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TORNGAT

Strange Lake Rare Earth Mining Project

Preliminary Information for the Realization of a Project in a Northern Environment

Submitted to:

Ministère de l'Environnement, de la Lutte contre les Changements climatiques, de la Faune et des Parcs (MELCCFP) & to the Kativik Environmental Quality Commission (KEQC)

Mining Project North of 55TH parallel

May 2023

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List of Acronyms and Abbreviations

AEIC: Impact Assessment Agency of Canada

BAT: Best Available Technology

BOD_5: Biochemical oxygen demand after 5 days

CEAA: Canadian Environmental Assessment Agency

CEAEQ: Centre d'Expertise en Analyse Environnementale du Québec

CH4: Methane

CNSC: Canadian Nuclear Safety Commission

CO_2: Carbon dioxide

COSEWIC: Committee on the Status of Endangered Wildlife in Canada

D019: Directive 019

dB: Ambient noise level

Dy: Dysprosium

ECCC: Environment and Climate Change Canada

EIA: Environmental Impact Study

ESG: Environmental, social and governance

ESIS: Environmental and Social Impacts Study

FS: Feasibility Study

GHG: Greenhouse gas

GSC: Geological Survey of Canada

HFC: Hydrofluorocarbon

HHERA: Human Health and Environmental Risk Assessment

HVAC: Heating, Ventilation, Air Conditioning

IAAC: Impact Assessment Agency of Canada

IDLP: Innu Development Limited Partnership

IOCC: Iron Ore Company of Canada

JBNQA: James Bay and Northern Québec Agreement

KEAC: Kativik Environmental Advisory Committee

KEQC: Kativik Environmental Quality Commission

KRG: Kativik Regional Government

LED: Light-emitting diodes

MCC: Ministère de la Culture et des Communications du Québec

MDDELCC : Ministère du Développement durable, de l'Environnement et la Lutte contre les Changements climatiques

MDDEP: Ministère du Développement durable, de l'Environnement et des Parcs

MELCC:	Ministère de l'Environnement et de Lutte aux Changement climatiques
MELCCFP	Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
MER:	Ministère de l'Énergie et des Ressources
MERN:	Ministère de l'Énergie et des Ressources naturelles (now MRNF)
MPMO:	Major Projects Management Office
MRNF :	Ministère des Ressources naturelles et des Forêts (formerly MERN)
NAPS :	National Air Pollution Surveillance
Nd:	Neodymium
NdFeB:	Alloy of neodymium, iron and boron
NMEF:	Nunavik Mineral Exploration Fund
N_2O:	Nitrogen dioxide
NRCan:	Natural Resources Canada
NTS:	National Cartographic Reference System
PEA:	Preliminary Economic Assessments
PFC:	Perfluorocarbon
PFS:	Pre-Feasibility Study
Pr:	Praseodymium
QMEA:	Québec Mineral Exploration Association
RDL:	Reporting Detection Limits
REE:	Rare Earth Elements
SECP:	Southeast Churchill Province
SF_6:	Sulfur hexafluoride
SLAC:	Strange Lake Alkali Complex
SLBZ:	Strange Lake B-Zone
SM:	Suspended Matter
SO_2:	Sulfur dioxide
Tb:	Terbium
TSP:	Total Suspended Particles
VEC:	Valued Ecosystem Component
VOC:	Volatile Organic Compound

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Appendix A Form PN1 - Preliminary Information

Appendix B Current Update Statement (Change of Name of Corporation from Quest Rare Minerals Ltd. to Torngat Metals Ltd.) - Certificate of Amendment to the Canada Business Corporations Act

Appendix C Stakeholder Engagement Strategy (Draft)

Introduction

This Strange Lake rare earth mining project is a restart of Quest Rare Minerals Ltd.'s Strange Lake B-Zone rare earth mine project, whose preliminary information had been filed in March 2015 and submitted to the Kativik Environmental Quality Commission (KEQC). After the submission to the KEQC, it was established that the project was subject to the environmental and social impact assessment and review procedure. In that respect, Directive #3215-14-017 was issued in December 2015 and received on March 23, 2016, via the office of the Deputy Minister of the *Ministère de Développement durable, de l'Environnement et de la Lutte aux changements climatiques* (now MELCCFP, but formerly MDDELCC).

Since this Directive was only valid for two years, Torngat Metals Ltd. must repeat the process again. This document is intended as a supplement to the *Preliminary Information form.* To facilitate the presentation of information, this document has been produced in such a way as to present the elements in the same order as that desired in the attached form. Form PN1- MELCCFP Preliminary Information[1] is completed and presented in Appendix A of this document.

[1]The preliminary information form used is the one available on March 13, 2023: https://www.environnement.gouv.qc.ca/evaluations/renseign-prelim.htm

1 Identification and Contact Details of the Promoter

1.1 Identification of the promoter

The promoter is **Torngat Metals Ltd.** (Torngat), a Canadian exploration company currently focused on developing its main project, the Strange Lake property in northeastern Québec. A current update statement has been made to formalize the corporate name change from Quest Rare Minerals Ltd. to Métaux Torngat Ltée or Torngat Metals Ltd. The process and the certificate of amendments to the *Canada Business Corporations Act* dated July 26, 2018, are available in Appendix B.

Name of promoter:	**Torngat Metals Ltd.**
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Responsible for the environmental assessment of the project:

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1.2 Québec Enterprise Number (NEQ): 1164687828

1.3 Resolution (not applicable)

1.4 Identification of the consultant commissioned by the promoter

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Québec Enterprise Number (NEQ):	1161553129

2 General Presentation of the Project

2.1 Project title

The title of the project is “Strange Lake Rare Earth Mining Project”.

2.2 Article of liability

2.2.1 Environmental Assessment Requirements

Considering the scope of the project and its location in Québec (north of the 55th parallel), the project will be subject to environmental assessments and approval from several government authorities. These are described in more detail in the following subsections

2.2.2 Process in Québec (North of the 55th parallel)

In terms of the environmental assessment procedure, in accordance with the terms set out in the James Bay and Northern Québec Agreement (JBNQA), Chapter II of the Environment Quality Act - *Loi sur l’environnement du Québec* (LQE) (L.R.Q, c. Q-2) provides specific provisions applicable to the northern regions of Québec. The applicable environmental assessment procedures are different in that representatives of the Indigenous communities living there are directly involved in the decision-making process.

The Strange Lake Rare Earth Mining Project (Strange Lake Project) is located north of the 55th parallel, a region for which the JBNQA created the Kativik Environmental Advisory Committee (KEAC). The KEAC oversees the application and administration of the environmental protection regimes provided for in the JBNQA. On the other hand, the preliminary assessment and review of projects are carried out by the Kativik Environmental Quality Commission (KEQC).

Appendices A and B of the *Environment Quality Act* and the JBNQA specify which development projects are compulsorily subject as well as those which are compulsorily excluded from the environmental impact assessment and review procedure of the Environmental and Social Impacts Study and review (ESIS). Any mining project, including the expansion, transformation or modification of an existing mining operation and any access road to a locality or road infrastructure for a new project are automatically subject to this ESIS and the procedure assessment and review of the *Environment Quality Act* and the *Réglement relatif à l’évaluation et l’examen des impacts sur l’environnement de certains projets* - Regulation respecting the assessment and review of the environmental impacts of certain projects.

In the case of the Strange Lake Project, the procedure is led by the representative of the *ministère de l’Environnement et de la Lutte contre les Changements climatiques, de la Faune et des Parcs du Québec* (MELCCFP), i.e., the Industrial, Mining, Energy and Northern Projects Environmental Assessment Branch. For its part, the KEQC carries out the analysis and the evaluation.

2.2.3 Federal Process

At the federal level, under the *Impact Assessment Act,* provision 18(e) of the Schedule to the *Physical Activities Regulations,* “The construction, operation, decommissioning and abandonment of a new rare earth element mine with an ore production capacity of 2 500 t/day or more;” are considered a “physical activity”. In addition, according to provision 46(a) of this same schedule, “The construction, operation, decommissioning and abandonment of a new aerodrome with a runway length of 1 000 m or more,” also constitutes part of the “physical activities”.

In addition to respecting Québec and Canadian laws and regulations, the Strange Lake Project will ensure that it respects those of Newfoundland and Labrador as well as international standards in terms of environmental, social and governance (ESG) issues. Finally, its environmental monitoring and surveillance programs will be developed in such a way as to aim for carbon neutrality by 2050, all with a view to sustainable development.

2.3 Project Objectives and Rationale

Mention the main objectives pursued and indicate the reasons for carrying out the project

The Strange Lake Project involves the development of a major terbium rare earth deposit in Québec. These rare earth elements are mainly neodymium (Nd), praseodymium (Pr), dysprosium (Dy), and terbium (Tb). Other rare earth elements are also present in the deposit and will be mined as market conditions evolve.

The Project is in line with the publication of *The Canadian Critical Minerals Strategy* (Natural Resources Canada, 2022), as well as in the context of the *Québec Plan for the Development of Critical and Strategic Minerals* (Gouvernement du Québec, 2020). The Strange Lake project is among the rare earth deposits recognized as having global potential[2].

Also, the restart of this project comes at a favourable time in the context of the energy transition. It will make it possible to meet the growing needs in this area. The start of the Strange Lake Project in a timely manner will secure and retain customers. Indeed, the Strange Lake deposit and project are unique in their ability to supply Dy and Tb in significant quantities. Currently, China supplies almost all of these two rare earth elements. Thus, once in operation, the Strange Lake Project is expected to be the largest global Dy supplier outside of China.

The revised Strange Lake Project includes a physical concentration step at the mine site, resulting in a major reduction of over 90% in the quantity of ore to be transported to the processing plant, which will be in southern Québec. This decrease means that approximately 125,000 to 300,000 tonnes per year of ore concentrate will be shipped from the mine, compared to approximately 1,500,000 tonnes in the previous version of the Project. This ore will be sent to a high purity rare earth processing and separation plant which will be located near existing industrial and port facilities outside the northern environment, in the St. Lawrence watershed (variants under analysis).

Rare earth metals are essential materials in the transition to a low carbon economy. Indeed, they are essential to the manufacture of high-performance permanent magnets needed for the motors of electric vehicles and wind turbines. Rare earths are also needed in the manufacture of drones, robotics, as well as high-tech industries such as electronics, aerospace, and defense. Neodymium (NdFeB) motors are known to be superior to traditional induction motors due to higher magnetic energy density, higher efficiency, and lighter motor weight. Their use is therefore recommended in electric vehicles and other applications that require the highest efficiency and performance. Permanent magnets found in wind turbines and electric vehicles allow electric motors to be smaller, lighter, and more reliable. These motors are also more efficient than alternative technologies. Rare earth metals are also used in other technological applications, such as lasers, medical imaging equipment (positron emission tomography scanners) and specialty ceramics. Rare earths can also be used in the manufacture of phosphors. These are then used in the manufacture of fluorescent or LED lighting. These are just a few examples of how rare earth elements are essential to a robust supply chain for low-carbon or low-energy technologies.

The Strange Lake Project is a high-quality rare-earth deposit of global significance. The project will be able to competitively meet the growing demand for rare earths and it will also be able to supply light (Nd, Pr), and heavy (Dy, Tb) rare earth elements for manufacturing permanent magnets needed for next-generation electrical systems with a view to low carbon emissions.

[2]Critical and strategic minerals – A growing industry, opportunities to seize https://cdn-contenu.quebec.ca/cdn-contenu/ressources-naturelles/Documents/FS_mineraux_critiques_strategiques_industrie.pdf

2.4 Brief Description of the Project and Variants

Briefly describe the project (length, width, quantity, voltage, area, etc.) and, for each of its phases (development, construction, and operation and, if applicable, closure and restoration), briefly describe the main characteristics associated with each variant of the project, including the activities, developments and works planned (clearing, expropriation, blasting, backfilling, etc.). If relevant, add to appendix II all the documents allowing to better define the characteristics of the project (diagram, sketch, cross-sectional view, etc.).

The Strange Lake rare earth mining project is divided into three project phases: 1) Development and construction phase; 2) Operational exploitation phase (30-year operation); and 3) Closure and restoration phase. During the 30-year operation phase, between 160 and 200 million tonnes of ore will be extracted from an open pit, or an average of 5.7 to 6.7 million tonnes per year. Between 125,000 to 300,000 tonnes per year of rare earth concentrate will then be produced by on-site beneficiation plant with a processing capacity of 16,000 to 20,000 tonnes of crushed ore per day.

It should be noted that, for convenience, the maps and figures that support the description of the project are integrated as the text progresses instead of being presented in an appendix, as recommended in the form (Appendix A). The maps and figures available to facilitate the location and understanding of the project as well as its planned infrastructure are:

- Overall project Map, Related Activities and Logistics (Map 2-1)
- Figure Typical Cross-Section of Single-Lane Seasonal Road (Figure 2-1)
- Map Indigenous Land Rights - Québec (Map 3-1)
- Map Communities in the project Area (Map 3-2)
- Map Torngat Mineral Claims (Map 3-3)
- Map Strange Lake Alkali Complex (SLAC) and Bedrock Geology (Map 3-4)
- Map Watersheds in the project Area (Map 3-5)
- Map Caribou Protected Areas (Map 3-6)

The Strange Lake alkaline complex occupies a total area of 3,600 ha, whereas Lake Brisson occupies a total surface area of 3,200 ha. Lake Brisson flows into Napeu Kainut Lake, and then into the Déat River. The primary hydrographic basin is that of the George River, which is located about 100 km downstream of the mine site considering the waterflow (the George River is approximately 30 kms due East of the mine site).

Map 2-1 illustrates the overall project and related activities (section 2.6).

2.4.1 Project implementation variants

Alternative designs are being considered for several components of the project and these have been and will be part of a comparative technical, environmental, social, and economic analysis process in order to select the best alternatives for the project. These components include the following:

- Mode of operation of the mine site.
- Mine and beneficiation plant capacity.
- Location of main camp, main infrastructure, and related infrastructure.
- Location (alignment) of the access road.
- Location of the airstrip.
- Location of final wastewater discharge point.

- Location of final discharge point for treated mine water.
- Method of supply and location of the drinking water withdrawal site.
- Mode of transportation of the concentrated ore to the rare earth elements separation plant located outside the northern territory (option of air transport by airship).

The results of pilot tests on the process and the progressive development of more detailed engineering, as well as studies on the receiving environment (physical, biological, and social environments) will allow further optimization of the project for the needs of Torngat Metals Ltd., which could lead to the study of new variants. Within the framework of this optimization, the costs, the schedule, as well as the economic, technical, environmental, and social issues will be considered. Particularly at the environmental level, the GHG balance and the impact that climate change could have on the project are also considered in the comparative analysis of the variants.

For example, the following variants, and possibly other options, could therefore be considered for the optimization of the project:

- **Development phases:** During mine site preparation, a temporary winter road from the Labrador coast, or other means of transportation during the winter period (i.e., winter airstrip), will be evaluated to transport materials and heavy equipment to site prior to the start of construction.
- **Construction phase:** For buildings and equipment, options based on the use of modules, containers or prefabricated sections will be considered given the constraints associated with climatic conditions and restrictions related to available modes of transport.
- **Operational mining phase (30-year operation):** Alternatives to the mining plan could be developed and analyzed as part of the feasibility study. Similarly, since the ore concentration processes on the mine site is currently being optimized, this work could lead to the development of new variants.
- **Closure and restoration:** The current closure concept is based on the premise that the site will need to be returned to the pre-project conditions, i.e., as a wildlife habitat allowing traditional activities (hunting, fishing, and gathering) to resume. Depending on the results of the consultations with the communities and government authorities, options related to the ultimate use of the territory could be considered, for example, leaving in place the airstrip or a portion of the roads that could be used for regional development purposes.

2.4.1.1 Description of the Deposit and of the Technological and Location Variants

The characteristics of Strange Lake B-Zone deposit allow for only one mining mode, open pit. Underground mining tunnels is not an option at Strange Lake due to the rare earth elements located close to the surface.

Major improvements have been made since the filing of preliminary information for the previous version of the project in 2015 (MICON, 2019) to reduce the environmental footprint and optimize the profitability of the project during the operational phase. More concentrated ore layers have been located in the deposit and will therefore be subject to targeted mining.

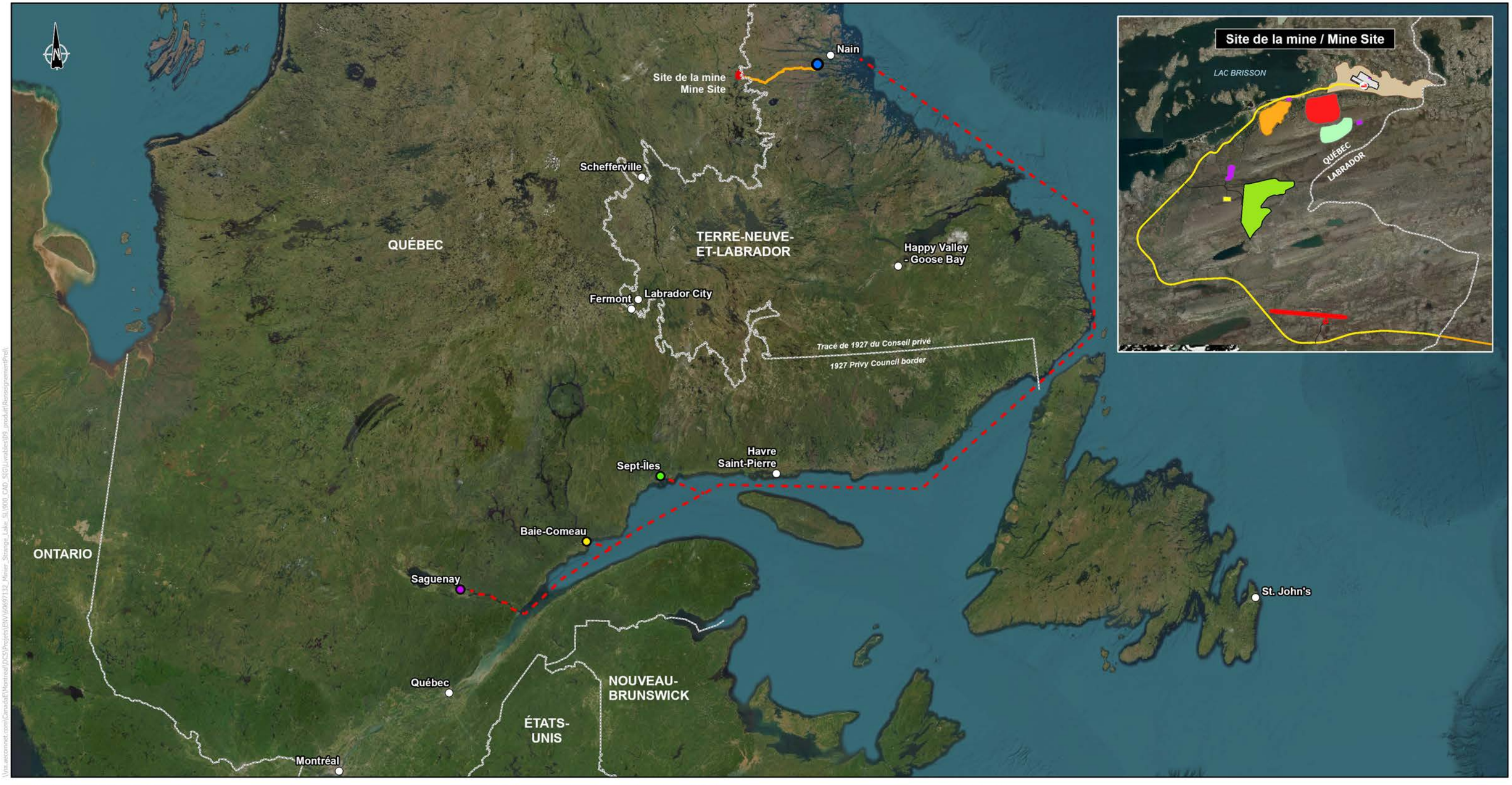
2.4.1.2 Ore processing/concentration plant (beneficiation plant) and related facilities

Various sites are studied for the location of the beneficiation plant. A selection study of potential sites will be conducted to choose the best location for it and its associated facilities in the vicinity of the mine. Map 2-1 presents a studied variant, where the plant and the workers' camp are located close enough to each other, so that it is possible to connect them by an enclosed walkway thus protecting the workers from the arctic cold.

The site selection will be based on economic, technical, environmental, social and health and safety criteria. In particular, the Indigenous communities concerned will be consulted to consider their knowledge of the territory and their concerns.

TORNGAT

PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT



Composante du projet / Project Component

- Installation de concentration du minerai / Beneficiation Plant
- Route d'accès saisonnière proposée (Québec) / Proposed seasonal access road (Quebec)
- Piste d'atterrissage potentielle / Potential airstrip
- Gisement minier de la Zone B / B-Zone Mineral Deposit
- Camp d'exploration existant / Existing Exploration Camp
- Site d'enfouissement / Landfill Site
- Camp et aire de traitement principaux / Main Camp and Ore Processing Area
- Bassin proposé / Proposed Pond
- Parc à résidus miniers / Tailing Site
- Banc d'emprunt (sablière et gravière) / Borrow Pits (Sand and gravel pit)
- Minérai à basse teneur / Lower Grade Ore
- Halde de stérile / Waste Rock Stockpile Area

Activités connexes au projet / Project Related Activities

- Limite des concessions d'exploration minières détenues par Torngat / Outline of Torngat's Mineral Exploration Claims
- Route d'accès saisonnière proposée (Labrador) / Proposed seasonal access road (Labrador)
- Route maritime projetée / Potential Shipping Route
- Site potentiel du port / Potential Port Site

Site potentiel de l'usine de séparation des métaux de terres rares de haute pureté / Potential Site of the rare earth processing and high purity separation plant

- Port de Baie-Comeau / Port of Baie-Comeau
- Port Saguenay - Terminal maritime de Grande-Anse / Port Saguenay - Marine Terminal of Grande-Anse
- Port de Sept-Îles / Port of Sept-Îles

Autre / Other

- Frontière provinciale / Province Boundary

AVRIL 2023 / APRIL 2023

0 70 140 km

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Produit: Carte 2-1 Carte globale du projet, activités connexes et logistique (MELCCFP)
Date : 2023-04-24 15:40

Source:
Données topographiques / Topographic Data: NRCan (2022)

Carte 2-1
Carte globale du projet, activités connexes et logistique

Map 2-1
Overall project map, related activities and logistics

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2.4.1.3 Mine residue stockpile

Several sites are being examined for the development of the mine residue stockpile area within a 10 km radius of the B-Zone deposit in which the mine pit will be located, as suggested by MDDEP's (2012) *Directive 019* on *the mining industry*[3]. A large portion of this area was not selected for further examination due to topography, and the presence of water bodies and wetlands. The part of the area located in the province of Newfoundland and Labrador also was not selected. This is the eastern part of the zone (in Labrador, or in Québec near the provincial border). The north and west shores of Lake Brisson were not retained as options either.

Thus, five sites located south of the mine pit were delineated and examined in more detail. Table 2-1 presents the results of the preliminary comparative analysis of these sites. Option No. 1 appears to be the most appropriate site. This site is located within the Strange Lake alkaline complex, drilling has been carried out to confirm the absence of exploitable mineral resources under the proposed mine residue stockpile area. However, this site selection will have to be validated with the results of the consultations with the communities concerned, the pre-feasibility and feasibility studies, as well as the impact assessment

Table 2-1: Potential site evaluation matrix - Mine residue stockpile area

MTAA Option nº	Mine residue management method	Results	Preliminary environmental justification	Other considerations (technical or legal)
1	Dry stacking of thickened residues	Preferred option	Site located in the same aquatic environment as site no. 4, but upstream from the latter	Within the Strange Lake alkaline complex containing REE mineralization, but drilling indicates that this area does not contain REE in economically exploitable concentration. Capacity probably sufficient for a 30-year period. The site can be significantly expanded, if necessary (to be confirmed by pre-feasibility and feasibility studies).
2	Dry stacking of thickened residues	Not retained for further consideration	Aquatic environment not well developed	Too far from B-Zone and too close to the Labrador-Québec border. Potential delays in the official determination of the interprovincial boundary for this site. Could be considered long-term for potential mine expansion. Partially outside the Strange Lake alkaline complex.
3	Dry stacking of thickened residues s	Not retained for further consideration	Presence of ponds and streams with fish habitat	unsuitable topography.
4	Deposition of residues in the form of slurry (pond)	Rejected	Presence of a small lake with presumed fish habitat, over an estimated area of 0.25 km^2.	Better topography to install a dike that can contain slurry.
4A	Dry stacking of thickened residues	Second choice	Aquatic environment not well developed	Within the Strange Lake alkaline complex containing REE mineralization. Very close to the chosen option for the airstrip. Could be considered in the long term if option 1 proves insufficient or for the potential expansion of the mine.

[3]Directive 019 on the mining industry: https://environnement.gouv.qc.ca/milieu_ind/directive019/#:~:text=La%20Directive%20019%20sur%20l%E2%80%99industrie%20mini%C3% A8re%20is%20l%E2%80%99tool,of%20the%20Baie%20James%20et%20du%20Nord%20qu%C3%A9b%C3%A9cois .

Airstrip

A total of seven potential locations have been identified for the airstrip, also within a 10 km radius of the mine pit. Only two options were retained after a more in-depth examination of the topography, drainage conditions, limitations related to surface obstacles, prevailing winds, and other environmental constraints (proximity to observed habitats of harlequin ducks, caribou, etc.), the distance of the facilities from the mine site and the alignment of the road. These options, both located in the southern part of the 10 km radius, were compared with each other in a preliminary manner, according to technical and environmental criteria. Subject to validation during future consultations and studies, the preferred site (Map 2-1) appears to be the best option based on the following criteria:

- Prevailing winds – highest percentage of favourable prevailing winds.
- Environmental analysis – less potential impact on ecological systems and water resources.

2.5 Description of project components

The following sections provide a brief description of the major components of the project. It should be noted that several variants are currently being analyzed. Map 2-1 illustrates the project components, based on one of the variants being studied.

2.5.1 Method of operation of the mine

The project's mineral resources are contained in a single deposit identified as the B-Zone. The current mining plan developed over a 30-year period includes a seven-phase mining pit (Micon, 2014), the design of which will take into account a minimum distance without activities to ensure the protection of the Lake Brisson water.

Given the proximity of the deposit to the surface, the mine is designed to be operated as a standard open pit using trucks and mechanical shovels.

The total amount of ore mined over 30 years is estimated at 160,000,000 – 200,000,000 tonnes (dry basis). The quantity of ore extracted annually will be of the order of 5.7 - 6.5 million metric tonnes on average. The amount of ore mined annually could vary significantly, however, as the mining strategy is to mine as much ore as possible in the first 18 years, in order to first process the ore containing a higher concentration of the desired elements (high-grade ore), and to stockpile the lower-grade ore for further processing in the remaining 12 years. Thus, it is currently planned that substantially all of the ore will be mined during the first 18 years of mine operation, at a rate of 9.0 to 12.0 million metric tonnes per year. The beneficiation plant would be fed with high grade ore for the first 18 years at a rate of between 2.5 and 3.5 million tonnes per year. For the remaining 12 years, the mill would be fed with lower grade stockpiled ore at a rate of 5.0 to 7.0 million tonnes per year. Mining will be carried out over periods that may vary from 9 to 12 months per year, depending on the year.

2.5.2 Explosives

The explosives manufacturing and storage facilities will be in the vicinity of the mine pit, within a radius of less than 5 km, on a junction of the main access road. The exact location of these facilities will be determined by ensuring that they are located at safe distances from other infrastructure and activity areas.

2.5.3 Ore concentration facilities (beneficiation plant)

The ore concentration facilities at the mine site include a series of physical separation processes that will significantly reduce the quantity of concentrate to be shipped to the high purity rare earth processing and separation plant, which will be located outside the Nordic environment. The separation processes that will be used in the beneficiation plant are currently being optimized. Although process variants are still under review and could significantly alter the exact sequence of operations, the beneficiation processes will include the following main steps:

- Primary crushing (dry process): the ore extracted from the mine pit containing gangue (waste rock) and recoverable minerals is first separated from the run-of-mine before being transported to the concentrator to be crushed and calibrated. This process essentially produces two fractions: a coarser fraction in the form of rocks about 30 mm in diameter and finer fraction less than 10 mm.
- X-ray sorting (dry process): the coarse fraction is routed to an X-ray scanner which allows the rocks to be separated according to their atomic density. This step makes it possible to retain the rocks containing sufficient ore and to remove the waste rocks (gangue), essentially made up of quartz.
- Fine grinding (in a wet environment): the fines from the primary crushing process and the rocks selected by the X-ray scanner are brought together to be subjected to a fine grinding (up to around 200 µm) carried out in a wet environment to avoid airborne emissions of fine particles.
- Magnetic separation (wet): the ore particles are then mixed with water and transported to a tank where a magnetically charged drum is used to successively separate a ferromagnetic fraction (essentially iron oxides), a diamagnetic fraction (magnetism in opposed direction like quartz and other gangue elements), and ultimately an intermediate fraction (paramagnetic) containing the bulk of the rare earths.
- Final grinding and flotation: after a very fine final grinding, which enables to free the valuable elements from their gangue in order to better separate them, the resulting slurry is pumped into tanks called flotation cells. The process consists in selectively floating the finely ground ore suspended in water by means of a foam formed by air injection. The selectivity is ensured by the precise dosing of reagents under very specific conditions. The flotation is carried out in a long series of successive operations before producing the final concentrated ore.
- Decanting and filtration: the fraction containing the final concentrate is decanted and filtered before being stored for shipping
- The dry residues from the first separation steps (primary crushing and X-ray sorting) are then stockpiled in the waste rock storage area; depending on their characteristics, some material from this first sorting could also be stockpiled separately for subsequent potential exploitation. The other fractions from the magnetic separation and flotation processes constitute the concentration processes residues; these residues, generated in a wet environment, are thickened and filtered before being transported to the mine residue stockpile area.
- The water from the ore and residue decanting and filtration processes is treated, then reused in these same processes; this reuse in close circuit makes it possible to reduce the consumption of freshwater and the mine water discharge as much as possible.
- The beneficiation plant will be designed to operate 9 to 12 months per year at a design production rate of 125,000 to 300,000 tonnes of concentrate annually (dry basis), over the 30 years of the project.
- Under the current plan, the feed rate of crushed ore to the concentrator will vary to prioritize the most accessible high-grade ore. Thus, during the first 18 years of operation, the ore feed rate (mainly high grade) to the concentrator will average in the order of 2.5 to 3.5 million tonnes per year (dry basis). An expansion of the beneficiation plant will allow processing, during the 12 following years, from 5 to 7 million tonnes per year of low-grade ore that has been stockpiled. It is estimated that in its expanded version, the beneficiation plant will have the capacity to process up to 20,000 tonnes per day of crushed ore.
- There will be two main buildings comprising the ore processing complex: one building for the crushing and grinding unit and another for the flotation unit. Near the flotation building, there will be a concentrate storage area with a storage capacity equivalent to seven months of production, which represents approximately 100,000 – 150,000 tonnes. Such concentrate storage capacity is required given the constraint related to the navigation season, which is essentially limited to five months per year (from July 1 to November 30) to avoid navigation in the presence of sea ice.

2.5.4 Ore pile

The low and medium grade ore mined will be stockpiled for processing after year 18 of the mine plan. The lower grade ore stockpile will be placed to facilitate future reclaiming as shown on Map 2-1. The exact location will be determined following an *in-situ* verification considering technical constraints aimed at minimizing the potential effects on fish habitat.

The environmental design of the piles, to ensure groundwater protection and wastewater treatment, will be developed according to the *in-situ* conditions and the Directive 019.

2.5.5 Waste rock and overburden piles and soils

The volumes of waste rock to be stockpiled include the quantities of waste rock and overburden from excavations for the construction of the collection pond(s) as well as for any surface infrastructure required for the operation site. Two sites are currently studied for the location of the waste rock storage area (Map 2 -1).

Wherever possible, overburden and waste rock will be placed in separate piles east of the mine pit (Map 2 -1).

The potential for reusing waste rock will be assessed based on geotechnical and geochemical data to establish its technical and environmental feasibility. Ideally, the waste rock will also be used to backfill the open pit once mining is complete. Waste rock that does not generate acid may also be used for the construction of dikes, roads and/or storage platforms. Similarly, topsoil or other soil suitable for revegetation will be stockpiled nearby for progressive or future site rehabilitation.

The environmental design of the piles, to ensure the groundwater protection and wastewater treatment, will be developed based on *in situ* conditions and Québec's Directive 019. The design of the waste rock pile and the pile of overburden, minimally, will ensure that runoff from the piles is collected by a low wall or by a drainage system surrounding the piles and directed to a settling pond for the removal of suspended solids before discharge into the environment. If required, additional measures will be put in place to minimize the potential effect on the environment.

Additional geochemical and geotechnical studies will be carried out to complete the design of the waste rock and overburden pile.

2.5.6 Mine residue stockpile area

The flotation residues will be deposited in the mine residue stockpile. In order to minimize the potential environmental impact, and subject to the approval of the authorities, the residues will be thickened, filtered, mixed with a cementing agent, transported by truck and deposited in the residuals management area. Map 2 -1 illustrates the expected size of this area at the end of the mine's 30th year of operation. Five alternative locations for the mine residue stockpile (option 1, 2, 3, 4 and 4a) are being studied (see Table 2-1). Additional geochemical and geotechnical studies will be conducted to complete the design of the mine residue stockpile area, and the retention basin that will be used for sedimentation and/or retention for associated wastewater treatment. The environmental design to ensure groundwater protection and wastewater treatment will be developed based on *in-situ* conditions and Québec's Directive 019.

2.5.7 Access roads

Access roads will connect the mine to the various infrastructure, i.e., the beneficiation plant, the buildings as well as the stockpiles (ore, waste rock, overburden, and topsoil), the settling ponds, the residuals management area, the landfill site, and the airstrip.

A road connecting the mine site to the port facilities located to the east, on the Labrador coast, will also be built. The first 18 kilometres from the mine site are located on the territory of the province of Québec. Outside the mine site, the preliminary design envisions a seasonal access road with the following characteristics: a crushed rock or gravel surface capable of withstanding the expected traffic; a single lane with a width of between 5.4 and 8 m (with a right-of-way of 0.5 m on each side); no excavation in permafrost areas; a balance between cuts and fills as much as possible; minimal stream crossings and slopes of 11% maximum. Figure 2-1 shows the typical roadway cross-section of three alternatives currently being considered. The design features of the road will be determined in more detail as part of the pre-feasibility and feasibility studies.

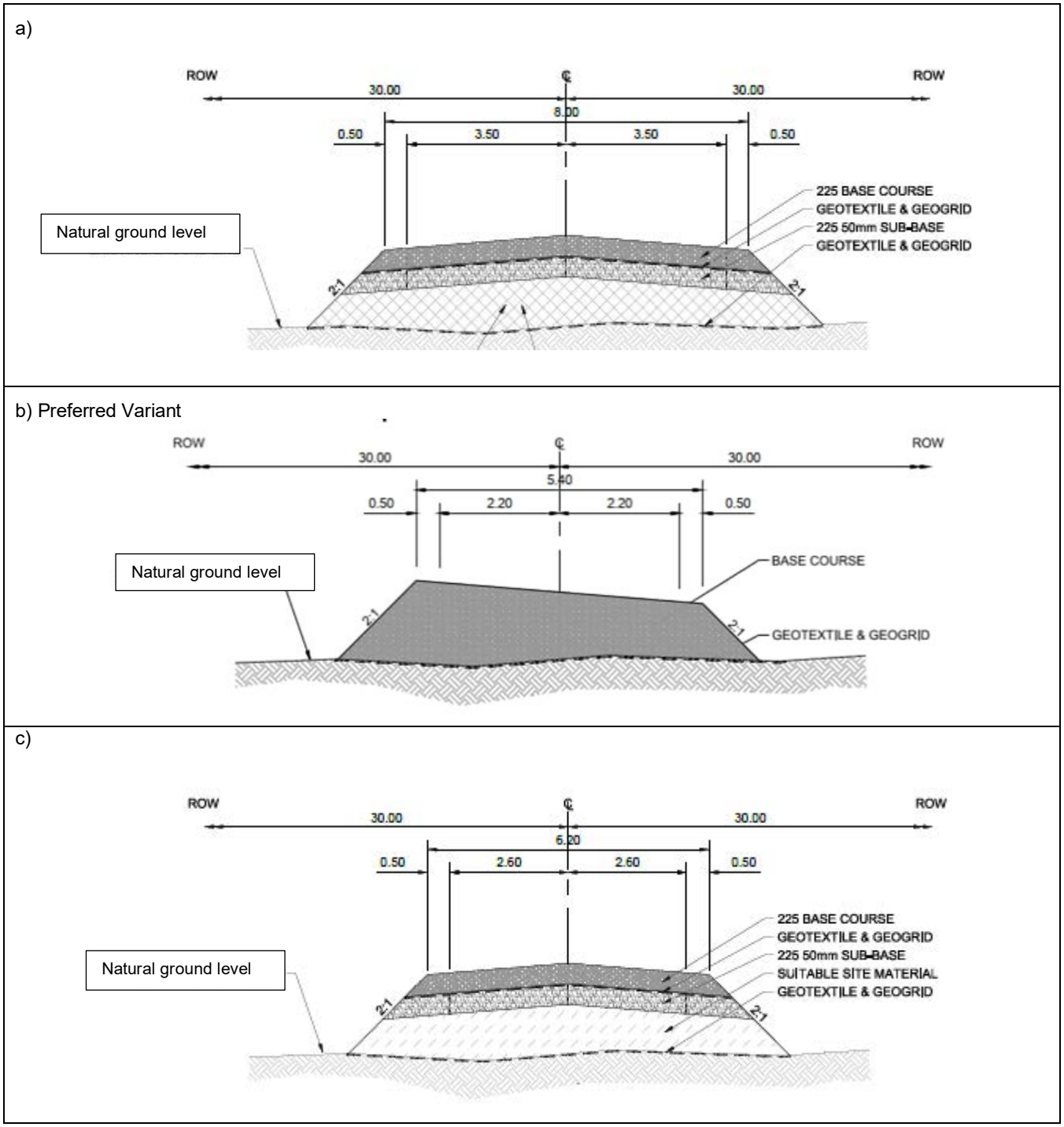

Figure 2-1: Typical sections of the access road a) one-lane seasonal (8 m section) b) one-lane two-way temporary gravel road (5.4 m width); c) winter road (6.2 m section)

2.5.8 Airstrip

Two distinct locations were considered for the airstrip. The preferred airstrip location is approximately 12.5 km from the camp and processing facilities.

The airfield facilities can be operational 24 hours a day. The runway and taxiway will be made from gravel. The aerodrome building will have a capacity to accommodate approximately 60 passengers, including washrooms, storage area and office space.

The new airfield will also include a building for aircraft storage and servicing, a private runway and fuel storage facility.

The runway is currently planned to be 1,500 m long by 30 m wide and made of gravel in the initial construction phase of the project, which would accommodate aircraft models such as the Bombardier Q400. The option to expand the runway to accommodate larger aircraft during the construction phase or later during the operation of the mine will be assessed as part of the pre-feasibility, feasibility, and impact assessment studies.

2.5.9 Other buildings

The workers' camp will be modular in design and will meet industry standards for long-term and permanent accommodation for mine personnel, with additional space for truck drivers and other visitors. It is expected that enclosed walkways will connect the buildings, where possible. Its footprint in the environment includes the consideration of a protection zone around Lake Brisson. The width of this protection zone will be established based on the results of the hydrogeological modelling that will be carried out at the mine.

A multi-purpose building will include heated and unheated storage areas, a locker room, lockers, laundry, medical and fire protection facilities, laboratory, offices, and conference rooms as well as garages for maintenance, emergency vehicles and storage of emergency response equipment.

2.5.10 Water supply

Lake Brisson is expected to be the main source of process water. The required water treatment for this industrial use will be established during the feasibility study. A pumping station will be installed on the shore of Lake Brisson, with a water intake deep enough to avoid problems related to the accumulation of ice during the winter. A pipe of approximately 1.5 km will bring the water to the treatment plant. A 5-meter-wide access path will also be built.

Lake Brisson is also a potential source of drinking water for human consumption. The SG-1 esker located to the east of the ore processing complex and the base camp is an underground water source which constitutes a second source of drinking water.

More detailed analyzes will be completed to confirm the source of drinking water that will be used, and the treatment required. Drinking water will be analyzed regularly and treated before use.

Groundwater from the esker will likely be the source of fire water. A fire water tank will be provided and connected to the fire protection system of the multi-purpose building and the camp. The water required for maintenance and for dust suppression will come from this tank, ensuring that a minimum level is maintained for fire protection.

2.5.11 Wastewater treatment

A modular wastewater treatment system will include septic and holding tanks and equalization tanks. The preferred technology will meet suspended matter (SM) and biological oxygen demand (BOD) criteria.

2.5.12 Power supply

The electrical requirements of the mine, ore processing and milling facilities and all other on-site facilities are expected to be met by a combination of two types of electrical generating equipment, namely:

The electrical requirements of the mine, ore beneficiation plant and all other on-site facilities are expected to be met by a combination of two types of electrical generating equipment, namely:

- a bank of diesel generators.
- wind turbines (project under study). The use of renewable energy sources will reduce the use of fossil fuels in the Project. Renewable energy generation could be carried out by Torngat or contracted to a separate developer.

The airfield will have its own source of electrical energy supplied by a 250 kW diesel generator.

2.5.13 Fuel storage and supply

The arctic diesel tank as well as the unloading station will be placed in a containment area equipped with a geomembrane. Double-walled aboveground pipes will connect the reservoir to the generators. A fuel distribution station will be installed for the supply of heavy and light vehicles.

Subject to validation by the feasibility and pre-feasibility studies, a 30 m^3 capacity tank will be installed at the airfield for the storage of aviation fuel. This fuel reserve is intended for emergencies.

Fuel supply will be primarily by fuel tanker to the mine site, as required. At the mine site, the fuel will be transferred from the fuel tankers to an unloading and storage area which will be equipped with an appropriate containment area.

2.5.14 Stormwater management (outside activity areas)

All stormwater that has not been in contact with the ore will be diverted from the work areas by a network of drainage ditches.

2.5.15 Waste management

Waste reduction at source, recycling and recovery channels will be favoured. As much as possible, recyclable materials will be compacted on site before being transported to secondary materials markets using the same means of transportation as for supply. Residual hazardous materials and special waste will be stored on site in secure storage areas equipped with containment areas, before being shipped to authorized facilities for treatment or disposal. A northern landfill that complies with the requirements of division 4 of chapter II of the Regulation respecting the landfilling and incineration of residual materials will also be set up near the waste accumulation area along the road to access between the airfield and the mine pit to landfill residual materials that cannot be recycled or recovered. An area will also be set up to carry out the bioremediation of contaminated soil and snow.

2.5.16 Emergency Response

Medical and emergency response facilities, including fire trucks, will be in the multipurpose building near the workers' camp. An ambulance will be available and parked in a dedicated space and an infirmary will be set up in the workers' camp. A storage area for environmental emergency equipment will also be provided in a centralized location in case of a potential major incident (i.e., spill).

2.5.17 Construction

2.5.17.1 Access road and airstrip

Construction work at the mine site will begin with the completion of the last portion of the access road located in Québec (0 to 18 kilometres of the road chaining) and the development of the airstrip.

A short temporary airstrip can currently be used by Twin Otter or smaller aircraft. This track is located along Lac Brisson approximately 400 m east of the temporary mining exploration camp. A temporary dock, also located near the temporary camp, could also be set up on the shores of Lac Brisson to accommodate seaplanes in the summer.

2.5.17.2 Camp, mine, and facilities

In addition to expanding the existing exploration camp as required, temporary camps may be established as part of site preparation and road construction at the mine site.

Excavation will follow and will begin with the development of the maintenance facilities area and the fuel storage area as well as the construction of the various access roads to the site.

The ore transport roads will be 8 meters wide between berms and will therefore be designed for trucks with a capacity of 55 tonnes. These roads will be built and extended as needed during pre-production and operation.

The main camp and processing area are located on esker G-1, approximately 2 km east of the B-Zone. This zone will first be mined for sand and gravel required for the civil works related to roads and preparation of the ore stockpiling area. Once levelled, part of this area can also be used as a temporary storage area. Due to the sufficient bearing capacity of this material, construction on stilts should not be necessary. It should be noted that part of this esker is already being used by Torngat as a temporary airstrip as part of its pre-development activities.

Subsequently, the construction of the beneficiation plant, buildings, fuel storage tanks and the installation of temporary generators can be undertaken. Also, the civil work to lay out the foundation of the various storage areas and the settling pond(s) will be carried out. These facilities will allow the start of stripping operations of the mine site.

Next, the steel structures and mechanical equipment will be installed at the ore processing complex and the concentrate storage area. Finally, the electrical and instrumentation work will be completed, and the commissioning of all systems will take place.

2.5.17.3 Explosives

The selected explosives supplier will be responsible for the construction of an emulsion plant on the mine property, approximately 4.5 km from the mine pit, along the access road.

2.5.17.4 Stockpile areas, borrow pit

A drainage system consisting of ditches and retention basins will be built to receive the runoff water drained within the various stockpile areas (ore piles, concentrate piles, mine residue stockpiling area, etc.) and to prevent mixing with runoff from outside the operating areas. Retention basins will be located at the lowest point of each watershed concerned and will be positioned to avoid the mixing of water from different sources before the measurement points. A water treatment system will also be installed, as well as a network of pipes to convey the effluent from the ponds to this system.

Stockpile areas design will be developed as part of the pre-feasibility and feasibility studies.

The development of a borrow pit area is currently planned at the mine site to provide construction materials (Map 2-1). In addition, secondary access roads will be constructed to connect the plant and the borrow and stockpile areas.

2.5.18 Operation and maintenance

2.5.18.1 Mining operations

Mining will be operated by Torngat with its own equipment and personnel. The mine will be operated according to an optimal ore extraction sequence developed over a period of 30 years. Mine operations include:

- drilling and blasting.
- ore excavation and transportation (hauling) to the processing area.
- the crushing of large blocks.
- excavation and transportation of waste rock to the waste rock pile.
- excavation and transportation of low-grade ore to the ore stockpile.

2.5.18.2 Explosives

The explosive supplier that will be selected will be responsible for supplying emulsions, non-electric detonators and other blasting accessories that will be used by the blasting team in the pit.

2.5.18.3 Mine dewatering

Pumping of water into and around the pit will be required to prevent flooding that would delay mining operations. The water that will be in the mine pit will come from three sources: precipitation, infiltration of groundwater and potentially infiltration from Lake Brisson through a fault. Specific sumps will be constructed and maintained at the bottom of the pit to extract this mine water using sump pumps and direct it, if necessary, to the treatment system. Groundwater flowing towards the pit (and which will not have been in contact with the ore of the deposit) can be intercepted by a network of wells on the periphery of the pit from which it can be pumped and discharged into the environment or used as a source of water.

2.5.18.4 Materials handling

Table 2-2 presents an estimate of the quantities of materials that will be generated by the project (ore, concentrate, waste rock and concentration process residues. However, this operating scenario is subject to change based on pilot tests.

Table 2-2: Estimated quantities by type of material (30 years of operation)

Mining material type	Annual average – Low estimate	Annual average- High estimate	Annual average – Low estimate	Annual average – High estimate	Maximum per day at any time over 30 years	Total over 30 years (Mine life)
	Years: 0 to 18		Years: 19 to 30			
Mined ore (tonnes)	9 000 000	12 000 000	0	0	45 000	167 000 000
Mill feed (beneficiation plant) (tonnes)	2 500 000	3 500 000	5 000 000	7 000 000	20 000	125 000 000
Waste rocks from mining (mined ore - stockpiled - mill feed) (tonnes)	250 000	400 000	0	0	3 000	5 500 000
Mineral material after first beneficiation step (x-ray) (tonnes)	1 500 000	2 000 000	3 000 000	4 000 000	11 000	75 000 000
Residuals after first beneficiation step (x-ray) (tonnes)	1 000 000	1 500 000	2 000 000	3 000 000	8 200	52 000 000
Final Concentrate (tonnes)	125 000	200 000	250 000	350 000	1 000	6 500 000
Concentrate % rare earth	10%	12%	8%	10%	n/a	n/a
Residuals (except for above) (tonnes)	1 375 000	1 800 000	2 750 000	3 650 000	10 000	68 500 000

2.5.18.5 Ore processing and concentration

The crushing and x-ray sorting units will be designed to operate 365 days a year, 12 hours a day. The crushing, electromagnetic separation, flotation and dewatering equipment at the mine is designed to operate 365 days a year, 24 hours a day. The processes operated in the ore concentrating facilities (beneficiation plant) were previously described in Section 2.5.3.

2.5.18.6 Mine residue management

The dry residues from the first separation steps (primary crushing and X-ray sorting) will mainly be waste rock, which will be stored in the waste rock storage area; depending on their characteristics, some material rejected during this first sorting could also be stored temporarily for potential subsequent use. The other fractions from the magnetic separation and flotation processes constitute the residues from the concentration processes. These residues, generated in a wet environment, are decanted, and filtered.

Subject to obtaining the required authorizations, the thickened residues will be mixed with a cementing agent to improve its mechanical properties and prevent the resuspension of fine particles during (liquid) precipitation or snowmelt. The thickened residues would be loaded onto trucks and transported to the mine residue stockpile area, which will be designed and managed in accordance with the requirements of Québec's Directive 019. The thickened residues would be unloaded there and spread in 30 to 40 cm layers and then compacted with appropriate mobile equipment (dry stacking).

Little water should seep from the mine residue stockpiling area due to the low hydraulic conductivity of these materials and the addition of a cementing agent. Contact between tailings and groundwater will be minimized by installing a drainage system within the mine residue stockpiling area. In the event of seepage, this water will be collected and transported to a pond where it will be treated, if necessary, before being discharged into the environment.

Runoff and snowmelt water from the surface of the mine residue stockpiling area will be collected by a system of peripheral drains, then treated, if necessary, before being discharged into the environment.

The mine residue stockpiling area will also be surrounded by a system of drains and dikes to collect surface water (outside the stockpiling area) and diverting it from the stockpiling area. Additional drains will be installed as needed during successive construction stages over the 30-year life of the project. The dike will be constructed in stages to maximize the runoff diversion potential of the stockpiling area.

2.5.18.7 Emergency response

Qualified personnel trained in first aid and emergency response will be on site. When required, an air ambulance will be available to transport patients to a hospital facility located in a major center such as the Labrador Health Center located in Happy Valley-Goose Bay. These same centers may be called upon to provide support in the event of an environmental emergency.

2.5.18.8 Discharges into the environment

2.5.18.8.1 Air

The main sources of atmospheric emissions (greenhouse gases, particles, etc.) will be generated by mining, blasting, crushing, concentrate storage, electricity production (generators) as well as vehicles traffic for the transportation of ore, waste rock, concentrate and other transportation activities on the site.

2.5.18.8.2 Liquid Effluents

Mine water and runoff water within the activity areas (mining wastewater)

Several basins will be needed to receive the runoff water drained within the various mine activity areas (pit, mining areas, ore piles, concentrate piles, mine residue stockpiling area, etc.). They will be located at the lowest point of each watershed concerned and will be positioned to avoid the mixing of water from different sources before the measurement points. After this measurement point, the water discharged from these retention basins may be routed, if required, to a treatment system to ensure that any water discharged complies with the requirements of Directive 019. The possibility of reusing the water collected for the needs of the ore concentration facilities will be assessed to minimize the use of freshwater.

Wastewater from concentration processes (mining wastewater)

In the current state of process development for the ore treatment and concentration plant, it is expected that all water will be recirculated, and the process will not generate liquid discharges, except during sporadic events. A certain amount of freshwater may however be necessary (to be confirmed during the pre-feasibility and feasibility studies). Any sporadic discharge from the process will be analyzed and treated appropriately before being released into the environment.

Washing water

Washing and maintenance water in the buildings will be managed separately from mine water and sent to a water treatment unit before discharge.

Domestic wastewater

A domestic wastewater treatment unit will be installed to serve all camps, buildings, sanitary facilities and living environments.

Final effluent

It is anticipated that treated water meeting the applicable requirements will be discharged into Lac Brisson, in a large bay located between the mine pit and the camp and processing area. Although the bathymetry of this portion of the lake has been mapped, the exact location of the discharge point will not be determined until the final site development plan has been completed.

2.5.18.9 Residual materials

Residual materials will be managed by following the principles of the *Québec Residual Materials Management Policy* while considering the location of the project in an isolated northern territory. Reduction at source will first be prioritized by applying a purchasing policy that will favor durable goods, as well as reduced or easily recyclable packaging. Management methods will be selected by prioritizing recycling and recovery channels before disposal. As previously described, the elimination of ultimate waste residues will be carried out in a landfill in a northern environment, which will be laid out in accordance with the requirements of section 4 of chapter II of the *Regulation respecting the landfilling and incineration of residual materials*.

2.5.19 Closure and restoration

In anticipation of mining closure following the planned 30 years of operation, Torngat will prepare a conceptual closure plan that meets the requirements of the Québec *Loi sur les mines* - Mining Act and the *Guidelines for preparing mine closure plans in Québec* (*MERN 2022*).

After the mine closes, it is assumed that the desired land use for this site will be to provide new wildlife habitats and that disturbed areas will return to their pre-mining condition such that traditional uses of the site can resume. It is also expected that there will be progressive restoration for the mine residue stockpiling area, throughout its operation. According to the current mining plan scenario, the rehabilitation of the open pit will not begin until the end of its development, i.e., after year 18. The access road could be demobilized before the end of the operating period if the air transport alternative of the products is fully implemented, or even maintained if an agreement to this effect is signed with the communities occupying the territory. The road could also be maintained in parallel with the air shipment for some time (gradual transition to the new transport mode).

The duration of the post-operation and post-restoration monitoring programs will be in accordance with the *Guidelines for preparing mine closure plans in Québec (MERN, 2022).*

2.6 Related activities

Summarize, if applicable, the related activities planned (e.g., development of access roads, crushing, installation of coffer dams, diversion of watercourses) and any other project likely to influence the design of the proposed project.

In terms of related activities, it is important to understand that the Strange Lake rare earth mining project site has an access road that is mostly located in the province of Newfoundland and Labrador, i.e., on 150 of the 160 km. It is intended that this access road will be usable on a seasonal basis and will not be permanent; in fact, Torngat Metals Ltd. plans to ship ore concentrate by airship; when this technology- which is currently in the final stages of its development- becomes commercially available and authorized.

The seasonal road project will be subject to the permitting procedures of the Federal Government, the Nunatsiavut Government and the Provincial Government of Newfoundland and Labrador.

In addition, Torngat Metals Ltd. plans to set up a high purity rare earth processing and separation plant to receive and process the ore concentrate produced at the mining site. This hydrometallurgical plant will be built in an existing industrial-port area, south of the 55th parallel. The sites currently under analysis are the port of Sept-Îles, the port of Grande-Anse in Saguenay and the port of Baie-Comeau. This plant project will be subject to the Environmental Impact Assessment (EIA) and review procedure in southern Québec.

3 Property Location and Project Timeline

3.1 Identification and location of project and its activities

Name of the municipality, village or community where the project is to be carried out (specify if more than one municipality, village or community is affected by the project. Land category (I, II or III). Geographic coordinates in decimal degrees of the project's center point (for linear projects, provide coordinates of the project's start and end points): Center point or project's start: Latitude: Longitude: Project's end (where applicable): Latitude: Longitude:

The project site is located on category III Crown Land, that are subject to James Bay and Northern Québec Agreement. This agreement governs land claims and Indigenous rights of the Nunavik Inuits and of the Naskapi Nation of Kawawachikamach (Map 3-1).

This project is located near the various communities and approximately (Map 3-2):

- 235 km northeast of Schefferville, Québec.
- 150 km west of Nain, Newfoundland and Labrador.
- 125 km west of the Voisey's Bay nickel-copper mine in, owned and operated by Vale SA, near Nain.
- 1 100 km northeast of Québec City, Québec.

Administration for the region is covered by the Administrative region of Nord-du-Québec and the Kativik Regional Government, located in Kuujjuaq, 325 km Northwest of the mining site. The nearest communities are mainly Indigenous communities.

The Strange Lake property is covered by maps from the National Topographic system map sheets (NTS: 24A08, 24A09, and 14D05). The project is located at the following geographical coordinates (decimal degrees, NAD83):

- Deposit centroid: Latitude: 56.323 N; Longitude: - 64.166 W
- Start of the access road in Québec: Latitude: 56.332 N; Longitude: - 64.125 W
- End of the access road in Québec (at the Labrador border): Latitude: 56.27 N; Longitude: - 64.091 W

Map 3-1 shows the Strange Lake Alkaline Complex topography.

3.1.1 Land ownership

All the mineral claims covering the B-Zone of the Strange Lake Project are owned in totality by Torngat. The project is covered by 209 individual mineral claims in Québec and 63 "cells" in the Newfoundland and Labrador claims licence system. Those claims are covering a total area of approximately 9 994,65 ha (MICON, 2019). The mineral claims in Québec cover the B-Zone and a portion of the Main Zone REE deposits. The current Torngat claims cover the known extent of the Lac Brisson Pluton also known as Strange Lake Alkaline Complex (SLAC).

Torngat's claims are presented in Map 3-3.

3.1.2 History

A detailed account of the geological mapping, prospecting and development work on the project property is available in the Micon Technical report (2019).

According to this report, the Newfoundland and Labrador, Québec and Federal governments conducted numerous geological surveys between 1967 and 2009. The first studies in this area were carried out by the Geological Survey of Canada (GSC) in 1967. These studies made it possible to establish a geological map of the Strange Lake and the George River area at a scale of 1 :250 000.

Between the 1970s and 1980s, the *Ministère de l'Énergie et des Ressources* (MER) of Québec carried out detailed mapping of the George River area, located northwest of the property as well as geochemical sampling of stream (Beaumier, 1982).

In 1979 and 1980, the GSC and the Newfoundland and Labrador Department of Natural Resources jointly completed geochemical sampling of lake sediment, water and radiometric surveys. This survey has resulted in the identification of the strong geochemical dispersion pattern of the Strange Lake complex and exhibiting a significant mineralization in this area.

During the 1980s, the Iron Ore Company of Canada (IOCC) and a few private companies have carried out detailed geological mapping, geochemical sampling, radiometric surveys and hundreds of drill holes. This survey has made it possible to identify more accurately the Strange Lake alkaline complex and its mineralization: rare earth elements, zirconium, beryllium, niobium and yttrium.

The 1980s and 1990s also saw metallurgical testing and economic studies of the mineral potential of the Strange Lake area. This work was carried out by private companies including IOCC (Witteck Development Inc., 1982, IOCC,1985), Mitsui Mining and Smelting Co. (1996), as well as several other private companies. Other extensive geological surveys have also been conducted by government authorities (GSC, Newfoundland and Labrador).

In the 2000s, field exploration activities were focused on uranium mineralization. In 2006, Freewest Resources Canada Inc. acquired 23 mining claims for uranium exploration (Chamois, P. and Cook, B., 2007). The exploration program was subsequently transferred to its newly formed subsidiary, Quest Uranium Corporation, in 2007. In the same year, as a result of a share trade, Freewest transferred all of the Georges River mining claims to Quest Uranium Corporation. The Strange Lake rare earths mineralized area is partially included in, or adjacent to, the transferred claims.

From this moment, the company had focused its efforts on the development of this rare earth deposit and its name is changed to Quest Rare Minerals Ltd. In 2009, Quest Rare Minerals Ltd. acquired a block of claims from Québec prospectors to consolidate its property. From 2009 to 2012, Quest conducted an extensive exploration program, including detailed mapping and extensive drilling of the Strange Lake Alkaline Complex mineralized zones, particularly the area identified as the B-Zone, adjacent to Lac Brisson and located in Québec.

Quest gave to AECOM the mandate to carry out environmental and social baseline studies leading to the completion of environmental and social impact studies for the project. In parallel to these activities, and until 2017, Quest conducted several metallurgical, beneficiation and preliminary separation test work.

In 2017, Quest filed a restructuring proposal following the lack of available capital. In 2018, a consortium of investors made a purchase proposal to Quest's creditors. The proposal was accepted both by the Court and the creditors and Quest became a private company. In July 2018, Quest changed its name to Torngat Metals Ltd. (Torngat) (Appendix B).

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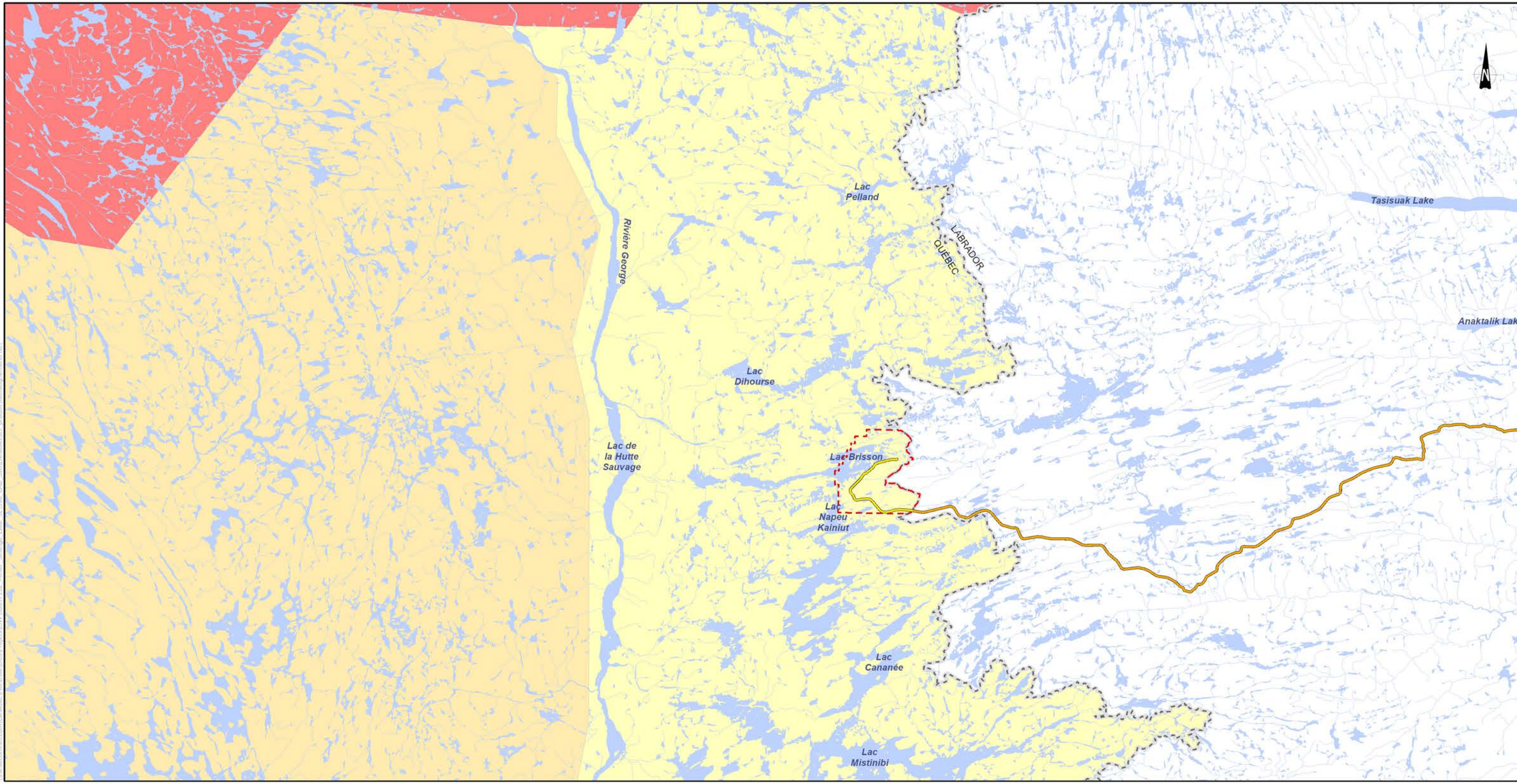
PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT



Inuit et Naskapi du Québec / Quebec Inuit and Naskapi
Accord sur les revendications territoriales / Land Claims Agreement (1975) [1 and 2]
Terres de catégorie III / Category III Lands

- Droit d'usage prioritaire Inuit / Area of Primary Interest of the Inuit
- Droit d'usage prioritaire Inuit et Naskapi / Area of Common Interest for the Inuit and Naskapi
- Droit d'usage prioritaire Naskapi / Area of Primary Interest of the Naskapi

[1] *James Bay and Northern Quebec Agreement (JBNQA), 1975.*
[2] *Northern Quebec Agreement (NEQA), 1978.*

Note: *Ces limites sont approximatives dû à l'échelle des cartes de référence et à la largeur des limites tracées. These boundaries remain approximate due to the scale of source maps and the width of the boundaries drawn.*

Composantes du projet / Project Components

- Route d'accès saisonnière proposée (Québec) / Proposed seasonal access road (Quebec)

Activités connexes au projet / Project Related Activities

- Limite des concessions d'exploration minières détenues par Torngat / Outline of Torngat's Mineral Exploration Claims
- Route d'accès saisonnière proposée (Labrador) / Proposed seasonal access road (Labrador)

Autre / Other

- Frontière Québec et Labrador / Quebec and Labrador border

AVRIL 2023/ APRIL 2023

1:500 000

0 8.5 17 km

NAD 1983 UTM Zone 20N

Produit: Carte 3-1 Droits territoriaux autochtones - Québec (MELCCFP)
Date : 2023-05-03 09:26

Source:
Données topographiques / Topographic Data: NRCan (2022)

Carte 3-1
Droits territoriaux autochtones - Québec

Map 3-1
Indigenous Land Rights - Quebec

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PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT

Limite des concessions d'exploration minières détenues par Torngat / Outline of Torngat's Mineral Exploration Claims

Communauté / Community
Québec
- Innu
- Inuit
- Naskapi

AVRIL 2023 / APRIL 2023

1:2 500 000

0 25 50 km

NAD 1983 UTM Zone 20N

Produit: Carte 3-2 Communautés dans le secteur du projet (MELCCFP)
Date : 2023-05-03 09:43

Source:
Données topographiques / Topographic Data: NRCan (2022)

Carte 3-2
Communautés dans le secteur du projet

Map 3-2
Communities in the Project Area

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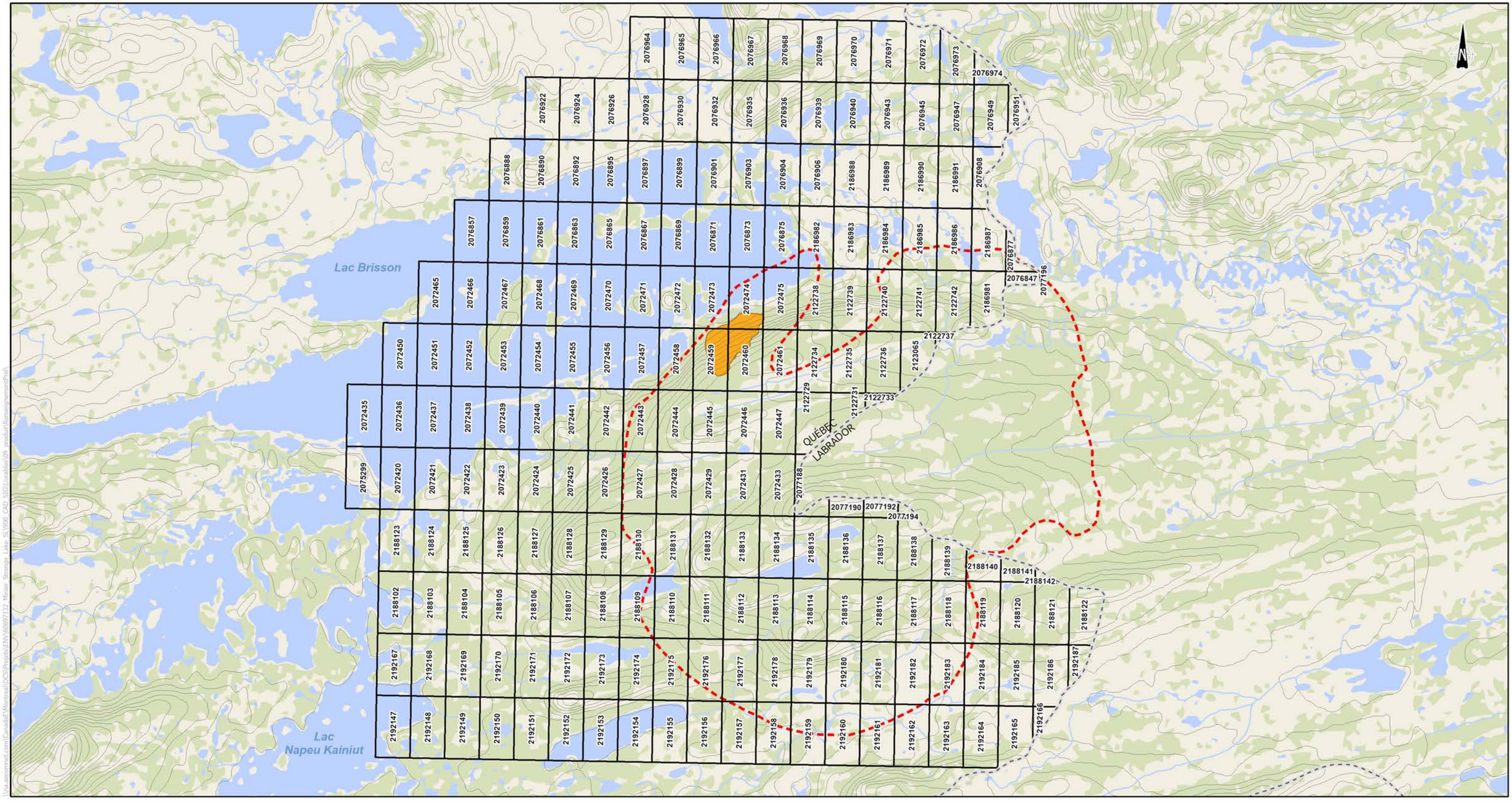
PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT



Complexe alcalin du lac Strange / Strange Lake Alkalic Complex

Gisement minier de la Zone B / B-Zone Mineral Deposit

Titre minier actif de Torngat Metals / Torngat Metals Active Mining Claim

AVRIL 2023/ APRIL 2023

1:55 000

0 500 1 000 1 500 m

NAD 1983 UTM Zone 20N

Produit: Carte 3-3 Titres miniers de Torngat (MELCCFP)

Date : 2023-05-03 09:36

Source:
Données topographiques / Topographic Data: NRCan (2022)
Titres miniers / Mining Claims: MRNF (2023)

Carte 3-3
Titres miniers de Torngat

Map 3-3
Torngat Mining Claims

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Several mineral resource estimate reports as well as preliminary economic assessments (PEA) have been published, along with the field work. In 2010, Wardrop published a Technical Report on the mineral resource estimate on the Strange Lake B-Zone deposit (updated 2011) as well as a PEA (Wardrop, 2010 a., 2010 b, 2011). In 2012, Micon (Micon, 2012) prepared a new estimate of the mineral resources of the deposit and published a pre-feasibiliy study (PFS) in December 2013 followed by a PEA in 2014. This report was successively updated in 2014, 2017 and 2019 (Micon 2014, 2017, 2019). In the 2019 report, Micon presented a new interpretation of the deposit geological model, by Renaud Geological Consulting, also a signatory of the 2019 Micon report.

Overall, the surveys conducted over the past few years are likely to result in significant changes to the mining operations, particularly in terms of processes and infrastructure, which should have a positive influence on the environmental footprint of the Torngat Mine Project.

3.1.3 Geology

The rare earth deposit of Lac Brisson (Lake Strange) is located in the Churchill province, which outcrops in northeast Québec. The Southeast Churchill Province (SECP) straddles the Québec-Labrador border (MRNF, 2020). The Churchill province is delimited to the west by the Superior province, by the Nain province (North Atlantic Craton and Burwell Lithotectonic Domain) and the Makkovik province, to the south by the Grenville province. The SECP is subdivised in 6 lithotectonic domains, which are from west to east: Labrador Trough, Rachel-Laporte, Baleine, George, Mistinibi-Raude and Falcoz. The project area is located in the eastern-central part of the Mistinibi-Raude Lithotectonic Domain (MRNF, 2019). This domain is generally oriented north-south, and measures approximately 290 km in length by 30 km to 70 km in width. It is characterized by an important proportion of intrusive rocks, mainly of intermediate to mafic composition. The Lac Brisson Pluton (Strange Lake Peralkaline Complex or Strange Lake Alkaline Complex) to which the deposit is associated, differs slightly from the other intrusions by younger ages (1240 Ma) (MRNF, 2023; Charest et coll., 2019). It can be noted that the term “Strange Lake” is generally used to refers to mineralized zones and mining property.

Map 3-4 illustrates the Strange Lake Alkaline Complex (SLAC) as well as the property geology in relation the site topography.

This region hosts many rare earth elements as well as base metal and actinides showings. Among them, the Crater Lake mining project, located approximately 100 km south of the Lac Brisson site. This project intends to exploit a scandium deposit (MRNF, 2023; Dubé-Loubert et coll., 2016).

3.1.4 Mining material geochemical characterization

In 2012 et 2013, around thirty ore samples were characterized following the Directive 019 on the mining industry (MDDEP, 2012). This directive is still in effect but some sections are currently being revised and a new guide on mine residue and ore characterization (Guide de caractérisation des résidus et du minerai) is now in force (MELCC, 2020), as well as a guide for the recommended radionuclide for the analysis of radioactivity in environmental matrices (Guide des Radionucléides Recommandés pour l’Analyse de la Radioactivité dans les Matrices Environnementales - MELCC, 2017). Samples with low, medium and high grade of rare earth elements have been analysed (Bernier 2013).

Following the Directive 019 criteria, those samples cannot be described as “low risk” because of the silver, arsenic and copper content. Moreover, those elements have a leachable risk level classified as “intermediate”. Also, following the same criteria, the tested samples do not present a risk of acid generation. As for the radioactivity risk in those same samples, it has been classified as “intermediate”.

Those conclusions will potentially be revised according to the company's mining plan and processes, following the updates of the Directive and the new characterization guides mentioned above. If needed, additional ore samples will be characterized in accordance with these guides, including residues and other mining materials that will be generated from completed or ongoing pilot tests.

Finally, because of the natural radioactivity in the deposit area, the guide on the recommended radionuclide for the analysis of radioactivity in environmental matrices will be considered in all physical and biological baseline studies to be conducted, as well as in the mine and process engineering design.

3.1.5 Subsequent phases

Beyond the 30-year horizon for the current mining plan, mineral resources in the B-Zone, as well as other potential deposits located in Québec on the Torngat properties and part of the Strange Lake Alkaline Complex, may be subject to future phases of mining.

Subsequent phases are not included in this project description and will not be considered in the environmental assessment.

3.2 Project Site Description

Describe the main components of the physical, biological, and human environments likely to be affected by the project, focusing on elements considered to be of scientific, social, cultural, economic, historical, archaeological, or aesthetic importance (valued environmental components). Identify, where applicable, the ownership status of the land where the project is to be carried out as well as the main characteristics of the site: zoning, available space, sensitive or water environment, wetlands, compatibility with current land uses, service accessibility, topography, buildings, Indigenous people's use and occupation of the land, etc.

Important Note: the information presented throughout Section 3.2 is based on data already obtained in the past. This data and information will be updated during 2023 and 2024 through additional data collection campaigns.

3.2.1 Physical environment

3.2.1.1 Climate

The SLBZ project site is located in the Taïga Shield ecozone (05), in the Kingurutik-Fraser Rivers ecoregion (05.3.077). Northern Québec is characterized by a cold sub-arctic climate with long cold winters with snowfall, and short cool summer. Average daily temperatures are above freezing only from May to September, and during the winter months the temperature can drop to -45°C. The average annual temperature minimum is -10ºC and the maximum is 0ºC. Snow and ice covering the freshwater are present for six to eight months of the year. Because evapotranspiration rates are low, the land is waterlogged in many areas during the summer months. The following table presents climate data for the nearest two weather stations, Nain (156 km) in Newfoundland and Kuujjuaq (325 km) in Québec.

Table 3-1: Station data for the calculation of climate normals in Canada from 1981 to 2010

	Nain - Newfoundland	Kuujjuaq - Québec
Daily average - January (°C)	-17,6	-24,7
Daily average - July (°C)	10,1	11,8
Extreme maximum (°C)	33,3	33,1
Extreme minimum (°C)	-41,5	-49,8
Precipitation (mm)	925,4	541,6
Snowfall (cm)	475,3	251,7
Rainfall (mm)	450,2	295,5
Average snow depth (cm)	33	17

Source: https://climat.meteo.gc.ca/climate_normals/

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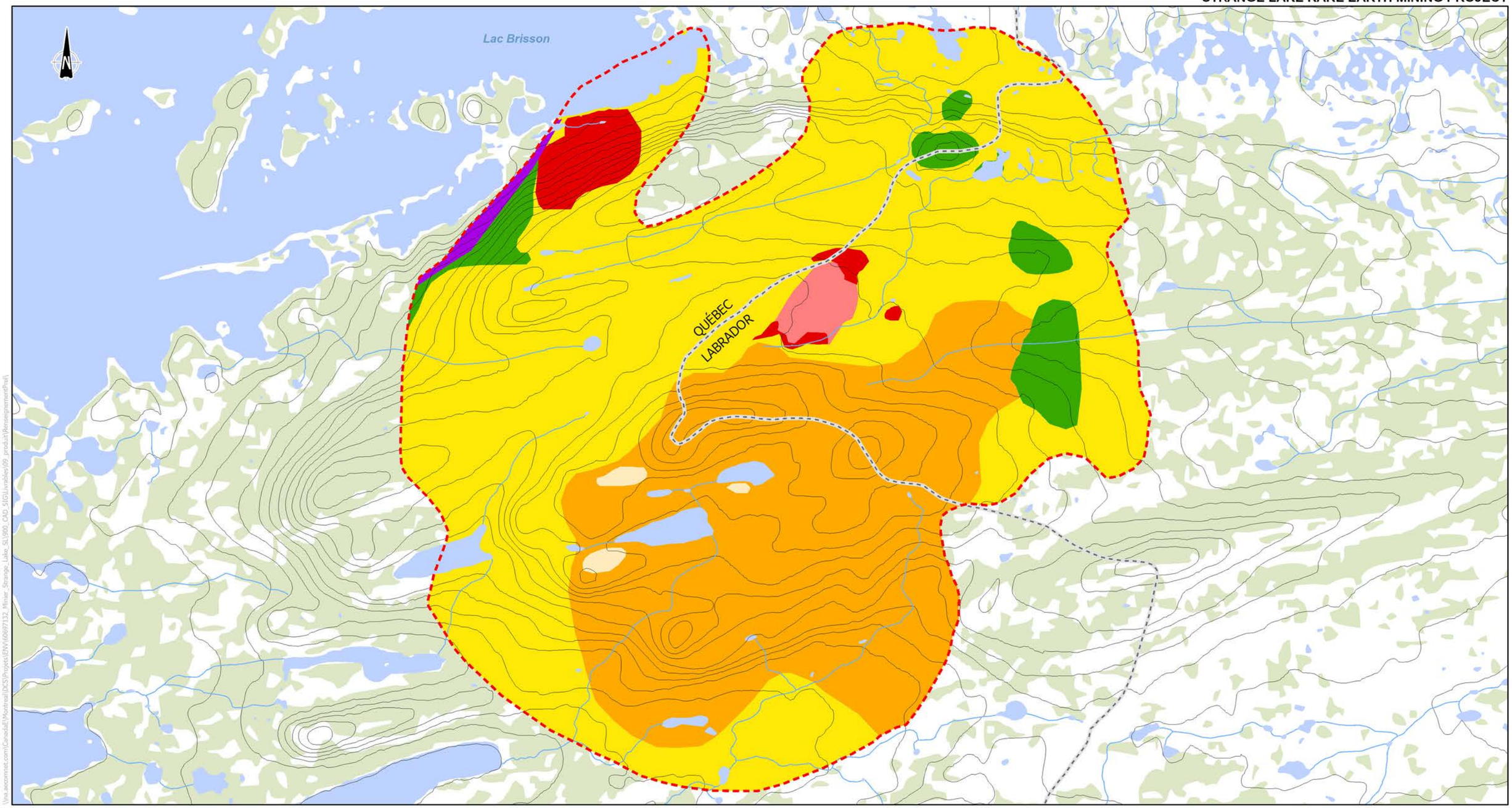

Complexe alcalin du lac Strange / Strange Lake Alkalic Complex
Granite avec inclusions enrichies / Enriched inclusion-bearing granite
Brèche à fluorite et hématite / Fluorite-hematite breccia
Granite peralcalain hypersolvus / Hypersolvus granite
Granite peralcalin subsolvus / Inclusion bearing subsolvus granite
Granite peralcalin subsolvus / Quartz monzonite
Pegmatite et aplite riche en terres rares / REE-bearing pegmatite-aplite
Gneiss indifférentié / Unsubdivided gneiss

1:35 000
0 1 km
NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic Data: NRCan (2022)
Géologie du roc / Bedrock Geology: Technical Report on the Preliminary Economic Assessment, MICON (2019)

Produit: Carte 3-4 Complexe alcalin du lac Strange (SLAC) et géologie du roc (MELCCFP)
Date : 2023-05-03 09:47

Carte 3-4
Complexe alcalin du lac Strange (SLAC) et géologie du roc

Map 3-4
Strange Lake Alkalic Complex (SLAC) and Bedrock Geology

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3.2.1.2 Ambient air quality

The closest air quality monitoring station to the project site is located in Goose Bay and measures only "ground-level ozone"[4]. However, baseline data was collected in situ at the Strange Lake mine site in the fall of 2011. Ambient air quality parameters were selected based on the various pollutants likely to be emitted by the project since few pollutants from anthropogenic sources are emitted at the site location. The following pollutants were monitored: $PM_{2.5}$, PM_{10}, Total Suspended Particles (TSP), metals including a selection of eight rare earth elements ("particles"), SO_2, NO_2, volatile organic compounds (VOC), asbestos and radon. No anomalies were found, and the air quality test results were typical of remote and undeveloped areas.

3.2.1.3 Ambience noise level

In the fall of 2011, the baseline sound pressure (noise) was assessed at the mine site for 24 hours, at a suitable distance (>1 km) from any active exploration drilling area to minimize noise interference.

The maximum hourly ambient sound levels (LAeq 1h) at the monitoring site were 37.7 dBA during the day and 31.5 dBA at night. These values are below the most stringent noise criteria (45 dBA-day, 40 dBA-night) set out in the mining industry Directive 019.

3.2.1.4 Surficial geology, geomorphology, and permafrost

Baseline conditions that relate to surficial geology, geomorphology, and permafrost were assessed and described based on existing data, through a field survey program conducted in 2011, as well as review and interpretation of available aerial photos, including a high precision orthophotograph (15-25 cm ground resolution) covering the mine site, produced in September 2012. The following paragraphs summarize the information obtained.

3.2.1.4.1 Surficial geology and geomorphology

The Lac Brisson area is characterized by a rocky plateau with a gentle slope towards the Ungava Bay lowlands. This plateau has an average altitude of 460 m and is crossed by the George River. The regional morphology is controlled by the different glacial phases, as well as by the Naskaupi glacier-dammed lake (Dubé-Loubert et al., 2016). The entire study area was covered by the Laurentide Ice Sheet during the last phase of the Wisconsinan glaciation. The mine site is covered by a thick layer of glacial deposits consisting of basal till topped by ablation till. The till has a greyish matrix, composed of silt and sand with some clay containing centimetric to millimetric clasts (Dubé-Loubert et al., 2016). This region is characterized by the presence of several typical east-northeast/west-southwest oriented glacial landforms, parallel to the ice flow: roche moutonnée (sheepback/rounded glacially shaped rock), drumlins and "crag and tail". Rogen moraines are also found, which appear as ridges of till arranged perpendicular to the flow of the glaciers. A thin layer of organic matter usually covers the till. Surface drainage is poor on the till, especially in depressions between drumlinoid ridges. Glaciers have also left fluvio-glacial deposits forming wide bands that are clearly visible in the study area. The presence of kames and kettles as well as eskers forming long sinuous ridges in the landscape is typical of this area. The thickness of the eskers varies between 5 and 25 m (Micon, 2019). They are generally composed of fluvioglacial sands and gravels with some imbricated pebbles. A glacial dispersal more than 40 km long can also be observed downstream of the deposit (Dubé-Loubert et coll., 2016).

[4] National Air Pollution Surveillance Network (NAPS).

3.2.1.4.2 Permafrost

The mine site is located in an area of discontinuous permafrost where the ground remains permanently frozen below the surface over at least 50% of the land area. Several landforms, typically associated with the presence of permafrost, are present in the studied site. These include extensive frost boils fields, areas of polygonal ground, frost mounds, and thermokarst lakes. The occurrence of some of these thermokarst lakes suggests that permafrost is undergoing local deterioration in the project site. The ground thermal regime is dynamic and sensitive to changes in soil properties, surficial cover (including snow), climate and groundwater. Recent studies have shown that the thickness of the active layer appears to be deepening as a result of climate change.

3.2.1.4.3 River geomorphology and hydrology

Water is ever-present in the northern Québec landscape. The mine site is characterized by the presence of lakes, wetlands and tributaries that drain the area over frozen impermeable substrates, thick to shallow basal till down to the bedrock. Approximately 80% of the mine site area is drained to Lake Brisson, which drains into Lake Napeu Kainiut and then into the Déat River watershed, ultimately leading to the George River (approximately 100 km downstream; Map 3-5)

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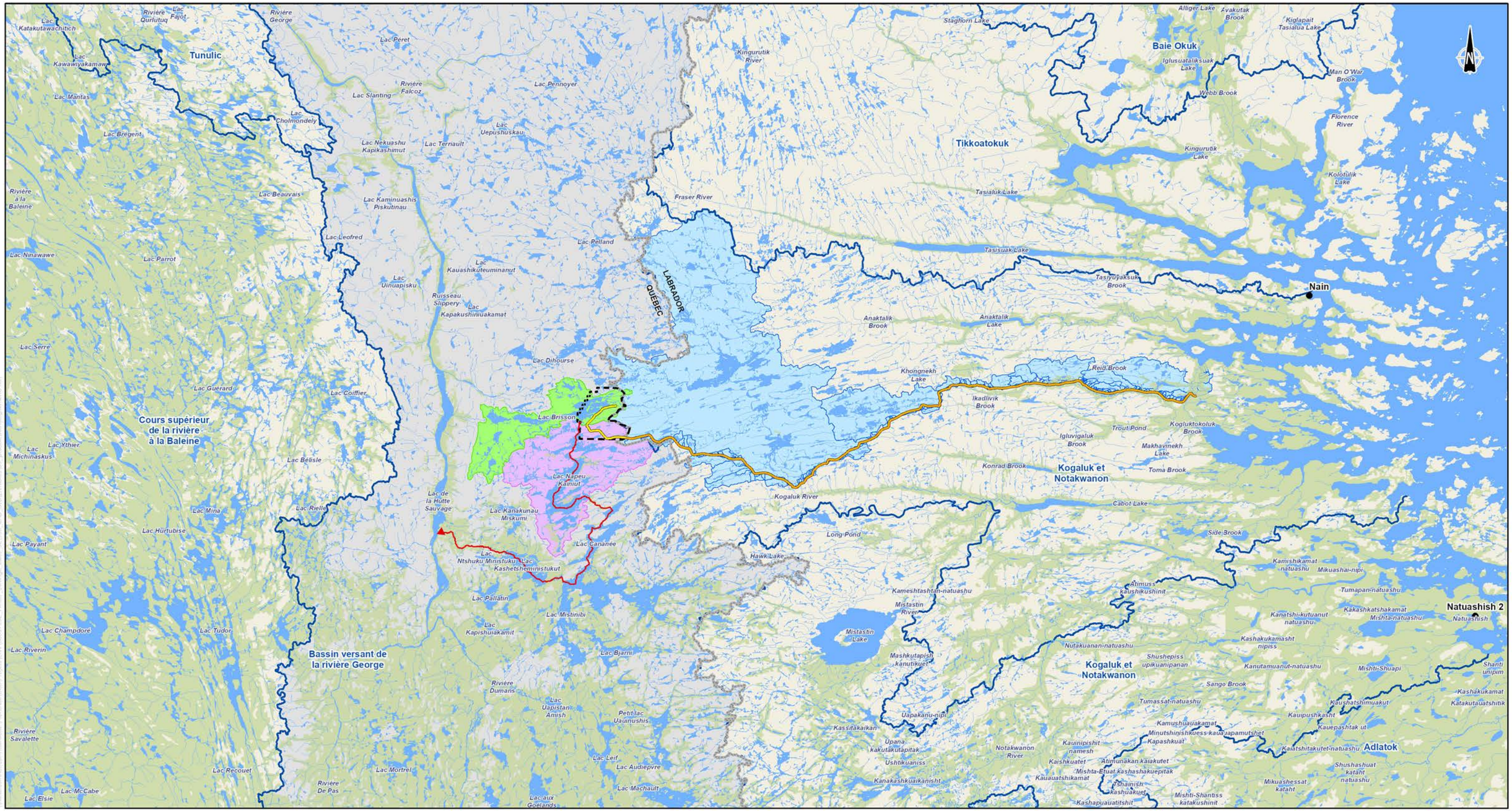
STRANGE LAKE RARE EARTH MINING PROJECT



Composante du projet / Project Component

- Route d'accès saisonnière proposée (Québec) / Proposed seasonal access road (Quebec)

Activités connexes au projet / Project Related Activities

- Limite des concessions d'exploration minières détenues par Torngat / Outline of Torngat's Mineral Exploration Claims
- Route d'accès saisonnière proposée (Labrador) / Proposed seasonal access road (Labrador)

Hydrographie / Hydrography

- Trajet de l'écoulement du lac Brisson à la rivière George / Water flow from Brisson lake to George river
- Bassin versant / Watershed
- Bassin versant de la Rivière George / George River Watershed
- Sous-bassin versant du lac Brisson / Brisson lake sub-watershed
- Sous-bassin versant du lac Napeu Kainiut / Napeu Kainiut lake sub-watershed
- Sous-bassin versant de la route d'accès / Access Road Sub-Watershed

Autre / Other

- Frontière Québec et Labrador / Quebec and Labrador border

AVRIL 2023 / APRIL 2023

1:800 000

0 10 20 km

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)
Bassin versant / Watershed: National Hydro Network, RNCan (2023)

Produit: Carte 3-5 Bassins versants dans le secteur du projet (MELCCFP)
Date : 2023-05-03 09:51

Carte 3-5
Bassins versants dans le secteur du projet

Map 3-5
Watersheds in the Project Area

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3.2.1.5 Limnology

Limnology in Northern Québec is typically represented by oligotrophic conditions, i.e., waters characterized by low nutrient input and low biological productivity. This is the case for the two main lakes in the study area, Lake Brisson and Lake Napeu Kainiut. Even though these lakes are fed by several small lakes, ponds, and streams, some of which are intermittent, these oligotrophic conditions have been documented through various laboratory analyses of water samples, as well as *in situ* measurements of surface water quality parameters.

3.2.1.6 Surface water quality

Surface water quality was monitored in 2011 and 2012 at a total of 23 sampling stations located throughout the project site to account for the spatial variability of the different water bodies. Timewise, water quality data were acquired across four seasons, including winter, and indicated relatively low concentrations of metals, radioisotopes, nutrients and other elements across the study area. The results indicate some seasonal and interannual variability for key parameters.

3.2.1.7 Soils quality

Soil quality was assessed based on the results of analyses performed in 2011 and 2012 on 33 soil samples collected at a depth of 0.3 to 0.5 m and distributed throughout the project study area. Sampling was done in accordance with the 2011 and 2012 procedure. The results are as follows:

- Soil quality test results show consistency across the site, including rare earth element (REE) concentrations.
- Metals concentrations meet criterion « A » of MDDELCC (Churchill-Rae).
- For radioisotopes, low concentrations of Rd-226, Th-228, Th-230, Th-232, U-234 and U-238 were detected at some stations.

Total hydrocarbon, VOCs and PAH concentrations were all below their respective MDDELCC standards or detection limits for these parameters.

3.2.1.8 Sediment quality

Sediments were sampled in 2011 and 2012, at seven lacustrine stations in Lake Brisson and at 5 stations in streams. The results obtained for metals, rare earth elements and radioisotopes are considered to reflect natural and ambient levels specific to the study area based on local mineralogical conditions.

The results of the laboratory analyses of the nutrients indicators are consistent with oligotrophic conditions. PAHs and HP C_{10}-C_{50} were at concentrations below the reporting detection limits (RDL).

3.2.2 Biological environment

As already mentioned, the information presented here is based on data already obtained in the past. This baseline data will be updated as part of the impact study.

3.2.2.1 Vegetation and Wetlands

The project area is characterized by arctic vegetation dominated by wetlands. During the floristic surveys conducted in 2011 and 2012, wetlands covered 45% of the study area. Also, during these surveys, low habitat diversity was observed. Tall shrubs (dwarf birch and bog bilberry) and trees (white spruce) were restricted to the transitional slopes between the central plateau and Lac Brisson, as well as along streams and the edges of some lakes (larch). Greater plant diversity was found in riparian areas and near the shores of Lac Brisson. The most diverse environments were fens and marshes with calciphilous flora. Snowbeds were also unique microhabitats for the flora.

A total of 88 vegetation stations and 43 observation points were carried out during the floristic surveys conducted in 2011 and 2012. Within the boundaries of the vegetation stations and observation points, 115 species of vascular plants were recorded, including two tree species, 38 shrub species, and 75 herbaceous species.

3.2.2.2 Aquatic environment and fish habitat

3.2.2.2.1 Fish Community

Fishing efforts were conducted over two years (August 2011 and August 2012) at the mine site. Fish were captured at all but two of the fishing stations. One of these is located near the proposed low grade ore stockpile.

The eight species caught (Arctic char, brook trout, lake trout, round whitefish, longnose sucker, burbot, lake chub and mottled sculpin) are fish species typically found in cold freshwater. Longnose sucker and lake trout were the most abundant species in lakes, while brook trout was the dominant species in stream catches. Juveniles of lake trout, lake chub and longnose sucker were also found in some streams. Arctic chars have been found in the same lake habitats as brook trout.

3.2.2.2.2 Salmonid spawning sites

Lake Brisson

Surveys were conducted with the installation of egg collectors on two potential salmonid spawning areas to document their use of spawning habitat in Lake Brisson to ensure that these sensitive habitats are not impacted by the project. Of the potential habitats surveyed, one spawning site was confirmed in October 2012 along an esker near a tributary leading to Lake Napeu Kainiut. However, no eggs were observed in the area closer to the B-Zone deposit.

Surrounding rivers and small lakes

Regarding stream habitats and surrounding small lakes, fall investigations were conducted at sites with preferential characteristics for salmonid reproduction. A potential brook trout spawning area was identified (concentration of spawners) at the fishing station at the entrance to the bay proximal to the spawning ground along the esker.

3.2.2.2.3 Community of benthic invertebrates

Generally, benthic invertebrate communities at lacustrine and lotic stations are composed of species that are relatively tolerant to nutrient enrichment and metal contamination of the water.

3.2.2.3 Amphibians and reptiles

No amphibians or reptiles were observed or heard in and around the project study area during the various field surveys conducted in 2011, 2012, and 2013. However, the mink frog and wood frog may be present at this latitude.

3.2.2.4 Avian fauna

Almost all species present during the 2011 bird surveys were migratory birds, with the exception of ptarmigan and some year-round forest species.

Eleven species of waterfowl and one species of loon were observed. The species with the highest number of individuals was the Canada goose, followed in abundance by the long-tailed duck, red-breasted merganser, green-winged teal, greater scaup, northern pintail and common loon.

Three pairs of Harlequin duck and at least six males were observed on two separate dates in June in the white waters flowing between Lake Brisson and Lake Napeu Kainiut. Another pair of Harlequin ducks was located about 700 m northeast of Lake Napeu Kainiut.

A total of 43 birds of prey of six different species were observed within 20 km of the mine site. The rough-legged hawk was the most common (27 observations), followed by peregrine falcon (7), short-eared owl (3), golden eagle (3), bald eagle (2) and osprey (1). Also, a total of 13 active nests were located. The nest (peregrine falcon) closest to the project area was located 5 km from the B-Zone deposit.

A total of 20 passerine and landfowl species were also detected, with abundance and density generally increasing in tall, medium, and treed shrublands.

3.2.2.5 Mammals

3.2.2.6 Caribou

In June 2011, 480 caribou were seen within a 20 km radius of the project area, but the surveyed area did not appear to have been used for calving, as none of the individuals observed were females accompanied by a calf.

Map 3-6 presents the Caribou protection areas.

Using telemetry data available from the MRNF (formerly MERN) from 2000 to 2012, the southern limit of the traditional calving grounds of the George River herd was located at least 40 km north of B-Zone. The same data indicate that a small proportion (4.3%) of tagged caribou were located within 30 km of the project area. During the annual migration cycle, September and October are the months when the greatest number of marked caribou moved near the project area during their fall migration to reach winter habitats located to the south and east.

This data will be updated with telemetry data available for the years following 2012. Additional field inventories are also planned for 2023 and 2024.

3.2.2.7 Other mammal species

During a survey of snow tracks around the mine site in 2012, tracks of seven different animal species were observed, primarily in wooded areas. Arctic fox and red fox tracks were most frequently observed in the plots.

Five species were identified during a survey of micromammals: the deer mouse, the common vole, the eastern heather vole, the Gapper's red-backed vole and the common shrew. These are common species in northern Québec and Labrador.

During summer, the most frequently observed mammals were black bear, arctic fox, red fox, arctic hare, red squirrel, and gray wolf.

3.2.2.8 Species at risk

The following text presents the conservation status for sensitive species observed during the 2011, 2012 and 2013 surveys:

- The Harlequin duck is listed as a species of special concern in Canada and is considered vulnerable under the legislation of Québec and Newfoundland and Labrador.
- All raptor species observed, with the exception of the osprey and the rough-legged hawk, have conservation status under provincial or federal legislation.
  - Golden eagle: no federal status but considered vulnerable in Québec
  - Peregrine falcon: no federal status but vulnerable in Québec and in Newfoundland and Labrador
  - Bald eagle: no federal status but considered vulnerable in Québec
  - Short-eared owl: federally special concern, vulnerable in Newfoundland and Labrador and likely to be designated threatened or vulnerable in Québec. It should be noted that it is currently under review to change its status. It is considered threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).
- Caribou are an important issue given the value of this animal to Indigenous and non-Indigenous people in Québec and Newfoundland and Labrador, and the recent decline in the George River migratory herd population (from 74,000 in 2010 to 14,200 in 2014). Despite this, this population does not have legal conservation status. COSEWIC, for one, considers it endangered and it is currently under review for addition to the SARA schedule. This migratory population is not listed as threatened or vulnerable in Québec or in Newfoundland and Labrador.
- No other wildlife or plant species with conservation status were observed during the 2011, 2012 and 2013 surveys.

3.2.3 Social environment

3.2.3.1 Land use and traditional ecological knowledge

The development of the Strange Lake Mining Project could result in potential changes to land and resource use, including the activities of the Nunavik Inuit, the Naskapi of Kawawachikamach, the Innu of Québec, the Labrador Inuit and the Labrador Innu.

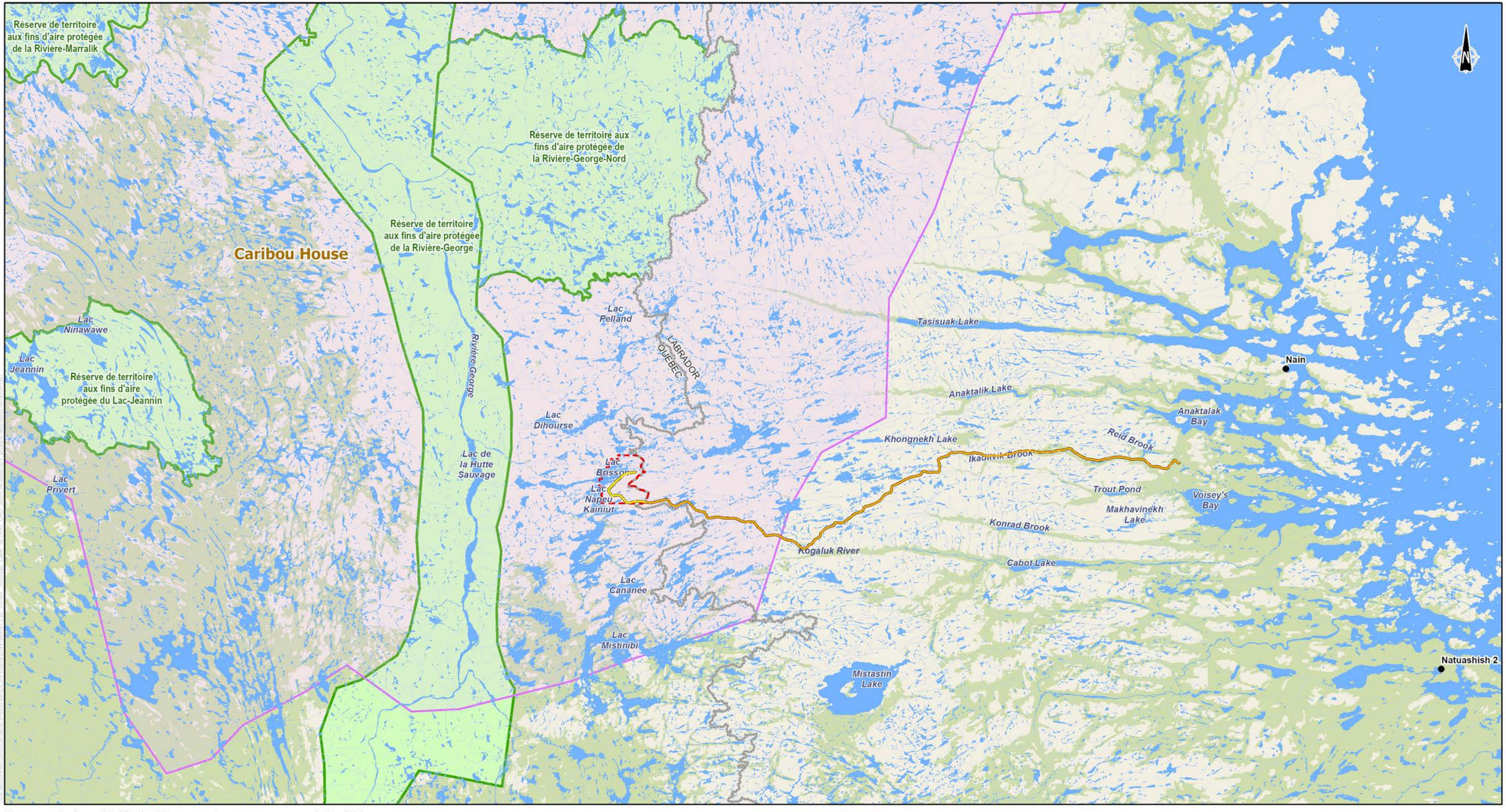
A study on land use and traditional ecological knowledge related to these groups was conducted between 2012 and 2013. The study revealed that the territories located within or bordering the project study area were traditionally used by several Indigenous groups. It also showed that some groups were still visiting these territories. However, the use described was sporadic and of low intensity in the area of the project site. The Inuit of Kangiqsualujjuaq, who use the Georges River extensively, had also expressed concerns about the potential effects of the proposed project on the water quality of the river.

In addition, the 2012-2013 study showed that both Indigenous and non-Indigenous businesses were proposing recreational tourism activities near the proposed mine site. The owner of one of these businesses, an Innu from Matimekosh, expressed concern about the potential effects of the project on the water quality of the Georges River, along which he was operating.

It can be expected that the issues identified as a result of the land use and traditional ecological knowledge study conducted in 2012-2013 are still present today. In order to provide an updated portrait of the situation, a new study will be carried out with the same Indigenous groups and businesses previously consulted, in order to see how the situation has evolved, if certain issues have disappeared or changed, and conversely, if new issues have emerged. This will make it possible to describe the current use of the territory by the groups and businesses concerned, but also to collect their expectations and concerns regarding the current project.

TORNGAT

PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT



Composante du projet / Project Component

Route d'accès saisonnière proposée (Québec) / Proposed seasonal access road (Quebec)

Activités connexes au projet / Project Related Activities

Limite des concessions d'exploration minières détenues par Torngat / Outline of Torngat's Mineral Exploration Claims

Route d'accès saisonnière proposée (Labrador) / Proposed seasonal access road (Labrador)

Autre / Other

Frontière Québec et Labrador / Quebec and Labrador border

Aire protégée / Protected area

Caribou House

AVRIL 2023 / APRIL 2023

Source:
Données topographiques / Topographic data: RNCan (2022)
Aire protégée / Protected Area: MELCC (2023)
Caribou House: https://nunatukavut.ca/site/uploads/2019/05/upcart-strategy-2017-11-07-eng-signed-sm.pdf, SNAP (2017)

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Produit: Carte 3-6 Aires de protection du Caribou (MELCCFP)

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Carte 3-6
Aires de protection du Caribou

Map 3-6
Caribou Protection Areas

AECOM

3.2.3.2 Socio-economic conditions, local capacity analysis and workforce analysis

As part of the Quest Rare Minerals project, studies were conducted in the various Indigenous and non-Indigenous communities likely to be affected by the project to describe the socio-economic conditions, local services, and labour capacity. Several issues were raised. For Indigenous communities, these issues included education and schooling levels, health, social problems, and economic characteristics such as limited employment opportunities, high unemployment, and low levels of specialization skills. All Indigenous groups interviewed shared common values related to the preservation of natural habitats and traditional harvesting activities. The non-Indigenous communities affected by the Strange Lake Mining Project (i.e., Schefferville, Fermont, Sept-Îles) were experiencing an economic boom in the mining and/or resource sectors, resulting in an increasing demand for accommodation, infrastructure and municipal services.

A new literature review through available sources will be conducted to gather up-to-date socio-economic information about the communities, to properly describe and assess the local services and workforce.

Telephone interviews will also be conducted with key individuals in the affected communities and government organizations to document specific topics, such as education, health care and health issues, social services and social issues, housing, economic development, as well as the labour force situation and the ability of local businesses to meet the needs of Torngat Metals.

3.2.3.3 Human health and psychosocial impacts

Regarding human health, a risk assessment on human health and the environment was planned in 2013. The first step of this study was completed, namely the conceptual model for the entire project (mine, road, port, refinery plant). This conceptual model allows the identification of contaminants of potential concern (including radionuclides), the identification of ecological and human receptors potentially exposed to the project activities and the identification of exposure pathways for the receptors retained for the risk assessment. This conceptual model, based on the Quest Rare Minerals project, will need to be updated based on the planned activities for the Torngat project.

No psychosocial impact study was conducted for the Quest Rare Minerals project. A full psychosocial impact study will be conducted for the current project.

According to the MELCCFP, "psychosocial impacts refer to the consequences (reactions or actions), whether positive or negative, resulting from the perception that individuals and social groups have of a project (satisfaction, well-being, relief, stress, anxiety, anger, flight or avoidance behaviours, fatigue, insomnia, depression, etc.). They may be associated with major sources of impact such as involuntary residential relocations, if any, nuisances experienced or felt by residents, and perceived risks to their health and safety".

In order to identify the issues and assess the impacts on these issues, the concerns, perceptions and possible consequences (reactions and actions) of the population regarding the project will be documented during interviews and during the stakeholder engagement program, and then analyzed.

3.2.3.4 Archeology

Two archeological surveys were conducted at the proposed Quest Rare Minerals project site in 2011 and 2012. A cache possibly dating to the maritime archaic age had been found at an elevation of 508 m above present sea level, and potentially on the shores of the former Naskaupi glacial lake. This small stone pile was located at the edge of the B-Zone mineral deposit, approximately 500 m from shore and 63 m above the level of Lake Brisson. It was anticipated that this structure could be affected by the last part of the proposed project mining plan.

Three concentrations of quartz chips of anthropogenic origin as well as a concentration of burnt bone fragments were also found on the surface, within a 100 m^2 area. This site was located 7 m above the level of Lake Brisson, approximately 50 m from the helipad of the exploration camp and less than 100 m from the lake. A site with several stone chips had also been discovered near Lake Brisson, at the end of the airstrip at the exploration camp. These two sites had not been dated.

Additional work will be required to ensure that the new configuration of the mine site does not affect any potential archeological resources. Thus, an archeological reassessment will first have to be carried out, which will possibly lead to an archeological survey on site. Furthermore, an archeological excavation will be required on the site identified in 2012-2013 within the B-Zone mineral deposit of the mine site.

3.2.3.5 Landscape

A landscape study was conducted in 2012-2013 for the Quest Rare Minerals project. It showed that the area of the proposed mine site is characterized by open, sparse, and stunted vegetation over a series of hills and depressions, which allows the viewer a wide field of view over rolling topography with little human development. This is the case in most viewpoints and especially when navigating the eastern portion of Lake Brisson. The study conducted at the time also indicated that this landscape was used infrequently and was therefore considered to have moderate intrinsic value to Indigenous and non-Indigenous users.

Since the configuration of the proposed mine site is not exactly the same as that planned for the Quest Rare Minerals project, and since the use of the area in question may have changed since the last study, a new landscape study is planned as part of this project.

3.2.3.6 Areas of Interest

There are no known protected areas in or immediately adjacent to the proposed project site. However, in addition to Kuururjuaq national Park, Ulittaniujalik national Park and Monts-Pyramides national Park reserve, all three of which are located more than 200 km north of the project site, there is the George River protected area reserve located approximately 30 km west of the proposed mine site. Averaging 40 km in width, this area extends approximately 350 km along the George River.

3.3 Project Schedule

Provide the timetable for completion (expected period and estimated duration of each stage of the project), considering the time required for the preparation of the environmental impact assessment, if applicable, and indicate how the procedure will be carried out.

Torngat has developed a schedule outlining the duration and timing of key project phases including preparation, construction, operation, closure, and restoration, as well as environmental monitoring (post-operational, restoration phase) of the site. Following construction and start-up, the expected life of the mine is 30 years. Regular operations during this period will include maintenance, if necessary, replacement of certain original facilities.

A list of the main steps is provided below (Table 2-3).

Table 3-2: Strange Lake Project Milestones and Dates

Key milestone	Scheduled dates
Submission of preliminary Environmental Impact Assessment information	April 2023
Start of the final phase of the Pre-Feasibility Study	August 2024
Issuance of the Pre-Feasibility Study (PFS)	December 2024
Start of Feasibility Study (FS)	January 2025
Submission of the Environmental Impact Assessment report	May 2025
Feasibility Study completed	May 2025
Environmental Impact Assessment decision (MELCCFP/Kativik)	April 2026
Development and construction phases	**2026-2027**
Detailed engineering, applications for certificates of authorization, obtaining certificates and construction work (in phases)	2026-2027
Beginning of mining operations and start of mining processing	End of 2027
Operational phase (30-year operation)	**2027-October 2057**
Post-operation environmental monitoring (annual over 5 years)	2057-2062
Closure and restoration phase	**2057-2062**
Post-restoration environmental monitoring (annual monitoring)	2062-2072 (minimum duration)

3.4 Location Map

Add to appendix III a topographic or cadastral map of the project's location and, if applicable, a location plan of the work or activities at an adequate scale indicating, in particular, the infrastructures in place in relation to the work site.

The maps and figures produced as part of this document include topographic data available in the study area (Figure 3-1).

4 Information and Consultation Activities with the Public, Indigenous Communities, and Land Users

4.1 Information and consultation activities carried out

If applicable, mention the methods relating to public information and consultation activities carried out as part of the design of the project (methods used, number of participants and communities represented), including those carried out with local populations, including Crees, Inuit and Naskapis, as well as land users. Indicate the concerns and issues raised and explain how they have been taken into account in the design of the project.

4.1.1 Jurisdictions and other stakeholders consulted

As part of the Strange Lake Project, the following jurisdictions have been consulted: Kativik regional government (Inuit of Québec), the governments of Québec, Newfoundland and Labrador, Nunatsiavut (Labrador Inuit) as well as the federal government (IAAC). The project is also of interest to several Indigenous communities, non-governmental organizations, and other stakeholders.

As such, consultations were initiated with the following Indigenous groups:

Quebec:

- the Inuit of Nunavik, including the Makivik Corporation as well as the Northern villages and landholding corporations of Kangiqsualujjuaq and Kuujjuaq;
- the Naskapi Nation of Kawawachikamach;
- the Innu community of Matimekush-Lac John;

Labrador:

- the Nunatsiavut Inuit, including representatives from the assembly, the Nunatsiavut Group of Companies and the village of Nain;
- the Labrador Inuit, including Innu Nation and the communities of Natuashish and Sheshatsiu.

Consultations with non-Indigenous communities and groups that may show interest in the project have not yet been initiated.

4.1.2 List of consultation activities carried out

Since 2011, Torngat (Quest) has presented the project to various government stakeholders at the federal level and in Québec (table 4-1). The transboundary effects of the project were also discussed with various government agencies in Newfoundland and Labrador.

Torngat (Quest) also initiated informal meetings with northern Indigenous representatives as early as 2008. Beginning in 2011, a series of more formal meetings were held with key Indigenous communities, including update meetings following changes in authorities. Between 2015 and 2021, due to a decline in corporate activity, Torngat (Quest) has reduced its stakeholder engagement activities, keeping stakeholders informed of project updates. Since 2022, with new funding, Torngat has re-launched its formal consultation activities with the various government and Indigenous stakeholders mentioned above. Meetings with Nunatsiavut Assembly and Innu Nation officials were held in Ottawa in February 2023. During the same month, meetings were also held in Kuujjuaq with the Makivik Corporation, the Kativik Regional Government, and the Kuujjuaq Town Hall. A village assembly was also held in February 2023 in Kangiqsualujjuaq.

The consultation activities that have been carried out since 2011 have, among other things, made it possible to collect information essential to the completion of the impact assessment, particularly concerning the historical and contemporary use of the territory affected by the project as well as the socio-economic conditions of the communities. These activities also made it possible to identify their expectations and concerns in relation to the project, the main ones being: preservation of the water quality of the George River and its tributaries; protection of the caribou and valued species that are part of the populations diet; economic spinoffs that promote the sustainable development of the communities concerned; access to relevant project-related information; and the effective participation of communities in the development of the project. Tables 4-1 and 4-2 present a summary of the Indigenous groups and other stakeholders consulted to date.

Table 4-1: Governments and other institutional stakeholders consulted

Type of consultation activities	Date	Stakeholders
Federal government– Initial presentation of the project, follow-up meetings and communications	2011 – ongoing	– Major Projects Management Office (MPMO) – Canadian Environmental Assessment Agency (CEAA) Representatives – Natural Resources Canada (NRCan) – Canadian Nuclear Safety Commission (CNSC) – Impact Assessment Agency of Canada (IAAC)
Government of Québec – Initial presentation of the project, follow-up meetings and communications	2011 – ongoing	– Mining Division of the Ministry of Natural Resources – Ministère du Développement Durable, de l'Environnement, de la Faune et des Parcs (MDDEFP) – Ministère de l'Environnement, de la lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) – Secrétariat aux Affaires autochtones du Québec – Investissement Québec – Société du Plan Nord
Discussions related to the development of the project in Québec	2014 – ongoing	– Québec Mining Association – Québec Mineral Exploration Association (QMEA) – Other mining and metallurgical companies

Table 4-2: Government bodies and Indigenous institutions consulted

Type of consultation activities	Date	Stakeholders
Inuit of Québec (Nunavik) – Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement processes	2012 – ongoing	– Makivik Corporation – Nunavik Research Centre – Nunavik Mineral Exploration Fund (NMEF) – Kativik Regional Government (KRG) – Municipal authorities of Kuujjuaq and Kangiqsualujjuaq – Kuujjuaq and Kangiqsualujjuaq Land Corporations – KRG Sustainable Employment Service – Representatives of the employment sector of the Northern Village of Kangiqsualujjuaq – KRG Regional and Local Development Service – School principals in Kuujjuaq and Kangiqsualujjuaq – Representatives of the Kuujjuaq and Kangiqsualujjuaq health centers – Community meetings with elders and users of the territory in Kangiqsualujjuaq and Kuujjuaq
Naskapi Nation of Kawawachikamach – Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement processes	2011 – ongoing	– Leaders of the Council of the Naskapi Nation of Kawawachikamach – Elders, land users and community members of Kawawachikamach (through a public meeting) – Department of Public Works – Naskapi Nation Office – Naskapi Land Corporation – Naskapi Nation Police Services
Innu of Québec – Information meetings and community engagement processes	2012 – ongoing	– Council of the Innu First Nation of Matimekush-Lac John – Aventures Ashini – Friends of Mushuau-Nipi
Labrador Inuit (Nunatsiavut) – Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement processes	2011 – ongoing	– Nunatsiavut Government leaders and ministers – Nunatsiavut Secretariat – Nunatsiavut Department of Land and Natural Resources – Nunatsiavut Department of Education and Economic Development – Nunatsiavut Department of Health and Social Development – Nunatsiavut Department of Culture and Tourism – Department of Nunatsiavut Affairs – Government representatives of the Nain Inuit community – Community meetings with elders and members of the Nunatsiavut Inuit community in Nain – Nunatsiavut Group of Companies

Table 4-2: Government bodies and Indigenous institutions consulted (continued)

Type of consultation activities	Date	Stakeholders
Labrador Innu Nation – Baseline studies on socio-economic aspects and traditional land use, information meetings and community engagement processes	2012 – ongoing	– Leaders of the Labrador Innu Nation – Innu Development Limited Partnership (IDLP) – Innu Mikun – Mushuau Innu Band Council of Natuashish and Sheshashit Innu Band Council – Environment Office of the Innu Nation of Labrador – Economic development advisors for the Mushuau Innu First Nation and the Sheshashit Innu First Nation – Community Health Department of the Sheshatshiu Innu First Nation – Community meetings with users of the territory and other members of the communities of Natuashish and Sheshashit

Meetings with non-Indigenous stakeholders were organized by Torngat including business representatives in communities such as Schefferville and Happy Valley-Goose Bay - private meetings or public forums, such as trade shows or presentations (e.g., at local chambers of commerce).

The (preliminary) stakeholder engagement strategy is available in appendix C.

4.2 Information and consultation activities planned during the environmental and social impact assessment

If applicable, mention the terms and conditions relating to public information and consultation activities during the environmental and social impact assessment, including those envisaged with the Indigenous communities and the land users of the territory concerned.

As part of the environmental and social impact assessment, Torngat plans to carry out new information and consultation activities with institutional stakeholders and communities affected by the project. Torngat will carry out, but will not be limited to, the following activities:

- Consultation with government departments and agencies to obtain baseline data for physical, biological, and social environmental studies.
- Program of periodic visits to concerned Indigenous communities to inform them of project updates and opportunities.
- Implementation and work in collaboration with local monitoring committees and liaison officers (in the main affected communities; Kangiqsualujjuaq and Kawawachikamach in Québec, and Nain and Natuashish in Labrador) on the main issues raised by the project.
- Consultation program that combines various techniques: village assemblies, interviews with target groups (land users, elders, youth, men, women), individual interviews with key stakeholders within the communities (local government services).
- Establishment of consultation mechanisms for community members to express their questions and viewpoints online.

All the results of these consultation activities will be listed in the stakeholder management system developed by Torngat as part of the project.

5 Description of the Main Issues[5] and Anticipated Impacts of the Project on the Receiving Environment

5.1 Description of the main project issues

For the development, construction, and operation phases and, if applicable, closure and restoration, briefly describe the main issues of the project.

The main issues in the context of a new mining project are related to modifications, alterations, gains, or losses of certain components to which concerns have been expressed and whose analysis could influence the decision regarding the authorization of the project. The main environmental and social issues specific to the Strange Lake rare earth mining project that can be identified at this preliminary stage of project development are summarized in table 5.1 and detailed in the following paragraphs.

The completion of pre-feasibility and feasibility studies will make it possible to validate or clarify these various issues, and eventually to identify new ones.

Table 5-1: Key environmental issues of the Strange Lake mining project

Development, construction	Operation	Closure, restoration	Issues	Physical environment	Biological environment	Social environment
X	X	X	Protection of human health and quality of life in communities	X	X	X
X	X	X	Protection of northern biodiversity, both flora and fauna, especially species at risk		X	X
X	X	X	Preservation of the quality and ecological functions of receiving environments, notably wetlands, bodies of water and soils, including permafrost	X	X	
X	X	X	Maintenance, access and conciliation of land uses			X
X	X	X	Climate change and the balance of GHG emissions	X		
X	X	X	Social acceptability			X

5.1.1 Issue - Protection of human health and quality of life in communities

The human health and quality of life of communities residing or active in the study area could be affected by the implementation of the different phases of the project, in particular with regard to:

- risks associated with the potential release of contaminants (metals, radioactive elements) into air, water or soil, and their movement through the ecosystem and food chain ;
- socio-economic impacts of the project ;
- psychosocial effects of the project.

[5] Issue: A major concern for the government, scientific community or the public, including the Aboriginal communities involved, whose analysis could influence the recommendations or decisions of northern committees regarding the authorization or non-authorization of a project.

More specifically, a rare earth mining project raises issues of toxicity and radioactivity of the contaminants generated by the different phases of the project. These concerns have been expressed in previous consultations conducted by Quest in the communities closest to the project in Québec and Labrador. Specific concerns relate to the consequences of mining activities on the quality of water, air, soil, or plants and eventually on the traditional diet of these populations (berries, caribou, fish). Therefore, a Human Health and Environmental Risk Assessment (HHERA) will be an integral part of the impact study that will be conducted for this project. This HHERA will identify not only the contaminants of concern but also the ecological and human receptors potentially exposed to the project activities and to identify the exposure pathways of the receptors retained for the risk assessment. The references used for this HHERA are those of the *Centre d'Expertise en Analyse Environnementale du Québec* (CEAEQ) on radiotoxic risks (2015) and other applicable guidelines from Health Canada and Environment Canada.

5.1.2 Issue - Protection of northern biodiversity, both flora and fauna, including species at risk and species of importance to Indigenous communities

The project's integration environment is both rich and fragile in terms of biodiversity. It includes sensitive habitats for species valued by Indigenous communities occupying or using the land, such as the caribou and the Arctic char. Species at risk are also likely to be found in the study area. The protection of biodiversity therefore concerns:

- protection of sensitive habitats of fish farming communities, benthic, plants, species at risk ;
- maintaining migratory corridors for caribou, Arctic char, and migratory birds ;
- protection and preservation of the territory's wildlife and flora resources valued by stakeholders, in particular by the Indigenous groups concerned (notably caribou, Arctic char, etc.).

5.1.3 Issue - Preservation of the quality and ecological functions of receiving environments, notably wetlands, bodies of water and soils, including permafrost

Due to its location in a territory characterized by numerous watercourses and the presence of permafrost, the project's integration environment has specific characteristics that must be taken into account and preserved as far as possible, in particular:

- hydrodynamic conditions (water and sedimentary regime, drainage) ;
- wetlands and riparian environments ;
- soils, including permafrost that may be affected by the excavation of a pit.

5.1.4 Issue - Maintenance and conciliation of land uses

The possible disruption land and resources use during the various phases of the project is a major issue. Indeed, the area where the project will be inserted is used by various Indigenous communities and potentially by Indigenous and non-Indigenous businesses. Maintaining access to the territory and reconciling current and planned uses is therefore an important issue for the project.

5.1.5 Issue - Climate change and the balance of GHG emissions

The purpose of the project is to exploit resources that are essential to the transition of the economy to renewable energy. Indeed, the main rare earth elements targeted by the exploitation will improve energy performance both during the production of electricity (e.g., wind energy) and during the use of electrical energy (e.g., motors). In this sense, the project aims to contribute to the fight against climate change. Nevertheless, the balance of GHG emissions of each phase of the project, the strategies for reducing these emissions and their possible offsetting are important issues.

As the project is carried out in a northern territory particularly sensitive to climate change, the risks arising from these climate changes on the implementation of the various phases of the project also constitute a significant issue.

5.1.6 Issue - Social acceptability

In accordance with the principles of sustainable development, social acceptability is an essential condition for the realization of any project likely to impact the biophysical and human environments. In the case of the Strange Lake rare earth mining project, acceptance of the project by the Indigenous communities directly affected will be particularly important.

5.1.7 Taking into account environmental and social issues in project design

Throughout the project and according to the phases, the application of specific and general mitigation measures will aim to reduce the anticipated impacts of the project on the receiving environment (see section 5.2). ***It is also very important to emphasize that, in accordance with the principles of sustainable development, environmental and social issues will be considered from the design stage of the project, so that the choice of facilities, technologies, equipment, work methods and management systems will be carried out with the goal of avoiding or reducing negative impacts, as well as improving positive environmental and social impacts. For this purpose, the stakeholders, in particular the Indigenous communities directly involved, will be consulted before and during the studies, to take into account their knowledge of the environment and their concerns.***

Since the anticipated issues and impacts of the project on the receiving environment are largely associated with the implementation of the project components, the reader is encouraged to refer to section 2.5 of this document. The following is a summary of the project phases and key activities:

- **Development phase (preliminary work) and construction:** installation of temporary facilities (camp, road), site preparation, fuel storage area, use and movement of machinery, road construction and infrastructure and establishment of the mine tailings accumulation area (stripping, excavation, grading, backfilling), water supply network, drainage of runoff water, mine water, domestic wastewater, etc. ;
- **Operational phase (30-year operation):** transportation and processing of ore, presence, and use of related infrastructure (plant, etc.), presence of workers (living environment and travel), waste management ;
- **Closure and restoration phase**: Closure of the mine site, appropriate remediation activities (progressive dismantling of project infrastructure; heavy equipment traffic, mobile and stationary equipment, materials; presence of workers (living environment and travel).

5.2 Description of the main anticipated impacts of the project on the receiving environment, planned mitigation or restoration measures

For the development, construction and operation phases and, if applicable, closure and restoration, briefly describe the anticipated impacts of the project on the receiving environment (physical, biological and human). Briefly outline the planned mitigation or remediation measures, if applicable. In the case of a "grey zone" project, provide sufficient information to assess the environmental and social impacts to determine whether it should be subject to the environmental and social impact assessment and review procedure. Outline planned mitigation or remediation measures, if applicable.

The main apprehended impacts of the Project on the receiving environment were considered by assessing the potential Valued Ecosystem Components (VECs) and analyzing their potential interactions with the Project. The following list presents the most relevant criteria for the selection of potential VECs:

- the recognition of the importance of a component through legislation, regulation or policy ;
- the sensitivity or vulnerability of the component ;
- the uniqueness or rarity of the component ;
- the sustainability (durability) of the component or ecosystem ;
- the value or importance assigned to the resource by stakeholders ;
- the risks to health, safety or well-being of the public ;
- the ecosystem characteristics of the northern environment beyond the forest line and in the presence of discontinuous permafrost.

Table 5-2 presents the key environmental components and indicators to consider as a basis for identifying VECs.

Table 5-2: Draft list of critical environmental components, key indicators and Project rationale for selection

Critical environmental components	Examples of key indicators	Rationale for choice
Physical environment		
Greenhouse gases, Air quality	• Greenhouse gases – Metric Tons of CO2 eq. • Concentration of ambient air contaminants (dust - PM, metals, VOCs, radioactive elements)	• Importance of complying with various provincial regulations and standards specific to the property limits • Essential to life and the maintenance of human health and well-being and the biological environment • Potential for transboundary effects, affecting Labrador
Acoustic environment (ambient noise and vibrations)	• Ambient noise level (dB), vibrations	• Importance of complying with different provincial regulations and standards specific to the property limits at the sensitive receptor location • Essential to life, the maintenance of human health and well-being, and the biological environment
Soil quality	• Soil quality • Soil stability • Effect on permafrost freeze-thaw cycle	• Importance for maintaining soil stability at the site • Serves as a pathway for interactions between the Project and other components of the environment
Water and sediment regime, water and sediment quality	• Surface and groundwater quantity and quality	• Importance to human life and ecosystem functions in the George River watershed • Serves as a pathway for interactions between the Project and other components of the environment
Biological environment		
Vegetation and wetlands	• Abundance and diversity of terrestrial plant communities • Abundance and diversity of wetlands	• Fundamental role in maintaining terrestrial, riparian and wetland ecosystems (biodiversity, hydrological function, wildlife habitats, traditional use of resources, etc.) • Susceptibility of certain types of vegetation in the northern environment to disturbance
Aquatic fauna (benthos, fish) and its habitats	• Species present and population abundance • Habitat quality and abundance	• Biological, cultural, recreational and subsistence significance • Legal protection of habitats under provincial and federal legislation • Maintaining biodiversity • Fragility (lower resilience, reduced growth rate, lower productivity) of aquatic habitats in northern environments
Avian fauna (migratory and non-migratory birds)	• Abundance and diversity of migratory and non-migratory birds • Habitat quality and abundance	• Social, cultural and economic importance (migratory bird watching and hunting) to local population and Indigenous people • Maintaining biodiversity
Caribou	• George River herd	• Biological, cultural and subsistence significance for Indigenous peoples • Herd in precarious situation following a drastic decline in the population

Table 5-2: Draft list of critical environmental components, key indicators and Project rationale for selection (continued)

Critical environmental components	Examples of key indicators	Rationale for choice
Biological environment		
Flora and fauna species at risk or in precarious situation	• Plants at risk, threatened or vulnerable • Animal species at risk, threatened or vulnerable	• Protection of species, their habitat and biodiversity • Legal protection of species and their habitat under the federal Species at Risk Act and the provincial Act respecting threatened or vulnerable species (e.g., harlequin duck, peregrine falcon)
Social environment		
Current and traditional use of land and resources - for Indigenous peoples and the general population	• Current and traditional use of land and resources for recreational or commercial purposes • Traditional and current use of land for subsistence, cultural or recreational purposes by Indigenous and non-Indigenous people • Protected areas	• Important and valued component on the socio-economic and cultural level • Reflects the characteristics, traditions and values shared by users from many communities, including Indigenous communities • Potential interactions with outfitters, adventure tourism businesses or protected area managers serving this region
Cultural heritage	• Historical, archaeological and heritage sites and resources	• Identification of a few sites, especially on the periphery of the proposed development • Management of these resources deemed important and at risk
Human quality of life and health	• Quality of life, well-being and health of people and communities	• Potential interactions between the Project and the population and communities, particularly Indigenous ones • Health risks arising from the potential emission of contaminants and their movement through the ecosystem, as well as psychosocial effects
Employment and economy	• Jobs • Workforce training • Local and regional economy • Business development in services, supplies and equipment	• Socio-economic impacts of the Project for local and regional communities (positive and negative)
Landscape	• Views of the mining complex, especially from Lake Brisson	• The tundra is recognized as a landscape devoid of trees and human infrastructure, so significant visibility of the Project is anticipated

Some of the potential environmental effects are outlined in more detail in the following subsections, based on the project phases and for the most likely VECs. VECs are discussed based on potential interactions with project impact sources for the different phases of the Project while combining them with specific mitigation measures to mitigate anticipated impacts.

5.2.1 Development and construction phases

The main activities likely to impact the receiving environment during this phase of the project are:

- Construction of the access road (and development of watercourse crossings)
- Site preparation (stripping, excavation, grading, backfilling, development of drainage systems, etc.)
- Improvements to the temporary camp facilities and fuel storage area
- Construction of airfield facilities
- Circulation of heavy machinery and fixed and mobile equipment, delivery of equipment to the site, etc.

- Construction of mine site infrastructure: retention basins, water treatment systems, storage areas, waste rocks piles, tailings accumulation area, traffic lanes, etc.)
- Construction and development of industrial plants and their buildings (crushing plants, concentration plants, utilities, etc.)

5.2.1.1 Physical environment

In terms of the physical environment, the impacts related to this phase are essentially:

- Greenhouse gases (GHGs): sources of emissions associated with fossil fuels, other sources of GHGs (e.g., explosives, etc.)
- Air quality: sources of atmospheric emissions (dust - particulate material, metallic dust, volatile organic compounds (VOCs), radioactive elements from the deposit). It should be noted that considering the proximity of the site to the provincial border, the study area will cover the areas potentially impacted on the Newfoundland and Labrador side
- Acoustic environment: noise level and vibrations: use of machinery, equipment
- Soil quality: soil disturbance by stripping, blasting, excavation, risk of contamination due to accidental spills, soil subsidence
- Water and sediment regime: modification of surface water flow patterns, water regime, possible increase in erosion and sediment transport in watercourses, sediment transport when breaches are opened), potential sanitary and mining discharges
- Water and sediment quality: potential detour of watercourses, erosion, risk of spills affecting the aquatic environment or groundwater, risk of increased SM

A series of typical mitigation measures to avoid or reduce impacts on greenhouse gases, air quality, soil quality, water and sediment regime, and water and sediment quality are presented below on a preliminary basis. The assessment of the impacts related to the issues raised and the development of mitigation measures in consultation with stakeholders, in particular the Indigenous communities directly concerned, will validate, refine and complete this preliminary list of mitigation measures.

Mitigation measures to minimize impacts – Physical environment (Development and Construction Phases) (preliminary)
Preliminary and regular inspection of the machinery to ensure its good condition and operation
Promote the use of machinery and vehicles that minimize air emissions (e.g., low fuel consumption), according to the latest Environment and Climate Change Canada (ECCC) standards, or zero-emission vehicles, for on-road and off-road vehicles
Promote the use of generators that minimize fuel consumption and therefore have low atmospheric emissions
Establish a procedure for shutting down heavy vehicles when they are not needed
Implement a preventive maintenance program, inspection of equipment to ensure its proper functioning
Use light vehicles that have effective mufflers to reduce noise level at the source
Use sound barriers (e.g., walls, vegetation, fences) around construction sites to limit the propagation of noise to sensitive receptors.
Apply dust control measures according to the conditions (meteorology) and development activities that have an impact on dust generation (e.g., construction of temporary access roads)
Inspect air conditioning, ventilation, and heating units to ensure proper operation of equipment and limit the risk of refrigerant leaks, if necessary

Mitigation measures to minimize impacts – Physical environment (Development and Construction Phases) (preliminary) (cont.)
Carry out preventive inspections of fuel storage areas and supply emergency kit for the recovery of petroleum products and hazardous materials available in vehicles, machinery and worksite facilities
Locate parking, washing and maintenance areas for machinery at least 60 m from any watercourse. Refuelling of machinery shall be carried out under constant supervision and at a minimum distance of 30 m from a watercourse.
Construction of major infrastructure with measures to prevent thawing of permafrost
Install a geomembrane downstream of crossings and around work areas to intercept SM particles, use culverts of sufficient size so as not to significantly narrow the flow sections at crossing points, prevent the transport of fine particles during work by installing sediment barriers around the edges of aquatic environments

5.2.1.2 Biological environment

In terms of the biological environment, the impacts related to this phase essentially include:

- Vegetation and wetlands: Loss, fragmentation and degradation of terrestrial wildlife and plant habitats, deterioration and alteration of ecological functions of wetlands and water bodies, potential input of contaminants into terrestrial habitats (e.g., dust deposition on vegetation ;
- Aquatic fauna (benthos, fish) and their habitats: Permanent or temporary loss of aquatic habitats, modification of water and sediment quality (inputs to the aquatic environment), degradation of fish habitat, possible modification of aquatic communities, impediment to the free movement of fish, detour of waterways ;
- Migratory and non-migratory birds: Loss of accessible bird habitat, noise disturbance to breeding pairs and migratory birds, potential destruction and risk of nest abandonment;
- Caribou: Noise disturbance, human presence, dust deposits on vegetation, barrier effect on migration ;
- Fauna and flora species in precarious situation: Potential loss of habitat or degradation due to dust/trampling, noise disturbance.

The following list presents, on a preliminary basis, typical mitigation measures that could be applied in response to the impacts apprehended during this phase on the biological environment, in addition to the measures applied to the physical environment. The assessment of the impacts related to the issues raised and the development of mitigation measures in consultation with the stakeholders, in particular the Indigenous communities directly concerned, will make it possible to validate, specify and complete this preliminary list of mitigation measures.

Mitigation measures to minimize impacts – Biological environment (Development and Construction Phases) (preliminary)
Fence work areas to limit traffic and protect areas on the outskirts
Prohibit fording in waterways (intermittent and permanent)
Avoid movement of any vehicle or construction equipment within 20 m of a permanent watercourse or 5 m of an intermittent watercourse and, if such movement is necessary, divert water flowing in ruts to a vegetated area at least 20 m from a watercourse
Installing culverts in a manner that does not impede the flow of water (embedding the base of the culvert below the natural streambed, stabilizing with rock fill, constructing stream crossings (culverts) during the summer low flow period (mid-July to early September)
Ensure the free passage of fish at all times during the temporary diversion of a watercourse
Use clean granular material for the installation of cofferdams
Preliminary and regular inspection of the machinery to ensure its good condition and operation

Mitigation measures to minimize impacts – Biological environment (Development and Construction Phases) (preliminary) (cont.)
Avoid leaving vehicles running unnecessarily
Install an absorbent floating boom (hydrocarbons) downstream of the work in the waterways
Modify the shoulders of the road so that caribou can cross it
Prohibit all movement of equipment and people towards caribou observed within approximately 100 m of work sites or road access
Suspend noise activities (such as blasting) when a caribou is observed within 1 km, and drilling/crushing if a female with a calf is observed within 1 km. Wait 30 minutes before resuming suspended activities

In addition to these measures, the ones listed in the previous section are also included. Indeed, these measures allow for the reduction of sources of contamination in the air, water and soil in addition to reducing the impact of noise.

5.2.1.3 Social environment

In terms of the social environment, the potential impacts related to this phase are:

- Quality of life and human health: concerns and potential impacts of the Project on quality of life and health in local and regional communities ;
- Social and economic aspects: socio-economic impacts of the project on local and regional communities (possible tensions, labour shortage) ;
- Cultural heritage: the potential disturbance of archeological resources ;
- Land use: disruption of the current use of the land and resources by Indigenous peoples and the general population, disturbance of the components and resources of the land valued by the various stakeholders, particularly those valued by Indigenous groups (notably caribou and water quality of the George River), modification of the landscape (visual degradation).

The following list presents, on a preliminary basis, mitigation measures that could be applied in response to the impacts apprehended during this phase. The impact assessment related to the issues raised and the development of mitigation measures in consultation with the stakeholders, in particular the Indigenous communities directly concerned, will make it possible to validate, specify and complete this preliminary list.

Mitigation measures to minimize impacts - Social environment (Development and Construction Phases) (preliminary)
Inform the population and the authorities of the Indigenous communities concerned of the work schedule planned during the phase, as well as the potential risks for users. Maintain contact with the community authorities throughout the phase to allow them to identify potential problems concerning the use of the territory by their population
Inform the non-Indigenous users concerned (outfitters, adventure tourism companies, protected area managers, etc.) of the planned work schedule, as well as the potential risks to users during the phase. Maintain contact with these people throughout the phase to allow them to identify potential land use issues
Install signs indicating the presence of traffic lanes or work/operation areas in their vicinity to inform users who may be traveling or engaging in activities in the area
Fence off work areas
Maintain accessibility to areas not targeted for work during this phase
In the event that traffic is temporarily or permanently restricted on trails utilized by users, plan bypass or new safe travel routes in consultation with Indigenous community authorities or other relevant stakeholders. Inform the affected population of these bypass routes or new travel routes

Mitigation measures to minimize impacts - Social environment (Development and Construction Phases) (preliminary) (cont.)
During the entire phase, regularly inform workers of the potential presence of users on the territory concerned, particularly along the access roads used
Implement measures to limit the spread of dust
Carry out a prior and regular inspection of the machinery and equipment used to ensure that they are in good condition and functioning properly (so as not to generate excessive noise)
Limit machinery traffic to work areas
If possible, isolate the main noise sources with absorbent material
Avoid putting in place measures to facilitate wildlife harvesting activities by workers on site during this phase
Take appropriate measures to avoid disturbing known archeological resources
If archaeological remains are discovered, stop the work, take measures to protect the site and inform the Ministère de la Culture et des Communications du Québec (MCC)
Preferential hiring of workers from local or regional communities, especially within the Indigenous communities concerned
Favour local or regional companies that have the competence for the tasks requested in the call for tenders procedure, before undertaking requests to companies based elsewhere in Québec or abroad
Provide for site restoration after the development phase of the site
Establish an environmental monitoring program to ensure that mitigation measures are met for this phase

5.2.2 Operational phase (30-year operation)

The main activities likely to have impacts on the receiving environment during this phase of the project are:

- Excavation of the pit and transportation of the ore (blasting, excavation, movement of heavy machinery and fixed and mobile equipment, materials etc.).
- Treatment and concentration of the ore by physical processes (crushing, grinding, X-ray sorting, electromagnetic separation, flotation).
- Activities related to the presence and use of infrastructure related to the mine site.
- The presence of workers (living environment and travel).
- Waste management.
- Delivery of equipment and raw materials, shipment of product (concentrated ore).

5.2.2.1 Physical environment

In terms of the physical environment, the impacts related to this phase are essentially:

- Greenhouse gases (GHGs): emission sources associated with fossil fuels, other GHG sources
- Air quality: sources of atmospheric emissions (dust - particulate material, metallic dust, volatile organic compounds (VOCs), radioactive elements from the deposit). It should be noted that considering the proximity of the site to the provincial border, the study area will cover the areas potentially impacted on the Newfoundland and Labrador side.
- Acoustic environment: noise level and vibrations: machinery traffic, fixed (process) and mobile equipment, blasting (if required), air transport.
- Soil quality: risks of contamination following accidental spills, effects of work on permafrost, soil subsidence.
- Water and sediment regime: possible spills and sediment transport, potential sanitary and mining discharges.
- Water and sediment quality: possible deviation of watercourses, erosion, risk of spills altering the aquatic environment or groundwater, risk of increased SS during maintenance work, etc.

The following list presents, on a preliminary basis, typical mitigation measures that could be applied in response to the impacts apprehended during this phase. The assessment of the impacts related to the issues raised and the development of mitigation measures in consultation with stakeholders, in particular the Indigenous communities directly concerned, will allow the validation, clarification and completion of this preliminary list of mitigation measures.

Mitigation measures to minimize impacts - Physical Environment (Operation Phase) (preliminary)
Develop and implement management plans for liquid effluents, tailings, residual materials, air emissions and ambient noise according to the Best Available Technology (BAT) approach, while respecting legal and regulatory requirements.
Use light vehicles that have effective mufflers to reduce noise level at the source
Use air treatment equipment to reduce dust emissions from industrial process equipment (mills, crushers, conveyors, etc.) or transportation.
Promote the use of low-emission (e.g., fuel-efficient) and zero-emission machinery and vehicles, according to the latest Environment and Climate Change Canada (ECCC) standards for on- and off-road vehicles.
Promote the use of generators that minimize fuel consumption and therefore have low atmospheric emissions.
Establish a procedure for shutting down heavy vehicles when they are not needed.
Implement a preventive maintenance and inspection program for equipment to ensure its proper functioning
Apply dust suppressants according to the conditions (meteorology) and development activities that have an impact on dust generation (e.g., construction of temporary access roads)
Conduct preventive inspections of fuel storage areas and make an emergency petroleum and hazardous materials recovery kit available in machinery, vehicles and site facilities.
Evaluate the feasibility of using renewable energy (e.g., solar, wind) to decarbonize the energy supply of operations and implement the best available solutions.
Carry out and update atmospheric and acoustic modelling to confirm compliance with provincial regulations at the property boundary (air quality) and at the surrounding sensitive receptors' location (noise, vibrations, etc.).
Inspect air conditioning, ventilation and heating equipment to ensure proper operation and limit the risk of refrigerant leaks, if any.
Study the feasibility and implement the best technologies for carbon capture and sequestration, such as carbon dioxide mineralization and revegetation of tailings sites.
Develop and implement a carbon management plan to reduce GHGs and eventually achieve net-zero goals by 2050, with a focus on renewable energy sources and non-fossil fuel transportation. In particular, promote air transport by airship instead of road transport, as soon as technically and economically feasible and approved by the authorities.
Optimize and control processes to maximize water reuse, reduce freshwater inputs and minimize discharges
Locate parking, washing and maintenance areas for machinery at least 60 m from any watercourse. Refuelling of machinery shall be carried out under constant supervision and at a minimum distance of 30 m from a watercourse.
Dispose of excavated material in a manner that minimizes the dispersion of suspended matter
Temporary ore storage areas shall be constructed on a compacted gravel base surrounded by a collection ditch

5.2.2.2 Biological environment

In terms of the biological environment, the impacts linked to this phase are essentially:

- Vegetation and wetlands: Loss, fragmentation and degradation of terrestrial wildlife and plant habitats, deterioration and alteration of ecological functions of wetlands and water bodies, potential input of contaminants into terrestrial habitats (e.g., dust deposition on vegetation;
- Aquatic fauna (benthos, fish) and their habitats: Permanent or temporary loss of aquatic habitats, modification of water and sediment quality (inputs to the aquatic environment), degradation of fish habitat, possible modification of aquatic communities, impediment to the free movement of fish, deviation of watercourses;
- Migratory and non-migratory birds: Loss of accessible bird habitat, noise disturbance to breeding pairs and migratory birds, potential destruction and risk of nest abandonment;
- Caribou: Disturbance by noise, human presence, dust deposit on vegetation, barrier effect on migration;
- Species of fauna and flora in precarious situation: Potential loss of habitat or degradation due to dust/trampling, noise disturbance.

On a preliminary basis, the following list presents typical mitigation measures that could be applied in response to the impacts identified during this phase. The assessment of the impacts related to the issues raised and the development of mitigation measures in consultation with stakeholders, in particular the Indigenous communities directly concerned, will allow the validation, clarification and completion of this preliminary list of mitigation measures.

Mitigation measures to minimize impacts - Biological environment (Operation phase) (preliminary)
Fencing off work areas to limit traffic and protecting the surrounding areas
Prohibit fording of streams (intermittent and permanent)
Avoid movement of any vehicle or construction equipment within 20 m of a permanent watercourse or 5 m of an intermittent watercourse and, if such movement is necessary, divert water flowing in ruts to a vegetated area at least 20 m from a watercourse
Remove solids from domestic wastewater with a treatment unit
Use clean granular material for the installation of cofferdams
Preliminary and regular inspection of the machinery to ensure its good condition and operation
Avoid leaving vehicles running unnecessarily
Prohibit all movement of equipment and people towards caribou observed within approximately 100 m of work sites or road accesses
Suspend noise activities (such as blasting) when a caribou is observed within 1 km, and drilling/crushing if a female accompanied by a calf is observed within 1 km. Wait 30 minutes before resuming suspended activities

In addition to these measures, there are those listed for the physical environment. In fact, these measures will reduce the sources of contamination in the air, water and soil, in addition to reducing the impact of noise.

5.2.2.3 Social environment

In terms of the social environment, the impacts related to this phase are essentially the same as during the development and construction phases. However, given the longer duration of this phase, the intensity of the effects is likely to be higher.

Thus, regarding the social environment, the potential impacts related to this phase are:

- Quality of life and human health: concerns and potential impacts of the Project on quality of life and human health in local and regional communities ;
- Social and economic aspects: socio-economic impacts of the project on local and regional communities (possible tensions, labour shortage);
- Cultural heritage: the potential disturbance of archeological resources ;
- Land use: disturbance of the current use of the land and resources by Indigenous peoples and the general population, disruption of the components and resources of the land valued by the various stakeholders, particularly those valued by Indigenous groups (notably caribou and the George River water quality), modification of the landscape (visual degradation).

The following list presents, on a preliminary basis, mitigation measures that could be applied in response to the impacts apprehended during this phase. The impact assessment related to the issues raised and the development of mitigation measures in consultation with the stakeholders, in particular the Indigenous communities directly concerned, will make it possible to validate, specify and complete this preliminary list.

Mitigation measures to minimize impacts - Social environment (Operation Phase) (preliminary)
Inform the population and the authorities of the Indigenous communities concerned of the work schedule planned during the phase, as well as the potential risks for users. Maintain contact with the community authorities throughout the phase to allow them to identify potential problems concerning the use of the territory by their population
Inform the non-Indigenous users concerned (outfitters, adventure tourism companies, protected area managers, etc.) of the planned work schedule, as well as the potential risks to users during the phase. Maintain contact with these people throughout the phase to allow them to identify potential land use issues
Install signs indicating the presence of traffic lanes or work/operation areas in their vicinity to inform users who may be traveling or engaging in activities in the area
Fencing off work areas
Maintain accessibility to areas not targeted for work during this phase
If traffic is temporarily or permanently restricted on trails utilized by users, plan safe bypass or new travel routes in consultation with Indigenous community authorities or other relevant stakeholders. Inform the affected population of the layout of these bypass or new travel routes
During the entire phase, regularly inform workers of the potential presence of users on the territory concerned, particularly along the access roads used
Implement measures to limit the spread of dust
Carry out a prior and regular inspection of the machinery and equipment to ensure that they are in good condition and functioning properly (so as not to generate excessive noise)
Limit machinery traffic to work areas
If possible, isolate the main noise sources with an absorbent material
Avoid putting in place measures to facilitate wildlife harvesting activities by workers on site during this phase
Take appropriate measures to avoid disturbing known archeological resources
If archaeological remains are discovered, stop the work, take measures to protect the site and inform the Ministère de la Culture et des Communications du Québec (MCC)
Preferential hiring of workers from local or regional communities, especially within the Indigenous communities concerned
Favour local or regional companies that have the competence for the tasks requested in the call for tenders procedure, before undertaking requests to companies based elsewhere in Québec or abroad
Provide for site restoration after the development phase of the site
Establish an environmental monitoring program to ensure that mitigation measures are met for this phase

5.2.3 Closure and restoration phase

The main activities likely to have impacts on the receiving environment during this phase of the project are:

- Progressive dismantling activities of the project infrastructures
- Site restoration
- Movement of heavy machinery, mobile and fixed equipment, materials
- Presence of workers (living environment and travel)

The restoration phase aims at restoring the site to its natural state and will mainly generate positive impacts on the receiving environment. The work that will be carried out during this phase will be like that of the development and construction phases; the sources of impacts and mitigation measures will therefore be similar, with the exception that the vehicles and machinery used at this time should be mostly, if not entirely, of the zero-emission type (post-2050).

In addition, this work will aim to rehabilitate the receiving environment as well as the functions of the biophysical and social environments, i.e., air, soil, water and sediment quality, wildlife and plant habitats (plant recovery, end of disturbance), occupations and uses that prevailed before the project. However, socio-economic impacts resulting from the loss of jobs will require the implementation of relocation measures and support for the demobilized workforce.

5.2.4 Environmental surveillance and monitoring programs

In parallel with the application of specific and general mitigation measures, the development of rigorous environmental surveillance and monitoring programs will make it possible to reduce the apprehended negative impacts of the project. In addition, the implementation of mitigation measures, such as the use of dust suppressants, will make it possible to limit the disturbances.

Furthermore, additional studies during the development and construction phases and continuously during the operational phase will make it possible to identify and apply appropriate mitigation measures to adequately protect the sensitive components of the receiving environment (physical, biological, social). Finally, the consultations already initiated and those that will follow will make it possible to adequately consider the concerns of the Indigenous communities.

6 Greenhouse Gas Emissions

The quantification of greenhouse gases (GHGs) will be carried out for the following components of the project: the mining site including the ore concentration plant and its various access roads. The following greenhouse gases are likely to be emitted during one or more phases (construction, operations, closure) of the Project:

- Carbon dioxide (CO_2);
- Methane (CH_4);
- Nitrous oxide (N_2O);
- Sulfur hexafluoride (SF_6);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs)

The main sources of GHGs comes from blasting activities, combustion of fossil fuels (energy consumption), and the use of the various machinery required for the different phases of the Project. The activities of each phase with sources of GHG emissions are detailed below.

The exercise will also include the analysis of various scenarios having an impact on GHGs (e.g., use of electric generators, energy-efficient vehicles, engine idling policy, use of renewable energy – wind, solar, etc.) as well as mitigation measures that are being considered to reducing GHGs emissions. Lastly, federal requirements dictates that a Net-Zero Plan for the year 2050 must be developed and implemented.

6.1.1 Development and construction phase

This phase consists of site preparation, the development, and the construction of the facilities prior to the beginning of the mining activities. During this phase, the main sources of GHG emissions would come from the use of explosives, energy consumption (fossil fuels, electricity), HVAC systems (heating, ventilation, air conditioning), fixed and mobile combustion equipment (generators), transportation (equipment, construction materials, backfill/cuttings) and management of residual waste.

6.1.2 Operational phase

This phase includes site exploitation and mining activities. During this phase, the main sources of GHG emissions would come from the use of explosives, energy consumption (electrical, stationary combustion equipment), HVAC systems and other mobile combustion equipment, transportation (ore or other processed products, backfill/cuttings), ore concentration processes, wastewater treatment as well as discharge and residual waste management.

6.1.3 Closure phase

This phase includes preparation for site closing by dismantling the facilities and restoring the premises. During this phase, the main sources of GHG emissions will come from energy consumption (electricity, stationary combustion equipment), HVAC systems, transport (equipment, materials, backfill/cuttings), treatment and discharge of wastewater, and the management of residual waste.

7 Other Pertinent Information

7.1 Other Pertinent Information

Write down any other information deemed necessary for a better understanding of the project.

A *Gap Analysis* process was carried out with the relaunch of the project in order to integrate all the guidelines and regulations applicable in the current legislative context in connection with the rare earth mining project in the North.

The components of the mining site and the access road will also be analyzed by other government authorities. In fact, impact studies will be filed with the Impact Assessment Agency of Canada (AEIC), the province of Newfoundland and Labrador and the Nunatsiavut Government so that they can analyze the Strange Lake rare earth mining project. However, the components analyzed will vary since the regulations and the territory differ.

In addition, Torngat Metals Ltd. plans to set up a high purity rare earth processing and separation plant to receive and process the concentrated ore produced at the mine site. This hydrometallurgical plant will be built in an existing industrial-port zone, south of the 55th parallel. The sites currently under analysis are the port of Sept-Îles, the port of Grande-Anse in Saguenay and the port of Baie-Comeau. This plant project will be subject to the environmental impact assessment and review procedure in southern Québec.

8 Declaration and Signature

8.1 Declaration and signature

I hereby declare:

- *1° the documents and information provided in this preliminary information form are accurate to the best of my knowledge. Any false statements may result in penalties under the LQE. All information provided will be part of the application and will be published on the websites of the evaluation committee (COMEV) or the Kativik Environmental Quality Commission (KEQC) and in the Registry of environmental assessments.*

Dirk Naumaunn, I, Ph.D.
CEO and President
Torngat Metals Ltd.

Signature : Date : May 10, 2023

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Appendix A
Form PN1 - Preliminary Information

FORMULAIRE
Renseignements préliminaires

PRÉAMBULE

La Convention de la Baie-James et du Nord québécois (CBJNQ), par ses chapitres 22 et 23, établit un régime de protection de l'environnement et du milieu social dans le territoire de la Baie-James et du Nord québécois. En fonction du type de projet, plusieurs aspects de ces chapitres relèvent du gouvernement du Québec, du gouvernement du Canada ou des deux ordres de gouvernement. Certains projets peuvent également relever du gouvernement de la nation crie lorsqu'ils sont réalisés sur des terres de catégorie IA à la Baie-James. Le Titre II de la Loi sur la qualité de l'environnement (LQE) présente les procédures d'évaluation et d'examen des impacts sur l'environnement et le milieu social qui s'appliquent dans la région de la Baie-James (art. 133 de la LQE) et du Nord québécois (art. 168 de la LQE).

Les projets mentionnés à l'annexe A de la LQE sont obligatoirement assujettis à l'une ou l'autre des procédures applicables en milieu nordique, contrairement à ceux mentionnés à l'annexe B, qui y sont soustraits. Les projets qui ne sont pas listés dans ces annexes sont considérés comme des projets de « zone grise ». Quiconque a l'intention d'entreprendre la réalisation d'un projet en milieu nordique visé par l'annexe A de la LQE doit demander un certificat d'autorisation. Pour les projets de « zone grise », un promoteur doit demander une attestation de non-assujettissement, et l'Administrateur provincial lui confirmera, après analyse du projet par le comité nordique concerné, si le projet est non assujetti à la procédure d'évaluation et d'examen des impacts sur l'environnement et le milieu social ou s'il y est assujetti. Dans le premier cas, une attestation de non-assujettissement sera délivrée au promoteur pour le projet et, dans le second, une directive sera élaborée et lui sera transmise, laquelle indiquera la nature, la portée et l'étendue de l'étude d'impact qu'il doit préparer. Ainsi, sauf pour les projets listés à l'annexe B, un promoteur doit transmettre un formulaire de renseignements préliminaires à l'Administrateur provincial de la CBJNQ.

Au besoin, il est possible de confirmer si votre projet correspond à une activité listée aux annexes A et B de la LQE ou à un projet de « zone grise » en transmettant par courriel une demande de vérification d'assujettissement, incluant une courte description de votre projet, sa localisation et ses impacts appréhendés à l'adresse courriel suivante : dgees-assujettissement@environnement.gouv.qc.ca.

Le formulaire de renseignements préliminaires sert à décrire les caractéristiques générales du projet. Il doit être rempli de façon claire et concise et l'information fournie doit se limiter aux éléments pertinents pour la bonne compréhension du projet, de ses impacts et des enjeux appréhendés.

Conformément à la LQE, le formulaire de renseignements préliminaires est transmis au Comité d'évaluation (COMEV), si le projet concerne la région au sud du 55e parallèle (Baie-James), ou à la Commission de la qualité de l'environnement Kativik (CQEK), si le projet vise le territoire au nord du 55e parallèle (Nord québécois/Nunavik). Ces deux comités examinent les renseignements préliminaires et, pour les projets visés par l'annexe A de la LQE, produisent une recommandation sur la directive indiquant la nature, la portée et l'étendue de l'étude d'impact que le promoteur doit préparer. Pour les projets de « zone grise », ces comités produisent soit une recommandation (COMEV), soit une décision (CQEK) quant à l'assujettissement du projet à la procédure. Ces recommandations et décisions sont ensuite acheminées à l'Administrateur provincial, qui fait part de sa décision au promoteur. Cela peut se traduire par la délivrance d'une attestation de non-assujettissement dans le cas des projets non assujettis à la procédure ou par la délivrance d'une directive pour ceux qui y sont assujettis.

Le Comité d'évaluation est un comité tripartite formé de représentants nommés par le gouvernement de la nation crie et de représentants du gouvernement du Canada et du gouvernement du Québec. La Commission de la qualité de l'environnement Kativik est un comité bipartite formé de représentants inuits ou naskapis nommés par l'Administration régionale Kativik et de représentants du gouvernement du Québec. Dans l'exercice de leurs fonctions, ces deux comités accordent une attention particulière aux principes suivants, lesquels sont énoncés aux articles 152 et 186 de la LQE :

a) la protection des droits de chasse, de pêche et de piégeage des Autochtones;
b) la protection de l'environnement et du milieu social;
c) la protection des Autochtones, de leurs sociétés, de leurs communautés et de leur économie;
d) la protection de la faune, des milieux physique et biologique et des écosystèmes du territoire;
e) les droits et garanties des Autochtones dans les terres de catégorie II;
f) la participation des Cris, Inuits et Naskapis à l'application du régime de protection de l'environnement et du milieu social;
g) les droits et intérêts, quels qu'ils soient, des non-Autochtones; et
h) le droit de réaliser des projets, que possèdent les personnes agissant légalement dans le territoire.

À noter également que le formulaire de renseignements préliminaires sera publié au Registre des évaluations environnementales en vertu de l'article 118.5 de la LQE, et ce, uniquement pour les projets pour lesquels une directive sera délivrée. Le COMEV et la CQEK publient également les formulaires de renseignements préliminaires sur leurs sites Web.

Depuis mai 2022, le demandeur de toute autorisation doit produire, comme condition de délivrance d'une autorisation, la déclaration d'antécédents. Cette déclaration remplace la déclaration du demandeur. Vous trouverez le formulaire à compléter à l'adresse électronique suivante : https://www.environnement.gouv.qc.ca/evaluations/declaration-antecedents.pdf.

Le formulaire de renseignements préliminaires doit être accompagné du paiement prévu dans le cadre du système de tarification des demandes d'autorisation environnementale. Ce paiement peut être fait par chèque à l'ordre du ministre des Finances ou par virement bancaire. Le détail des tarifs applicables est disponible à la section Tarification du site Web des évaluations environnementales. Il est à noter que le ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs (MELCCFP) ne traitera pas la demande tant que le paiement n'aura pas été reçu.

Une fois le formulaire de renseignements préliminaires rempli, le promoteur doit l'envoyer, avec la lettre de transmission, à l'Administrateur provincial de la CBJNQ :

- Transmettre une version électronique des documents (formulaire et lettre de transmission) à reception.30e@environnement.gouv.qc.ca en mettant en copie conforme la sous-ministre (marie-josee.lizotte@environnement.gouv.qc.ca) ainsi que Vanessa Chalifour, coordonnatrice/cheffe d'équipe aux projets nordiques (vanessa.chalifour@environnement.gouv.qc.ca). La lettre de transmission doit confirmer que les versions papier concordent avec les versions électroniques. Si les documents électroniques sont très volumineux, voir le dernier point.

- Transmettre une copie papier des documents (français) au bureau de la sous-ministre à l'adresse suivante :

  Administratrice provinciale de la Convention de la Baie-James et du Nord québécois
  Sous-ministre de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
  Édifice Marie-Guyart, 30e étage
  675, boul. René-Lévesque Est, boîte 02
  Québec (Québec) G1R 5V7

- Transmettre les autres copies papier et les clés USB (incluant les versions françaises et anglaises) à la Direction de l'évaluation environnementale des projets industriels, miniers, énergétiques et nordiques à l'adresse suivante :

  Madame Mélissa Gagnon, directrice
  Direction de l'évaluation environnementale
  des projets industriels, miniers, énergétiques et nordiques
  Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs
  Édifice Marie-Guyart, 6e étage, boîte 83
  675, boul. René-Lévesque Est
  Québec (Québec) G1R 5V7

  Projets au sud du 55e parallèle (Baie-James)
  Neuf (9) copies papier, soit six (6) en français et trois (3) en anglais
  Trois (3) copies au format PDF sur support informatique
  Des copies supplémentaires peuvent être demandées selon l'ampleur du projet.

  Projets au nord du 55e parallèle (Nord québécois/Nunavik)
  Quatorze (14) copies papier, soit sept (7) en français et sept (7) en anglais
  Trois (3) copies au format PDF sur support informatique
  Des copies supplémentaires peuvent être demandées selon l'ampleur du projet.

- Advenant que les documents électroniques soient très volumineux :

  Informer la Direction de l'évaluation environnementale des projets industriels, miniers, énergétiques et nordiques (vanessa.chalifour@environnement.gouv.qc.ca), et un lien sécurisé vous permettant de transmettre vos documents sur la plateforme ShareFile vous sera partagé. Ce lien sera valide pour une durée de sept jours. Joindre au courriel d'envoi la lettre de transmission en indiquant que la version électronique sera transmise via la plateforme ShareFile de la Direction générale de l'évaluation environnementale et stratégique (DGEES).

1. IDENTIFICATION ET COORDONNÉES DU PROMOTEUR

1.1 Identification du promoteur	
Nom : Métaux Torngat Ltée	
Adresse municipale : 1200, Avenue McGill College, suite 100, Montréal, Québec H3B 4G7	
Adresse postale (si différente de l'adresse municipale) :	
Nom et fonction du ou des signataires autorisés à présenter la demande : Dirk Naumann (Dirigeant principal) et Christine Burow (Responsable du projet)	
Numéro de téléphone : 613 532-8232 (Dirk)	Numéro de téléphone (autre) : 519 501-7280 (Christine)
Courrier électronique : dirk.naumann@torngatmetals.com christine.burow@torngatmetals.com	
1.2 Numéro de l'entreprise	
Numéro d'entreprise du Québec (NEQ) : 1164687828	
1.3 Résolution du conseil municipal, du conseil de bande, du village nordique ou de l'organisme responsable	
Si le promoteur est une municipalité, le formulaire de renseignements préliminaires contient la résolution du conseil municipal, du conseil de bande, du village nordique ou de l'organisme responsable dûment certifiée autorisant le ou les signataires de la demande à la présenter. Ajoutez une copie de la résolution à l'annexe I. NON APPLICABLE	
1.4 Identification du consultant mandaté par le promoteur (s'il y a lieu)	
Nom : AECOM CONSULTANTS INC.	
Adresse municipale : 85, Sainte-Catherine Ouest	
Adresse postale (si différente de l'adresse municipale) :	
Numéro de téléphone : 819 386-7785	Numéro de téléphone (autre) : -
Courrier électronique : valerie.tremblay@aecom.com	
Description du mandat : AECOM est le consultant principal au niveau environnemental et ingénierie pour Métaux Torngat Ltée.	

2. PRÉSENTATION GÉNÉRALE DU PROJET

2.1 Titre du projet
Projet de … (construction/agrandissement/aménagement/etc.) de… (installation/équipement/usine/etc.) sur le territoire de… (municipalité/village/communauté) Projet minier de terres rares du lac Strange
2.2 Article d'assujettissement
Dans le but de vérifier l'assujettissement de votre projet, indiquez, selon vous, à quel paragraphe de l'annexe A de la Loi sur la qualité de l'environnement votre projet est assujetti et expliquez pourquoi (atteinte du seuil, par exemple). Indiquez si votre projet est considéré comme un projet de « zone grise », le cas échéant. Voir Section 2.2. du document principal
2.3 Objectifs et justification du projet
Mentionnez les principaux objectifs poursuivis et indiquez les raisons motivant la réalisation du projet. Voir Section 2.3 du document principal

2.4 Description sommaire du projet et des variantes de réalisation
Décrivez sommairement le projet (longueur, largeur, quantité, voltage, superficie, etc.) et, pour chacune de ses phases (aménagement, construction et exploitation et, le cas échéant, fermeture et restauration), décrivez sommairement les principales caractéristiques associées à chacune des variantes du projet, y compris les activités, aménagements et travaux prévus (déboisement, expropriation, dynamitage, remblayage, etc.). Voir Sections 2.4. et 2.5 du document principal
Si cela est pertinent, ajoutez à l'annexe II tous les documents permettant de mieux cerner les caractéristiques du projet (diagramme, croquis, vue en coupe, etc.).
2.5 Activités connexes
Résumez, s'il y a lieu, les activités connexes projetées (ex. : aménagement de chemins d'accès, concassage, mise en place de batardeaux, détournement de cours d'eau) et tout autre projet susceptible d'influencer la conception du projet proposé. Voir Section 2.6. du document principal

3. LOCALISATION ET CALENDRIER DE RÉALISATION DU PROJET

3.1 Identification et localisation du projet et de ses activités
Nom de la municipalité, du village ou de la communauté où il est prévu que soit réalisé le projet (indiquez si plusieurs municipalités, villages ou communautés sont touchés par le projet) : Voir Section 3.1 du document principal
Catégories des terres (I, II ou III) : Catégorie III
Coordonnées géographiques en degrés décimaux du point central du projet (pour les projets linéaires, fournissez les coordonnées du point de début et du point de fin du projet) : Point central ou début du projet : (centroïde du gisement) Latitude : 56.323 N Longitude : -64.166 O Point de fin du projet (le cas échéant) : Début de la route d'accès Qc : Latitude : 56.332N Longitude : -64.125 O Fin de la route d'accès Qc (frontière avec Labrador) : Latitude : 56.27N Longitude : -64.091 O
3.2 Description du site visé par le projet
Décrivez les principales composantes des milieux physique, biologique et humain susceptibles d'être affectées par le projet en axant la description sur les éléments considérés comme ayant une importance scientifique, sociale, culturelle, économique, historique, archéologique ou esthétique (composantes valorisées de l'environnement). Indiquez, s'il y a lieu, le statut de propriété des terrains où la réalisation du projet est prévue ainsi que les principales particularités du site : zonage, espace disponible, milieux sensibles, humides ou hydriques, compatibilité avec les usages actuels, disponibilité des services, topographie, présence de bâtiments, utilisation et occupation des terres par les Autochtones, etc. Voir Section 3.2 du document principal
3.3 Calendrier de réalisation
Fournissez le calendrier de réalisation (période prévue et durée estimée de chacune des étapes du projet) en tenant compte du temps requis pour la préparation de l'étude d'impact, le cas échéant, et indiquez le déroulement de la procédure. Voir Section 3.3 du document principal
3.4 Plan de localisation
Ajoutez à l'annexe III une carte topographique ou cadastrale de localisation du projet et, s'il y a lieu, un plan de localisation des travaux ou des activités à une échelle adéquate indiquant notamment les infrastructures en place par rapport au site des travaux. La carte 3-4 présente la topographie au site du projet. Le reste des cartes sont disponibles dans le corps du texte dans les sections 2 (cartes 2-1) et 3 (cartes 3-1 à 3-6).

4. ACTIVITÉS D'INFORMATION ET DE CONSULTATION DU PUBLIC, DES COMMUNAUTÉS AUTOCHTONES ET DES USAGERS DU TERRITOIRE

4.1 Activités d'information et de consultation réalisées
Le cas échéant, mentionnez les modalités relatives aux activités d'information et de consultation du public réalisées dans le cadre de la conception du projet (méthodes utilisées, nombre de participants et milieux représentés), dont celles réalisées auprès des populations locales, entre autres les Cris, les Inuits et les Naskapis, ainsi que les usagers du territoire. Indiquez les préoccupations soulevées et expliquez la manière dont elles ont été prises en compte dans la conception du projet. Voir Section 4.1 du document principal
4.2 Activités d'information et de consultation envisagées au cours de la réalisation de l'étude d'impact sur l'environnement et le milieu social
Le cas échéant, mentionnez les modalités relatives aux activités d'information et de consultation du public au cours de la réalisation de l'étude d'impact sur l'environnement et le milieu social, dont celles envisagées auprès des communautés autochtones et des usagers du territoire concerné. Voir Section 4.2 du document principal

5. DESCRIPTION DES PRINCIPAUX ENJEUX[1] ET IMPACTS APPRÉHENDÉS DU PROJET SUR LE MILIEU RÉCEPTEUR

5.1 Description des principaux enjeux du projet
Pour les phases d'aménagement, de construction et d'exploitation et, le cas échéant, de fermeture et de restauration, décrivez sommairement les principaux enjeux du projet. Voir Section 5.1 du document principal
5.2 Description des principaux impacts appréhendés du projet sur le milieu récepteur
Pour les phases d'aménagement, de construction et d'exploitation et, le cas échéant, de fermeture et de restauration, décrivez sommairement les impacts appréhendés du projet sur le milieu récepteur (physique, biologique et humain). Présentez brièvement les mesures d'atténuation ou de restauration prévues, s'il y a lieu. Voir Section 5.2 du document principal
Dans le cas d'un projet de « zone grise », fournissez suffisamment de renseignements pour permettre d'évaluer les impacts sur l'environnement et le milieu social, et ce, afin de déterminer s'il y a lieu de l'assujettir à la procédure d'évaluation et d'examen des impacts sur l'environnement et le milieu social. Présentez les mesures d'atténuation ou de restauration prévues, s'il y a lieu. AUCUN SUPPLÉMENTAIRE

6. ÉMISSION DE GAZ À EFFET DE SERRE

6.1 Émission de gaz à effet de serre
Mentionnez si le projet est susceptible d'entraîner l'émission de gaz à effet de serre et, si oui, lesquels. Décrivez sommairement les principales sources d'émissions projetées aux différentes phases de réalisation du projet. Voir Section 6 du document principal

7. AUTRES RENSEIGNEMENTS PERTINENTS

7.1 Autres renseignements pertinents
Inscrivez tout autre renseignement jugé nécessaire à une meilleure compréhension du projet. Voir Section 7.1 du document principal

[1] Enjeu : Préoccupation majeure pour le gouvernement, la communauté scientifique ou la population, y compris les communautés autochtones concernées, et dont l'analyse pourrait influencer les recommandations ou décisions des comités nordiques quant à l'autorisation ou non d'un projet.

8. DÉCLARATION ET SIGNATURE

8.1 Déclaration et signature
Je déclare que : *1° les documents et renseignements fournis dans ce formulaire de renseignements préliminaires sont exacts au meilleur de ma connaissance.* *Toute fausse déclaration peut entraîner des sanctions en vertu de la LQE. Tous les renseignements fournis feront partie intégrante de la demande et seront publiés sur les sites Web du Comité d'évaluation (COMEV) ou de la Commission de la qualité de l'environnement Kativik (CQEK) ainsi qu'au Registre des évaluations environnementales.*
Prénom et nom
Dirk Naumann, Ph.D Dirigeant principal et président de Métaux Torngat Ltée
Signature

Date
3 mai 2023

Annexe I

Résolution du conseil municipal, du conseil de bande, du village nordique ou de l'organisme responsable

Si cela est pertinent, insérez ci-dessous la résolution du conseil municipal, du conseil de bande, du village nordique ou de l'organisme responsable dûment certifiée autorisant le ou les signataires de la demande à la présenter.

NON APPLICABLE

Annexe II
Caractéristiques du projet

Si cela est pertinent, insérez ci-dessous les documents permettant de mieux cerner les caractéristiques du projet (diagramme, croquis, vue en coupe, etc.).

Au lieu d'être rassemblées en Annexes de ce formulaire, les caractéristiques du projet sont présentées à même le corps du texte. En plus des cartes, la figure 2-1 (section 2.5) illustre les coupes typiques pour la route d'accès.

Annexe III
Plan de localisation

Insérez une carte topographique ou cadastrale de localisation du projet ainsi que, s'il y a lieu, un plan de localisation des travaux ou des activités à une échelle adéquate indiquant notamment les infrastructures en place par rapport au site des travaux.

Au lieu d'être rassemblées en Annexes de ce formulaire, des cartes ont été insérées dans le corps du texte du document principal. Le plan de localisation incluant la topographie au site du projet est représenté par la carte 3-4. Le reste des cartes sont disponibles dans le corps du texte dans les sections 2 (cartes 2-1) et 3 (cartes 3-1 à 3-6).

Appendix B
Current Update Statement (Change of Name of Corporation from Quest Rare Minerals Ltd. to Torngat Metals Ltd.) - Certificate of Amendment to the Canada Business Corporations Act

Innovation, Science and Economic Development Canada
Corporations Canada

Innovation, Sciences et Développement économique Canada
Corporations Canada

Certificate of Amendment

Canada Business Corporations Act

Certificat de modification

Loi canadienne sur les sociétés par actions

TORNGAT METALS LTD.
MÉTAUX TORNGAT LTÉE

Corporate name / Dénomination sociale

927735-8

Corporation number / Numéro de société

I HEREBY CERTIFY that the articles of the above-named corporation are amended under section 178 of the *Canada Business Corporations Act* as set out in the attached articles of amendment.

JE CERTIFIE que les statuts de la société susmentionnée sont modifiés aux termes de l'article 178 de la *Loi canadienne sur les sociétés par actions*, tel qu'il est indiqué dans les clauses modificatrices ci-jointes.

Virginie Ethier

Director / Directeur

2018-07-26

Date of amendment (YYYY-MM-DD)
Date de modification (AAAA-MM-JJ)

Canada

Form 4
Articles of Amendment
Canada Business Corporations Act (CBCA) (s. 27 or 177)

Formulaire 4
Clauses modificatrices
Loi canadienne sur les sociétés par actions (LCSA) (art. 27 ou 177)

1 Corporate name
Dénomination sociale
QUEST RARE MINERALS LTD.
MINÉRAUX RARES QUEST LTÉE

2 Corporation number
Numéro de la société
927735-8

3 The articles are amended as follows
Les statuts sont modifiés de la façon suivante

The corporation changes its name to:
La dénomination sociale est modifiée pour :
TORNGAT METALS LTD.
MÉTAUX TORNGAT LTÉE

4 Declaration: I certify that I am a director or an officer of the corporation.
Déclaration : J'atteste que je suis un administrateur ou un dirigeant de la société.

Original signed by / Original signé par
Alain Wilson

Alain Wilson
416-456-6770

Misrepresentation constitutes an offence and, on summary conviction, a person is liable to a fine not exceeding $5000 or to imprisonment for a term not exceeding six months or both (subsection 250 (1) of the CBCA).

Faire une fausse déclaration constitue une infraction et son auteur, sur déclaration de culpabilité par procédure sommaire, est passible d'une amende maximale de 5 000 $ et d'un emprisonnement maximal de six mois, ou l'une de ces peines (paragraphe 250(1) de la LCSA).

You are providing information required by the CBCA. Note that both the CBCA and the *Privacy Act* allow this information to be disclosed to the public. It will be stored in personal information bank number IC/PPU-049.

Vous fournissez des renseignements exigés par la LCSA. Il est à noter que la LCSA et la *Loi sur les renseignements personnels* permettent que de tels renseignements soient divulgués au public. Ils seront stockés dans la banque de renseignements personnels numéro IC/PPU-049.

Appendix C
Stakeholder Engagement Strategy (Draft)

AECOM

CONFIDENTIAL AND PRIVILEGED

Torngat Metals Indigenous Engagement Strategy

Strange Lake Project

Project Number: 60697132

January 2023

Statement of Qualifications and Limitations

The attached Report (the "Report") has been prepared by AECOM Canada Ltd. ("AECOM") for the benefit of the Client (as defined below) in accordance with the agreement between AECOM and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations");
- represents AECOM's professional judgement in light of the Limitations and industry standards for the preparation of similar reports;
- may be based on information provided to AECOM which has not been independently verified;
- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued;
- must be read as a whole and sections thereof should not be read out of such context;
- was prepared for the specific purposes described in the Report and the Agreement; and
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time.

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AECOM: 2015-04-13
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Authors

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Prepared for:

Torngat Metals (the "**Client**")
Strange Lake project

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1. Context

AECOM has been assigned to prepare an Indigenous Engagement Strategy (IES) for the Strange Lake project. This mandate is conducted on the behalf of Torngat Metals.

The IES is part of a relaunch of the Strange Lake project due to a new financing of 50 million US dollars by Cerberus Capital Management, a financing which will allow Torngat Metals to carry out the pre-feasibility and feasibility studies.

The IES draws inspiration from and relies on all the engagement work with indigenous groups carried out during the 2011-2015 period, i.e. the negotiations for the signing of IBAs, the work in collaboration with these groups to carry out environmental and social studies as well as the economic benefits in terms of jobs and contracts.

Given that the socio-economic and environmental risks have changed since 2015, there is a need to review and adapt the IES to the 2023 context.

2. IES Approach and Objectives

We believe that successful Indigenous engagement programs build trust and confidence in the Project. This is best achieved through early and ongoing interaction. Effective community engagement allows the different groups to ask questions and express their views, wishes and concerns to those responsible for making decisions – on a continuous real-time basis (not just through limited formal consultation sessions). This improves the quality of project-related decisions and supports the development of mutually acceptable and effective Impact and Benefit Agreements (IBA's) with Indigenous groups and other opportunities that will create shared value for key groups and Torngat Metals.

The main goal of the IES is to obtain FPIC (Free, Prior and Informed Consent) for the Project and complete the approvals following best practices, and being innovative and while also managing the overall timelines and costs. In support of this Project goal, the IES is designed to meet the following objectives:

- Gain key Indigenous support for the project and efficiently manage the indigenous environmental review process, as well as other government and non-government interests.
- Indigenous groups understand that Torngat is undertaking a thorough and detailed planning process that values community input, and provides a genuine opportunity for them to contribute and influence Project decision-making.
- Indigenous groups understand the differences (and similarities) between rare earth mining and other types of mining, especially uranium mining, and on the potential impacts, risks and benefits (e.g., economic, social) of operating a rare earth mine, processing plant and Residue Storage Facilities (RSF) in their respective area.
- Gain trust that Torngat will take appropriate and timely action to minimize or mitigate negative effects on social and environmental components valued by community members. These might include impacts to the environment, human health, important or sacred places, traditional hunting grounds or harvested species, and other social, economic and cultural interests.
- Together identify and pursue a range of partnership opportunities
- We avoid missteps, miscommunications and avoid being the cause of project "blockers"

- Meet and exceed regulatory requirements related to Indigenous communication and consultation.

3. IES Content

The Indigenous Engagement Strategy revolves around four different axis: 1- resuming the dialogue with key Indigenous groups; 2- updating the stakeholder engagement plan and associated management tools; 3- negotiation of agreements with the Indigenous groups; 4- establishing collaboration with Indigenous groups for the realization of environmental and social studies.

3.1 Resume the dialogue with Key Indigenous Groups

Since 2015, Torngat Metals has been able to maintain minimal dialogue with key Indigenous groups, including the Nunavik Inuit and the Nunatsiavut Inuit. This represents an important asset for a rapid relaunch of discussions regarding the potential participation of these groups to the project, whether for the environmental and social assessment process or for their participation in works related to pre-feasibility and feasibility phases.

The main objectives to resume the dialogue with key Indigenous groups are the following:

- Provide an update of the Strange Lake project.
- Identify Indigenous expectations/concerns and potential collaboration.
- Establish the foundations for ongoing dialogue for environmental and social impact assessment processes and MOU/IBA negotiations.

Already at the end of 2022, Torngat Metals invited Makivik Corporation and Kativik Government to meetings to present the current status of the project and to identify the new expectations of these groups. Torngat Metals is still waiting for their response.

The first semester of 2023 will therefore be an opportunity to resume formal discussions with these groups, as well as with other key groups in Quebec and Labrador that participated in the previous engagement program between 2011 and 2015, namely the Naskapis, the Labrador Innu (Innu Nation) and the Matimekush-Lac John Innu (Innu of Schefferville). In addition to these groups, Torngat Metals will also have to include in the engagement program the Innu of Uashat mak Mani-Utenam (Innu of Sept-Îles) as well as the Nunatukavut Metis (Metis of Labrador).

The level of engagement to be deployed with each of these groups remains to be determined based on the analysis to be updated during the first semester of 2023. But briefing notes, key messages and communication tools (see next axis) should be developed in the first quarter of 2023 in order to engage rapidly with the key Indigenous groups and to participate in public events such as the Nunavik Mining Workshops in Salluit and the Northern Lights in Ottawa.

Main actions

Action	Start	End
Follow-up calls to Makivik and Kativik leadership	January 12	January 16
Invitation letters for a meeting to the following groups: Kangiqsualujjuaq Village and Landholding Corporation (LHC), Nunatsiavut Inuit, Innu Nation, the Naskapi and the Matimekush Innu	January 11	January 20
Briefing notes of 1 to 2 pagers on each Indigenous group that we will engage with: Information that will help us out to define the interests and concerns of the Indigenous groups and to reach out to the Indigenous group representatives	January 16	February 24

Action	Start	End
Develop key messages on potential issues and concerns for the Indigenous groups: environmental impacts and risks, potential opportunities and collaboration		
Develop communication tools for these public events and for distribution to the Indigenous groups		
Participation in Northern Lights in Ottawa	February 8	February 11
Meetings with Makivik and Kativik leadership in Kujjuaq	February 13	February 17
Participation in Nunavik Mining Workshop in Salluit	March 21	March 23
Visit to Kangisualujjuaq (meetings with the Mayor and the LHC)	March 16	March 17
Meetings with other Indigenous groups	TBD	TBD

3.2 Updating the stakeholder engagement plan and associated management tools

Developing an integrated environmental and social management system has now become a standard imposed by international lenders. Best practices suggest setting up, early in the project, a system integrating a stakeholder engagement plan (SEP), stakeholder engagement activity tracking and recording tools, and reporting formats on the social performance of the project.

Stakeholder Engagement Plan

In order to meet the best industry practices, Torngat Metals will updated the stakeholder engagement plan (SEP) prepared in 2014 based upon the following guiding principles:

- Understand who is interested in the project and seek to build relationships with those key groups and to feel comfortable engaging in collaborative and productive discussions about managing potential effects and maximizing potential benefits.
- Communicate in a clear and understandable manner with those most interested or directly affected by the proposed mine.
- Provide simple communication materials that educate, inform and motivate.
- Engage people early in the process and maintain a regular and open dialogue throughout the life of the project, to understand Indigenous issues and to identify mutually-acceptable approaches to address key concerns.
- Provide substantial opportunities to receive community feedback and exchange ideas, with appropriate adaptations to access opinions across demographic groups (age, gender, etc); thereby helping to minimize conflict and build constructive consensus.
- Listen to and carefully consider concerns and ideas; recognizing that diversity of opinion will contribute to fair and informed decisions and will result in the most appropriate project design.
- Communicate decisions in a timely manner and respond to information requests as fully and as quickly as possible.
- Set clear and realistic timetables for receiving and responding to input.

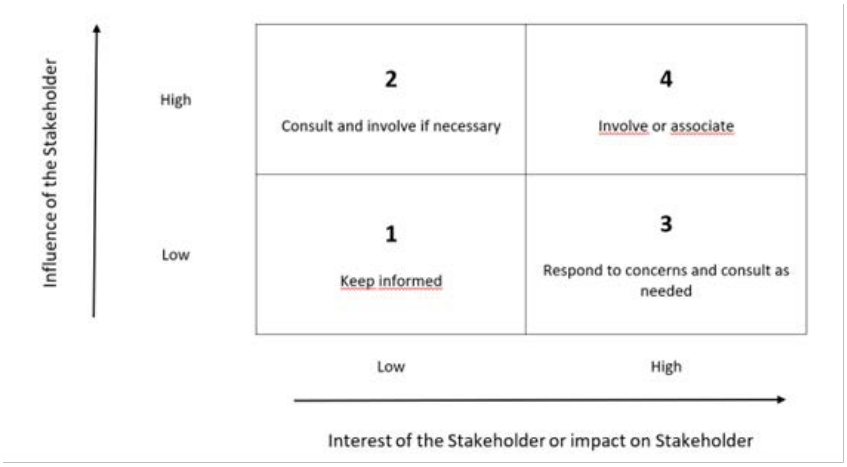
- Regularly monitor and evaluate how the Proponent is communicating with Indigenous and non Indigenous groups throughout the process.
- Identify appropriate ways to facilitate and/or improve effective communications between project team members.

The SEP will include the following elements:

- laws, regulations and standards that apply to the project with respect to Indigenous and non Indigenous groups consultation;
- records of previous engagement activities with Indigenous and non Indigenous groups;
- Indigenous and non Indigenous groups mapping and analysis;
- information, consultation and engagement tools and means used;
- calendar of Indigenous and non Indigenous groups engagement activities;
- grievance management mechanism;
- roles and responsibilities for implementing the plan;
- implementation budget.

The Indigenous and non Indigenous groups mapping and analysis will help to determine the type of engagement to be conducted based on each stakeholder's level of interest and influence. It takes into account two fundamental criteria: the group's ability to influence the project and their level of interest in the project. The goal of the mapping is to define the different categorization of the Indigenous and non Indigenous groups (Involve, Consult, Inform). In this way, it is determined whether each group's level of interest in the project is low or high and whether their level of influence is low or high.

The next figure presents the influence/interest stakeholder analysis matrix.



Stakeholder engagement activity tracking and recording tools

In parallel with the planning work, Torngat is developing integrated management tools on an online platform accessible to internal project stakeholders. This platform is equipped with a stakeholders register, an interest/influence analysis matrix, as well as a directory of planned and carried out stakeholder engagement activities. A screen shot of the platform is presented below. A tutorial will be developed to support Torngat Metals and AECOM users.

Other management and communication tools

Preparing a stakeholder engagement plan is also an opportunity to update and develop the various management and communication tools necessary for the dialogue with the stakeholders. Among them, the following:

- **Project Governance & Internal Communications**: This document identifies the decision-making individuals on the project team, as well as the internal chain of reviews necessary before communications materials (e.g., letters, reports, website updates, etc) will be finalized and released. It also recommends appropriate channels for informing project team members of progress, emerging issues and new key messages. A core communications team will be established (Torngat + consultants). A dedicated communications and community-relations spokeperson will be designated. This team will also consider the relevance and timing of having local liaison officer in key communities such as Nain, Kuujjuaq or Kangiqsualujjuaq. They could be indigenous sub-consultants with the mandate to receive concerns and request for information in person (without giving informations).
- **Stakeholder Input & Response Tracking**: Tracking communications with stakeholders is essential for responding quickly and accurately to questions or concerns as the project progresses. This document will identify who receives and uploads the stakeholder correspondence and verbal exchanges into the platform for quick retrieval. Identifying a responsible individual on the project team creates a streamlined approach that will help ease response delays and will quickly notify the project leadership of any incoming issues or concerns.
- **Media Scanning**: Monitoring media and social media offers an excellent way to assess stakeholder and media opinions as they change over time. Key search terms, websites, and search techniques will be formalized to ensure that the project is getting consistent results. Setting the search terms and frequency will be decided in close communication with Torngat.
- **Communicating with the Media**: A protocol document should be prepared to determine which individuals are permitted to speak to the media related to the project. The document should also identify which media sources will be used to publicized notices, open houses, and other project messages to a wide audience. A preference will be given to regional outlets (e.g., local radio, newsletters) to cover the widest area possible.
- **Social Crisis Management Strategy**: an emergency communication response strategy to determine key actions and messages to address a potential crisis at the local level.
- **Public Event Procedure & Planning Checklist**: This checklist provides the project team with a consistent approach to setting up and participating in public events. The document should determine the format, the frequency of the events, and which team members should attend.

- **Master Q&A**: Provides the core team with a summary of the questions expected and the answers to be provided.The benefit of this approach is to increase the number of staff authorized to respond to expected questions posed by stakeholders regarding key issues. Delegating these types of responses will save Torngat time and will also create budget efficiencies.
- **Fact Sheets (e.g., Strange Lake Project, Why Here, Potential Benefits, Rare Earth Elements, Mining Operations, Approvals Process, Radioactivity, etc.):** Fact sheets provide a greater level of detail about the project to the general public and proactively answer Frequently Asked Questions. The fact sheets often use visuals, including diagrams, maps or photographs to explain the key concepts. Specific Fact Sheets will need to be developed for the Northern and Southern Project Areas.
- **Web-site content**: Website content should mirror the Key Points, Project Story and newsletter as a secondary way of reading about the project. Video content or links will also enhance the experience of stakeholders using the website - as is already the case on Torngat's corporate website.
- **Radio Scripts**: General radio scripts will be prepared as a template for project descriptions and notifications for public events (i.e. information sessions).
- **Media Releases, as required:** A media release template will be developed to be prepared for issues arising during the pre-feasibility and feasibility phases.
- **Sustainability and Social Responsibility Report for Torngat**. Torngat will request AECOM;s support to provide key content when Torngat develops their stand-alone ESG-I report

Main actions

Action	Start	End
Update the stakeholder engagement plan (SEP)	Early February	End of April
Finalise the Stakeholder management system (web platform)	January 4	January 20
Prepare a tutorial and a training session for internal users of the stakeholder management system	January 23	February 3
Prepare other management and communications tools	Early February	End of June

3.3 Negotiation of agreements with Indigenous groups

Torngat Metals recognizes that the Strange Lake Project mine, roadway, port and plant will be located on lands in Quebec and Labrador subject to Indigenous land claims agreements and unresolved claims. Torngat Metals will avoid infringement of any rights and is committed to consult and negotiate with the concerned Indigenous groups in order to obtain Free, Prior and Informed Consent (FPIC).

An effective tool to build a collaborative relationship with impacted indigenous groups is the signing of Impact and Benefit Agreements (IBAs). This type of agreement typically provides to the impacted groups socio-economic benefits such as employment and training, business opportunities, cultural and social support, environmental protection and financial provisions.

To carry out this process, the Strange Lake project needs legal services to guide Torngat throughout the negotiations with the Indigenous groups of Quebec and Labrador. This process is in itself very complex because the Strange Lake project affects the rights and interests of several Indigenous groups in Quebec and Labrador and could potentially trigger the environmental assessment process of 5 different jurisdictions, including 2 Aboriginals. Consequently, the support of two legal teams (one for Quebec and one for Labrador) is required. Already, Torngat Metals has retained the services of the firm Stewart McKelvey for the Labrador negotiation process and is discussing with the firm McCarthy Tétrault for a potential collaboration for the Quebec.

The two legal teams will have to work together to establish an overall strategy. The legal teams will also have support from the AECOM technical team for the identification and analysis of the impacts of the project on indigenous rights as well as to report the consultation outcomes. To do so, a Torngat Metals / AECOM / legal teams committee will have to be set up and periodic meetings should be organized.

Also, preliminary work will have to be carried out to establish the basis for future negotiations: a careful verification of the mining leases of Torngat Metals and a review and update of the analysis of the Indigenous rights conducted in 2013 by the firms of Goodland O'Flaherty and Heenen Blaikie.

Main actions

Action	Start	End
Complete the selection of the legal firm for Quebec	January 10	January 20
Verification of Torngat Metals mining leases	January 20	January 27
Meeting between the two legal teams and AECOM technical staff	Early February	Early February
Analysis of the Indigenous rights (update the 2013 report)	February 13	March 17
Torngat Metals / AECOM / legal teams committee periodic meetings (monthly)	February	Ongoing

3.4 Establishing collaboration with Indigenous groups for the realization of environmental and social studies

The last strategic axis in terms of engagement with Indigenous groups is the search for potential collaborations with the groups concerned to update and carry out the basic studies necessary for the environmental and social impact assessment process.

Already in 2013-2014, the Nunatsiavut Inuit had signed an agreement with Quest Rare Minerals to carry out the land use study. The AECOM team then played an important role in defining the terms of reference and monitoring the work of the Inuit. A similar approach will also be beneficial for the current phase of the project.

Otherwise, Torngat Metals will rely on existing projects in Aboriginal communities by offering financial support to encourage the participation of these groups in environmental and monitoring studies. We are thinking in particular of the Imalirijiit project, a community-led project in Kangiqsualujjuaq to monitor the George River wathershed. Future engagement activities with Indigenous groups will help to identify similar projects or opportunities to create and foster collaboration.

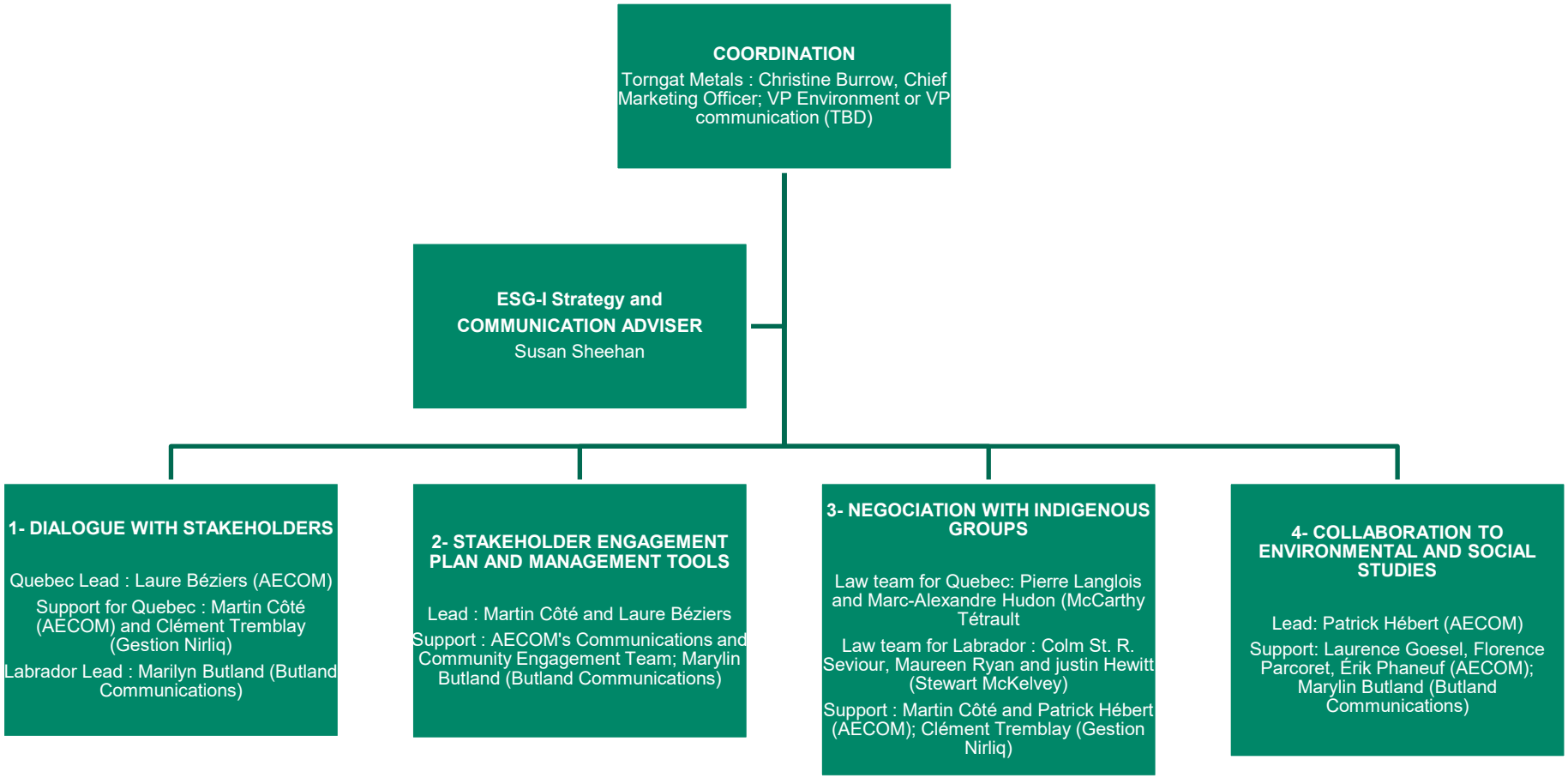
As a preliminary step, a gap study regarding studies performed between 2011 and 2015 and current regulatory requirements will further target opportunities for collaboration with these groups. Also, the various exchanges that will take place during the activities to relaunch the dialogue with the key stakeholders will make it possible to clarify the expectations and the opportunities for collaboration.

Main actions

Action	Start	End
Gap Analysis on baseline studies and identification of potential collaboration	December 2022	End of March
Identification of potential collaboration during stakeholder engagement activities with key Indigenous stakeholders during formal meetings or public events (Nunavik Mining Workshop, Northern Lights)	January	June
Establish terms of reference for potential Indigenous participation in baseline studies/monitoring programs	TBD	TBD

4. Strange Lake Indigenous Engagement Team

The next figure presents the Strange Lake Indigenous Engagement Team. It identifies the leaders and supports for each strategic axis. Nevertheless, it goes without saying that consultation work will have to be carried out between the different teams during the different stages of the project.



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