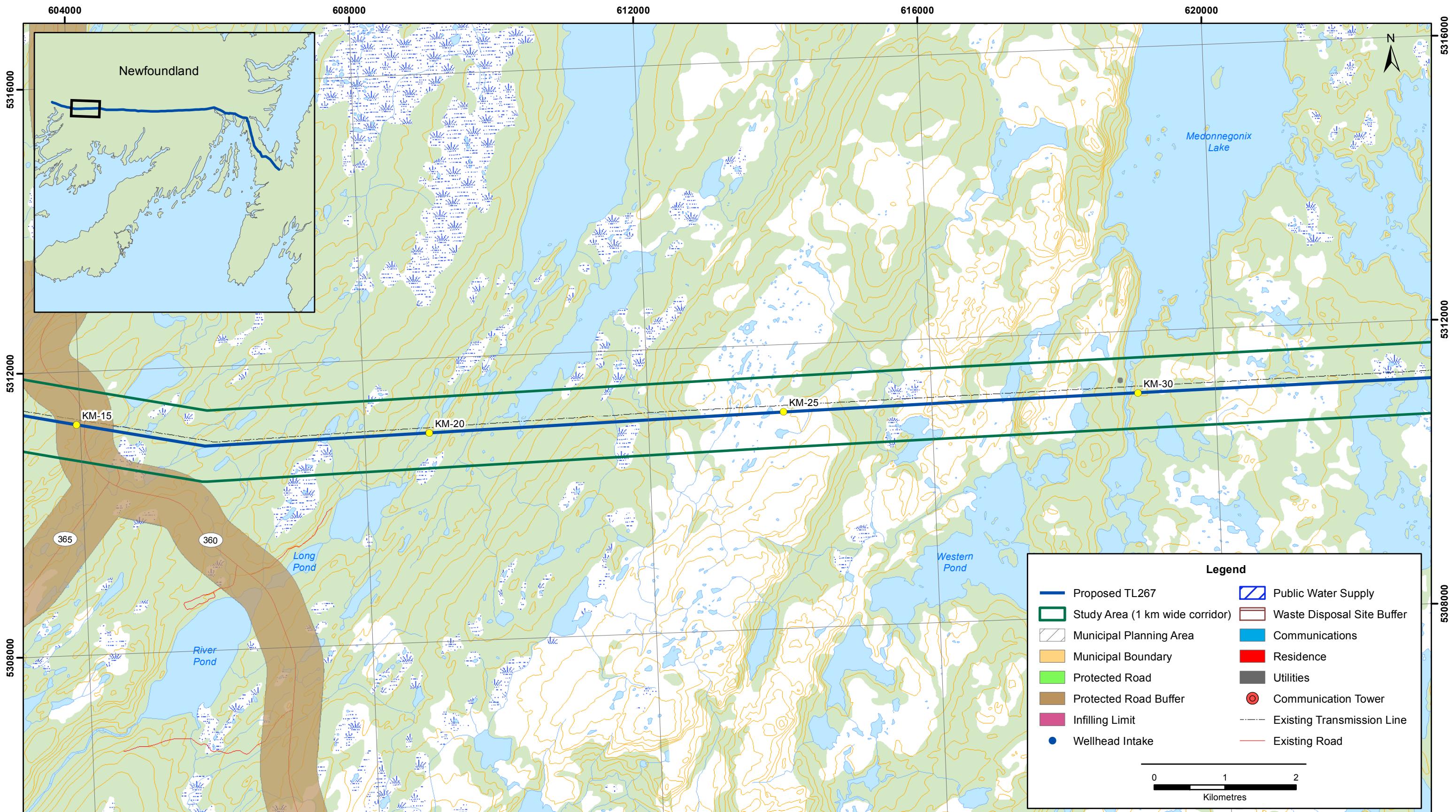
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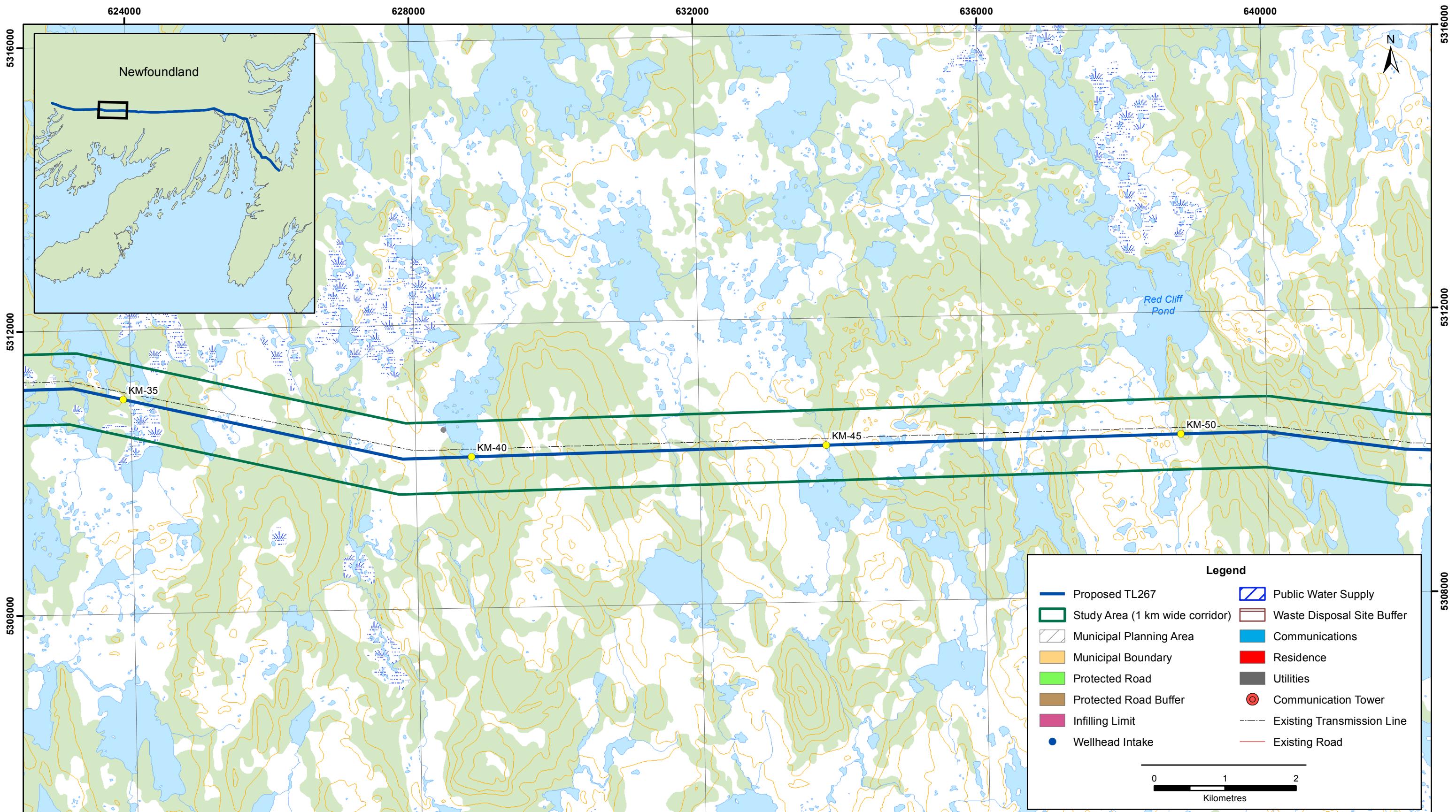
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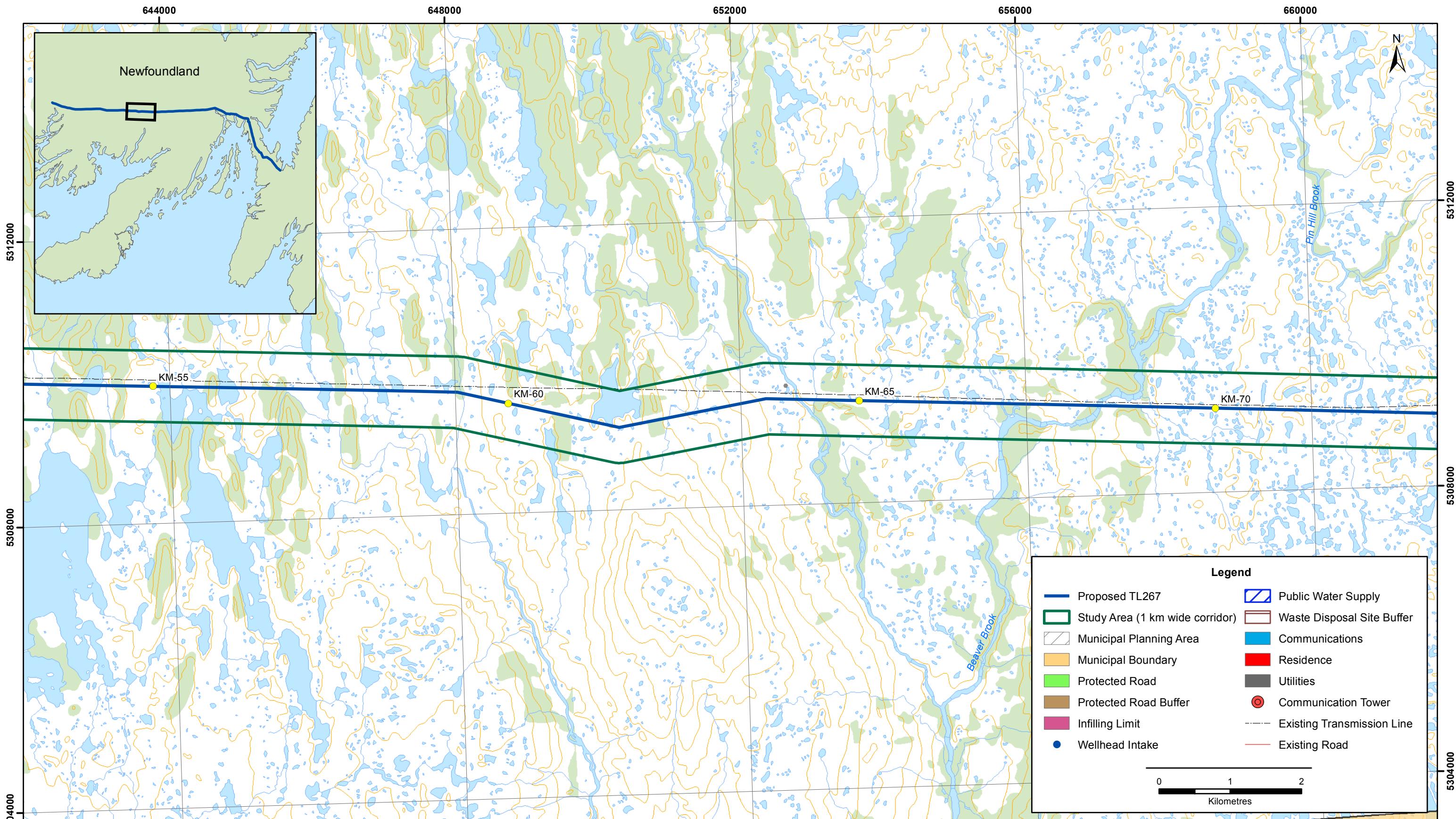
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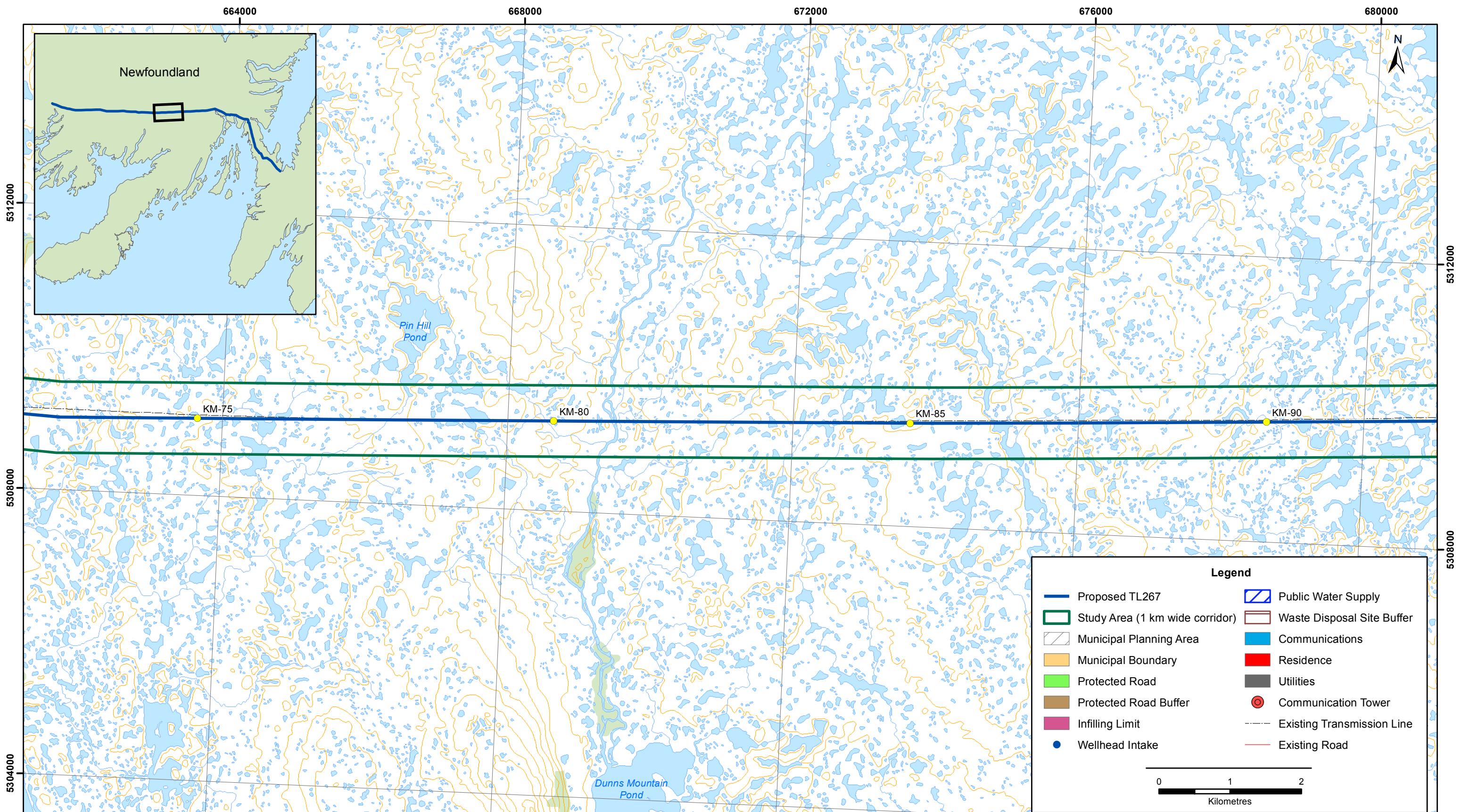
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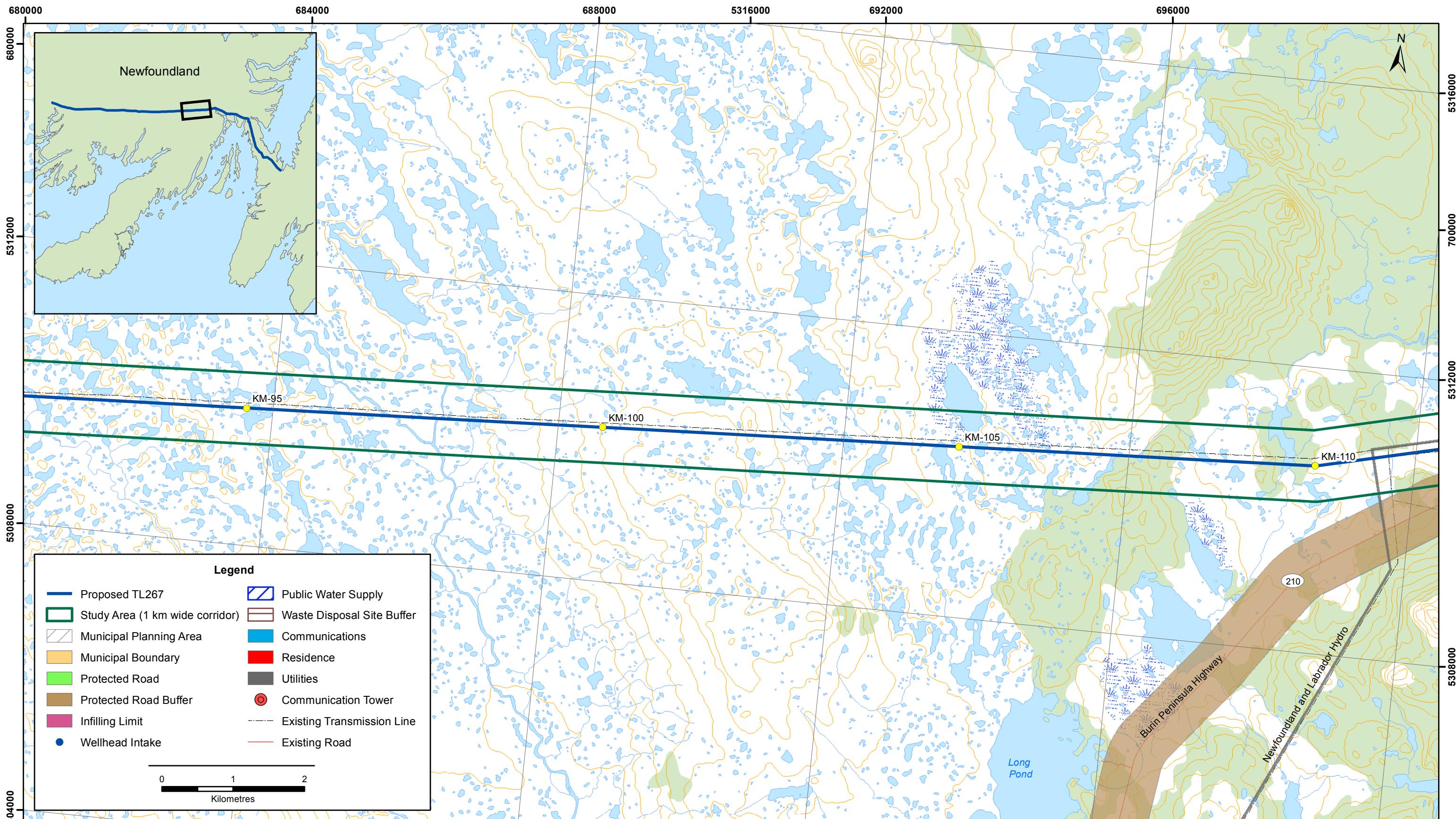


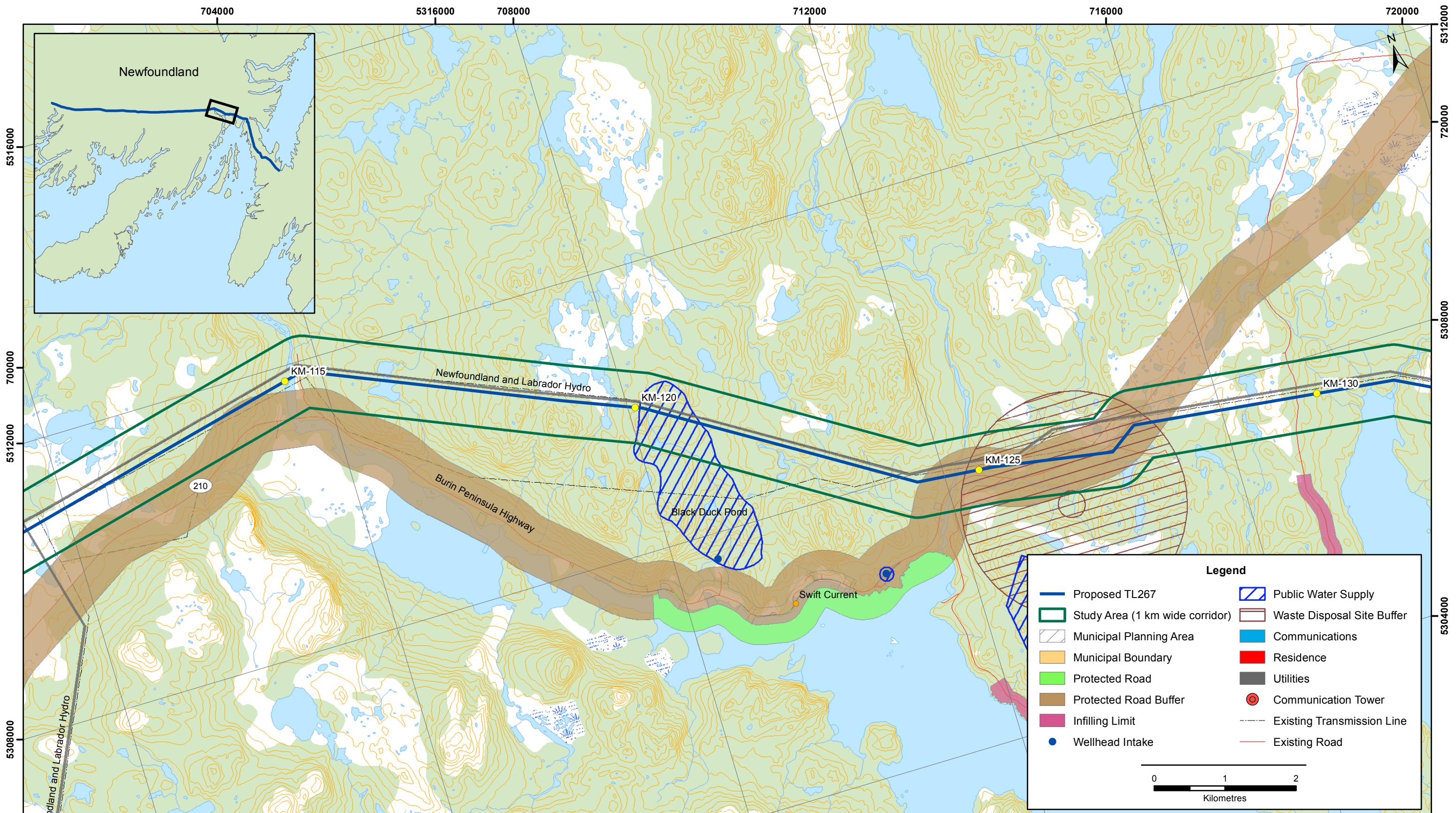


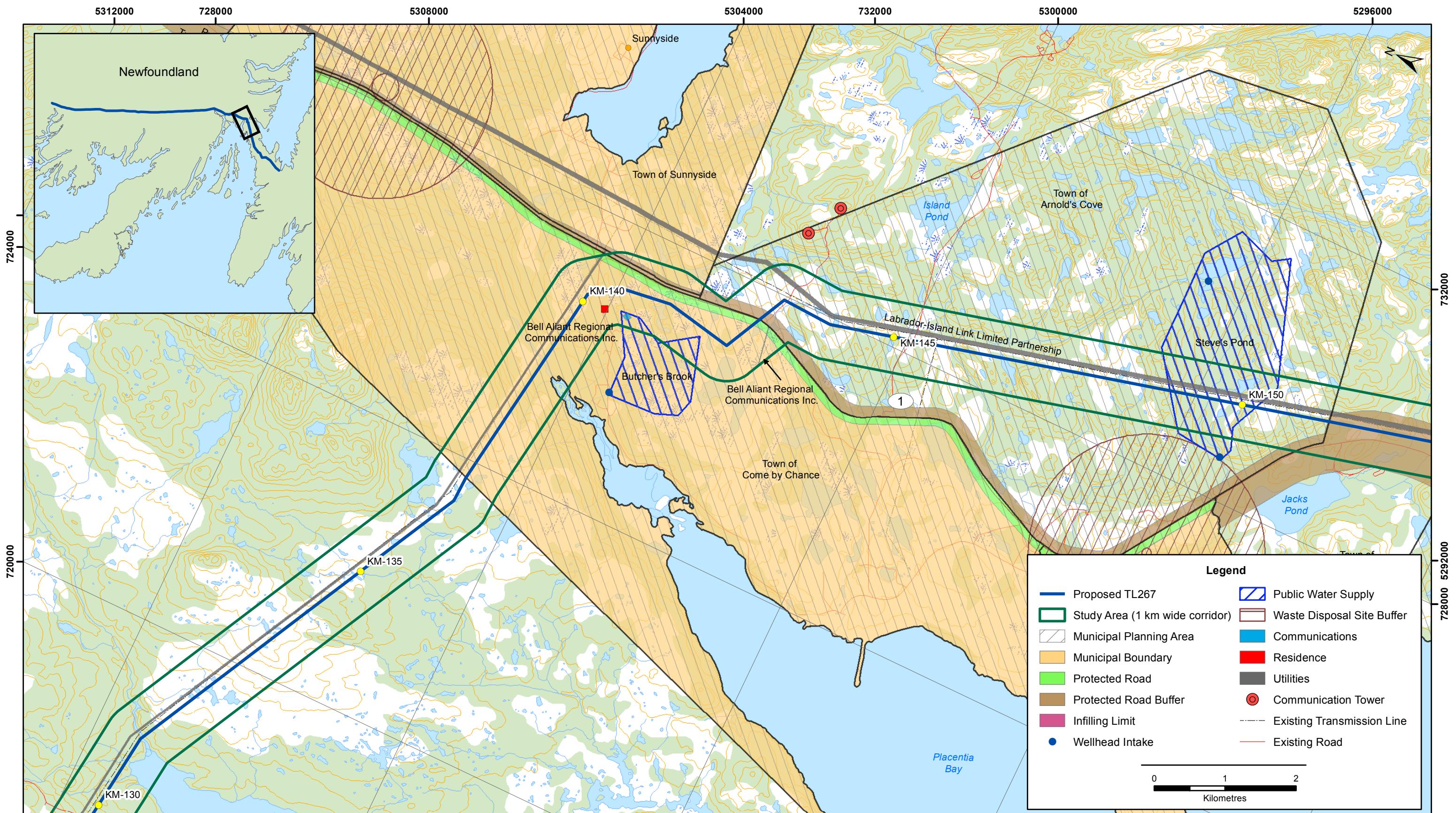


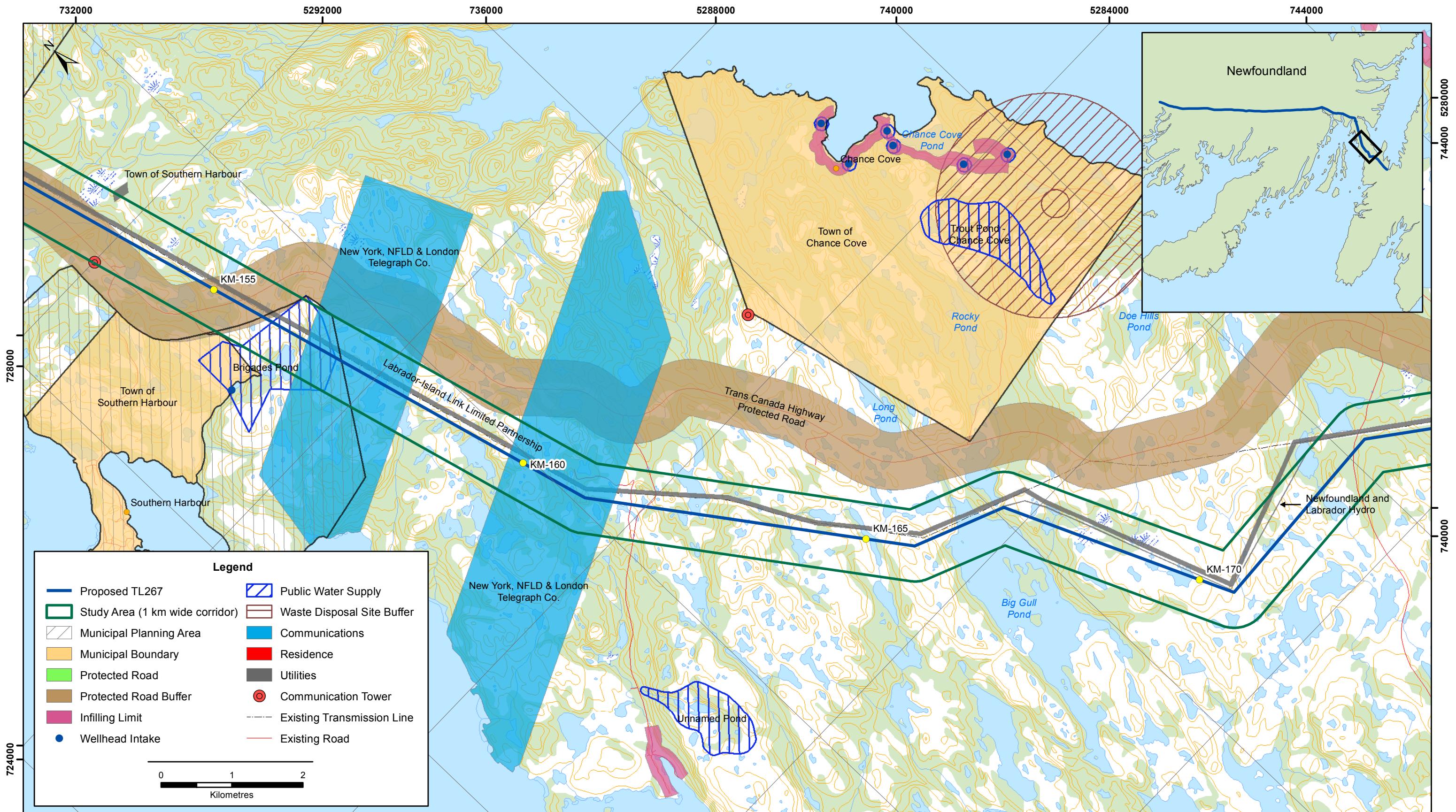


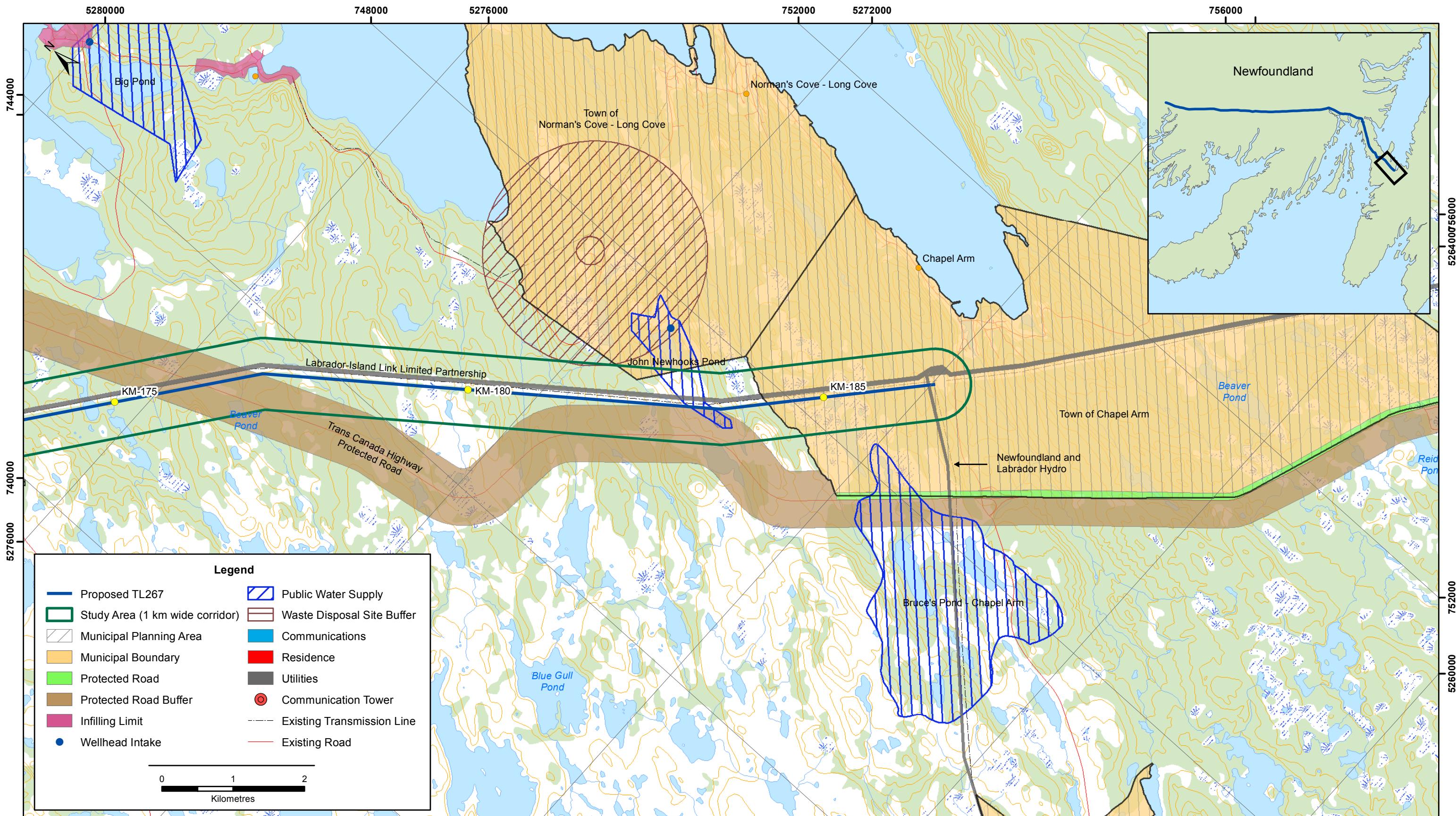








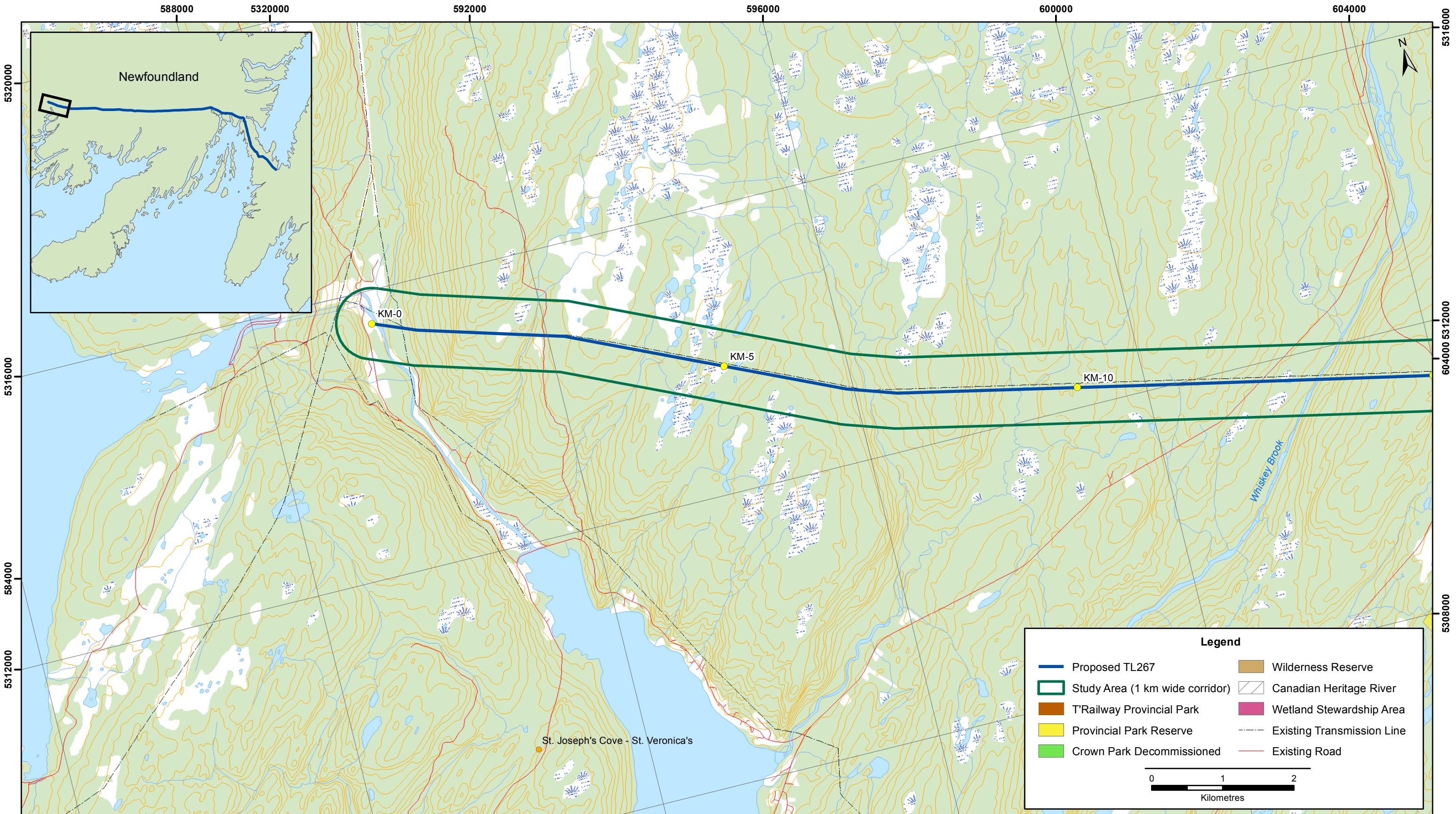


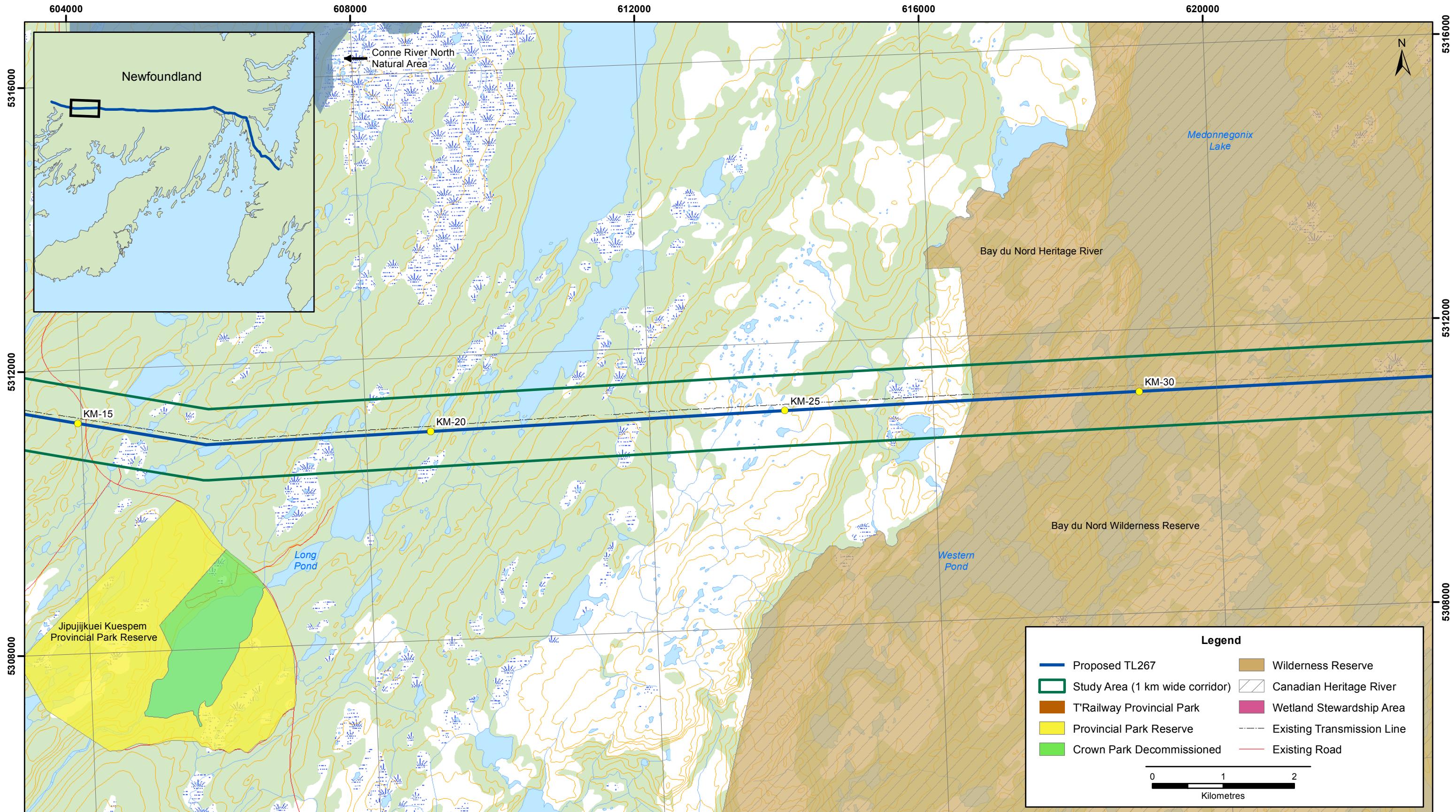


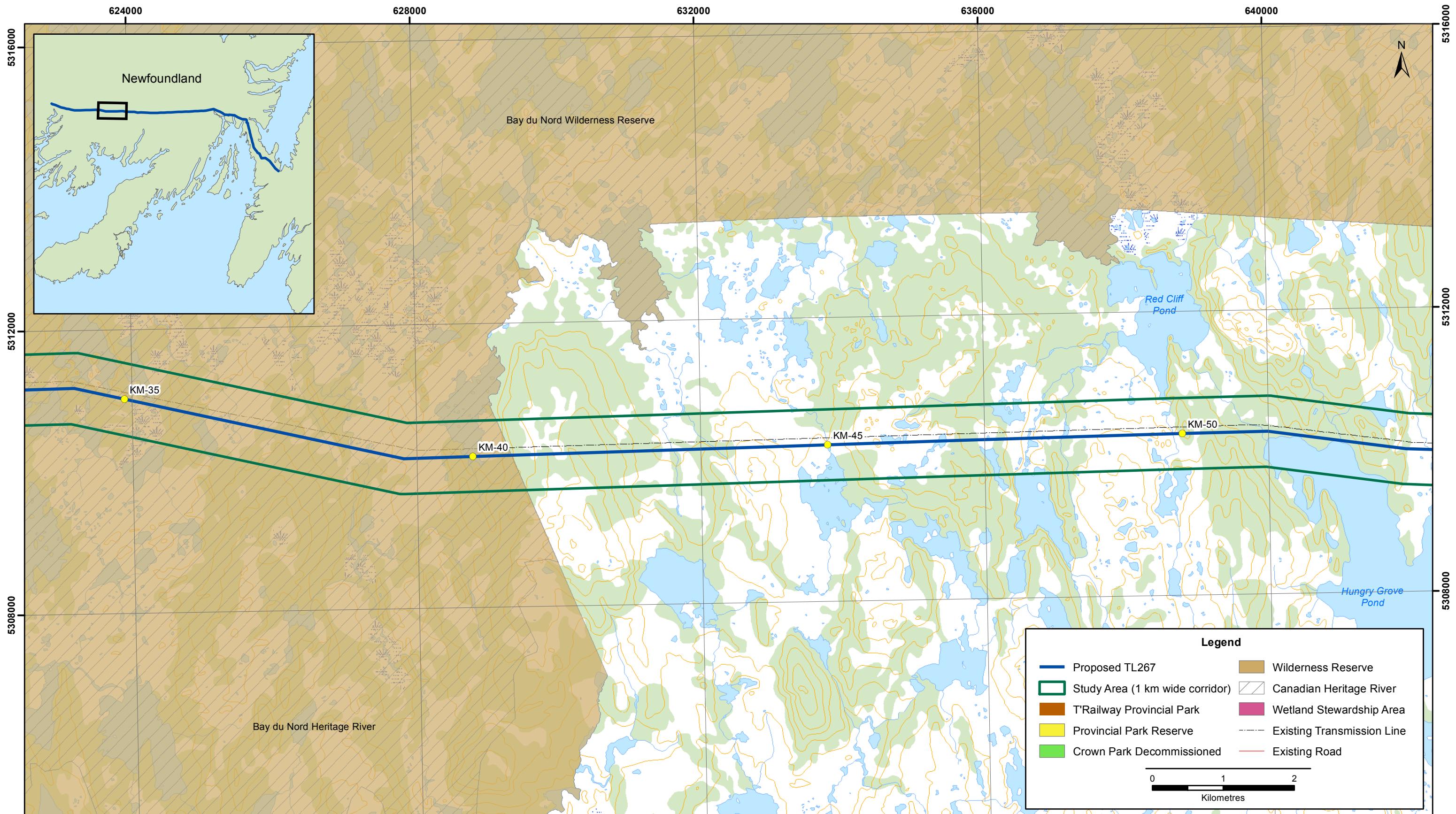
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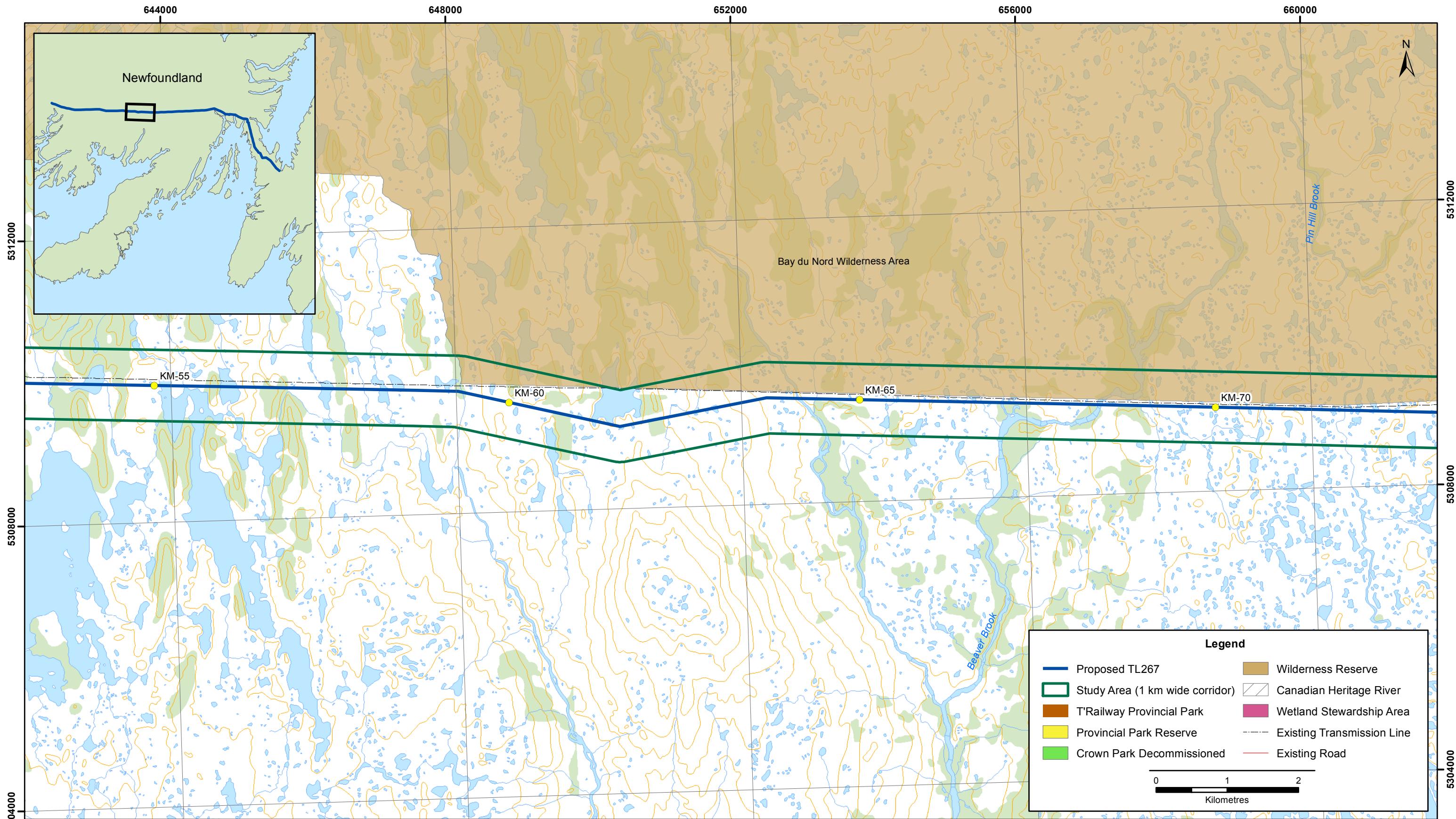
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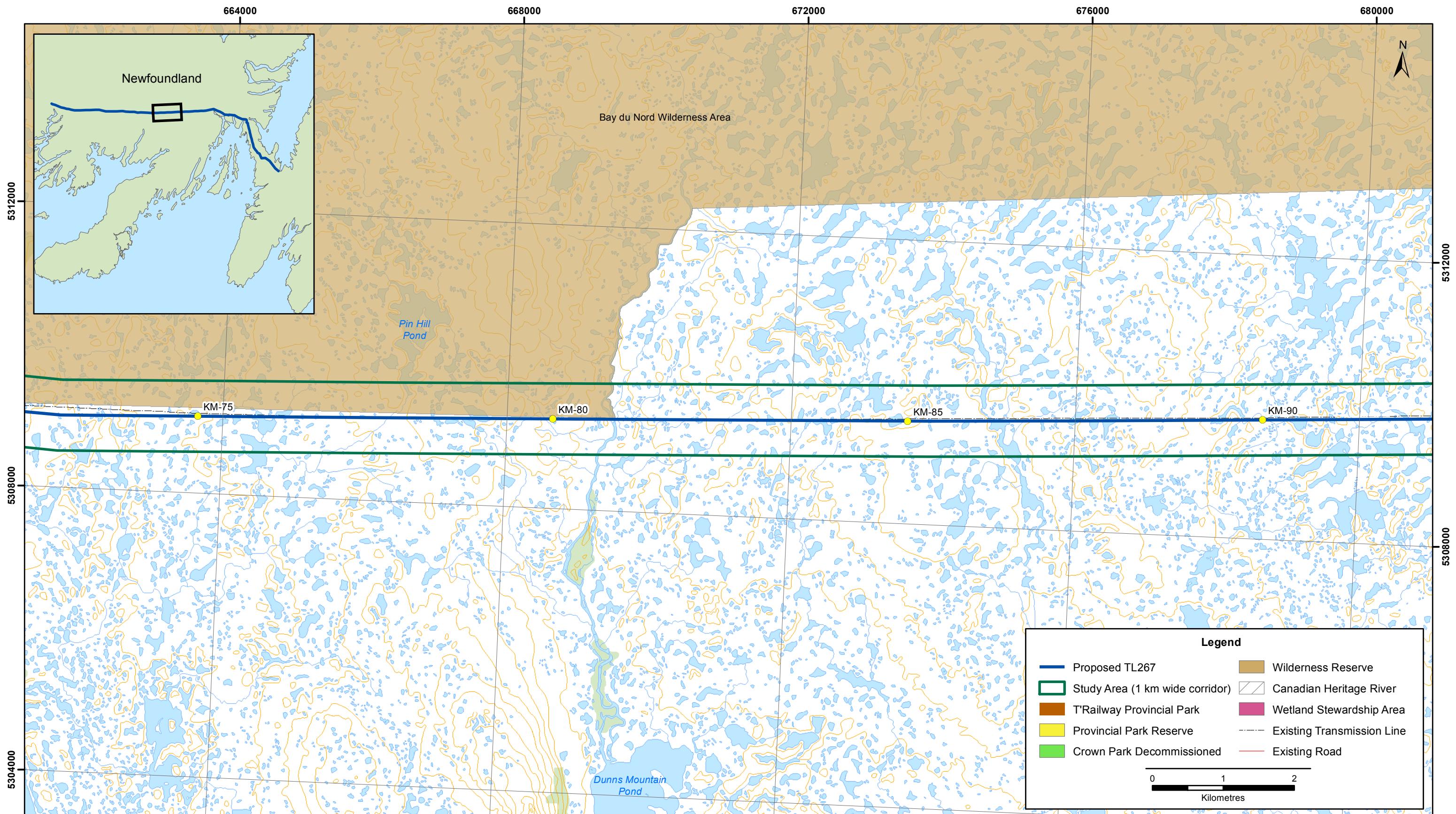
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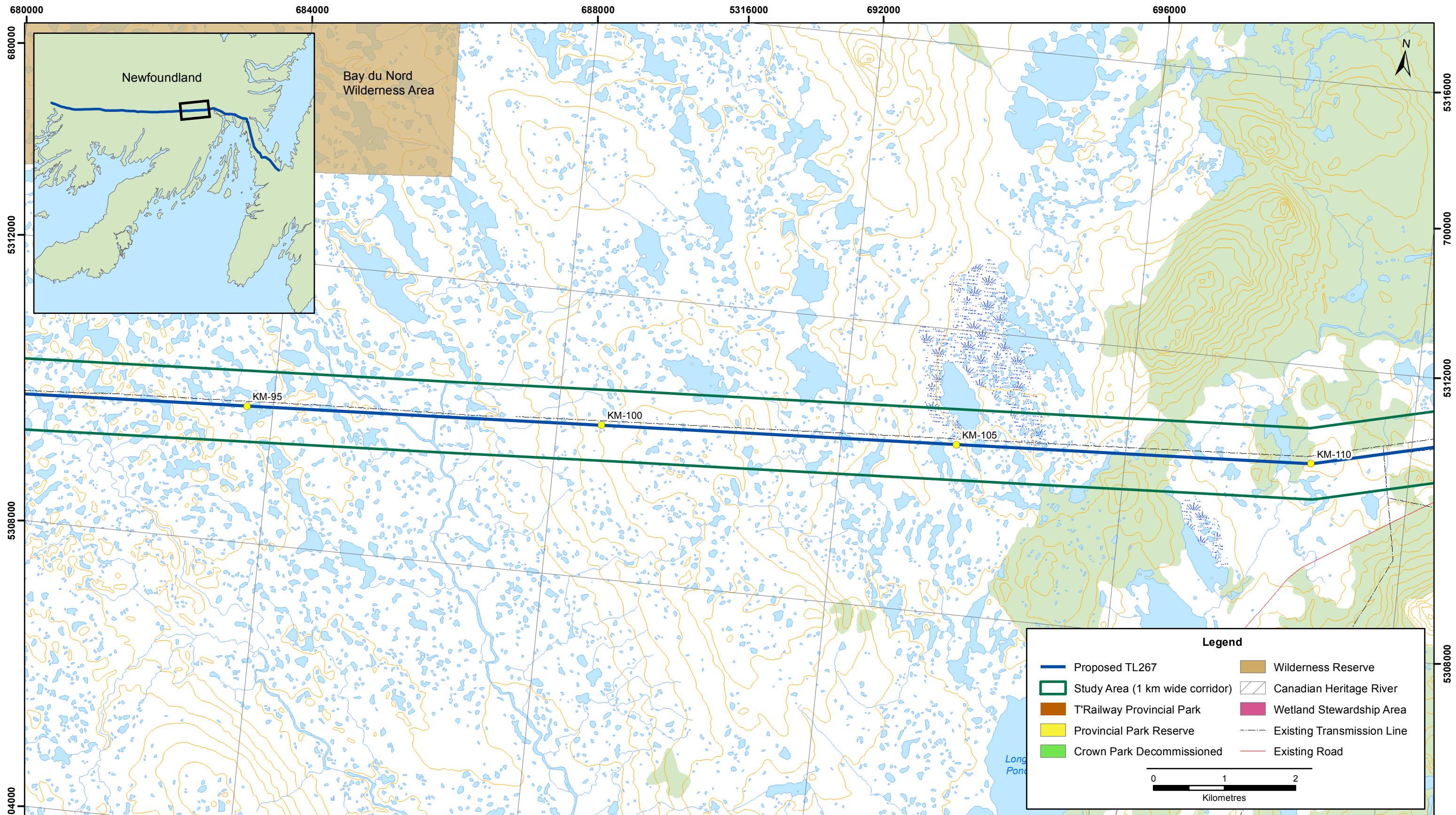


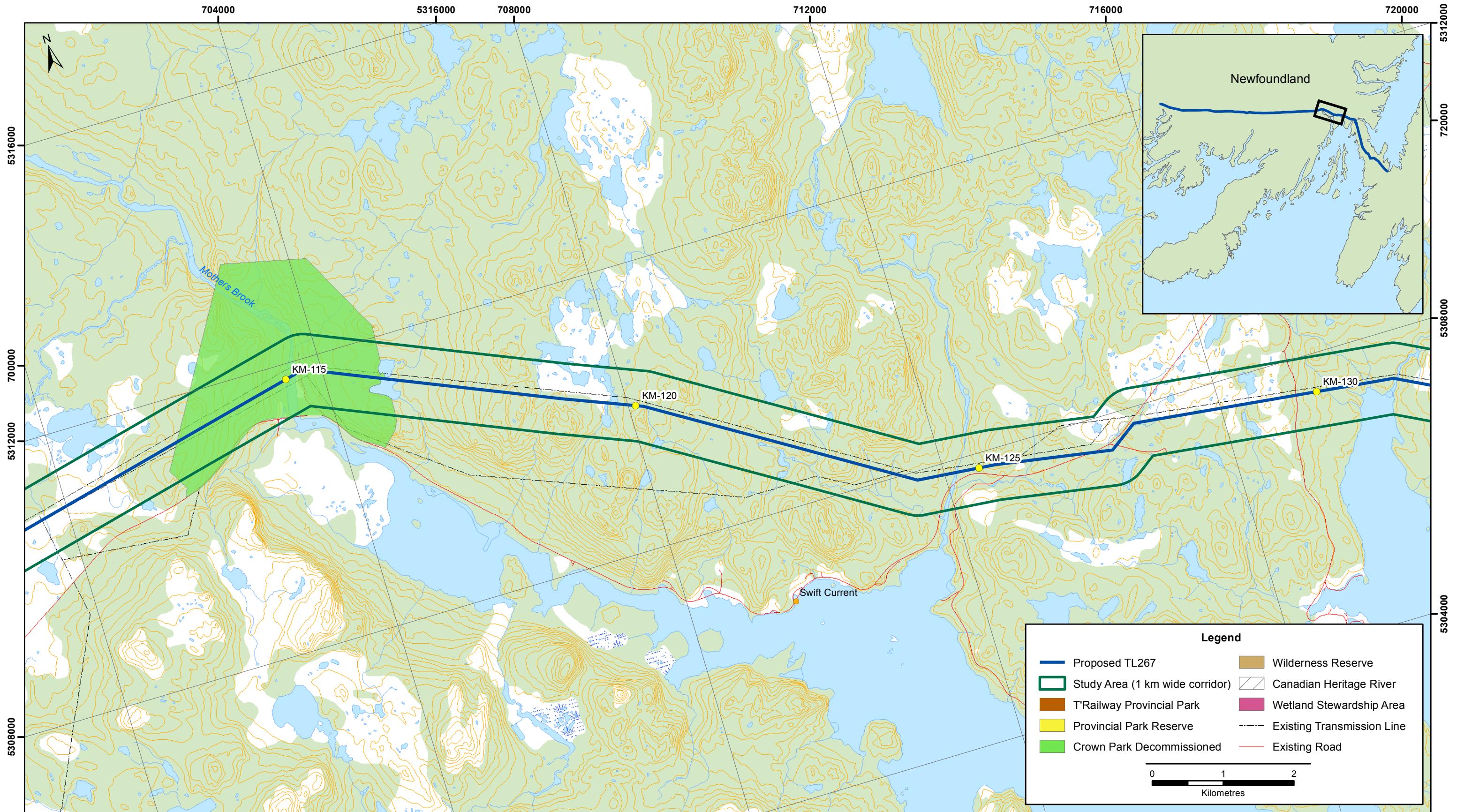


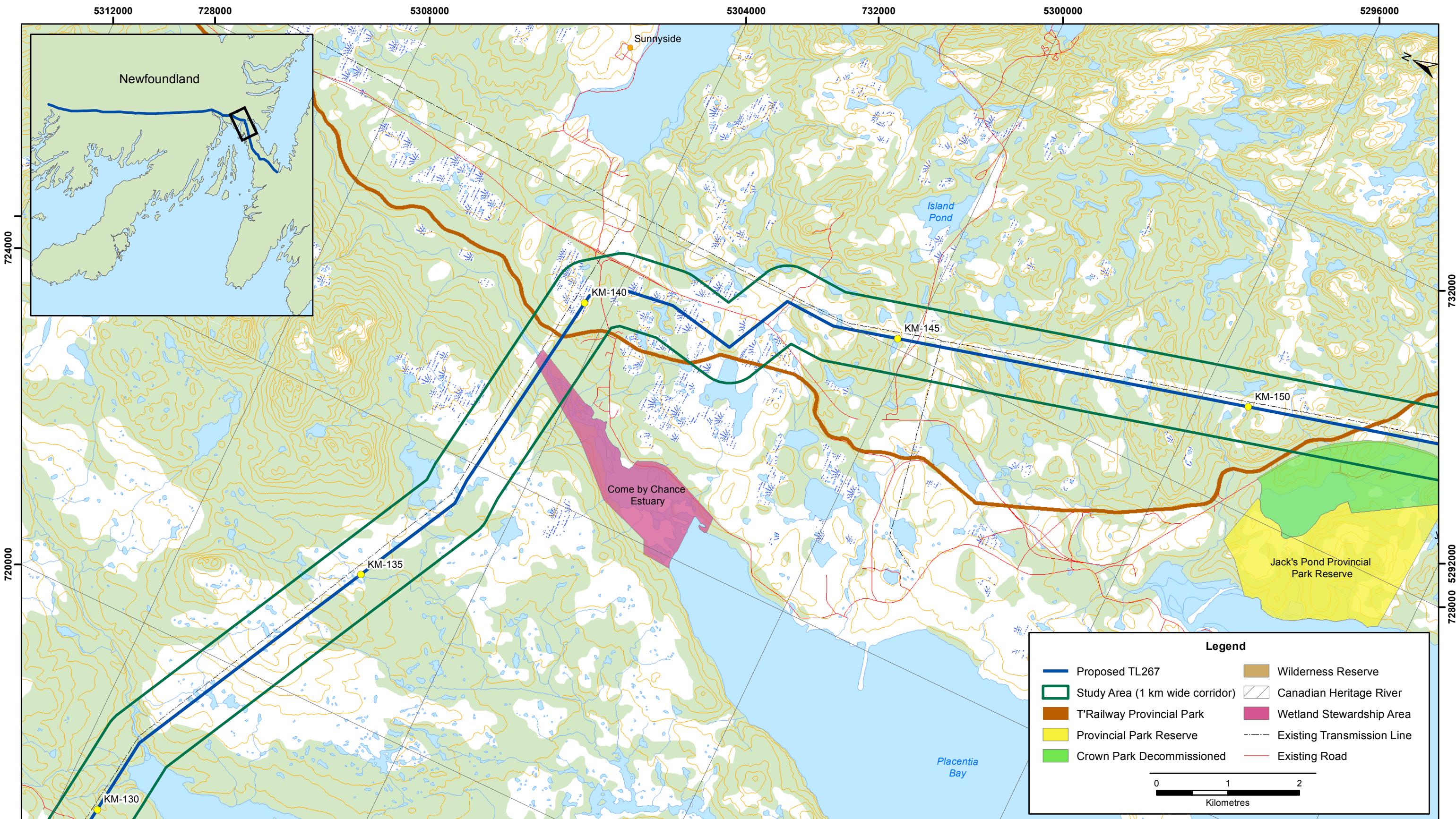


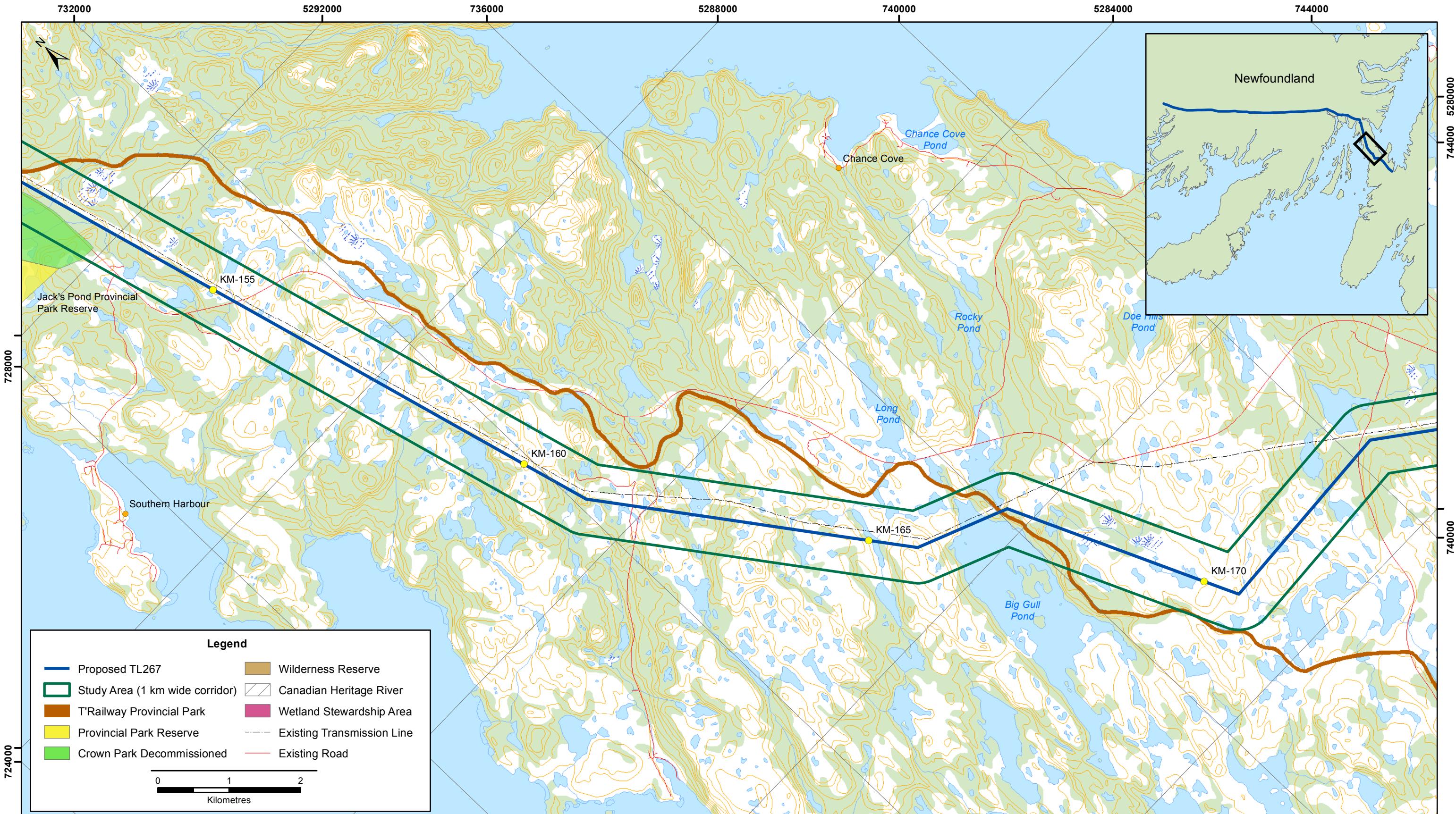


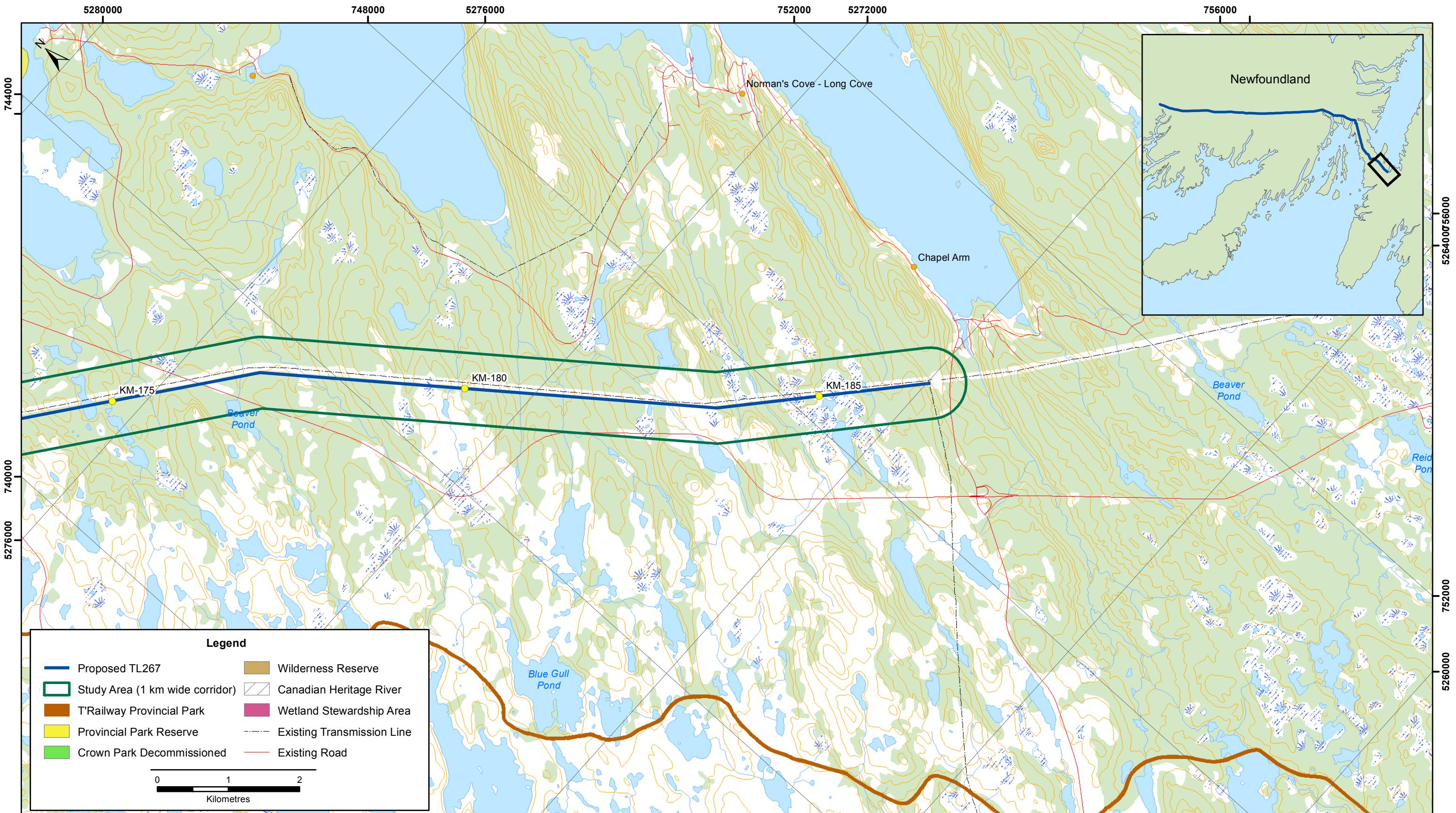








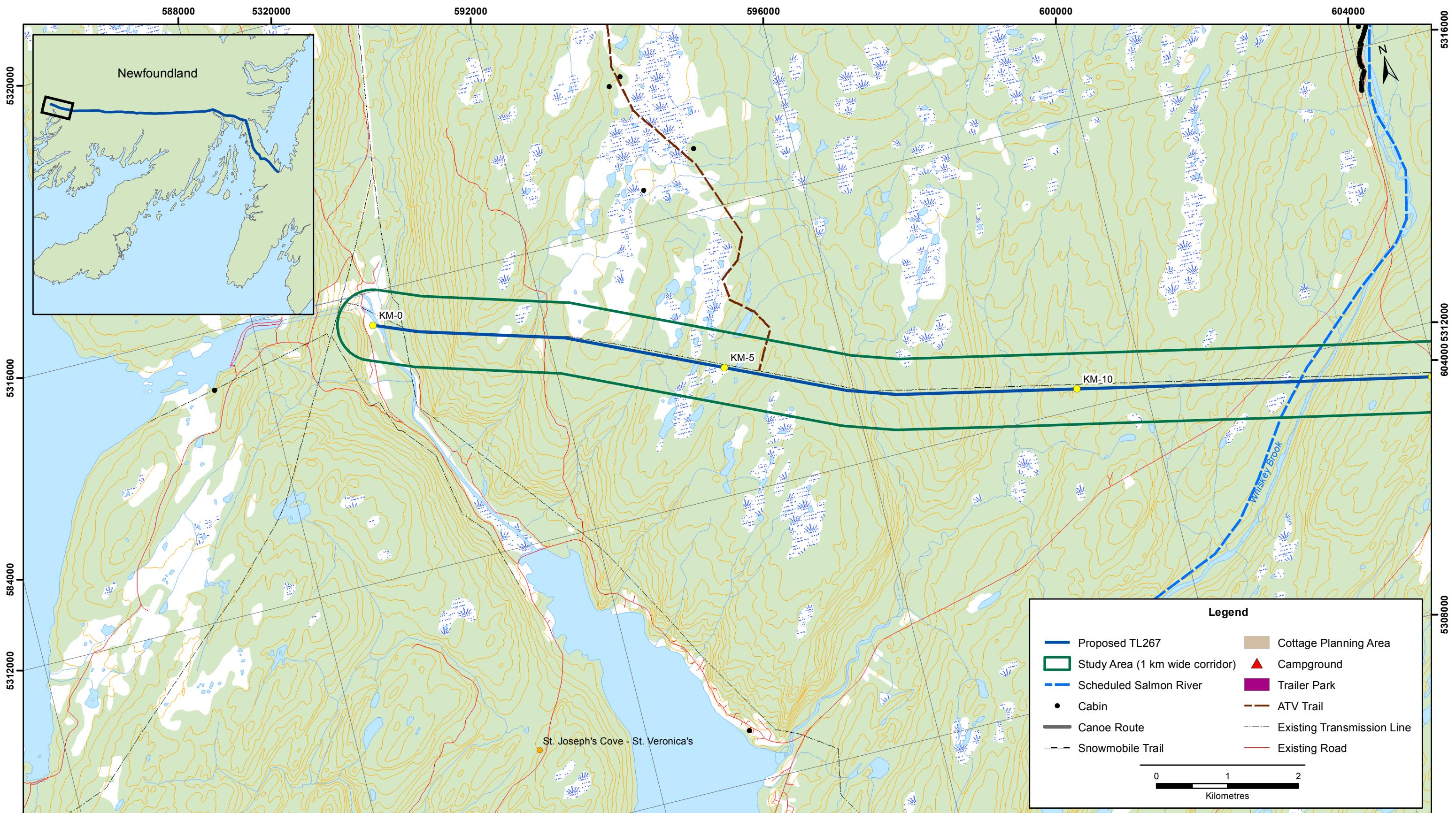


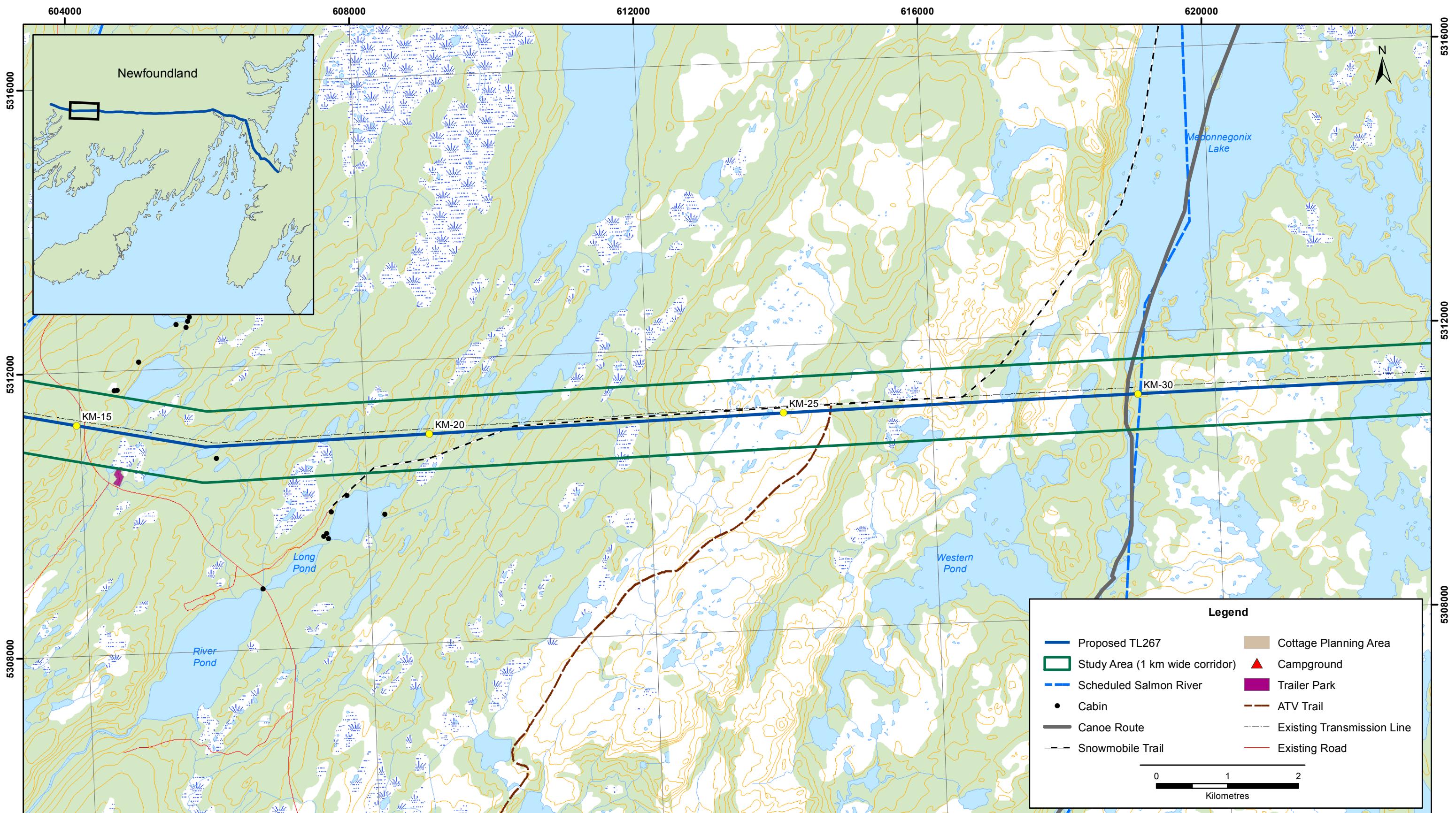


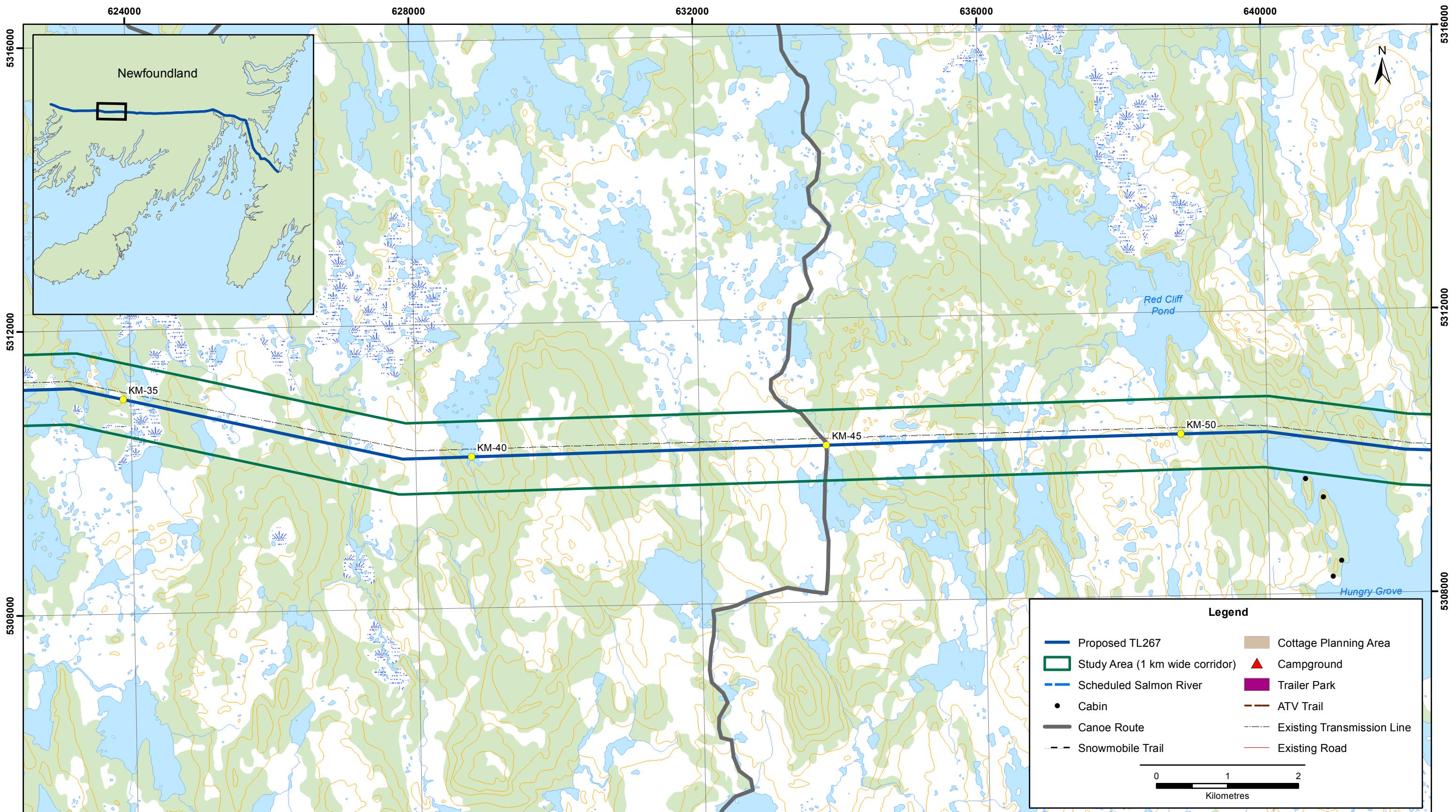
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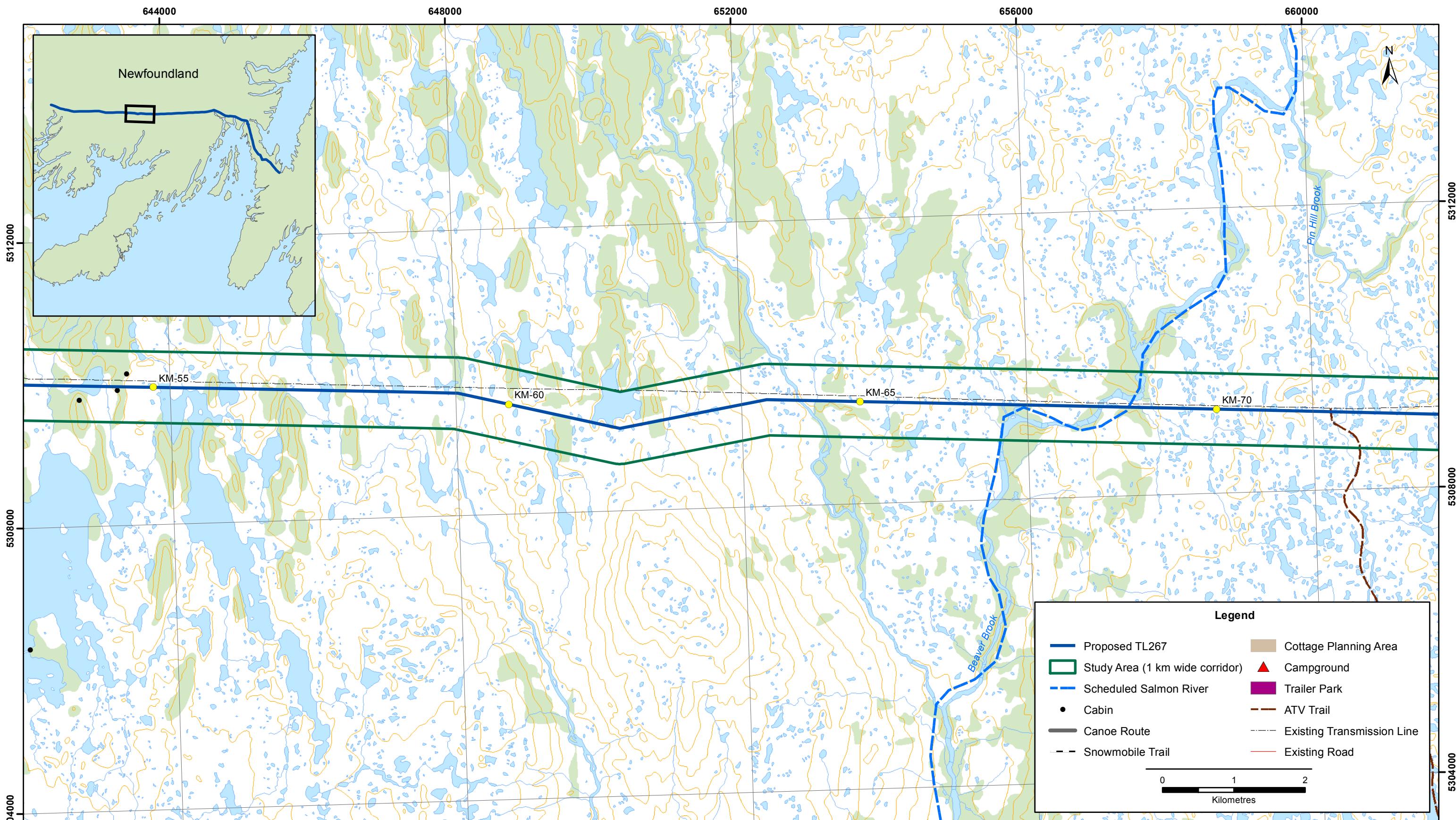
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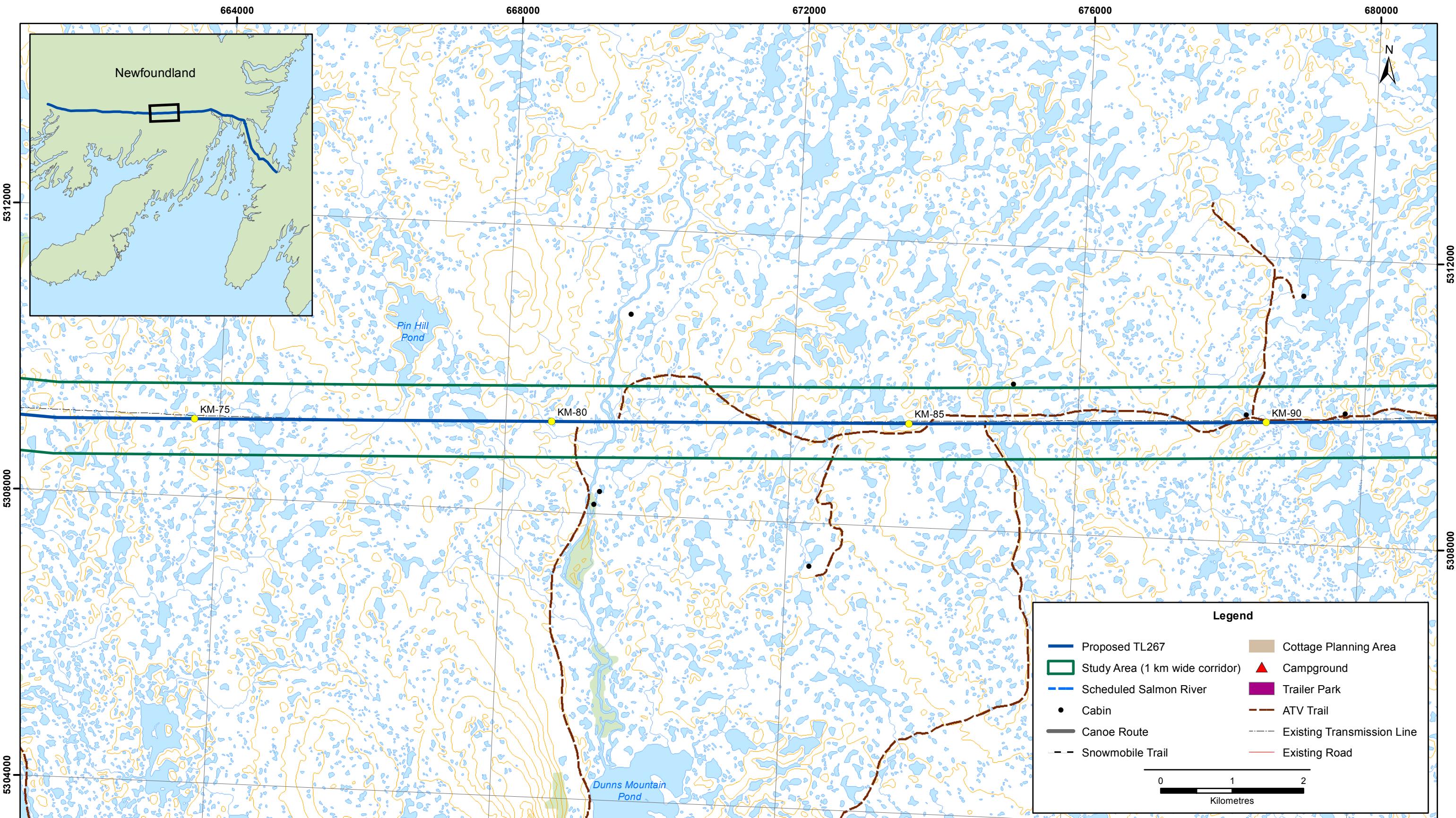
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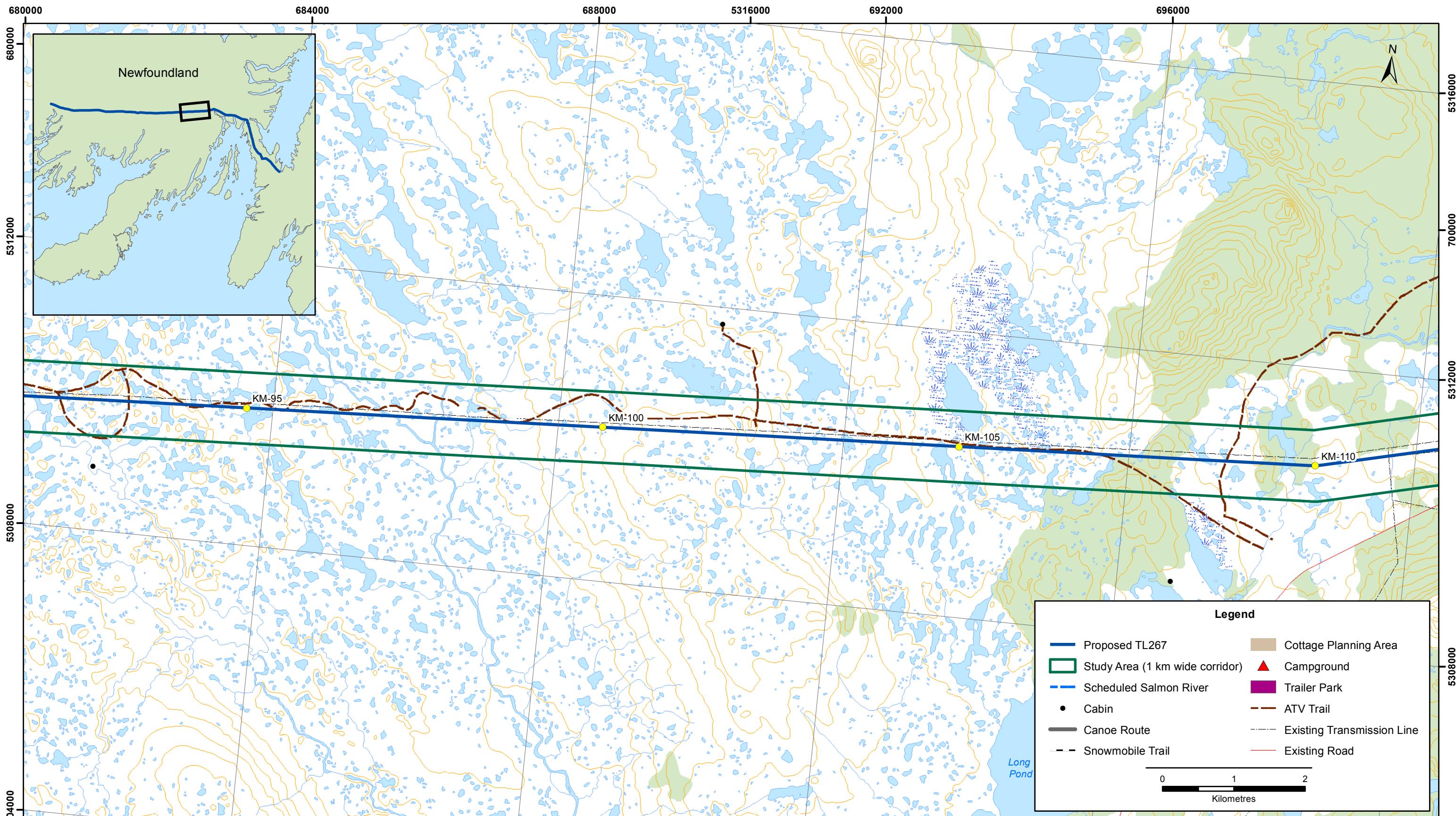


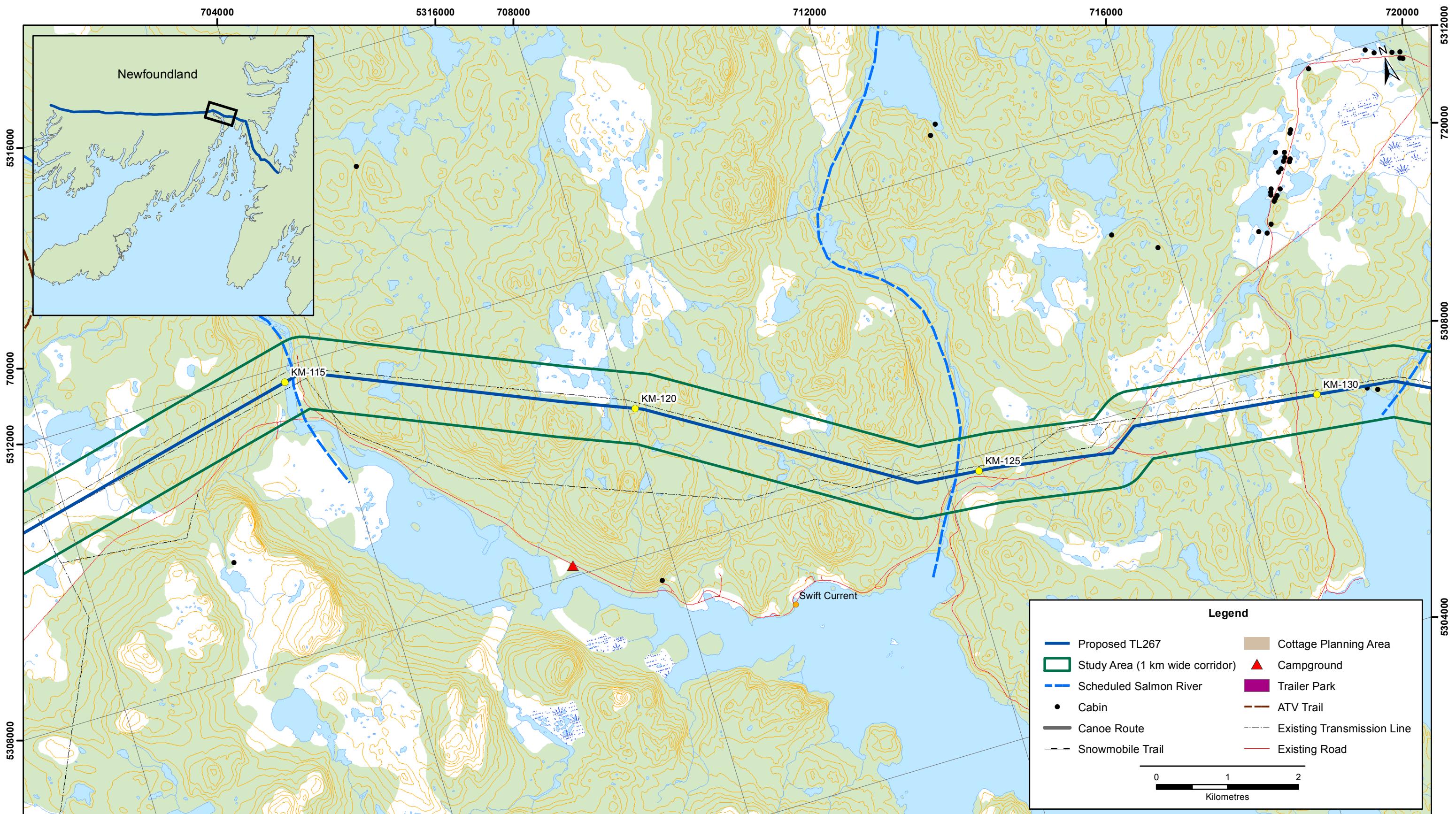


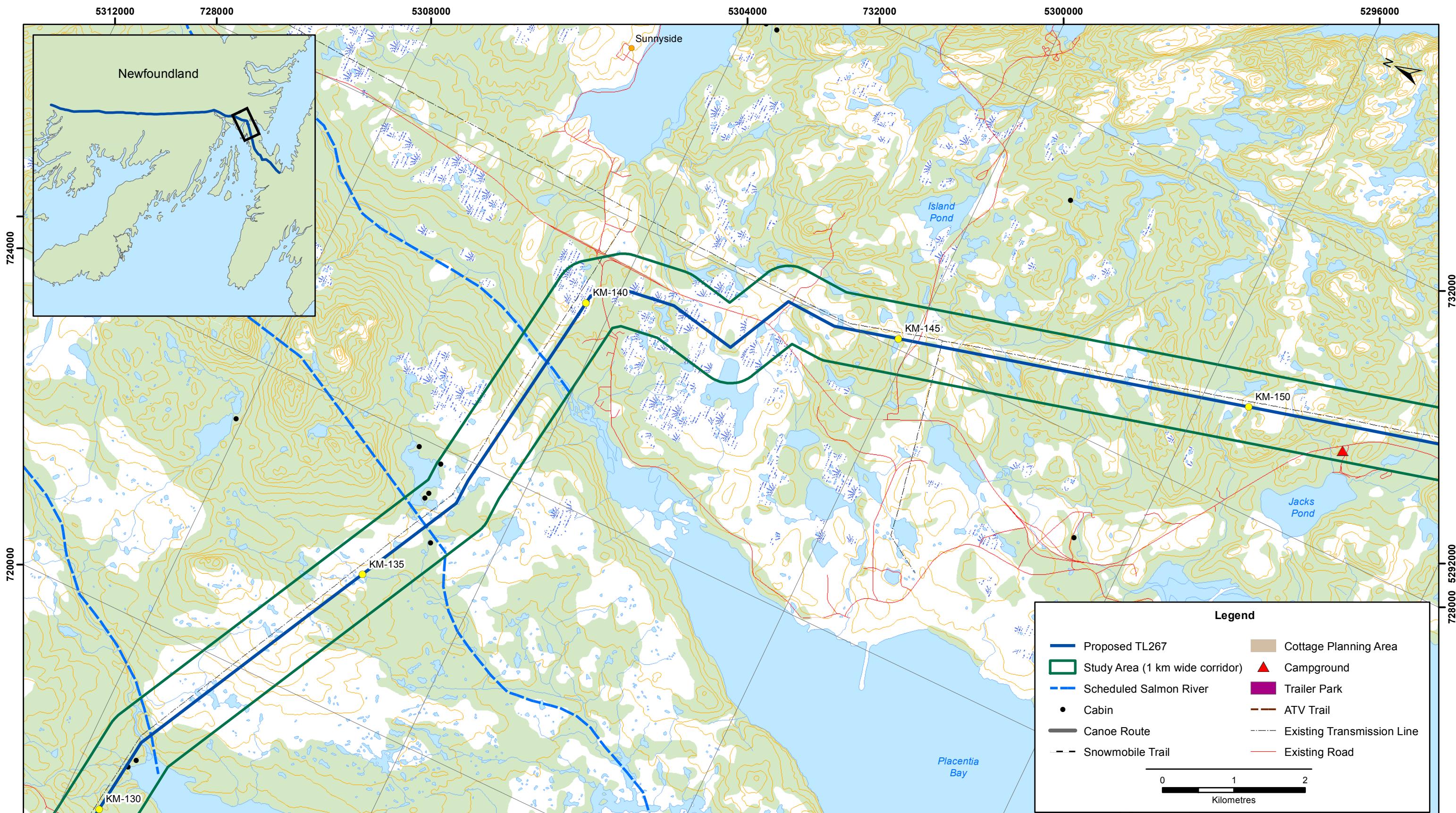


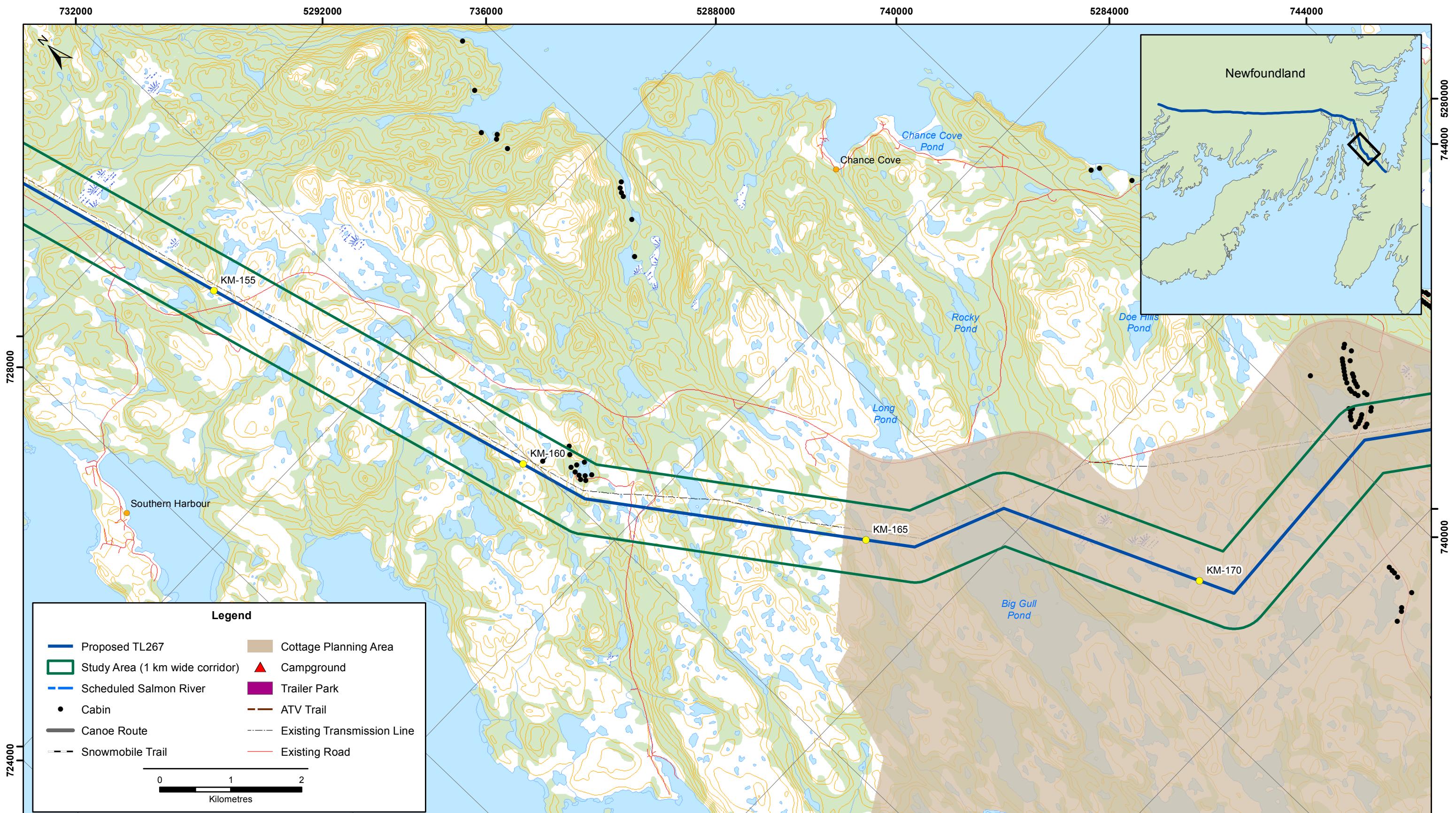


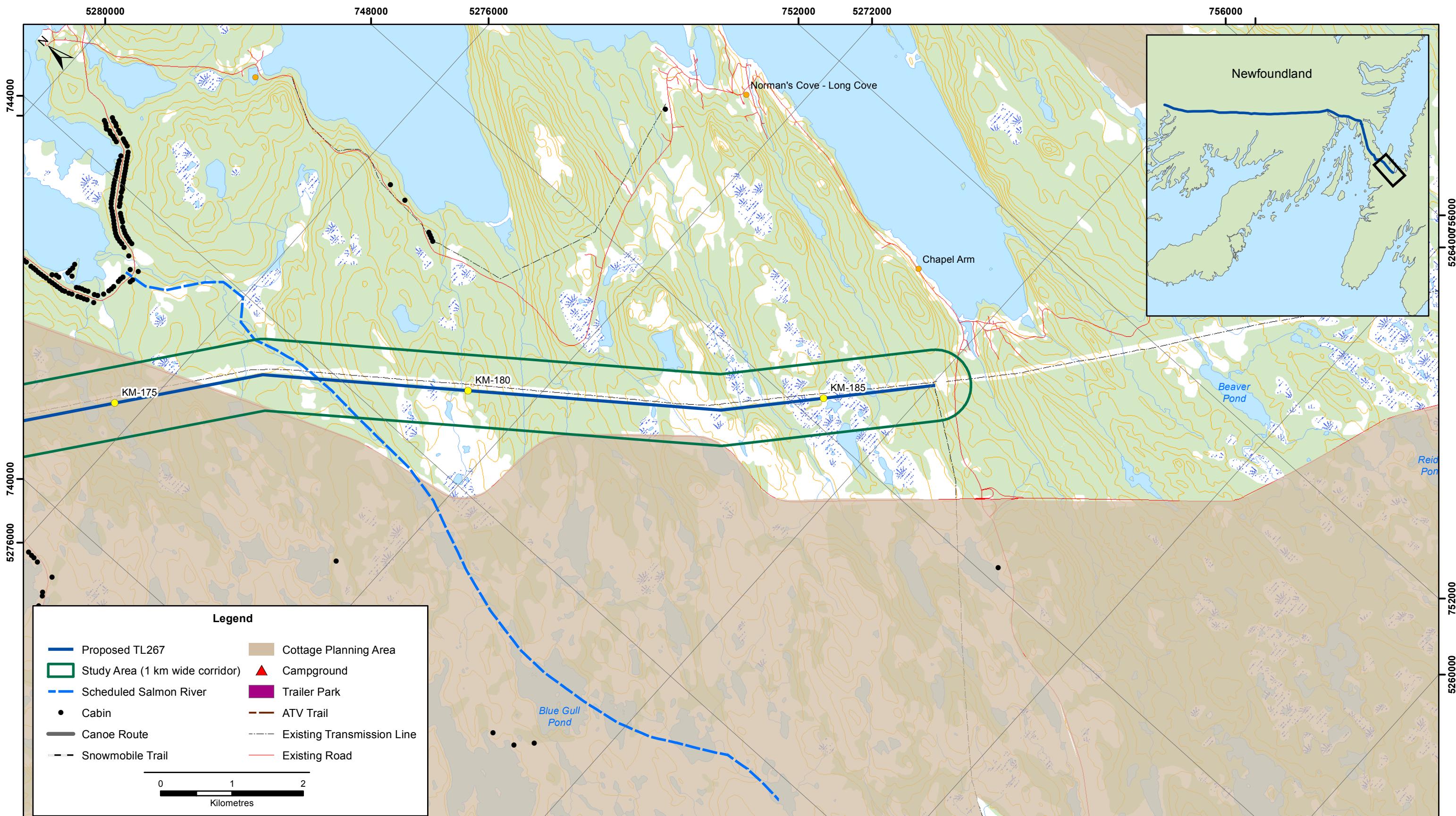








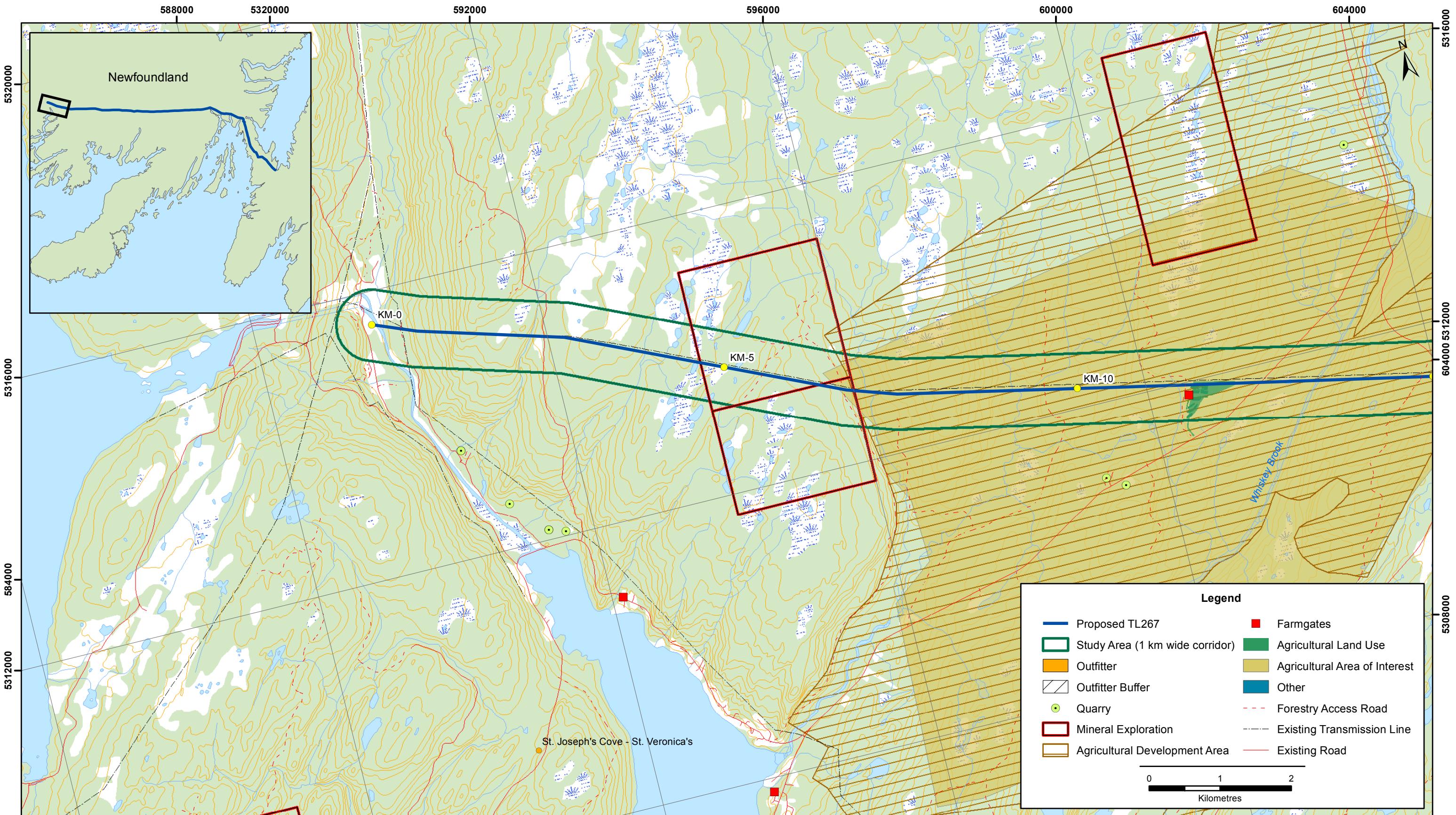


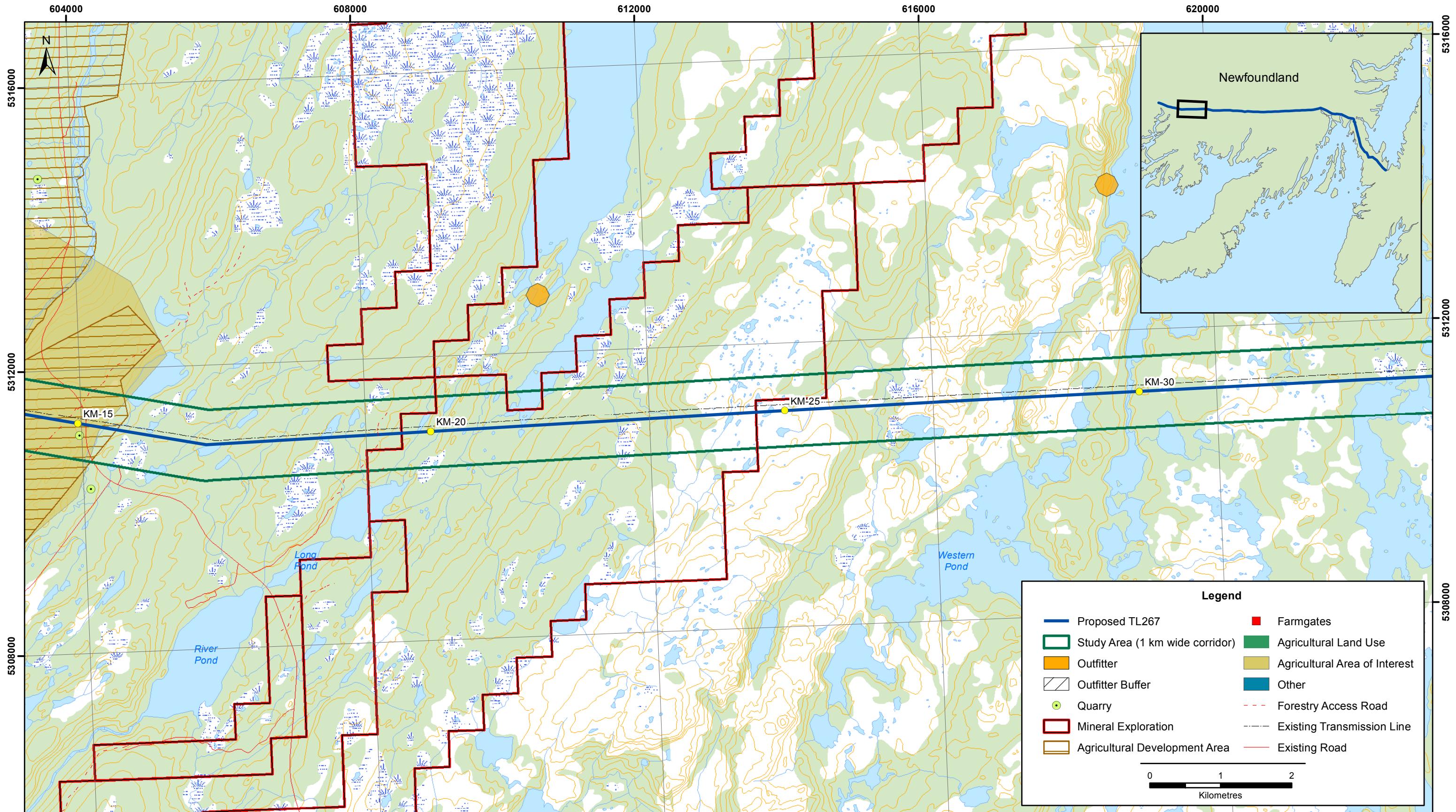


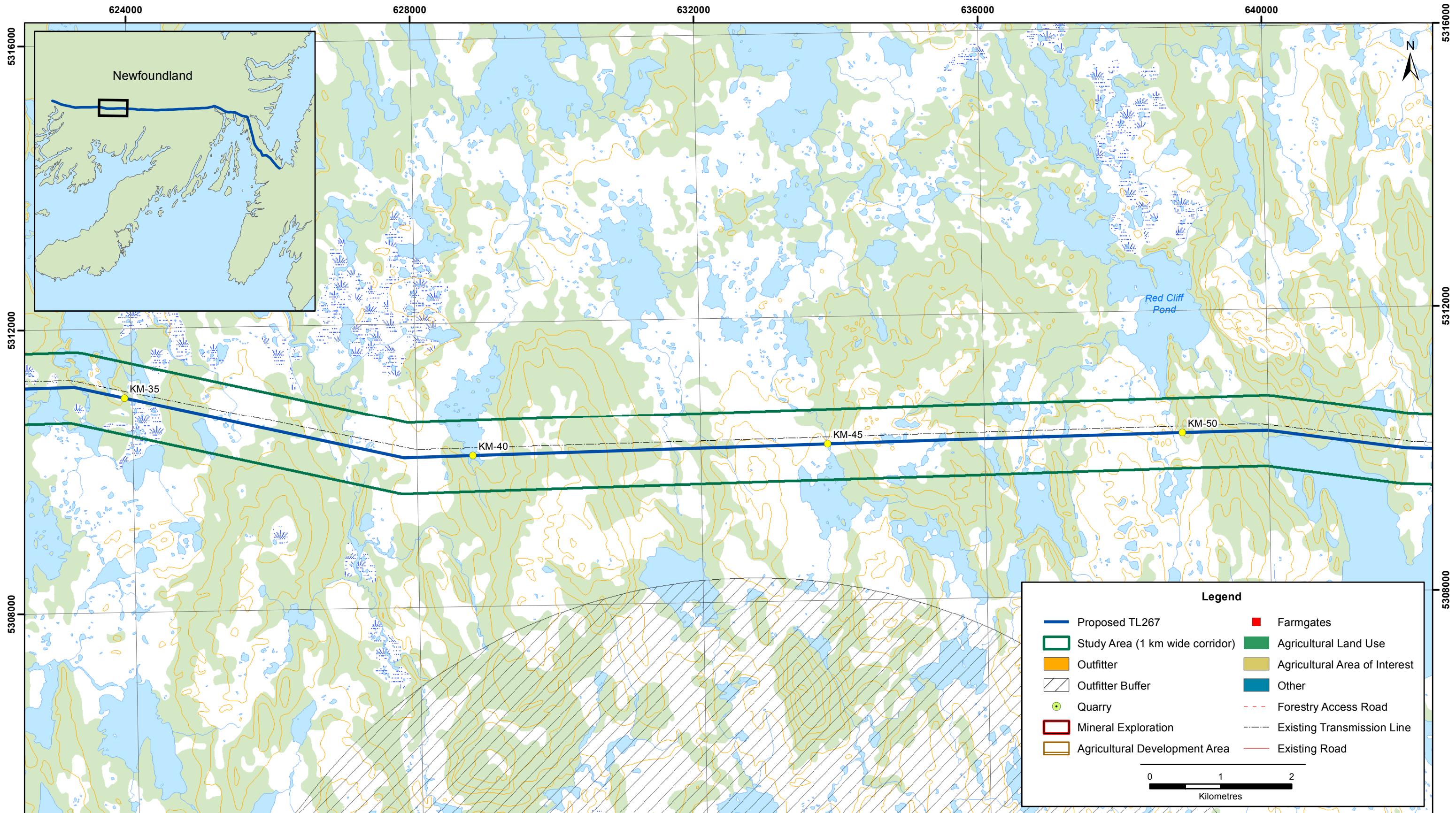
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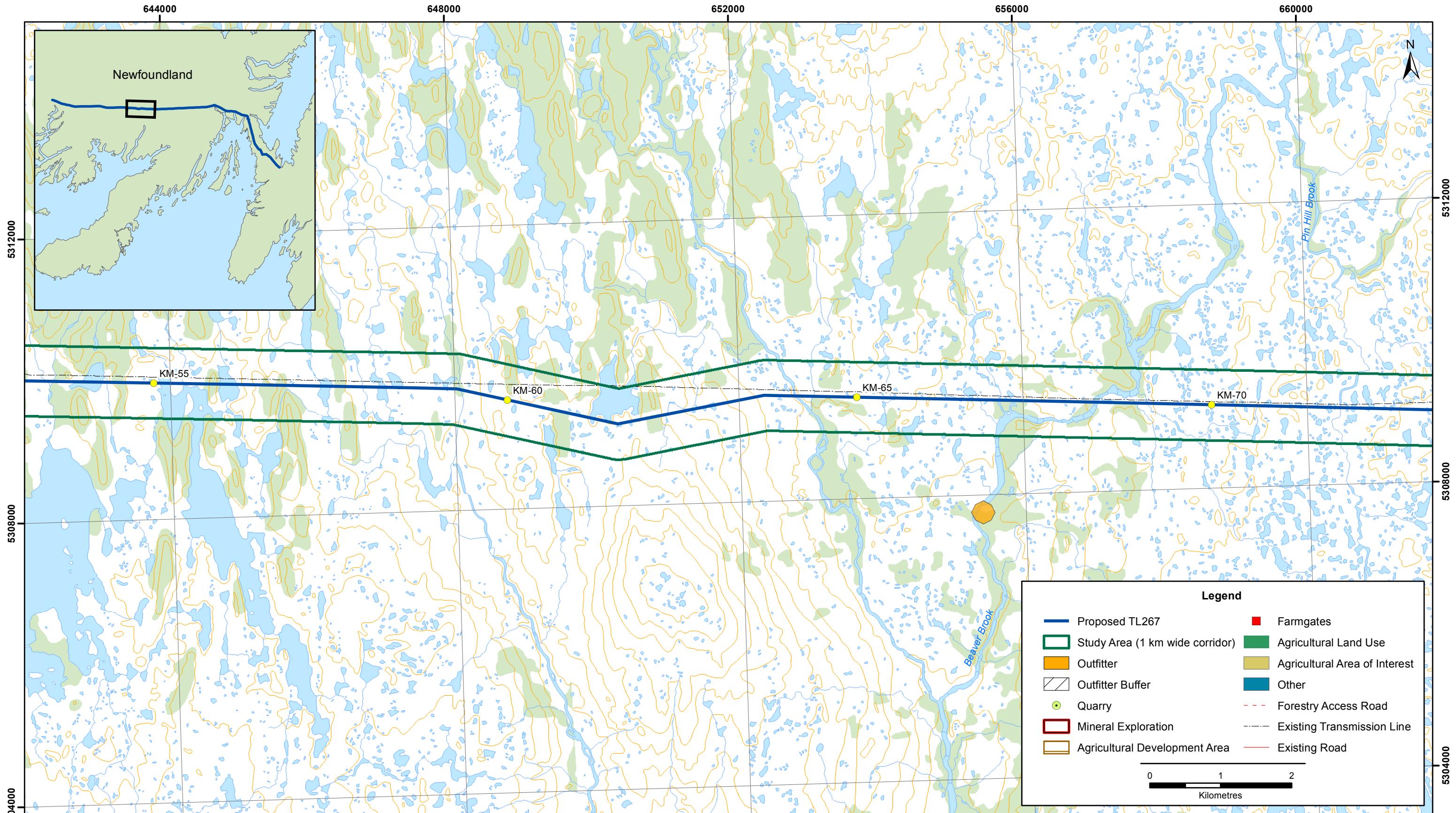
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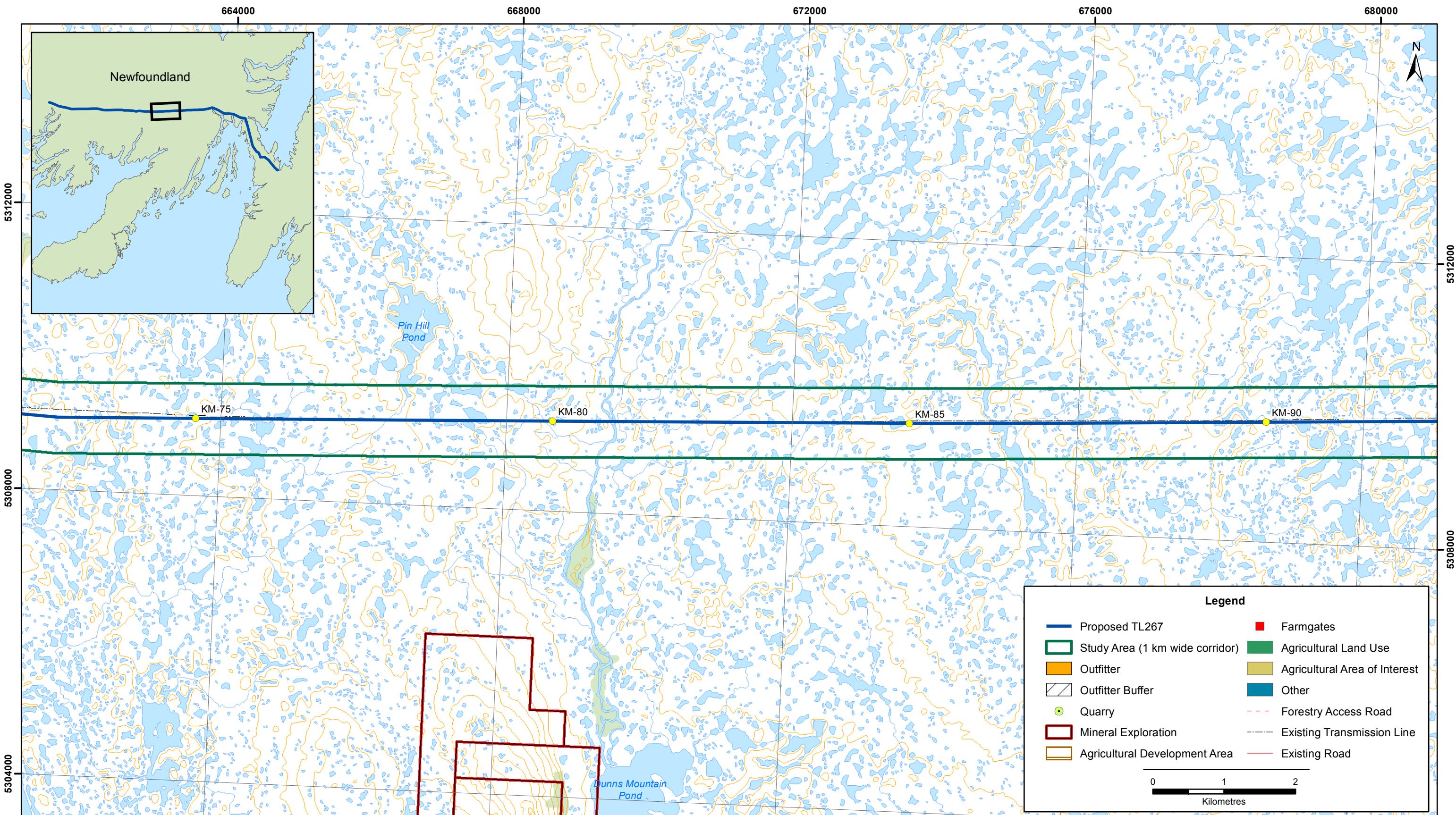
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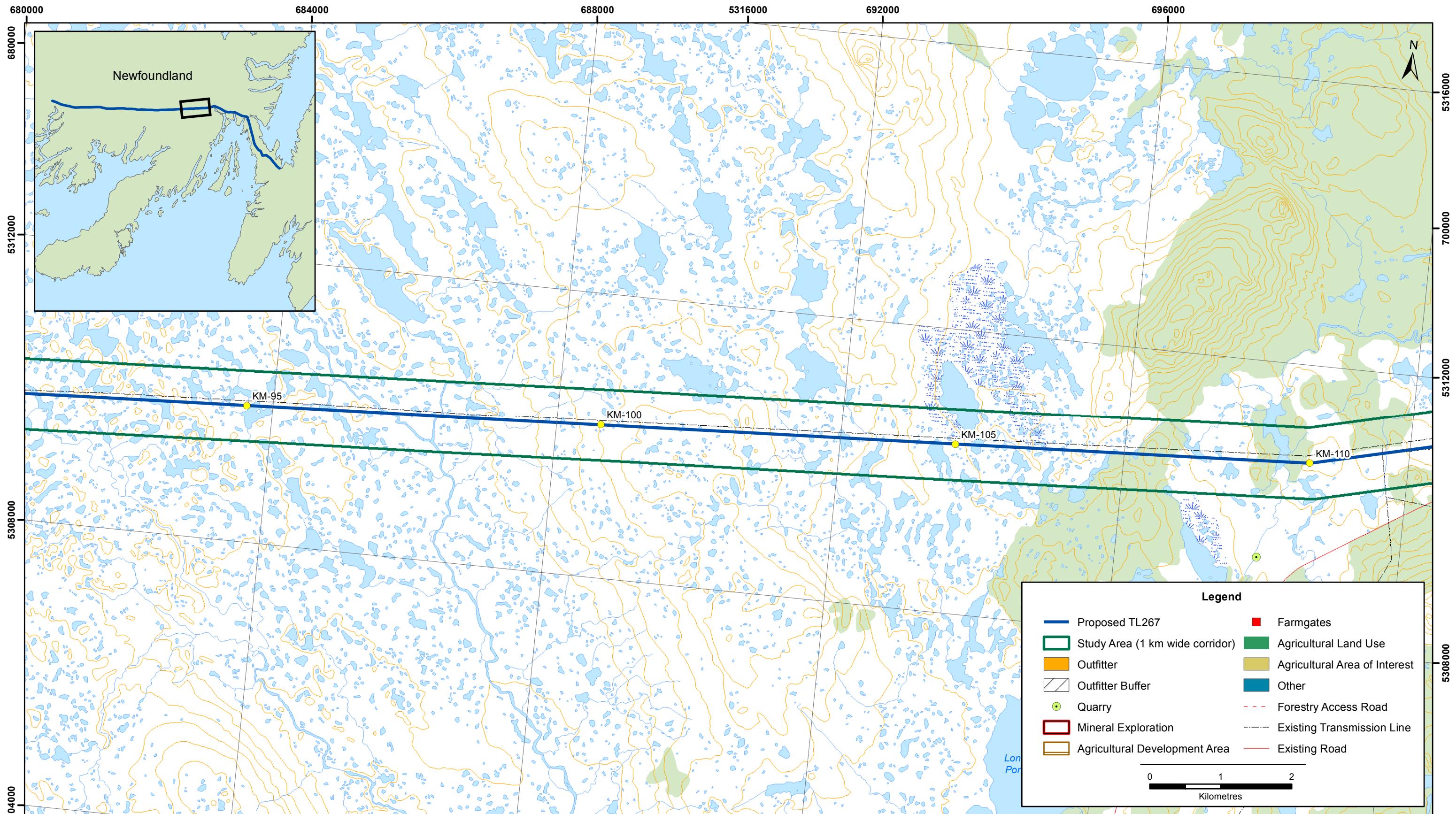


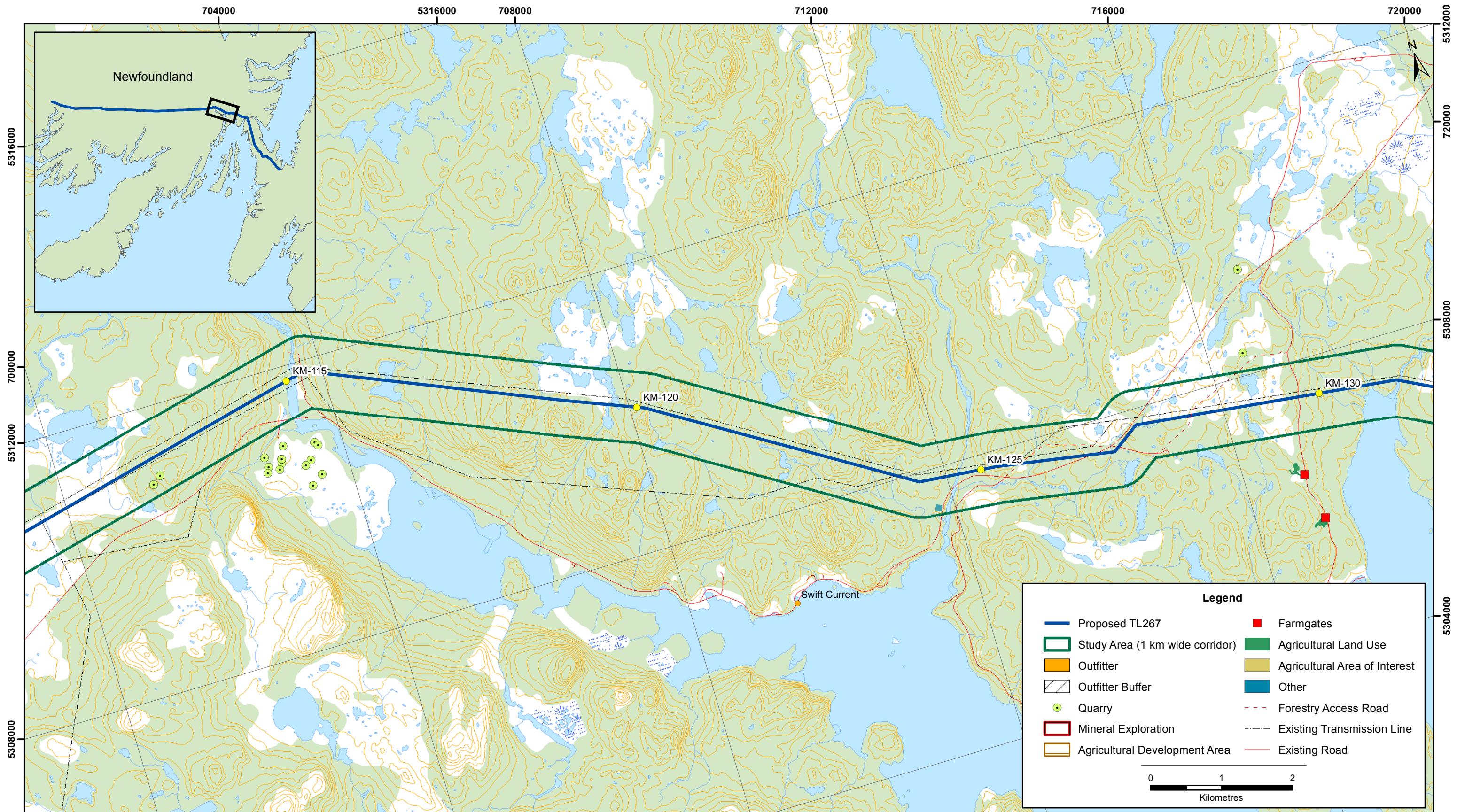


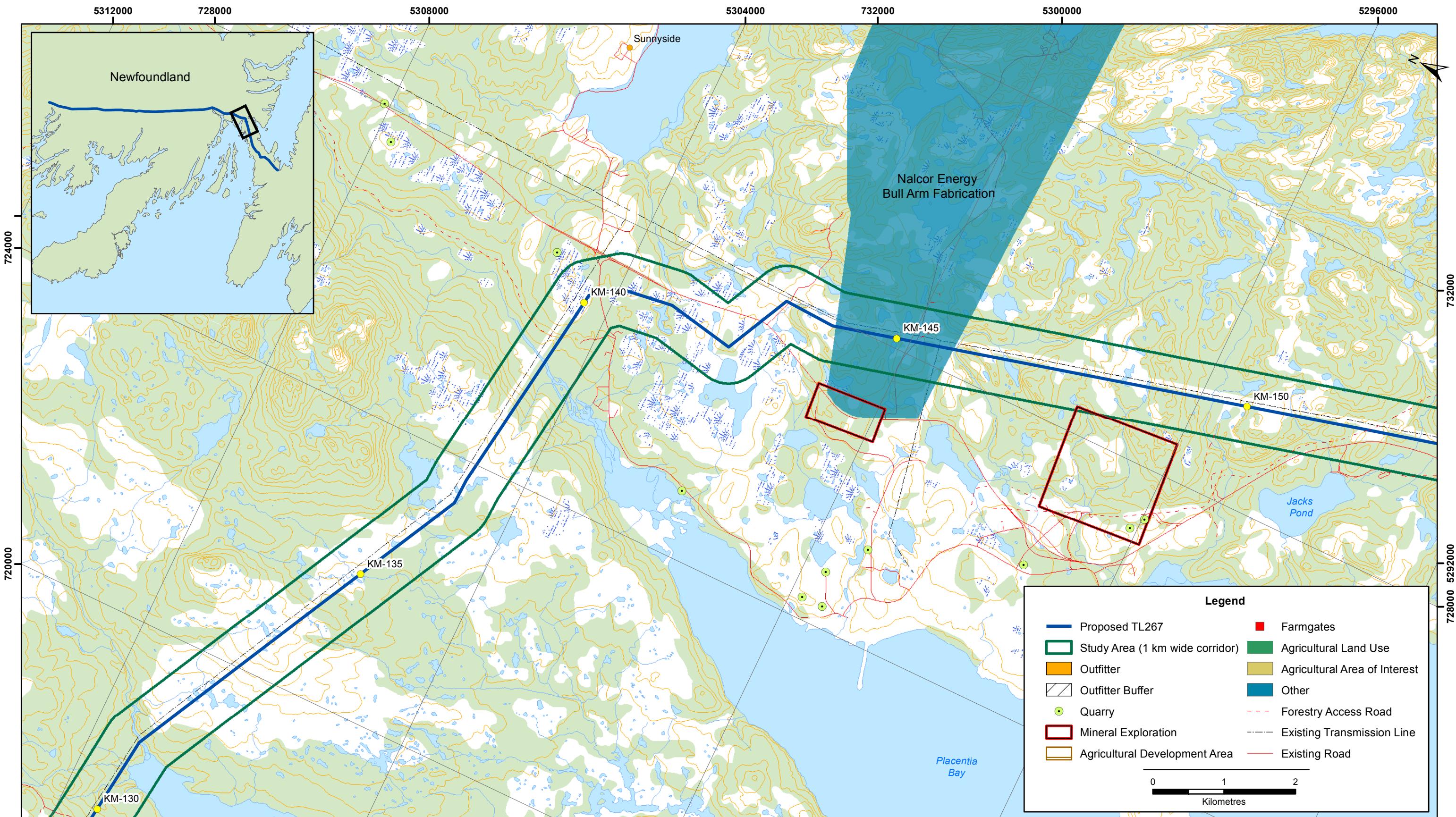


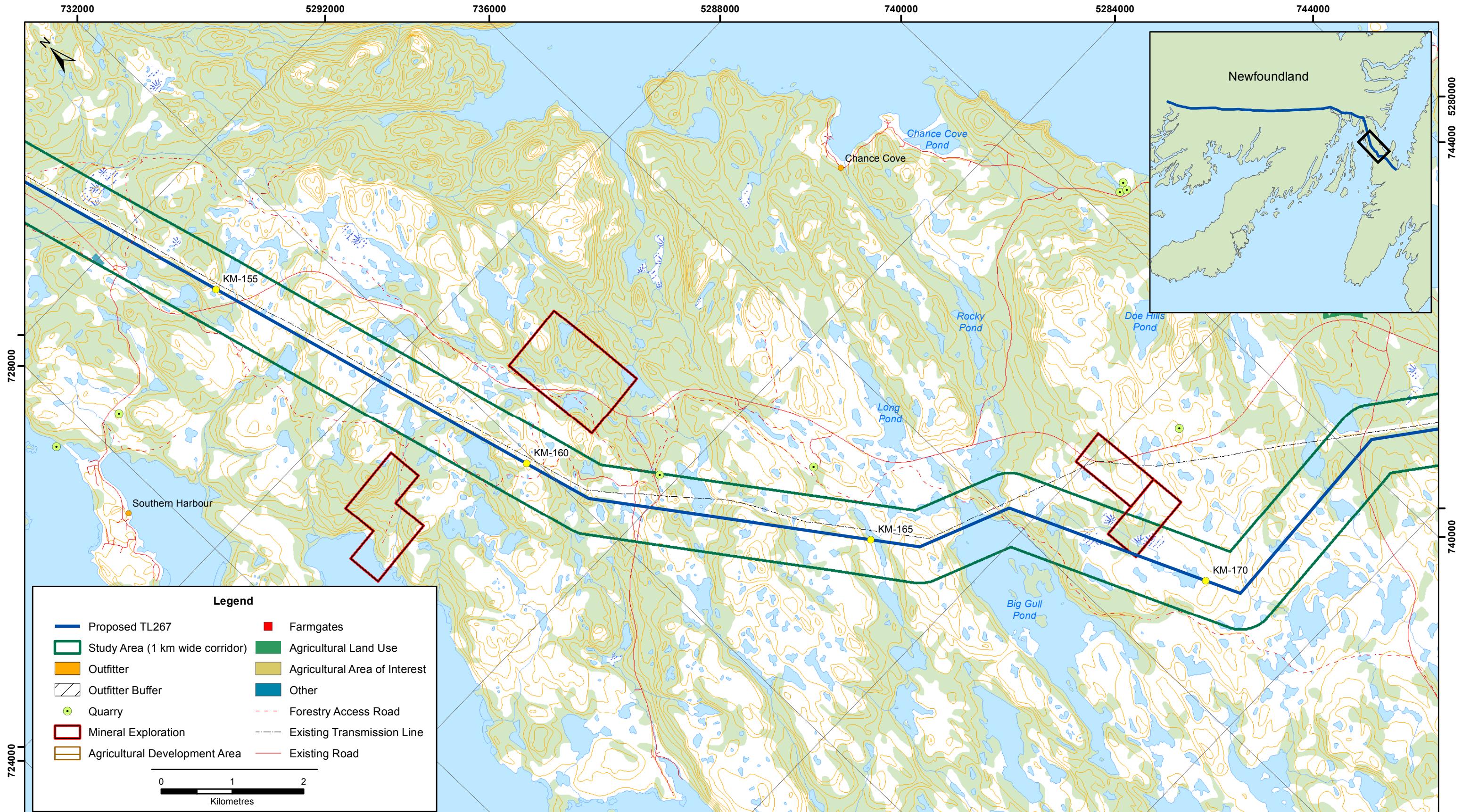


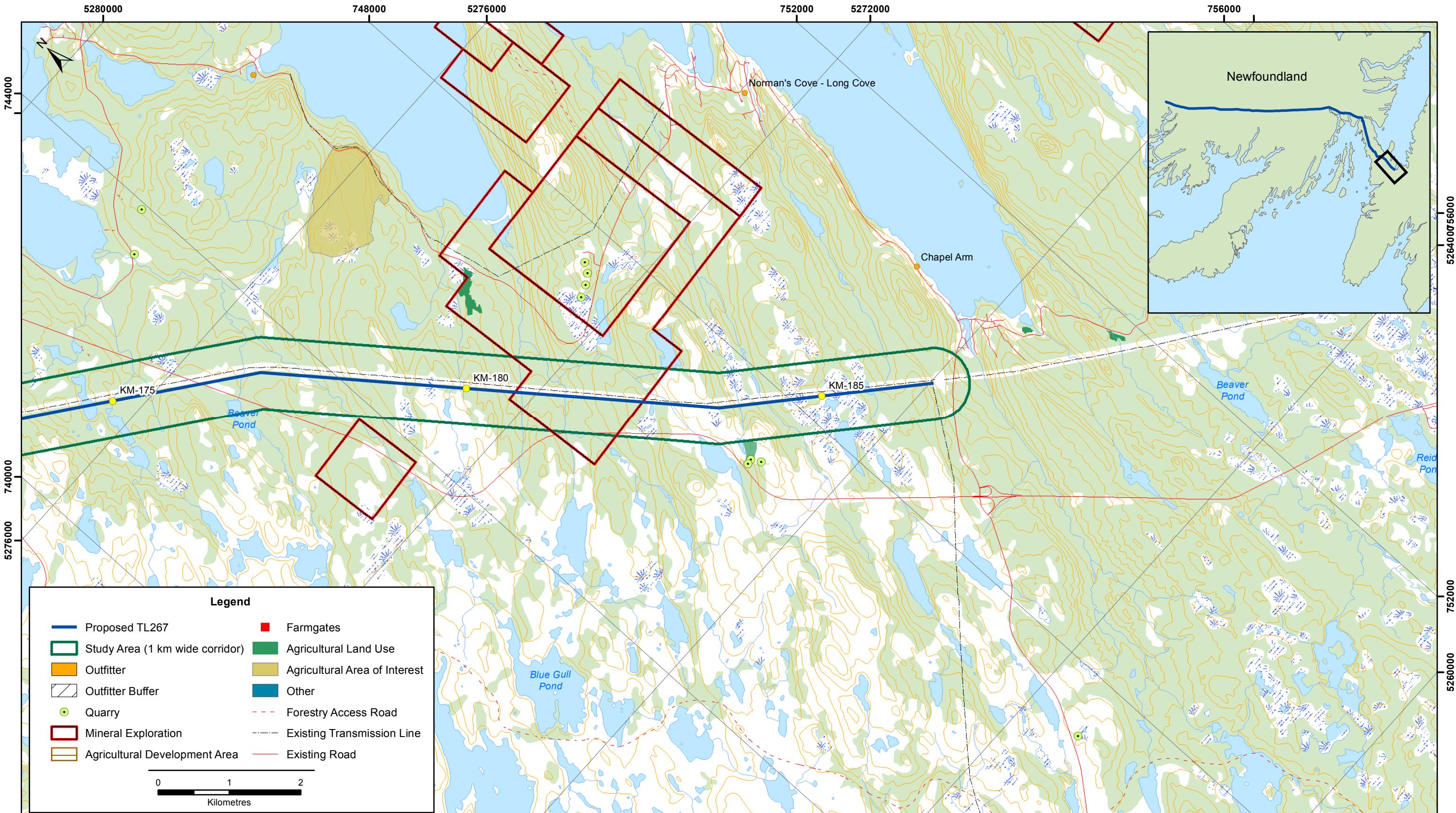








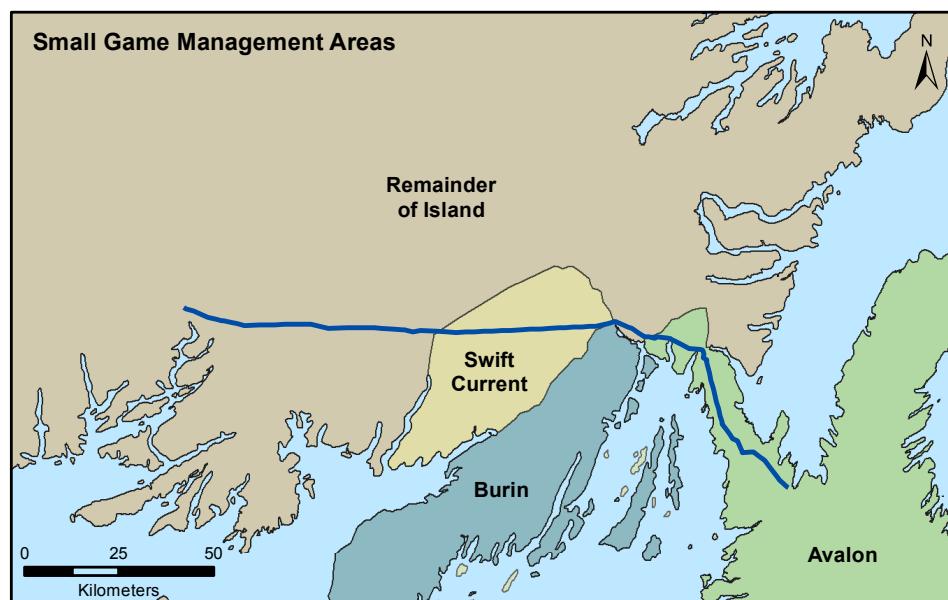
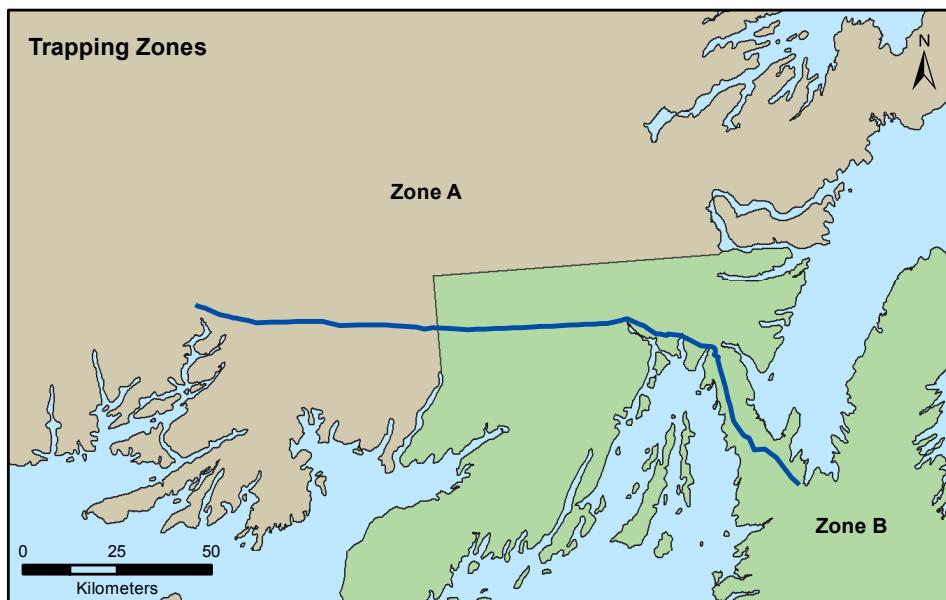
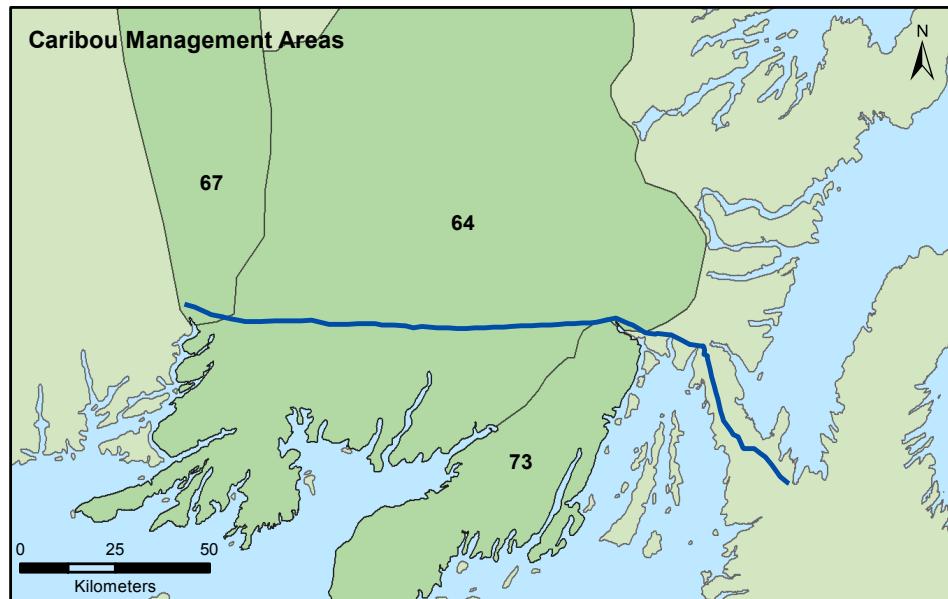
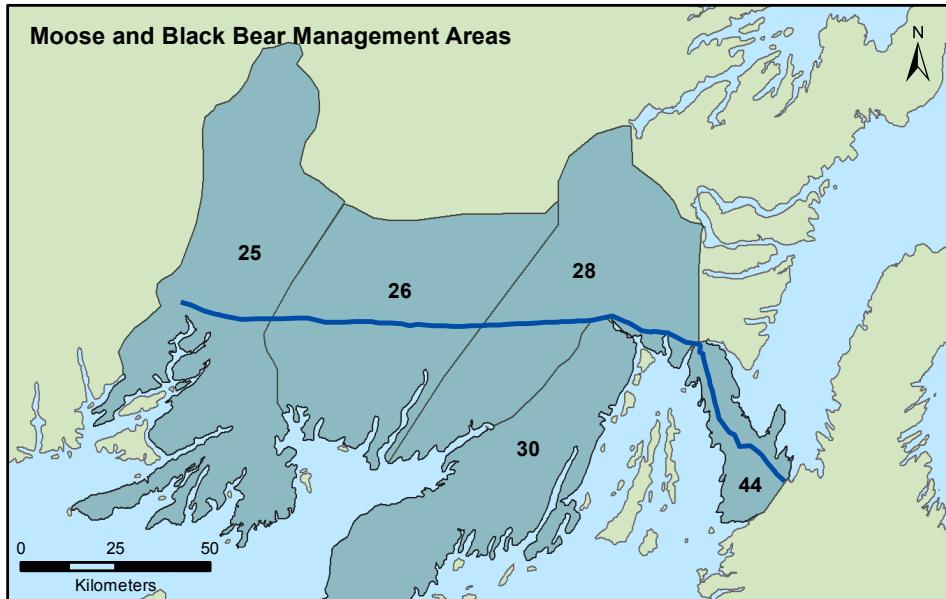




Appendix F

Resource Management Areas

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<p>newfoundland labrador hydro a nalcor energy company</p>	<p>HUNTING AND TRAPPING ZONES INTERSECTING STUDY AREA</p> <p>PROPOSED BAY D'ESPOIR TO WESTERN AVALON TRANSMISSION LINE (TL 267)</p>	<p>amec foster wheeler</p>
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