



ENGINEERING CONSULTING SERVICES

Transportation Infrastructure Program Feasibility Study, Phase I Cree Land Use Study - Nemaska Technical Report



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Stantec ■ DESFOR ■ SYSTRA

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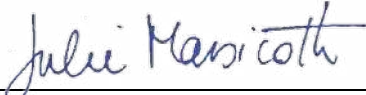
Approvals

Prepared by:



Émilie Charest, env. spec. M.Env.
Environmental Specialist

Reviewed by:



Julie Massicotte, biol. M.Sc.
Project Manager

Approved by:



Alessandro Cirella, ing.
Project Director, VEI



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Program Feasibility Study, Phase I
CREE LAND USE STUDY - NEMASKA
TECHNICAL REPORT

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Collaborators

Discipline	Name
Cree Land Use (Stantec)	<ul style="list-style-type: none">• Marie-Hélène Côté, anthropol. M.A.• David Laroche, anthropol. M.A.
Mapping and GIS (Stantec)	<ul style="list-style-type: none">• Johanne Boulanger, tech. geomatician

Table of Contents

1. Introduction	1
1.1 La Grande Alliance.....	1
1.2 Socio-environmental Feasibility Study.....	1
1.3 Cree land Use Study.....	2
2. Methodology	4
2.1 Study Areas.....	4
2.2 Data Acquisition and Processing	5
2.2.1 Literature review.....	5
2.2.2 Land user interviews.....	5
3. Community Profile.....	8
3.1 Old Nemaska.....	8
3.2 Issues and Vision	9
4. Results.....	10
4.1 Cree Land Use.....	10
4.1.1 Trapline N18.....	11
4.1.2 Trapline N20.....	11
4.1.3 Trapline N21.....	12
4.1.4 Trapline N23.....	12
4.1.5 Trapline R16.....	12
4.1.6 Trapline N25.....	13
4.1.7 Trapline R17.....	14
4.1.8 Trapline R20.....	15
4.1.9 Trapline R21.....	15
4.2 Comments, Concerns and Recommendations	16
4.2.1 Billy-Diamond Highway Railroad.....	16
4.2.2 Community Access Roads.....	17
4.2.3 Route du Nord	17
5. References.....	20

List of Tables

Table 1	Number of Traplines in Nemaska Potentially Touched by LGA Phase 1 Infrastructures.....	4
Table 2	Comments, Concerns and Recommendations – Billy Diamond Highway Railway.....	16
Table 3	Comments, Concerns and Recommendations – Upgrade and Paving of Nemaska Access Road	17
Table 4	Comments, Concerns and Recommendations – Upgrade and Paving of Route du Nord.....	17

List of Maps

Map 1	Cree Land Use Study Areas in Nemaska	7
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1. INTRODUCTION

1.1 LA GRANDE ALLIANCE

La Grande Alliance (LGA) program is a plan to protect, connect and develop the Eeyou-Istchee Baie-James territory. It includes a study of a transport development that encompasses a renewal of existing Cree Community roads, the implementation of a north-south link Matagami to the James-Bay area and finally, a deep-sea port. It materialized in 2018 when the Grand Council of the Cree (GCC) and the Gouvernement du Québec (GQ) signed a memorandum of understanding for the study. The study has involved the Cree First Nations communities from the beginning of the initiative to ensure community engagement, and respect for the traditional way of life and values. The study is overseen by the Cree Development Corporation (CDC) on behalf of the Cree Nation Government (CNG).

The CDC, on behalf of the GCC/CNG and the GQ, has been mandated to oversee the study. In turn, they have assigned Vision Eeyou Istchee (VEI), a consortium formed by STANTEC, DESFOR and SYSTRA, to carry out a Feasibility Study on the technical, socio-environmental and economic components in Phase I of the LGA infrastructure program, covering years 1-5 from the beginning of construction. The CDC appointed WSP to perform a pre-feasibility study of Phases II-III of the program (covering years 6-15 and subsequently years 16-30).

Phase I of LGA includes:

- Upgrades to the access roads between the Billy-Diamond Highway (BDH) and the Cree communities of Waskaganish, Eastmain and Wemindji.
- Upgrade to the access road between the Route du Nord (RDN) and the Cree community of Nemaska.
- Construction of a new secondary access road to Mistissini via the RDN.
- A railway line following, as much as possible, the Billy-Diamond Highway between the town of Matagami and KM257 (Rupert River bridge) of the Highway.
- A return to service for the railway line between Grevet (Lebel-sur-Quévillon) and Chapais (approximate distance of 225 km).
- Trans-shipment areas along the Billy-Diamond Highway and the Grevet-Chapais railway corridors, specifically one located at KM257.

Among the tasks to achieve the stated objectives of the Feasibility Study for Phase I — Infrastructure, a socio-environmental feasibility study was conducted. This study included a Cree Land Use Study among the communities potentially impacted by the proposed infrastructures, including Nemaska.

1.2 SOCIO-ENVIRONMENTAL FEASIBILITY STUDY

Development projects cannot be carried out without bringing changes in the environment and to the social environment. The James Bay and Northern Québec Agreement (JBNQA) was established in 1975 to ensure, among other things, that development in the Cree territory is carried out taking into account the protection of the environment and the maintenance of land use by Cree communities for the practice of their traditional activities. The JBNQA also provides a pathway for Cree in the decision-making as part of the environmental assessment process under Chapter 22 of the Agreement.

This Environmental and Social Feasibility Study is an important tool to guide future developers wishing to carry out the Phase 1 of La Grande Alliance. It is an innovative approach that plans to document, upstream of design by future proponents, the expectations and concerns of affected Cree communities, identify key potential land use conflicts

and propose solutions (avoid, mitigate, offset), anticipate key potential impacts and recommend mitigation measures.

The CDC made it clear from the beginning of the LGA process that they wanted local community involvement, and environmental and social criteria evaluated at the same level as technical and financial criteria in the infrastructure design and planning. To meet these principles, VEI did the following:

- Organised internal bi-weekly meetings and direct exchanges between colleagues to share relevant land use and environmental information with the other study teams as it was collected;
- Used an online database (interactive ArcGIS map) to make land use, environmental and technical data accessible to targeted team members;
- Organized a workshop, bringing together tallymen and engineers, to review the potential Billy-Diamond Highway railway alignment, and identify main issues;
- Accommodated the tallymen's recommendations as much as possible.
- Encouraged team members to communicate with the Cree Liaison Officers (CIOs) and have ad-hoc discussions with them.
- Prioritised Cree workers and companies in the organization of field campaigns.
- Invited tallymen and land users to meet the field crews and to participate in fieldwork.
- Reviewed and included information shared by the following organizations:
 - Cree Nation Government (Land Use Planning Commission, including the Protected Areas Working Group and Environment Department);
 - Aanischaaukamikw Cree Cultural Institute;
 - Cree Outfitting and Tourism Association;
 - Cree companies, Cree communities, and the CIOs.

1.3 CREE LAND USE STUDY

As part of the socio-environmental study, the mandate included a Cree land use study which covered each proposed infrastructure's study area. The Cree land use study's main goal is to document the land and resources use in the study areas, so as to better identify and understand potential risks, conflicts and opportunities related to the transportation infrastructures under study. More specific objectives of this research include:

- Collect traditional knowledge regarding the area to inform and improve the design of the potential infrastructures.
- Identify valued sites and sensitive areas to be protected from potential development.
- Gather concerns and recommendations in relation to the proposed infrastructure, as well as concerning the LGA process in general.
- Assess preliminary potential impacts from the construction and operation of the infrastructures.

- Identify any potential cumulative effects from previous project impacts as well as in light of the potential infrastructures.
- Propose solutions to potential conflicts and alternate options.

It is important to keep in mind the following limitations regarding this component of the study:

- Novelty of the Grande Alliance study and approach for land users for whom this consists of the first contact regarding the infrastructure components under study;
- Relatively short time allotted to conduct the interviews and the study;
- Difficulty to obtain data from past studies or projects (e.g. sites of special interest to the Cree identified during forestry management exercise, as per the Paix des Braves);
- Difficulty to reach and meet all the potentially affected land users;
- Reluctance from certain land users to participate in the study because they do not want their participation to be interpreted as consent to the proposed infrastructure or to LGA;
- Reluctance from certain land users to share specific information about their activities;
- “Consultation fatigue” of certain land users who have shared their knowledge repeatedly;
- Potential loss of precision due to translation (Cree-English/English-Cree).

It should be seen as a first general picture of the land and resources use in the study areas, to be completed in future stages of the process, rather than a complete list of land use features and recommendations. Indeed, it should be noted that the approach adopted by the LGA team is very innovative in engaging land users and community members from the start of the planning process, before the final infrastructure design. If some of the proposed infrastructure works go ahead, engagement with community members will continue and data will be refined.

The present report presents the results of the Cree Land Use Study conducted in the community of Nemaska.

2. METHODOLOGY

The approach and methodology adopted for the Cree land use study, as well as the consent forms and interview grid were reviewed by and discussed with the CIOs.

2.1 STUDY AREAS

The study areas encompassed in the community of Waskaganish are as follows (see Map 1):

- Potential BDH railway: five km buffer zone on either side of the baseline BDH railway alignment, which goes from Matagami, around km 0 of the BDH, to the Rupert River, around km 257 of the BDH.
- Nemaska access road: one km buffer zone on either side of each road’s centerline and they extend from the start of the road to its connection with the BDH.
- Route du Nord: one km buffer zone on either side of the road’s centerline and it extends from the start of the road, in Chibougamau, to its connection with the BDH, around km 275 of the BDH.

During the interviews with tallymen and land users, if land use activities or features were reported outside the study areas, they were noted as well.

The table below indicates the traplines in Nemaska potentially touched by each infrastructure.

Table 1 Traplines in Nemaska Potentially Touched by LGA Phase 1 Infrastructures

Infrastructure	Number of traplines	Trapline Intersected
Potential BDH Railway alignment	4	N20
		N21
		N18
		N23
Community Access Road	2	N23
		VC13
Route du Nord	6	M33
		N25
		R16
		R17
		R20
		R21

2.2 DATA ACQUISITION AND PROCESSING

2.2.1 Literature review

At the beginning of the study, a review of existing information was conducted. General search by key words was carried out as well as search in specific databases, including:

- Hydro-Québec projects that were subject to an environmental impact assessment (Cherloc);
- Projects evaluated by the COMEX;
- Québec environmental assessment registries (MELCCFP and Bureau des audiences publiques sur l'environnement);
- Canadian impact assessment registry (Government of Canada).

More than 200 documents, concerning at least 40 projects achieved between 1977 and 2021, were consulted. This literature review allowed to collect information about known valued sites and sensitive elements, mainly along the Rupert River on Waskaganish and Nemaska territories. Some information regarding Cree land use near the communities of Waswanipi and Nemaska was also available. However, the literature review also revealed that little information is available for several sectors under study, including:

- Around the community of Wemindji and along the access road;
- Along the Billy Diamond Highway between Matagami and Waskaganish;
- Along the Grevet-Chapais roadbed, except for Lake Opawica area;
- Along the Eastmain access road.

2.2.2 Land user interviews

At the beginning of the study, traplines that could potentially be touched by the proposed works and infrastructures were identified. The VEI team then asked each CIO to validate the identity of each trapline's tallyman and to identify other land users or knowledge holders who should be invited to participate in the Cree land use study. In collaboration with the CIOs, VEI organized information sessions for tallymen and land users in each community potentially affected by LGA Phase 1 infrastructures (eight communities). Tallymen were invited to bring their family members and land users with them. General information on LGA as well as more specific information about Phase 1 studies and the infrastructures that could potentially go through the local traplines were presented and discussed with the attendees.

Sometime after the information session, the tallymen were invited to an individual land use interview in which their family members and land users were also welcomed to participate. The interviews were semi-structured, with open-ended questions, and were conducted mostly in Cree by one of VEI's Cree Liaison Officers and VEI's anthropologist. Large paper maps were used to locate land use features and information shared by the participants. Prior to starting the interview, the participants were asked if they had questions about LGA, and information about LGA and specific infrastructures was presented to those who had not assisted to the information session. The interview questions touched upon the following themes:

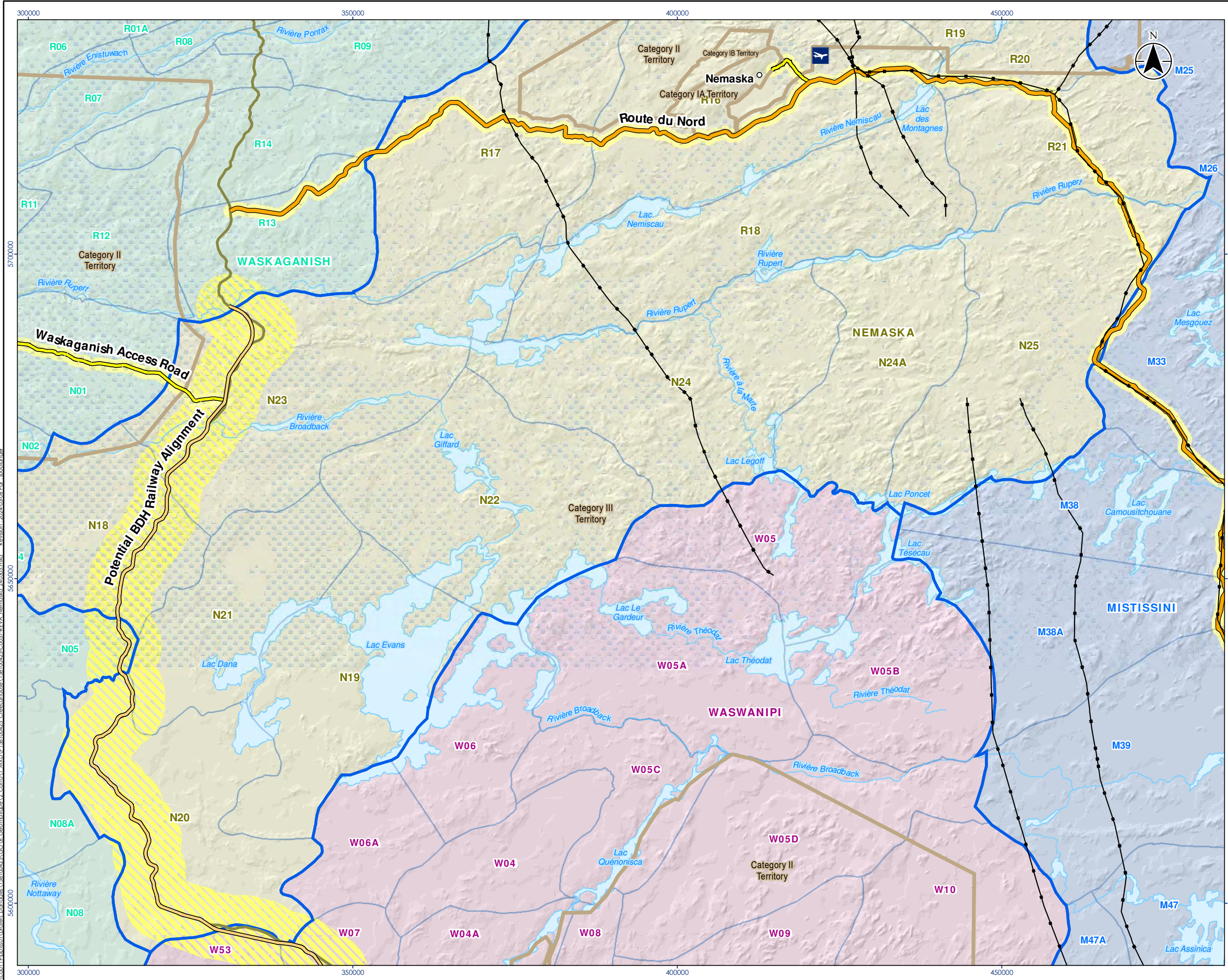
- Description of land use activities and features
 - Harvesting activities (hunting, fishing, trapping, and berries, plants and wood gathering);
 - Habitations sites (camp, cabin, seasonal campsite, tent frame, camping area, house, store, old trading post, old campsite and other building);

- Trails and travelways (ATV/snowmobile trails, forestry roads, path, boat landing and portages);
- Social and cultural sites (community, gathering, knowledge transfer, historical, archeological, ceremonial, burial or sacred site, picnic area, landmark).
- Environmental information concerning the study area (traditional ecological knowledge)
 - Wildlife:
 - Species present in the study area, quantity, quality, and potential issues.
 - Trails and migration routes, with special attention to roads and alignments crossings.
 - Calving/kidding areas.
 - Other areas used by moose or caribou.
 - Beaver lodges/ponds.
 - Goose hunting ponds.
 - Fish:
 - Species present in the study area, quantity, quality, and potential issues.
 - Presence of fish, and species, in each watercourse along the alignments.
 - Spawning and rearing areas.
 - Water Resources
 - Wetlands, bogs, swamp areas
 - Invasive species and changes observed in the last 25 years.
- Condition of the existing infrastructures
- Potential effects and recommendations.

Once the interviews notes were compiled, the information collected was integrated into a GIS database specifically created for Phase 1 feasibility study, so it could be shared with the technical and the archaeological teams (note that access was limited to a small number of people).

Validation interviews were organized with the study participants, so they can review the data collected, verify its accuracy, and add precisions if required. The georeferenced database was also used during the validation process, to make sure the land use information was properly located. The interview notes were also read with the participants to validate the accuracy and clarify some information, if needed. The validation process also offered the land users an opportunity to share additional data or express additional concerns and recommendations.

It is important to note that some of the information collected is not presented in this report or is mentioned with very few details to preserve confidentiality and respect its sensitive nature. However, it will be provided to the CDC along with relevant non-disclosure agreements.

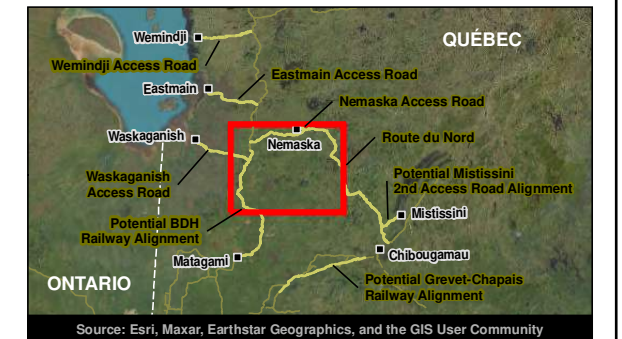


Map No. **1**
 Title **Cree Land Use Study Areas in Nemaska**

Client/Project
 Cree Development Corporation
 La Grande Alliance – Feasibility Study
 Phase 1

Project Location 158100425-C0057 REVA
 Eeyou Istchee, Québec Prepared by Johanne Boulanger on 2024-03-06
 Verified by Marie-Hélène Côté on 2024-03-06
 Independent Review by Julie Massicotte on 2024-03-06

- Human Environment Components**
- Cree Village
 - Locality
 - ✈ Airport
 - ▭ Category I, II or III Territory
 - Power Line
- Study Components**
- Potential BDH Railway Alignment
 - Route du Nord
 - Access Road
 - Study Area – 1 km Buffer on Each Side of Waskaganish and Nemaska Access Roads
 - Study Area – 5 km Buffer on Each Side of the Potential Railway
- Trapline Limit and Community Name**
- ▭ Trapline Limit
 - ▭ Mistissini
 - ▭ Nemaska
 - ▭ Waskaganish
 - ▭ Waswanipi
- Hydrography**
- ▭ Body of Water
 - Watercourse
- Wetland**
- ▭ Potential Wetland
- Road Network**
- Road Network



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 18N
 2. Geotechnical Investigation: Stantec, 2023
 3. Road Network: Adresses Québec, 2021
 4. Hydrography: GRHQ, 2017
 5. Orthoimagery: ESRI-World Imagery, 2017

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3. COMMUNITY PROFILE

Nemaska's territory is divided into 15 traplines covering 14,929 km² (CMEB, 2022). Nemaska village is located on the shore of Champion Lake. The actual location of the Nemaska village originate from 1977 when, after being displaced due to a potential hydroelectric project, almost a hundred of Nemaska Eenouch decided to gather around Champion Lake, near their original settlement. Those members chose a site recommended by the Elders, where the community is now established (CNN, 2022). The CNN members still frequent their original settlement on the shore of Nemiscau Lake, called Old Nemaska, and consider it a cultural village. The Broadback, Rupert and Nemiscau rivers cross the land. The community is accessible by the Nemaska Road approximately 10 km from the route du Nord. As of August 2022, the Cree Nation of Nemaska had a total registered population of 850 (CIRNAC, 2022), with 750 members living on reserve, 24 living off reserve and 52 living on other reserves or Crown land.

The LGA Phase 1 infrastructures located on Nemaska territory are:

- The northern portion of the BDH railway;
- The entire Nemaska access Road;
- The northern and western sections of the Route du Nord.

3.1 OLD NEMASKA

Location and infrastructures

Old Nemaska is the site where the members of Nemaska community originally settled, so it has a special meaning for them and is particularly valued. There are about 60 camps there, an old school, a church and a cemetery. Old Nemaska is a cultural and historical site located on the left bank of Lake Nemiscau. The location is only accessible by boat, mostly freighter canoes. The boat ramp where they depart from includes a large parking and can be accessed by the Route du Nord (KM 321.5) and then using a local road on approximately 35 km.

Cree land use

In the spring, some CNN members go to Old Nemaska for the goose hunting season. During the summer, community members gather and spend some time there. They frequent the site for cultural, social, and recreational purposes. They go fishing in Lake Nemiscau, but also to the east, as far as Nemiscau Point, and north to the Kaupwanaukach Pass. In the winter, ice fishing is practised on the Rupert River south of Lake Ukau Amikap and on the Nemiscau River south of Devoyau Lake (HQ, 2004).

Canoe brigades departed from Old Nemaska and it serves as a stopover point for expeditions as well.

According to the interview participants for the Land Commission Report (EPC, 2017a): "There is something about Nemaska that has a very rich history. We get a chance to go anytime we want, we get to see our Old Nemaska village, you can go in summertime or in the winter. It's a privilege for us to be able to go see our second home, our old village. To go by vehicle and by boat. Old Nemaska, we are starting to look into planning, what we need there. A community hall, what kind of housing, sanitation?"

Landscape and archaeology

All the buildings are aligned and face the lake. Because the site is on a non-wooded point it provides direct views for a long distance onto Lake Nemiscau and its islands. Valued for its historic and cultural nature, Old Nemaska has been used as a community gathering place since early 1900.

The Native rock painting site at Lake Nemiscau is designated either by its Borden code, EiGf-2, or by its Cree name, Kaapehshapischinikanuuch. It is the only Native rock painting site in Cree territory (HQ, 2004). Due to its size and graphic content, it is the second most important site of its kind in the province (Vaillancourt, 2003).

3.2 ISSUES AND VISION

In 2017, the Eeyou Planning Commission undertook a consultation process with Nemaska community members. The results are presented in the “Report on Community Input on Land Use Planning Goals” (EPC, 2017b) and included information on the community’s values, issues and vision for the future. Some of it is summarized below:

Issues that Nemaska faces:

- Size and Design of Community
- Vulnerability to Environmental Hazards such as Forest Fires
- Municipal Infrastructure
- Living on the Land: Access, Knowledge and Skills
- Problems with Non-Cree Hunters
- Limited Land User Input in Decision-Making About the Land
- Governance and Relations with Non-Crees
- Impacts from Industrial Developments
- Changes in Animals Associated with Environmental Changes
- Challenges to Cree-led Economic Development Initiatives

Elements of a Nemaska vision for the future:

- Amenities to Foster a Healthier Community
- Improved Municipal Infrastructure
- Priority of Preserving Cree Culture
- Professional Training and Cree-Led Economic Development
- Continuity of Cree Occupation and Hunting, Fishing and Trapping
- Environmental Protection and Conservation
- Cree Governance: Accountable and Forward Looking

4. RESULTS

The interviews provided a general idea of the land use taking place along the Billy-Diamond Highway, the access roads to Waskaganish and Nemaska, the Route du Nord and in the surrounding areas, rather than a complete picture. The number of land users of the study areas, the frequency of their visits and quantity of resources harvested were not estimated since it was not in the scope of the Cree land use study carried out as part of the LGA Phase 1 Feasibility Study. It is worth noting that such an estimation exercise would be a big undertaking since various community members use the lands in proximity to their community's access road.

The land and resources in the study areas are used not only by the tallymen, their family members and land users, but also by other Cree land users. Additionally, various non-Cree activities were reported along the BDH. Since the BDH provides easy access to the territory, recreative anglers and hunters, as well as cottage owners and tourists also frequent the study area.

While being relatively recent on the territory, modern roads are widely used by the Cree population. In terms of transportation routes, they have overtaken rivers. The communities' access roads and Route du Nord are not only important to connect with other communities and with "the south", but also to facilitate land use and harvesting activities, and access to the southeastern part of Eeyou Istchee Baie-James, and potentially to the Saguenay-Lac-Saint-Jean region, by members of other Cree communities. The fact that most land users do not live from the land anymore and occupy paid jobs partly explains the growth in importance of modern roads, as they provide faster access. Major changes in important rivers' hydrology and ice cover, following hydroelectric development in the last decades or due to climate change, also contributed to the increase in use of modern roads. Since it is now more dangerous, complicated, or sometimes impossible to navigate on some watercourses as well as to travel by snowmobile, roads offer interesting alternate options.

4.1 CREE LAND USE

The potential BDH Railway will be located along the Billy-Diamond Highway between Matagami and Waskaganish (KM257 of the highway at Rupert River bridge). It crosses 13 traplines belonging to the following Cree communities: Washaw Sibi, Waswanipi, Waskaganish, Oujé-Bougoumou and Nemaska. As shown on Map 1, the potential BDH railway crosses four trapline in Nemaska (N18, N20, N21, N23). On April 13 and 14, 2022 and on July 6, 2022, VEI conducted land use interviews with a total of six participants which included the tallymen of the four Nemaska traplines intersected by the BDH railway and family members.

The construction of the actual Waskaganish access road was completed in 2002 (Jacques Whitford, 2009). The road has a total length of 102 km, from the outskirts of the community to its connection with the BDH, around km 237. Starting west, the first 28 km are already paved. Between km 0 and km 22, the road runs on category I land. It continues on category II lands up to km 94, and on category III lands for the rest of its alignment (approximately 8 km). The road crosses four traplines, namely N09, N02, N01 and N23. All those traplines are on Waskaganish territory, except trapline N23 which is located on Nemaska territory. On February 1, 2023, VEI conducted a land use interview with the tallyman of traplines N23.

The Nemaska access road has a total length of 10 km and is located on category 1A lands for 4.5 km which are already paved (Stantec, 2017). The road continues on category II lands from km 3 to km 9 km and on category III lands for the rest of the alignment (approximately 2 km). The resurfacing and paving of the first 4.5 km of the access road was studied in 2017 (Stantec, 2017). The scope of that study provided preliminary information required for

the assessment of the project file by the Evaluating Committee. As such, it differs from the current mandate which studied the upgrading and paving of the entire Nemaska Road, taking into account additional upgrading options. Nemaska access road is entirely located on trapline R16. VEI conducted land use interviews with the tallyman on April 13, 2022.

The Route du Nord is a 407-kilometer, gravel road connecting Route 167 in Chibougamau to the Billy-Diamond Highway. The road has opened access to the Nemaska community and the forestry industry. It is crossing 22 traplines across the territory of four Cree communities (Mistissini, Nemaska, Oujé-Bougoumou and Waskaganish). RND crosses six traplines in Nemaska (N25, R16, R17, R20 and R21). On July 5 and 7, 2022, January 31, 2023 and February 2, 2023, VEI conducted land use interviews with a total of seven participants which included the tallymen of five of the Nemaska traplines intersected by the RDN and a family member and a land user. VEI was not able to meet with the tallyman of trapline M33.

4.1.1 Trapline N18

The LGA Phase 1 infrastructure located on trapline N18 is the potential BDH railway.

During the Cree land use interview, the tallyman shared four locations of Cree camps within the study area. The camp he mainly goes to is located on the side of the BDH around km 121 and is composed of 8 cabins. Those cabins are used by the tallyman and family members. The three other camps mentioned during the interview are not used anymore. Two are located on the shore of the Lake Colomb:

- One at the mouth of Colomb River is in fact an old airport and old workcamp used for workers when the BDH was built. The strip is still there, but not the buildings.
- One at the south shore of the lake is also identify as an archaeological or historical site.

The third old camp is near the BDH at km 220.

A trail used by foot, not snowmobile start from approximately km 198 of the BDH and lead to Lake Kawastech in an east west axis. There is also a lot of beaver activity around the area of the trail, at the east of the BDH. The tallyman mentioned that the Woodland caribou are present from Lake Colomb to the east. The tallyman is also fishing at the Lake Colomb multiple species such as pike, walleye, sucker, whitefish. "Everything, except brook trout".

Before the highway was built, they used to get their water around km 214 of the BDH in the watercourse, on the north side.

The tallyman also pointed out the location of a family member's birthplace on the north shore of Lake Marcaut. They were still going every weekend to that area before that person got sick. From there, a trail was leading to Old Nemaska.

4.1.2 Trapline N20

The LGA Phase 1 infrastructure located on trapline N20 is the potential BDH railway.

The tallyman of trapline N20 reported the locations of six Cree camps. All those camps belong to family members and friends or can be used during hunting activities.

He also mentioned presence of clams in the southwestern bay of the Lake Desorsons, beaver activity beside the BDH (both sides), from km 126 to 144 and moose activity on the BDH from km 122 to km 140. Berry (moose berry) are present at the east of km 150-151 of the BDH.

The tallyman indicated going hunting geese within the study area and he specifies two locations. One is in the bay south of Lake Katutupisiskanuch around km 167 of the BDH and the other at the watercourses around km 150.

Finally, at the east side of the km 155 of the BDH “further in the woods” is located a burial of two people. Also, the tallyman shared that his wife had a miscarriage when they were in the area at north of km 178 and they buried the baby there.

4.1.3 Trapline N21

The LGA Phase 1 infrastructure located on trapline N21 is the potential BDH railway.

The tallyman of N21 trapline reported beaver activity from km 182 to km 188 of the BDH, on both sides. He also shared that the creek going from Lake Dorson was their water source before forestry activities took place.

4.1.4 Trapline N23

The LGA Phase 1 infrastructures located on trapline N23 are the potential BDH railway and the Waskaganish access road.

The tallyman shared eight locations of Cree camps within the study area. His main camp, composed of various cabins, is located at Lake Carol (lac du Poisson Blanc). Further up the Broadback River (15-20 km), the tallyman has another camp, on the north shore. Several camps are used by family members which are located along the Broadback River and by Tordu Creek.

A portage is used between two sections of the Broadback River around km 231 of the BDH.

A burial site is located near the tallyman secondary camp.

There is beaver activity (beaver lodges and dams) in all the creeks intersected by the BDH, from the Rupert River down to km 230 of BDH approximately. The tallyman and his family members trap them when the MTQ asks them to. The tallyman hunts grouse along the BDH in the fall. In the spring, he hunts goose notably near his main camp. He fishes in the Broadback River for sturgeon, walleye, pike and whitefish. He is also fishing and beaver trapping in creeks near km 225 of BDH.

A moose area is located a few kilometers west of the BDH, south of the Rupert River. It extends between two creeks: Wagamikushish Creek and Kaumwakweyuch Creek. Near km 215 of the BDH (bay), there have been hundreds of caribou in the area; nowadays, some of them still frequent the area. The tallyman indicated the presence of bears crossing the BDH in the Broadback River area.

A lake north of km 222 of BDH is a drinking water source.

A former Hydro-Québec camp was located on the north shore of the Broadback River west of the BDH; it is not there anymore, only waste is left. A municipal campground is located on the shores of the river, next to the BDH.

4.1.5 Trapline R16

The LGA Phase 1 infrastructures located on trapline R16 are the Nemaska access road and Route du Nord.

The trapline is used by many land user since it is easily accessible.

The caribou herd doesn't come in the BDH area anymore since the Rupert River Diversion. There are rabbits, lynx, martens, and foxes on the trapline. “Foxes used to be wild, but now you can almost pet them.” There are lots of squirrels everywhere; they enter in cabins and made a big mess. People start seeing wolverines in the area again.

During the Cree land use interview, the tallyman shared several locations of fauna. Moose are present in some areas along the RDN and around the airport, especially in the fall. Bears are present around km 290 of the RDN and they cross it near km 300 and km 305. Caribou are seen in proximity to the RDN as well. The tallyman also reported the presence of porcupine on his trapline and of fox all along the RDN. They walk the road to “clean it” from the road kills, and sometimes they get hit by cars. Crows also follow the road, early in the morning, for the same reason. Marten can be found along the road too, as they are scavengers. There are rabbit trails from Mountain Lake to the BDH. There are lots of rabbits on trapline R16 and the tallyman harvests them. After the forest fire, rabbit had disappeared from the area, but it is coming back some 30-40 years later.

Ever since there was a big forest fire, there are lots of berries in the area, especially along the Nemaska Road. However, the trees are starting to grow (e.g.: alders, etc.) and are taking over the vegetation. There is more birches, poplars, and alders now than before and poplars are tall, the “brush” below doesn’t grow.

Among others, there is an elder’s village, composed of several buildings (cabins), in proximity to the “causeway” at km 5 of the BDH. The area is being used for cultural transmission. At km 4, the tallyman indicated a traditional camping area used before the CNN was relocated at the community’s actual location. They would leave their winter “stuff” there, so the fire could not reach it since it is located on a natural sandy peninsula. Camps are also within the study area.

The creek at the north of km 6 of the BDH is special for the tallyman because an albinos beaver was killed there. He named the creek “wabum sibish” after that beaver.

An important walleye fishing spot for the tallyman is located around km 235 of RDN. There is a little inlet and a stream that feeds into the lake. It is intersected by the road, so the tallyman mentioned that it is important to protect the water there. He also fishes pike, walleye and sturgeon in lake Champion, and pike, walleye, whitefish, sucker and trout in another lake. A trout spawning area was also pointed out in a stream connecting to this lake.

Near km 8 of the BDH, a snowmobile trail is leading to the way to the tower and to the lake and could also be used by foot.

Land users use the year-round snowmobile and ATV trail that crosses the RDN at km 307 and km 313. There is no road sign indicating those crossings. The tallyman indicated that people stop everywhere along the RDN to pick berries. In the July and August evenings, when people finished working, there is a lot of berries picking along the road. Cars are parked along the road in blind spots and it is dangerous.

4.1.6 Trapline N25

The LGA Phase 1 infrastructure located on trapline N25 is the Route du Nord.

During the Cree land use interview, the tallyman shared several camp locations within the study area which are mostly used by him and his family members. They have camps all along the RDN. He pointed out a camp he has with his sister, his cousin, his daughter and his niece in the Jolly Bay, near km 234 of the RDN. The camp is composed of 5 cabins and considered a cultural site by the tallyman and his family. They do Walking Out Ceremonies there. On the other side of the RDN is an old access road to the transmission line. The tallyman uses it to go hunting and trapping. The tallyman wants to keep it, so he will make a proposal for a Niskamoon project.

Another camp composed of 6 cabins belonging to the tallyman and his family members is located some 2 km from km 210 of the RDN, down on the old HQ access road that was used to build the weirs. There is a goose pond near

that camp. From there, the tallyman's cousin and his family can access their goose hunting camp, composed of 5 cabins, by an ATV trail.

Near km 236 of RDN, in the Rupert River forebay, below the dike is located a goose pond. It was seeded to attract geese. Once the soil dries up, jack pines start to grow, "but now it's changing". This part of the river is also an old fishing area (net fishing), but it is dry now. The tallyman does not put fish nets in the Rupert reservoir because they will lose them due to the presence of waterlogs. He indicated fishing areas for speckle trout, sucker, walleye, pike, and whitefish, and mentioned that small brook trout can be found in most creeks. Sturgeon is found on trapline N25 as well, but outside the study area. Concerning the area surrounding the first rapids, the tallyman said that "It's a rich place for everything".

An old portage used to bypass the rapids on the Rupert River is located near km 237. They are called the "whirlpool rapids", but the pool below the bridge is dry now. It is the narrowest part of the Rupert River. The portage is not in use since the Rupert River diversion because it was not renovated. The alternate portage used in spring and summer is located near km 22 of the RDN. Students participating in the Canoe Program use it, among others.

There is beaver, moose, and bear all along the RDN. The tallyman used to trap lynx, marten, and beaver "back then", but there is no market anymore, the prices have dropped. As a comparison, he said: "We used to kill around 100 beavers per year in the peak (in the 1970s), but now only around 10". However, "There is no beaver blocking culverts on my trapline" indicated the tallyman.

Multiple land users, mostly family members, participate in harvesting on trapline N25. People from outside the tallyman's family ask his authorization if they want to trap, and he "doesn't care" if people from outside go hunting on his trapline. A major forest fire affected the trapline in 1998, so there are lots of blueberries growing on it now. There is also a lot of old burned wood still standing and community members collect it.

4.1.7 Trapline R17

The LGA Phase 1 infrastructure located on trapline R17 is the Route du Nord.

During the Cree land use interview, the tallyman shared several locations of camps, trails, and hunting areas. There are several camps along the RDN. One camp, composed of 2 cabins, is located at km 367, and two others, each composed of one cabin, are located around km 370 and km 376 of the RDN. They are all used by the tallyman and his family members. Those camps are located less than 100 m away from the RDN, but there is an access from the RDN to get to the camp and a parking.

Between km 347 and 348 of the RDN is located the site of a community sweat lodge, which has an access, a parking and a cabin. Southeast of km 350 of the RDN, close to Lake Jolliet, is located a camp composed of approximately 10 cabins. The tallyman also pointed out two old camp sites, around km 352 and km 377 of the RDN.

There are bears everywhere on trapline R17 and they cross the RDN. Fox and rabbit are also observed everywhere along the road on trapline R17. Beaver lodges are present notably around km 366, but away from the RDN, and in the vicinity of km 371.

An access road leading to the former Old Nemaska boat launch, located 26 km from the RDN, starts from km 343 of the RDN. The tallyman and his family members use it to get to their family camp at Lake Jolliet by vehicle. Lake Jolliet is a major fishing area and the site of the Regional Fishing Derby. Therefore, the tallyman recommends paving the first part of the access road, up to Lake Jolliet.

The tallyman and other members of the community hunt ptarmigan between km 248 and km 351. The tallyman reported hunting mainly moose, bear and occasionally caribou. Fishing for walleye, pike, and whitefish is done in the lake south of km 348 of the RDN. “Everyone fishes there, even HQ employees.” Brook trout are also found in the creek intersected by the RDN at km 366.

Snowmobile trails intersect the RDN at km 367, 359, 352 and 351 of RDN. In addition, an ATV trail some 4 km long, going north up to the lake intersects the RDN close to km 344.

4.1.8 Trapline R20

The LGA Phase 1 infrastructure located on trapline R20 is the Route du Nord.

During the Cree land use interview, the tallyman and his wife shared several locations of camps, trail and hunting area. Thus, camps are located on both side of the river around km 279 of RDN and a snowmobile trail follows the river. A little further south, at km 279 of RDN, is located a large camp, community site composed of more than 20 cabins. The other side of the river is located the bible camp. Around the bay near those camps, is a goose hunting area. In the area of the bible camp, human bones were found there, in the slope, dating some 400 years ago. It was a girl that might have been collecting berries and collapsed.

At km 278 of RDN, the tallyman’s brother named the bay after himself because he has a camp there.

At km 275 of RDN because of the Nemaska Lithium mine, they cannot fish in that area anymore.

Around the Spodumène Lake, at km 274 of RDN, is located the Community beach with two parking areas and the old game warden’s house. It is never used. “The bats are using it”. Cranberries are growing at the site. This lake is a fishing area for trout, pike, walleye, whitefish and burbot.

At km 267 in between the two mountain ranges are located moose yard: one north of the Route du Nord (RDN), and one south of it. It also follows the powerline. At km 257 of RDN, the snowmobile trail follows the road.

Also, the community members use the RDN for hunting lynx, fox and ptarmigan. There is not much porcupine in the area because the species of tree they eat is disappearing. There is beaver in every creek: they go every other year in one creek. Beavers have impacts on the RDN because of the flooding they create, but the tallyman or the MTQ manage to trap them. Moose and bear are seen on the RDN all the way to Albanel.

4.1.9 Trapline R21

The LGA Phase 1 infrastructure located on trapline R21 is the Route du Nord.

Two Cree land use interview were held for the R21 trapline, first with the tallyman and second with the former tallyman and now land user. The tallyman shared that his main camp is in proximity to PK 290 of the Rupert River, “further down towards Luke Tent’s territory (trapline R18)” (to the west). Most of his camps are by the Rupert River. Those river cabins are used until they are not accessible anymore because of the snow. Even if the tallyman would have the access graded in wintertime, he doesn’t want to because he restricts the access to the area. There is a moose yard in that area that he wants to protect from other moose hunters. Within the study area, near km 241 of RDN, on the shore of Rupert River, the tallyman has his camp where he has year-round access. A little further west Freddie Jolly has his camp composed of 4 cabins. Around this location, at the bay, is the goose hunting area.

The tallyman’s family camps are traditionally located along the Rupert River. They used to get to their trapline by the Rupert River before the Route du Nord was constructed; it was taking about 3 to 5 days paddling from Old

Nemaska. Within the study area, near km 245 of RDN, on the shore of Lemare River, the tallyman’s cousin, Harry has his camp.

Some 3 000 m down west of km 246 is located one cabin and a burial of a little girl. The burial is over 70 years old.

Around km 250 of RDN, following the ridge is a moose area. There is a ridge on the north side of trapline R21, so there are moose and blueberries in that area. There used to be woodland caribou, a larger herd, around Kenny Jolly’s original camp, but he only saw 3 last summer. They used to come to the area around the RDN in winter. There is a lot of beaver activity on trapline R21. The tallyman’s brothers trap the nuisance beavers along the Route du Nord. The younger family members are trapping fur-bearing animals. There is grouse, ptarmigan, rabbit, and fox along the RDN; wolves are further south.

There is trout in the lakes all along the RDN where there are hills/high grounds, and walleye, pike, and whitefish where it is lower. There is sturgeon in the Rupert River. The main harvesting activity that Kenny Jolly and his family conduct along the RDN is fall moose hunting.

4.2 COMMENTS, CONCERNS AND RECOMMENDATIONS

4.2.1 Billy-Diamond Highway Railroad

The Cree land use study participants shared information regarding the Billy Diamond Highway Railway. Comments, concerns and recommendations concerning its potential upgrade and paving are presented in the table below:

Table 2 Comments, Concerns and Recommendations – Billy Diamond Highway Railway

Alignment / Conception
<ul style="list-style-type: none"> • A tallyman was concerned by the proximity of the alignment to their main camp and mentioned: “As long as it doesn’t stop at our camp”. He would recommend that the trains wouldn’t be allowed to travel during the night. • Concerns regarding potential contamination to the creeks intersected by the railway. The blow-off from blasting, during construction, would fall into the creeks and contaminate them and/or that blasted materials used for the filling will contaminate the soil and water.
Operation and Maintenance
<ul style="list-style-type: none"> • Concerns on water contamination at the various river crossings during operation. • There is beaver activity all along the BDH, but especially from km 126 to km 144, km 182 to km188, km 192 to km 214, and from km 230 and the Rupert River. • In every creek crossed by a forestry road, there is beaver activity. Beavers block the culverts. Beaver traps installed by the MTQ should be monitored more closely. A tallyman and his family members trap them when the MTQ asks them to.
Others
<ul style="list-style-type: none"> • Presence of bears crossing the BDH in the Broadback River area. • Presence of moose along the BDH from km 142 and further south.

4.2.2 Community Access Roads

The Cree land use study participants shared information regarding the Nemaska access road and made interesting recommendations concerning its potential upgrade and paving. Comments, concerns and recommendations are presented in the table below. None were received on the Waskaganish access road.

Table 3 Comments, Concerns and Recommendations – Upgrade and Paving of Nemaska Access Road

Alignment / Conception
<ul style="list-style-type: none"> At km 5, there is a dangerous turn. It is too hard when the road is not graded properly, especially in the fall, when ice starts to build up. The turn is too sharp overall.
Operation and Maintenance
<ul style="list-style-type: none"> Since the culverts were installed at the “causeway”, it changed the water dynamics. It is creating current and there is always open water there (not frozen). A better solution should be found; perhaps putting a small bridge instead. The powerline runs in the same spot. There is no drainage problem on Nemaska Access Road, but there may be in the future. Some water is coming out on the Route du Nord, close to Nemaska, and it gets soft. There is a visibility problem on the Nemaska Access Road, especially in the evening, when it is warm and there is no wind because dust stays in the air.
Other
<ul style="list-style-type: none"> Paving the community road would be beneficial because it would reduce the dust. The end of the fall is the worst period for the dust. Studies must be conducted about bears. Some dens are found under the roots, so when the roots are rotten it collapses, while the dens found under rocks stay longer (as such, they are better dens). When a tallyman observes a good bear den, he should protect the area. Various cumulative impacts from development on trapline R16

4.2.3 Route du Nord

The Cree land use study participants shared a wealth of information regarding the Route du Nord. Their comments, concerns and recommendations concerning its potential upgrade and paving are presented in the table below:

Table 4 Comments, Concerns and Recommendations – Upgrade and Paving of Route du Nord

Alignment / Conception
<ul style="list-style-type: none"> Several recommended paving the RDN because there are safety issues. There is washboard in the area between km 256 and km 279. All the top portion of the road slides to the sides. Areas that are too steep: between km 240 and 241 (presence of camps), km 252 and in proximity to Albanel substation (km 258 of the RDN). Transport trucks get stuck around km 244 because there is a curve before the hill.

- Dangerous stretches or curves were identified by different tallymen: km 230, km 236, km 258, km 328, between km 349 and km 358.
- A tallyman recommended to fix the bridges at km 241 and km 245 of the RDN and replacing those wooden bridges by metal bridges, especially for when the mine will be in operation.
- Recommendations to install guardrails and road signs at key turns, and on sections where creeks or river crossings are in curves.
- Wooden guardrails on the bridge should be replaced by higher metal guardrails and installing them higher. Participants recommends installing more guardrails, mostly in curves and on bridges.

Operation and Maintenance

- All the RDN gets icy.
- Spring and fall are the worst periods on the road because of water. There are a lot of potholes during the fall. “I want to see the road (RDN) fixed and paved; it would be much safer. It’s going to be risky for people to drive on that road. “
- Participants highlighted the poor maintenance of the RDN: rocks stick out of the road; brush-cutting needs to be done on the sides of the road to improve visibility, especially in the curves and have more road surface; sides are too soft, the road is hard only in the middle; the grader doesn’t pass regularly and computerized grader doesn’t do a good job.
- There are guardrails in several sections of the RDN, but people doing maintenance and plowing roll over them and leave it like that.
- A tallyman mentioned that computerized grader doesn’t do a good job.

Safety

- Participants finds the RDN “kind of rough”.
- There has been an accident on trapline R21, but not on N25. There has been fatal accident on trapline R20, around km 162, km 156 and km 161.
- “Every year, we see more vehicles on the RDN and it’s going to grow more. When I hear those mines are going to use the RDN, I imagine how many people will be using that road. We want to prevent accidents.”
- People stop everywhere along the RDN to pick berries. There are cars parked along the road in blind spots and it is dangerous. Small parking and dangerous shoulder to park .
- Big trucks circulating on the RDN remove the materials and, in certain curves, it can make you slide towards the ditch.
- Even with a warning sign to slow down HQ employees don’t respect it.
- Section of the RDN, in a curve between km 357 and km 358, between km 369 and 370 and around 350 where there are collisions with moose.

Signage

- Add signage to indicate Cree camps.
- Participant recommends installing road signs to indicate traplines boundaries (the CTA should provide them), so it would that land is occupied and for outside developers to know who to contact and consult.
- Road signs indicating moose and bear crossings could be useful (including km 360).

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- Road sign indicating the snowmobile trail crossing (including: km 351 and km 352 of the RDN.)

Others

- Participant recommends gates be installed in front of each Cree camp along the RDN.
 - Cree and non-Cree hunt ptarmigan along the RDN
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