Appendix A
Summary of Issues- Questions and Answers

Strange Lake Rare Earth Mining Project

Summary of Issues Answers

Appendix A

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Summary of Issues Answers

1 Project Description

Purpose of and need for the project

SI 1.1 : Concern about the project's purpose, and the possibility that the final products (rare earth oxides) will not contribute to the green energy transition. Importance of discussing alternatives to the project that could meet demand for rare earths.

A 1.1 :

Torngat Metals is focused on producing the rare earths required for permanent magnets, specifically the oxides of neodymium (Nd), praseodymium (Pr), dysprosium (Dy) and terbium (Tb). More than 90% of the company's revenues will come from sales of these rare earths. The company will also sell other rare earths based on market demand, for example lutetium (Lu) that is essential for medical imaging equipment.

The demand for rare earths for permanent magnets is growing the most quickly compared to the other applications for rare earths, see figure below. This is because rare earth permanent magnets are crucial to the green energy transition (electrification and decarbonization). Permanent magnets are essential to manufacturing high-efficiency motors used in electric vehicles, drones, robotics and for offshore wind turbine generators. Electric vehicles (EVs) require a high-performance battery and a high-performance drivetrain motor. The battery system is unavoidably bigger and more expensive than the drive train motor. This means that motor efficiency, enabled by permanent magnets, is critical because a less efficient motor (e.g. induction motor that doesn't use magnets) would require a larger battery, which would add significant cost and weight, reducing the EV's benefits.

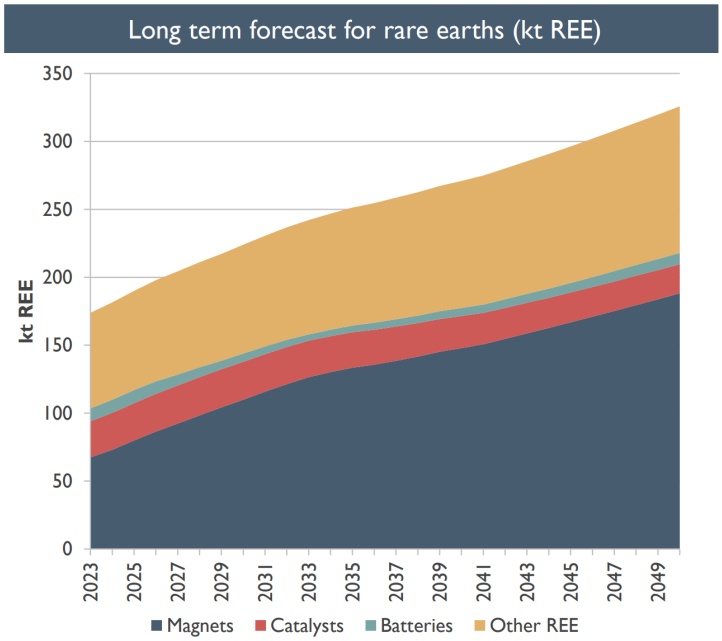

Figure 1-1: Project Blue's Rare Earth Demand Forecast by Application, March 2024[1]

[1] https://projectblue.com/

The light rare earths—neodymium and praseodymium—are the key magnetic elements for producing a permanent magnet. Less understood though is the critical role that heavy rare earths—dysprosium and terbium—play in high-performance applications such as an EV drivetrain motor. Heavy rare earths create a stronger magnet and allow the magnet to retain its magnetic properties in elevated temperatures during motor operation. With the rapid acceleration in the production of EVs and offshore wind turbines, dysprosium, and terbium have risen to the top of the criticality list because they work so much better than any other options. Strange Lake is unique for having the most dysprosium and terbium compared to existing and future suppliers.

Currently, China controls 80-90% of light rare earth production for permanent magnets. For the heavy rare earths, China controls almost 100% of the production. Their supply comes from domestic mining and up to 50% comes from rare earth concentrate from Myanmar, a country in civil war and under Western sanctions. China is also increasingly importing concentrate from other countries.

Demand for rare earth oxides from outside China is growing rapidly for two reasons: to meet the rapidly growing demand and to de-risk their supply chains. There are a small number of existing producers of rare earth oxides outside of China, and many projects in development in Canada, Australia, and many other countries. The growing demand needs more responsibly produced rare earth oxides, from companies committed to high environmental, social and governance (ESG) standards, in jurisdictions with strong regulations.

Besides mining, rare earths can be sourced from tailings and existing waste, as well as from recycling. The economic production of rare earths from tailings and existing waste is still in development by several companies and research labs. When successful they will be able to provide a relatively small portion of the needed supply. Regarding recycling, magnets in motors and wind turbines are in use for many years before they can be recycled. Recycling of end-of-life magnets is currently a very small source of supply, but that will increase over the coming decades. The green energy transition will continue for decades, therefore even with maximum recycling, the demand for mined rare earths will continue to grow.

Therefore, the Strange Lake Project is essential for the green energy transition and there is no other source that can match the quantity of light and heavy rare earths that Strange Lake could supply.

SI 1.2 : Need for information to demonstrate in a concrete manner how the project will contribute to a responsible, traceable, fully independent and diverse supply chain of critical minerals, including transparent information on the supply and distribution chains.

A 1.2 :

Strange Lake project includes every step from mining to finished high-purity separated rare earth oxides entirely in Canada. Torngat Metals will provide full traceability of its entire production. This will be straightforward since it is doing every step under its ownership within Canada. Torngat Metals will not send any products to China, not rare earth concentrates nor semi-finished product.

The rare earth permanent magnet supply & distribution chain:

Strange Lake rare earth oxides (REO) products will first go to a rare earth metallization plant, then to a magnet alloy plant and then to a magnet plant. The magnets then are used to manufacture EV motors, wind turbine generators, other motors and other magnet applications. Then the finished motors and generators are assembled into finished products such as EVs, drones, and wind turbines.

Strange Lake products will be sold to customers in the U.S., Europe, Japan, South Korea and Canada. In all of these countries, investments are being made to increase the capacity in every step of the rare earth permanent magnet supply chain. An example of the current supply chain. Dana TM4 assembles Chinese magnets into motors that are assembled into buses built by Lion Electric in Quebec; in future Dana TM4 could buy its magnets from one of the new magnet plants being built in the U.S., magnets that could be manufactured using REOs from Strange Lake.

Torngat Metals expects that many of its customers will require it to provide verified ESG data[2] including traceability. This could be through the customers own specific requirements or through existing and emerging standards programs. Torngat Metals will implement a traceability program. The traceability standards are still in development and there are numerous critical traceability initiatives underway. For example the Initiative for Responsible Mining Assurance (IRMA) is refining their Chain of Custody Standard. Another example is Principles for Responsible Critical Minerals Supply Chains from the Minerals Security Partnership (MSP) which include a requirement to meet high standards for supply chain traceability. MSP partners include Australia, Canada, Estonia, Finland, France, Germany, India, Italy, Japan, Norway, the Republic of Korea, Sweden, the United Kingdom, the United States, and the European Union (represented by the European Commission).

The Government of Canada announced funding for critical minerals traceability projects in December 2023

> *The Honourable Jonathan Wilkinson Minister of Energy and Natural Resources*
>
> "Canada is home to some of the most abundant supplies of critical minerals in the world. Today's announcement will help advance Canada's critical minerals supply chain through traceability projects and create conditions to make Canada the clean technology supplier of choice."

More broadly than traceability, Torngat Metals is committed to demonstrating adherence to responsible mining standards. The company has made a commitment to following the Mining Association of Canada's (MAC) globally recognized responsible mining standard, Towards Sustainable Mining (TSM). The company is reviewing and will commit to other responsibility standards.

[2] ESG data : information related to a company's Environmental impact, Social responsibility, and Governance practices

SI 1.3 :	Need to clarify the position the project intends to occupy in a market where demand for rare earth elements is diverse and, to a large extent, counter-productive to the collective efforts to combat the climate crisis and achieve international social justice, given the uses to which these minerals are put.

A 1.3 :

Torngat Metals is focused on producing the rare earths required for permanent magnets, specifically the oxides of neodymium (Nd), praseodymium (Pr), dysprosium (Dy) and terbium (Tb). More than 90% of the company's revenues will come from sales of these rare earths. The company will also sell other rare earths based on market demand, for example lutetium (Lu) that is essential for medical imaging equipment.

With regards to magnet demand, the demand from the U.S. defense industry is very small compared to the overall magnet industry (<1%).

See also answer 1.1.

Nature of the project and Governance

SI 1.4 : Concern that this project is one of the first rare earth mines in Canada, and that there are few similar existing projects from which the proponent can learn from.

A 1.4 :

Projects in Canada

Since the 1950s, prospecting for various metals of interest has been carried out in Canada. In the 80s and 90s, certain sites containing rare earths elements were selected for more in-depth studies. Various aspects of the following three rare earth projects in Canada could be examined as part of the impact study, in order to identify potential lessons learned to improve the Strange Lake project. The projects and their respective aspects that deserve attention are as follows.

1 - Nechalacho Rare Earth mine (mine and concentrator - Northwest Territory):

- Projects:
  - Avalon's Nechalacho Mine, Thor Lake, TNO
  - Cheetah's Rare Earth Demonstration Project, Nechalacho T-Zone deposit, TNO
- Companies involved: NWT Rare Earths, Cheetah Resources, Vital Metals, Avalon
- Status of the Avalon's Nechalacho Mine project:
  - Feasibility study (FS) published in 2013
  - Environmental permitting process: the project planned to use significant water resources. The authorization process with the Mackenzie Valley Land and Water Board was suspended by Avalon in October 2014, prior to the public hearings.
- Status of the Cheetah's Rare Earth Demonstration project:
  - Demonstration project using a new approach, with no significant use of water
  - Environmental authorization process: the demonstration project was authorized by the Mackenzie Valley Land and Water Board for a 7-year period running from 2021 to 2027.
- Examples of relevant aspects and lessons learned for the Strange Lake project:
  - Relationships and involvement of local Indigenous communities in the project.
  - Site-specific water quality and quantity objectives for rare earths.
  - Northern environmental constraints on: separation processes (transport, products, energy, etc.), residue storage facility design, mitigation measures, reclamation methods.

2- SRC/SRC Rare Earth Processing Facility (plant - Saskatchewan):

- Methods and processes for extracting rare earths and separating radioactive elements.
- Management of radioactive materials.
- Methods for rehabilitating contaminated tailings sites.

3 - Commerce Resources Corp (mine - Quebec):

- Project: “Ashram Rare Earth Element and Fluorspar Deposit”
- Project status:
  - Preliminary Economic Assessment (PEA) published in 2012, revised in 2015.
  - Pre-feasibility study (PFS) : in progress
  - Environmental permitting process: project notice/initial project description not yet submitted
- Example of relevant aspects and lessons learned for the Strange Lake project:
  - The impact of climatic conditions (freeze/thaw, salinity, etc.) on residual materials and the mobility of metals and rare earths in the northern environment.

4 - Niobec (mine and production plant - Quebec):

In addition, even if it is not a rare earths project as such, the experience of the Niobec mine in St-Honoré (QC) would also be a very interesting 4th case to study for lessons learned, since the deposit mined there, like the Strange Lake project, also contains traces of uranium and thorium.

- Project: niobium mine and ferroniobium production plant in St- Honoré, Qc.

Project status: in operation since 1976. A mine expansion project was launched in 2011, then abandoned in 2015. An impact study of this expansion project was published in 2013.

- Example of relevant aspects and lessons learned for the Strange Lake project:
  - Residual materials management: waste rock and tailings, radioactive materials, dust, radon.
  - Radiation protection measures.
  - Tailings and waste rock reporting to the NPRI.

Overseas projects

Finally, the following two well-documented overseas rare earth projects are worth examining in the context of this impact study, in order to learn from them. The aspects that deserve our particular attention are as follows.

5 - Mountain Pass (mine - California, USA):

- Waste management (inspired by California's regulations, which are among the strictest in the world).
- Water management: reduced freshwater input, recycling, dry residue disposal, zero discharge into the environment.
- Development of processes to reduce energy, water and chemical consumption.
- Community involvement (greenhouses, revegetation, specific programs for minorities).

6 - Mount Weld (mine - Australia):

- Methods for managing releases containing radioactive elements, depending on radioactivity levels (transport, dust, etc.).

A technology watch of other industrial and mining projects will also be carried out throughout this project, to gain insight into best practices in all areas (operations, production, ESG, etc.).

In addition to the precedent information, the processes used in the various stage of the production circuit are well known and applied. The beneficiation plant at the mine site is a conventional mill and flotation circuit that is common in many polymetallic processing facilities throughout the world and in Canada. Torngat Metals have engaged Tier 1 suppliers and consultants to ensure the design is the latest for efficiency and operability. The sulphation plant in Sept -Îles is common equipment in facility throughout the world and is well proven in the industry. The Separation Plant in Sept Iles is similar to many operating plants throughout the world, though it is recognised predominantly in China for rare earths. However, the technology used in the sulphation and separation plant is used extensively Internationally in jurisdictions with similar environment standards to Canada such as Norway, Europe and the United States. Torngat Metals' design follows the proven process routes designed by international consultants, Carester, for other similar operations. This design includes the latest knowledge and process equipment that is proven in many other operations. The hydrometallurgy circuits are proven on other elements extensively throughout the world in jurisdictions with high levels of environmental permits. No system is unproven and as such many learnings from facilities are available and being incorporated into our designs by the major technology suppliers.

SI 1.5 : Concern about the potential impacts of the technology used for the extraction and processing of the rare earth mineral.

A 1.5 :

The technology used for the concentration and separation processes is proven technology in the mining industry and supplied by reputable technology suppliers. Currently test work is underway with a number of technolgy suppliers (Metso, FLSmidt, Carrester, etc) to test the material from drilling samples collected at the Strange Lake site. These tests aim to ensure that at a pilot scale the outcomes from previous laboratory bench scale tests can be replecated and optimised.

It should be remembered that rare earth minerals play a pivotal role in green technologies. Nevertheless, the extraction and processing must be carefully managed to minimize adverse environmental effects by considering the following:

Extraction Technology and Equipment:

The project utilizes conventional open-cast mining equipment, likely similar to a CAT777 haulage fleet with CAT6000 series excavators. This choice reflects our commitment to efficiency and reliability in our operations. Furthermore, all equipment will be fitted with the latest emissions-reducing technology, significantly minimizing our carbon footprint and aligning with Canada's environmental objectives.

Processing Plant Technology:

Whilst processing of rare earths is relatively new outside of China, the processing plant equipment is not. The technology is proven Internationally and in Canada and is widely used in polymetallic plants, conventional nickel, copper and PGM (Platinum Group Metals) plants, demonstrating its reliability and effectiveness. The conventional approach, likely utilizing a ball mill, cyclones with a flotation circuit, thickeners and filtration systems. The equipment is preferentially selected on its proven operational process capabilities and ensured that all equipment is at the current requirements for reduction in energy consumption using the latest Codes and practices Internationally to reduce GHG emissions and water usage.

Safety and Environmental Considerations:

Recognizing the importance of safety and environmental stewardship, Strange Lake project is subject to multiple Hazard and Operability Studies (HAZOPs). HAZOP is a structured and systematic examination of a complex planned or existing process or operation in abnormal situations. The goal is to identify and evaluate problems that may represent risks to the environment, personnel or equipment, or prevent efficient operation that may cause abnormal conditions to the processing plant in operation. After identifying these conditions as example “no flow”, “high flow”, “low flow”, “back flow” for each piece of equipment, additional equipment or circuits are added in order to deal with this situation without causing impact to the environment or people until normal conditions resume. HAZOP is a critical component of Strange Lake project planning and operational phases, ensuring that all potential "upset" or abnormal conditions are anticipated and managed proactively. In addition, Torngat Metals aims at creating a highly automated plant with sophistacted tracking systems to proactively manage the data from the facility in order to pre-empt any potential issues to avoid abnormal conditions in the first place.

During HAZOP studies, a multidisciplinary team reviews the process in stages, identifying potential deviations from normal operation and their possible causes and consequences. This thorough analysis leads to the development and implementation of mitigation strategies, including additional technology and process equipment designed to handle these deviations, thereby ensuring the safety of our operations and minimizing environmental impact.

How Torngat Metals intends to mitigate the impacts of technologies:

Strange Lake project represents a significant advancement in the responsible extraction and processing of rare earth minerals. Through the use of proven, conventional technology, adherence to stringent environmental regulations, and a rigorous approach to safety and risk management, Torngat Metals is committed to setting a benchmark in sustainable mining practices. The company welcomes the opportunity to engage further with the relevant environmental authorities and other stakeholders to provide additional information and address any concerns.

Torngat Metals intends to mitigate impacts on water by using a closed circuit between the processing facility and dry stack residue deposit. This means no industrial water is discharged and the amount of “new” water required is reduced considerably. Water that may be discharged is from rainfall and snow melts that land on the mine pit area and surface infrastructure. This contact water will be drained in ponds and tanks, and then used in the process. The contact water will be only discharged when there is too much water in the various ponds and tanks. Prior to discharging this contact water, the level of potential contaminants will be measured as required by regulations and permit conditions. Treatment of this water will be carried out when required to bring its quality into compliance with requirements. The water within the closed circuit is highly valuable for Torngat Metals and a number of measures will be implemented to avoid rejecting it. The effectiveness of these measures will be evaluated, and residual impacts assessed. The results of this assessment will be disclosed in the impact assessment.

The concentration plant is housed within a winterised structure. The facility has dust suppression and extraction facilities at all dust points as part of the health and safety requirements to protect workers. The dust that may be generated from the haulage of trucks and blasts from the mine will be monitored against the agreed limits. If necessary, additional measures can be implemented to suppress dust from these activities. The effectiveness of these measures will be evaluated by atmospheric dispersion modelling to determine distances within which impacts are possible given the characteristics of the dust and the meteorological conditions. The results of this assessment, as well as the proposed site wide dust management systems, will be disclosed in the impact assessment.

All facilities associated with the concentration plant are within a winterised building and have concrete bunded floors that allow any flows to be collected and recirculated back into the system. As explained elsewhere in this document, the mine residue dry storage area has an engineered lining system and is covered to be protected from rain/snow in non-active areas. These measures limit pathways to the natural environment. Their effectiveness will be evaluated as part of the impact assessment and an adapted environmental management plan will be developed. During construction, operation and closure, impacts will be monitored and as necessary any changes required will be implemented.

SI 1.6 :	Concern about the name of the company, as the use of the word Torngat is considered disrespectful to the people of Nunatsiavut.

A 1.6 :

In March of 2018, a new name was needed for the private company that emerged after the court ordered restructuring of Quest Rare Minerals. The company decided to continue to develop the Strange Lake Rare Earth Project by focusing on a commitment to ESG principles.

In considering a new name, the company recognized that the value of the project and of the company itself was in the ground, in the land. That was chosen as the primary criteria for a new name. The name had to honour and revere the land and the region and had to set an aspirational goal for the company's values and activities.

Upon review of the geography of the region, the Torngat Mountains were identified as the most special feature of the landscape. The central importance of the Torngat Mountains to Indigenous peoples for thousands of years was a key consideration, along with the connection to traditional resources, strength, beauty and longevity. As well, that the Torngat Mountains should be much better known by the south was also part of the considerations.

The company identified the name Torngat Metals as the leading name candidate for due diligence. The CEO spoke by phone with Inuit and Innu leaders from Quebec and Labrador. There were no concerns raised at that time with using Torngat in the company name. In 2018, based on internet searches, there were only a handful of businesses using the name Torngat, and none related to mineral project development. A legal review was also conducted. Since no red flags were identified at that time, the company concluded due diligence and made Torngat Metals Ltd. the legal company name. Between 2018 and fall of 2022, the company focused its limited financial resources on developing a more robust business model for developing the project. The majority of the effort was on developing a much more detailed geological model (3D map of the location of the rare earth minerals), and technical work to improve the process flow sheet, both to reduce the environmental footprint and to lower the potential capital and operating costs. Based on those efforts the company sought to raise money to enable the project development to continue. In November 2022, a major investment from Cerberus Capital was secured. In December 2022, the company was able to ramp up all the required activities to advance the project. The company began its new engagement with the Indigenous Groups and communities to update them on the developments, to seek their involvement and to develop partnerships. As the engagement deepened throughout 2023 to involve more members of each community, Torngat Metals began to hear concerns about the company name. The company continues to seek input. A suggestion was made that the full name Torngat Metals should always be used, and to not shorten it to "Torngat". The company has adopted that suggestion. It is understood that there is a mix of reactions to this name, and the company intends to continue to listen and seek input.

Mining plan

SI 1.7 : Need to clarify the possibility that Torngat Metals develops mineral deposits other than the B-Zone, either in Quebec or in Labrador.

A 1.7 :

Torngat Metals' proposed project involves only the Strange Lake Alkalic Complex B-Zone deposit, as described in section 9.2.1 and shown on Map 13-1 of the Detailed Project Description (DPD. The development of any other deposit, whether in Quebec or Labrador, is not included in this project.

SI 1.8 : Concern about the impacts created by the large amount of land to be mined to accumulate sufficient quantities of ore containing rare earth elements.

A 1.8 :

The relatively low concentration of rare earths elements is in the very nature of rare earth deposits. Their extraction therefore inevitably produces residues that need to be managed. That being said, the variant selected for mining the Strange Lake B-zone deposit aims for optimum extraction of the zone with the highest concentration of rare earths of interest. The ultimate mine pit footprint is in length 1 500 m by 825 m width.

As explained in section 9.2.1 of the DPD, variants aimed at mining a wider area of the deposit were not selected. The resulting project therefore has a very attractive stripping ratio with very little waste rock extracted. Thus, the mining plan is designed to minimize the impact.

SI 1.9 : Need to clarify how the mining plan would be affected (effects on location and size of waste piles, tailings, use of pit, etc.) if the life of the mine was extended.

A 1.9 :

As mentioned in response to question 1.7, Torngat Metals' proposed project involves only the areas of the Strange Lake Alkalic Complex Zone B deposit that contain the more concentrated rare earth elements targeted by the project. The pit volume, as well as the waste rock and residue piles, are estimated on the basis of the characteristics of this deposit (see table 10-1 of the DPD). The current life-of-mine is conservatively estimated at 30 years. Open pit mining operations is only conducted in the first 18-20 years, with the plant feed for the last 10-12 years coming from low grade stockpile material generated during initial mining operating years.

SI 1.10 : Need for information about changes to the project since the previous prefeasibility study that have reduced the environmental footprint of the mine by a factor of 10.

A 1.10 :

The environmental footprint referred to here refers more specifically to the carbon footprint (GHG balance). The previous design[3] was for all mined material (unconcentrated), to be transported to a processing facility located along the St.Lawrence River in southern Quebec. This equated to the movement if at least seven times more material by trucks and sea over project lifespan. This reduced GHG footprint is at least seven times smaller and possibly more when considering the impact of larger types and fleets of vehicles and the ships to move the material and the GHG required for their development. The footprint of the road as well as design of the road would be significantly higher in the previous consideration, impacting GHG in the construction of the road. The previous design of the road was a fully built two lane roads supporting 12 months per year traffic versus a one lane low impact forestry type road only used for shipping for approximately 5 months of the year (winter months only).

[3] Quest Rare Minerals Ltd. Pre-Feasibility Study Strange Lake B-Zone. December 2013.

SI 1.11 : Need further details on the geology of the Strange Lake deposit, including the types of rocks and minerals that form the ore and waste.

A 1.11 :

The Lac Brisson rare earth deposit (Strange Lake) is associated with the Lac Brisson Pluton (Strange Lake Alkaline Complex or SLAC). The Lac Brisson Pluton is located in the central-eastern part of the Mistinibi-Raude Domain of the Churchill Province (Nain Province for Labrador). It has been dated at 1240 Ma ± 2 Ma by U-Pb dating. The southern, western and northwestern portions of the Lac Brisson Pluton cut the Napeu Kainut Suite (Mesoproterozoic granite and quartz monzonite). To the north, the pluton is in contact with the Mistinibi Complex (migmatitized paragneiss of Paleoproterozoic age). To the northeast and east, the pluton is in contact with gabbronorites of Paleoproterozoic age. In Quebec, these rocks are assigned to the Pelland Suite (intrusive rocks associated with a strong positive aeromagnetic anomaly), while in Labrador they are assigned to the Pallatin intrusive suite. Kilometre-long enclaves of migmatitized paragneiss (diatexite) from the Mistinibi Complex and granoblastic gabbronorite from the Pelland Suite are present, notably to the north-northeast of Pluton (Pilet, 1985; Charette et al., 2019 ; Lafrance et al., 2016 ; Miller et al., 1997). Map 13-2 illustrates the SLAC, as well as the rock geology in relation to the site's topography.

Overview: Confirmation of the B Zone Geological and Mineral Resource Model

In 2019, a new geological and mineral resource model was proposed by Torngat Metals for the B Zone mineral resource hosted within the SLAC. This new model was based entirely on historic drill core and assays retrieved between 2009 and 2012. During the summer of 2023, a confirmation drilling program of 33 HQ sized diamond drill holes, totalling 3,067 metres was completed by Torngat Metals. This new drilling program was to test the definitions and continuity of the new criteria used to define the new B Zone geological and mineral resource model, updated in 2019.

The 2023 drill core logging results confirmed the 2019 updated geological and mineral resource and provided additional important criteria for delineating the sub-domains and distribution of the rare earth elements within the B Zone. That information was then integrated into the 2019 geological model to provide an updated characterization. This updated B Zone geological model will be used in preparation for the updated mineral resource model that will be completed in 2024.

The B Zone Geological Model: Summary of Formation

The SLAC is an approximately six-kilometre diameter intrusive complex. It consists of multiple granitic intrusions that are parental rocks to a complex suite of pegmatite intrusions and subsequently altered and injected by hydrothermal fluids. The formation of the pegmatites and hydrothermal mineralization seems to have occurred at a relatively high crustal level, enabling a series of weak, sub-horizontal, pliable (i.e. ductile) to brittle extensional structures near the top of the SLAC. These extensional structures are the primary reasons that the B Zone mineral resource formed and are the key mechanism and focal point for how the migration and collection of residual granitic fluids, pegmatite formation, and hydrothermal mineralization, occurred. Each of these processes suggest a single paragenetic continuum that can be tracked based on its unique textural, mineralogical, and chemical characteristics. This continuum coincides with an increase in dysprosium within the hydrothermal fracture infillings, making it potentially the highest concentration of dysprosium within a granitic parent worldwide.

Three Mineral Resource domains in the B Zone Extensional Structures

Figure 1-2 (below) depicts the broad irregular area of residual granitic fluid that accumulated and formed a well-defined and large ductile flow, with injection and recrystallization textures inside the granites. These granites are the primary host to the B Zone structures that can be 10's of metres wide, and several 100's of metres long. They occur as a stacked, closely spaced sub-parallel succession of structures, plunging 30 degrees to the northeast. Extending from these larger and well-developed structures are smaller and less continuous structures, found within the variably recrystallized granite. These are typically less than 5 metres wide and less than 25 metres long. The three domains of the B Zone mineral resource seen in Figure 1 are: the Granite Domain (GD); the Recrystallized Granite Domain (RGD) with some smaller discontinuous structures; and the continuous extensional structures (i.e. the Structural Domain - SD).

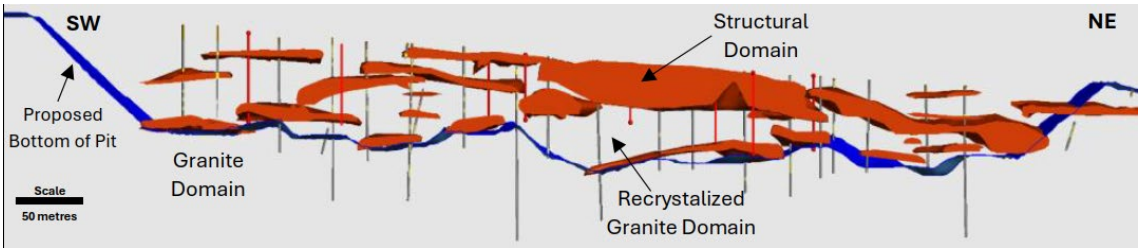

Figure 1-2: Longitudinal section of the 2019 geological model and mineral resource domains

Four B Zone Sub-domains capture B Zone's unique variations

In order to capture essential paragenetic and grade variations within the B Zone mineral resource, sub-domains have been determined. The Structural Domain (SD) appears to include at least four sub-domains generally referred to as:

1) recrystallized granite,

2) recrystallized granite,

3) pegmatite and,

4) fracture controlled sub-domains.

The Recrystalized Granite Domain (RGD) includes at least two sub-domains that are simply defined by the absence (recrystallized granite) or presence (enriched recrystallized granite) of narrow pegmatite or fracture-controlled mineralization.

2023 Confirmation Drilling Program: Identifying relationships between Structural and Sub-Domains

As part of the 2023 work program, a portion of the historic remaining split half of BTW sized diamond drill core and the 33 newly acquired 2023 HQ sized diamond drill core were examined to determine the relationships and distribution of the sub-domains within the Structural Domain. Critical textural and mineralogical criteria to differentiate the fracture controlled sub-domain from the other sub-domains in the Structural Domain was readily identified (Table 1-1 and 1-2).

Table 1-1: SLAC granite and recrystallized granite domains, pegmatite, and fracture-controlled sub-domains.

Minerals	Mineral Formula	Granite Domain		Recrystallized Granite Domain		Pegmatite Sub-Domain		Fracture Controlled Sub-domain	
		Typical Prop %	Typical Size mm	Typical Prop %	Typical Size mm	Typical Prop %	Typical Size mm	Typical Prop %	Typical Size mm
Majors									
Orthoclase	KAlSi3O8	40	8	20.0	10	15.0	50	-	-
Albite	NaAlSi3O8	20	8	15.0	10	15.0	50	15.0	0.25
Arfvedsonite	Na3{Fe2+}4Fe3+Si8O22(OH)2	20	5	10.0	10	5.0	50	-	-
Quartz	SiO2	15	3	10.0	4	15.0	25	35 to 40	0.2
Accessories									
Pyrochlore-(Fe, Na, U)	(Ca,Na)2(Nb,Ta)2O6(O,OH,F)	tr	0.5	1.0	0.5	-	-	-	-
Narsarsukite	Na4{Ti,Fe3+}2Si8O20(O,F)2	1	1	0.2	0.5	-	-	-	-
Magnetite	Fe3O4	tr	0.2	tr	0.2	-	-	-	-
Thorite	{Th,Fe3+,U}SiO4	tr	0.2	tr	0.2	tr	0.2	-	-
Elpidite	Na2ZrSi6O15-3H2O	1	0.25	2.0	0.5	0.5	10	-	-
Rutile	TiO2	0.1	0.2	0.1	0.25	0.2	0.5	-	-
Apatite	Ca5{PO4}3(F,Cl,OH)	tr	0.05	tr	0.1	-	-	-	-
Alteration									
Epidote	Ca2{Al2Fe3+}(Si2O7)(SiO4)O(OH)	0.1	0.1	2.0	0.2	3.0	0.25	-	-
Hematite	Fe2O3	0.2	<0.1	0.5	<0.1	1.0	0.25	-	-
Chlorite	Mg8FeSi5.3Al5.5O20(OH)16	0.1	0.2	0.5	0.1	2.0	0.1	-	-
Zircon	ZrSiO4	0.1	0.2	3.0	0.25	3.0	0.1	-	-
Titanite	CaTiSiO5	0.5	0.2	0.5	0.1	1.0	0.1	-	-
Ankerite	Ca(Fe,Mg,Mn)(CO3)2	tr	0.2	0.5	0.1	1.0	0.25	-	-
Calcite	CaCO3	tr	0.1	0.5	0.1	1.0	0.1	-	-
Phyllosilicates	(K,H)Al2(Si,Al)4O10(OH)2-xH2O	0.2	0.1	0.5	0.1	2.0	0.1	-	-
Astrophyllite	(K,Na)3(Fe2+,Mn)7(Ti2Si8O24(O,OH)7	0.1	0.1	0.5	0.1	1.0	0.1	-	-
Open Space Infillings									
Fluorite	CaF2	0.1	0.25	2.0	0.5	3.0	2	1 to 30	1
Hematite	Fe2O3	0	<0.1	2.0	<0.1	2.0	<0.1	1 to 30	<0.1
Sulphides									
Sphalerite	(Zn,Fe)S	tr	0.1	tr	0.1	tr	0.1	tr to 0.1	0.1
Galena	PbS	tr	0.1	tr	0.1	tr	0.1	tr to 0.1	0.1
Chalcopyrite	CuFeS2	tr	0.1	tr	0.1	tr	0.1	tr to 0.1	0.1
LREE - "Primary"									
Monazite-(Ce,La)	(Ce,La,Nd,Th)PO4	0.1	0.25	0.5	0.25	2.0	0.5	-	-
Allanite-(Ce,La)	(REE,Ca)2{Al,Fe2+,Fe3+}3(SiO4)3(OH)	0.1	0.25	0.5	0.25	3.0	0.5	-	-
Epidote-(REE)	(Ce,Ca,Y)2(Al2Fe3+)3(SiO4)3(OH)	0.1	0.25	0.5	0.25	5.0	0.25	-	-

Table 1-1: SLAC granite and recrystallized granite domains, pegmatite, and fracture-controlled sub-domains (follow-up).

Minerals	Mineral Formula	Granite Domain		Recrystallized Granite Domain		Pegmatite Sub-Domain		Fracture Controlled Sub-domain	
Alteration									
Hematized Arfvedsonite	Na3(Fe2+)4Fe3+Si8O22(OH)2	-	-	10.0	1	5.0	10	5.0	1
Aegirine	NaFe3+(Si2O6)	-	-	10.0	1	5.0	10	5.0	1
Gittinsite	CaZrSi2O7	0.2	0.5	5.0	1	5.0	5	-	-
Dalyite	K2ZrSi6O15	tr	0.2	0.2	0.2	0.2	1	-	-
Armstrongite	CaZrSi6O15·3H2O	tr	0.2	0.2	0.2	0.2	1	-	-
Vlasovite	Na2ZrSi4O11	tr	0.2	0.2	0.2	0.3	1	-	-
LREE - "Secondary"									
Bastnaesite-(Ce,La,Nd)	(La,Ce,Nd,Pr,Y)CO3F	tr	0.2	0.5	0.2	0.5	0.2	3.0	0.2
Parasite	Ca(Ce,La)2(CO3)3F2	tr	0.1	0.1	0.1	0.2	0.1	1.0	0.1
Britholite-Ce	(Ce,Ca)5(SiO4)3OH	tr	0.1	0.1	0.1	0.2	0.1	1.0	0.1
HREE - "Primary"									
Kainosite-Y	Ca2(Y,Ce)Si4O12(CO3)·(H2O)	tr	0.1	0.1	0.2	0.2	0.5	0.5 to 5	0.5
Gerenite-Y	(Ca,Na)2(Y,REE)3Si6O18·2H2O	tr	0.1	0.1	0.2	0.2	0.25	0.5 to 3	0.25
Gadolinite (Ytterbite)	(Ce,La,Nd,Y)2FeBe2Si2O10	tr	0.1	0.1	0.2	0.2	0.25	0.5 to 2	0.25
Fergusonite-(Y)	(Y,REE)NbO4	tr	0.1	0.1	0.2	0.1	0.25	0.1 to 1	0.25
Thalenite-Y	(Y, Dy)3Si3O10F	tr	0.1	0.1	0.2	0.1	0.2	0.5 to 2	0.5
Allanite-(Y, REE)	(Ce,Ca,Y)2(Al2Fe3+)3(SiO4)3(OH)	tr	0.1	0.5	0.2	2.0	0.2	0.5	0.2
Britholite -Y	(Y,Ca)5(SiO4,PO4)3(OH,F)	tr	0.1	0.1	0.2	0.2	0.2	0.5 to 1	0.2
Yttrialite	(Y,Th)2Si2O7	tr	0.1	0.1	0.2	0.1	0.2	0.5	0.2
HREE Accessories									
Milarite-(Y)	K(Ca,Y)Be3Si12O30	tr	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Yttrofluorite (Dy)	(Ca,Y)F2	tr	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Keiviite-Y	Y2Si2O7	tr	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Gargarinite-(Y)	NaCaY(F,Cl)6	tr	0.1	0.1	0.2	0.1	0.2	0.2	0.2
	Total	**99.0**		**100.2**		**100.8**		**31.8**	

Table 1-2: Chemical data 2019 SLAC granite, recrystallized granite and the pegmatite/recrystallized granite fracture controlled sub-domains of the fracture-controlled domain.

Domain or sub-domain	Granite Domain	Recrystallized Granite Domain	EZ Peg/Gte sub-domain	Fracture Controlled sub-domain
Average Width (m)	19,28	8,31	7,99	8,29
Dy ppm	261	351	441	894
Tb ppm	39	50	62	122
Nd ppm	894	990	1026	1530
Pr ppm	244	272	286	424
Zr ppm	13478	15819	19759	19389
Y ppm	1594	2174	2835	5670
Nb_2O_5 %	0,16	0,21	0,29	0,42
F %	0,48	0,60	0,90	1,21
SiO_2 %	70,53	70,04	69,42	69,34
Al_2O_3%	8,29	7,80	6,95	5,99
CaO %	1,86	2,30	2,92	3,68

Table 1-2: Chemical data 2019 SLAC granite, recrystallized granite and the pegmatite/recrystallized granite fracture controlled sub-domains of the fracture-controlled domain.(follow-up)

Domain or sub-domain	Granite Domain	Recrystallized Granite Domain	EZ Peg/Gte sub-domain	Fracture Controlled sub-domain
Fe_2O_3 %	6,30	6,21	5,97	5,78
K_2O %	3,94	3,84	3,73	3,44
Na_2O %	3,39	3,02	2,41	1,80
TiO_2 %	0,33	0,42	0,58	0,68

The recent, detailed examination of the sub-domains within the Structural Domain, indicates that only the recrystallized granite and a more limited extent of miarolitic pegmatites (texture where the pegmatite present crystals filled cavities), had formed in place. Even though miarolitic pegmatites are present within the Structural Domain, most of these pegmatites were probably injected as a partially crystallized pegmatite pulp. And after the pegmatite pulp injected stage, a third and final stage of pegmatite mineralization took place. Once this third stage was complete, the extensional forces driven by the SLAC cooling and contraction transitioned from pliable to brittle. The brittle extensional forces formed multiple fractures that were infilled by hydrothermal fluids, creating what is now generally referred to as the *'fracture controlled sub-domain of the B Zone'*. Particular focus was given to the fracture controlled sub-domain because of its strong correlation with late-stage fracture infillings of hematite and associated relatively high-grade heavy rare earth element (HREE) mineralization. The most important outcome of the 2023 drilling and the resulting interpretation was the fracture controlled sub-domain appearing to be more contiguous than what was thought in 2019 (Figure 1-3).

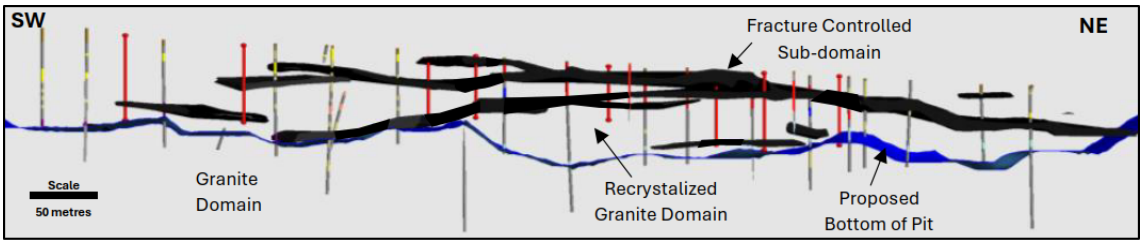

Figure 1-3: 2023 Updated interpretation of the fracture-controlled B Zone sub-domain

<u>The Light and Heavy Rare Earth Elements in B Zone Sub-domains</u>

The fracture controlled sub-domain is the most important of the B Zone mineral resource. Owing to a unique paragenetic phenomena within the SLAC formation, light rare earth elements (LREE) are within the granitic and pegmatitic processes related to ductile extensional structures. HREEs are mostly controlled by hydrothermal fluids that infilled the brittle structures. As a result, the B Zone geological and mineral resource model needed to incorporate the bimodal rare earth element (REE) enrichment processes.

<u>Conclusion and Outcomes from the 2023 confirmation Program</u>

The 2023 confirmation drilling program demonstrated that recrystallized granite was in fact the primary host into which the pegmatite crystal pulp was injected along pliable extensional structures followed by hydrothermal fluids infillings along brittle extensional structures.

The same program revealed that the fracture controlled sub-domain is a relatively continuous set of extensional fractures rather than an infillings of hematite and high-grade HREE mineralization through inward crystallization of

miarolitic pegmatites. These extend through and between the previously formed ductile structures and along almost the entire longitudinal length of the B Zone mineral resource (Figure 1-3). The recrystallized granite within the fracture was probably a relic host now present as extensively altered and recrystallized blocks that were cut by brittle fractures and infilled by hydrothermal fluids. Since the extensional force was a common and continuous aspect of the formation of the B Zone, much of the observed complexities in textures, mineralogy, and chemistry is now effectively understood.

Geostatistical modeling in 2019 suggested that the diagnostic hematite and high-grade HREE mineralization found in the Structural Domain could be preferentially extracted during the initial years of the mine life. The 2023 drilling program delivered an important understanding of the B Zone's primary control and ability to produce a more comprehensive geological model and significantly improved economic model for the SLAC B Zone. By defining the extent and continuity of the structural sub-domain, it becomes possible to selectively mine the high-grade HREE during early mining years, which could offer a significant economic advantage to the project.

Impact on the composition of ore and waste rock

The main lithologies hosting REE mineralization are pegmatite and granite. From this, the main composition of the ore and rocks will be pegmatite and granite. Even after leaching, the residual material preserves its granitic nature (Terrapex, 2013). The results of the geochemical and mineralogical testing, listed at the Appendix E of the DPD, will give more information on the composition of the ore, waste rock and residus of the process. Those results will be presented in the environmental impact assessment.

Components and activities

SI 1.12 : Need for information on unknown elements such as location, processes and capacities of the high purity separation plant, location and dimensions of the tailings facility, method of transferring tailings from the plant to the tailings facility, and the freight zone at the Arnaud Junction industrial park, prior to completion of the impact assessment.

A 1.12 :

Location, processes and capacities of the separation plant (Sept-Îles)

The separation plant would be built in the “Parc industriel ouest – Jonction Arnaud” (also known as “Parc industriel Vigneault”) of the Sept-Îles industrial port facility (QC), on the following lots, as shown on map 9-10 and figure 13.1 of the DPD:

- 3 708 322
- 3 708 323
- 3 708 324
- 3 708 325

The various processes of the separation plant are described later in answer 1.35, as well as in section 10.3 of the DPD.

The capacity of the separation plant will be:

- Treatment capacity: 1,000 tonnes of concentrate per day
- Production capacity: between 2,800 and 3,200 tonnes of separated rare earth oxides (REO) per year, as well as 12,000 to 17,000 tonnes of mixed rare earth carbonates per year.

Location and dimensions of the residue storage facilities (Lac Brisson and Sept-Îles)

a) Residues from the Concentration Plant (mine site, Lac Brisson):

The current preferred and alternate locations of the mine and beneficiation plant residue stockpile area are shown on maps 9-5, 9-6 and 9-7 of the DPD.

The maximum quantity of residue in the dry stack on mine site would be reached at the end of mine operation and is currently estimated at 107,525 million tonnes, excluding the 5-10% cement added. The dimensions of the storage facility will be determined in the feasibility study and will be considered in the impact assessment.

b) Residues from the Sept-Iles Separation Plant:

The process residue stockpile area at Sept-Iles would be build beside the separation plant, on the eastern part of the lots 3 708 322 and 3 708 323, as well on an undivided plot of land, as shown on figure 13.1 of the DPD. However, various alternative options could be evaluated as part of the technical (PFS and FS) and environmental and social impact assessment (ESIA) studies and will be the subject of consultations with the stakeholders concerned.

The maximum quantity of process residue in the dry stack nearby the separation plant would be reached at the end of mine operation and is currently estimated at approximately 5 million tonnes excluding residues of chemicals used for processing and 5-10% cement added. The total mass including these would be approximately 10 to 15% higher. The dimensions of the storage facility will be determined in the feasibility study and will be considered in the impact assessment.

Method of transferring residues from the separation plant to the residue storage facility (Sept-Îles)

At this stage in the project's development, it is planned that residues will be transferred from the separation plant to the residue storage facility by covered conveyor, since they would be on adjacent sites. However, various alternative options could be evaluated as part of the technical (PFS and FS) and environmental and social impact assessment (ESIA) studies and will be the subject of consultations with the stakeholders concerned. Where appropriate, these options and the rationale for the preferred option will be presented in the ESIA.

Freight zone at the Arnaud Junction industrial park

The freight zone at the separation plant has not been designed yet. As the existing rails are situated approximately 300 m from our proposed separation plant site, it is anticipated that a service rail line will be extended inside the plant site in order to ensure safe transfer of the containers inside the plant.

SI 1.13 : Need for information on the location of the landfill, waste rock piles, and tailings facility.

A 1.13 :

Mine site (Lac Brisson)

As described in the previous answer 1.12, there are different options for developing the mine and infrastructures such as landfill and various stockpiles. The mine layout preferred option is shown in map 9-5 of the DPD. This map shows the layout of the facilities at the end of mine operations when residue storage is at its maximum and the low-grade stockpiles are processed.

Other location options for the low-grade stockpiles and the mine residue stockpile area are shown in maps 9-6 and 9-7 of the DPD. With regard to the landfill site, options had been studied as part of the prefeasibility study for the previous version of the project by Quest in 2013. The location shown on the various maps in the DPD is the one that was chosen at the time. However, other options could be evaluated as part of the current project.

These different options will be evaluated and compared as part of the pre-feasibility and feasibility studies, as well as during the impact assessment, in order to select the one that will minimize potential impacts and enhance acceptability, while meeting operating needs.

Separation Plant (Sept-Îles)

As described in the previous answer 1.12, at this stage the preferred residue storage area location would be beside the plant, on the eastern part of the plot (see map 9-8 of the DPD). However, different options will be evaluated and compared as part of the prefeasibility and feasibility studies and in the context of the impact assessment.

There will be no specific landfill site for the Separation Plant, since the separation process generated waste will be sent to authorized facilities according to waste type, in compliance with applicable standards and regulations.

SI 1.14 :	Need for information on alternative sites considered for the disposal of waste rock and tailings, with maps clearly identifying the locations of each of the alternatives considered.

A 1.14 :

See answers to the previous issues (1.12 and 1.13).

SI 1.15 : Need more information on how and where waste including hazardous waste (e.g., fuels, lubricants, drilling fluids, radioactive waste, etc.) will be managed, including transportation and disposal, during operation and after mine closure.

A 1.15 :

Non-hazardous waste

Non-hazardous solid wastes generated by the activities and by the workforce at the mine site (Lac Brisson) will be managed by following the principles of the Quebec Residual Materials Management Policy while considering the location of the project in an isolated northern territory. Reduction at source, recycling and recovery methods will be considered before disposal. At the mine site, the elimination of ultimate waste residues will be carried out in a landfill meeting the specific requirements for such facility in a northern environment. As explained earlier in the answer to issue 1.13, the landfill location shown on the various maps in the DPD is the one that was preferred in the prefeasibility study for the previous version of the project by Quest in 2013, but other options could be evaluated in the coming studies for the current project.

Hazardous waste (e.g., wastes contaminated with fuels, used oils, drilling fluids, etc.)

The hazardous waste will be collected at the mine site (Lac Brisson) and packaged in marine containers that meet the transportation codes for hazardous materials. The containers will be transported by road to the port facilities on the eastern coast of Labrador. The containers will then be loaded onto a barge, and then transferred on the container ship. From there, the containers will be transported to an authorized treatment, recycling or disposal facility according to waste type, in compliance with applicable standards and regulations. All transport operations will be carried out by authorized carriers in compliance with federal and provincial regulations governing the movement of hazardous waste and hazardous recyclable material.

Residue from the concentration processes

The residues from the concentration processes (Lac Brisson), which includes fractions from the magnetic separation and the flotation processes, will be filtered and dewatered (likely < 20% moisture), mixed with a cementing agent (anticipated up to 5 – 10%), transported by truck or conveyor system and deposited on the mine residue storage area. Quebec hazardous materials regulations do not apply to these residues. A detailed characterization in line with the requirements of the Province of Quebec’s Directive 019 on mining industry and Guide on characterization of mining residues and concentrate will be carried out to determine whether these residues meet the definition of "radioactive materials" in these documents. If so, the mine residue stockpile area will be designed to meet the applicable requirements.

SI 1.16 : Need more information on the thickener to be used for the ore concentration process at the mine site.

A 1.16 :

At the mine site, conventional dewatering thickeners and flotation agents will be used for the concentration process.

The thickeners, also known as clarifiers or settlers, are large sedimentation tanks used in mineral processing operations. Their primary purpose is to separate solids from liquids, allowing for efficient concentration of solids and the recovery of valuable minerals. Thickeners utilize gravity sedimentation to facilitate this separation process.

At the present stage of the beneficiation process development, it is planned to use the following list of reagents:

- Hydroxamate (e.g. Florrea 7510 2%) as collector
- Na-metasilicate 10% as depressant
- Mixture of polyglycols (e.g. Oreprep F549 1%)

Dilution of above reagent will be done at the mine site, so water addition should be taken into account in the overall water balance.

SI 1.17 : Need for information on the fuel station at the mine site.

A 1.17 :

At the mine site, diesel fuel stored in 4 to 6 above ground bunded API 650 column supported flat roof storage tanks or alternatively self-contained storage tanks will be used. At this stage of project development, it is estimated that these tanks will have a total capacity of 120 to 150 million litres. The fuel storage tank farm would be located in the industrial zone (see map maps 9-5, 9-6 and 9-7 of the DPD), but various options will be studied and compared as part of the pre-feasibility, feasibility and impact assessment studies.

SI 1.18 : Need to include the wind turbines in the project impact assessment in order to better understand the potential impacts of this component.

A 1.18 :

The construction and operation of wind turbines is not part of the proposed project, neither at the mine site, nor at the storage and handling/port facilities on the Labrador coast, nor at Sept-Îles. However, Torngat Metals is interested in considering proposals from producers of renewable energy, including wind power, who would be interested in developing a project to sell energy to Torngat Metals at the mine site. It is not possible to presume the nature or location of such a project. Where applicable, the implementation of such projects by a third party or parties will be subject to a separate request for authorization.

Furthermore, Torngat Metals will carry out a study on renewable energy sources that could be integrated into its project at the mine site and whose implementation could be piloted by Torngat Metals. This study could include geothermal energy and possibly solar energy. The results of these studies will be described in the impact study. Depending on the conclusions, the potential construction and operation of selected energy production facilities will be integrated into the project and covered by the impact assessment, in the same way as the other project components.

SI 1.19 : Need for information on the type of geomembrane to be used, or any other contamination control device to be installed.

A 1.19 :

The nature of the contamination control devices to be implemented in the residue storage areas, including geomembranes, will be determined be studied as part of the pre-feasibility, feasibility and impact assessment studies, based on the characteristics of the stockpiled materials. The various options considered and the justification for the control methods selected will be described in the impact study. At this stage, it is anticipated that High-Density Polyethylene (HDPE) Geomembranes or other engineered lining will be used for the residue storage containment.

Road

SI 1.20 : Need more information on alternatives for the different transportation modes, including alternative road designs and routes, and the potential use of airships and the existing railway to Sept-Îles. Importance of demonstrating why these alternatives are not feasible or desirable from environmental, economic and technical point of view.

A 1.20 :

Four road options were considered for the access road (see Map 12-1 of the DPD) and of the four, two were selected for further studies.

- Option A is the alignment from the mine site to the port of Vale, in Anaktalak Bay.
- Option B is a Quebec only access road and linked the mine site to the city of Schefferville.
- Option C is the alignment from the mine site to Voisey's Bay.
- Option D is the alignment from the mine to the Smallwood reservoir, where it would join the NF provincial road system.

The decision to bring forward an option was based on the following guiding principals:

1- Minimise Environmental Impacts
2- Minimise impacts on land Use
3- Financial

Option B and D were not brought forward as they were associated with significant environmental impacts due to the numerous potential water crossings, over 380 and 160 for option B and D respectively. In addition, due to the length of the road, an overnight camp would have to be built along the road for health and safety concerns, thus having a significant impact on land use by indigenous communities. It is also important to note that both options would have been over 600M$ to build.

In contrast, Options A and C are both shorter, with significantly less water crossings and economically feasible. Options A and C would require new port facilities such as a container storage area, a container crane and other storage facilities (to be confirmed by the feasibility study) to be implemented. The construction of a floating dock allowing handling on barges will also have to be put in place for option A. The yard will likely have the following facilities:

- Fuel storage using API 650 column supported flat roof tanks. The capacity of the tanks located at port facilities will be determined during the feasibility study. The total fuel storage capacity at mine site + port site is estimated to 150 – 160 million liters.
- Container yard for 12,000 20ft containers
- Container Handlers
- Offices and Ablution Blocks
- Explosives storage facilities
- Security cameras and fencing
- Fire System

The greatest foreseeable impact of Option A would be on land use, due to its closeness to Ikadlivik Brook, a significantly important site for the Inuit and Innu of Labrador. Both those options have been brought forward for

further studies to determine which of the two addresses our three guiding principals mentioned above with the least impact.

An alternate form of transport to/from the mine site has been considered by Torngat Metals, which is the hybrid airship technology. Torngat Metals is following closely the final stages of development of this technology and considers the possibility to ship the containers of concentrate by cargo airship when this technology becomes commercially available and authorized. However, as this technology is not yet available and its development is not under Torngat Metals control, it has been decided not to include this option in the Project. Should the technology become available and if its promoter has obtained all the necessary authorizations, Torngat Metals will take the necessary steps to evaluate this transport option, make sure all compliance requirements would be met and, if deemed appropriate, negotiate with the supplier(s) involved.

If the airship becomes available and Torngat Metals decides to use the technology the preliminary plan is to have an airstrip near Schefferville and then use the existing railway to Sept-Îles. If this alternative becomes feasible, it will be studied at the appropriate time.

SI 1.21 : Importance of providing a comparison table and discussion of alternative means for the project.

A 1.21 :

The alternatives to carry out the project that have been considered so far are presented and compared in the updated chapter 12 of the DPD.

Other projects variants will be considered and compared as part of the technical studies (PFS, FS) and ESIA to be conducted in 2024 and 2025. For each project component where variants are presented, a comparative table will be provided in the ESIA highlighting the advantages and disadvantages of each proposed variant. Textual explications will accompany these tables detailing the reasoning for the preferred variants.

Also see answer to question 1.20 for the road alternatives.

SI 1.22 : Importance of considering alternatives to the proposed road, in light of the concerns and opposition voiced in the Nunatsiavut communities.

A 1.22 :

Following the concerns voiced by the Nunatsiavut communities during the consultation period held Q4 of 2023, alternative road options were examined. Among these, two road options leading from the mine site to Schefferville (option B) and Smallwood Reservoir (option D) were examined. These options implied a much greater environmental impacts on water resources since much more wetlands and streams are present along those corridors with a one option requiring a bridge over the George River and would require the construction of an overnight camp for safety reasons. They were also deemed cost prohibitive.

Another option was considered more feasible. This corridor would follow the initial road (option A) for a certain portion, but the majority of the corridor would be further south and end on the south shore of Voisey's Bay (option C). The advantages of this road corridor would include fewer watercourse crossings and would not be situated close to the Ikadlivik Brook, which was a significant concern during consultations. Disadvantages of this road corridor would include increased impacts on marine environments caused by the construction of a new shallow water port facility (floating dock) in Voisey's Bay and cumulative impacts of having two port facilities, therefore two potential sources of impacts, in the region. Additional costs would also be incurred by the construction of novel port facilities in addition to shoreside infrastructure for the handling and transshipment of containers.

Also see answer to question 1.20.

SI 1.23 : Need more information on the precise route, construction, use, maintenance, traffic, safety measures and monitoring of the road between the mine site and the port of Voisey's Bay, including how and when it is proposed to be used.

A 1.23 :

At the time of the DPD write up, a precise route has not been finalised. The overall process of the ESIA aims at considering variants in order to evaluate a number of routes and determine the least impact on balance. As part of the ESIA all of these points will be addressed appropriately.

The design is for a single lane that follows Forestry standards as opposed to highway designs. The material used is local to the road development and allows for use of clays and silts that are not normally allowed for highways. The design approach allows the use of a flexible base to allow for sufficient load capacity in sub-zero temperatures to meet the facility needs. Construction will use conventional equipment such as excavators, trucks, graders, dozers, water bowsers, compacters etc.

Baseline studies have been initiated along the road corridor and the data collected will be used in future monitoring studies. These studies would include examining a subset of the stream crossings along the road corridor to monitor impacts on aquatic systems and monitoring aerial contaminants to monitor impacts on terrestrial ecosystems, including food sources for the caribou.

It is assumed that the seasonal access road between Voisey's Bay and the mine site is only available during 3 to 5 of the winter months (temperatures need to be below zero degrees Celsius) for the low-bed trucks transporting the containerised concentrate bulk bags to the port and the tanker trucks transporting the fuel to the mine site. The rest of the year the road will only be used on a limited basis by light vehicles (road inspections, environmental monitoring, emergency transport of people, etc.) and essential maintenance vehicles.

Safety huts for emergency sheltering purposes will be constructed along the road. There will be pullover / passing stations every 10-15km, typically allowing for 2 trucks. Pull overs can also be used by drivers for rest periods when feeling fatigued. It is envisaged on average there will be 25-30 trucks per day for transporting product, peaking at 40 if short weather windows persist using a single truck configuration, though this will reduce subject to use of truck with "pup" configuration. Including fuel transportation, an average of 33 to 66 trips per day is projected over 5 months of cold (150 days).

In addition, in normal driving situations drivers will be given up to 1 hours rest before any turnaround leg whilst trucks are unloaded / loaded. Where the drivers working hours will not allow a safe return, the driver will be accommodated at either the Concentration Plant or at the port facilities until they are allowed to drive safely.

Road weight limits are adjusted seasonally, particularly during the spring thaw, to prevent damage to the road(s). These adjustments are made because the ground becomes unstable due to the warmer weather leading to weakened roadbeds. The road is a private road, though Torngat intends to generally follow the principles for load restrictions on public roads in order to limit any damage. Currently the road is designed for the larger loads in conditions when temperatures are below freezing, though this can vary subject to weather conditions in the preceding days.

All vehicles using the access will be fitted with GPS tracking and with speeds limited to 55kmph. GPS systems will allow for "live" monitoring of vehicle traffic (by radio systems etc.) to avoid conflicts, relay weather conditions and control traffic from either the Concentration Plant or at the port facilities.

Dynamic Speed Limits (DSL) will be implemented to adapt to changing weather conditions (wind and snow etc.).

SI 1.24 : Concern about the use of the term “seasonal road” as it seems to be operational most of the year.

A 1.24 :

Heavy road transportation of material to or from the mine would occur during a period estimated of 3 to 5 months in the colder months, mainly to minimize damage to the road, minimize environmental impacts and minimize wildlife interactions. During the summer months, the road will still be in use, albeit to a lesser extent. Lighter vehicles (i.e. for environmental monitoring) and essential maintenance vehicles could utilize the road in this period as needed. Given this reduced but ongoing usage, road maintenance remains a priority for us, though will likely be significantly reduced.

SI 1.25 : Need for information on how the proponent will adapt its road corridor to the three different land and vegetation types it will have to go through, including the materials and machinery that will be used for road construction.

A 1.25 :

The design is for a single lane that follows forestry standards as opposed to highway designs will be used. The material used is local to the road development and allows for use of clays and silts that are not normally allowed for highways. The design approach allows the use of a flexible base to allow for sufficient load capacity in sub-zero temperatures to meet the facility needs.

The road infrastructure will be built using existing materials and borrow material of varying quality. It will therefore be possible to use sand containing clays. This means that the material will not be strong enough for heavy haulage during the summer months. On the other hand, it will be easy to freeze as soon as temperatures drop below zero. The wearing course will also be very thin and made of a variety of materials only to ensure a smooth surface, and to quickly reshape this wearing course at the onset of frost.

Construction will use conventional equipment such as excavators, trucks, graders, dozers, water bowsers, compacters etc.

SI 1.26 : Importance of optimizing the road design to limit the number of stream crossings or increase buffers for streams and waterways.

A 1.26 :

Optimizing the access road design will aim to minimize the impact on streams and waterways to ensure the ecological health is maintained for long-term viability.

1. Minimizing Stream Crossings:

- Reducing the number of stream crossings is essential. Each crossing disrupts natural flow patterns, sediment transport, and aquatic habitats and adds complexity and costs to the road design and construction.
- Best Management Practices (BMP) will be followed to minimize these crossings.
- When crossings are necessary, they will be strategically located away from sensitive areas (e.g., critical habitats, uncommon habitat types).
- Sensitive areas include places where disturbance could harm ecosystems or species.

2. Considerations when Designing Crossing Structures:

- Habitat Quality: Crossing structures would avoid disrupting natural hydraulic properties of rivers and streams.
- River Continuity: Maintain aquatic and benthic (stream bottom) continuity. Provide suitable bank-edge habitat for weak swimmers and crawlers.
- Ecosystem Processes: Preserve the natural slope of stream beds and allow sediment and woody debris to pass downstream.
- Fish and Aquatic Organism Passage: Facilitate movement for all fish species, including juveniles and small residents. Avoid barriers that block their passage.
- Wildlife Passage: Enable movement of wildlife associated with river ecosystems. Some species benefit from stream continuity, while others need open structures or dry passages along banks.

3. Hydraulic Design and Stream Simulation:

- Stream simulation techniques will design crossings that mimic natural stream processes.
- Maintain the long-term health of river and stream ecosystems by considering habitat, continuity, and ecological processes.

In summary, Torngat Metals aims to ensure thoughtful road design is employed. The design will minimize stream crossings and prioritize ecological health which is essential for sustaining waterways and the life they support.

SI 1.27 : Need more information on frequency of road use. A monthly breakdown of the number of trips and the type of freight expected would be useful.

A 1.27 :

Approximately 150- to 200kt (metric) of product will be produced in one year. This will be transported in approximately 12,000 sealed 20ft sea containers. It is envisaged on average there will be 25-30 trucks per day for transporting product, peaking at 40 if short weather windows persist using a single truck configuration, though this will reduce subject to use of truck with “pup” configuration.

Total fuel is expected to be approximately 120Ml- to 160Ml per year. It is anticipated that this will be transported with 30,000l tankers and subject to confirmation in the PFS with “pups”.

The number of tankers is expected to peak to be typically 10, though could peak at 14 with shorter weather windows. This will reduce if the configuration with “pups” are proven as suitable in the PFS.

Materials, Reagents and Consumable for Processing

Note, trucks that transport the Product from the mine Site to the port facilities will be the same trucks transporting the reagents from the port facilities to the mine Site, however the containers will change. As such, reagents are not deemed likely to increase the traffic on the road.

Reagent	Form/Package	Approximate Annual Containers
Mill Balls	Solid/Container	12
Na-metasilicate	Solid/Bag	25
Florrea 7510	Solid/Drum	20
Oreprep F549	Liquid/IBC Totes	5
Cement	Solid/Bag	700-3500**

**Testing is yet to commence, typical industry norms have been adopted at this time

SI 1.28 : Need to clarify the ownership of the road, and how ownership may change over time, including after the project is over.

A 1.28 :

The current proposed road design is tailored specifically to meet the operational needs of the Strange Lake project. The design envisages a forestry-type road optimized for use primarily during the colder months. This design takes into consideration factors such as the expected volume and type of traffic, environmental impact, safety, and maintenance requirements.

Openness to Collaboration: Torngat Metals acknowledge that as the project progresses, there may be opportunities for the road to provide additional benefits to other users, particularly within the local community or other stakeholders. The intention is to develop and permit an access road for the projects needs only. Should external parties eventually express the desire to explore other opportunities for the road, this would have to go through an ESIA and receive social acceptability for Torngat Metals to proceed.

Engagement Process for Additional Users: Should interest from other potential road users be identified through the ongoing engagement process, especially with NG or community groups, Torngat Metals is committed to entering into further discussions. These discussions would focus on understanding the needs of these additional users and assessing the feasibility of modifying the road design to accommodate their usage given Torngat Metals requirements.

Criteria for Design Modifications: Any decision to modify the road design will first require the approval of all levels of government involved for such additional use and then be based on several criteria, including the potential benefits to additional users, the impact on Torngat Metals operations, environmental considerations, safety standards, and the overall feasibility of such modifications considering capital costs, operational costs and risk to ongoing access to Torngat Metals operations. Torngat Metals is committed to a thorough and transparent evaluation process.

Mutual Agreement and Compliance: Torngat Metals recognize that incorporating additional users would require mutual agreement, especially with relevant authorities. Any modifications to the road design will be made in compliance with all relevant regulations and standards, ensuring that the road remains safe, functional, and environmentally sustainable.

Continued Stakeholder Engagement: Torngat Metals value the input of all stakeholders in its project and is committed to ongoing dialogue and engagement. Torngat Metals will ensure that any considerations for modifying the road design are communicated clearly and openly, with opportunities for input and feedback.

Marine shipping Engineering

SI 1.29 : Need more information on the agreements that are needed for the project to proceed, including public information about the status of the agreement between the proponent and Vale for the use of the Voisey's Bay port infrastructures.

A 1.29 :

Access Road Option A: Discussions are in progress with Vale with regards to the use of their facilities, the agreement will be shared with authorities when finalised.

Access Road Option C: Should option C be carried forward, no agreement with Vale is required and the port facilities (floating dock with marshalling yard) will be added to the Impact Assessment.

Public information sessions will be carried out during the project planning phase in order to keep local communities informed of project progress.

SI 1.30 : Importance of providing complete and accurate marine shipping information including future buildings, wastewater discharge at the Sept-Îles port and other authorized discharges such as ballast water, grey water, black water, and washing water.

A 1.30 :

There are two route options to consider, and therefore two potential points of departure for the proposed marine shipping route, either Vale's port in Anaktalak Bay, option A, or new port facilities in Voisey's Bay, option C, in the Nain region of Labrador. The chosen port will serve as a shipping facility for rare earth mineral concentrate, as well as for receiving equipment and supplies required for mine construction and operation. The transport vessel will follow an existing shipping route along the Labrador coast, through the Strait of Belle Isle, along the north coast of the Gulf of St. Lawrence, through the Jacques-Cartier Strait north of Anticosti Island, and finally into the port of Sept-Îles, Quebec.

During the construction and operation phases. It is planned to transport by container ships the concentrate from the Labrador Coast to the Port of Sept-Îles, between 5 and 10 times per year, during the open water period approximately between June and October.

The ship’s wastes: grey water, sewage, garbage/incineration, exhausts, seepage (stuffing box): Domestic and drinking water will be provided by the Sept-Îles infrastructure. All other waste will be treated according to the condition of permits and according to all applicable regulations.

If option A is selected, the ships would depart from the Port of Vale, in Anaktalak Bay. In this case, an agreement between the Port of Vale and Torngat Metals would potentially allow the use of some of the existing infrastructures, services, and facilities. Torngat Metals would comply with the port’s existing regulations, practises, and procedures in place. The existing ballast water management plan and protocol in place for Vale’s Port will be followed, to comply with the Ballast Water Control and Management Regulations/Under Canada Shipping Act.

The infrastructure upgrades at the Port would include:

- Container storage area
- Container crane
- Other storage facilities (to be confirmed by the feasibility study and the agreement with the owner): fuel storage tank with spill containment, warehouse.
- No work will be done in or near the water, and no terminal expansion or modification is required.

Port operations will be contracted either directly by Torngat Metals, or Port owner, or to local Indigenous owned businesses.

Option C for the shipping route would begin at Voisey's Bay, which is located approximately 20 km south of Anaktalak Bay along the Labrador coast. The southwestern part of Voisey’s Bay is considered currently for the potential new port facilities.

New port facilities in Voisey’s Bay would need the previous components (Vale’s option), but also a floating dock. The preferred option, if feasible and acceptable, is to have the container ship equipped with a crane docking directly at the quay. Alternatively, containers could be loaded onto barges, which would then be towed to the container ship moored in deeper water. Actual layouts and alignments all subject to survey and access areas but would need to account for 10,000 to 12,000 containers. Additional infrastructures would be one maintenance workshop, one worker camp including a canteen and medical area, and two fuel tanks that will be refueled from sea from a rigid pipeline.

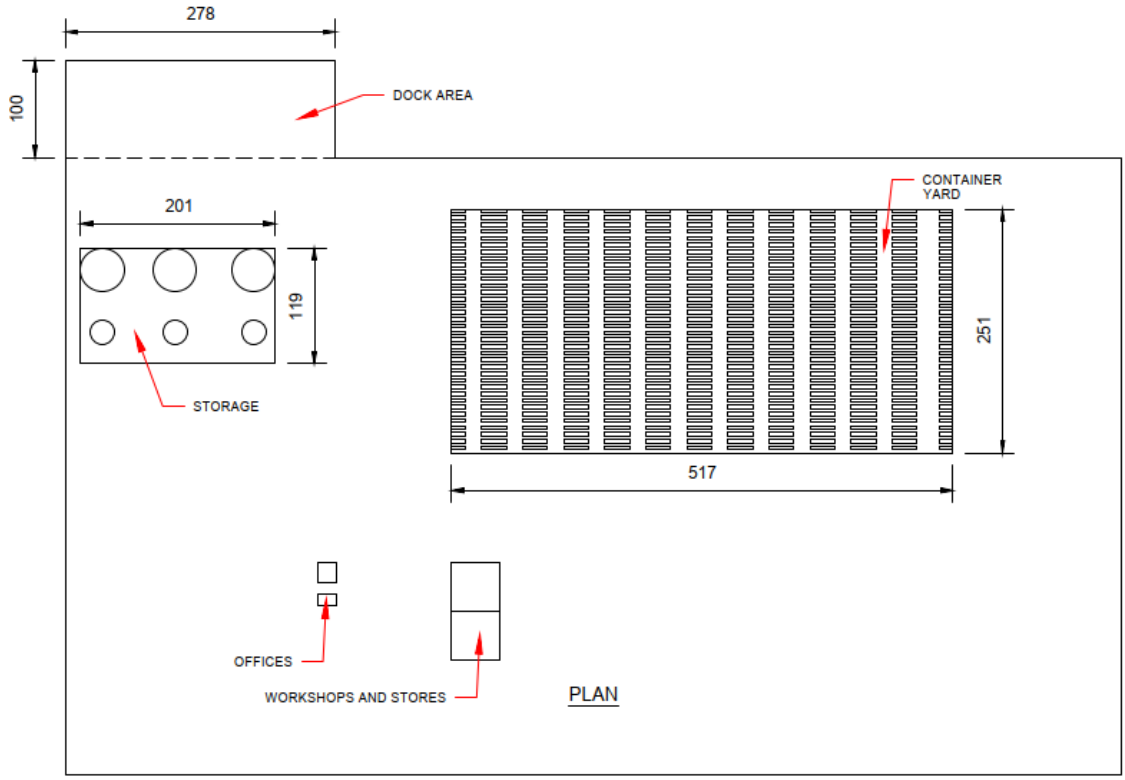

Table 1-3 : Preliminary design for new port facilities in Voisey's Bay

The destination of the proposed shipping route, where the barge would dock, is at the Port of Sept-Îles (PSI). Torngat Metals plans to appoint a licenced Marine Shipping Company for all maritime transport requirements, use the existing port facilities, and to comply with Sept-Îles Port Authority's regulations and measures in place.

- Sept-Îles Port Authority's Environmental Precautionary Measures: is a document pertaining to Section 19 (1) of the *Port Authorities Operations Regulations (SOR/2000-55),* for the purpose of promoting environmental protection around the Port of Sept-Îles (2017). These precautionary measures include, amongst other things, sections on waste management and storage of oil products and refueling for port users. Torngat Metals will comply with theses measures.
- Ballast water regulations are in place at the port according to the Port Authority's Practices & Procedures (2022), which Torngat Metals will comply with. The following sections 114, 115 and 116 pertained to pumping ballast in port:
  - 114. "*Ballast water" means water with its suspended matter taken on board a ship to control the trim, list, draught, stability and stresses of the ship, and includes the sediment settled out of the ballast water within a ship.*
  - 115. *All vessels destined to arrive at the PSI in ballast condition shall comply with the "Ballast Water Control and Management Regulations" (see http://laws-lois.justice.gc.ca/)*
  - 116. *The purpose of these regulations is to ensure that the non-indigenous species, pathogens and other micro-organisms that may be present in the ballast waters are not discharged into the ecosystem of the Port. Permission to take in ballast water is not required.*

Finally, Torngat Metals will identify the shipping network and determine whether the vessel(s) is/are foreign or Canadian. Regulated standards differ according to ship nationality and port.

References

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SI 1.31 : Importance of including in the project study area the marine shipping route, from the port of Voisey's Bay to the port of Sept-Îles.

A 1.31 :

The study area for this project includes the marine shipping route to carry the concentrates from the Labrador coast to the port of Sept-Îles (and mine supplies in the opposite direction). The section 14.3 of the DPD deals with marine transportation as an integrated part of the project study area, describing the biophysical environment, highlighting species at risk, protected habitats, and presenting the potential impacts associated with this means of transport.

Two options are being explored as departure points, at this phase, which are directly linked to the two route options under study: Option A, the existing port of Vale, located in Anaktalak Bay, near Nain (Newfoundland), and Option C, Voisey's Bay, some twenty kilometers south of Option A.

The proposed marine shipping route would leave from either of these bays and follow an existing shipping lane in the Labrador Sea along the Labrador coast, through the Strait of Belle Isle and along the north coast of the Gulf of St. Lawrence, passing through the Jacques-Cartier Strait north of Anticosti Island, to finally dock at the port of Sept-Îles, Quebec.

If Option C, Voisey's Bay, is selected, as there is no existing port in this bay, this section would represent a new shipping lane. Marine traffic is likely to be much lower on the Labrador coast than in the Gulf and Estuary of St. Lawrence. According to Canadian Coast Guard (CCG) data, between 2020 and 2023, an average of 55 vessel transited (departures + arrivals) in Anaktalak Bay yearly while the average was about 4,770 ships annually for the St. Lawrence Estuary (CCG, 2024). An impact assessment study would therefore have to be carried out for this leg of the proposed shipping route, if this option is chosen, in order to assess the potential impact of the new marine traffic and port facilities on the environment.

SI 1.32 : Need more information on marine shipping of rare earth concentrate, including the number of ships estimated between Voisey's Bay and Sept-Îles, and on loading, unloading, and storage operations at Voisey's Bay and in Sept-Îles.

A 1.32 :

The concentrate will be bagged at the concentration plant and those bags will be placed in containers for shipping to the coast. Depending on container loading optimisations the number of containers is likely to total 10,000 to 12,000 per year. The final shipping details are yet to be secured, though it is likely this equates to about 1 or 2 ships per month on average under ice free conditions, approximately from June to October. On arrival at the site in Sept Iles, the containers transported to the separation plant and will be placed in a dedicated yard. From there the bulk bags from the containers will be emptied into a mobile feed hopper in the enclosed separation plant facility and the empty containers will then be returned to the port. The feed hopper will discharge onto a mobile transfer conveyor which, in turn, will feed a stacker conveyor to create a concentrate stockpile. The concentrate will be reclaimed by front-end loader and dumped into a feed hopper for delivery to the concentrate dryer. Ultimately all materials handling will be done in enclosed structures with dust suppression and collection systems.

- It is estimated that between 5 to 10 ships would transport Torngat Metals' rare earth concentrate annually, from the Labrador Coast to Sept-Îles, during the open water period approximately between June and October, during the operational phases.
- As for loading, unloading, and storage operations at either the Port of Vale, (option A), Voisey's Bay, (option C), and in Sept-Îles, the details are not complete at this point, as previously stated in the answer for question 1.30. The following is an overview of what is known and planned at this phase of the project with regards to loading, unloading, and storage operations:
  - **Anaktalak Bay, Port of Vale, option A:** As two route options are still pending, per Torngat Metals has not yet signed an agreement with Vale for the use of its port facilities. As per outlined in section 9.4.1 of the DPD, if Torngat Metals would lease space from the Port owner and would include in the agreement all infrastructure upgrades and services required. Torngat Metals would fully comply with existing Indigenous agreements in force in relation with this Port. The infrastructure upgrades at the Port would include:
    - Container storage area
    - Container crane
    - Other storage facilities (to be confirmed by the feasibility study and the agreement with the owner): fuel storage tank with spill containment, warehouse.
    - No work will be done in or near the water, and no terminal expansion or modification is required.
  - **Voisey's Bay, option C:** New port facilities in Voisey's Bay would need the previous components (Vale's option), but also a floating dock. The preferred option, is feasible and acceptable, is to have the container ship equipped a crane docking directly at the floating quay. Alternatively, containers could be loaded onto barges, which would then be towed to the container ship moored in deeper water. Actual layouts and alignments all subject to survey and access areas but would need to account for 10,000 to 12,000 containers. Additional infrastructures would be one maintenance workshop, one worker camp including a canteen and medical area, and fuel tanks that will be refueled from sea from a rigid pipeline. A figure is shown at question 1.30.

- **Port of Sept-Îles**: In terms of industrial port infrastructures, there are two terminals potentially available for Torngat Metals' shipping needs, which are Pointe-aux-Basques (east of the bay) and Pointe-Noire (west of the bay), as outlined in section 9.5 of the DPD. Both can be used for freight and are linked to the Jonction-Arnaud industrial park by rail. At this stage, the preferred option would be to use Pointe-Noire gateway and transport the closed containers of concentrate to the plant by using the existing SFPPN rail.

  Loading and storages operations planned at Pointe-aux-Basques or Pointe-Noire terminal:

  - Container Handling: a crane will be used at the dock to handle the containers to and from the barges.
  - Storage: Limited container storage space.

SI 1.33 : Need for information on the transportation and handling of the rare earth concentrate in Sept-Îles, including how containers and superbags will be emptied at the high purity separation plant.

A 1.33 :

The concentrate will be bagged at the concentration plant (Lac Brisson) in FIBC (Flexible Intermediate Bulk Containers) bags, hereinafter referred to as “FIBC bags”, “bulk bags” or “super-bags”. Each FIBC bag can contain 1 to 2 tonnes. These super-bags will then be placed in containers for shipping by road to the eastern coast of Labrador. No material will be shipped in bulk. Depending on road conditions, the number of containers is likely to total 10,000 to 12,000 per year. The final shipping details are yet to be secured, though it is likely this equates to about 1 or 2 ships per month during ice free conditions on average.

At Sept-Îles, there are two Port areas potentially available for Torngat Metals needs, which are Pointe-aux-Basques (east of the bay) and Pointe-Noire (west of the bay). Both can be used for freight and are linked to the Jonction-Arnaud (also named Vigneault) industrial park by rail. At this stage, the preferred option would be to use Pointe-Noire gateway and transport the closed containers of concentrate to the separation plant by using the existing SFPPN rail (see Map 9-8 of the DPD).

Torngat Metals will negotiate contracts with Sept-Îles Port authorities and the operator of the rail which will manage operations and make the necessary adjustments to their installations, if required.

On arrival at the separation plant site in Sept-Îles, the containers will be placed in a dedicated yard from which bulk bags from the containers will be emptied into a mobile feed hopper and the empty containers returned to the port. The feed hopper will discharge onto a mobile transfer conveyor which, in turn, will feed a stacker conveyor to create a concentrate stockpile. The concentrate will be reclaimed by front-end loader and dumped into a feed hopper for delivery to the concentrate dryer. Ultimately all materials handling will be done in enclosed structures with dust suppression and collection systems.

High purity separation plant in Sept-Îles

SI 1.34 : Concern about the study area for the high purity separation plant, which does not include Uashat, Lac des Rapides, nor most of the territory of the city of Sept-Îles. The study area should also include berry picking areas.

A 1.34 :

The extent of the study area for the Sept-Îles rare earth Separation Plant will be refined during the course of the ESIA based on various factors yet to be determined (including the extent of the area likely to be affected by dust from the plant site). The extent of the study area may also vary according to the components or strands studied. For example, the study area for the archaeology study will not necessarily be the same as that used for the study of land use by aboriginals and non-aboriginals. In the first case, the study area will encompass all the territory where the soil could be disturbed during the various phases of the project, whereas in the second case, the study area will encompass all the territory likely to be affected by the project (notably by potential dust, noise or vibrations). Furthermore, as mentioned in section 15.2.1 of the DPD, the ESIA components concerning socio-economic conditions, local capacity and workforce analysis, as well as human health, quality of life and psychosocial impacts, will be conducted within the regional study area, which will encompass the entire Sept-Rivières RCM, as well as the Innu communities of Uashat and Mani-utenam.

SI 1.35 : Need for information on the concentration and separation processes at the high purity separation plant, including the products (e.g., agents, chemicals) used in those processes, and the potential for contamination from the residue (e.g., metal leaching, acid rock drainage).

A 1.35 :

Concentration and separation processes at the high purity separation plant in Sept-Iles

Pilot tests are currently being performed after the 2023 drilling program at the mine site to inform the concentration and the separation processes. The tests are conducted on 10 tonnes of material. The results on the concentrations and potential contamination from the residue will be presented in the ESIA and FS. The process flow diagram for the separation plant is provided as draft version in the figures below.

The production of the concentrate will be carried out at the concentration plant located at the mine site. The concentrate will be packed in containerised super bags and shipped to the separation plant in Sept-Iles. The processes at the separation plant will include the following main steps:

- Acid baking (sulfation) and calcination: this thermal separation process produces a mixture of rare earths in the form of sulfates, while most of the other elements making up the concentrate ("gangue") are broken down into oxides.
- Water leaching and rare earth separation (hydrometallurgical process): rare earth sulfates are separated and purified through a hydrometallurgical process that involves different stages of precipitations at different pH and temperatures, as well as anion exchanges resins and dedicated solvent extraction steps. Gangue and impurities are separated at various stages of this process and sent to the dry stacking residue storage facility.

These processes are described in greater detail below.

a) Acid baking (sulfation) and calcination

The concentrate material will be dried and then mixed with sulphuric acid, initiating an exothermic reaction which heats up the mixture. The acid baking will then be carried out in an electric furnace. In a second step, the sulfates produced by the acid baking will be processed at high temperature in a fluidized bed reactor, where the sulfates of the main elements of the gangue (Fe, Al, Si, Zr,…) will be decomposed into oxides, while the rare earth element sulfates won't be decomposed. It should be noted that after this stage, thorium will be predominantly in oxide form, while the uranium and rare earths will remain in sulfate form (crystalline solid-state compound). When hydrated, these crystalline compounds often incorporate water molecules into their structures, while remaining solid.

The dry mixture resulting from this firing (or calcination), which contains all these mixed substances at the outlet of the fluidized-bed reactor, is commonly referred to as "calcine", which will be the input to the hydrometallurgical purification process.

Heat exchangers will be installed at key stages of the process to recover as much heat as possible and reduce electrical power consumption. The sulphuric acid will also be recovered and reused by an acid recovery system to reduce consumption of sulphuric acid. Torngat Metals estimate that approximately 30,000 t/y of make-up acid would be required, which would either have to be stored or produced on-site in an acid plant. During the pre-feasibility study, it will be determined which option is the most sustainable approach. The acid will be stored in tanks made of suitable materials resistant to corrosion. The acid storage tanks will be located in bunded areas that can contain 110% of the largest container[4] in case of rupture and then pumped back into the process system. The concrete in these bunds will be protected with an acid protective epoxy resin.

[4] Or, where there are several tanks, 125% of the capacity of the largest tank, as prescribed by the Quebec's Regulations respecting hazardous materials (Q-2, r.32)

Gas emissions will be extracted, treated by a cyclone, and then lime will be added in a scrubber. The calcine dust collected by the cyclone and the gypsum produced by the neutralization of acid gases in the scrubber are recovered for treatment and disposal in authorized facilities.

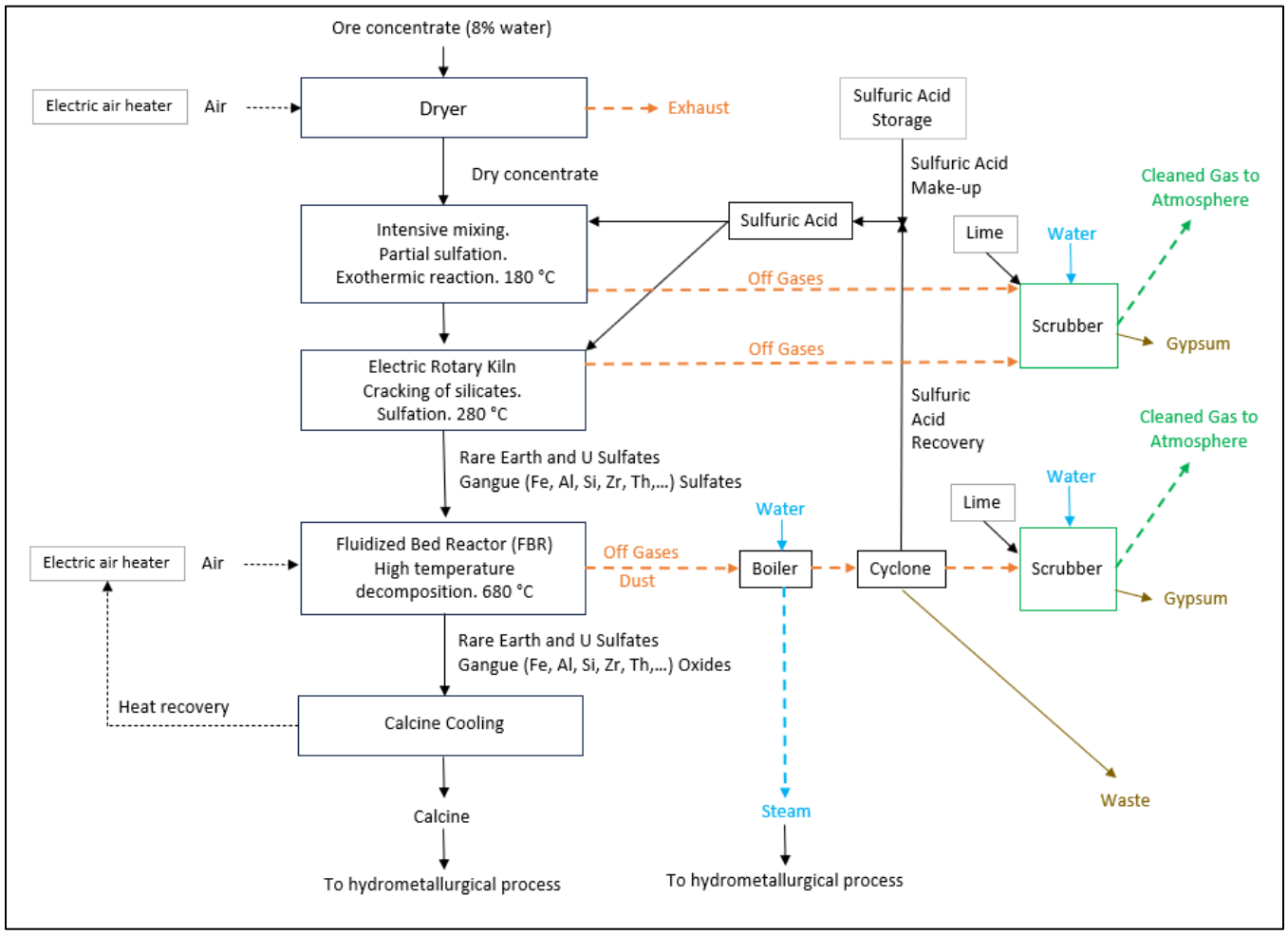

Figure 1-4: Simplified acid baking (sulfation) and calcination process flowsheet

b) Water leaching and rare earth separation (hydrometallurgical process)

The calcine from the acid baking and calcination processes is first mixed with water to dissolve the sulfates, under an acidic pH. This is the first step of the "water leaching process". The gangue oxides (Fe_2O_3, Al_2O_3, SiO_2, ZrO_2) remain solid and can be separated by thickening and filtration. The sulfate solution, which contains the rare earth sulfates, is then partially neutralized with magnesium oxide, which leads to the precipitation of other impurities that can also be removed and separated by thickening and filtration. The sulfate solution then passes through an ion exchange resin that removes the uranium. The output of the water leaching process is a pure rare earth sulfate solution.

The rare earth sulfate solution is then subject to different stages of precipitations at different pH and temperature and dedicated solvent extraction steps, during which the targeted Light Rare Earths are first extracted, followed by the targeted Heavy Rare Earths. During these steps, the rare earths sulfates are transformed into less soluble rare earth oxides or carbonates. Ammonium nitrate is also produced as a byproduct. The final products to be sent to the market are:

- Light Rare Earth:
  - Neodymium and Praseodymium (Nd and Pr) oxide 99,5 %
- Heavy and intermediate Rare Earths:
  - Dysprosium oxide (Dy_2O_3)
  - Terbium oxide ($Tb_4O_{7)}$
  - Heavy rare earth carbonates mixture
  - Mix of intermediate rare earth carbonates including Samarium (Sm) carbonate, Europium (Eu) carbonate and Gadolinum (Gd) carbonate)
- By-product : ammonium nitrate (used in fertilizer market) (NH_4NO_3 77%)

The wastewater and the solid residues from the Sept-Iles separation plant are mostly coming from the three separation steps of the water leaching process (two from thickening and one from a filtration and ion exchange step). Some wastewater and solid residues are also generated in the Light Rare Earth extraction section, but very few in the heavy rare earth separation section. The wastewater is treated and reused in the process. All the residues are gathered together, thickened and filtered before being mixed with cement and sent to a dry stacked storage stockpile, as described later.

Atmospheric emissions are also produced in the different steps of the hydrometallurgical process, although significantly less than in the acid baking acid and calcination processes. The atmospheric emissions of the hydrometallurgical process are generally associated with the very last stages of the purification process, such as the drying or calcination steps that prepare the products in their final state. These processes will be operated in batches of small quantities.

The simplified process flow diagram for the high purity separation plant is provided as draft version in the figure below.

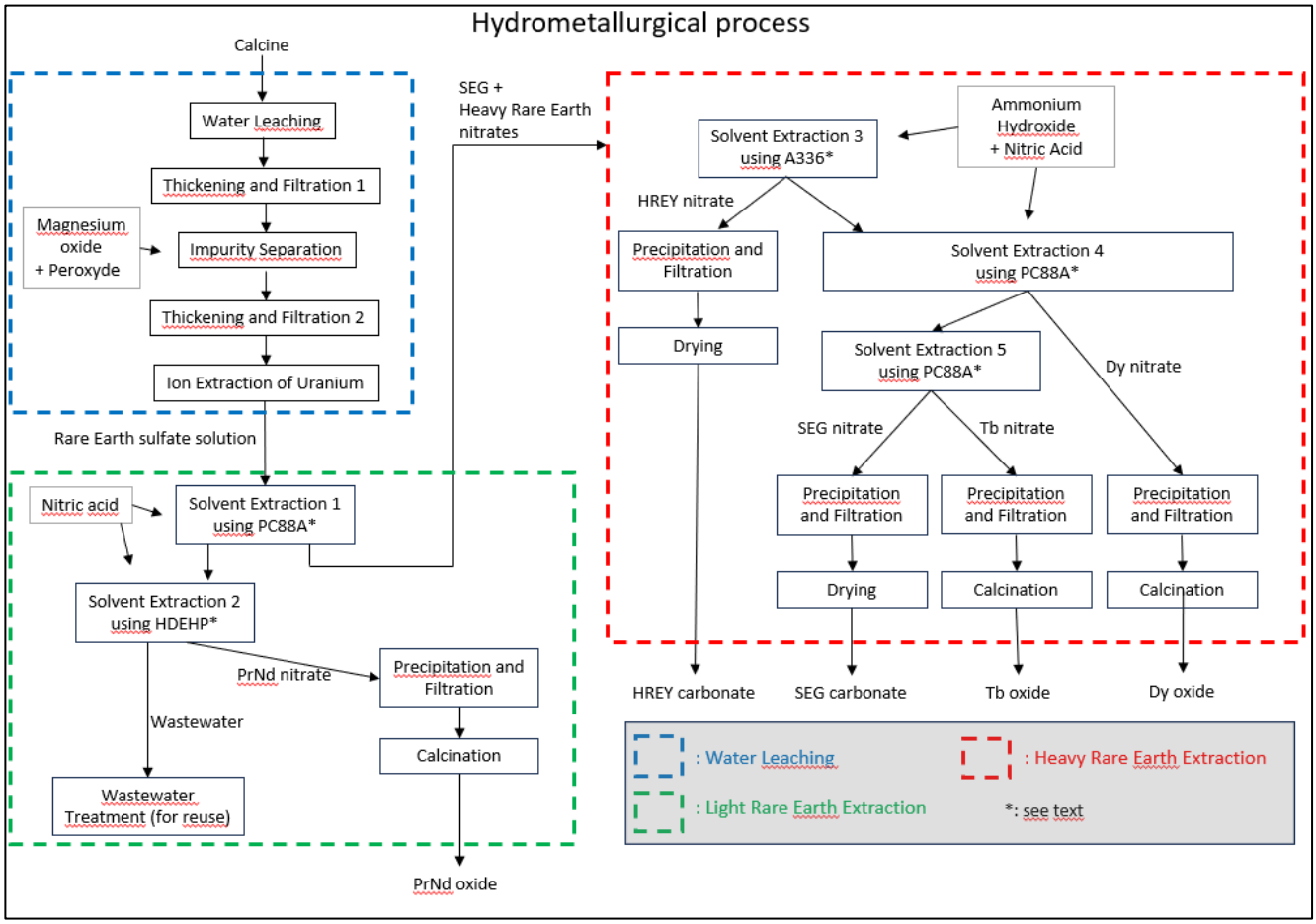

Figure 1-5: Simplified Hydrometallurgical process flow chart

Main products (e.g., agents, chemicals) used in the separation processes.

At the separation plant in Sept-Îles, the main chemical products that will be used are:

- Sulphuric acid: 98,5% H_2SO_4 solution
- Hydrated lime: $Ca(OH)_2$).
- Nitric acid: 69% HNO_3 solution
- Phosphoric acid: 85% H_3PO_4 solution
- Ammonium hydroxide: NH_4OH (22% NH_3)

Magnesium oxide and peroxide are also used in the water leaching process.

Quaternary ammonium salts, such as Aliquat 336, and organic solvents, such as ethyl hexyl phosphonic acid (HDEHP) and its derivatives (PC88A), will also be used in the solvent extraction processes which are used to extract the light and the heavy rare earths from the rare earth solution.

Potential contamination from the residues

Geochemical characterization of the residues from the Rare Earth Separation Plant (Pilot tests)

At this stage of project development, geochemical characterization of the residues from the separation plant are currently being planned. Optimization of the refining process is underway, and no residues are currently available. Once residues become available, they will be transported to a specialized laboratory (Saskatchewan Research Council) who will help to identify the potential for metal leaching / acid rock drainage (ML/ARD) from the residues. Sampling will follow industry best practices for sample numbers and analyses required over the life of mine (LOM). Although residues from the separation plant will be produced over the LOM, these residues are typically anticipated to be more homogeneous. Should residue be more variable than anticipated, additional samples may be sent for characterization. Acid base accounting (ABA) tests, elemental analysis, leach testing via standard static leach tests and radionuclide testing are recommended. The elemental analysis will include a REE package to capture REE metals present in the tailings, as well as U and Th to determine the potential for naturally occurring radioactive material within the residues. Upon assessment of the tests mentioned above, a percentage of samples are recommended for mineralogical analysis. Kinetic column tests and humidity cell tests (HCTs) will be performed on the residues and will consider resource type and geospatial variability in residue samples to appropriately capture the potential variability. To support water treatment, individual HCTs are recommended for the residues to provide quick turnaround of potential leachate quality as an interim until stable column test data becomes available. Additional kinetic tests may be recommended following the results of the geochemical characterization program. As part of the geochemical characterization program, toxicity testing will be completed on the residues to understand potential environmental effects / impacts related to the results of the geochemical characterization program.

The residues from the separation plant will be combined with cement powder (approximately 5 – 10%) to form a dry material that is inert. These dry residues will be covered progressively as they are accumulated, and a collection system will be installed underneath to gather what minimal seepage could occur. A study of the risks of failure will be carried out as part of the impact study to identify the risk reduction measures to be implemented during the design phase, as well as any corrective measures to be taken during the operating phase.

Daily visual inspection of the residue's cover will verify compliance of each new layer of residue and confirm the integrity of the waterproof covering. Any damage to the cover noted during the daily inspection will be immediately repaired or a temporary mitigation measure will be put in place until permanent repairs can be done.

Collection ditches surrounding the residue stockpile will ensure that the minimal seepage from the residue piles will be directed to a collection basin. Collected water will be treated before being added to the process water system.

Industry best practices will be applied to the residues handling and storage. This includes water diversion to prevent contamination, and mitigation strategies such as using dry stack technology and covers to prevent water infiltration. The water that does come in contact with the residues will therefore be minimized and will be treated as appropriate for reuse in the process, depending on the water quality characteristics.

Furthermore, in view of the concerns raised in this regard, Torngat Metals is committed to examining possible storage alternatives that would allow for future exploitation of the stored residues (see answer 15.3).

SI 1.36 : Need further details on the method of disposal of the residue at the high purity separation plant, including the processes the residue will undergo prior to disposal, and the possible variability of the processes depending on the seasons.

A 1.36 :

The materials making up the residues will be removed in two sequentially arranged impurity removal stages where oxides such as iron and aluminium are separated, and the excess acid is neutralized by magnesium oxide. Uranium will be removed in a dedicated ion exchange resin unit and will be mixed with the rest of the impurities to be sent to residue storage.

Residues from the refinery will initially be subjected to a filtration and dewatering procedure to reduce as much as feasible it's water content. Final water content will be below saturation at approximately 15%. Subject to authorization, the dry residues from the refinery will be combined with cement powder (approximately 5 – 10%) to form a dry residue that is inert. The addition of cement helps with the stability of the residue and leaching mitigation. The dry residue will be covered progressively as they are accumulated. Daily visual inspection of the cover will verify compliance of each new layer of residue and confirm the integrity of the waterproof covering. Any damage leading to water infiltration will be immediately repaired, or a temporary abatement measure will be applied until permanent repair can be done. Water draining off the covering is not considered contact water and will be handled with other non-contact water at the separation plant.

The residue storage site will be prepared in such a way as to ensure appropriate draining of the minimal seepage that is expected to occur. This could consist of installing a doubled waterproof lining and drainage layer below the stacked residue storage stockpile or other engineered lining to be evaluated as part of the feasibility study. Sensors will also monitor any seepage from the dry residue. Collection ditches surrounding the residue stockpile will ensure that the minimal seepage from the residue piles will be directed to a collection basin. The collected water will be added to the process water system.

Furthermore, in view of the concerns raised in this regard, Torngat Metals is committed to examining possible storage alternatives that would allow for future exploitation of the stored residues (see answer 15.3).

SI 1.37 : Need further details on the management of dry tailings in Sept-Îles as well as the probability and consequences for leaching from tailings. Need for information on any other possible risks associated with dry tailings management.

A 1.37 :

The risks associated with dry residue material is usually limited to wind blown dust and/ or liquefaction of the dry residue. For both of these situations, the addition of 5 – 10% cement content would largely mitigate these potential risks. Furthermore, dry residue will be covered by an impermeable layer, preventing wind from dispersing dust and water from coming into contact with the residue. The residue stockpile area will be fully covered by the ESIA which will evaluate the probability and consequence for leaching from dry residues, and identify other possible risks associated with this facility. All measures proposed to enable its authorization will be evaluated and disclosed in this study. Design, operating and monitoring procedures of this facility will follow all provincial and federal requirements as per the type of residue deposited. All closure measures for the facility will adhere to the covering and closure requirements to reduce the potential contact of meteoric water with residues, hence further limiting the contact seepage water.

Residue characterization will be carried out in accordance with the *Guide de caractérisation des résidus miniers et du minerai* (MELCC, June 2020), as soon as a sufficient quantity of residue from the pilot plant is available. They will be classified and managed according to *Directive 019*.

See also responses to the issue 1.36.

Environmental management and reclamation

SI 1.38 : Importance of providing and sharing the remediation plan, including safety measures and monitoring, with the communities.

A 1.38 :

It is crucial to share the remediation plan, safety measures, and monitoring strategies with the communities involved in the Strange Lake Project in both Northern and Sept-Îles regions. This is critical for several reasons, including:

1) The safety and health of the communities living near the Project area should be the primary concern of any remediation plan. To ensure this, detailed information about safety measures, potential hazards, and their mitigation should be shared with the communities. This will help them feel assured that their well-being is being prioritized.
2) Transparent communication fosters trust between project stakeholders and affected communities. It demonstrates a commitment to integrity and accountability. This helps build positive relationships and maintain the social license to operate.
3) Informed Decision Making: Communities have a right to understand how remediation may affect their environment and livelihoods. Providing comprehensive information enables them to make informed decisions about involvement and necessary precautions.
4) Community Input and Participation: The effectiveness of the remediation plan is enhanced by involving communities in its development and implementation. Local knowledge and perspectives can provide valuable insights that might otherwise be overlooked, leading to solutions that are more tailored to the community and more culturally appropriate.
5) Capacity Building and Empowerment: Communities can be actively involved in ongoing assessments of environmental and health impacts by sharing information on monitoring strategies. This involvement can contribute to long-term resilience by helping to build local capacity for environmental management and emergency response.
6) Legal and Regulatory Compliance: Environmental remediation projects often require public consultation and community involvement. Inadequate community involvement in planning and monitoring may lead to regulatory challenges or legal disputes.

In Canada, environmental remediation projects are governed by both federal and provincial legislation. These laws require community engagement and consultation. Below are some important references to relevant legislation at both levels:

Federal Legislation:

Impact Assessment Act, 2019 (former *Canadian Environmental Assessment Act*, 2012). The Impact Assessment Act (IAA) outlines the process by which the Government of Canada assesses the impacts of designated projects and projects undertaken on federal lands or outside Canada. This legislation requires an environmental assessment to be conducted for certain projects, including those that involve remediation activities. It also ensures that communities are involved and informed about potential environmental impacts and includes provisions for public participation and consultation throughout the assessment process.

Canadian Environmental Protection Act, 1999 (CEPA 1999): CEPA 1999 is the regulatory framework for the protection of the environment and human health in Canada. It includes provisions for pollution prevention, response to environmental emergencies and management of toxic substances that are often relevant to remediation projects. Certain provisions of CEPA 1999, particularly those that address environmental risks and hazards, may require community involvement and consultation.

Fisheries Act : The Fisheries Act safeguards fish and their habitat in Canada and includes provisions for remediating contaminated sites that may harm aquatic ecosystems. Engagement with Indigenous communities and stakeholders is frequently required under the Act, particularly when projects may impact traditional fishing rights or Indigenous knowledge.

Quebec Provincial Legislation:

- The Environment Quality Act (*Loi sur la qualité de l'environnement*) is a provincial legislation in Quebec that governs environmental protection and management within the province. It includes provisions relating to environmental assessment, remediating contaminated sites and public consultation. Proponents are required to consult with the public and stakeholders when undertaking projects that may have significant environmental effects, as per Section 46 of the Environment Quality Act.
- The Quebec Mining Act (*Loi sur les mines*) regulates mineral exploration, development, and mine closure for projects involving mining activities. It includes requirements for environmental protection, reclamation, and community involvement. Proponents of mining projects must consult with affected communities and stakeholders, as outlined in the Mining Act and associated regulations.
- The Act respecting Access to documents held by public bodies and the Protection of personal information (*Loi sur l'accès aux documents des organismes publics et sur la protection des renseignements personnels*) governs access to information held by public bodies in Quebec and ensures transparency and accountability in government decision-making processes. It can require proponents to provide access to relevant documents and information related to environmental remediation projects, allowing for meaningful public participation and review.

By adhering to these federal and provincial legislative requirements and incorporating community engagement principles into the remediation plan for the Strange Lake Project, proponents can ensure compliance with applicable laws and regulations while fostering positive relationships with affected communities.

To ensure effective communication and engagement with communities, a comprehensive reclamation and closure plan will be developed that includes the following components:

- Stakeholder Mapping: Stakeholder Mapping: Identify all relevant stakeholders, including community leaders, residents, local organizations, and governmental agencies.
- Communication Channels: Identify the most efficient communication channels for disseminating information to various community groups, including community meetings, newsletters, websites, and social media platforms.
- Language and Cultural Considerations: Tailor communication materials to the cultural and linguistic preferences of the community, ensuring that information is accessible and understandable to all.
- Feedback Mechanisms: Establish mechanisms for receiving feedback, questions, and concerns from community members, and commit to addressing them in a timely and transparent manner.
- Capacity Building and Training: Provide training sessions or workshops to educate community members on the remediation process, safety measures, and monitoring protocols. This will empower them to actively participate in the project.
- Regular Updates: Regularly update on remediation progress and significant monitoring findings, maintaining ongoing transparency throughout the project lifecycle.

By implementing a robust communication and engagement plan, the Strange Lake Project can demonstrate its commitment to responsible environmental stewardship and foster positive relationships with the communities impacted by the remediation activities.

SI 1.39 :	Need for information on native plants and seeds that will be used to restore the site, including details on how these plants will be dispersed and how it will be monitored. Importance of aiming to attain a natural landscape continuous with surrounding landscapes and to encourage the repopulation of a flourishing ecosystem.

A 1.39 :

The closure and reclamation strategy for the proposed Torngat Metals mining project is envisioned as a collaborative effort, recognizing the vital importance of engaging with local Indigenous communities and safeguarding the delicate ecosystem, particularly the caribou habitat in the northern region. The approach hinges on methodology for closure visioning, ensuring a comprehensive and inclusive process in developing a shared closure vision. Through extensive consultations with local Indigenous communities, the closure vision will be co-created, aligning with the cultural, social, and ecological values of the affected communities. The closure plan will prioritize the protection of wildlife habitats, with a specific focus on caribou preservation, incorporating scientifically sound measures and sustainable practices.

Furthermore, the Reclamation Research Projects (RRPs) will be an integral part of the early development phase to enhance the understanding of the local environment and inform closure and reclamation strategies. These research initiatives will be designed to address specific concerns related to the mining project's impact on the ecosystem, providing valuable insights into sustainable reclamation practices. The involvement of local communities in these research projects will not only contribute to the generation of localized knowledge but will also foster a sense of ownership and responsibility among community members. Through the engagement process, community feedback on closure vision will be used to inform revegetation strategies not only for the desired native species that will be used to restore the site but also the proposed methodology for revegetation. Extensive baseline studies that will be conducted as part of the ESIA process will cover comprehensively the vegetation on site and fauna use prior to proposed project disturbance.

Following Directive 019, the overburden layer will be kept, and vegetation with rooting system as well. This will be included in the Geotechnical program and will be monitored and will be included in the closure plan.

SI 1.40 : Need more information on the bioremediation practices for contaminated soil and snow, including location, timing and methods.

A 1.40 :

Northern sites

Torngat Metals intends to install contaminated soil management platforms at the mine site and at the container storage and handling area/Port facilities. These platforms are intended to receive any soil contaminated by accidental spills of petroleum products (diesel, oils, etc.) or chemicals that have occurred during handling, transshipment or accidental events. The need for such facilities stems from the remoteness of Torngat Metals' facilities from service providers in this field.

The technical and functional characteristics of these facilities will be determined as part of the feasibility study and impact assessment and will be subjected to approval by the competent authorities. The provinces of Quebec and Newfoundland and Labrador have clear regulations and guidance as to how contaminated soils must be assessed and handled. Torngat Metals will adhere to all regulatory

When it comes to remediation of contaminated soils, the most common approaches are:

1. Bioremedation and
2. Relocation and disposal of contaminated soils to a regulated and licensed facilty/landfill.

In the case of northern project sites, bioremediation can be a very effective method of remediating soils that are contaminated with Petroleum Hydrocarbons, although biodegradation is generally slower in northern environments. However, this process is generally very limited in addressing metals, salts, and other types of contaminates. Therefore, after remediation for hydrocarbons is completed, soils will be tested for remaining contaminant and disposed of appropriately. For example, soil exceeding the criteria could be transported to an authorized treatment site, as in the case of the contaminated waste (see answer to issue 1.15). If the quantity is too large for transport to be an environmentally sound solution, other solutions such as in situ treatment or containment could be considered, subject to prior approval by the competent authorities.

Should the soil be sufficiently remediated, soils will be kept for future reclamation.

Sept-Îles site

Such facilities are not planned for Sept-Îles, given the more limited risk of spills due to the nature of the operations and the presence of suppliers specializing in the management of accidental spills and contaminated soils in the region.

SI 1.41 : Importance of developing transparent and conservative models for assessing environmental effects, such as air dispersion models, hydrological models, and hydrogeological models.

A 1.41 :

Several surface water, groundwater and water quality models will be developed following industry standard approaches to support the project. The interaction between each of the models will be conceptually represented in a graphical model interaction matrix. Each of the models is described in more detail below.

Water Balance and Water Quality Model: A sitewide surface water balance and water quality model (WBWQM) will be developed to support Torngat Metals' water management during operations and predict water quality at key discharge locations. The water balance model will consider the various links between site infrastructures and associated water management rules and integrate a multitude of basic data (climate, hydrology, infrastructure dimension, etc.). The water balance model will be used to provide an estimate of surface water pathways and discharge volumes considering the maximum footprint of the mine site. The water balance and water quality model will be directly linked so that the water quality model can be assessed at different key points considering the available geochemical characterization.

Groundwater Model: A three-dimensional geological model and numerical groundwater model will be developed to guide groundwater management during operations and evaluate environmental impacts. The groundwater model will consider available subsurface information derived from mineral exploration, hydrogeological investigations, permafrost monitoring and geotechnical investigations. Conservative assumptions will be made in the absence of measured data. The groundwater model will be developed and calibrated to measured groundwater and surface water elevations following industry standard methods. It will then be used to conservatively estimate open pit dewatering requirements, identify source-pathway-receptor linkages (groundwater flow pathways), evaluate the potential for groundwater and surface water interaction, and determine the environmental impacts on groundwater and surface water quantity for the maximum footprint. Sensitivity analysis will be used to capture a range of scenarios in consideration of unknowns and natural variability in hydrogeological properties and hydrologic boundary conditions (e.g. water levels, climate, permafrost, etc.). The groundwater model will provide inputs to the WBWQM, estimated dewatering requirements, determine the zone of influence associated with the open pit, identify groundwater flow pathways and inform engineering design of water management features. The interaction between tailings disposal areas and groundwater will also be evaluated for the Sept-Iles processing facility using a separate groundwater model. Several scenarios will be modelled for presentation to stakeholders and would include an evaluation of the impact of climate change and permafrost on groundwater (and surface water). The connectivity between Lac Brisson and the open pit will be evaluated in detail using the models and informed by measured field data.

Air Dispersion Model: An air dispersion model will be conducted according to the technical guidelines *Préparation et réalisation d'une modélisation de la dispersion des émissions atmosphériques (MELCCFP, 2017)*. These guidelines require that any mining promoter demonstrate compliance to the applicable air quality standards via a modeling study of the dispersion of atmospheric contaminants. In addition, *Directive 019 on the mining industry* (MDDEP, 2012) is the tool commonly used for the analysis of mining projects requiring the issuance of a certificate of authorization under the EQA, for projects subject to the environmental impact assessment and review procedure and for projects carried out on the territory of the Baie-James and Northern Quebec. However, as the project covers also the province of Newfoundland and Labrador, the most stringent parameters from the various jurisdictions (federal, Québec and Newfoundland & Labrador) will be used in case of overlap. Regarding the modeling activities, the following will be provided:

- For each source of stationary and fugitive emission sources of contaminants, will be identified:
  - The nature of the contaminants
  - The quantity emitted (metric ton/year)
  - The flow (m^3/h),
  - The gas temperature (°C) and
  - The concentration of the contaminant (mg/Nm^3)
- Indication on treatment systems or measures taken to prevent, eliminate or reduce the release of contaminants and the percentage of efficiency.
- Identification of the methods and places of storage, deposit or elimination of dust (in case dry dust collectors are used).

A comprehensive report will be prepared and submitted for each modeling study. Where possible, modelling results will be validated using direct observations and monitoring. Knowledge from stakeholders (for example, to identify sensitive receptors) will be considered at the planning phase prior to design and throughout the environmental assessment process.

Torngat Metals aims at establishing Best Management Practices (BMPs) for its project including for interactions with stakeholders.

SI 1.42 : Need more information on the proponent's environmental management program.

A 1.42 :

A preliminary environmental management program (EMP) will be detailed in the impact study and feasibility study. The means deployed within the framework of the present project will be described to satisfy all legal and environmental requirements in force. This plan will be developed in particular for physical components such as air quality, sound climate (noise), water quality, wetlands and so on. Mitigation measures will be specified for each phase of the project, i.e. construction, operation and closure. More specifically, and without limitation, the EMP will include:

- Environmental monitoring activities planned during construction, operation and closure, associated with the implementation of mitigation measures: (e.g. environmental clauses in tender documents, on-site environmental monitor, environmental monitoring guide, etc.);
- Project activities and environmental components to be monitored;
- The frequency and content of reports sent to the authorities;
- Means planned for monitoring and follow-up (sampling, analysis and intervention methods, responsibility, accountability, schedule, budget, etc.) and adaptations in the event of unforeseen circumstances.

SI 1.43 : Need for information on monitoring and follow-up measures that will be put in place during periods of inactivity, as the initial project description states that mining activities could occur between 9 and 12 months per year.

A 1.43 :

Once operations begin, the mining project will be operational all year-round. Certain aspects of the project will however be seasonal. Transport of the concentrate from the mine site to the port facilities will be done in the winter months once the ground has frozen sufficiently to allow the use of the seasonal forest road. Shipping of the containers from the port facilities to the Separation Plant in Sept-Îles will only be done during the ice-free season. Operations in Sept-Îles will also be all year-round.

SI 1.44 : Importance that proposed mitigation measures are based in science and/or Indigenous knowledge, with detailed rationales for why proposed measures are adequate and would sufficiently limit potential negative impacts of the project. Concern about the use of ‘expert knowledge’ or ‘industry best practices’ to justify the selection of mitigation measures.

A 1.44 :

All mitigation measures will be based on consultations with all local communities and Indigenous knowledge will be integrated into the ESIA. Torngat Metals recognizes that these communities have in-depth and valuable knowledge of their environment and its sensitive components.

Expert knowledge and industry best practices are based on scientific assessments of the risks and benefits of industrial activities and will also be taken into account during this process. Torngat Metals also aims to participate in the development of sustainable practices by investing in Reclamation Research Projects (RRPs) that will be an integral part of the early development phase, will enhance the understanding of the local environment and inform mitigation, closure and reclamation strategies. These research initiatives will be designed to address specific concerns related to the mining project's impact on the ecosystem, providing valuable insights into sustainable reclamation practices. The involvement of local communities in these research projects will not only contribute to the generation of localized knowledge but will also foster a sense of ownership and responsibility among community members. One example among many is the closure plan: through the engagement process, community feedback on closure vision will be used to inform revegetation strategies not only for the desired native plant species that will be used to restore the site but also the proposed methodology for revegetation.

2 Air quality

SI 2.1 : Need for information on the ambient air quality for the new access road.

A 2.1 :

For the northern components of the project, an initial ambient air quality measurement campaign is planned at the mine site and port facilities in 2025. This will establish initial contaminant concentrations over a representative period (i.e. for more than one season over a year). It should be noted that there are no anthropogenic activities along the portion of the road that will be used in Quebec and in Newfoundland and Labrador. In addition, the access road will be used only in winter, which will limit dust generation when concentrates are transported in closed containers. It is anticipated that the initial ambient air quality conditions observed at the mine site will also be used for the new access road. The initial concentrations of contaminants present in the sampling campaign at the mining and port facilities site will be used for the air emissions modeling activities for the project northern components (mining site & concentration plant, access road, port facilities).

SI 2.2 :	Need for information on potential effects on air quality (air contaminants and dispersion modelling associated with the construction and operation of the new access road). The dust and chemicals generated by the project could potentially have impact on moss, lichens and into different parts of the food chain important to First Nations and Inuit.

A 2.2 :

The impact study will present the potential effects on air quality associated with the construction and operation of the new access road. These potential effects will be identified through the air contaminant and dust dispersion modeling study (see also answer to issue 1.41). Drawing on First Nations and Inuit knowledge (see also answer to issue 1.44), and in collaboration with air quality and human health risk assessment professionals, the identification of sensitive receptors in the vicinity of the study and project area will confirm whether contaminants and dust could have an impact on the region's food chain. Following this step, mitigation measures will be identified to minimize any such impacts. A dust management plan will include a lichen and plant sampling protocol to assess and determine the potential for bioaccumulation.

SI 2.3 : Need for details on the air quality management plan, including a dust management plan for different activities such as blasting, mining, transportation, and operations.

A 2.3 :

The air quality management plan and dust management plan will be developed as part of the project impact study for each of the project components (mine site & concentration plant, access road, port infrastructures, Sept-Îles plant). These plans will be targeting all project activities (e.g. blasting) and phases (e.g. operation and exploitation). A preliminary version of the project's air quality management plan will be included as an appendix in the impact study. These documents will be enhanced as the various engineering stages of the project progress, and on an ongoing basis during operation.

SI 2.4 : Need further details on mitigation measures to limit all potential airborne emissions and contaminants that could potentially impact the environment.

A 2.4 :

Mitigation measures to limit all atmospheric emissions and contaminants likely to have an impact on the environment will be detailed in the forthcoming impact study. This will be done for each of the project components, (mine site & concentration plant, access road, port facilities, Sept-Îles separation plant). Emissions of contaminants will comply with both provincial (Règlement sur l'assainissement de l'air - Québec, Air Pollution Control Regulations - NL) and federal (Canadian Ambient Air Quality Standards) regulations.

To proactively manage and mitigate the impact of dust and contaminants, atmospheric emission modelling will predict the dispersion of dust particles and contaminants generated by the project's industrial processes and activities, including mobile sources (i.e. heavy machinery) (see also answer to issue 1.41). This will facilitate the development of preventive measures to control these contaminants and dust particles.

With regards to industrial processes (concentration plant, Sept-Îles separation plant), an emphasis is placed on the use of gas and air treatment technologies (e.g. wet scrubbers, electrostatic precipitators, dust collectors) enabling the majority of contaminants and dust to be treated upstream before being released into the atmosphere. The strategies and technologies used will be regularly updated in line with industry best practice (BAT/BEP).

For the mine, the main method of controlling dust emitted outside typical industrial processes will involve regular watering of mining stockpiles containing non-crushed material. During periods of freezing temperatures, alternative methods of dust suppression will be used. These may include the use of environmentally friendly dust suppressants or covering sections of stockpiles with specially designed tarpaulins to minimize dust generation. Those stockpiles will also be designed to minimise dust generation. In contrast, crushed material stockpiles will be covered by a dome and the conveyor bringing the crushed material to the concentration plant will also be covered.

Haul roads dust emissions will be controlled by:

- Maximum speed limit enforcement - 55 km/h; and
- Subject to approval by relevant authorities, possible application of biodegradable and non-toxic dust suppression agents such as Lignosulfonates. These are by-products from wood processing and act by binding the road particles together.

Continuous monitoring will be carried out in accordance with permits and certification to be obtained. When the trends will show that a regulatory threshold is near being reached, additional control measures will be deployed, such as dust suppression cannons or other advanced technologies. The strategies and technologies employed will be regularly updated in line with industry best practice (BAT/BEP).

SI 2.5:	Need further details on dust suppression along the haul road, including water source to be used, dust suppression schedule, number and frequency of all trucks in circulation, vehicle cleaning stations, and type of dust suppressant.

A 2.5 :

While mining operations are expected to continue throughout the year, the bulk of activity along the access route will be concentrated during the colder months. This is due to the logistical and environmental advantages of winter in regard to the project's specific operating context. Concentrate will also be transported in sealed containers. Both aspects will minimize the likelihood of dust generation along this corridor.

During summer months, the road will be used minimally. Light (i.e. for environmental monitoring) and maintenance vehicles may use the road during this period, as required. Given this reduced but continuous use, road maintenance activities will be considerably reduced throughout the project's operational phase.

As for specific dust suppression activities along the road, these will be specified as part of the forthcoming impact study. This will include, but not limited to, the technology(ies) selected (with or without water, products used), the number and frequency of trucks on the road, and planned cleaning stations.

Torngat Metals has no preference and will be subject to the ESIA processes and subsequent authorizations as to type and where dust suppressants will be required, to possibly include -Lignosulfonates: these are by-products from wood processing and act by binding the road particles together. They are biodegradable and non-toxic, which makes them an environmentally friendly option.

SI 2.6 : Importance of monitoring air quality in Sept-Îles and notifying vulnerable populations when air quality is poor.

A 2.6 :

As mentioned in the section 14.1.2.2 of the DPD, an ambient air quality study will be carried out in Sept-Îles in 2025 to establish baseline conditions. This study will be the starting point for determining the plant's impact on air quality in Sept-Îles. To this end, the impact study will include a dispersion modeling study for the atmospheric emissions generated by the Sept-Îles plant (see also answer to issue 1.41). Drawing on the knowledge of the First Nations, and in collaboration with the Sept-îles community (see also answer to issue 1.44), as well as with air quality and human health risk assessment professionals, the identification of sensitive receptors in the vicinity of the study and project area will help identify and validate what mitigation measures will minimize residual impacts, if any.

The impact study will include an air quality management plan for the Sept-Îles site, including continuous monitoring parameters and mechanisms to be deployed in collaboration with neighbouring communities (First Nations, population, neighbouring industries, etc.) when air quality is poor. This plan will be enhanced as the various engineering stages of the project progress, and on an ongoing basis during site operation.

3 Surface water, drinking water and groundwater

SI 3.1 : Concern about the risks to water quality at the mine site and at the high purity separation plant in Sept- Îles.

A 3.1 :

As a reminder on previous responses provided and on the followings of Section 3 *Surface water, drinking water and groundwater*, the ultimate goal regarding the water lifecycle at the mine and at the separation plant is having a water management strategy focusing on reuse of water and minimising discharges in the receiving environment. Discharge, if any, would only occur on exceptional occasions. The establishment of discharge locations is based on hydrologic modelling and in order to reduce environmental impacts. The monitoring that will be conducted at the mine site discharge point(s) will be established based on standard regulations.

All criteria for water quality will be respected (MELCCFP, CCME). No discharges in excess to authorized levels will be allowed (deleterious substances according to MDMER). For providing comprehensive assessment of the potential impact on water quality, the current baseline reference levels will be measured for two years as per the guideline for the initial characterization of the aquatic environment prior to an industrial project (MELCCFP), and other physical components such as hydrology are included to model the surface water quality. As provided in the answer of Q 1.41, several surface water, groundwater and water quality models will be developed following industry standard approaches to support the project. The interaction between each of the models will be conceptually represented in a graphical model interaction matrix. Each of the models is described at A. 1.41.

Appendix F of the DPD outlines the 2023 surface water quality results. Insert here reference levels at the mine site.

Reference data from both years will be provided, and mitigation measures will be detailed in ESIA. Water quality can indirectly be altered by the presence of dust during the operations. Air and groundwater modelling will also be conducted. Mitigation measures will be developed to control dust, as well as to protect the groundwater.

Potential effects on water quality will nevertheless be assessed by proper data acquisition and incorporation into project design and modelling. The EISA will detail all methods, levels and results, as well as monitoring and mitigation measures, and this for all project phases including after closure.

The water treatment technology (or technologies) is being selected using a best achievable technology (BAT). Generally, rare earths are not very mobile in aqueous solutions. Effluent treatment methods will be adapted to ensure that REEs are removed from the effluent as much as feasible. Best environmental practices (BEP) are also followed for water management and treatment.

SI 3.2 :	Need for information on potential effects caused by acid rock drainage, metal leaching and radioactivity on the land and local aquatic environment during mining operations and after closure, as well as monitoring plans associated to those effects.

A 3.2 :

Potential effects either caused by acid rock drainage, metal leaching and radioactivity (related to thorium, uranium and their progeny nuclides) will be assessed by proper data acquisition and incorporation into project design and modelling. For this purpose, a geochemical characterization program has been developed for Torngat Metals to identify materials (i.e., waste rock, ore stockpiles, overburden, residues, etc.) that may result in potential acid rock drainage (ARD) and metal leaching (ML). It should be noted that available assays of waste rock and resource indicate a low acid generation potential.

The proposed geochemical characterization program is included in the Appendix D of the DPD. These will inform engineering designs on what needs to be implemented to ensure contact water is mitigated, reduce discharges to the receiving environment and ensure minimal effects on the receiving environment. In addition, a sampling program performed by the Saskatchewan Research Council (SRC) will include testing of radionuclides on each source or waste material based on recommended guidelines. It is important to note that the geochemical testing program includes toxicity testing. All runoff from the waste rock and resource piles will be diverted to the water management system, and then recirculated in the process water. When discharge would be needed, after treatment, the primary discharge to the environment (see maps 9-5, 9-6 and 9-7 of the DPD showing different mine layout options) will be made to ensure it meets all process requirements and/or regulatory standards (federal and provincial) for environmental discharges. Levels of radionuclides will be quantified in both surface and drinking water to ensure safe levels.

The EISA will detail all methods, levels and results, as well as monitoring and mitigation measures, and this for all project phases including after closure.

SI 3.3 : Need for information on the monitoring that will be conducted on the water treatment system and at the mine site discharge point.

A 3.3 :

The water treatment and recirculation processes are now under development, the goal being a closed loop system. Studies are currently underway to determine how this can be achieved. All data will be provided, and mitigation measures will be detailed in ESIA. Currently, no discharge is anticipated for dryer periods in the winter, and during drier periods in the summer (no rain).

All process water will be captured and reinjected in the process plant. There will be no discharge of those water, at any time. Should there be an upset in the plant, and the plant is shut down for an extended period, the water will be directed to a holding pond.

The surface runoff water, the seepage water from the stockpiles (including residue) and the pit dewatering water (originating from interception wells) will also be directed to the process plant for makeup water. However, it is possible that during periods of rain, or spring melt, the combined surface runoff water and pit dewatering water will exceed the capacity of the plant to use the water, which is on average 3,888 m^3/day. In that case, controlled discharge will be considered.

There are three potential discharge options for the surface runoff and ground water:

- **The first** and preferred option, is to pump the water to the top of a hill and let it run down an intermittent creek with engineered wetland sections. The return of treated water to the Lake Brisson would then be made more progressively, and wetland features could be designed to further treat the water. This creek is known to have no fish downstream of the access road (2012 station EF-15, 2023 station 3F). Further fish investigation will be completed in 2024 to comprehensively address this creek from headwaters to its outlet in Lake Brisson. If no fish are captured during sampling in 2024, testing will be undertaken to ensure that this scenario would be acceptable to environmental authorities and the public. This option will be evaluated in the ESIA.
- **The second** option is to discharge directly to the Lake Brisson in the most proximal bay. Although of less technical complexity, this option would not warrant enough dilution before the water reaches the lake. Data from bathymetry surveys conducted in 2023 indicates that there is no significant flow in Lake Brisson given the presence of shallow bays and islands. It would be very difficult to achieve proper mixing of water with the standard technologies. For this reason, this second option is not retained.
- **The third** option is to discharge in Lake Brisson, but rather using a diffuser. Given no significant flow detected in 2023 related to the presence of shallow bays and islands, that option includes long piping to get further away than the proximal bays surroundings the installations, and design of a diffuser to counterbalance the existing limiting conditions at site. This option will be evaluated in the ESIA.

A second discharge is anticipated for the sanitary circuit. An on-site sewage treatment plant will be constructed to effectively treat sanitary water from offices, washrooms and other facilities. Though still under development, treatments could include biological treatments, sedimentation and disinfection of the effluents. Septic systems would also be integrated into the treatment process, taking advantage of natural processes to mitigate the impacts of domestic effluents. Diffusers could also be used for the sanitary discharge, and they would be designed to ensure maximal dilution of any releases into the lake. To further minimize water use, greywater recycling systems are also being considered which would use water from sinks, showers and laundry as a water supply for non-potable purposes (toilet flushing, irrigation). Alternatively, Torngat Metals is in the process of evaluating the possibility of having the solid waste transported to an outside facility for treatment, and therefore only water would remain to be treated. Other option under consideration would be to integrate artificial wetlands in the domestic water treatment process and the use of greywater as a supply for dust suppression on-site.

Overall, at the mine site, the potential discharge points are located on maps 9-5, 9-6 and 9-7 of the DPD (options A, B and C of the mine layout). Two discharge points are for mining waters (option 1 and option 3 described above), and the other for treated domestic wastewater. Discharge locations are established based on hydrologic modelling and in order to reduce environmental impacts. The monitoring that will be conducted at the mine site discharge point(s) will be established based on standard regulations (mining discharge under MDMER, EEM Program from ECCC, along with the establishment by the MELCCFP of Effluent Discharge Objective [OER]) to be respected. Biological monitoring (fish tissues, benthic invertebrates) will be added to water/sediment sampling programs which are required by the MDMER of ECCC (EEM Program). The monitoring requirements under the MDMER include weekly, monthly and quarterly monitoring of the effluent, quarterly toxicity testing of the effluent and quarterly monitoring of the receiving environment. MDMER monitoring requirements also include sampling of the fish and benthic invertebrate populations every three years quantifying effects on benthic community structure and morphological changes in fish.

The process water treatment system(s) will have internal monitoring to enable operations and be predictive of performance/outflow water quality. The internal monitoring of a water treatment system is specific to the system and constituents to be treated. These include three categories of parameters: 1) performance parameters – the constituents being treated; 2) operating parameters – the reagents, flows, and variables being directly modified in the system; and 3) explanatory parameters – the parameters that indicate how the system is functioning and are indirectly related to the operating parameters. The exact list of parameters, sampling locations, and frequency will be part of the water treatment operation, maintenance, and surveillance (OMS) manual. The water treatment plant will have a dedicated distributed control system, incorporating online monitoring for process control as well as remote telemetry to monitor plant performance and ensure that technical support is available to operations staff. Contingency plans will be addressed by the design to ensure that any abnormal conditions (e.g., plant upset, extreme weather, equipment malfunction) have specific remedies to limit environmental impacts.

SI 3.4 : Need further details on the mobility and toxicity of rare earth elements, particularly niobium and yttrium. Importance of developing effluent treatment strategies based on best available technologies.

A 3.4 :

Generally, rare earths are not very mobile in aqueous solutions. They readily form complexes with anions (carbonates, hydroxides and phosphates), become insoluble and precipitate. Over 85% of the REE present in soils remains insoluble (Loell et al. 2011), 70 – 80% in sediments (Leybourne & Johannesson, 2008). The mobility of the remaining fraction is affected primarily by the presence of Fe or Mn oxyhydroxides and dissolved organic matter which adsorb REE in solution. Other factors like pH fluctuations and the presence of colloids can also affect mobility (Migaszewski & Galuszka, 2015). Niobium is among the less mobile REEs with some studies demonstrating that as much as 95% of Nb present in soils is not mobile (Scheib et al, 2012). Y has been shown to be among the more mobile REEs with on average 30 % being extractable from soils (Loell et al. 2011). Federal guidelines from the CCME will also be used to derive site-specific water quality guidelines for the protection of aquatic life.

Generally, the toxicity of REEs is much lower than other metals typically associated with mining operations. The 7-day LC50 of REEs to freshwater amphipods varied between 120 – 721 µg/L, much higher than values for other metals such as Cd (0.57 µg/L), Cu (56 µg/L) or Hg (8.4 µg/l) (Borgman et al. 2005). The toxicity of REEs are limited by their chemistry in water. Ng et al (2011) showed that as much as 99% of the REEs in aqueous solutions aren't bioavailable. They also have a tendency to biodilute in the environment, with higher trophic levels exhibiting lower concentrations of REEs (MacMillan et al. 2017), including in arctic environments typical of the mine site (Amyot et al. 2017). Studies have even shown that REEs exhibit a hormetic effect at low concentrations and they have been used as fertilizers and to improve growth rates in animals (Schwabe et al. 2011).

Effluent treatment methods will be adapted to ensure that REEs are removed from the effluent as much as feasible. See previous answer 3.3 for details of controls for the effluent treatment process.

The water treatment technology (or technologies) is being selected using a best achievable technology (BAT) process that includes 5 steps. These are: 1) Identification of information to be gathered for the BAT assessment, 2) Identify all potential technologies, 3) Screening for feasible options, 4) Multiple accounts analysis to describe and compare the site specific: reliability, control effectiveness, and cost effectiveness of each option, and 5) Selecting the BAT. The engineering criteria will be based on governing conditions for climate, for example, using rate constants and sizing basis that incorporates worst-case seasonality. Best environmental practices (BEP) are also followed for water management and treatment.

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SI 3.5 : Concern about the Strange Lake deposit containing elements for which regulatory effluent limits have not yet been established.

A 3.5 :

While federal and provincial guidelines have not been established yet for certain potential contaminants, guidelines that have been established in other jurisdictions (ex: Dutch guidelines for maximum acceptable concentrations of certain REEs) and for other projects (Thor Lake REE mine in the Northwest Territories) could be used. Defining site-specific guidelines for contaminants that are not covered in existing regulations is part of the risk assessment phase of the ESIA. These site-specific guidelines will be established based on existing background conditions at the site, the best available knowledge from the literature and other jurisdictions and the experience of AECOM's risk assessment team in establishing such limits. Baseline levels will be quantified using Quebec's CEAEQ methods (MA. 203 – Mét. T. Rares 2023-04-28 (révision 4)) which is the most refined method with the best reported detection limits. Federal guidelines from the CCME will also be used to derive site-specific water quality guidelines for the protection of aquatic life.

Environment and Climate Change Canada (ECCC) is in the process of releasing water quality guidelines for REEs. When these guidelines become available, they will be taken into consideration for the establishment of environmental discharges limits for the project.

The discharge concentration targets in order to achieve these requirements will be detailed in the ESIA. Assessment of the environmental risks of rare earth elements (water quality, sediments, groundwater, aquatic species, fish, and fish habitat) during all stages of the project, will be done through a human health and ecological risk assessment (HHERA). Baseline concentrations in the environment, the development of sources for all mine and processing waste streams, toxicity testing to support environmental guideline derivation, assessment of mine water treatment technology, and appropriate management of any mine or processing waste will be presented as needed to mitigate negative impacts to the environment. Thus, Torngat Metals will also have to perform detailed monitoring throughout the project lifespan, including a regular water sampling of effluent discharges. All this will be detailed in the ESIA.

SI 3.6 : Concern about fluoride which is likely a contaminant in ground and contact waters. The analytical detection limit for fluoride should be less than the Canadian Water Quality Guideline value for the protection of aquatic life.

A 3.6 :

Detection limits for fluoride (0.1 mg/L) during background surveys were below the Canadian Water Quality Guidelines (0.12 mg/L).

Geochemical characterizations performed between 2012-14 indicated that fluoride containing minerals are present in the ore and leaching tests performed in 2013 indicate that there is a risk that fluoride could leach out of the stockpiles at concentrations posing a potential risk to ground and surface water. Further leaching tests will be performed using updated methods to confirm these results (see answer 3.2). All water coming into contact with the resource and waste rock piles will be diverted and treated to ensure that it meets regulatory requirements under both provincial and federal guidelines before discharge into the environment. It is anticipated that runoff from the waste piles will be used to meet the water needs of the concentration process at the mine. This will limit the potential impacts of runoff from the stockpiles. Details of these processes will be presented in the ESIA.

SI 3.7 : Need for information on the material characterization and testing program for all materials that will be stockpiled at the mine site, and all materials used for construction (for the road and other infrastructures at the mine site). Importance of demonstrating that the release of contaminants will be mitigated.

A 3.7 :

As stated previously in the answer 3.2, a geochemical characterization program has been developed for Torngat Metals to identify materials (i.e., waste rock, ore stockpiles, overburden, residues, etc.) that may result in potential acid rock drainage (ARD) and metal leaching (ML). The proposed program, which also includes toxicity testing, is attached in the Appendix D of the DPD. In addition, a sampling program performed by the Saskatchewan Research Council (SRC) will include testing of radionuclides on each source or waste material based on recommended guidelines. The methods and results will be detailed in the ESIA.

The proposed geochemical characterization program (Appendix D of the DPD) is providing estimates of anticipated sampling numbers given the volumes of material expected to be mined over the 30-year lifespan of the mine. Samples designated for stockpiling will be subjected to ABA (Acid Base Accounting) testing, and a subset of these samples will additionally undergo SFE (Shake Flask Extraction) testing. Based on the geological description provided, materials disturbed by operations at the Strange Lake Mine are not expected to be characterized as sulphide bearing materials. While it is essential to assess the ARD (Acid Rock Drainage) potential of all stockpiled materials, Torngat Metals recommends adopting a phased approach to testing as drilling programs and additional characterization work is ongoing. This adjustment would enable a more efficient allocation of resources, allowing Torngat Metals to focus on enhancing the quantification of element mobility through an increased number of samples assigned to SFE and humidity cell testing.

In addition, any material sourced for road materials will be added to the sampling plan based on volume similar to what was done for other material types. At this time, no specific materials have been identified. Testing will be undertaken approximately 6 months before the anticipated use of the material. Only materials identified as having an acceptable composition will be used for road construction material. The valorization of these materials could eventually reduce the environmental footprint of the mine site by reducing the size of the stockpiles.

At the mine site, a water and air quality sampling program will be undertaken. Strategic locations near sensitive terrestrial habitats will also be sampled for air quality monitoring. This will generate baseline information for subsequent monitoring activities. All reasonable mitigation measures will be implemented to reduce potential impacts on environments surrounding the mine site.

SI 3.8 :	Need further details on water supply, in particular on the quantity of water withdrawn, effects on natural water levels and tables, and on water use during operations of the processing plant at the mine site.

A 3.8 :

Request for water supply involved water demand at the plant, drinking water, and other water demands (sanitary needs). In terms of water supply at the process plant, the primary objective is to avoid pumping water from Lake Brisson. A water management pond (WMP) will be built progressively to accumulate a water reserve and a 6-month water inventory of a minimum of 500,000 m³ from precipitations and snow melt. Once excavation of the pit has commenced, water from the pit and stockpiles will also be diverted into WMP to be used in the concentration process. Environmental modelling of hydraulic resources for surface water, groundwater and interactions between them. will be done to confirm potential sources and evaluate the impacts on the surrounding environment.

Once operational, the aim is to have a closed loop systems whereas much of the water as possible is treated and recycled within the system to prevent both intake and discharge. Water to replenish losses in the process will be sourced from the collection basin and contact water from the various stockpiles. This will significantly reduce the quantity of freshwater required during operations. Processes at the concentration plant are currently being refined. Details of these processes will be presented in the ESIA.

Estimates for potable water assumes usage of 250 L/person/day based on approximately 250 people in the camp. Lake Brisson is a potential source of drinking water for human consumption. The SG-1 esker located to the north of industrial area (mine layout option A and C) or to the east of this industrial area (option B) and the base camp is an underground water source which constitutes a second source of drinking water. The required water treatment will be established during the feasibility study; chlorination is not anticipated. A pumping station would 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 heat traced pipeline of approximately 1.5 km will bring the water to the treatment plant. A 5-meter-wide access path will also be built along side the pipeline to facilitate inspections and repairs.

More detailed analysis will be completed to confirm the source of drinking water that will be used, and the treatment required. Drinking water will be analyzed and treated before use according to Health Canada and Quebec’s Standards.

A fire water tank, fed from the WMP, 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 have separate containers.

SI 3.9 : Need for information on the water treatment system at the mine site, its effectiveness, and the location of the final effluent discharge.

A 3.9 :

Two major regimes will be experienced at the mine site: winter and summer. The water management strategy will take into consideration the types of treatment possible, discharge seasonality, climate, and receiving water quality. Efforts are being made to use and discharge a minimal amount of water, with a focus on reuse of contact water in the mining and milling processes. Water will be held in holding tanks during the winter in order to supply the plant with its daily water need. Discharge, if any, would only occur in ice free months. The water treatment technology (or technologies) is being selected using a best achievable technology (BAT) process that includes 5 steps. These are: 1) Identification of information to be gathered for the BAT assessment, 2) Identify all potential technologies, 3) Screening for feasible options, 4) Multiple accounts analysis to describe and compare the site specific: reliability, control effectiveness, and cost effectiveness of each option, and 5) Selecting the BAT. The engineering criteria will be based on governing conditions for climate, for example, using rate constants and sizing basis that incorporates worst-case seasonality. Best environmental practices (BEP) are also followed for water management and treatment. Answer to issue 3.3 discusses the potential discharge locations in more detail.

SI 3.10 : Need further details on the location(s) where process water will be withdrawn, both at the mine site and at the separation plant in Sept-Îles.

A 3.10 :

Mine Site

As answered in 3.8, in terms of water supply at the mine site, the primary objective is to avoid pumping water from Lake Brisson. Torngat Metals aims to reuse/recirculate process water and utilize pit dewatering and contact water to prevent both intake and discharge. All water treatment systems are being designed with the goal of increasing water reuse and limiting need for freshwater use. Initial water will be sourced from a collection basin built during the construction phase of the project that will accumulate rain and snowmelt. Water from dewatering of the pit would also be used to supply the process plant. Details of these sources will be presented in the ESIA. Nevertheless, the potential additional water draw points in the lake are located on maps 9-5, 9-6 and 9-7 (mine layouts options A, B and C) for the mine site.

As mentionned previously in the answer to issue 3.8, Lake Brisson is a potential source of drinking water for human consumption. The SG-1 esker located to the north of industrial area (mine layout option A and C) or to the east of this industrial area (option B) and the base camp is an underground water source which constitutes a second potential source of drinking water.

Sept-Îles

For Sept-Îles, there are three (3) options for the process water sources:

- in Rivière au Foin: since this is a small watershed, draw would have to be very progressive;
- by drawing from the stormwater runoff and snowmelt water;
- trucked in from off-site: the preferred off-site location would be the at the treated water outlet of the wastewater treatment plant (preferred option – to be evaluated as part of the FS and ESIA).

The reserve/inventory of water is established at 10,000 m³. In terms of quantity, the aim is to recycle as much water as possible and to have a closed process where virtually all of the water is retained. The discharge of the separation plant will be captured, treated and used for daily makeup water for the plant, with limited make-up water anticipated. Should there be a plant upset, and a need for extra water, Torngat Metals would prioritise the stormwater of the town or the treated sewage effluent of the town, according to what is feasible.

SI 3.11 : Need further details on mitigation measures for the foreseeable disturbance that effluent discharge into Lake Brisson will cause.

A 3.11 :

In order to prevent any contamination or disturbance from a possible effluent discharge, the process aims to recycle as much water as possible. All criteria for water quality will be respected in the event of a discharge (federal, provincial and site-specific objectives). No discharge of any parameters in excess to authorized levels will be allowed (deleterious substances from MDMER). For providing comprehensive assessment of impacts on water quality, the current baseline reference levels are being measured over a 2-year period, and other physical components such as hydrology are included to model surface water and groundwater quality. All data will be provided, and mitigation measures will be detailed in ESIA.

As stated in answers 3.3 and 3.9 water treatment and recirculation processes are now under development. All data will be provided, and mitigation measures will be detailed in ESIA. The current preferred option for primary discharge during overflow/emergency needs (large storms exceeding capacity, excess rainwater) that is under analysis would redirect the process water, after treatment, to a higher peak, and send it back to an existing intermittent stream (creek; maps 9-5 and 9-7 of the DPD, options A and C of the mine layout). The return of treated water to the lake (excess water - from recirculation/reuse) would then be made more progressively. This creek is known not to have fish downstream of the access road (2012, 2023). Further fish investigation will be completed in 2024 for potential creek 3F/EF-15. If no fish are captured during 2024, testing will be undertaken to ensure that this scenario is acceptable.

Mitigation measures (in order of implementation) would include: 1) minimizing water use, 2) maximizing water reuse, 3) diverting non-contact waters, 4) minimizing infiltration of contact waters, 5) implementing source control measures, 6) a water management strategy that considers seasonality of receiving environment, and 7) water treatment selection through a best achievable technology (BAT) selection process (see below). The water management and treatment strategies are implemented with a trigger action response plan (TARP) to ensure effective source control and water management are prioritized over treatment and discharge.

The water management strategy will take into consideration the types of treatment possible, discharge seasonality, future climate impacts, and receiving water quality. Efforts are being made to use and discharge a minimal amount of water, with a focus on reuse of contact water in the mining and concentration processes. Please refer to answers 3.3 and 3.9 for further details.

SI 3.12 : Describe specific considerations regarding the northern climate on the efficiency of wastewater treatment systems, for industrial and domestic wastewater at the mine site.

A 3.12 :

Northern climate considerations (including future climate change) is fully considered in the planning phase for the overall project lifespan, and while choosing the specifications of each project component/infrastructure.

Water treatment in northern climates requires careful consideration of the timing of water use, treatment, and discharge, as well as engineering specifications for cold-weather service. The volumes and chemistry of the receiving environment(s) during low flow and frozen months are being taken into account. It is also essential to have the ability to treat the water effectively at the necessary times of the year, while managing technical risks to equipment as well as health and safety risks to personnel. All these factors are considered in the options assessments, and a site-wide water management strategy is being developed with these aspects in mind. The engineering design basis will be appropriate for the site-specific environmental and climate conditions. The water management strategy will take into consideration the types of treatment possible and discharge seasonality that may be required for the climate. This could mean the need to hold water during winter months and seasonally treat and discharge it. The water treatment technology (or technologies) is being selected using a best achievable technology (BAT) selection process that includes 5 steps. These are: 1) Identification of information to be gathered for the BAT assessment, 2) Identify all potential technologies, 3) Screening for feasible options, 4) Multiple accounts analysis to describe and compare the site specific: reliability, control effectiveness, and cost effectiveness of each option, and 5) Selecting the BAT.

The proposed water management strategy and the justification for the selected technologies will be detailed in the ESIA.

SI 3.13 : Concern about the risk of contamination of Ikadlivik brook and Mistinibi Lake.

A 3.13 :

Mistinibi Lake

For further downstream reaches, a complementary model (1D-TELEMARK) will be conducted and merged to the hydraulic modelling at Lake Brisson in order to include in the ESIA a dilution study for the George River watershed downstream, including Mistinibi Lake from the downstream lakes (Napeu Kainut, Cananée, Indian House Lake; see Figure below). The dilution factor will be assessing the risk of contamination quantitatively.

Gauging stations will be added in summer 2024 to better monitor water levels and flow. Water samples will also be taken at some of these sites to establish a baseline.

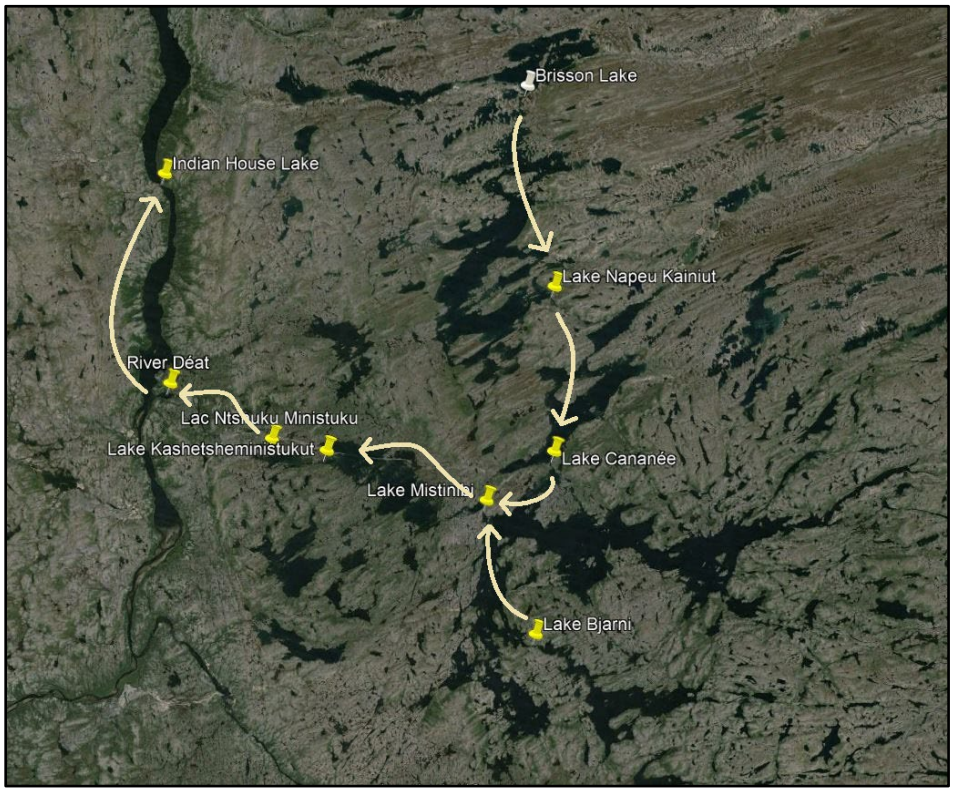

Figure 3-1: Location of lakes and rivers targeted by the dilution factor analysis. Arrows indicate direction of water flow.

Ikadlivik brook (and other brooks along the road)

When being transported along the road corridor, the concentrate will be packed in superbags and those superbags will be put in sealed containers. Impact on water of Ikadlivik Brook watershed from equipment transportation will be mitigated by the application of standard mitigation measures for road transport in isolated areas (ex. equipment selected, dust suppression) that will be described and justified in the ESIA.

An Environmental Contingency Plan will be submitted with the ESIA that will address any accident or spill, for both location. For the construction phase of the road and watercrossings, all standards and guidelines will be followed to avoid any harmful alteration, disruption and destruction to fish habitat.

SI 3.14 :	Concern about possible impacts to water quality in the George River. Importance of considering all potential downstream effects when analyzing the impacts on water resources, including the George River.

A 3.14 :

The water treatment process and recirculation are now being developed (see answers 3.3, 3.9 and 3.11). Effluent discharges will be minimized at the mine site as the planning phase aims at having almost no discharge to the receiving environment (primary discharge for overflow/emergency needs only). Otherwise, as answered in 3.13, the hydraulic modelling will include a dilution study for the George River watershed to consider all potential downstream effects when analyzing the impacts on water resources. On top of a dilution factor, water samples will be collected at strategic points that will be settled in collaboration with communities.

All data will be provided, and mitigation measures will be detailed in ESIA.

SI 3.15 : Concern about the excavation of sand and gravel from esker G-1, the potential for other materials to be stockpiled on esker G-1, and potential contamination of groundwater underneath the esker.

A 3.15 :

In Lake Brisson, ESKER G-1 is a confirmed spawning ground. No material will be excavated from esker G-1. The borrow pit is located east of it, up to the Labrador border.

A conservative approach will be used, as that the esker G-1 is linked to Lake Brisson shoreline, and that Torngat Metals acknowledges that the pit is close to Lake Brisson (same edge). The groundwater assessment will be included in hydrogeological modelling, also considering connectivity between the open pit and Lake Brisson as that will affect water balance and volume of contact water produced by interactions between clean groundwater and pit walls. Interconnections among surface water reservoirs will be examined using hydrological and hydrogeological models (water balance – see also answer 1.41). All results, impacts and proposed mitigation measures will be detailed in the ESIA.

For the potential contamination on the mine site, any accident or spills, an Environmental Contingency Plan will be submitted with the ESIA.

SI 3.16 : Importance of assessing the hydrological connectivity between Lake Brisson, other waterbodies located in proximity, and groundwater underneath esker G-1.

A 3.16 :

Baseline reference data were collected in 2011-2012 and will be again from 2023-2025 to appropriately cover the hydrological connectivity in the mine site study area. Torngat Metals acknowledges that the pit is close to Lake Brisson. The pit extraction area will be defined in order to preserve a proper distance to the Lake Brisson in order to prevent any linkage. A conservative approach will be used, and will account for discontinuous permafrost (talik), and environmental issues emerging from hydrogeology, groundwater assessment, etc. Engineering design will include consideration of constraints, such as for the pit wall design. The groundwater assessment will be included in hydrogeological modelling, also considering connectivity between the open pit and Lake Brisson as that will affect water balance and volume of contact water produced by interactions between clean groundwater and pit walls. Interconnections among surface water reservoirs will be examined using hydrological and hydrogeological models (water balance– see also answer 1.41). All acquired data will be modelled appropriately and all results, impacts and proposed mitigation measures will be detailed in the ESIA.

The Appendix D of the DPD provides preliminary versions of the water balance/quality model, as well as the groundwater inflow assessment, both interacting together.

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SI 3.17 : Concern and need for information about the risks of potential discharge from the high purity separation plant in Sept-Îles into the water and groundwater, including drinking water sources in Sept-Îles such as the Lac des Rapides.

A 3.17 :

The proposed location separation plant and its residue stockpile area location are not in the same watershed as Lac des Rapides, used by the city as a source of drinking water. As a result, important physical barriers prevent water on plant site and its residue stockpile site from reaching this lake. Furthermore, as explained in previous answers, Torngat Metals aims to operate a closed cycle process, as such there shouldn't be any effluent discharges during operations of the separation plant.

Other pathways that could carry contamination from the plant site and its residue stockpile site to Lac des Rapides are groundwater and atmospheric dispersion of pollutants. A priori, the risks associated with these transfer routes appear minimal given the technologies proposed to control infiltration into the soil and atmospheric emissions, but they will nevertheless be assessed in depth as part of the ESIA.

As explained in answer 1.41, water balance and quality, groundwater and air dispersion models will be developped to support the ESIA. A conservative approach will be used throughout these studies, given the importance of protecting the drinking water source. A comprehensive report will be prepared and submitted for each modeling study.

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SI 3.18 : Concern about seepage from the residue stockpile at the high purity separation plant in Sept-Îles, as it is a potential source of contamination to surface water, groundwater, fish and fish habitat.

A 3.18 :

As explained in section 9.5.3 of the DPD, the residues from the separation plant will be permanently stored in a dry stockpile. Dry stacking of residue is a management strategy where residues are filtered and dewatered to produce a dry cake, which has moisture contents well below saturation. The advantages of dry residues include more efficient use of water, low seepage losses from the dry stack, the ability to progressively reclaim the residue storage facilities, increased physical stability, reduced containment requirements, and simpler water management procedures.

Residue storage facilities are engineered structures that specifically target the prevention of seepage. The site will be prepared in such a way as to ensure appropriate draining of the minimal seepage that is expected to occur. This could consist of installing a doubled waterproof lining and drainage layer below the stacked residue storage stockpile or other engineered lining to be evaluated as part of the feasibility study.

In order to minimize the potential environmental impact, and subject to the approval of the authorities, the residues will be thickened, filtered and mixed with a cementing agent before being deposited in the residuals management area. The dry residue will be covered progressively as they are accumulated. Daily visual inspection of the cover will verify compliance of each new layer of residue and confirm the integrity of the waterproof covering. Any damage leading to water infiltration will be immediately repaired, or a temporary abatement measure will be applied until permanent repair can be done. Sensors will also monitor any seepage from the dry residue. Collection ditches surrounding the residue stockpile will ensure that the minimal seepage from the residue piles will be directed to a collection basin. The collected water will be added to the process water system.

Addition of cement powder helps with the stability of the residue and leaching mitigation. Generally, cemented backfill are inert, however, seepage and kinetic studies will be performed in order to determine the percentage of cement to be used (expected to be between 5 – 10%), the potential for long-term metal leaching and the potential source terms to be added in the water quality model.

Additional geochemical and geotechnical studies will be conducted in order to inform the design of the mine residue stockpile area and the retention basin that will be used for sedimentation and/or retention for associated water treatment. The environmental design to ensure groundwater protection and wastewater treatment will be developed based on in-situ conditions and Québec's Directive 019 (MDDEP, 2012).

No effluent discharges are expected during normal operations. Any effluent originating from contact water from the residues due to extreme weather events will be directed to a contact basin, treated and returned into the process plant.

Nevertheless, all possible routes of contaminant transfer from the residue stockpile to surface water, groundwater, fish and fish habitat will be identified and assessed as part of the ESIA. For that purpose, water balance and quality, groundwater and air dispersion models will be developped, and a comprehensive report will be prepared and submitted for each modeling study.

See also answers 1.36, 1.37 and 1.41.

SI 3.19 :	Concern about the 2-km distance between the proposed high purity separation plant in Sept-Îles and a source of potable water.

A 3.19 :

Same answer as 3.17.

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SI 3.20 : Concern about leachate discharge to the Sept-Îles municipal sewer system and municipal aerated ponds.

A 3.20 :

Torngat Metals aims to minimize effluent discharges as much as feasible, the goal being a complete recycling of all process water. No effluent discharges from the separation plant or from the residue stockpile are expected during normal operations. Effluent from the separation plant will be directed to a treatment plant and re-injected into the process. Any effluent originating from upsets to the separation process will be directed to a contact basin, treated and returned into the process. Leachate from the residue piles is expected to be minimal and would also be directed for being treated and reused in the process. A discharge point for treated water into the Rivière au Foin would be provided only for exceptional cases where surplus water cannot be reused at 100%, subject to the results of the impact assessment.

Solid Residues from all treatment would ideally be blended with the process residues and stored as dry residue.

SI 3.21 : Importance of characterizing the current water and sediment quality in the Bay of Sept-Îles. Concern about contaminants accumulating in sediments in the Bay of Sept-Îles, especially considering sediments are a nutrient base for phytoplankton and zooplankton.

A 3.21 :

Water and sediment quality will be characterized in receiving environments in Sept-Îles to establish relevant baseline concentrations for all relevant contaminants and nutrient levels. These levels will be used to inform the development of water quality guidelines to ensure that any potential contaminant release into the environment will not have a significant impact on wildlife and ecosystem function. Considering that the concentrate is transported in superbags inside of shipping containers, contamination during transshipment and transport from the port facilities to the separation plant is unlikely, but characterization efforts for sediments will be made none-the-less.

As stated previously, Torngat Metals aims to reuse all water in its separation process. As such, virtually no effluents are expected to be discharged during operations. In exceptional cases, malfunctions and extreme weather conditions may cause occasional discharges. Any effluent associated with these events will be treated before any discharge. At this stage, it is planned that this exceptional discharge point will be in the Rivière aux Foins, subject to the results of the impact assessment.

SI 3.22 : Need more information on avoidance, mitigation and emergency measures to limit the water pollutants that could potentially affect the environment at the mine site.

A 3.22 :

As mentioned in the answer 3.11, the design objective for the mine and the concentration plant is to recycle as much water as possible to prevent any contamination or disturbance from a possible effluent discharge. Should an occasional discharge be required, all criteria for water quality will be respected (federal and provincial). Where no criteria are available (ex: REE), these will be developed based on currently available literature and/or values from other jurisdictions and in accordance with federal CCME guidelines for the development of site-specific water quality guidelines. Environment and Climate Change Canada (ECCC) is also in the process of developing water quality guidelines for REE and these will be integrated into the environmental assessments when they become available. No discharge of any parameters in excess to authorized levels will be allowed (deleterious substances). For providing comprehensive assessment of impact on water quality, the current baseline reference levels will be measured for 2 years. Mitigation measures will be detailed in ESIA, including for emergency response protocols for accidents and spills. An emergency response plan will be developed as part of the impact study. A component of this plan will be specifically dedicated to contaminant releases to water that could have a potential impact on the biophysical and human environmental components at the mine site.

SI 3.23 :	Need further details on the water management plan for all project components, such as the design of retention or sedimentation basins, pipelines, pumping systems, ditches around waste rock and ore stockpiles and tailings area, road ditches, and drainage systems serving the airstrip at the mine site and the high purity separation plant site in Sept-Îles.

A 3.23 :

The water balance will be developed at both mine and separation plant sites considering that the runoff (contact water) and seepage from the different stockpiles will be collected by perimeter ditches, allowing the water to be directed to collection ponds. Water from the ponds will then be pumped to a water treatment plant (WTP) for treatment (if required) and then to a water management pond (WMP), before being reuse in the concentration process (mine site) or separatin process (Sept-Îles). The design of the WMPs will be based on the assumption that the ponds are capable of managing the Directive 019 flood event without overflowing to the environment. The design of the various infrastructures will include climate change considerations and will be based on the applicable guidelines (in particular Directive 019). Road runoff (non-contact water) will be diverted off-site, and sedimentation basin will likely be required for sediment management.

As the water management plan will be developed during the feasibility study (FS), the further details on design of retention, sedimentation basins, pipelines, pumping systems, final network of ditches and the overall drainage systems at sites including the airstrip at the mine site will be comprehensively addressed during the ESIA.

SI 3.24 :	Need for information on the treatment of effluents at the mine site that may contain suspended solids, hydrocarbons, blasting products, contaminants from mine drainage, metal leaching and radioactive materials.

A 3.24 :

As mentionned in previous answers, effluent discharges will be minimized as the planning phase aims to have almost no discharges to the receiving environment and absolutely no discharge of any industrial water. Nevertheless, overflow/emergency discharge from the open pit or surface water collection systems may occur (after treatment) during the lifespan of the mine, this only occurs if there are excess or abnormal amounts of precipitation. Treatment of any discharge above any limit set for discharge will be mandatory

Efforts are being made to use and discharge a minimal amount of water, with a focus on the reuse of contact water in the mining and infrastructure areas. The water management strategy will take into consideration the types of treatment possible and discharge seasonality that may be required for the climate adaptations. Climatic factors could mean that the mine needs to hold water during winter months and seasonally treat and discharge it.

Secondary containment is being examined to aid in the management of overflow/emergency events. The water treatment technology (or technologies) is being selected using a best achievable technology (BAT) process that includes 5 steps. These are: 1) Identification of information to be gathered for the BAT assessment, 2) Identify all potential technologies, 3) Screening for feasible options, 4) Multiple accounts analysis to describe and compare the site specific: reliability, control effectiveness, and cost effectiveness of each option, and 5) Selecting the BAT.

The water treatment and recirculation processes are now being developed. A description of water management infrastructures and equipment will be provided in the ESIA, along with their anticipated performance.

SI 3.25 : Need further details on the different treatment considered to treat contaminants in wastewater at the Strange Lake mine and Sept-Îles plant that are not covered under the Directive 019.

A 3.25 :

As mentioned previoulsy, the design objective for the mine and the concentration plant is to recycle as much water as possible to prevent any contamination or disturbance from a possible effluent discharge. The water treatment and recirculation processes are now being developed. A description of water management infrastructures and equipment will be provided in the ESIA, along with their anticipated performance.

Water quality criteria are not only prescriptive in Directive 019, but also regulated by the provincial (MELCCFP surface water criteria for aquatic life) and federal agencies (MDMER, CCME). Where no criteria are available, literature and thresholds from other jurisdictions will be used to guide decisions and federal CCME protocols will be used to establish site-specific water quality guidelines. Any novel chemicals used in the concentration or purification plan will need MSDS sheets and chemical information for environmental fate modelling.

Modelling data and baseline data from the sampling efforts will be transmitted to the MELCCFP to establish Environmental Discharge Objectives (OER). These OER would be part of the final authorization of the project (Mine, Sept-Îles).

See also answer 3.5 and 3.22.

SI 3.26 : Need for information about the long-term management of residue generated by the high purity and separation plant, during closure and post-closure phases.

A 3.26 :

As explained in section 9.5.3 of the DPD and in answer 3.18, the residues from the separation plant will be permanently stored in a dry stack. In order to minimize the potential environmental impact, and subject to the approval of the authorities, the residues will be thickened, filtered and mixed with a cementing agent before being deposited in the residuals management area. Generally, cemented backfill are inert, however, seepage and kinetic studies will be performed in order to determine the percentage of cement to be used, the potential for long-term metal leaching and the potential source terms to be added in the water quality model. Additional geochemical and geotechnical studies will be conducted in order to inform the design of the mine residue stockpile area and the retention basin that will be used for sedimentation and/or retention for associated water treatment. The environmental design to ensure groundwater protection and wastewater treatment will be developed based on residue characterization and on *in-situ* conditions and Québec's Directive 019 (MDDEP, 2012).

Dry stacking of residue is an increasingly common management strategy where tailings are filtered and dewatered to produce a dry cake, which has moisture contents well below saturation. The advantages of dry residues include more efficient use of water, low seepage losses from the dry stack, the ability to progressively reclaim the residue storage facilities, increased physical stability, reduced containment requirements, and simpler water management procedures. Further details are provided in the answer 1.36.

Closure and post-closure plans for the drystack residue will be developed in consultation with local communities (see answer 3.18). Initial plans are to cap the dry residues to prevent seepage through them and then to cover the residues. The covered residues will then be replanted with native grasses and flowers. Trees and shrubs will not be planted to prevent their deep root systems from disturbing the covering protecting the dry residues.

SI 3.27 : Need for information on the potential effects on trihalomethanes (THM) and haloacetic acids (HAAs) levels at Lac des Rapides, which is a source of drinking water for Uashat and Non-Indigenous peoples of Sept-Îles.

A 3.27 :

THMs and HAAs are generally related to chlorination of drinking water. Torngat Metals will not chlorinate water. Drinking water at separation plant will be supplied by the city of Sept-Îles.

About the potential impact of Torngat Metals activities on the drinking water source in Sept-Îles (Lac des Rapides): see answer 3.17.

4 Wetlands and water bodies

SI 4.1 : Need for a description of all wetlands, watercourses, and water bodies present in the project area (mine site and Sept-Îles separation plant), or hydrologically connected to all components in the project area, that could be directly affected by project activities, including proposed alternatives.

A 4.1 :

The baseline data will be acquired during comprehensive surveys and inventories. Those will be conducted to comply with all guidelines, for all biophysical components and this, for both the mine site and the separation plant, as well as the access road. A highly detailed sampling inventory of wetlands and watercourse will be conducted at the mine site and at the separation plant. As presented in section 14.2 of the DPD, complete and thorough inventories of wetlands, watercourses and water bodies have been carried out at the mine site. Hence the wetlands, watercourses and water bodies that will be potentially affected by the project have been documented. Also, surveys will be conducted in order to update the data previously collected. The same approach will apply to the Sept-Îles separation plant for these components.

SI 4.2 : Importance of considering the water bodies surrounding the high purity separation plant, and the watershed resources, from a sustainable development perspective and to find the best location for the plant.

A 4.2 :

The “Parc industriel ouest – Jonction Arnaud” (also known as Parc Vigneault) of the Sept-Îles industrial port facility was preferred for the following reasons:

- The site can support the deposition of residues, as opposed to Pointe Noire where deposition of residues is not possible. Torngat Metals could only rent space in Pointe Noire and landlords did not accept residues.
- Other potential sites in Pointe Noire considered the Strange Lake Project too small and did not want to tie down valuable real estate for a smaller project, preferring larger sized project facilities.
- The port of Sept-Iles also considered the Strange Lake Project too small, as Torngat Metals would receive 150,000 to 200,000 tons per year as opposed to over 24,000,000 ton per year for aluminum or iron ore projects.
- The Jonction Arnaud site was also the site suggested by the local business community and the town of Sept Iles as being their preferred location for the Strange Lake Project.

Sections 12.1.11 and 12.1.12 of the DPD provide more details on the options considered in the site selection for the separation plant and the process residue stockpile.

The Separation Plant in Sept-Îles is in the watershed feeding the Au Foin River via various wetlands and unnamed streams.

Sustainable development will be achieved by using existing wastewaters from the city of Sept-Îles to supply process water for the Separation Plant (see answer 3-10) and by operating a closed cycle process that would minimize discharge to environment (see answers 3-20, 3-22, 3-25). All contact water and seepage associated with the residues that is generated on-site will be diverted to supply the water needs of the Separation Plant. At this stage, it is planned to install a discharge point for treated water into the Au Foin river, but it would only be used in exceptional circumstances such as extreme weather events (excessive rainfall flooding collection basins) or Separation Plant upsets. This water discharge option will be assessed as part of the ESIA.

SI 4.3 : Importance of considering all parties that may have a role to play in water resources management in Sept-Îles.

A 4.3 :

As part of the land use study to be carried out for the ESIA, interviews will be conducted with representatives of the City of Sept-Îles, the Sept Rivières MRC, and various local and regional organizations (including recreational tourism businesses and recreational associations). A stakeholder consultation plan is also under development. It will include consultations with the City of Sept-Îles, the Sept-Rivières MRC, as well as various local and regional organizations, such as OBV Duplessis, the Côte-Nord du Golfe ZIP committee, Environnement Côte-Nord, and the Corporation de protection de l'environnement de Sept-Îles. All stakeholders likely to have a role to play in the management of water resources in Sept-Îles are therefore expected to be consulted during the ESIA.

SI 4.4 : Need for information on stream properties and anticipated changes as a result of the potential effects on the water table, watersheds, average flows and water levels, and any other factors that may affect navigability. Need to clarify if the projected effects are permanent or temporary.

A 4.4 :

From Transport Canada' definition of navigability, no effect are expected on navigability as stream crossing from hauling and access roads won't impact water/fish passage. The impact on navigability resulting from the mine's operation will be negligible, as navigation in larger streams and river won't be altered. Nevertheless, a land use study will be performed to document the waters navigated by the Indigenous and Non-Indigenous people. Otherwise, baseline data acquisition, and various modeling (hydrology, hydrogeology, surface water, etc) efforts will be performed in order to assess comprehensively the potential effects (temporary, permanent) of the whole project activities on the water features (water balance) as models will have scenarios using different flow conditions (low and high flows). These findings will be provided in the ESIA, where mitigation measures will be established.

5 Terrestrial fauna, flora and birds, including species at risk

SI 5.1 : Concern about the threat the project poses for the protection of biodiversity, considering the proximity of the mine site and road to protected area and territorial reserve for protected area, and considering the potential marine shipping route through the future marine park between Anticosti Island and Mingan Archipelago National Park Reserve.

A 5.1 :

This concern will be addressed in the ESIA by examining which biodiversity components associated with the protected area and the territorial reserve for protected area are likely to interact with the project and in which manner it will be affected by the project in these specific areas. Protection of biodiversity (flora, fauna, species at risk) has already been addressed and it is one of the issues identified in the Section 19 of the DPD. Inventories for flora and fauna will be conducted in 2024 to complement those done from 2011 to 2014 at the mine site and along the proposed road corridor as well as in Sept-Îles. All available data will be consulted, and both analysis and identification of mitigation measures will be carried out in collaboration with all parties implicated in the conservation of the protected areas.

Currently accepted marine shipping route(s) for similar vessels will be used for the concentrate being shipped to Sept-Îles and the current guidelines/regulations will be adhered to. The current estimate of the number of shipments by container ships from the eastern coast of Labrador to Sept-Îles Port is the following:

- 5 to 10 shipments per year for concentrate/container shipments, 3 to 5 ships per year for fuel/tanker ships, for a total of 8 to 15 ships per year, during the summer period (during the open-water period, approximately June to October);

- 30 kt payload per shipment (approximately 1,000 containers per shipment).

The increase on maritime transportation will be considered in the cumulative effects of the project. Marine traffic is lower on the Labrador coast compared to the Gulf and Estuary of St. Lawrence. The Port of Vale is expected to have an average of 55 ship transits per year between 2020 and 2023, according to data from the Canadian Coast Guard (CCG, pers.comm.,2024). In contrast, the Gulf of St. Lawrence is expected to have an average of approximately 4,770 transits per year. As stated above, the Torngat Metals transport vessel will operate in compliance with all relevant laws, standards, regulations, and restrictions for the proposed route to minimize risks and cumulative impacts on the marine and coastal environment, as well as coastal communities. The number of vessels related to this project could be up to 15 (concentrate/container ships + fuel/tanker ships) per year, in addition to current maritime traffic, which represents about 3 to 4.5% of the total annual maritime traffic along the Labrador coast[5], and approximately 0.3% of annual maritime traffic along the St. Lawrence River. Should Option C be carried forward, the new maritime route leading from the dock to the existing maritime route will undergo an environmental assessment.

[5] According to Canadian Coast Guard data, between 335 and 482 ship transits per year have been recorded in the Strait of Belle Isle from 2019 to 2023.

SI 5.2 : Need for species-specific impact assessments for all species at risk identified by the proponent that include a section on projections for the safeguarding and recovery of these species.

A 5.2 :

Baseline inventories will be completed for valued component ecosystem (VECs), including species at risk. If any observation of species at risk is reported, the impact assessment will provide specific avoidance and mitigation measures, which will be species specific. Among aspects that will be examined are habitat use and alteration as well as effects on population dynamics of species at risk. These impact assessments will be conducted during the ESIA process for all species at risk that might be present in the study area, and likely to be affected by the project.

SI 5.3 : Concern about potential effects of project activities, including the construction and use of the access road, on small and large game, as well as migratory birds and species at risk.

A 5.3 :

Indigenous and non-indigenous valued species will be identified during the land use study that will be performed during the ESIA. As for the species at risk, baseline inventories and data acquired during the land use study will help in reporting potential habitats, and direct observations. This concern will be addressed in the ESIA by examining which and how species of small and large game, as well as migratory birds and species at risk are likely to interact with the project activities, including the construction and use of the access road. The analysis will be conducted using all available knowledge from similar projects in northern environments and data acquired during the land use study. The potential effects of the project on habitat alteration and risk of collisions with road vehicles will be examined. Also, the human health and ecological risk assessment (HHERA) will include country foods, and the assessment of contamination levels of valued species.

SI 5.4 :	Concern about the effects on biodiversity of the past and future projects around Lake Brisson and George River.

A 5.4 :

As mentioned in answer 5.1, the effects on biodiversity of the past and future projects around Lake Brisson and George River will be addressed under the cumulative effects/ impact assessment section. This analysis will follow the Policy Framework for Assessing Cumulative Effects under the Impact Assessment Act (The Policy Framework).

SI 5.5 : Need further details on the types and timing of wildlife and bird surveys to be carried out.

A 5.5 :

The types and timing of wildlife and bird surveys are described in section 14.2 of the DPD. Consultation were made with relevant authorities to confirm timing of surveys. These consultations and validations will continue in 2024. Consultations have already been made with the Naskapis to collaborate on 2024 field surveys. Monitoring committees will be established with Indigenous groups. Their knowledge on timing of surveys will be part of discussions. Additional information on the survey's methodologies will be given in the ESIA.

SI 5.6 : Need for updated data on existing populations to assess the impact of the project on species at risk, threatened or endangered.

A 5.6 :

Baseline inventories will be completed for VECs, including species at risk, threatened or endangered. If any observation of a species at risk is reported, the impact assessment will provide specific avoidance and mitigation measures, which will be species specific. Updated data on populations of species at risk, threatened or endangered has already been obtained and will be completed by other surveys to document the current use of the project study area. As indicated in answer 5.2, species specific impact assessments will be conducted during the ESIA process for all species at risk that might be present in the study area and likely to be affected by the project.

SI 5.7 :	Concern about telemetry data obtained during caribou population monitoring being used for the assessment of potential effects on caribou. Telemetry data from population monitoring may not be suitable for assessment of effects.

A 5.7 :

Telemetry data produce valuable information on timing and direction of movements by collared caribou, date of calving, range and habitat use, etc. This information is very useful in the assessment of effects. However, certain effects cannot be assessed through this mean, but they will be examined using other databases, literature reviews and Indigenous knowledge.

SI 5.8 : Need further details on the options considered for the management of radionuclides at the mine site and in Sept-Îles, such as filtering marshes or decontamination through ice removal. Should filtering marshes be ingested or incinerated, considerations to impacts on wildlife and on the environment.

A 5.8 :

As previously mentioned in answer 3.1, 3.11, 3.14, 3.17, 3.18 and 3.22 (among others), the design objective for all facilities, both at mine site (Lac Brisson) and Sept-Îles site, is to recycle as much water as possible to prevent any contamination or disturbance from a possible effluent discharge. Wastewater discharge to the receiving environment would be done occasionnally when there is excess water, after treatment to meet discharge criteria.

The management of radionuclides at the mine site and in Sept Iles does not involve filtering marshes or ice removal. Torngat Metals intends to apply, at both mine site and Sept-Iles, a combination of regulatory oversight, site-specific guidelines, risk-informed approaches, and continuous improvement measures to ensures responsible management of radionuclides, with the aim of protecting both workers and the environment.

SI 5.9 :	Need for information on the avoidance, mitigation, and monitoring measures to be implemented to reduce impacts on species at risk during all phases of the project.

A 5.9 :

Baseline inventories will be conducted for VECs, including species at risk. If any observation of species at risk is reported or potentially present in the study area and likely to be affected by the project, the impact assessment will provide specific avoidance, mitigation, and monitoring measures. This information will be provided during the ESIA process for all VECs.

SI 5.10 : Concern about the impacts on small game (Partridges, Ukalik, Wolves, Foxes, Wolverine, etc.).

A 5.10 :

All observations of these species will be reported, and the impact assessment will be based on assessing potential interactions between impact sources, their population dynamics, habitat use, and ecology. Previous assessments in similar northern environments and knowledge for the scientific and indigenous community will be used. In addition, documenting wolves' presence will be considered valuable because their high numbers is thought to have contributed to the crash of the George River Herd and was undocumented before according to recent research findings by Caribou Ungava research group. This research showed that a portion of the wolves population follows the herd or even moves in advance to their denning sites to be near calving grounds.

SI 5.11 :	Concern about the limited scientific information available to assess the impacts of rare earth mining on the environment and wildlife.

A 5.11 :

This concern will be addressed as more and more information is available and more research is taking place around mining projects in northern environment. The studies put forward by Caribou Ungava is a good example of available research results to assess some of the effects of mining construction and operation phases on migratory caribou. Existing knowledge on mining projects in Québec and elsewhere in northern ecosystems will be carefully examined because they share a lot of similarities during construction and operation activities even if the targeted mining materials are not earth rare minerals.

Also, as stated in answer 1.4, lessons learnt in various mining projects including rare earth projects will be taken into consideration.

6 George River Caribou Herd

SI 6.1 :	Concern about potential direct and indirect impacts from project activities, including the mine site and road, on the George River Caribou herd, its migration routes, its calving grounds, behaviours, habitat, survival (potential increased in predation and collision with the road, stress related to noise from mining activities or aircraft), and recovery.

A 6.1 :

These concerns will be addressed in the ESIA by examining existing and updated data as well as scientific and traditional knowledge for this caribou herd and from other herds facing similar situations. This species will be considered a VEC in this process.

SI 6.2 : Importance of considering that the location of the mine is close to the calving grounds and post-calving grounds of the George River Caribou herd.

A 6.2 :

This will be fully considered during the environmental impact assessment as well as existing knowledge of other caribou herds sharing similar or comparable conditions. Available results of telemetry data from collared caribou and traditional ecological knowledge will be used in the effect assessment.

SI 6.3 :	Importance of considering that the George River Caribou herd is in decline and in a precarious state, and that the project could put at risk the survival of the newborns and the recovery of the herd. Importance of considering COSEWIC's assessment and status report on the Caribou Eastern Migratory population, which includes the George River Caribou herd.

A 6.3 :

This will be considered in the impact assessment as Torngat Metals is fully aware of the current and past state of this migratory herd as well as of the existing status report and COSEWIC assessment.

SI 6.4 : Concern about the potential for the project to destroy high-quality habitat for the caribou.

A 6.4 :

Existing and current knowledge from scientific research conducted on the Leaf River and the George River herds on habitat selection will be used in determining habitat quality, distribution, and loss. The direct or indirect (e.g. zone of influence) impact of the project will be taken into consideration. Therefore, potential direct and functional habitat loss will be considered in the effect assessment. Traditional knowledge from the different Indigenous communities will also be used to address this concern.

SI 6.5 :	Importance of considering increased habitat fragmentation caused by the construction of new infrastructure (e.g., roads, airstrip, camps). This can have adverse impacts on terrestrial wildlife populations (e.g., caribou calving grounds).

A 6.5 :

Torngat Metals acknowledges that there might be a filter effect with linear and mining infrastructures leading to dissection or fragmentation of caribou habitat. Recent research by the Caribou Ungava and other have provided answers to the potential effects of these project components on caribou and other wildlife populations. This issue will be considered in the impact assessment.

SI 6.6 : Importance of considering that any impact from the project on the herd could increase the time needed for its recovery as well as increase the need for restrictive measures, including hunting restrictions and bans, to protect the herd. This has a direct impact on First Nations and Inuit land use.

A 6.6 :

Torngat Metals is fully aware of the current and past state of this migratory herd as well as of the existing status report and COSEWIC assessment. In the impact assessment, Torngat Metals will look for evidence of these potential effects in the available scientific literature for herds exposed to similar situations.

The George River Herd (GRH) has shown a major decline, with an estimated population peak at 823,375 individuals around 1993 (Couturier et al., 2004), 74 000 in 2010, and an estimated population of 5 500 individuals in 2018 (Newfoundland and Labrador 2022, https://www.gov.nl.ca/releases/2022/ffa/1123n06). Since 2018 it increased to 8 100 in 2020 but dropped to 7 200 in 2022 according to Newfoundland and Labrador (2022, https://www.gov.nl.ca/releases/2022/ffa/1123n06).

It is unclear which are the causes underlying this important decline in population numbers for this herd as well as other declines in other migratory herds in Canada. The quantity and quality of forage tend to change over time and likely cause changes in habitat use by migratory caribou. High density of caribou in the late 1980s and early 1990s led to habitat degradation (Théau and Duguay 2004). Lichen biomass was very low in grazed areas compared to ungrazed areas. This was also the case for dwarf birch in grazed areas of shrub tundra habitat (Manseau et al. 1996). However, there is evidence that habitat is slowly recovering on the range of the GRH (COSEWIC 2017).

These changes in habitat might have induced low survival and recruitment rates that were documented during the declining years. Human harvest and predation have also contributed to increased mortality rates as it is considered the most significant mortality factor to woodland caribou by Bergerud (1988). Human harvest has probably contributed to accelerating the decline before sport hunting was banned in Québec in 2012 and in Labrador in 2013.

Recent research showed that the most important factor increasing early-life mortality risk of migratory caribou of the GRH between 2009 and 2016 had been the predation risk (Plante et al. 2020). Factors such as human disturbance (summer), habitat use (winter) and latitude (summer) had on the contrary decreased the risk, albeit a small effect size (Plante et al. 2020). As mentioned by these researchers, “effects of natural factors on caribou survival prevailed over those of anthropogenic ones” for the GRH.

As long as the population number of the GRH remains at low numbers, it will take time to recover to the previous peak. However, habitat quality and quantity on summer ranges will improve due to the low density of caribou. The decline of this prey may also induce a population decline of predators as it has been suggested for the Leaf River Herb by Michelot et al. (2023) and have a positive effect on survival of calves. The actual level of disturbance linked to human industrial development does not seem to have a significant impact on this population according to Plante et al. (2020). However, this may change if the level of human disturbance and their cumulative effects increase to a degree where mortality and recruitment rates are affected. It is important to mention that to have an impact on the time needed for the recovery of the herd, the project must have significant effects on fecundity and mortality rates on this population, apart from other sources of potential effects that this herd may be exposed elsewhere on its range (e.g., wintering habitats).

As mentioned in Chapter 19 of the DPD, the Strange Lake Rare Earth Mining Project has the potential to affect the George River caribou herd. If implemented, this project will add to the list of stressors potentially affecting the recovery of the caribou herd. Measures will be put in place to minimize the effects of construction, operation and closure of the various project components on the George River herd. These measures will be developed using information from the most up-to-date scientific literature, to take advantage of knowledge gained from studies of other caribou herds subject to similar impacts. The elaboration and development of these measures will also be carried out in concert with the various Indigenous groups concerned, so that their knowledge and understanding of caribou is considered.

It is planned that all activities carried out on the territory or concerning caribou as part of the ESIA will be overseen by steering committees established with each of the Indigenous groups concerned, namely the Nunavik Inuit, the Naskapi Nation of Kawawachikamach, the Nunatsiavut Inuit, the Quebec Innu and the Labrador Innu. Each of these committees will be made up of representatives of the Indigenous group concerned, representatives of the promoter and representatives of AECOM's research team. The methodology employed and the sectors to be covered during data collection will be discussed within this committee, and the results of the inventories carried out will be presented. Mitigation and protection measures aimed at limiting or eliminating the project's impacts on caribou will then be developed in conjunction with these various steering committees.

References

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SI 6.7 :	Need for information on the potential for the project to increase the presence of moose in the region. Concern about the road creating access to favorable habitats for moose, which as an alternative prey phenomenon, can be detrimental to the caribou.

A 6.7 :

It is well-known that moose thrive on mixed and young forest stands. At the northern part of its distribution, moose are found in river valleys where climatic conditions favor tree growth of deciduous species (e.g. aspen, paper birch). Torngat Metals will develop and implement mitigation measures during road construction and exploitation to minimize the implantation and growth of shrubs and deciduous trees likely to be favored by moose. This concern will be addressed in the impact assessment.

SI 6.8 : Concern about the potential for the project to increase human activity in the region, including outdoor tourism, which could impact the George River caribou herd. The road and the mine will create new access in the herd range.

A 6.8 :

The seasonal road planned for the Strange Lake Rare Earth Mining Project will be a private road used primarily for Torngat Metals' transportation activities. It will not be connected to any existing road network. It is therefore unlikely to be used by users other than those authorized by Torngat Metals in accordance with the terms and conditions of authorizations obtained and agreements negotiated. It is possible that Indigenous users use it for snowmobile or ATV travel as part of their traditional activities. This possibility, and the terms and conditions governing such use, will be the subject of an agreement between Torngat Metals and the Indigenous groups concerned. The presence of the road could make it easier for certain Indigenous users to move into the backcountry, and thus provide better access to the areas frequented by the George River herd. This situation could encourage caribou hunting, if Indigenous groups hunt or resume hunting the animal. The result could be increased pressure on the herd. It should be noted, however, that the Indigenous groups concerned already frequent the territory through which the road will pass. Thus, the new road will only facilitate access to areas that are already accessible. Furthermore, since the temporary access road will be a private road, no third party (other than Torngat Metals, its subcontractors or potential Indigenous users) could use it without authorization from Torngat Metals. In addition, if a developer wishes to take advantage of the presence of the road to set up another development project alongside it, a separate ESIA will have to be carried out for that project. Torngat Metals would also like to point out that no developer will be allowed to use the temporary access road without prior social acceptance of the proposed new project.

The potential effects of the presence of the road (as a new infrastructure on the territory) on the George River herd, as well as the potential effects of increased human activities on the herd (notably traffic on the road in connection with the project, as well as the possible arrival of other roadside users) will be taken into consideration during impact assessment phase of the ESIA. Avoidance and mitigation measures will be elaborated to minimize the projects impact.

SI 6.9 :	Concern about caribou foraging on vegetation contaminated with trace metals or dust deposition, such as lichen with elevated radionuclides content.

A 6.9 :

This concern will be taken into consideration in the human health and ecological risk assessment (HHERA) study. Aa monitoring study will be carried out to assess the environmental risks of rare earth elements on the known caribou preferred vegetation species. Baseline concentrations data on the vegetation prior to the mining operations will be compared to data collected during mining operations. In addition, should it be warranted, extra mitigation measures will be implemented.

SI 6.10 :	Need more information on the cumulative effects of the project on the George River Caribou herd. Importance of considering the cumulative effects of the project with the other projects within the George River Caribou herd range.

A 6.10 :

This aspect will be addressed in the ESIA, under the cumulative effects/ impact assessment section This analysis will follow the Policy Framework for Assessing Cumulative Effects under the Impact Assessment Act (The Policy Framework). Recent scientific research on both the George and the Leaf River herds have presented additional information on sources of potential effects (e.g. hunting, climatic changes) over their respective annual ranges. All of the available data will be taken into account to assess the cumulative effects of the project on the George River herd.

SI 6.11 :	Importance of recognizing that any impact from the project on caribou can be a major impact on First Nations and Inuit. Caribou is an important species to many First Nations and Inuit in the region. Impacts on caribou could lead to impacts on traditional activities, culture, community cohesion, identity, livelihoods, emotional well-being, practices and knowledge essential to First Nations and Inuit.

A 6.11 :

As mentioned in section 21 of the DPD, the various phases of the Strange Lake Rare Earth Mining Project could affect the resources used and valued by the various Indigenous groups concerned, and thus disrupt some of the activities they practice on the territory. This obviously applies to caribou, a species highly valued by the various Indigenous groups concerned (AECOM, 2013). Well beyond the economic importance of caribou (use of meat, fur and other parts of the animal), the species is also an integral part of Inuit, Naskapi and Innu culture. The presence of caribou on the territory and access to this resource are therefore very important to these groups. Also, any impact of the project on caribou is likely to have an important impact on First Nations and Inuit, potentially affecting their traditional activities, cultures, community cohesion, identity, livelihoods and emotional well-being. All these aspects will be considered during the ESIA.

Reference

AECOM. 2013. Strange Lake-B Zone: Social Environment Baseline Studies. Land Use and Traditional Knowledge - Mine Site, Road Corridor and Port Site. 69 p.+ appendices.

SI 6.12 :	Importance of considering that the health of caribou and the protection of the indigenous territories on which it lives can only be secured if the ecosystems and waterways on which it depends are protected.

A 6.12 :

Torngat Metals is fully aware of the current and past state of this migratory herd as well as the importance of this species for indigenous communities. There is a body of knowledge on the needs and conditions for maintaining a healthy population that will be used in the impact assessment and elaboration of mitigation measures. That being said the project influence area does not cover the entire George River herd habitat. The ESIA will analyze the area influence for each source of impact on this herd in order to elaborate a specific protection plan. Torngat Metals is committed to participate in research studies focussing on the protection of this herd.

SI 6.13 :	Need for information on proposed measures, rehabilitation efforts, and alternatives to the project to prevent any form of impact and major disturbances on both the caribou and the George River territorial reserve for protected area purposes. The proponent should use precaution, especially during calving times, to allow for the survival of the population.

A 6.13 :

This aspect will be addressed in the ESIA, under the impact assessment and mitigation sections. Recent scientific research on both the George and the Leaf River herds have presented additional information on potential projects or potential sources of effects (e.g. hunting, climatic changes) over their respective annual ranges. All of the available data will be taken into account to assess the cumulative effects of the project on the George River herd.

SI 6.14 : Importance of proposing mitigation measures that are supported by studies, as well as a review of the successes and failures of the mitigation measures.

A 6.14 :

Recent scientific research on both the George and the Leaf River herds have presented additional information on sources of potential effects (e.g. hunting, climatic changes) over their respective annual ranges. Other studies on caribou and mining for migratory herds will be thoroughly examined and used to predict potential effects and disturbances the project might have on the George River herd. Therefore, the proposed mitigation measures will take into account all the known data. Follow-up studies might also be proposed to ensure that mitigation measures put in place are adequate.

SI 6.15 : Importance of setting up protocols to monitor and protect caribou and their calves, using telemetry data already available.

A 6.15 :

Torngat Metals has already put in place protocols in 2023 during fieldwork campaigns to minimize potential impacts on caribou and their calves using telemetry data available from MELCCFP authorities and implementing a caribou watch on the perimeter of the site. Torngat Metals will be pursuing this approach during the environmental impact assessment and thereafter during the mining operations. A caribou protection protocol will also be developed and put in place. The protection protocol will be developed in collaboration with the affected indigenous communities and shared with the provincial and federal agencies for their review and approval.

SI 6.16 : Importance of using Indigenous knowledge and western science when assessing the impacts of the project on caribou.

A 6.16 :

Caribou is a species highly valued by the various Indigenous groups involved in the Strange Lake Rare Earth Mining Project. Their proximity to this animal has led them to develop a very extensive knowledge of it and it will be considered during the ESIA for the Strange Lake mining project.

Since each Indigenous group has its own unique knowledge, interviews will be conducted with members of each group to document their knowledge of various plant and animal species that could be affected by the Strange Lake project. Thus, interviews will focus on caribou. It is also planned that all inventories and activities concerning caribou under the ESIA will be overseen by steering committees established with each of the Indigenous groups concerned, namely the Nunavik Inuit, the Naskapi Nation of Kawawachikamach, the Nunatsiavut Inuit, the Quebec Innu and the Labrador Innu. Each of these committees will be made up of representatives of the Indigenous group concerned, Torngat Metals representatives and representatives of AECOM's research team. The methodology employed and the areas to be covered during data collection will be discussed by these committees, and the results of the inventories carried out will be presented. Mitigation and protection measures aimed at minimizing or eliminating the project's impacts on caribou will then be developed in conjunction with these various steering committees.

Two committees have already been set up in Kangiqsualujjuaq and another in Kawawachikamach. The Kawawachikamach committee has been working on plans for the summer 2023 inventories to ensure that Naskapi knowledge of caribou is considered in the application of impact avoidance and mitigation measures. As well, Torngat Metals has already contacted Indigenous research centers such as those in Nunavik and Nunatsiavut to identify existing sources of information that could be shared with AECOM's caribou research team. Discussions are also underway to develop collaborations for future caribou-related inventories.

Also, recent scientific research on both the George and the Leaf River herds have shed light on sources of potential effects (e.g. hunting, climatic changes) over their respective annual ranges. Other studies on caribou and mining for migratory herds will be thoroughly examined and used to predict potential effects and disturbances the project might have on the George River herd.

Therefore, all available data will be considered during the ESIA.

SI 6.17 : Importance of protecting sensitive information from public disclosure in order to protect the herd.

A 6.17 :

As part of a public process some information will be available via the federal agency in charge of the environmental review. However sensitive information such as the individual locations from direct observations and from telemetry data shall not be available to the public.

SI 6.18 :	Need further information on the timing of the project activities, especially during caribou calving period. Importance of ceasing operations during certain months and periods of the year to protect the calves, as any activity during the caribou calving period will have an impact on the herd (the Naskapi Nation of Kawawachikamach proposes from mid-May to August 1st) (Naskapi) Inuit Women's association and groups.

A 6.18 :

This aspect will be addressed and taken into consideration in the ESIA, under the impact assessment and mitigation sections. It is also planned that steering committees established with each of the Indigenous groups concerned, namely the Nunavik Inuit, the Naskapi Nation of Kawawachikamach, the Nunatsiavut Inuit, the Quebec Innu and the Labrador Innu will be formed. Each of these committees will be made up of representatives of the Indigenous group concerned, Torngat Metals representatives and representatives of AECOM's research team. The steering committees will determine the pertinence of the suspension of activities during critical period of the calving season, as it relates to the mine site and the road. The closure plan will also include mitigation measures aimed at eliminating potential negative effect of the closure, such as keeping the water treatment operational or keeping protective measures in place until the revegetation has taken hold.

SI 6.19 :	Importance of using updated information, figures and data in order to present the current situation of the George River Caribou herd. Historical knowledge and data on the state, range and habits of the population when it was at its peak also need to be considered.

A 6.19 :

Provincial authorities (Québec and NL) are going to be the sole provider of updated information on the current status of the George River herd as they are conducting regular population surveys of this herd. Torngat Metals will use this updated information as it becomes available.

SI 6.20 : Importance of expanding the geographic scope of the Regional Study Area to include the full historical and current range of the George River Caribou herd.

A 6.20 :

The Regional Study Area will cover the project's potential area of influence on the George River Caribou herd. For this purpose, the Regional Study Area proposed in the DPD appears adequate based on the current project definition, but this will be reevaluated as the technical studies are progressing. The study area will be adapted as required in the ESIA.

7 Fish and fish habitat, including species at risk

SI 7.1 : Concern about effects on fish and fish habitat, including in relation to Atlantic salmon, Arctic char, brook trout and other species that spawn in the George River.

A 7.1 :

Torngat Metals recognizes the importance of the George River ecosystem in terms of biodiversity and of significant importance to the Indigenous and Non-Indigenous communities. No activities are projected directly in or near the George River main stem. A very thorough characterization of the aquatic environment is mandatory under the MELCCFP *Guide de caractérisation physicochimique de l'état initial du milieu aquatique avant l'implantation d'un projet industriel.* Requirements under these guidelines include hydrological modelling at different flows which helps to estimate the extent of the discharge plume. The hydrological modelling that will be conducted as part of the ESIA will establish anticipated dilution rates along the George River watershed (see answer 3.13).

Torngat Metals will comply with criteria for surface water for aquatic life (MELCCFP, CCME) and with criteria for deleterious substances (MDMER) in the receiving environment. The mine site components/activities (process and infrastructure) will be designed accordingly to respect all regulations. The modelling data as well as all baseline data will be provided to all agencies, including MELCCFP which will be developing the Environmental Discharge Objectives (OER). These OERs will be part of the final authorization of the project. Fish and Fish Habitat (FAFH) surveys have been conducted and will be continue at the Mine in 2024, including Lake Brisson, surrounding lakes, streams and along the access road. Spawning investigation has been conducted in 2023 and will also occur in 2024 during appropriate timelines to protect these sensitive habitats.

Among concerns regarding the George River, extended sampling will be added in 2024 in order to conduct dilution studies and gather reference data at some stations downstream. Exact locations are in discussion with communities but would include Lake Napeu Kainut, Lake Cananée, Lake Mistinibi and Lake de la Hutte Sauvage (see answer 3.13).

SI 7.2 : Need further details on the timing, and frequency of project activities, including all activities that are likely to have an effect on fish and fish habitat.

A 7.2 :

Fish and Fish Habitat (FAFH) is considered a valued ecosystem component (VEC). Therefore, data acquisition will be made according to all relevant guidelines (federal and provincial) for all aquatic habitat directly or indirectly to be potentially affected by the project activities. Activities that are likely to have an effect on FAFH will be documented in the ESIA. The impact assessment of activities on FAFH will be organized by issue and by project phases for all sources of activities.

Avoidance of impacts to FAFH is always the aim, and for any project activities at each phase (construction, operation and closure). Mitigation measures will also be established where the risks for impacts are identified and presented in the ESIA.

SI 7.3 : Importance of taking into account all fish species when conducting biological inventories, characterization of fish habitat and its use, and identification and analysis of impacts of the various activities on fish and fish habitat.

A 7.3 :

Acquisition of baseline data on fish and fish habitat (FAFH) will comply with provincial and federal guidelines. In Québec, the standards for fish inventories are detailed in the *Guide de normalisation des méthodes d'inventaire ichtyologique en eaux intérieures*. In Labrador, *Acts, Regulations and Policy Directives* are administered by the Water Resources Management Division of Department of Environment and Climate Change (Government of Newfoundland and Labrador). For conducting biological inventories and characterization on fish habitat, DFO methods and standards are applicable in Newfoundland. At the federal level, DFO has published guidelines for FAFH to comply with the FAFH protection provisions of the *Fisheries Act.* Species guidelines for protection of freshwater fish habitat in Newfoundland and Labrador were developed by DFO in 1998, and recently in 2022.

All species observed/captured will be documented, specific spawning investigation will be conducted for salmonids at the mine site, and for the rainbow smelt in Sept-Îles. Any other critical habitat will also be georeferenced and characterized for other species families such as Anguillidae (Sept-Îles), and for the following families at the mine site: Catostomidae, Coregoninae, Cottidae, Cyprinidae and Lotidae. The presence of any fish will be reported and taken into consideration in terms of FAFH impacts.

Through a very thorough description of the fish communities in the study areas (mine site, road, Sept-Îles), the ESIA will enable an appropriate description of the potential impacts for the different activities on fish for each of the project phases.

SI 7.4 : Importance of considering all marine mammal species and marine species at risk, and their potential presence at the ports and along the proposed marine shipping route.

A 7.4 :

Two options are proposed as departure points for the marine transport of concentrate, which are directly linked to the two route options. Option A is Vale's Port, located in Anaktalak Bay, near Nain, Newfoundland, and Option C is Voisey's Bay, some 20 km south of Option A. From either point of departure, the proposed route to be taken by the transport vessel (container ship), will follow an existing seaway along the Labrador coast into the Labrador Sea, through the Strait of Belle Isle and along the north coast of the Gulf of St. Lawrence, via the Jacques-Cartier Strait north of Anticosti Island, to finally dock at the port of Sept-Îles, Quebec. The container ship is scheduled to sail this route between 5 and 10 times a year, during the open-water period between June and October. 3 to 5 tanker ships transporting fuel will also sail to Option A or C port facilities during the same period; at the present stage, it is not known from where they will come from, but they will also follow existing sailing routes (except for the portion in Voisey's Bay if option C is chosen).

Aquatic Species at Risk

The proposed route intersects the critical habitats of several aquatic species at risk, according to Fisheries and Oceans Canada (DFO), as well as the distribution areas for these species with status under the Species at Risk Act (SARA). These habitats and ranges are identified in the Atlantic Canada Marine Planning Atlas, generated by Fisheries and Oceans Canada (DFO, 2024).

The marine route proposed for this Project, from the Nain region of Labrador to Sept-Îles, Quebec, would therefore cross the critical habitats and ranges of nine (9) threatened or endangered aquatic species:

- Spotted wolf - threatened
- Northern wolf - threatened
- Atlantic fin whale - special concern
- Atlantic blue whale - endangered
- Atlantic wolf - cause for concern
- Atlantic Leatherback Turtle - endangered
- Atlantic white shark - endangered
- North Atlantic right whale - endangered
- St. Lawrence Estuary Beluga - endangered

Marine Mammals

The planned seaway will follow the coast of the Labrador Sea to reach the Gulf and Estuary of St. Lawrence, an integral part of the Canadian Northwest Atlantic, home to around 30 species of cetaceans (whales, dolphins and porpoises) and pinnipeds (seals and walruses) (Bernier et al. 2018). Many cetacean species migrate to this area of the Atlantic, coming from the south for part of the year, to feed in its productive waters. Conversely, some pinniped species, such as harp seals and hooded seals, migrate south from the Arctic to give birth and feed (Bernier et al. 2018).

In addition to the marine mammals listed above as threatened or endangered in the DFO Atlas, several other pinnipeds and cetacean species are also present along the proposed seaway. The following list contains marine mammal species that were observed in Anaktalak and Voisey bays in Labrador during surveys in 1995-96, as well as in Sept-Îles Bay (SEM,2013; Carrière, 2018), in addition to species likely to occur along the offshore route:

- Harp seal
- Harbour seal
- Bearded seal
- Hooded seal
- Minke whale
- Narwhal - cause for concern
- Harbour porpoise
- White-sided dolphin
- White-nosed dolphin
- Humpback whale

Other marine or anadromous species with precarious status

Several species of seabirds and anadromous fish of precarious status that are likely to occur in bays, coastal or marine environments along the proposed offshore route are:

- American eel, a threatened species according to COSEWIC (2012) - Species of concerns in Quebec (LEMVQ) -“vulnerable” species under the Newfoundland and Labrador Endangered Species Act (NL ESA E)
- Leach's Storm-Petrel, a seabird designated as threatened COSEWIC (2020) Atlantic population - and likely to be designated as vulnerable or threatened in Quebec (CDPNQ).
- Barrow's goldeneye, a sea duck designated as a species of special concern by COSEWIC (2011) - “vulnerable” species under the Quebec (LEMVQ) and Newfoundland and Labrador Endangered Species Act (NL ESA E)
- Harlequin Duck, a sea duck designated as a species of special concern by COSEWIC (2013) - considered vulnerable under the legislation of Quebec (LEMVQ)and Newfoundland and Labrador (NL ESA E) .
- Atlantic salmon, according to COSEWIC (2013) eastern Quebec North Shore population: special concern; western Quebec North Shore population: special concern; Anticosti Island population: endangered; interior St. Lawrence population: special concern; and southern Gaspé Gulf of St. Lawrence population: special concern.
- Polar bear, Davis Strait population, species of special concern (COSEWIC 2018) - considered vulnerable under the legislation of Quebec (LEMVQ) and Newfoundland and Labrador(NL ESA E) .

Protection regulations

The vessel carrying Torngat Metals' concentrate will navigate according to the laws, standards, regulations and restrictions in effect for the shipping route used, including in port areas, in order to reduce risks and cumulative impacts on marine and coastal environments. Although the annual number of transport vessels planned for this Project is negligible (between 5 and 9), and since the vessel will use a navigation route already in use (except for the port site of Option C), there are nevertheless potential risks and cumulative effects associated with marine transport that could have an impact on marine and coastal mammals and other species, as well as their habitat.

Consequently, the precautionary approach is essential when navigating in waters that are home to critical habitats for a multiple of species at risk and frequented by numerous marine mammals.

- Navigation in the context of the present Project proposed by Torngat Metals will refer to the notices in **Part A2 of Notices to Mariners 1 to 46**, (annual and monthly editions for the east), i.e. ***Guidelines for Marine Mammals and Marine Protected Areas*****,** published by the Canadian Coast Guard, available online: notmar.gc.ca

- These annual and monthly publications will be followed to navigate in compliance with any directives, prohibitions, speed restrictions or other precautionary measures in effect at the time of navigation, in order to maximize efforts to protect marine mammals and species at risk, as well as conservation areas.

  - The laws containing the regulations and guidelines associated with marine transportation that apply to the proposed itinerary are as follows:

    - Fisheries Act ;
    - Canadian Environmental Protection Act ;
    - Oceans Act;
    - Navigation Protection Act ;
    - Canada Shipping Act ;
    - Migratory Birds Convention Act ;
    - Marine Mammal Regulations (MMR)
    - Species at Risk Act (SARA)
    - Plus Newfoundland and Labrador's Endangered Species Act, and Quebec's *Loi sur les espèces menacées ou vulnérables*.

Impacts and preventive measures

Underwater noise and collisions, which particularly affect marine mammals, are recognized as the most worrying impacts of shipping (ROMM, 2021). In addition, marine mammals and seabirds are vulnerable to accidental events such as oil spills, either in port or at sea. It is also recognized that aquatic invasive species can also be a threat to habitats and species native to coastal or marine environments, caused by the discharge of ballast water from ships. Table 19-9 in the DPD outlines a general overview of the known risks and impacts of ship movements on marine and coastal environments, including occasional events that may occur, their potential effects, and preventive and mitigating measures.

The following sections present brief summaries of the main potential impacts, as well as the preventive measures considered at this stage of the Project:

- **Noise**: The sounds emitted by ships are mainly low frequencies, dispersing over long distances 4.5 times faster underwater than in the air. Cavitation is the main source of noise produced by large ships and comes from the bursting of bubbles around propellers (ROMM,2021). Ambient underwater noise caused by ships can disrupt essential life-cycle functions such as feeding and reproduction.

  - **Mitigation measures:** Wherever possible, the transport vessel would be fitted with propellers designed to reduce cavitation, in order to minimize noise during travel. Reducing a vessel's speed, especially in a bay, reduces the intensity and propagation of noise in the water.

- **Collision**: Collisions occur mainly at high speeds, and when marine mammals are less alert (ex. when they are sleeping or resting on the surface, eating, nursing or breeding). Interference in echolocation and communication between individuals will be the main effect of underwater noise. The propeller of a ship is located at the stern of the vessel, so the area of least noise is at the bow, where the risk of collision is highest (ROMM,2021).

  - **Mitigation measures**:

    - Reducing speed in bays and areas where certain at-risk marine mammals are present, by following directives issued via Notices to Mariners, as is the case with the North Atlantic right whale protection plan and speed restriction measures in the Gulf of St. Lawrence for this species.
    - Use of the Guide for Mariners Using Atlantic Waters (2021), produced by the Marine Mammal Ecowatch Network (MMEN) in conjunction with the Shipping Federation of Canada and Dalhousie University.

- **Oil spills:** The associated risks of fuel spills are during transshipment, handling and storage (at both ports). This is an accidental event likely to affect marine mammals and seabirds in particular. These animals may be directly exposed or may feed on contaminated prey. Harbour seals are particularly vulnerable, as they are the most likely to wash ashore, which could be polluted (SEM, 2013).

  - **Mitigation measures:** Torngat Metals will comply with all applicable regulations, standards and requirements of the Canada Shipping Act, 2001 (Transport Canada, 2017).

- **Aquatic invasive species**: Ballast water has been shown to be a major pathway for the introduction of invasive species, especially if the vessel originates from overseas.

  - **Mitigation measures:**

    - Torngat Metals will comply with existing regulations: Ballast Water Regulations - SOR/2021-120), stemming from the Canada Shipping Act, which requires a ballast water management plan (Transport Canada, 2019)
    - Required procedures include mid-ocean ballast water exchange, as well as ballast water treatment using one of five approved methods (UV, ozone, other (Drake et al.,2020).

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SI 7.5 :	Importance of considering how increased habitat fragmentation caused by the construction of new infrastructure (e.g., roads, airstrip, camps) can have adverse impacts on aquatic populations (e.g., fragmentation of fish spawning).

A 7.5 :

Habitat fragmentation does have an impact on the biological components. The DPD outline the sources of potential effects, and potential changes as well as mitigation for the fish and fish habitat (DPD, Table 19-3), as well as a preliminary list of potential impacts on water and sediment quality (DPD, Table 19-4), and on biological components including FAFH (DPD, Table 19-5) for the construction phase, and also for the operational phase (DPD, Tables 19-7 and 19-8).

In order to avoid or reduce any adverse impacts on aquatic populations during construction, the implementation of water crossings (type, sizing, design) as well as all other infrastructures (airstrip, camps, plant, residue etc.) will take into account baseline ground data and modelling results. If any critical habitat is observed during the studies establishing reference conditions, the infrastructures will be designed to preserve such habitats (fish habitat, spawning, SAR, rearing). The ESIA will include the impact assessment on fish and fish habitat (FAFH), include mitigation measures, provide environmental monitoring, and compensation program for FAFH (if required).

SI 7.6 : Concern about the release of suspended matter and sediments in watershed systems which can alter the physical, chemical, and biological composition of the watersheds of the aquatic life inhabiting it, including spawning sites and fish habitat.

A 7.6 :

The surface water and sediment quality are considered a valued ecosystem component (VECs). Therefore, data acquisition will be made according to all guidelines and project design will aim to avoid impacts to water features inside infrastructure footprints.

The DPD outlines the sources of potential effects, and potential changes as well as a preliminary list of potential impacts on water and sediment quality (DPD, Table 19-4), and on biological components including FAFH (DPD, Table 19-5) for the construction phase, and also for the operational phase (DPD, Tables 19-7 and 19-8).

As previously mentioned in answer 3.1, 3.11, 3.14, 3.17, 3.18 and 3.22 (among others), the design objective for all facilities, both at mine site (Lac Brisson) and Sept-Îles site, is to recycle as much water as possible to prevent any contamination or disturbance from a possible effluent discharge. Wastewater discharge to the receiving environment would be done occasionnally when there is excess water, after treatment to meet discharge criteria. Water treatment will be based on modeling and conservative levels of the processes, ensure the respect of discharge criteria for deleterious substances in the receiving environment, and provincial/federal criteria to protect the aquatic life. Under requirements of the MDMER, effluents need to be monitored regularly and suspended solids need to be monitored and reported monthly.

Standard mitigation measures will also be followed to protect these VECs from impacts such as those that may arise from the transportation of materials and concentrate and the use of machinery, and specific measures will be established to prevent any accident/spills along or into the water features. All these details will be included to the ESIA.

SI 7.7 : Need further details on aquatic invasive species and potential measures to prevent the introduction of aquatic invasive species into water bodies that are not connected to the project area.

A 7.7 :

The presence/consideration of invasive aquatic species is documented for the biological environment. The aquatic environment characterisation will also consider invasive species. For all habitats (terrestrial, wetland, riverine, aquatic and marine), if any invasive species is encountered, positioning and delineation will be taken for appropriate consideration.

The ESIA will include specific measures to prevent, control, manage, and monitor appropriately these undesirable species.

SI 7.8 :	Need further details on mitigation and monitoring measures to mitigate the effects of the project on fish and fish habitat.

A 7.8 :

The acquisition of baseline data for the fish and fish habitat (FAFH) at the mine site, along the road corridor, at the port facilities (Voisey's Bay) and in Sept-Îles will provide a detailed mapping of all sensitive habitats. The project design will be progressively adapted in order to avoid or reduce to the maximum practical extent any project effects on FAFH.

The ESIA will include all data, mitigation measures and all environmental monitoring activities that will be developed.

SI 7.9 : Need further details on management of recreational fishing by construction workers along the proposed access road.

A 7.9 :

The ESIA will have a complete monitoring and follow-up program on recreational fishing for workers. No recreational fishing by workers will be authorized along the proposed access road to avoid any additional fishing pressure on the northern fish populations of significant value to the Indigenous communities.

SI 7.10 : Importance of considering that the fishing areas potentially impacted by the road are rich in char, especially the Ikadlivik brook, and that the char population is in decline.

A 7.10 :

The Ikadlivik Brook, and its salmonid populations (Arctic char, Atlantic Salmon, Brook Trout) are already acknowledged as being of significant value and identified as sensitive species in both the IPD and DPD.

The potential impact of the road on char fishing is already confirmed in the IDP and DPD, and will be considered throughout the ESIA process, as well as during the life of the project. The land use study led by the Nunatsiavut Government will provide updated information on the current land use in the study area, which intend to detail the fishing areas as well.

8 Human health and well-being

SI 8.1 : Concern about the limited scientific information available to assess the impacts of rare earth mining on human health.

A 8.1 :

Though recent increases in production of rare earth elements (REEs) have brought additional attention to the health impacts of these elements, human exposure to REEs have been studied for many decades. Occupational exposure to REEs have been documented in commercial and industrial sectors (ex. Lithography and polishing) and agriculture. REE exposure associated with personal habits (ex.: smoking) have also been examined. All pertinent literature will be examined to evaluate the risk of REE exposure to workers and safe work plans will be established to ensure that appropriate personal protective equipment (PPE) is used and that all reasonable mitigation measures are put in place.

Rare earth mining activities also include potential exposure to radioactive substances (U, Th and their decay products). Though levels in Torngat Metals resource and concentrate are low relative to Uranium mines, potential exposure of workers will be evaluated, and appropriate precautions will be put in place to minimize exposure during operations. See answers in section 15 for further details. Levels will also be quantified in the various components that will be transported and stored to inform appropriate safety protocols for transport and storage.

REEs exposure occurs primarily through inhalation or ingestion. They have been used as feed additives and agricultural fertilizers since the 1990's (Pang et al. 2002). In animals, REEs added to feedstock have been demonstrated to promote growth, reproduction and nutrient digestibility (Abdelnour et al., 2019). Ingested REEs do not show a tendency to accumulate in muscles or livers of animals and therefore animals fed REEs would not represent a significant exposure route for REEs. Zhang et al (1999) indicated exposure to REE through the food chain could result in lower levels of total serum protein, albumin, β-globulin, glutamic pyruvic transaminase, serum, triglycerides but high cholesterol. Cerium levels from leafy vegetables and root tubers like tapioca and yam were found to be higher in samples of people dying from endomyocardial fibrosis (Valiathan et al., 1986).

Inhalation can also be a significant route for uptake of REEs. Studies of workers in movie projection identified the need to define air exposure threshold limits to prevent occupational exposure (Sabbioni et al., 1982). Isolated case studies have also shown that REEs can cause respiratory impairment and that REE's can remain in lung tissue for extended periods of time (Pairon et al. 1995).

Brouziotis et al (2022) found 135 articles examining occupational exposure to REEs in mining, risk assessment to human health and cytotoxicity to human cell lines. As it relates to mining, the impact was mainly on people who lived near to mines. They also conclude that dietary exposure to residents living near mines are not dangerous and that the mechanisms of action of REE toxicity are not well established. The content of REEs in the hair of miners, was found to be higher than in non miners (Wei et al, 2013) confirming that miners can be exposed to increased REE levels in occupational environment, though no health effects were examined in this study. Zhang et al (2020) showed that smoking was positively associated with Dy, Er and Yb levels and Rodushkin and Axelsson, 2000 found that La, Ce, Pr and Nd were higher in hair and nails of smokers. Poniedzialek et al. (2017) found that Nd concentration was significantly higher in the colostrum milk of smoking women compared to those who never smoked. People exposed to "passive smoke" also had higher levels of REE present.

As it relates to environmental exposure it was found that dust in industrial cities is enriched with REEs, however, the existing REE levels were not found as a threat to cancer occurrence (Sun et al, 2017). Interestingly, despite the presence of industrial activities, including ore processing, REE levels in urban dust we associated with natural levels in local soils and the principal anthropogenic source was identified as street dust associated with car traffic. Da Silva Ferreira et al (2022) also showed that less than 20% of the REEs in Amazonian soils are bioavailable and that the risk of cancer due to these elements is low.

Overall, the research shows REEs can build up in occupationally exposed individuals, those living close to mines or through non-occupational exposures. Human daily exposure to REEs in other environments has shown REEs from the food chain are unlikely to impact human health. Elevated levels of REE are associated with smoking and industrial exposure. Toxicity mechanisms for REE's are not clear but generally, REE toxicity in a given exposure is a minor component of the overall toxicity (ex. REE exposure via smoking is not a significant component of the health risks associated with smoking). However, it cannot be entirely ruled out that REEs do not constitute a potential risk to human health. Miners and workers at the refinery would be the people most likely to be impacted in the case of the Strange Lake project, and they would be subject to biomonitoring to check for any increased levels at or approaching the levels recommended from past occupational health studies.

This literature review will be further developed as part of the ESIA in order to base the HHERA on all available relevant scientific knowledge.

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SI 8.2 :	Concern and need for information about the potential short-term and long-term effects on human health from exposure to rare earth elements, radionuclides, heavy metals, and other contaminants, through accumulation in the food chain (potential ingestion of contaminated berries) and other types of exposures, like air or water.

A 8.2 :

Human and ecological health are important priorities for Torngat Metals. The risks to health and the environment that may potentially arise from project activities, both in the North and in the Sept-Îles region, will be rigorously assessed under the requirements of each of the ESIA processes to which the various project components are subject. This assessment will be carried out in the Human Health and Environmental Risk Assessment (HHERA) following the requirements of the applicable guidelines and according to best practice methodologies and Indigenous knowledge, particularly with regard to impacted environments, land use, sensitive receptors and food chains. The objective of the HHERA is to identify the health-related societal and environmental components that are valued by the affected communities, identify potential exposure routes, assess the potential impacts (positive and negative, short-term and long-term) of the project on these valued components and evaluate potential mitigation measures to ensure that negative impacts are minimized as much as feasible. The HHERA methodology, results and conclusions will be detailed in the ESIA.

On a preliminary basis, it seems that the possible health effects should be limited to environments immediately surrounding the mine site since all transport will take place in superbags inside of containers, minimizing environmental releases along the road and port facilities. REEs are not particularly mobile in the environment and should therefore not be readily bioavailable. Levels of radionuclides in the mineral are expected to be low and possible transfer paths to country foods appear limited considering that the design of the installations is aimed at reusing water and avoiding any discharge (see previous answers on this matter) and mitigation measures will be put into place to limit dust emissions. Nevertheless, both aerial and aquatic releases from the facilities (mine, plants, materials residue stockpiles, etc.) will be monitored to ensure that they are not having an impact on surrounding ecosystem and that they do not present a danger to foraging activities in the area. Protocols for these monitoring activities will be presented in the ESIA.

As mentioned in answer 8.1, dietary uptake of REEs is a potential source of exposure. However, uptake via this route seems to be limited and based on scientific literature, no significant direct impacts have been identified associated with ingestion of REEs.

See also answers 11.13 to 11.16.

SI 8.3 : Need for information on potential human health impacts resulting from change in drinking or recreational water quality.

A 8.3 :

Consultation activities conducted with Indigenous groups, government agencies and other stakeholders between 2011 and 2013 for the Quest Rare Minerals project, as well as those conducted to date for the current project, show that water quality is one of the main concerns raised. The Inuit of Nunavik are particularly concerned about the project's impact on water quality in the George River. Nunatsiavut Inuit are similarly concerned about the project's effects on the water quality of Ikadlivik brook. Furthermore, the 2012-2013 Indigenous Land Use and Knowledge Study (AECOM, 2013) revealed that both Indigenous and non-Indigenous businesses were offering recreational tourism activities in the vicinity of the proposed mine site. The owner of one of these businesses, an Innu from Matimekush, expressed concern about the potential effects of the project on water quality in the George River, where he operates. As mentioned in the DPD, it is possible that Indigenous communities will reduce or even stop practicing traditional activities because of fears (proven or not) related to the project and the potential contamination of resources (particularly fisheries).

As part of the Strange Lake Mining Project ESIA, interviews will be conducted with Indigenous land managers and land users to obtain more precise data on current and projected land use that could potentially be affected by the various phases of the project. Interviews with users will aim to provide, among other data, a description of drinking water sources (surface water and groundwater) used domestically or during activities carried out on the territory. Water bodies used for recreational, cultural and/or traditional purposes that could be affected by the project will also be identified. Interviews will also be conducted with non-Indigenous organizations and businesses to describe their current and projected use of the territory, in particular with representatives of the City of Sept-Îles and the Sept-Rivières MRC. Once again, this will make it possible to identify the various sources of drinking water used, as well as bodies of water used for recreational purposes in areas likely to be affected by the various project components.

At the same time, biophysical specialists will assess the effects the project could have on the various water sources used (whether for drinking water or for recreational purposes). It will then be possible to determine whether the sources of drinking water used, and the bodies of water frequented (by both Indigenous and Non-Indigenous) could be affected. Particular attention will be paid to project activities that could give rise to spill risks, or that could affect current or potential sources of surface water, and therefore be harmful to health. The HHERA will support this analysis. It will then be possible to identify measures to be put in place to eliminate or, at the very least, mitigate the potential effects of the project on the quality of drinking water or water used for recreational purposes, so that both drinking water consumption and water-based recreational activities can be carried out safely and in compliance with current standards.

Reference

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SI 8.4 : Concern about health risks for mine workers.

A 8.4 :

Miners are exposed to a series of occupational health risks. TML has people experienced in mine operations who are knowledgeable about the risks associated with mining operations. Appropriate safety protocols will be established to ensure the safety of all workers at the mine site and refinery and these will be detailed in the ESIA. The nature of the Strange Lake deposit will however entail certain risks specific to the mine site. These include the presence of rare earth elements (REE) and radionuclides in the ore.

Exposure to REEs in farming and other commercial and industrial fields (ex. lithography and polishing) have been studied as well as due to personal habits such as smoking. All pertinent literature will be examined to evaluate the risk of REE exposure to workers of every component of the project (mine site, transportation, port, rare earth separation plant) and safe work plans will be established to ensure that appropriate personal protective equipement (PPE) is used and that all reasonable mitigation measures are put in place.

Brouziotis et al (2022) found 135 articles due to REE mining, risk assessment to human health, cytotoxicity to human cell lines. As it relates to mining, the impact was mainly on people who lived close to or adjacent to mines. The content of REEs in the hair of miners, was found to be higher than in non miners (Wei et al, 2013) confirming that miners can be exposed to increased REE levels in occupational environment. Inhalation can also be a significant route for uptake of REEs. Studies of workers in movie projection identified the need to define air exposure threshold limits to prevent occupational expsoure (Sabbioni et al., 1982). Isolated case studies have shown that REEs can cause respiratory impairement and that REE's can remain in lung tissue for extended periods of time (Pairon et al. 1995).

Rare earth mining activities also include potential exposure to radioactive substances (U, Th and their decay products). Though levels in the resource and concentrate are low relative to Uranium mines, potential exposure of workers will be evaluated, and appropriate precautions will be put in place to minimize exposure during operations. Levels will also be quantified in the various components that will be transported and stored (ex. REE concentrate, residues, etc.) to inform proper transport and storage options.

Overall, the research shows REEs can build up in miners, those living close to mines or other occupationally exposed workers. Miners and Rare Earth Separation Plant workers would be the people most likely to be impacted in the case of the Strange Lake project, and they would be subject to biomonitoring to check for any increased levels at or approaching the levels recommended from past occupational health studies.

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SI 8.5 : Importance of considering recent health data for the Sept-Îles population.

A 8.5 :

The health and social data presented in section 15.3 of the DPD are based on documentary research carried out using the most up-to-date public documentation available. As part of the ESIA, a comprehensive study of human health, quality of life and psychosocial impacts will be carried out, providing a more accurate description of the situation prevailing in the cities, towns and communities (Indigenous and Non-Indigenous) affected by the project. The data presented in the DPD will therefore be refined and completed during the course of the ESIA, using the most up-to-date data available. Data refinement will be achieved through additional bibliographic research, as well as through meetings and interviews with key informants (particularly representatives from the health field). In particular, the interviews will enable us to clarify and/or supplement the information obtained from documentary sources. It will also enable us to obtain the most up-to-date data on health and socio-health conditions in Sept-Îles.

SI 8.6 : Importance of considering the baseline level of radon-222 and thorium or radon-220 in residences or receptors in proximity of the high purity separation plant in Sept-Îles.

A 8.6 :

The ambient air sampling campaign completed in 2011 for the mine site included atmospheric Radon. The study is referenced in the bibliography of the DPD. The average radon concentrations, obtained from analysis of the passive detectors installed in ten locations in the Project study area, ranged from 19 and 22 Bq/m^3. This is slightly above the outdoor annual average outdoor in Canada of 10 Bq/m^3, but close to the expected range for this geology type. Other sources consider 1-20 Bq/m3 to be the typical range of average outdoor radon concentrations, due to regional variations across North America.

As mentioned in section 14.1.2 of the DPD, measurements of atmospheric radon and thorium will also be taken into account for the ambient air sampling campaigns to be carried out in 2025 (mine and concentration plant area, Sept-Îles separation plant area). In addition, an analysis of the literature concerning reference levels of radon-222 and thorium or radon-220 in residences or sensitive receptors (including First Nations, Inuit) will be included in the impact study.

SI 8.7 : Importance of providing maps showing the locations of permanent, temporary and seasonal human receptors (including Indigenous people) and the distance from project components that could affect them.

A 8.7 :

As indicated in the DPD, all human receptors likely to be affected by changes in the biophysical environment, social (including cultural) or economic conditions will be identified and located during the ESIA. A great deal of information is already available in the DPD regarding the location of human receptors and their distance from project components that could affect them (see sections 13.3 to 13.5, and map 3-2 of the DPD). The closest permanent communities are Nain (Nunatsiavut Inuit community), 156 km to the east, and Natuashish (Labrador Innu community), 194 km to the southeast. The same permanent communities are located closer to the handling and storage facilities at Edward Cove, or to the port facilities at Voisey's Bay (both options are being studied, but only one will be chosen as a project component). For example, Nain is 26 km northeast of the potential Edward Cove site, and Natuashish is 81 km southeast. In the case of the potential Voisey's Bay site, Nain is 39 km to the northeast and Natuashish is 62 km to the southeast. These are the two closest permanent communities. Furthermore, as shown by land use studies conducted for the Quest Rare Minerals project in 2012 and 2013 (AECOM, 2013), Indigenous users, mainly Naskapi from Kawawachikamach, Innu from Natuashish and Inuit from Nain, are likely to circulate, practice activities (hunting, fishing, trapping, gathering, etc.) or visit camps or camp sites in areas near these various project components. The same study also indicated that an outfitting operation (Les Expéditions Dihourse) was located on Dihourse Lake, some 15 km north of the proposed mine site, and that an adventure tourism business owned by an Innu from Matimekosh - Lac John operated at the Wedge Point site, some 30 km west of the proposed mine site. The Wedge Point site lies on the left bank of Indian House Lake, a widening of the George River. The mine site lies within the George River watershed, and concerns had been raised by the owner of this business about possible contamination of the river's waters. Similar concerns were raised by the Inuit community of Kangiqsualujjuaq, which borders the George River, some 340 km northwest of the proposed mine site. This community draws its drinking water from the river, and many of its members hunt, fish, trap and gather along its banks.

As for the proposed Rare Earth Separation Plant in Sept-Îles, the nearest residential area (the Ferland sector of the city of Sept-Îles) is located less than 3 km south of the proposed site. In addition, the Sept-Îles detention center is located less than 2 km southwest of the proposed site. The Innu community of Uashat and downtown Sept-Îles are located 7 km to the south (see maps 3-3 and 9-8 of the DPD).

The municipal water intake for the City of Sept-Îles is located in the southern portion of Lac des Rapides, just under 4 km west-northwest of the proposed Rare Earth Separation Plant site. It should be noted that, despite their proximity, Lac des Rapides and the proposed site for the Rare Earth Separation Plant are not located in the same watershed. The site of the Rare Earth Separation Plant is outside the immediate protection zone of the Sept-Îles municipal water intake (300 m radius), as well as outside the intermediate protection zone (3 km radius). In addition, the MELCCFP's Hydrogeological Information System (SIH) identifies two water intakes within 5 km of the planned Rare Earth Separation Plant site. The closest is a drinking water intake located approximately 1.4 km to the north. The other, also a drinking water intake, is located on Chemin du Lac-Daigle, just under 5 km southeast of the proposed Rare Earth Separation Plant site. The latter intake is located just west of the City of Sept-Îles landfill site. The SIH also reports the presence of 9 water intakes (including drinking water intakes) around Lac Daigle. These are located between 5.6 and 6.8 km west of the proposed Rare Earth Separation Plant site.

A number of receptors are also likely to be located in the vicinity of the planned Rare Earth Separation Plant site. These include the various businesses and industries that are or will be located in the vicinity of this site in the "Parc Vigneault" of the City of Sept-Îles' industrial-port zone, notably Hydro-Québec, Regarnissage industriel, Rematech Bremo, Services de grues Guay and Heli-Boréal. Recreational tourism activities are also carried out in the vicinity of the proposed Separation Plant site. Preliminary research has shown that ATV and snowmobile trails are located within the right-of-way of the transmission line that borders the proposed site. In addition, the Centre de plein air du lac des Rapides, the Hydro aérodrome de Sept-Îles, the Norcycle bicycle club and the Club de ski de fond Rapido de Sept-Îles are located a few kilometers north of the proposed Rare Earth Separation Plant site. The shores of Lac des Rapides are therefore frequented by a variety of recreational and tourist activities. In addition, trails to the south

of the lake are used at various times of the year for hiking, cross-country skiing and cycling. It is also possible that sport hunting or gathering activities by non-Indigenous users, or hunting, gathering or trapping activities by Innu users from Uashat mak Mani-utenam, may take place in or near the wooded areas around the Rare Earth Separation Plant site.

As part of the ESIA, interviews will be conducted with the managers and Indigenous users of the groups concerned, to obtain more precise data on the current or projected use of the territories likely to be affected by the present project. Similarly, interviews will be conducted with representatives of the City of Sept-Îles, the Sept-Rivières MRC, as well as businesses and recreational tourism organizations (including outfitters, hunting and fishing associations, ATV clubs, snowmobile associations, etc.) to gather information on the current and projected use of areas likely to be affected by the present project. It will then be possible to determine with greater accuracy the potential permanent, temporary and seasonal human receptors and their distance from the project components that could affect them. The maps showing these receptors and their distance to project activities will be provided in the ESIA.

Reference

AECOM. 2013. Strange Lake-B Zone: *Social Environment Baseline Studies. Land Use and Traditional Knowledge - Mine Site, Road Corridor and Port Site*. 69 p.+ appendices.

SI 8.8 : Importance of considering the potential cumulative effects on human health from the project, nearby facilities, and other foreseeable projects in the region.

A 8.8 :

As mentioned in section 25 of the DPD, the cumulative effects of the project and other completed and planned developments will be considered in the ESIA. In particular, the effects on human health will be taken into account.

See answers 12.2 and 12.3 for a list of other projects having a potential for cumulative effects respectively for the separation plant site and for the mine site.

9 Social and economic conditions

SI 9.1 : Concern about and need for information on the potential impacts on the social environment.

A 9.1 :

The Strange Lake Rare Earth Mining Project is likely to have various effects on the social environment, both within the affected Indigenous communities and in the non-Indigenous towns and localities concerned. These effects could affect the local and regional economy, local activities, social cohesion, local and regional infrastructures, psychosocial conditions and human health. A number of potential impacts or types of impacts, as well as various measures that could be implemented to curb or limit them, are described in sections 19, 21, 22 and 25 of the DPD. Completion of the ESIA will shed more light on the subject and enable us to clearly identify each of the project's potential impacts on the social environment. The ESIA will also enable us to develop appropriate mitigation measures.

SI 9.2 : Importance of clarifying whether the project will help the economy of the local communities near the mine site, the road and the high purity separation plant in Sept-Îles.

A 9.2 :

As outlined in sections 19.2 and 22 of the DPD, improving the economic conditions of local and regional communities is a potential impact of the Strange Lake Rare Earth Mining Project. Indeed, it is anticipated that contracts could be awarded to local and regional businesses (Indigenous and non-Indigenous) as part of the various phases of the proposed project. To this end, Torngat Metals intends to implement policies of preferential contracting to Indigenous service providers during the construction and operation phases of the project. Business partnerships may also be formed between Torngat Metals and local and regional companies. In addition, the project is expected to create new jobs (direct and indirect) in the various cities, towns and communities (Indigenous and non-Indigenous) involved, both in Quebec and Labrador. All this could contribute to improving the economic conditions of the local and regional communities concerned. The completion of the ESIA will enable to more accurately determine the potential impacts of the construction, operation and dismantling of the Rare Earth Separation Plant on the local and regional economy.

SI 9.3 :	Need for information on employment income to assess the impact of the project on the local/regional labour market and economy, as well as the availability of local workforce. Importance of considering that a portion of the local community employment workforce may be diverted to the project.

A 9.3 :

As part of the ESIA for the Strange Lake Rare Earth Mining Project, a study will be carried out into the socio-economic conditions of the various towns, localities, and communities (Indigenous and non-Indigenous) involved. One of the objectives of this study will be to describe and assess their respective workforce capacities. This will make it possible to assess the impact of the various phases of the project on the workforce situation in each of these towns, localities, or communities. Depending on the needs identified, measures such as adapted training could be developed to encourage the hiring of local and regional workers (Indigenous and non-Indigenous) in Quebec and Labrador. Conversely, other measures could be developed to encourage the retention of local or regional workers in positions already occupied, so that the project would not exacerbate labour shortage problems, but rather contribute to retaining personnel already employed. The various workforce enhancement or mitigation measures will be determined according to the needs and issues identified during the ESIA. The identification of such measures may be carried out jointly with the various Indigenous and non-Indigenous groups concerned by the project.

Torngat Metals is currently engaged in a salary structure development process. This includes comparative analyses of prevailing wages within and outside the mining industry, in Quebec and Labrador, as well as in Canada in general. The evaluation process takes into account all the jobs potentially created by the project. To this end, a ranking system will be integrated into a salary structure. This structure will ensure equity, consistency and fairness between the different functions. It will also provide a framework for salary adjustments, promotions and new hires.

SI 9.4 : Need to provide an estimate of potential employment for the construction of the access road.

A 9.4 :

Several workers from different trades will be needed to build the access road. Torngat Metals anticipates that 96 workers will be required during the various stages of road construction. The following table shows a preliminary estimation of the type and number of workers required. This estimation will be updated in the feasibility study (FS) and the ESIA.

Table 9-1 : Estimate of potential jobs created by road construction

Category	Work expected	Estimated number
Construction Labourers	Labourers may be required to assist with various tasks such as moving materials, cleaning, and general site support.	20
Concrete Finishers	Concrete finishers to handle the finishing of the concrete surfaces.	4
Carpenters	Depending on the complexity of formwork and structural elements.	4
Heavy Equipment Operators	Heavy equipment operators may be necessary to operate machinery like concrete mixers and excavators.	24
Site Supervisors		4
Structural Steel and Welding Trades Workers	The number of steelworkers can vary, but workers may be needed for steel reinforcement.	
Welders and Metal Workers	Welders and metal workers would be needed for the fabrication and assembly of steel components for the bridges etc..	4
Surveyors and Geomatics Technicians	To ensure accurate placement and alignment.	3
Electricians	Depending on electrical requirements, electricians might be necessary for wiring and installations and maintenance of Contractors facilities.	4
Health and Safety Inspectors	To oversee safety compliance.	3
Civil Engineers	Responsible for the design, planning, and management of the temporary works, support site works etc.	4
Project Managers	Project managers will oversee the overall execution of the contract, ensuring it stays on budget and schedule.	2
Structural Engineers	For the bridge construction, temporary works etc.	1
Administrative Assistants	This code is often used for administrative professionals who provide support in office settings, including tasks such as data entry, scheduling, and document preparation.	2
Administrative Officers	Administrative officers often handle various administrative tasks, including managing records, coordinating office activities, and assisting with project management.	2
Office Clerks	Office clerks perform general clerical duties such as filing, sorting mail, and handling routine office tasks.	2
Receptionists	Receptionists are responsible for greeting visitors, answering phones, and performing basic administrative tasks related to front desk operations.	2
Administrative Clerks	This code can encompass a range of administrative support roles that involve tasks like record-keeping, data entry, and general office support	4
Quality Control Inspectors	Quality control inspectors would ensure that the works meet the required quality standards.	2
Estimators	Estimators are responsible for preparing project cost estimates and managing budgets.	1
Total		**96**

SI 9.5 :	Need for information on employee wages, benefits, and working conditions compared to local, regional, provincial, national, and industry averages.

A 9.5 :

Torngat Metals is committed to fair compensation and favorable working conditions. The company recognizes the importance of benchmarking against local, regional, provincial, national and industry standards. To this end, it has already conducted a comprehensive market study and used reputable industry surveys to gather information on prevailing wages, benefits and other working conditions regionally and nationally within the mining and industrial sectors.

Torngat Metals is in the early stages of a job evaluation process that will cover all known future jobs within the organization. Various jobs will be evaluated and compared to determine their relative value within the company. This will involve assessing factors such as skills, responsibilities and qualifications required for the job. Once the jobs have been classified, a salary structure will be created, determining a remuneration for each job level. This structure will ensure consistency and equity in remuneration across functions. It will also provide a framework for salary adjustments, promotions and new hires. Torngat Metals will also put in place robust systems for monitoring and analyzing employee compensation structures, benefits utilization and feedback on working conditions.

Torngat Metals is also committed to open channels of communication with its employees regarding compensation and working conditions. To this end, the company will provide regular updates, transparent information and opportunities for feedback, in order to maintain trust and ensure alignment with staff needs and expectations.

SI 9.6 : Concern about the effects of marine shipping on coastal communities, including on commercial fishing, social and ceremonial fishery, socio-economic conditions, well-being, practice of cultural activities, and food security.

A 9.6 :

The concentrate is expected to be transported by container ships in 5 to 10 shipments per year during the open water period, from June to October, from the Port of Vale (Option A) or Voisey's Bay (Option C) to the Port of Sept-Îles, during the operation phases. Project-related shipping will use existing waterways to minimize disruption to marine and fishery resources, and to activities carried out by coastal communities, such as Indigenous commercial and food, social and ceremonial (FSC) fisheries. The transport vessel will navigate according to the laws, standards, regulations, and restrictions in force for the shipping route taken, to minimize impacts on the marine and coastal environments, as well as on the well-being of the surrounding non-Indigenous and Indigenous populations. As mentioned in the DPD, increased shipping will be factored into the cumulative impacts of the Project.

To prevent negative impacts that that marine shipping could have on coastal communities and on marine and coastal ecosystems, navigation in the context of the present Project will refer to the notices in Part A2 of Notices to Mariners 1 to 46, (annual and monthly editions for the east), i.e. Guidelines for Marine Mammals and Marine Protected Areas, published by the Canadian Coast Guard, available online: notmar.gc.ca. These annual and monthly publications will be followed to navigate in compliance with any directives, prohibitions, speed restrictions or other precautionary measures in effect at the time of navigation, to maximize efforts to protect coastal and marine environments and communities.

As previously stated in Answer 1.30, in order to minimize the risks associated with marine shipping on coastal communities, including on commercial fishing, social and ceremonial fishery, socio-economic conditions, well-being, practice of cultural activities, and food security of local communities, the followingas are the procedures planned to reduce the risk of introduction of invasive species and polution of waters at the proposed ports:

- if option A is selected, the container ships would depart from the Port of Vale, in Anaktalak Bay. In this case, an agreement between the Port of Vale and Torngat Metals Torngat Metals would comply with the port's existing regulations, practises, and procedures in place. The existing ballast water management plan and protocol in place for Vale's Port will be followed, to comply with the Ballast Water Control and Management Regulations/Under Canada Shipping Act.
- If option C is chosen, Voisey's Bay, port facilities would need to be installed. In addition to new facilities, a ballast water management plan would have to be developed for shipping from Voisey's Bay, as there are not existing port facilities. This plan would be developed to comply with the Ballast Water Control and Management Regulations/Under Canada Shipping Act. Required procedures include mid-ocean ballast water exchange, as well as ballast water treatment using one of five approved methods (UV, ozone, other). (Monitoring of receiving waters may be required, depending on the ship's itinerary).
- At the Port of Sept-Îles (PSI), Torngat Metals plans to use the existing port facilities and to comply with Sept-Îles Port Authority's regulations and measures in place. Ballast water regulations are in place at the port according to the Port Authority's Practices & Procedures (2022), which Torngat Metals will comply with.

As outlined above in Answer 7.4, oil spills are risks associated with marine shipping, which could impact, among another things, local food sources of coastal communities. The associated risks of fuel spills are during transshipment, handling and storage (at both ports). This is an accidental event likely to affect marine mammals and seabirds, in particular. These animals may be directly exposed or may feed on contaminated prey. Harbour seals are particularly vulnerable, as they are the most likely to wash ashore, which could be polluted (SEM, 2013).

In order to prevent and mitigate the damage in case of a spill, Torngat Metals aims to implement best practices that take into account the sensitivity of the environment, in addition to comply with all applicable regulations, standards and requirements of the Canada Shipping Act, 2001 (Transport Canada, 2017).

Reference

Sikumiut Environmental Management Ltd (SEM) 2013. Quest Rare Minerals Ltd Strange Lake B-Zone Biological and Environmental Baseline Surveys Marine Surveys of Port Options 2012. 265p

Transport Canada. 2017. Oil Spill Preparedness and Response Regime in Canada. Marine Environment - TP 14539. [Online]:https://tc.canada.ca/fr/transport-maritime/securite-maritime/regime-preparation-intervention-cas-deversements-hydrocarbures-milieu-marin-tp-14539-0

Transport Canada. 2019.ballast water management. [Online]: https://tc.canada.ca/fr/transport-maritime/pollution-marine-intervention-environnementale/empecher-propagation-especes-aquatiques-envahissantes-transport-maritime/gestion-eau-ballast

SI 9.7 : Concern about the potential negative effects of the project on ecotourism and outfitting activities due to impacts of the project on the environment and wildlife, including effects on the George River tourist camps and the Pyramid Mountain Camp.

A 9.7 :

As mentioned in sections 15.1 and 19 of the DPD, development of the Strange Lake Mining Project could result in changes to recreational tourism activities conducted in the vicinity of the various project components. A study conducted by AECOM in 2012-2013 as part of the Quest Rare Minerals project (AECOM, 2013e) revealed that Indigenous and non-Indigenous businesses were proposing recreational tourism activities in the vicinity of the proposed mine site. These included outfitters and adventure tourism businesses. The owner of one of these businesses, an Innu from Matimekush, expressed concern about the potential effects of the project on water quality in the George River, where he operates.

In order to provide an accurate description of the recreational and tourism activities currently practiced by Indigenous and non-Indigenous businesses in or near the areas affected by the development, construction, operation and closure of the proposed mine site, seasonal road and handling and storage facilities/port facilities, a new literature review will be conducted. This study will focus on current and planned activities likely to take place within and/or adjacent to the lands concerned, and will be based on available sources, such as businesses and organization websites or available environmental studies previously carried out in the areas concerned. Following this literature review, additional information will be gathered through telephone interviews with representatives of the organizations and businesses identified in the documentation. These interviews will help validate and refine the information gathered during the literature review. They will also reveal the expectations and concerns of the various businesses and organizations in relation to the proposed project.

As the establishment of a Rare Earth Separation Plant in Sept-Îles was not part of Quest Rare Minerals' initial project, no study has yet been carried out into the use of the land by Indigenous and non-Indigenous organizations or businesses in the area. Preliminary research has revealed that ATV and snowmobile trails are located within the right-of-way of the transmission line that borders the proposed Separation Plant site. In addition, the Centre de plein air du lac des Rapides, the Hydro aérodrome de Sept-Îles, the Norcycle bicycle club and the Club de ski de fond Rapido de Sept-Îles are located a few kilometers north of the proposed Rare Earth Separation Plant site. The shores of Lac des Rapides are therefore frequented by a variety of recreational and tourist activities. In addition, trails to the south of the lake are used at various times of the year for hiking, cross-country skiing and cycling. Sport hunting may also take place in wooded areas on or near the Separation Plant site. A more exhaustive literature search will be conducted as part of the ESIA. Interviews will also be conducted with representatives of the City of Sept-Îles, the Sept-Rivières MRC, and local and regional organizations and businesses, to gather information on current and projected land use.

The information gathered will enable us to characterize the recreational and tourism use of the different sectors affected by the construction, operation and closure of the various project components. It will then be possible to assess the impacts of these different phases of the project on existing and projected recreational tourism activities.

As the Strange Lake project has not yet been the subject of an impact study, its effects on recreational and tourism activities are not yet clearly defined. However, based on available data and experience from previous studies, some potential impacts can be expected. It is possible that noise, dust and vibrations generated by the various works carried out during the preparation and construction phase, the operation phase and the closure and restoration phase will be perceived by people practising recreational tourism activities in the vicinity, resulting in a disturbance of the tranquility of the site and a potential deterioration in the practice of certain activities such as hunting. It is also possible that noise, dust and vibrations generated during the various phases of the project could affect the resources (animal and plant) harvested and/or valued by people involved in recreational tourism activities, which could also adversely affect the practice of certain activities, such as hunting, fishing or gathering. It is also possible that some people will reduce or even cease certain wildlife harvesting activities for fear of resource contamination (proven or not) linked to the project. It is also possible that access to certain use areas will be restricted or interrupted as a result of work carried out during the various phases of the project. This could have an impact on users whose travel

routes and/or usage areas cross or are located in the affected areas. The safety of users could then be compromised (risk of collisions/accidents during the various phases of the project). In addition, recreational and tourism users in the vicinity of the proposed mine site, the seasonal road, the handling and storage facilities at Edward Cove / the port facilities at Voisey's Bay (both options are being studied) and the Separation Plant in Sept-Îles will be able to see these new elements, which could result in visual disturbance of the landscape during the construction and operation phases.

Mitigation measures will be identified during the impact study to limit or even eliminate the project's effects on recreational tourism activities. These mitigation measures could be established in conjunction with various stakeholders (Indigenous and non-Indigenous). The following is a preliminary list of mitigation measures that could be put in place to offset or minimize the project's impacts on recreational tourism activities:

- inform local and regional communities (Indigenous and non-Indigenous communities affected by the project) of the work schedule for the various phases of the project, and of any potential risks to users. Throughout the various phases of the project, maintain contact with local and regional community authorities to enable them to identify any problems related to the use of the land by their population;
- Inform Indigenous and non-Indigenous businesses and organizations (outfitters, adventure tourism businesses, protected area managers, etc.) of the work schedule and potential risks to users during the various phases of the project, and maintain contact with them throughout the project to help them identify potential problems related to their use of the territory;
- Install signs indicating the presence of work zones close to travel routes, to inform users likely to travel there or engage in activities in the vicinity;
- Fencing off work areas;
- Maintain access to areas not under construction;
- In the event of temporary or permanent traffic restrictions on travel routes used by local and regional populations, plan bypass or new safe routes in conjunction with Indigenous community authorities or other relevant stakeholders. Inform the population concerned of these new routes;
- Throughout the various phases of the project, regularly inform workers of the potential presence of users in the area concerned, particularly along access routes used and near areas frequented for recreational and tourism activities;
- Implement measures to limit dust propagation;
- Implement measures to limit the impact of shipping on recreational and tourism activities in the bays concerned;
- Carry out a prior and regular inspection of the machinery and equipment used to ensure that they are in good condition and operating correctly (so as not to generate excessive noise);
- Restrict machinery traffic to work areas;
- If possible, isolate the main sources of noise with absorbent materials;
- Avoid implementing measures to facilitate wildlife harvesting activities by workers on project sites throughout the various phases of the project;
- Plan for the restoration of project sites after the various phases;
- Implement an environmental monitoring program to ensure that mitigation measures are respected throughout the various phases of the project.

Reference

AECOM. 2013e. Strange Lake-B Zone :Social Environment Baseline Studies. Land Use and Traditional Knowledge - Mine Site, Road Corridor and Port Site. 69 p.+ appendices

SI 9.8 : Importance of considering developing health and social monitoring programs.

A 9.8 :

Torngat Metals believes that social and health aspects are important components of the human environment. Following the analysis carried out as part of the ESIA, it will be possible to determine the residual impacts of the project on these components. It will also be possible to determine which aspects of these components need to be monitored, if any. Follow-up programs may then be recommended. The content and duration of these programs will then be defined.

SI 9.9 : Concern about the disagreement and conflict the high purity separation plant could cause within the local population of Sept-Îles.

A 9.9 :

As mentioned in section 22 of the DPD, large-scale projects such as the proposed one are likely to be perceived differently by members of the same community. Some will be in favour, while others will be vehemently opposed. It is therefore possible that the Strange Lake mining project will fuel existing tensions, or create new ones within the towns, cities or communities (Indigenous and non-Indigenous) concerned. That being said, the first public consultations (2 sessions) conducted by Torngat Metals in April 2024 at Sept-Îles took place in a calm atmosphere, favourable to constructive discussions.

Torngat Metals intends to carry out communication and consultation activities with the various stakeholders involved (notably the City of Sept-Îles, the Sept-Rivières MRC, the Innu communities of Uashat mak Mani-Utenam, local and regional businesses and organizations), as well as with the populations concerned. These consultations will take place not only upstream of the project, but also during the preparation, construction, operation, closure and dismantling phases of the Rare Earth Separation Plant. Since social acceptability is an essential condition for the realization of any project likely to have an impact on the biophysical and human environment, acceptance of the project by the Indigenous and non-Indigenous communities directly affected will be particularly important. Accordingly, the proponent wishes to be as transparent as possible and to maintain good communication with the stakeholders involved, as well as the general public, so that they are as well informed as possible about the project and the issues involved. Torngat Metals also wishes to avoid the possibility of false news or rumours being spread about the project, as these could contribute to fuelling tension or conflict within the population.

In addition to communication and consultation activities with various local and regional stakeholders, Torngat Metals intends to set up a steering committee in conjunction with the Innu community of Uashat mak Mani-utenam. This committee will be made up of representatives of the Uashat mak Mani-utenam, representatives of the proponent and representatives of the AECOM research team (for the ESIA). The various issues surrounding the project will be discussed. In addition, community representatives will be able to express their expectations and concerns regarding the construction and operation of the Separation Plant. This committee is expected to be in place throughout the ESIA, as well as during the entire duration of the project (construction, operation and closure).

In addition, during the ESIA, measures will be developed to maximize the benefits of the project, or to limit its potential impacts as much as possible. Compensatory measures may also be determined in conjunction with the stakeholders involved, in relation to potential project impacts. To avoid fuelling existing tensions, or creating new ones, these measures will be developed in such a way as to promote fairness within and between the various communities concerned.

SI 9.10 : Concern about the value of homes in Sept-Îles that may be affected by the presence of radioactive particles.

A 9.10 :

The closest residential area to the Rare Earth Separation Plant (the Ferland sector of the city of Sept-Îles) is located less than 3 km south of the proposed site. Residents may be concerned by the presence of radioactive particles in the residue stockpile. These concerns will include their health and that of their family members, as well as the impact that the nearby Separation Plant could have on the value of their homes. All human receptors likely to be affected will be identified and located during the impact study.

At the levels identified in work to date the estimated incremental annual effective dose to the Public is less than 0.3 mSv/a. At this level, according to Canadian Naturally Occurring Radioactive Material (NORM) guidelines, the radioactive hazard associated with this dose is considered insignificant.

Nonetheless, a human health and environmental risk assessment (HHERA) will be an integral part of the ESIA to be carried out for the project. In 2011 and 2013, a HHRA was carried out for the Quest Rare Minerals project; one of the first steps in the HHRA was to develop a conceptual model for the entire project, including the Separation Plant. This conceptual model identified potentially hazardous contaminants - including radionuclides - ecological and human receptors potentially exposed to project activities, and exposure pathways for receptors selected for risk assessment. For the purposes of this ESIA, this conceptual model will be updated to reflect Torngat Metals' planned activities. Radiological risks will be assessed in accordance with the Guidance for Human Health Impact Assessment in Environmental Assessments: Radiological Effects (Health Canada, 2017), which presents principles and basic information associated with radiological materials (NORM). In addition to applicable provincial regulations, the proponent may refer to other guidelines for the management of NORM (Health Canada, 2021 and 2014).

As part of the ESIA, and throughout the project (preparation and construction, dismantling and closure), information and consultation sessions will also be conducted by Torngat Metals. In this way, the public will be kept informed about health issues.

References

HEALTH CANADA. 2021. Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM). Volume III: Transportation. Prepared by the Federal Provincial Territorial Radiation Protection Committee.

HEALTH CANADA. 2017. Guidance for assessing human health impacts in environmental assessments: radiological effects. Healthy Environments and Consumer Safety Branch.

HEALTH CANADA. 2014. Canadian guidelines for the management of naturally occurring radioactive materials (NORM). Prepared by the Canadian NORM Working Group of the Federal Provincial Territorial Radiation Protection Committee - Revised 2011.

SI 9.11 : Importance of using a gender-based analysis plus (GBA Plus) approach throughout Project lifecycle, engagement, consultation, mitigation, and to create baseline conditions.

A 9.11 :

Throughout the various components of the ESIA, i.e. during stakeholder consultation and involvement, description of the environment, assessment of effects and development of mitigation measures, GBA Plus and culturally relevant gender-based analysis (CRGBA)will be taken into account. This will make it possible to clearly identify the different sections of the population likely to be affected by the project (such as women, girls, young people, the elderly, people with disabilities, people with different sexual identities) and thus to more accurately assess the project's effects (both positive and negative) on them. GBA Plus and CRGBA will also make it possible to identify specific measures to mitigate the negative effects of the proposed project on these different population groups, as well as on the workers hired as part of the project.

GBA Plus will be used as an analytical tool to reflect how project activities may affect population subgroups differently, and thus better target mitigation measures. To better understand the project's impact on Indigenous groups, the ESIA will take into account the political, socio-economic and cultural realities of Indigenous women and people of diverse gender identities, using culturally relevant gender-based analysis (CRGBA) (Indigenous Women's Association of Canada, 2020a; 2020b). Unlike Gender-Based Analysis Plus (GBA Plus), CRGBA goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma among Indigenous people. These various analyses will make it possible to assess the social, economic, health and environmental effects, as well as the impacts on Indigenous peoples and other non-Indigenous population groups. The GBA Plus and CRGBA will ultimately make it possible to identify and mitigate the negative effects of the proposed project on these various population groups targeted by the project.

References

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020. *Indigenous Women and Impact Assessment.* Final report. [Online]: https://www.canada.ca/content/dam/iaac-acei/documents/research/nwac-impact-assessment-final-report-fr.pdf (Page consulted in December 2023)

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020b. *Getting Started Kit. Culturally Relevant Gender-Based Analysis (CRGBA): Introduction, integration and examples of use.* [Online]: https://stbbi.nwac.ca/wp-content/uploads/2021/03/NWAC_CRGBA_2020_FR_Final_Web-1.pdf (Page consulted in December 2023)

10 Seismic activity

SI 10.1 :	Need for information on seismic risk at the mine site and at the high purity separation plant in Sept-Îles, along with the code or standard that will be used in the seismic engineering of the structures and buildings.

A 10.1 :

Although earthquakes occur in all regions of Canada, certain areas have a higher probability of experiencing damaging ground motions caused by earthquakes. The map shown below (figure 10.1) is derived from a simplified map of the National Building Code of Canada seismic hazard map for spectral acceleration at a 0,2 second period (Natural Resources Canada, 2024a). It shows the ground motions that might damage one- to two-storey buildings for the province of Quebec with the localization of the mine site and the high purity separation plant in Sept-Îles.

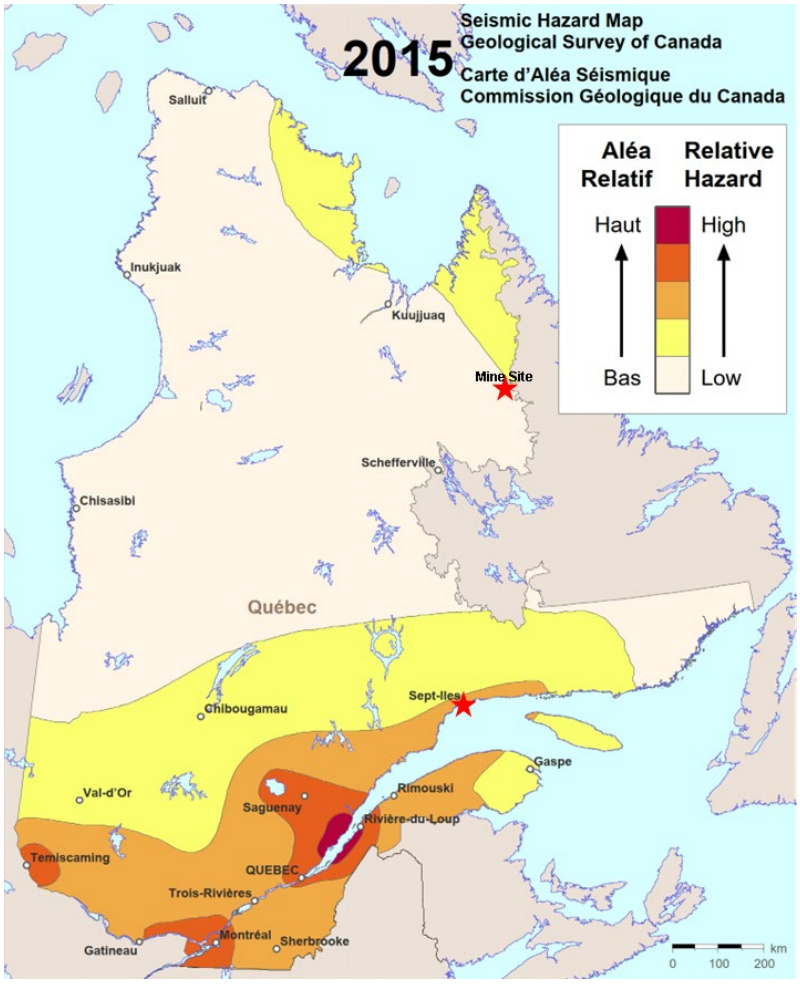

Figure 10-1: Localization of the mine site and Sept-Iles city on the seismic hazard map (Modified from Natural Resources Canada, 2024a).

As shown in the figure 10-1, the mine site is located in the zone with low relative hazard while the city of Sept-Îles is in a zone of higher relative hazard. The probability of shaking strong enough for significant damage within towns of these regions is at least a 30 per cent chance every 50 years for the highest hazard (Natural Resources Canada, 2024a). For the region of moderate hazard, the chance of significant damage is a 5 to 15 per cent every 50 years. Finally, for the lowest hazard, the risk is less than 1 per cent chance in 50 years (Natural Resources Canada, 2024a). The separation plant in Sept-Îles would be in a zone with chance close to 30 per cent, while the mine site is in the lowest zone with less than 1 per cent chance.

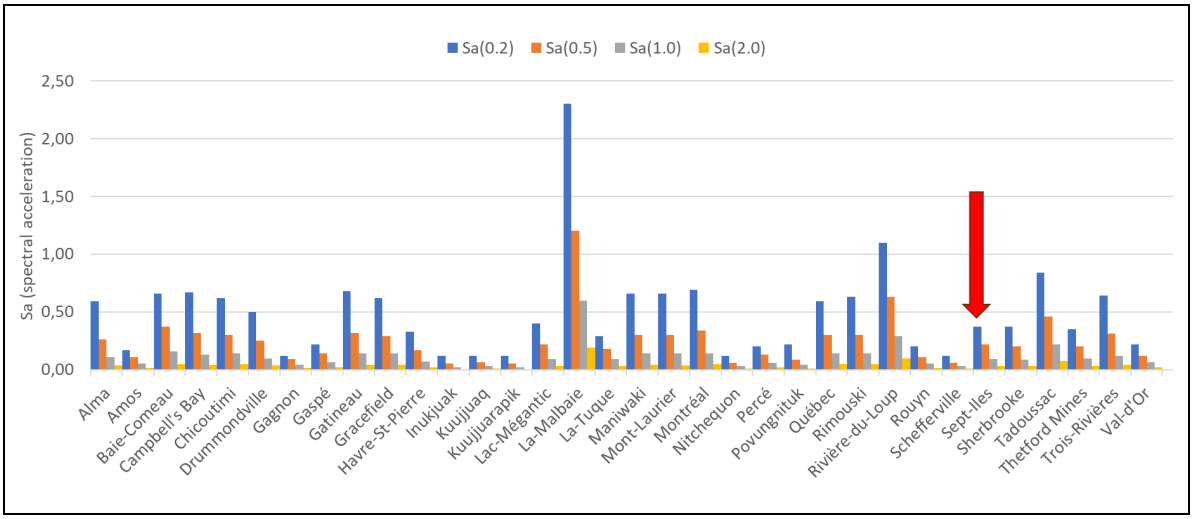

Figure 10-2: Seismic hazard values intended for the 2005 NBCC "Design Data for Selected Locations in Canada" table. Sa: spectral acceleration given in units of g (acceleration due to Earth's gravity).

The figure 10-2 compare seismic hazards for a few selected locations in the province of Quebec. Although Sept-Îles is in a high seismic hazard zone, the actual values for the city are rather low (Natural Resources Canada, 2024b).

The precise values of the hazard for individual sites, specifically the mine site and the plant separation in the city of Sept-Îles, are determined from the 2020 National Building Code of Canada Seismic Hazard Tool (Natural Resources Canada, 2024c) and presented below:

Strange Lake Mine Site and Concentration Plant Seismic Events

The closest seismographs from the mine site, road and port are situated in Nain (NINL station), Schefferville (SCHQ station) and Kuujjuaq (KUQ station). Although earthquakes might occur throughout Canada, the region, both in the Quebec and Labrador province is not known for high seismic activity (Government of Canada, 2023. Background on earthquakes in eastern Canada). Figure 10-3 shows the historical seismicity, since 1985, in a 400 km radius from Lac Brisson, 133 seismic events occurred, the majority being in the Labrador Sea. The great majority of those events were equal or less than magnitude 3.

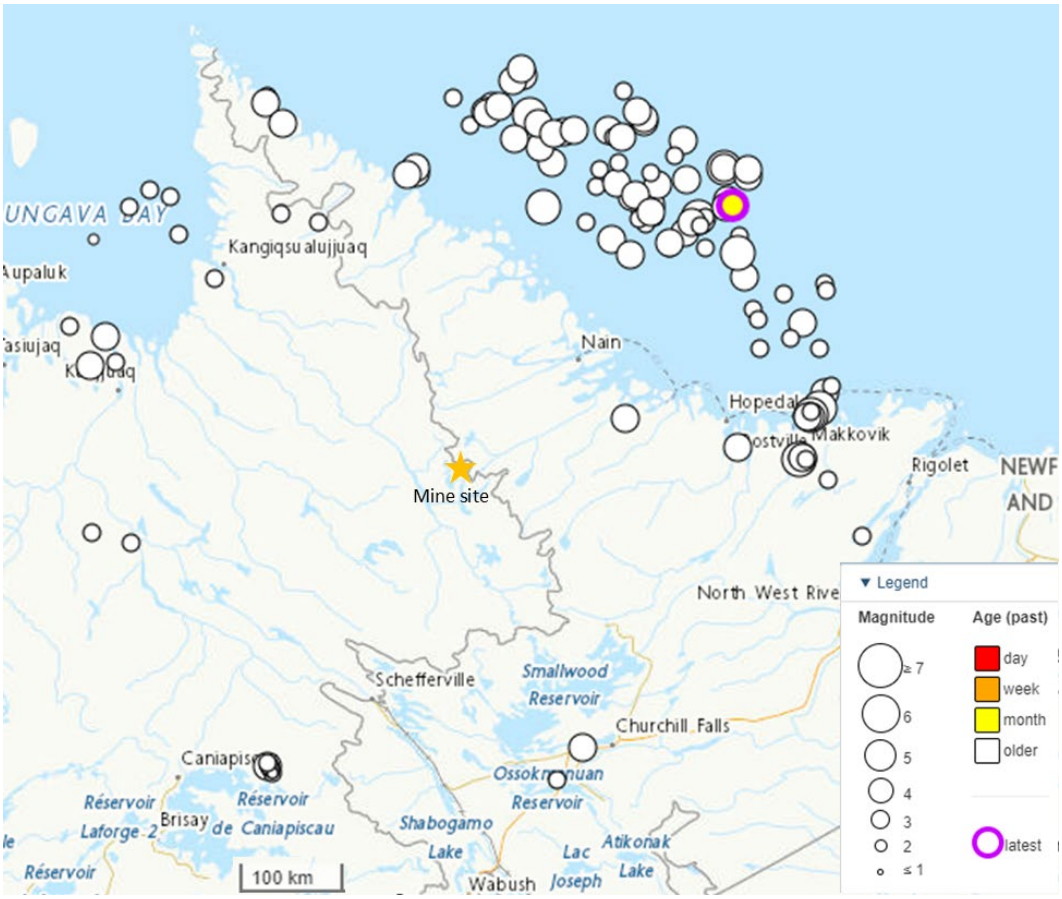

Figure 10-3: Major seismic events in a 400 km radius from the Lac Brisson since 1985[6]

Strange Lake Concentration Plant Site Seismic Classification

The seismic data are from the 2020 National Building Code Interpolated Ground Motion Values with 2% probability of exceedance in 50 years or 0.000404 per annum. The 2.5%- to 40%-in-50-year values are provided for additional checks in accordance with Article 4.1.8.23. of the NBC 2020.

The 5%-damped spectral acceleration (Sa(T), where T is the period, in s) and peak ground acceleration (PGA) values are given in units of acceleration due to gravity (g, 9.81 m/s^2). Peak ground velocity (PGV) is given in m/s. Probability is expressed in terms of percent (%) exceedance in 50 years.

[6] https://www.seismescanada.rncan.gc.ca/stndon/NEDB-BNDS/bulletin-en.php - consulted 03/04/2024

Table 10-1: Ground Motion Values[7]

Probability (% in 50 years)	Sa (0.2) [g]	Sa (0.5) [g]	Sa (1.0) [g]	Sa (2.0) [g]	Sa (5.0) [g]	Sa (10.0) [g]	PGA [g]	PGV [m/s]
2	0.108	0.0682	0.0394	0.0198	0.00549	0.00213	0.0441	0.046
5	0.0629	0.0412	0.0233	0.0113	0.00288	0.00114	0.0257	0.0255
10	0.0398	0.0265	0.0145	0.00673	0.00159	0.000628	0.0163	0.0152

Sept-Îles Separation Plant Seismic Events

Sept-Îles is located in the Lower St. Lawrence Seismic zone (LSZ), also referred as "Lower-St. Lawrence-Quebec North Shore" which is a seismically active region of eastern Canada. While the region is active, and unlike the Charlevoix Seismic zone, no large earthquake has been reported or recorded in the LSZ (Natural Resources Canada, 2024a). On average about 60 events are recorded annually. The region is monitored by several seismograph: Ste-Marguerite (SMQ station), Islets-Caribou (ICQ station), Manicouagan (MNQ station), Cote-Nord (CNOQ station), Sainte-Felicite (SNFQ station), Port-Meunier Anticosti (PMAQ station). Since 1985 (fig10-4) the majority of the seismic events are in the St. Lawrence River and were less than magnitude 4. In the LSZ, the most recent events that was more than magnitude 4 was on September 21, 2013, an earthquake of magnitude 4,6 occurring at 48 km south from Moisie. The other one was on March 16, 1999. It was an earthquake of magnitude 5.1 occurring about 60 km south of Sept-Îles.

Sept-Îles Separation Plant Site Seismic Classification

The seismic data are from the 2020 National Building Code Interpolated Ground Motion Values with 2% probability of exceedance in 50 years or 0.000404 per annum. The 2.5%- to 40%-in-50-year values are provided for additional checks in accordance with Article 4.1.8.23. of the NBC 2020.

The 5%-damped spectral acceleration (Sa(T), where T is the period, in s) and PGA values are given in units of acceleration due to gravity (g, 9.81 m/s^2). PGV values are given in m/s. Probability is expressed in terms of percent (%) exceedance in 50 years.

Table 10-2: Ground Motion Values[8]

Probability (% in 50 years)	Sa (0.2) [g]	Sa (0.5) [g]	Sa (1.0) [g]	Sa (2.0) [g]	Sa (5.0) [g]	Sa (10.0) [g]	PGA [g]	PGV [m/s]
2	0.362	0.166	0.081	0.0367	0.00957	0.00347	0.198	0.111
5	0.202	0.0947	0.0457	0.0202	0.00498	0.00183	0.108	0.06
10	0.123	0.0592	0.0282	0.0121	0.00281	0.00104	0.0633	0.0355

[7] 2020 National Building Code of Canada Seismic Hazard Tool– (www.canada.ca), March 15, 2024

[8] 2020 National Building Code of Canada Seismic Hazard Tool– (www.canada.ca), Mar 15th, 2024

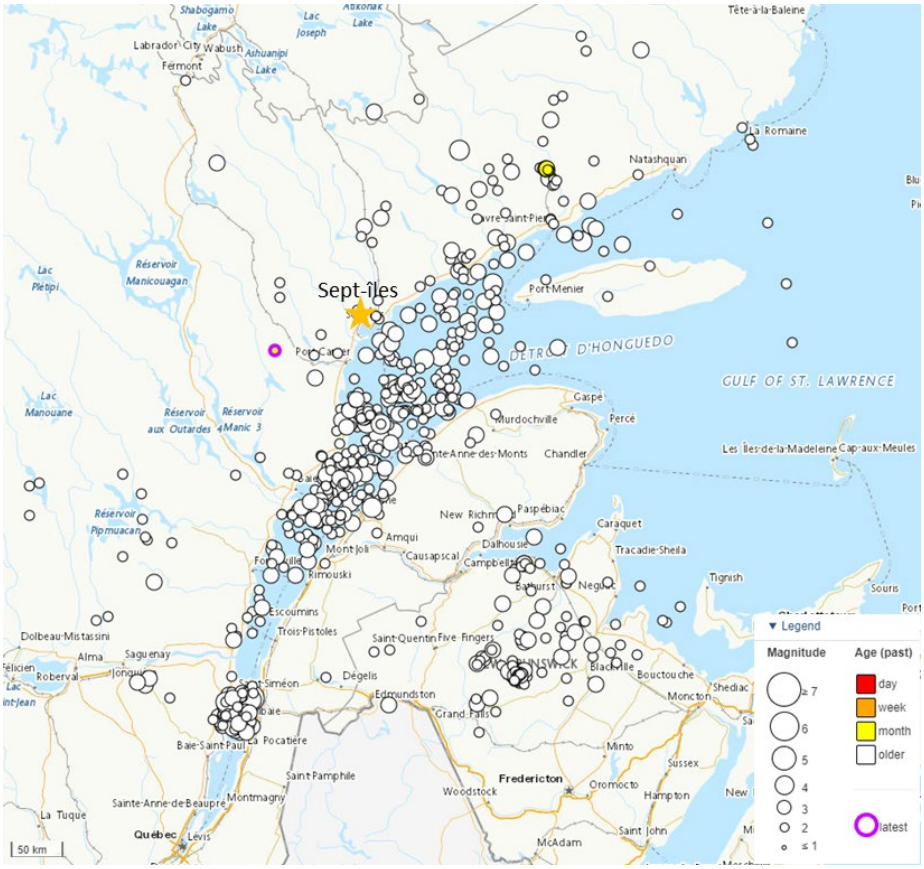

Figure 10-4: Major Seismic Events in a 400 km Radius from Sept-Îles Since 1985[9]

References

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[9] https://www.seismescanada.rncan.gc.ca/stndon/NEDB-BNDS/bulletin-en.php - consulted 07/10/2023

11 Indigenous People health, social or economic conditions

SI 11.1 : Need more information on the potential social, economic and health impacts of the project on First Nations and Inuit.

A 11.1 :

As part of the ESIA for the Strange Lake Rare Earth Mining Project, a socio-economic conditions study and a human health, quality of life and psychosocial impact assessment (HQIA) will be carried out to describe the situation prevailing in the cities, towns and communities (Indigenous and non-Indigenous) affected by the project, and to evaluate the potential effects of the project on them. The DPD (sections 15.2 and 15.3) provides a brief overview of the socio-economic and health conditions of the various Indigenous communities concerned. This information will be refined and supplemented during the ESIA to provide a more accurate and up-to-date socio-economic and health profile. Data refinement will be achieved through additional bibliographic research, as well as through meetings and interviews with key stakeholders in the communities concerned.

In addition, impacts on human health, quality of life and socio-economic conditions will be assessed on the basis of the determinants of health, a preliminary list of which is given in section 15.3 of the DPD (among others, income, employability of the population, modification of the environment or territory, access to traditional food, alcohol consumption and risk behaviours, family environment, social cohesion, health and social services, housing, municipal infrastructures and services, demographic context). Analysis methods will be intersectional and adapted to the concerns and realities of the communities concerned. Concerns and potential perceptions of the project's consequences (e.g., the perception of risk associated with chemical or radiological contamination on use of the territory and consumption of traditional foods) will be documented through interviews and then analyzed. GBA Plus will be used as an analytical tool to reflect how project activities may affect population sub-groups differently, and thus better target mitigation measures. To better understand the project's impact on Indigenous groups, the HIA will take into account the political, socio-economic and cultural realities of Indigenous women and people of diverse gender identities, using culturally relevant gender-based analysis (CRGBA) (Indigenous Women's Association of Canada, 2020a; 2020b). Unlike Gender-Based Analysis Plus (GBA Plus), CRGBA goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma among Indigenous people. These various analyses will make it possible to assess the social, economic, health and environmental effects, as well as the impacts on Indigenous peoples and other non-Indigenous population groups. The GBA Plus and CRGBA will ultimately make it possible to identify and mitigate the negative effects of the proposed project on these various population groups targeted by the project.

Section 22 of the DPD listed the potential impacts the project could have on the social, economic and health conditions of the Indigenous communities concerned. The socio-economic and human health, quality of life and psychosocial impact studies (HHQIS) conducted as part of the ESIA will aim at identifying the project's potential impacts more precisely and accurately.

References

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020a. *Indigenous Women and Impact Assessment. Final report.* [Online]: https*://www.canada.ca/content/dam/iaac-acei/documents/research/nwac-impact-assessment-final-report-fr.pdf* (Page consulted in December 2023)

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020b. *Getting Started Kit. Culturally Relevant Gender-Based Analysis (CRGBA): Introduction, integration and examples of use.* [Online]: https://stbbi.nwac.ca/wp-content/uploads/2021/03/NWAC_CRGBA_2020_FR_Final_Web-1.pdf (Page consulted in December 2023)

SI 11.2 : Importance of applying gender-based analysis plus to the land use, indigenous rights, human health, quality of life and psychosocial impacts study to properly consider the project's potential impacts on Indigenous women, girls and 2SLGBTQI+[10] people.

A 11.2 :

As part of the Strange Lake Rare Earth Mining Project's ESIA, a comprehensive study of human health, quality of life and psychosocial impacts will be carried out for each of the Indigenous communities involved. The baseline study will describe the determinants of health using indicators that identify the main characteristics of the environment in which the various components of the Torngat Metals project are located. Various characteristics, and therefore determinants of health, belonging to several domains (individual characteristics, living environments, systems and infrastructures, and overall context) will be documented in the ESIA as reference conditions. It should be noted that some of these characteristics will already be addressed in the portion of the ESIA dealing with the socio-economic conditions of the affected communities.

This study will consider the effects of the project on Indigenous women, girls and 2SLGBTQI+ people. To better understand the project's impact on them, the ESIA will take into account the political, socio-economic and cultural realities of Indigenous women and people of diverse gender identities, using culturally relevant gender-based analysis (CRGBA) (Indigenous Women's Association of Canada, 2020a; 2020b). Unlike gender-based analysis plus (GBA Plus), this analytical process goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma.

References

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020A. *Indigenous Women and Impact Assessment.* Final report.
[Online]: https://www.canada.ca/content/dam/iaac-acei/documents/research/nwac-impact-assessment-final-report-fr.pdf (Page consulted in December 2023)

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[Online]: https://stbbi.nwac.ca/wp-content/uploads/2021/03/NWAC_CRGBA_2020_FR_Final_Web-1.pdf (page consulted in December 2023)

[10] It is the acronym used by the Government of Canada to refer to the Canadian community. 2S: at the front, recognizes Two-Spirit people as the first 2SLGBTQI+ communities; L: Lesbian; G: Gay; B: Bisexual; T: Transgender; Q: Queer; I: Intersex, considers sex characteristics beyond sexual orientation, gender identity and gender expression; +: is inclusive of people who identify as part of sexual and gender diverse communities, who use additional terminologies.

SI 11.3 : Need for information on the potential economic opportunities for First Nations and Inuit.

A 11.3 :

There will be diversity in employment and business opportunities for Indigenous people along the different steps of the Strange Lake Rare Earth Mining Project. Torngat Metals understands that Indigenous people might not have all the hiring credentials to fulfill the job requirements. Nevertheless, the promoter and its contractors will have to develop and implement capabilities of Indigenous workforce, through training programs so that indigenous workers or trainees will become more employable and could access better jobs for the Project.

Besides, through its procurement policy, Torngat Metals will prioritize Indigenous service providers to complete construction and production work. Torngat Metals also plan to develop Indigenous entrepreneurship through joint ventures, mutual private agreements, or development of small business within the communities concerned by the project.

See also answers 9.2 to 9.5.

SI 11.4 : Importance of considering how the project could improve local socio-economic development conditions for some First Nations and Inuit communities.

A 11.4 :

Torngat Metals is committed to creating employment and business opportunities for the various Indigenous groups involved in the project. To this end, contracts will be awarded on a priority basis to indigenous service providers during the construction and operation phases. Torngat Metals will also ensure that employment opportunities for Indigenous people are accessible to all segments of the population (including women, seniors and youth) as part of its employment practices.

Torngat Metals also wishes to develop and support Indigenous entrepreneurship through the creation of joint ventures involving Indigenous communities or businesses, or through mutual private agreements or the development of small businesses within Indigenous communities.

Torngat Metals also wishes to participate in the socio-economic development of the Indigenous communities concerned by the project, notably through investments in the establishment and maintenance of infrastructures or services within the communities. The elements to be subsidized will be identified in consultation with the Indigenous communities concerned. Torngat Metals also intends to involve the local populations in the process. Funding applications may be submitted by individuals or local organizations among Indigenous communities. Allocated funds will be distributed by a committee that will analyze all applications and provide funding according to established criteria.

See also answers 9.2 to 9.5.

SI 11.5 : Concern about the project's limited potential benefits to current and future generations in Labrador, including that the project may only create a limited number of jobs.

A 11.5 :

The Strange Lake Rare Earth Mining Project will provide employment to current and future generations in Labrador. The life expectancy of the proposed mine being for more than 30 years, this project will allow many working opportunities, from entry level positions to more specialized mining related positions, up to senior and managerial positions. These opportunities will be available at the mine site, as well as at the port, for the road maintenance, and also at the separation plant in Sept-Îles.

Torngat Metals will help Indigenous entrepreneurs to develop new business opportunities in order to provide goods and services during the construction and the operation of the project. Torngat Metals also wish to support business start up by providing funding for new Indigenous businesses development or by providing mentoring and expertise support to start up Indigenous companies. These new businesses will be available to provide goods and services throughout the rest of Labrador, Newfoundland and anywhere else.

By developing new local Indigenous businesses, Tonrgat Metals will contribute to the creation of new skills within local communities. These skills will also be available for future projects that may arise in Labrador, helping to foster the employability of the local workforce in Labrador.

See also answers 9.2 to 9.5.

SI 11.6 : Need for details on the project's impact on Indigenous employment. Importance of considering that the project can increase employment opportunities and wages for First Nations and Inuit.

A 11.6 :

Torngat Metals recognizes the importance of engaging with local and Indigenous communities as partners to ensure that they benefit equitably from the project. To this end, the company prioritizes the recruitment of local Indigenous candidates for the project.

Recruitment processes will be put in place to give priority to Indigenous candidates who have the competencies to carry out the tasks requested in the job description. This will ensure that the various Indigenous groups affected by the project have access to meaningful employment opportunities.

Since the spring of 2023, Torngat Metals has been actively collaborating with Indigenous communities throughout the planning and development phase of the project. This process has enabled us to identify certain opportunities for collaboration and to adapt employment to the specific needs of the members of the Indigenous communities concerned.

Since the start of the ESIA process, Indigenous workers have been hired to participate in the environmental field studies. To continue in this vein, a list of job offers has been created for the summer of 2024, and will be distributed to all Indigenous groups involved in the project in the spring of 2024. In addition, during the fall of 2023, Torngat Metals established contacts with several Indigenous communities and businesses in Labrador, including the *Labrador Indigenous Training Partnership*, *Torngait Services* and *TradesNL*, which specializes in hiring Indigenous workers. These relationships will be further developed in 2024. Torngat Metals also plans to participate in several events during 2024 to present business opportunities and develop partnerships with Indigenous groups and businesses. These events include:

- Job fair to be held in Uashat in February
- The Nunavik Economic Forum, to be held in Kuujjuaq in March
- Nunavik Mining Forum to be held in June
- Expo Labrador to be held in June

Torngat Metals has also been invited to sit at the strategic table of the Kautaapikkut Committee to start working with available resources in Nunavik to develop training programs to support future training activities and employment.

In addition to promoting employment opportunities, Torngat Metals plans to implement broader community development initiatives within the Indigenous communities affected by the project. The company intends to develop community investment programs and strategic partnerships to address the social and economic priorities identified by Indigenous communities, particularly in the areas of education and cultural preservation. These priorities will be defined through further consultations and possible IBAs with the Indigenous communities concerned.

SI 11.7 : Importance of considering equity, diversity and inclusion practices to increase economic participation of local indigenous communities.

A 11.7 :

The various phases of the Strange Lake Rare Earth Mining Project are expected to create new jobs in the towns, cities, communities (Indigenous and non-Indigenous) and regions affected. It is possible, however, that certain segments of the population (particularly women and single mothers) or members of Indigenous communities may find it more difficult to obtain jobs with the project, due to a variety of conditions. Barriers to employment can be multiple. They may include gaps in training, or difficulties in obtaining skills certification, particularly for construction-related trades. Indeed, the impact study for the Romaine hydroelectric complex (Hydro-Québec, 2007) identified the low level of training of the workforce, as well as the difficulties associated with obtaining skills certification, as reasons for the difficulty in obtaining employment outside the Indigenous communities concerned. The social situation of some people can also act as a brake. Consider, for example, the difficulties faced by single mothers with no childcare resources to entrust their children to during their work shift. There are also the people (particularly from Indigenous communities) who will have to move away from home during their work periods (fly-in fly-out), and who will have to adapt to a new living environment, as well as the distance from their community. The various environmental follow-up studies on the social impacts of the construction and operation of the Romaine hydroelectric complex on Innu communities (AECOM 2011a, 2015, 2018a and 2020), as well as surveys of Innu workers at the Romaine jobsite (AECOM 2011b, 2014,2016,2018b, 2022) showed that some Indigenous workers hired for this project had difficulty adapting to their new work environment and were affected by the fact that they had to be away from their communities for long periods as part of their work.

Torngat Metals plans to hire workers on an equitable basis from the various cities, towns and communities (Indigenous and non-Indigenous) involved in the project, both in Quebec and Labrador. Agreements between Torngat Metals and the various Indigenous groups involved, as well as with the various government authorities, will help determine what measures will be put in place to promote the equitable hiring of employees from local and regional communities. Measures will be developed by Torngat Metals to alleviate hiring barriers that may arise for certain groups (notably Indigenous) or for less privileged segments of the population. These measures will be developed at the time of the impact study, based on the expectations and concerns expressed by the various stakeholders we meet, particularly those voiced by representatives of under-represented groups (Indigenous communities, women's groups, community groups, etc.). To this end, the identification of measures to promote equitable hiring and employee retention will be based on the GBA Plus and Culturally Relevant Gender-Based Analysis (CRGBA) approach[11] .

Torngat Metals is already planning to implement a number of measures to promote and maintain the hiring of people from under-represented groups, including:

- Encourage the preferential hiring of workers from local or regional communities, particularly within the Indigenous communities concerned;
- Implement proactive hiring programs aimed at increasing the participation of women and all members of Indigenous communities;
- Set up training programs in the local and regional communities affected by the project (particularly Indigenous communities);

[11] Unlike Gender-Based Analysis Plus (GBA Plus), this analytical process goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma Indigenous Women's Association of Canada, 2020a; 2020b).

- Give preference to local or regional companies that are competent to carry out the tasks requested in the call for tenders, before approaching companies based elsewhere in Quebec, Labrador or abroad;
- Train all Torngat employees, at all sites, to understand the cultures, history and strengths of Indigenous communities, in keeping with Torngat's values and objectives, while respecting the recommendations of the Truth and Reconciliation Commission.

Other measures will be developed as part of the ESIA.

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AECOM. 2016. *Complexe de la Romaine. Étude de suivi environnemental. Enquête auprès des travailleurs innus* (2015). Hydro-Québec Équipement et services partagés. 95 P. ET ANNEXES.

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SI 11.8 : Need for information on efforts and strategy that will be made to prioritize, recruit, and train Indigenous people. Importance to clearly articulate Indigenous hiring and training policies at all stages of the project. Note that training and technical knowledge acquired through the project may benefit community development.

A 11.8 :

As part of its project, Torngat Metals plans to give priority to hiring workers from the Indigenous communities concerned, and to award contracts to businesses owned (in part or in whole) by Indigenous interests, both in Quebec and in Labrador.

A number of factors can also hinder the access of Indigenous workers, particularly women, to jobs on major development projects. The low level of training of the workforce, as well as the difficulties associated with obtaining skills certifications, are factors that explain the difficulty of obtaining employment outside the Indigenous communities concerned. In addition, Indigenous workers may find it difficult to adapt to their new work environment and may be affected by the fact that they have to be away from their communities for long periods in the course of their work.

The completion of the Strange Lake Rare Earth Mining Project's ESIA will shed more light on the various conditions that are likely to hinder the hiring of Indigenous workers in the communities concerned by the Torngat Metals project. Consultations and key informant interviews will help identify the various issues related to this question. Appropriate mitigation measures can then be developed to address the identified barriers to employment. Measures to encourage the retention of Indigenous employees will also be developed, based on the information obtained during the consultations and interviews, as well as on information drawn from similar studies conducted in recent years. That said, Torngat Metals is already planning:

- Encourage the preferential hiring of workers from local or regional communities, particularly within the Indigenous communities concerned;
- Implement proactive programs to increase the participation of women and all members of Indigenous communities in the workforce;
- Set up training programs in the Indigenous communities concerned;
- Give preference to local or regional Indigenous businesses that are qualified for the tasks requested in the call for tenders, before approaching companies based elsewhere in Quebec, Labrador or abroad.

See also previous answers in this section 11.

SI 11.9 : Need for more information about the fly-in/fly-out schedule, and details of considerations of how this can have an adverse impact on Indigenous workers and their families.

A 11.9 :

Schedules for workers in the construction and operation phases have not yet been established with any certainty. It will have to be the subject of an analysis that takes into account the needs and expectations of workers in a highly competitive job market, as well as the housing and service capabilities of local communities. For the time being, Torngat Metals is evaluating the possibility of offering a schedule of 2 weeks of work followed by 2 weeks of leave for the mine site and the other northern components of the project. For the separation plant in Sept-Îles, fly-in fly-out is considered to be an option of last resort. The information and consultation activities carried out to date show that this option is not socially acceptable. Torngat Metals will have to work in partnership with local stakeholders to encourage workers to settle in Sept-Îles, in particular by developing housing and local workforce training solutions.

SI 11.10 : Concern about waste disposal management in the communities. The influx of economic and financial benefits into communities can lead to over-consumption of goods and materials generating issues with waste disposal management.

A 11.10 :

As mentioned in sections 19 and 22 of the DPD, contracts could be awarded to local or regional businesses as part of the various phases of the proposed project. New jobs could also be created in the cities, towns and communities affected by the project. Improved economic conditions could, however, lead to negative socio-economic and environmental impacts. It is conceivable, for example, that increased incomes could lead to over-consumption of goods and materials, subsequently generating waste management and disposal problems. As part of the ESIA, a study will be carried out into the socio-economic conditions in the various cities, towns and communities concerned. In particular, this study will describe and assess the various services present, including public infrastructure and existing services (such as waste treatment), to determine how the project could influence them. Interviews will also be conducted with key informants, as well as with representatives of governmental and social organizations, in order to document in greater detail specific topics such as the economic situation, health and social issues, and so on. Following this study, it will then be possible to identify the issues to be considered in terms of infrastructure and service provision. Appropriate mitigation measures can then be developed in conjunction with the relevant stakeholders.

SI 11.11 : Importance of considering socio-economic development assessments and planning as well as community-specific project developments to identify coherent entrepreneurship and business development opportunities that can benefit First Nations and Inuit communities.

A 11.11 :

Since 2011, consultation activities have included gathering information on the socio-economic conditions of the Indigenous communities concerned. These activities have made it possible to identify their expectations and concerns related to the project, particularly with regard to their effective participation in project development, as well as the economic spin-offs that could foster the sustainable development of Indigenous communities. As part of the ESIA, Torngat Metals plans to continue conducting information and consultation sessions with Indigenous authorities and communities (see Table 4-2 of the DPD: Preliminary Consultation Program with Concerned Indigenous Communities in Quebec and Labrador). As such, a program of periodic visits is planned to keep communities informed of project progress and opportunities.

In addition, as mentioned in sections *19.2 - Description of the main anticipated impacts of the project on the receiving environment, planned mitigation or restoration measures* and *22 - Description of apprehended changes and impacts on Indigenous communities - health, social or economic conditions* of the DPD and in previous answers, contracts and business partnerships could be awarded to local and regional Indigenous businesses as part of the various phases of the proposed project. In addition, jobs (direct and indirect) could be created in the various Indigenous communities affected by the project, both in Quebec and Labrador.

Since 2011, Indigenous companies have been awarded contracts for exploration work and studies of the bio-physical and human environment, notably for the proposed mine site and road. Inuit, Naskapi and Innu workers from Quebec and Labrador were also employed during the work. Torngat Metals intends to continue this partnership work by developing and implementing a policy for awarding contracts to Indigenous businesses, and a policy for Indigenous training and hiring.

SI 11.12 : Importance of adopting a harassment policy that includes training to make workers and employees aware of the repercussions of colonization, history and resource exploitation on Indigenous communities and social structures, in order to reduce racism towards Indigenous people working for the project.

A 11.12 :

Torngat Metals plans to introduce a Code of Conduct and Ethics that will address issues such as harassment, violence and racism. All Torngat Metals employees will be required to comply with this code, which will establish disciplinary measures for any act of harassment, violence or racism, which could go as far as termination of employment for Torngat Metals employees or site ban for contractors' employees.

In addition, Torngat Metals will ensure that all workers on the various project sites during the construction, operation and closure phases will receive cross cultural training on the cultures, history and strengths of the Indigenous communities involved in the project, in accordance with the company's values and objectives, while respecting the recommendations of the Truth and Reconciliation Commission.

SI 11.13 : Concern about the potential impact of the project on subsistence economy, country foods (aquatic and terrestrial), human health (mental and physical) and food security of First Nations and Inuit.

A 11.13 :

As mentioned in sections 15.1 and 22 of the DPD, it is possible that the work carried out as part of the various phases of the project will have an impact on traditional activities, access to the territory or the various animal and plant resources used by Indigenous groups (such as the displacement of game due to the noise generated, changes in surface water quality, potential contamination of resources, etc.). Furthermore, the construction, operation and dismantling of the various project components are also likely to result in contamination of the various animal and plant resources traditionally consumed by these same Indigenous groups. It is also possible that Indigenous users will reduce or even stop practicing traditional activities because of fears (proven or not) related to the project and the potential contamination of the resources they value.

The various traditional foods (terrestrial and aquatic plants and animals) consumed by Indigenous groups and originating from territories potentially affected by the project will be identified during the ESIA, through a land use study to be conducted with the various Indigenous communities concerned. Indigenous managers and users will be interviewed to document current and projected land and resource use. For each of the Indigenous communities concerned, this will not only help identify which resources are harvested, but also document in detail how and how often they are consumed, so as to paint a rough picture of the consumption habits of the various Indigenous groups involved.

In parallel, a Human Health and Environmental Risk Assessment (HHERA) will be carried out. The HHERA is one of the main tools recommended by Health Canada for assessing the potential human health impacts of project-related contaminants. A HHERA can help determine whether there are potential human health risks associated with a project. In 2011 and 2013, one of the first steps of the HHERA was to develop a conceptual model for the entire project, including the mine, a road, and a port. This conceptual model, which identifies potentially hazardous contaminants - including radionuclides - ecological and human receptors potentially exposed to project activities, and exposure pathways to receptors selected for risk assessment, will be updated in line with Torngat Metals' planned activities. Radiological risks will be assessed in accordance with the Guidance for *Human Health Impact Assessment in Environmental Assessments: Radiological Effects* (Health Canada, 2017), which presents basic principles and information associated with radiological materials (NORM). In addition to applicable provincial regulations, the proponent may refer to other guidelines for the management of NORM (Health Canada, 2021 and 2014). The potential radiological and psychosocial effects of radioactivity on human health will also be assessed on those aspects of the determinants of health for which concerns will be expressed during Torngat Metals' information and consultation activities. Indeed, as mentioned above, it is possible that Indigenous users will reduce the practice of their traditional activities or reduce their consumption of food from the territory. In either case, this would lead to a reduction in the consumption of traditional food (which is an important source of quality food), which could pose a problem for the food security of certain individuals, or even certain communities. Issues such as these, as well as other issues that could affect the human health, food quality and food security of the Indigenous communities affected by the project, will therefore be documented through interviews and consultation activities. They will then be analyzed and integrated into the HHERA.

Following the completion of the various studies (land use studies, HHERA, study of social, economic and health conditions, psychosocial impacts), it will be possible to assess the potential impacts of the project on the subsistence economy, traditional foods (aquatic and terrestrial), human health (mental and physical) and food security of the Indigenous populations concerned. Appropriate mitigation measures can then be developed in conjunction with these communities.

See also answers 8.1 to 8.3.

References

Health Canada. 2021. *Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM). Volume III: Transportation*. Prepared by the Federal-Provincial-Territorial Radiation Protection Committee.

Health Canada. 2017. *Guidance for assessing human health impacts in environmental assessments: radiological effects.* Healthy Environments and Consumer Safety Branch.

Health Canada. 2014. *Canadian guidelines for the management of naturally occurring radioactive materials (NORM).* Prepared by the Canadian NORM Working Group of the Federal Provincial Territorial Radiation Protection Committee - Revised 2011.

SI 11.14 :	Concern about the lack of scientific studies related to the impacts of rare earth extractions on the food chain and its impact on the health of First Nations and Inuit.

A 11.14 :

All available literature will be examined to determine the impact of rare earths on the environment and health. We are also awaiting guidance from NRCan, which is soon to publish toxicological information on rare earths. This information will be used to establish a risk assessment framework and evaluate gaps in knowledge. Currently, Torngat Metals is proceeding with toxicity testing on the residue from the mine. The results of this study will be included in the ESIA and will be part of the impact analysis. The results of those tests will inform the appropriate closure methods to be applied.

See also previous answer, as well as answers 8.1 to 8.3.

SI 11.15 : Need for information on potential effects of contaminants emitted by the project, including in the water bodies, watersheds and soils, and in the case of spill event. These could impact water quality, the health of aquatic and terrestrial wildlife and have potential health impacts associated with their accumulation in country foods and on water consumption of First Nations and Inuit.

A 11.15 :

As previously mentioned in answer 3.1, 3.11, 3.14, 3.17, 3.18 and 3.22 (among others), the design objective for all facilities, both at mine site (Lac Brisson) and Sept-Îles site, is to recycle as much water as possible to prevent any contamination or disturbance from a possible effluent discharge. Wastewater discharge to the receiving environment would be done occasionally when there is excess water, after treatment to meet discharge criteria.

The water balance will be developed considering that the runoff (contact water) and seepage from the different stockpiles will be collected by perimeter ditches, allowing the water to be directed either to the processing plant or to a collection pond. Water from the pond will then be pumped to the WTP for treatment and then to the water management pond (WMP). The design of the WMP will be based on the assumption that the pond is capable of managing the flood events without overflowing to the environment. The design of the various infrastructures will include climate change considerations and will be based on the applicable guidelines.

Water treatment will be based on modeling and conservative levels of the processes, ensure the respect of discharge criteria for deleterious substances in the receiving environment, and provincial/federal criteria to protect the aquatic life.

All project discharges will be monitored during each phase of the project to verify the compliance with the regulatory requirements of the various agencies (ECCC, DFO, MELCCFP). Impacts on aquatic and terrestrial ecosystems will be monitored, and mitigation measures will be applied to reduce impacts wherever possible. Spill risk assessment and the establishment of spill response and mitigation protocols will form an integral part of the impact assessment framework.

Moreover, Torngat Metals intends to implement stringent dust control measure to minimize dust generated, such as:

- crushed material will be covered with a dome
- crushed material will be transferred to the concentrator by a covered conveyor
- dry residues (filtered stack) will be covered immediately after disposal
- dry residue may be mixed with concrete to minimise dust and leaching
- blasts will be small, and a blast mat will be available
- use of water or binder on haul roads

Nevertheless, as answered in 8.2, the risks to health and the environment that may potentially arise from project activities, both in the North and in the Sept-Îles region, will be rigorously assessed under the requirements of each of the ESIA processes to which the various project components are subject. This assessment will be carried out in Human Health and Environmental Risk Assessment (HHERA) following the requirements of the applicable guidelines and according to best practice methodologies and Indigenous knowledge, particularly with regard to impacted environments, land use, sensitive receptors and food chains. The objective of the HHERA is to identify the health-related societal and environmental components that are valued by the affected communities, identify potential exposure routes, assess the potential impacts (positive and negative, short-term and long-term) of the project on these valued components and evaluate potential mitigation measures to ensure that negative impacts are minimized as much as feasible. The HHERA methodology, results and conclusions will be detailed in the ESIA.

SI 11.16 : Need for information on monitoring plans to ensure that air, water, soil and country foods are safe for members of the First Nations and Inuit communities.

A 11.16 :

A preliminary monitoring plan will be detailed in the project's environmental management plan to be included in the ESIA. Drawing on First Nations and Inuit knowledge, and in collaboration with human health risk assessment professionals, the identification of sensitive receptors in the vicinity of the study and project area will validate that air, water, soil and traditional foods will be safe for members of these communities.

With regards to air quality, it should be noted that the ESIA will include an air quality and dust management plan for each of the project's components (mine site & concentration plant, access road, port infrastructures, Sept-Îles separation plant) and phases (construction, operation, closure). These plans will incorporate continuous monitoring parameters to ensure that environmental requirements included in future remediation certifications or permits will be met.

SI 11.17 : Concern about the social and economic impacts the project can have for Labrador Inuit, considering the high cost of food in the communities and the current housing crisis.

A 11.17 :

Torngat Metals' proposed project is likely to have an impact on the socio-economic conditions of Inuit communities in Nunatsiavut, Labrador. As indicated in section 15.2 of the DPD, a study of the socio-economic conditions, quality of life and health of the Indigenous communities affected by the project will be conducted as part of the ESIA. One of its objectives will be to describe and evaluate the various services present in these communities, in order to determine how the project could affect them. In particular, the potential effects of the project on the price and availability of housing, as well as on the cost of food, will be assessed.

Summary information on the socio-economic and socio-sanitary context of the Indigenous communities affected by the project (including the Inuit communities of Nunatsiavut) is presented in sections 15.2 and 15.3 of the DPD. As part of the ESIA, a more detailed presentation of the communities concerned will be made. This will be done in particular through documentary research within available public sources, notably the national Inuit health survey, Qanuippitaa, which is currently underway. This latter study is entirely directed by the Inuit of Inuit Nunangat. The resulting data will therefore be highly relevant for describing the socio-economic conditions, quality of life and socio-health conditions of Nunatsiavut communities. Interviews will also be conducted with various key informants within the communities concerned, or with representatives of local, regional or governmental organizations, to describe more specific aspects such as the housing situation, or food security. The interviews will also help identify specific issues related to the project.

The socio-economic and socio-health profiles of Indigenous communities will be presented using culturally relevant gender-based analysis (CRGBA) (Indigenous Women's Association of Canada, 2020a; 2020b). Unlike gender-based analysis plus (GBA Plus), this analytical process goes further and considers current historical issues, including the historical and ongoing effects of colonization, the legacy of residential schools, and intergenerational trauma. In particular, this method of analysis will include information on the availability/accessibility of housing for Indigenous women, girls and 2SLGBTQI+ people.

Following the completion of the study on the socio-economic and socio-health conditions of the communities, it will then be possible to identify issues related to the project. This will enable a more accurate assessment of the potential impacts of the project on the communities' socio-economic and health conditions, and the identification of appropriate measures to limit them. It will then be possible to develop measures aimed at mitigating or even eliminating them. These measures can be developed in conjunction with the Indigenous communities concerned.

References

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020A. *Indigenous Women and Impact Assessment.* Final report. [Online]: https://www.canada.ca/content/dam/iaac-acei/documents/research/nwac-impact-assessment-final-report-fr.pdf (Page consulted in December 2023)

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020b. *Getting Started Kit. Culturally Relevant Gender-Based Analysis (CRGBA): Introduction, integration and examples of use.* [Online]: https://stbbi.nwac.ca/wp-content/uploads/2021/03/NWAC_CRGBA_2020_FR_Final_Web-1.pdf (Page consulted in December 2023)

SI 11.18 : Importance of considering how the project can create tensions and divisions between different stakeholders and concerned groups and between community members who are for and against the project.

A 11.18 :

As mentioned in the DPD, the project is likely to be perceived in different ways by members of the same community, and to fuel existing (local/regional) tensions, or create new ones, particularly within Indigenous communities, during the various phases of the project (development and construction, operation, closure and restoration). The various environmental follow-up studies concerning the social impacts of the construction and operation of the Romaine hydroelectric complex on Innu communities (AECOM 2011, 2015, 2018, 2020 and 2023), have indeed shown that the Romaine project has had negative effects on community relations by generating discontent and tensions within Innu communities, among others concerning the implementation of IBAs and the project's economic spin-offs.

As part of the ESIA for the Strange Lake Rare Earth Mining Project, the proponent intends to pursue new information and consultation activities with all institutional stakeholders, non-governmental groups or associations concerned by the project. These information activities will enable members of Indigenous communities to express their views on the project, as well as their expectations and concerns, and to access information on project updates. These sessions, which will be carried out in complete transparency, are designed to promote the social acceptability of the project and thus reduce or eliminate possible tensions within the communities. The list of consultation activities is described in the DPD in section 3 and 4. Torngat Metals also plans to carry out, but is not limited to, the following activities:

- A consultation program combining different techniques: village assemblies, interviews with target groups (land users, Elders, young people, men, women), individual interviews with key players within the communities (local administrative services).
- A program of periodic visits to the Indigenous communities concerned to inform them of project updates and opportunities.
- Dissemination of a set of culturally adapted information tools, in Indigenous languages, developed in collaboration with Indigenous groups.
- Collaboration with local steering committees and local liaison officers on the main issues raised by the project.
- Set up consultation and complaints mechanisms enabling community members to express their questions and views online.
- Translation services will be provided at public meetings, as well as translations of documents to give everyone access to information.

References

AECOM. 2011. *Complexe de la Romaine. Suivi environnemental, projet 2009. Incidences sociales sur les communautés innues. État de référence*. Rapport présenté à Hydro-Québec Équipement et services partagés. 116 p. et annexes.

AECOM. 2015. *Complexe de la Romaine. Étude de suivi environnemental. Incidences sociales sur les communautés innues - 2012-2013*. Rapport présenté à Hydro-Québec Équipement et services partagés. 126 p. et annexes.

AECOM. 2018. *Complexe de la Romaine. Étude de suivi environnemental. Incidences sociales sur les communautés innues – 2016-2017*. Rapport présenté à Hydro-Québec Innovation, équipement et services partagés. 173 p. et annexes.

AECOM. 2020. *Complexe de la Romaine. Rapport technique – Mise à jour des indicateurs et entrevues avec les gestionnaires innus. Étude de suivi environnemental - Incidences sociales chez les communautés innues. 2017-2019*. Étude réalisée par AECOM pour Hydro-Québec Innovation, équipement et services partagés.

AECOM. 2023. *Complexe de la Romaine. Étude de suivi environnemental. Incidences sociales sur les communautés innues – 2017-2022. Rapport d'étude préliminaire présenté à Hydro-Québec Innovation, équipement et services partagés*. 416 p. et annexes.

SI 11.19 : Need more information on the mitigation measures to address the psychosocial and mental health effects that are triggered by the start of the impact assessment process of the project. The project can create expectations but also concerns, stress, anxiety, emotional distress, and differing community perceptions. Mining operations can also increase stress and anxiety because of their potential impact to indigenous livelihood.

A 11.19 :

Since the public announcement of the project, Torngat Metals has put in place a stakeholder engagement plan to ensure that the public is well informed not only about the project, but also about the various stages of the ESIA. This ongoing process will be maintained throughout the ESIA and the various phases of the project. This proactive approach aims to be as transparent as possible about the ESIA and the project. It aims to disseminate relevant information about the project and to effectively involve the populations of the various towns, localities and communities concerned, in order to take account of their different points of view.

SI 11.20 : Need more information on the methodology and timing for the comprehensive study on the potential impacts of the project on Indigenous health, social and economic conditions.

A 11.20 :

It is conceivable that the development of the Strange Lake mining project will affect in various ways the health, socio-economic and socio-sanitary conditions of the Indigenous groups concerned, such as the Inuit of Nunavik, the Naskapi of Kawawachikamach, the Innu of Quebec and Labrador, and the Inuit of Nunatsiavut. As mentioned in sections 15.2 and 15.3 of the DPD, studies of socio-economic conditions, as well as human health, quality of life and psychosocial impacts, will be conducted in the Indigenous communities concerned as part of the ESIA. In addition to socio-economic characteristics (demographics, economy and employment, education and professional training, health and welfare, governance, socio-economic issues), the socio-economic conditions study will also examine, for each city, town or community concerned, the service providers likely to be interested in supplying the Strange Lake project, the infrastructure and services situation (including the housing situation), and the workforce situation.

More specifically, the main objectives of the socio-economic study will be to:

- collect basic socio-economic data on the Indigenous and non-Indigenous groups and communities affected by the project;
- Provide an overview of local and/or regional businesses and services in the Indigenous and non-Indigenous cities, towns and communities involved in the project;
- assess the ability and capacity of local and regional services to meet Torngat Metals' needs during construction, operation and closure of the mine site, seasonal access road, handling and storage facilities at Edward Cove/Voisey Bay port facilities (both options are being studied) and the Sept-Îles Rare Earth Separation Plant;
- assess potential opportunities for local and/or regional companies;
- collect information on infrastructure and services in the cities, towns and indigenous and non-indigenous communities affected by the project;
- assess the capacity of local and/or regional infrastructure and services to meet the needs generated by the construction, operation and closure of the Torngat Metals Project;
- identify the institutions and programs that play a role in the mining workforce and that could support the development of the Strange Lake project;
- compile basic data on the local and regional workforce (particularly in mining and construction);
- collect baseline data on the availability of local labor among Indigenous groups affected by the project;
- identify strategies that will enable Torngat Metals to promote the employment of Indigenous workers while avoiding contributing to labour shortages in local and regional communities;
- Identify issues to be considered by Torngat Metals during project planning;
- Determine the project's potential socio-economic impact.

A first step in the socio-economic study will be to conduct a literature search using available sources (e.g. Statistics Canada, Institut de la statistique du Québec, First Nations Profiles from Crown-Indigenous Relations and Northern Affairs Canada) to gather up-to-date socio-economic information on the various cities, towns and communities involved. This research will also identify the businesses and services present. Telephone interviews will then be conducted with key informants in the cities, towns and communities concerned, as well as with 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 workforce situation and the capacity of local/regional businesses and services to meet Torngat Metals' needs.

It's also important to mention that the data will be conducted using GBA plus, or CRGBA in the case of Indigenous communities, in order to assess the social-economic effects, - both positive and negative, on different population groups. Methods will be intersectional (including multiple identity factors) and community-dependent.

The study of human health, quality of life and psychosocial impacts will assess the potential effects of the project on the health and well-being of the local and regional communities (Indigenous and non-Indigenous) concerned. As the state of health of the population is not limited to physical well-being but is also influenced by a number of other factors linked both to individuals and to their economic, political and socio-cultural environment, the study will also assess the psychosocial effects likely to be generated by the project.

A Human Health and Environmental Risk Assessment (HHERA) was planned for the Quest Rare Minerals project in 2013. The first step was to develop a conceptual model for all project components, including the proposed mine site, the access road and a port. This conceptual model identified potentially hazardous contaminants (including radionuclides), ecological and human receptors potentially exposed to project activities, and exposure pathways to receptors selected for risk assessment. For the purposes of this ESIA, the conceptual model, based on the Quest Rare Minerals project, will need to be updated to reflect the planned activities for Torngat Metals, as described in the DPD. More specifically, a rare earths mining project raises questions about the toxicity and radioactivity of contaminants generated by the various phases of the project. These concerns were expressed during consultations held in the communities closest to the project in Quebec and Labrador. In the North, specific concerns relate to the consequences of mining activities on the quality of water, air, soil or plants, and possibly on the traditional diet of these populations (berries, caribou, fish). Consequently, a human health and environmental risk assessment (HHERA) will be an integral part of the impact study to be carried out for this project (see answers 8.2 and 8.3). This will make it possible to identify not only the contaminants of concern, but also the ecological and human receptors potentially exposed to the project's activities, and to identify the exposure pathways of the receptors selected for the risk assessment.

No studies on quality of life and psychosocial impacts were carried out for the Quest Rare Minerals project. A comprehensive study of human health, quality of life and psychosocial impacts will therefore be carried out as part of the current project.

The first step will be to establish a baseline survey: using available data, the baseline survey will describe the determinants of health, using indicators to identify the main characteristics of the environment in which the various components of the Torngat Metals project will be located. Various characteristics, and therefore health determinants, belonging to several domains (individual characteristics, living environments, systems and infrastructures, and overall context) will be documented. It should be noted that some of these characteristics will be covered by other studies, such as those concerning socio-economic conditions, air quality, water quality, the acoustic environment and the HHERA. The characteristics/determinants of health that will be documented transversally during the process include, but are not limited to: population health status (overall health, physical health and psychological health); individual characteristics (socio-economic characteristics, lifestyle habits and behaviors, including consumption of traditional foods where relevant); living environments (family environment, work environment, local community); systems and infrastructures (health and social services, employment support and social solidarity, housing); and overall context (socio-economic context, demographic context, environmental context).

In addition, the information presented in section 15.3 of the DPD will be completed during the course of the ESIA in order to provide a more accurate and up-to-date picture of the determinants of health. This portrait will include at least all the determinants listed in the paragraph above. For example, the health and social services available and the state of supply and demand for these services will be characterized using the most recent data available. This updating and refinement of data will be carried out through additional bibliographic research, as well as meetings and interviews with key informants in the affected communities. Methods will be intersectional (including multiple identity factors) and adapted to the concerns and realities of the communities concerned.

The second step will be to assess impacts on human health, quality of life and psychosocial impacts. These impacts will be assessed on those aspects of health determinants for which concerns will be expressed during Torngat Metals' information and consultation activities. To identify relevant issues and assess impacts on these issues, the concerns, perceptions, and potential consequences (reactions and actions) of the population regarding the project will be documented through interviews, as well as through stakeholder consultation activities, and then analyzed. It is therefore also important to mention that health profiles will be presented using gender-based analysis plus (GBA Plus), or culturally-relevant gender-based analysis (CRGBA), so that health and social effects, both positive and negative, and impacts on Indigenous populations and under-represented or more marginalized groups within the affected populations can be effectively assessed. Women, girls, young people, the elderly and people with different sexual identities experience development projects differently. The GBA Plus and, in the case of indigenous communities, the CRGBA will therefore make it possible to identify the negative effects of the proposed project on different population groups, and to develop appropriate mitigation measures.

12 Cumulative effects

SI 12.1 : Importance of considering cumulative impacts on all valued components.

A 12.1 :

Cumulative effects will be considered, as exposed in section 25 of the DPD. The projects considered will cover the ones highlighted in the following answers 12.2 and 12.3. The future projects to be developed will be added accordingly based on project boundaries and project timelines during the lifespan of the project (all phases included).

SI 12.2 :	Importance of considering the following projects for the cumulative effects assessment for the high purity separation plant in Sept-Îles: Kwyjibo mining project, Aluminerie Alouette and its expansion, Iron Ore Company installations including the mine tailing facility, the railway and port of Sept-Îles, Minerai de fer Québec concentrate installations, Mine Arnaud and the other future projects in the area. Where any of these projects are not considered in the cumulative effects assessment, a strong rationale is to be provided.

A 12.2 :

For the currently known projects in the vicinity of the separation plant, the following projects will be considered in the cumulative effects assessment in Sept-Îles:

1) Kwyjibo Mining Project, SOQUEM: located 125 km northeast of Sept-Îles, https://www.projet-kwyjibo.com/

2) Aluminerie Alouette (expansion): Located at Pointe-Noire, Sept-Îles, https://www.alouette.com/

3) Iron Ore Company (IOC), Rio Tinto: Sept-Îles, for port and QNS&L, https://www.ironore.ca/

4) Minerai de fer Québec, Filiale Champion Iron: 13 km north of Fermont (Lake Bloom), but using Sept-Îles port, https://mineraiferquebec.com/

5) Mine Arnaud: Sept-Îles (project on pause), https://aeic-iaac.gc.ca/050/evaluations/proj/63926?culture=fr-CA

As for the future projects in the area that are not yet public, they will be considered accordingly during the ESIA based on their locations, and timelines.

SI 12.3 :	Importance of considering the following projects in the cumulative effects assessment for the mine site and the road: the Crater Lake mining project, the Joyce Lake mining project, the Ashram mining project, the abandoned mines not yet rehabilitated, and the Voisey Bay mine. Where any of these projects are not considered in the cumulative effects assessment, a strong rationale is to be provided.

A 12.3 :

For the currently known projects in the vicinity of the mine, the following projects will be considered in the cumulative effects assessment for the project in the north:

1) Crater Lake Mining Project, Scandium Canada Ltd: located 100 km south of the mine site, 200 km northeast of Schefferville, https://scandium-canada.com/crater-lake/

2) Joyces Lake Mining Project, Joyce Direct Iron Inc: located 215 km southwest of the mine site, 20 km from Scheffeville, https://scandium-canada.com/crater-lake/ https://iaac-aeic.gc.ca/050/evaluations/proj/80015

3) Ashram Mining Project, Commerce Resources Corp: located 270 km northwest of the mine site https://commerceresources.com/projects/the-ashram-rare-earth-element-and-fluorspar-deposit/

4) Voisey's Bay Mine Project, Vale: at the eastern end of the Option A for the road corridor https://vale.com/voisey-s-bay

As for the abandoned mines not yet rehabilitated, they will be considered accordingly during the ESIA based on their locations, and timelines.

13 Accidents and malfunctions

SI 13.1 : Need for information on potential accident scenarios that could lead to the release of contaminants into the surrounding environment, cause environmental degradation and potentially contaminate the food chain.

A 13.1 :

As part of the emergency measures plan to be provided in the impact study, a HAZOPs exercise, which stands for Hazard and Operability Study, will be carried out for each of the plants, and for all aspects presenting a risk of contamination in the surrounding environment. A HAZOP is a systematic, structured approach used primarily in process industries such as chemicals, oil, gas and pharmaceuticals to assess potential risks and hazards. It is a means of guaranteeing safety and efficiency in the design and operation of any industrial facility.

A team of experts with various backgrounds (engineers, operators, technicians, environmental and health & safety) will identify and assess potential hazards and operational issues for each industrial site. This is essential to prevent accidents, ensure worker safety and protect the environment. Among the scenarios under study, an accidental spill will be one of the many risks assessed. The team will identify potential hazards and operational problems during this review. These scenarios may include equipment failure, human error or unexpected chemical reactions. Once the potential hazards have been identified, the team assesses the risks associated with them, the likelihood of a hazard occurring and the severity of its consequences. The final step is to propose ways of mitigating these risks. This may involve modifying plant design, updating operating procedures or implementing new safety measures.

All the conclusions and recommendations of the HAZOP analysis will be documented in detail. This documentation will serve as a guide for making any necessary changes, and also as a reference file for the next steps. The HAZOP plan must be assessed at various stages of a plant's life cycle, particularly when significant changes are made to the process or operations.

In addition to the HAZOP process, industrial facilities must comply with the provisions set out in federal regulation SOR/2019-51 - Environmental Emergency Regulations. This regulation requires facilities to develop specific emergency plans if a site exceeds a fixed quantity of a chemical listed in Schedule 1 of this regulation. If this is the case, an "E2" emergency plan must be developed, in which potential accident scenarios are modeled using tools such as PHAST.

SI 13.2 : Need for information on measures to be taken to avoid spills or accidents at the fuel station.

A 13.2 :

Federal (SOR/2008-197 - *Storage Tank Systems for Petroleum Products and Allied Petroleum Products Regulations*) and provincial (Régie du bâtiment du Québec) regulations will apply to the storage of petroleum products. This includes both aspect of spills and accidents (SOR/2011-90 - *Release and Environmental Emergency Notification Regulations*, SOR/2019-51 - Environmental Emergency Regulations, 2019), and the design of storage (CSA) and refueling systems. In this sense, industry best practices (BAT/BEP) for the storage and handling of hazardous materials will be considered.

In addition to emergency plans and procedures to be implemented upstream, direct measures such as the construction of channels and trenches around tanks will be implemented to direct the liquid flows. In the event of an overflow or spill, fuels will flow into these channels. The channels will be designed to manage the flow and direct it to treatment or containment areas. In addition, retention tanks will be placed under equipment likely to have minor leaks, such as flanges, valves or pump seals.

SI 13.3 :	Need for information on the response plans to accidents and malfunctions that could lead to the release of contaminants in the water or land around the mine site and the road (hydrocarbons and fuels, radioactive material, and other contaminants), and importance of considering the possibility of spills at temperature around -50°C.

A 13.3 :

The accident and malfunction response plan (emergency plan) provided as part of the ESIA will include a section on the main accidents' risks. Since most of the project will be carried out in a northern environment, contaminant release into water or soil around the mine site and road, which could occur at temperatures approaching -50°C, will be considered.

SI 13.4 : Need for information on the communication channels that will be set up to notify the authorities in the event of groundwater contamination.

A 13.4 :

The emergency measures plan to be provided as part of the impact study will comply with current laws, regulations, standards and best practices (BAT/BEP). This plan will identify all project's stakeholders contact point and responsibilities for the emergency measures plan, including the communications protocols. The roles and responsibilities of stakeholders will outline the steps to be undertaken, particularly in the case of groundwater contamination. This includes, by way of example, stakeholders, neighboring communities, First Nations and Inuit, government agencies (e.g. MELCCFP, Environment Canada, CNESST, MTMD).

SI 13.5 : Need for information about the potential impacts of marine shipping accidents and spills involving the transport of radioactive materials.

A 13.5 :

Although the Project plans for a negligible annual number of transport vessels (between 5 and 10) and the vessel will use an existing shipping lane, there are still potential risks and cumulative impacts associated with marine transport that could affect the coastal and marine environment along the route.

The risks of a mineral concentrate spill are generally due to a failure in the handling system or a loss during transport or handling of the concentrate. The small quantities of products involved, and the rarity of such events make it highly unlikely that a given environment will be contaminated by rare earth concentrates.

Since all shippers of cargoes to be loaded in Canadian waters must comply with the International Maritime Solid Bulk Cargoes Code (IMSBC Code) (which replaces the Code of Safe Practice for Solid Bulk Cargoes0), Torngat Metals will follow the Code. The main objective of the IMSBC Code is to facilitate the safe stowage and shipment of solid bulk cargoes by providing information on the hazards associated with the carriage of certain types of solid bulk cargoes and guidance on the procedures to be followed when he shipment of solid bulk cargoes is planned. The Hazard Assessment of Ores and Concentrates for Marine Transport: Guidance (2021) published by the International Council Mining & Metals (ICMM) will be used to evaluate the risks of the minerals transported by Torngat Metals, according to international evaluation standards. Hazard assessment of ores and concentrates is essential to ensure that potential environmental and health risks can be properly managed.

Torngat Metals will implement an emergency plan and comply with current acts, regulations, and guidelines to minimize the risk of spills in the environment. Thus, the potential impacts of marine shipping accidents and spills involving Torngat Metals' materials will be comprehensively addressed in the ESIA.

References

International Council Mining & Metals (ICMM) 2021. *Hazard Assessment of Ores and Concentrates for Marine Transport:* 2nd édition. London, Uk. 21.p.

International Maritime Organization (IMO) 2019. *International Maritime Solid Bulk Cargoes (IMSBC) Code*. [Online]: https://www.imo.org/en/OurWork/Safety/Pages/CargoesInBulk-default.aspx (Page consulted in March, 2024).

Transport Canada. 2024. *Cargoes and Ship-Port Interface.* [Online] : https://tc.canada.ca/en/marine-transportation/vessel-inspection-certification/cargoes-ship-port-interface.(Page consulted in March, 2024).

SI 13.6 : Concern about road safety in Labrador, considering the harsh weather conditions in the region, such as wind and storms. Importance of considering local and Indigenous Knowledge when constructing and operating the road.

A 13.6 :

The project study area encompasses a broad territory, and most of it is in northern Québec and Labrador. Therefore, the project is based on a planning and design incorporating northern conditions. Climatic normal for the last 30 years (1991-2020; Government of Canada, 2024) are analyzed, and a weather station has been established at the Mine Site in October 2023. All engineering aspects of the road is considering the worst-case scenario, and therefore including the harsh weather conditions of the region including wind, storms, snowpacks, etc.

The local and Indigenous knowledge is rich and will be included in early design. Local and Indigenous knowledge related to the territory crossed by the access road will be collected during a land use and Indigenous knowledge study, which will be conducted with the various groups concerned by the project, as well as during consultation and engagement activities that will be carried out with these same groups.

SI 13.7 : Need more information on truck load capacities and radioactive levels of the rare earth concentrate, and measures to adapt transport according to the different weather conditions.

A 13.7 :

Road weight limits are adjusted seasonally, particularly during the spring thaw, to prevent damage to the road(s). These adjustments are made because the ground becomes unstable due to the warmer weather leading to weakened roadbeds. The road is a private road, though Torngat Metals intends to generally follow the principles for load restrictions on public roads in order to limit any damage. Currently the road is designed for the larger loads to be transported in conditions when temperatures are below freezing, though this can vary subject to weather conditions in the preceding days.

The Canadian government implements a 70% load restriction during this period to protect roads. For example, if a tandem-tandem vehicle in Canada is normally allowed a maximum weight of 39.5t, during the thaw period, the limit is reduced to 27.65 t. The steer axle weight limit is reduced from 5.5t to 3.85 t, and the tandem axle weight limit is reduced from 17t to 11.9 t.

The load restrictions apply based on the legal axle loading as defined in the Commercial Transportation Act & Regulations. For instance, a 100% load restriction means you can carry legal axle weights, but overweight permits are no longer valid. A 70% load restriction reduces the legal weight for a tandem axle group from 17t to 11.9t, and a 50% load restriction reduces it further to 8.5t

These restrictions do not apply to all vehicles. Vehicles with a licensed Gross Vehicle Weight (GVW) of 5.5t or less, school buses, and vehicles operated by emergency vehicles and maintenance contractors are exempt. This exemption allows for essential maintenance and emergency response during times when road restrictions are in place, such as during the spring freshet, which can cause floods, mudslides, landslides, and rockslides.

As stated, this is deemed private road, so these limits do not necessarily apply as pronounced by the Ministry unless the road is adopted by the Province or NG. That said, it is in Torngat Metals primary interest that the road is not damaged. Torngat Metals will ensure road integrity is maintained for actual weather conditions by measuring the temperature of the road using frost probe weather stations and tracking the changes over time. This helps to identify trends and temperature ranges that increase moisture content in the roads, making them weak and susceptible to damage. Road restrictions can start later after a long, cold winter, or earlier in the case of a warm, wet spell during winter.

In spring, the road will be closed when it is melting. Transport can continue at night for a certain period, taking advantage of cold nights.

Vans and pick-ups will undoubtedly be able to travel on the road during the summer months, as will standard trucks. This though would be for smaller or ad hoc needs.

During operation, subject to agreement with communities Torngat Metals may continually improve the quality of the road and that will likely increase the ability to utilise the road and reduce total vehicles using the road at any moment in time by extending the months for use.

SI 13.8 : Need for more information on the probability and consequences of a tailings dam failure.

A 13.8 :

The residue will not be in the classic form of a wet slurry contained in a dam. Torngat Metals has elected to dewater their residue and storing them in the form of dry stack, containing approximately 15% to 20% of moisture (it will resemble sand) and will behave more like a solid, thus making it possible to stack them. This method of storing residue is more expensive to produce but bring considerable benefits. After placement, the low moisture residue is very stable and therefore significantly reduce the safety and environmental risks. Should there be a seismic event there will not be any dam breach and residues carried for long distance, instead, the pile may move a little akin to a wall falling during an earthquake. The use of covers during operation, will prevent the dry stack from rehydrating.

Another benefit of dry stacking is the significant reduction of seepage from the residue. That associated with the use of an engineered lining at the bottom of the residue and if needed the use of cement powder are additional mitigation measures that will be evaluated as part of the feasibility study and impact assessment to avoid ground water contamination.

14 Climate change and greenhouse gas emissions (GHG)

SI 14.1 : Concern and need for information on the stability of stockpiles (e.g., waste rock, tailings) and water management infrastructure, given the presence of permafrost in the project's region and risk of permafrost thaw.

A 14.1 :

Engineering projects in northern Canada face the challenge of permafrost in their foundation environment. The capacity of frozen ground to support these infrastructures depends mostly on regional climatic conditions, ground temperatures, soil properties (e.g. organic matter content in surface cover, soil texture, moisture content, etc.) and ground ice conditions (ground ice content and types of ground ice). To ensure the stability of stockpiles and water management infrastructure, the decision framework will be completed in accordance with the procedures contained in Canadian Standards Association published *CSA 4011 – Infrastructure in Permafrost: A Guideline for Climate Change*. This guideline was developed for community decision makers and geotechnical engineers with roles in planning so that the impacts of climate change on permafrost are considered during the siting, design, and management of new infrastructure in permafrost regions.

First, a desktop portion will be completed using public domain geological information on ground ice content, bedrock and surficial geology for the area provided by the Geological Survey (Natural Resources Canada), as well as other relevant publications that we may discover during execution of the work, a characterization of the study area will be conducted. Surface mapping will be developed using aerial images complemented by photogrammetry methods, as appropriate, supplemented by a limited site visit to observe landforms. Then, following CSA 4011 guidance and procedures, a climate change sensitivity decision framework will be developed. CSA 4011 provides, among other things, a process for ensuring climate change is incorporated into design and location decisions for infrastructure in northern environments.

SI 14.2 : Importance of considering the impacts of the project on permafrost thaw.

A 14.2 :

In permafrost regions, engineering projects pose challenges due to soil instability in response to climate change. However, it is also crucial to understand the impacts of construction practices (e.g. buildings, roads, pipelines, resource extraction, etc.) itself on permafrost thaw. Construction, often involving surface material removal, can lead to significant thermal disturbance and, depending on site-specific variables (snow cover, vegetation, organic cover, thermal properties of the soil or rock, proximity to water bodies, etc.), may cause substantial degradation or thermo-erosion. Since a number of geotechnical and engineering problems related to permafrost are caused by the water and/or ice content of permafrost, it will therefore be crucial to conduct a field-based investigations concentrating on characterization of near-surface conditions, mapping surficial geology, permafrost drilling operations, and geophysical investigations.

As previously mentioned, to ensure that the project does not contribute to permafrost degradation, decision-making processes will be completed in accordance with the procedures contained in Canadian Standards Association published *CSA 4011 – Infrastructure in Permafrost: A Guideline for Climate Change.* The climate change sensitivity decision framework is developed in two stages, and the first one will be particularly important to consider the project's impact on permafrost thaw. The objective of Stage 1 is that a project is assessed for both climate warming-induced sensitivity of its permafrost environment ("material sensitivity") and the eventual consequences of any permafrost-induced impact or failure. During Stage 1 the consequences of climate change vulnerability is evaluated through a qualitative risk ranking system where sensitivity is evaluated from Low to High and consequences assessed from Negligible to Catastrophic. Stage 1 includes the following steps: characterization of site, development of functional criteria, characterization of permafrost sensitivity to climate change, identification of relevant failures modes and climate change analysis resulting from the climate change screening process.

Designs for the Concentration Plant will consider potential permafrost in all stages of development. At the Separation plant permafrost is not present.

SI 14.3 : Importance of considering the impacts of permafrost changes on groundwater contaminant dispersion, and on watershed and fluvial geomorphology.

A 14.3 :

Hydrological processes in permafrost are typically limited due to its frozen nature. However, thawing of active layer and the ice content in the first meter of the ground can increase lateral hydraulic conductivity during the thaw season and can lead to movements of contaminant in groundwater, watershed, etc. Therefore, this will be an important issue to consider. As previously mentioned, to ensure that the project does not contribute to permafrost degradation and groundwater contaminant dispersion, decision-making processes will be completed in accordance with the procedures contained in Canadian Standards Association published *CSA 4011 – Infrastructure in Permafrost: A Guideline for Climate Change.* CSA will provide guidance and practical advice on location and design for infrastructure development, as well as climate change sensitivity decision framework.

SI 14.4 : Need additional information on permafrost conditions at the mine site, including a map of currently frozen and thawed areas.

A 14.4 :

Since a number of geotechnical and engineering problems related to permafrost are caused by the water and/or ice content of permafrost, it will therefore be crucial to conduct a field-based investigations concentrating on characterization of near-surface conditions, mapping surficial geology, permafrost drilling operations, and geophysical investigations. Field measurements of ground temperatures to understand the current situation of frozen and thawed areas will also be an essential contribution to the foundation design process to establish initial conditions for geothermal modelling and to determine the strength characteristics of the ground. This issue will be particularly important to consider, and this will be verified in the technical and environmental studies in the mine site.

SI 14.5 :	Need for information on the project's resilience to climate change and how this has been considered in the project design, including in the development of safety and response plans for accidents along the road, and water management and residue storage in Sept-Îles. Climate change can increase the likelihood and the severity of harsh weather conditions in the region which in turn can impact road conditions and increase the probability of accidents.

A 14.5 :

Climate change can have a wide range of adverse impacts on the components of this project. Namely, the increasing trend of temperature can potentially damage pavements, heavy rainfall events can cause flooding, and storms can bring debris and cause power outages. The future climate conditions will be assessed in a timeframe that corresponds to the asset life cycle, i.e., a potential renovation (mid-century) and a decommissioning (end of century). In a climate change risk and vulnerability assessment study, the local risks (from local climate variables) that intensify in the future will be analyzed. The outcome of this study is a series of recommendations that can be input to the design team. For instance, the increasing trend of rainfall can be communicated with the stormwater management team to integrate future extreme rainfall in the design of drainage systems and residue storage. Adaptation measures for this project will be categorized into three groups: Design (focuses on the update of design parameters), Operation and Maintenance (focuses on post-construction maintenance and asset management), and Policy (focuses on training or development of safety and response plans for accidents).

The analysis of projected future changes in the climate will be carried out using climate model projections for two ranges of emission scenarios also known as Representative Concentration Pathway (RCP). With the release of the IPCC’s Sixth Assessment Report (AR6) in 2021 and 2022, the IPCC replaced the RCPs with five Shared Socioeconomic Pathways (SSPs), which provide a range of plausible trends in the evolution of society over the twenty-first century (1-3 generations). These scenarios will be the intermediate scenarios SSP5-4.5 (RCP 4.5 equivalent) and the high emission scenario SSP5-8.5 (RCP 8.5 equivalent). Uncertainty, including estimates of the level of confidence in the projections of changes to the likelihood of a given climate hazard of interest will be evaluated. At the current stage of project development, Torngat Metals is planning to design its facilities based on the high emission scenario SSP5-8.5 (RCP 8.5 equivalent).

See the section 24.3.2.1 of the DPD for more details.

SI 14.6 :	Need further details on how the environmental follow-up/monitoring and restoration programs will be developed to achieve carbon neutrality by 2050. Importance of considering that the project may destroy greenhouse gas sinks and reservoirs.

A 14.6 :

A preliminary environmental monitoring program will be included in the impact study. This program will detail how (e.g. method, frequency, type of data) the proponent will compile and monitor its annual GHG emissions, but more importantly, its journey towards carbon neutrality by 2050.

The complete GHG inventory, which will be updated and included in the ESIA, will identify emissions generated by the alteration of carbon sinks and reservoirs, as presented in the section 23.6 of the DPD. This aligns with the methodology described by the *Draft technical guide related to the strategic assessment of climate change*, ECCC, 2021).

SI 14.7 : Importance of considering the cumulative effects and climate change when assessing impacts on Arctic char.

A 14.7 :

Cumulative effects and potential climate change impacts on Arctic char in Labrador will be considered during the ESIA. Cumulative effects will be addressed such as exposed in section 25 of the DPD, including projects in the study area and for the mine lifespan that would add pressure on the same arctic char population. As for climate change, it can have a wide range of adverse impacts on the components of this project and on the valued ecosystem components.

The Arctic char occupies a very significative value for the communities, including both the resident and the anadromous forms. As a cold-water species, the Arctic char is less resilient to global warming, and its adaptation to warmer water temperature is not a certainty.

Labrador is predicted to warm much more than the island portion of the province, according to provincial climate data that shows Nain could be 7.3 °C warmer in winter by 2050. Declines in the Arctic char population in Labrador are already reported and warming won't be helping in the mid to long term. Population shifting can be expected, with a loss in the southern range contraction to a northward shift. According to Bradbury, research scientist at Dept. of Fisheries and Oceans Canada in St. John's, scientific research on Labrador's Arctic char stocks is fairly thin, there is a lot of unknows in terms of understanding how many individuals are needed to secure the population and what the magnitude of these changes will be seen for decades to come, essentially (L. Bird, CBC News, 2021).

References

Bird, Lindsay. Jan 18 2021. CBC News. Labrador's Arctic char vulnerable to climate change, says new study. [Online]: https://www.cbc.ca/news/canada/newfoundland-labrador/arctic-char-labrador-climate-change-study-1.5871390

15 Radioactivity

SI 15.1 : Importance of considering all risks to human health and safety (workers and nearby residents) associated with the extraction, transportation, and concentration of radioactive materials and their release in the environment at the mine site, during transportation, and at the high purity separation plant in Sept-Îles.

A 15.1 :

An evaluation of the radioactivity of all process streams is underway. This will include the various grades of mineral, the various residues from sorting and concentration processes at the mine site and the various streams from the Separation Plant. The results of these evaluations will inform risk assessments and determine the level of safety measures required for workers interacting with these various fractions, as well the classification of the materials according to the federal and provincial regulations and guidelines. All federal and provincial regulations will be followed for all aspects related to the handling and transport of all components of the process. Details of the radioactivity of these fractions, relevant safety measures for each and the regulatory thresholds will be presented in the ESIA.

SI 15.2 : Concern about the presence and potential leakage of highly toxic and bioaccumulating heavy metals (mercury, cadmium, lead, arsenic and chromium) and radionuclides at the Sept-Îles plant and at the mine site.

A 15.2 :

Torngat Metals intends to implement the best practices and most reliable measures in the very design of its facilities to avoid any risk of contamination. With regard to residue management, residues from both mine site and separation plant in Sept-Îles will initially be subjected to a filtration and dewatering procedure to reduce as much as feasible their water content. Final water content will be below saturation at approximately 15% to 20%. The dry residues from the Separation Plant will be combined with cement powder (approximately 5 – 10%) to form a dry residue that is inert. These dry residues will be covered progressively as they are accumulated to limit water inputs to the residue pile. A collection system will be installed underneath to gather what minimal seepage could occur. This collection system will consist of a doubled waterproof lining and drainage layer (or other engineered lining evaluated as part of the feasibility study and impact assessment), below the stacked residues. A study of the risks of failure will be carried out as part of the impact study to identify the risk reduction measures to be implemented during the design phase, as well as any corrective measures to be taken during the operating phase.

Daily visual inspection of the residue's cover will verify compliance of each new layer of residue and confirm the integrity of the waterproof covering. Any damage to the cover noted during the daily inspection will be immediately repaired or a temporary mitigation measure will be put in place until permanent repairs can be done.

Collection ditches surrounding the residue stockpile will ensure that the minimal seepage from the residue piles will be directed to a collection basin. Collected water will be treated before being added to the process water system.

Industry best practices will be applied to the residues handling and storage. This includes water diversion to prevent contamination, and mitigation strategies such as using dry stack technology and covers to prevent water infiltration. The water that does come in contact with the residues will therefore be minimized and will be treated as appropriate for reuse in the process, depending on the water quality characteristics.

As previously mentioned in answer 8.2, human and ecological health are important priorities for Torngat Metals. Therefore, in addition to all the engineering measures described above, the risks to health and the environment that may potentially arise from project activities, both in the North and in the Sept-Îles region, will be rigorously assessed under the requirements of each of the ESIA processes to which the various project components are subject. This assessment will be carried out in the Human Health and Environmental Risk Assessment (HHERA) following the requirements of the applicable guidelines and according to best practice methodologies and Indigenous knowledge, particularly with regard to impacted environments, land use, sensitive receptors and food chains.

SI 15.3 : Concern about the presence of radioactive elements in the concentrate being shipped to Sept-Îles and the final tailings/residue at high purity separation plant in Sept-Îles. Concern about the security of the long-term disposal of material containing radionuclides.

A 15.3 :

Transport and handling

The radioactive elements in the Normally Occurring Radioactive Material (NORM) present for this project are Uranium and Thorium. The material will be transported using International and Canadian Regulations. The associated dose of the material in transport for the Public is expected to be no more than 0.3 mSv in a year, the guidelines identify the radioactive hazard associated with this dose is considered insignificant. That said, Shipments of NORM fall under federal transportation regulations, the Packaging and Transport of Nuclear Substances Regulations (PTNSR) and the Transportation of Dangerous Goods Regulations (TDGR). The TDGR outlines the responsibilities of the consignor, consignee and transporter and the PTNSR, which have been harmonized with the IAEA's Safety Standard No. SSR-6 (rev. 1) Regulations for the Safe Transport of Radioactive Materials, 2018 Edition, outline the packaging, labeling and manifesting requirements for a NORM shipment. Shipments of NORM fall under these regulations if:

- the activity concentration of the material exceeds 10 times the "activity concentration for an exempt material" values specified in the IAEA's Safety Standard No. SSR-6 (rev. 1) Regulations for the Safe Transport of Radioactive Materials, 2018 Edition; and
- the material is transported off site over public or privately owned land not controlled by the consignment owner.

Prior to shipment, the NORM material must be assessed to determine the activity concentration.

The IAEA's Safety Standard No. SSR-6 (rev. 1) Regulations for the Safe Transport of Radioactive Materials, 2018 Edition should be referenced for full definitions and context of use. SSR-6 (Rev. 1) is available for download from the IAEA website at *https://www-pub.iaea.org/MTCD/Publications/PDF/PUB1798_web.pdf*. An evaluation of the radioactivity of all process streams is underway that at this time we intend to continue on the basis that out of caution, we will follow the requirements of SSR-6 (Rev. 1) regardless of ongoing testing. This will include the all material from the mine site and tailing streams from the Separation Plant. The results of these evaluations will inform risk assessments and determine the level of safety measures required for workers interacting with these various fractions. All federal and provincial regulations will be followed for all aspects related to the handling and transport of all components of the process. Details of the radioactivity of these fractions, relevant safety measures for each and the regulatory thresholds will be presented in the ESIA.

Approach to Residue Management

Measures taken in the design of residue storage facilities to control risks have already been described in previous answers, in particular 1.35, 1.36 and 1.37. Long term stability of the final residues in Sept-Îles will be monitored to ensure stability over time. Furthermore, in view of the concerns raised in this regard, Torngat Metals is committed to examining possible storage alternatives that would allow for future exploitation of the stored residues.

Torngat Metal’s strategic approach to residue management centers around the adoption of intelligent and hybrid solutions. These solutions aim to maximize resource and water recovery while simultaneously optimizing operational costs. The three key practices within this approach are as follows:

- Residue Dewatering:
  - Use of high-capacity filtration solutions capable of achieving up to 90% water recovery in residues.
  - For instance, Inclined Plate Settlers (IPS) utilize 10% fewer chemicals and, due to their compact and efficient design, significantly reduce the plant footprint by 85%.

- Materials Handling:
  - Residue handling solutions encompass various techniques, including:
    - Conveying (Grasshopper Systems): Efficiently transporting dewatered residues.
    - Stacking and Reclaiming: Ensuring cost-effective storage and retrieval of residues.
    - Method of recovering resources contained in residues that could potentially be exploited in the future: Torngat Metals will explore and evaluate the feasibility of future recovery methods that can be foreseen at the design stage, as part of the handling optimization options. These methods must meet applicable regulatory requirements and not compromise storage safety.
- Reprocessing:
  - Extraction of valuable minerals from legacy residue storage facilities not only generates additional revenue but also contributes to the remediation of these storage sites.
  - As technology advances, we anticipate the emergence of viable reprocessing methods that could make this a viable alternative in the future.

By integrating these practices, Torngat aims to enhance sustainability, minimize environmental impact, and drive operational efficiency in residue management.

SI 15.4 :	Importance of considering the potential processing of radioactive materials and rare earth ore from other mines than Strange Lake at the Sept-Îles plant.

A 15.4 :

The Strange Lake Projet limits the Rare Earth Separation Plant in Sept-Îles to only process the concentrate from the Mine and Concentration Plant in Lake Brisson.

SI 15.5 : Need for information on the superbags, particularly their re-use, chemical composition, and their fate after use.

A 15.5 :

Testing of the concentrate is ongoing and subject to the final concentrate classification, and this will determine the final specification for the FIBC (Flexible Intermediate Bulk Containers) bags. Selection will be guided by the Canadian Regulations Volume III Transportation: Canadian Guidelines for the Management of Naturally Occurring Radioactive Materials (NORM). It should be noted that FIBC bags are placed within containers and then transported. The FIBC bags are not transported on low bed trucks.

Before final disposal the bags will go through a decontamination process. The process selected will depend on the final testing results which is still ongoing. Decontamination options that will be evaluated include:

- Mechanical including adding surfactants, abrasion, jets etc.
- Chemical.

Final disposal will then depend on the final level of decontamination achieved, though will of course be subject to Regulation regarding the NORM levels and requirements.

SI 15.6 :	Importance of considering the current radiation exposure of the populations of Sept-Îles, Uashat, Maniutenam and surrounding areas. Concern about the radiation the populations of Sept-Îles and Uashat would be exposed to, and the effects of radioactivity on the health of residents.

A 15.6 :

Background levels of radioactivity will be characterized at all sites. Monitoring stations for aerial and effluent sources of contaminants will be needed to ensure that any release remains below regulations regarding the NORM levels and requirements.

At this stage, it is expected that the radiation from the facilities should result in an annual effective dose to the Public will be below 0.3mSv per year. Below this level Canadian Regulations identifies the *"radioactive hazard associated with this dose is considered insignificant, and no further control on the material is necessary on radiological protection grounds"*. That said, given the concerns raised Torngat Metals intends to operate at the higher classification and implement a NORM Management Program that we can share with the public to alleviate these concerns.

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SI 15.7 :	Need to clarify the use of the term "natural radioactivity", which could mislead the public, as “natural” doesn't mean “harmless”.

A 15.7 :

Torngat Metals acknowledges the importance of tone during communications. Torngat Metals use of these terms is to be consistent with defined terms such that there can be no ambiguity. Torngat Metals will clarify the use of “natural” as:

Regulatory terms to be used:

NORM = Naturally occurring radioactive material for ore/waste rock

TENORM = Technologically Enhanced NORM.

It is recognised within these regulations that natural is not necessarily harmless. That said, it is important to provide the context of the impact and risk to the public. Providing context by comparison to everyday objects is seen as one method of communicating the level of risk to the public from this project.

SI 15.8 : Explain the decrease in thorium and uranium concentration (ppm) between the ore concentrate produced at the mine site and the final residue of the high purity separation plant in Sept-Îles.

A 15.8 :

As shown in Table 10-2 of the DPD, the net quantity (mass) of thorium and uranium is the same in the concentrate delivered at Sept-Îles separation plant and in the residues. Nothing is created, nothing is lost. The difference in concentration (ppm) can be explained by the fact that the total mass of residues, including elements of the concentrate that are unwanted in the products, residues of chemicals used for processing and added cement, is greater than that of the concentrate. As a result, thorium and uranium end up in a lower concentration.

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SI 15.9 :	Need for information to confirm secular equilibrium of all processes for thorium-232 and uranium-238, and all of their progeny.

A 15.9 :

An independent third-party expert and best practises will be employed for confirming secular equilibrium of all processes for thorium-232 and uranium-238, and all of their progeny.

SI 15.10 : Need to clarify the method used to determine the specific activity of each radionuclide.

A 15.10 :

All methods for determining radionuclides will follow analytical best practises for determining each radionuclide, as carried out by independent third-party analytical experts.

Specific activity represents the activity per unit mass of a radionuclide and is usually given in units of becquerel per kilogram (Bq/kg) or curie per gram (Ci/g). In the mining industry, determining the specific activity of radionuclides is crucial for assessing radiation exposure and ensuring safety of people and the environment. Specific methods commonly used could include:

5) Gamma Spectrometry: This technique measures the specific activities of natural radionuclides such in soil samples. By analyzing gamma radiation emitted from these isotopes, their presence and activity concentrations can be quantified.
6) Long-Lived Radioactive Dust (LLRD): During mining operations (drilling, blasting, ore handling), airborne dust containing radionuclides can be produced. LLRD, which includes isotopes like 238U, 234U, 230Th, 226Ra, and 210Po, could pose internal exposure hazards. Estimating dose conversion factors for dust will assist in assess the actual levels of risk.
7) Radiochemical Methods:
   - Direct Analysis: Measures the rate of disintegration of a radioactive isotope.
   - Neutron Activation: Involves irradiating a sample with neutrons to induce radioactivity, which can then be quantified.
   - Isotope Dilution: Diluting a known radioactive isotope with a non-radioactive one to determine its concentration.

SI 15.11 :	Need for information on the management and storage of separated radionuclides and radon gas, and on the monitoring of radon release and radioactivity emission levels during operation of the mine.

A 15.11 :

Storage options will be dependent on the levels of radioactivity in each of the various residues. Residue stockpiles will be monitored in-real time and managed according to Canadian NORM Guidelines as well as to the applicable regulations. At the present stage, it is expected that the levels of radioactivity in the residues (mine site and separation plant) will be well within the prescribed NORM dose threshold for the public exposure (‘unrestricted” status). Nevertheless, Torngat Metals intends to use “NORM management” status using a best-practise NORM management program as the higher case for the public given the concerns raised in the feedback.

A detailed monitoring program will be proposed in the ESIA. This program will include the monitoring of radon gas and radioactivity levels.

SI 15.12 :	Need more information on the risks of radioactive elements leaching into the environment, and mitigation measures to avoid those risks. Importance of discussing this topic with First Nations and Inuit.

A 15.12 :

Torngat Metals proposes to develop a combination of mitigation measures, along with public awareness and responsible practices, that will mitigate the risks associated with radioactive contamination in the environment. These measures would include:

Safe Storage and Disposal:

- Properly store and dispose of residue to prevent further contamination.
    1. Residues are placed avoiding the use of natural water bodies.
    2. At the proposed mine site, the dry stack is being stored at a higher elevation to keep precipitation and run-off minimised as well as increase the length to any potential area of concern.
- Implement controlled residue storage facilities with engineered lining as well liner covering of inactive portions of the storage areas will avoid leaching or flowing to water bodies.
    1. The contaminants can only “move” if there is a “pathway” and a method of “transport” for them. By covering the areas, this stops water acting as a “transport” (from rain and snow) for any potential contaminants.
    2. By placing the materials in engineered lined facilities this stops material being able to “flow” or move from the dry stack facilities.
    3. Use of cement also restricts the ability of the material to flow as it is bound together in a stronger matrix.

Monitoring and Control:

- Continuously monitor and control ensure the air, water, and land is kept clean.

    1. In the event that the controls fail, the monitoring will identify if a “leak” has occurred that will enable remediation including closing that cell to stop any further material or water increases; interception wells used to pull any contaminant flow into the operation and recirculate into the processing plant.

These proposed mitigation measures will be carefully explained and discussed with the communities and further inputs included within Torngat Metals mitigation processes.

16 Indigenous People rights and current use of lands for traditional purposes

SI 16.1 :	Need to take into account, respect and protect the rights and interests of First Nations and Inuit potentially impacted by the project during the consultation exercise, the project planning and the project development. Need for information on how existing agreements, including the James Bay and Northern Quebec Agreement, the Northeastern Quebec Agreement and the Labrador Inuit Lands Claims Agreement will be respected. Consultation, involvement and support offered to each First Nation and Inuit should reflect the importance of those protected rights.

A 16.1 :

Torngat Metals' engagement activities with Indigenous groups affected by the Strange Lake mining project have enabled us to identify their rights and interests, and to work with them to develop and implement work and study programs designed to respect these rights and interests. These include the development of protocols to avoid impacts on caribou during exploration work, the development of land use study methodologies, and the sharing of traditional knowledge to refine field inventory plans. Torngat Metals is also negotiating, and will continue to negotiate, private agreements (PDA, IBAs) with affected groups that recognize their rights and interests under existing treaties (James Bay and Northern Quebec Agreement, Northeastern Quebec Agreement, Labrador Inuit Lands Claims Agreement). Finally, Torngat Metals is committed to using all necessary and reasonable means to build and maintain transparent and harmonious relations with the Indigenous groups concerned, with a view to obtaining their free, prior and informed consent.

SI 16.2 :	Importance of conducting a thorough analysis of the potential impacts of all activities of the project on the rights and interests of First Nations and Inuit, including cultural activities, hunting, fishing, trapping, and harvesting rights (e.g. caribou hunting, displacement of fishing locations and harvesting of arctic char, salmon, etc.). This analysis must consider the right to use and manage their territory, harvest, and share country food between community members and Elders, and the maintenance of a healthy environment for future generations.

A 16.2 :

Torngat Metals has been able to develop methodologies for land use and Indigenous knowledge studies as part of its engagement activities with Indigenous groups affected by the Strange Lake mining project. As a result, all the groups concerned have the opportunity to choose the preferred mode of participation, whether it be taking full charge of these studies or participating directly in support of the teams mandated by Torngat Metals to carry out these studies. All environmental components valued by the Indigenous groups concerned will receive special attention, meaning that all inventories and analyses will be carried out in conjunction with these groups. Indigenous groups in Quebec and Labrador have already identified the species that are central to their way of life and diet, including caribou, salmon and arctic char.

SI 16.3 :	Concerns about the potential of the project to have negative and irreversible impacts on terrestrial wildlife (caribou, geese, ducks, partridges, etc.) and fish (Brook trout, arctic char, Atlantic salmon, etc.) habitats, spawning, and migration, that could result in permanent or temporary habitat lost, displacement and health impact. This can have effects to First Nations and Inuit rights.

A 16.3 :

As mentioned in section 21 of the DPD, the activities carried out during the various phases of the Strange Lake Rare Earth Mining Project could disturb certain species used and valued by Indigenous groups, such as caribou, waterfowl, Atlantic salmon and Arctic char. The noise, dust and vibrations generated during the various phases of the project could affect the resources (animal and plant) harvested and/or valued by Indigenous users, which could consequently hinder the practice of certain traditional activities, such as hunting, fishing, trapping or gathering. It is also possible that Indigenous groups may reduce or even cease the practice of certain traditional activities for fear of resource contamination (proven or not) linked to the project.

As part of the Strange Lake mining project's ESIA, interviews will be conducted with Indigenous managers and land users to gain a clear picture of current and projected land use and the plant and animal species that could potentially be affected by the various phases of the project. In particular, the interviews will aim to document the areas frequented, used and valued species, the seasons when these species are used, and the intensity of use of these species. Knowledge of the species harvested and/or valued by Indigenous groups will also be collected.

At the same time, biophysical specialists will assess the effects the project could have on the various species harvested/valued and their habitats. It will then be possible to determine whether, and if so how, they might be affected by the project. It will then be possible to identify the measures to be put in place to eliminate or, at the very least, mitigate the potential effects of the project on the species used and valued by the local people. This will ensure that the effects of the project on the practice of traditional activities, and on the health of the Indigenous populations concerned, are kept to a minimum.

SI 16.4 :	Importance of taking into account that the construction and operation of the road in Labrador can have adverse effects on First Nations and Inuit traditional territories and livelihood both in Labrador and in Quebec. The road could impact multiple ponds and rivers, including the rivers that flow in the Voisey's Bay area. It would impact important fishing areas for First Nations and Inuit, including the Ikadlivik Brook. These impacts should be considered for the construction and operation phases, and in case of accidental spills.

A 16.4 :

The design of the access road is based on a single lane that follows Forestry standards as opposed to highway designs. The majority of road use will only be during 3 to 5 of the winter months per year. In order to limit the impact of access road construction and operation on the environment, as well as on land use by the various Indigenous groups concerned, two road options were considered. The two road alignments considered were established to avoid watercourse crossings as much as possible. The ESIA will determine which option will have the least impact on the natural environment and on Indigenous land use. Furthermore, Torngat Metals has already initiated discussions with the various Indigenous groups concerned to improve the two routes under study. These discussions are still ongoing and could lead to further changes on road alignments.

SI 16.5 : Need for information on potential change to indigenous seasonal land use trails and travel routes.

A 16.5 :

It is possible that the activities carried out as part of the various phases of the project will have an impact on the traditional activities practised by the Indigenous groups concerned. As a result, access to land and resources, and subsequently hunting and travel routes, may be temporarily impeded or altered.

As mentioned in the DPD, a land use and Indigenous study was carried out in 2012-2013 as part of the Quest Rare Minerals project. During this study, interviews were conducted with knowledge holders in each community to better document land use, including the use of trails and access roads to the territory. Since the territory covered by these components largely corresponds to that of the northern components of the current Torngat Metals project (mine site, seasonal access roads, and storage and handling area at Edward Cove or port facilities), the 2012-2013 study gives a good idea of the travel routes used at the time by Indigenous groups in these areas. The Inuit of Nunavik and the Innu of Quebec had not carried out any recent activities in these areas, and therefore did not use any travel routes in or near the areas affected by the various project components. Naskapi users from Quebec and Innu users from Labrador travelled to the area of the proposed mine site, and in the vicinity of the planned road corridor, for a variety of activities, including caribou hunting in winter and waterfowl hunting in spring. Snowmobile routes used by Naskapi users passed over Brisson Lake (near the proposed mine site) and crossed the central portion of the planned road corridor. On the Labrador Innu side, snowmobile trails also crossed Brisson Lake, as well as the central and eastern portions of the identified road corridor (near Ikadlivik brook). Boat trips were also made all around Anaktalak Bay, with the exception of Edward Cove, which was not accessible due to Vale's port and shipping activities there (AECOM, 2013). Anaktalak Bay and the corridor identified for road development were heavily used by Nunatsiavut Inuit, who engaged in activities there at different times of the year. In summer and autumn, they travelled by boat in the northern and western portions of Anaktalak Bay. In winter and spring, they travelled by snowmobile in the same area, as well as in Edward Cove, and in several places along the corridor identified for the construction of a road. However, no travel routes were identified on the proposed mine site (Nunatsiavut Government, 2015).

A new land use study will be carried out as part of this project to update the data collected in 2012-2013 (based on the new configuration of the Torngat Metals project and on current and projected use by the various Indigenous groups involved), as well as to document use of the Rare Earth Separation Plant area in Sept-Îles, which was not part of the Quest Rare Minerals project. Interviews will therefore be conducted with Indigenous managers and land users to document current and projected use of the areas affected by the various project components. The data collected will include, among other things, information on the use and frequentation (annual and/or seasonal) of the various travel routes used (roads, access roads, snowmobile trails, ATV trails, navigation routes, etc.). With a good understanding of the areas used and the routes taken by each of the Indigenous groups, it will then be possible to determine how the project could lead to a modification of access routes to the territory. Mitigation measures can then be developed in conjunction with the various Indigenous groups concerned.

References

AECOM. 2013. *Strange Lake-B Zone: Social Environment Baseline Studies. Land Use and Traditional Knowledge - Mine Site, Road Corridor and Port Site*. 69 p.+ appendices.

Nunatsiavut Government. 2015. *Nunatsiavut Land Use, Knowledge and Connection to Place Study.* Report prepared for the Nunatsiavut Government in response to request by Quest Rare Minerals Inc. 136 p.+ appendices.

SI 16.6 :	Concerns about the cumulative impacts of the project, including the construction and operation of the road and infrastructures, on the rights of First Nations and Inuit, including traditional and harvesting activities and land use as it could lead to an accelerated development in the region.

A 16.6 :

As mentioned in section 25 of the DPD, the cumulative effects of the project and other completed and planned development projects will be considered in the ESIA. In particular, the effects on land use by Indigenous communities will be considered.

SI 16.7 : Importance of considering the social, historical, cultural and economic context of each community in the assessment of the potential impacts of the project on First Nations and Inuit Rights.

A 16.7 :

Torngat Metals acknowledges that the Indigenous groups affected by the Strange Lake Rare Earth Mining Project, namely the Inuit of Nunavik (those of Kuujjuaq and Kangiqsualujjuaq), the Inuit of Nunatsiavut (Nain, Hopedale, Makkovik, Rigolet and Postville), the Naskapi of Kawawachikamach, the Innu of Quebec (those of Matimekosh - Lac John and Uashat mak Mani-utenam) and the Innu of Labrador (Sheshatshiu and Natuashish) have different socio-cultural, economic, historical and political characteristics.

The ESIA will include a presentation on each of the Indigenous communities affected by the project. This will cover not only the socio-economic and socio-health conditions present in each community, but also their historical, social and cultural context. It is also important to note that the description of the socio-economic and socio-sanitary conditions of Indigenous communities, as well as the assessment of the effects of the Torngat Metals project on them, will consider culturally relevant gender-based analysis (CRGBA) (Indigenous Women's Association of Canada, 2020a; 2020b). CRGBA takes into account the historical and current issues facing different segments of the Indigenous population (including women, girls, youth, seniors and people with different gender identities), including the historical and ongoing effects of colonization and intergenerational trauma.

References

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020A. *Indigenous Women and Impact Assessment.* Final report. [Online]: https://www.canada.ca/content/dam/iaac-acei/documents/research/nwac-impact-assessment-final-report-fr.pdf (Page consulted in December 2023)

Indigenous Women's Association Of Canada/L'Association des femmes autochtones du Canada. 2020b. *Getting Started Kit. Culturally Relevant Gender-Based Analysis (CRGBA): Introduction, integration and examples of use.* [Online]: https://stbbi.nwac.ca/wp-content/uploads/2021/03/NWAC_CRGBA_2020_FR_Final_Web-1.pdf (page consulted in December 2023)

SI 16.8 : Importance of considering the historical and current mining context, including the abandoned mining sites not yet rehabilitated, when assessing the cumulative effects of this project on First Nations and Inuit.

A 16.8 :

As indicated in section 25 *Cumulative Effects* of the DPD, the ESIA's cumulative impact analysis will identify other activities or development projects (past, present or future) likely to affect the valued components of the biophysical environment, the social environment and the socio-economic and socio-sanitary conditions of Indigenous communities. These include various mining projects (past, present and planned), notably in the Voisey's Bay region by Vale Inco, around Schefferville by Labrador Iron Mines and Tata Steel Minerals Canada, in the Sept-Îles region (Mine Arnaud, Labrador Iron Mines and Tata Steel Minerals Canada), and further east on the North Shore of the Gulf of St. Lawrence (Kwyjibo mining project). In addition, a number of unclaimed former exploration or mining sites are located on territories occupied and frequented by the various Indigenous groups affected by the project. In particular, there are many unrehabilitated sites on land used by the Innu and Naskapi around the town of Schefferville. The various impacts of mining development (past, present and projected) will therefore be considered in assessing the cumulative effects of the Strange Lake Rare Earth Mining Project on Indigenous groups.

SI 16.9 :	Importance of considering the impacts of climate change in the cumulative impacts of the project on First Nations and Inuit. Amongst other things, it has become harder to hunt and fish and community members have to go further inland to practice their traditional activities.

A 16.9 :

The section of the ESIA dealing with cumulative impacts will consider the effects of climate change. Among other things, it will look at the effects of climate change on the presence and distribution of wildlife species valued by Indigenous communities, as well as the impact this could have on the traditional activities of these groups, such as hunting, fishing and trapping.

SI 16.10 : Need more information on the methodology used by the proponent to assess the value to the land used by First Nations and Inuit that might be potentially impacted by the project.

A 16.10 :

As part of the ESIA, a land use study concerning the land affected by the various project components (the proposed mine site, the seasonal access road, the handling and storage facilities at Edward Cove or the port facilities at Voisey's Bay, as well as the Sept-Îles Rare Earth Separation Plant) will be carried out with the Indigenous groups concerned: the Inuit of Nunavik (Kuujjuaq and Kangigsualujjuaq), the Naskapi of Kawawachikamach, Quebec Innu (Matimekush-Lac John and Uashat mak Mani-utenam), Nunatsiavut Inuit (Nain, Hopedale, Makkovik, Postville and Rigolet) and Labrador Innu (Sheshatshiu and Natuashish). In addition to documenting the current and projected use of the territory by these different groups, this study will also gather information about their knowledge of the territories concerned, as well as the animal and plant species found there.

The first stage of the study will consist of interviews with local managers who have a good knowledge of land use in each of the Indigenous communities concerned. These interviews will form the starting point of the study and will provide an overview of the situation. They will also enable us to identify the various studies that may have been carried out by the communities, or in collaboration with them, concerning their knowledge or their occupation and/or use of the territories concerned by the present project. These initial interviews will also make it possible to determine whether these territories (or their surroundings) have been visited by members of these communities in recent years. Where appropriate, more detailed interviews will be conducted with local land users (people practising traditional or recreational activities on the land concerned). The number of users to be interviewed will be determined with the various communities concerned, according to the intensity of use. The choice of users to be interviewed will also be made in consultation with each of the communities concerned. People of different genders and ages will be identified to ensure good representativeness and to take into account the points of view of different sections of the population. Informants may be interviewed individually or in small groups. If necessary, interviews will be conducted in the interviewees' mother tongue, with the help of a local interpreter.

Interviews with land users will aim to provide a good description of current use of the areas concerned by the present project (areas visited, activities carried out, resources used or harvested, length of stay, season or period of use, approximate number of users frequenting the area, activities planned for future years, etc.). The various interviews conducted during the study with local managers and land users will also enable us to gather their expectations and concerns regarding the present project. In addition, relevant information concerning traditional knowledge (such as valued species and locations, etc.) will be collected during interviews with local managers and land users.

Some Indigenous groups may decide to carry out (in whole or in part) their own portion of the land use/Indigenous knowledge study. This is notably the case for the Inuit of Nunatsiavut, who will conduct the land use study according to the rules laid down by the Nunatsiavut Research Centre.

All the information gathered during the land use and Indigenous knowledge study will be used to assess the effects of the Strange Lake mining project and identify appropriate mitigation measures.

For each of the Indigenous groups involved in the study, it is planned that the entire process will be overseen by a steering committee made up of representatives of the Indigenous group, representatives of the promoter and representatives of AECOM's research team. The methodology employed, the subjects to be covered and the choice of informants to be interviewed will all be determined by these committees. Subsequently, the assessment of the project's impacts on land and resource use will also be presented to each of the committees. At the same time, improvement or mitigation measures designed to limit or eliminate the project's impacts will be developed, taking into account the issues raised by the various informants met during the study, as well as the expectations and concerns raised during the study and during engagement activities held within the communities concerned. The development of enhancement and mitigation measures will be overseen by steering committees established with the various Indigenous groups concerned.

SI 16.11 : Need more information on the mitigation measures to be put in place to limit the impact of the project on First Nations and Inuit, including the prevention strategies, monitoring procedures, enforcement and follow-up measures. Importance of including information on the mitigation measures to limit and avoid impacts on First Nations and Inuit after mine closure.

A 16.11 :

The Strange Lake Rare Earth Mining Project is likely to have various effects on the social environment within the affected Indigenous communities. These effects could affect the local and regional economy, local activities, social cohesion, local and regional infrastructures, psychosocial conditions and human health. Several potential impacts or types of impacts, as well as various measures that could be implemented to curb or limit them, are described in sections 19, 21, 22 and 25 of the DPD. Completion of the ESIA will shed more light on the subject and enable us to clearly identify each of the project's potential impacts on the social environment. The ESIA will also enable us to develop appropriate mitigation measures. These measures will be developed in conjunction with the various Indigenous communities concerned. However, a few measures aimed at limiting the impacts associated with project closure have been identified on a preliminary basis and could potentially be implemented:

- Accompany the Indigenous communities concerned in the economic downturn that could follow the project's closure, and participate in the development and implementation of a transition program;
- Set up funds to be paid to the various communities at project closure to help with the transition;
- Establish follow-up programs with the various Indigenous groups concerned, to be implemented during mine construction, operation and closure;
- Develop the closure program for the various project components, particularly the mine site, in conjunction with the Indigenous groups concerned.

SI 16.12 :	Importance of conducting an updated land use study and archaeological assessments to better understand the past and present use of the site that could be impacted, including near Lake Brisson. Need more information on the methodology to be used for those studies and the moment they will be conducted.

A 16.12 :

As mentioned in section 15.1 of the DPD, a land use and Indigenous knowledge study will be conducted as part of the ESIA. In particular, this study will document current and projected Indigenous use of territories potentially affected by the project (including Brisson Lake and the surrounding area). In addition, as mentioned in section 15.4 of the IPD, a study will also be carried out to identify and document the presence of archaeological resources in the areas that will be affected by the various project components.

The land use study will be carried out with the various Indigenous groups concerned: the Inuit of Nunavik (mainly those of Kangiqsualujjuaq), the Inuit of Nunatsiavut, the Naskapi nation of Kawawachikamach, the Innu of Quebec (Matimekush - Lac-John and Uashat mak Mani-utenam), and the Innu of Labrador. The study will document the current and projected use of the territories concerned by the various project components, as well as gather information on Indigenous knowledge relating to the territories concerned, and the plant and animal species found there.

For each of the Indigenous groups involved in the study, it is planned that the entire process will be overseen by a steering committee made up of representatives of the Indigenous group, representatives of the promoter and representatives of AECOM's research team. The methodology employed, the subjects to be covered and the choice of informants to be interviewed will all be determined by these committees. It is also possible that certain Indigenous groups will themselves carry out (in whole or in part) the portion of the study on land use and Indigenous knowledge that concerns them. This is notably the case for the Inuit of Nunatsiavut, who will conduct the land use study according to the rules laid down by the Nunatsiavut Research Centre.

The first step in the study of land use and Indigenous knowledge will be to conduct interviews with local managers with a good knowledge of land use in each of the Indigenous communities concerned. These interviews will form the starting point of the study and will provide an overview of the situation. They will also enable us to identify the various studies that may have been carried out by the communities, or in collaboration with them, concerning their knowledge or their occupation and/or use of the territories concerned by the present project. These initial interviews will also make it possible to determine whether these territories (or their surroundings) have been visited by members of these communities in recent years. Where appropriate, more detailed interviews will be conducted with local land users (people practising traditional or recreational activities on the land concerned). The choice and number of users to be interviewed will be determined with the relevant management committees, depending on the intensity of use. People of different genders and ages will be identified to ensure good representativeness and to consider the points of view of different sections of the population. Participants may be interviewed individually or in small groups. If necessary, interviews will be conducted in the interviewees' mother tongue, with the help of a local interpreter.

Interviews with land users will aim to provide a good description of current and projected use of the areas concerned by the present project (areas visited, activities carried out, resources used or harvested, length of stay, season or period of use, approximate number of users frequenting the area, activities planned for future years, etc.). The various interviews conducted during the study with local managers and land users will also enable us to gather their expectations and concerns regarding the present project. In addition, relevant information concerning traditional knowledge (such as valued species and locations, etc.) will be collected during interviews with local managers and land users.

To ensure that the study of land use and Indigenous knowledge respects the ethical principles of research involving human subjects, a number of arrangements will be made in close collaboration with the various indigenous communities concerned. Given the diversity of the Indigenous groups targeted by the project, ethical principles on ownership, control, access and possession (OCAP®) of data will therefore be established in accordance with their respective protocols or their own confidentiality laws (FNIGC/CGIPN, 2023). These protocols may include guidelines for the collection, use, interpretation and protection of indigenous knowledge. For this reason, the proponent will first discuss with each of the Indigenous groups (via the steering committees) how best to carry out the land use/Indigenous knowledge study. It is already foreseeable, however, that the participants interviewed will be asked to consent to the use of the information provided for the study report in a consent form.

At the end of the inventory, the information gathered concerning land use and occupation, as well as Indigenous knowledge, will be presented to the relevant management committees. The project's impact on Indigenous land use will then be assessed. The impact assessment will also be presented to each committee. At the same time, improvement or mitigation measures designed to limit or eliminate the project's impacts will be developed, considering the issues raised by the various informants we met during the study, as well as the expectations and concerns raised during the study and during engagement activities held within the communities concerned. Improvement and mitigation measures will be developed in conjunction with the steering committees established with the various Indigenous groups concerned.

As for archaeology, a general assessment of archaeological potential will be carried out for each location affected by the various project components, i.e. the mine site, the proposed seasonal road corridors, the storage and handling area at Edward Cove or the port facilities at Voisey's Bay (both options are being studied), as well as the area planned for the Sept-Îles Rare Earth Separation Plant. A 50 m buffer zone will also be considered, to include any archaeological potential that may be found around the periphery of these various components. The overall assessment will:

- provide information on the geography and history of the areas affected by the project, as well as on the current state of the territory;
- provide information on any archaeological work that may have been carried out in the areas concerned;
- identify and map known archaeological sites, areas of archaeological potential and features of archaeological potential in the areas concerned;
- determine whether there is a potential for archaeological sites on the territories concerned and propose a field inventory if necessary;
- work in collaboration with Nunatsiavut Government archaeologists and other concerned Indigenous groups to recommend appropriate strategies for field inventory, if required;
- comply with the technical requirements of federal, provincial and territorial legislation to conserve and protect the environment in accordance with Indigenous knowledge, culture and values.

The review will focus on publicly available data. The following sources will be examined:

- aerial imagery and ArcGis data where available;
- archaeological databases of Quebec (ISAQ) and the Nunatsiavut Government (a database covering all of Labrador);
- previous archaeological research and anthropological studies;
- historical reviews and publications ;
- websites of Labrador and Quebec tourism businesses and associations (e.g. outfitters, AllTrails, etc.);
- information on hunting, trapping, fishing and other traditional or recreational uses obtained through previous anthropological research.

The information gathered during the scoping study will then be validated during a field assessment. The field assessment will be carried out under permits issued by the *Provincial Archaeology Office (PAO)* of Newfoundland and Labrador, the *Department of Language, Culture and Tourism* of the Nunatsiavut Government, and the *Ministère de la Culture et des Communications* du Québec. In addition, it will follow all the standards and guidelines of the *Archaeological Exploration Permit Regulations* under the *Historic Resources Act* (Government of Newfoundland and Labrador, 1990*),* the *Labrador Inuit Land Claims Agreement Act* (Government of Canada, 2005) and the *Cultural Heritage Act* (MCCQ, 2012).

The field assessment will validate the presence of archaeological resources in previously identified potential areas. It will also include a visual inventory of all areas potentially affected by the project. It will also include surveys[12] in areas identified as having the potential to host unrecorded archaeological sites. More specifically, it will allow:

- to carry out a primary visual inspection at the proposed mine site and to dig systematic test pits;
- to carry out an excavation at the HbDa-b site identified during the 2011-2012 Quest Rare Minerals project surveys,
- to assess the extent of known archaeological sites in the areas affected by the project (notably site HcCm-08, an important archaeological site located at Edward Cove);
- to carry out a primary visual inspection of the new seasonal road corridors (options A and C) by helicopter, and dig systematic boreholes (at 10 m intervals on a single transect in the center of selected areas);
- to carry out a primary visual inspection of the Sept-Îles, the Rare Earth Separation Plant site in conjunction with a physical field inventory consisting of systematic boreholes with multiple transects.
- to carry out excavations on any archaeological sites known or discovered during surveys, which will be disturbed (i.e. if avoidance is impossible) during the various phases of the project.

The method used for site excavations will be as follows:

- Removal of the vegetation covering the remains;
- Stripping of the first stratigraphic layers;
- If possible, set up a geolocalized grid by surveyors;
- Removal of the stones forming the vestige, with notes and photographs of each level of stone removed;
- If possible, remove the sediments that make up the soil (earth or sand) in successive, even layers, using tools adapted to the terrain;
- Note-taking, photography and drawings throughout the excavation to place artifacts and remains in context;
- Application of field-appropriate short- and long-term conservation measures to artifacts discovered;
- Study and analysis of field data and artifact collection;
- Drafting of the excavation report, which will attempt to reconstruct human behavior according to the material traces recovered.

[12] Boreholes will be 40 cm in diameter and dug to a depth determined to be free of possible human occupation, or until bedrock is reached. They will be examined for traces of fill, stratigraphy or archaeological features. All excavated soil will be screened with 6 mm wire mesh to facilitate artifact recovery. The test pits will then be backfilled.

The archaeological data gathered during the potential study and field surveys will be integrated into a georeferenced database. This data will also be used in drafting the ESIA to assess the project's potential impact on archaeological resources. Appropriate mitigation measures will then be developed to minimize the impact of the project on identified archaeological resources, or on those that may be discovered incidentally during the various phases of the project.

References

First Nations Information Gouvernance Centre/Le Centre de Gouvernance de l'Information des Premières Nations (FNIGC/CGIPN). 2023. *First Nations Principles of OCAP®*. [Online]: https://fnigc.ca/fr/les-principes-de-pcap-des-premieres-nations/ (Page consulted in December 2023).

Government of Canada. 2005. *Labrador Inuit Land Claims Agreement Act*. S.C. 2005, c. 27. Current to 2023-05-17. [Online]: https://laws-lois.justice.gc.ca/eng/acts/L-4.3/ (Page consulted in January 2024)

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Ministère de la Culture et des Communications du Québec (MCCQ). 2012. *Cultural Heritage Act*. Chapter P-9.002. [Online]: https://www.legisquebec.gouv.qc.ca/en/pdf/cs/P-9.002.pdf (Page consulted in January 2024)

SI 16.13 : Importance of considering Indigenous traditional practices when determining the navigability of a waterway.

A 16.13 :

As mentioned in the DPD, a land use and Indigenous knowledge study was carried out in 2012-2013 as part of the Quest Rare Minerals project. One of the objectives of this study was to describe the historical, current and projected use of the areas likely to be affected by the project components: the mine site, the road corridors and the port infrastructures. Since the territory affected by these components largely corresponds to that of the components of the current Torngat Metals project, the 2012-2013 study gives a very good idea of the use of the current study area up to 2012-2013 by various Indigenous groups, Nunavik Inuit (mainly Kuujjuaq and Kangiqsualujjuaq), Nunatsiavut Inuit (Nain, Hopedale, Makkovik, Rigolet and Postville), Kawawachikamach Naskapi, Quebec Innu (mainly Matimekosh - Lac John) and Labrador Innu (Sheshatshiu and Natuashish). The 2012-2013 study, however, does not provide information on the use of the Sept-Îles Rare Earth Separation Plant area, as this component was not part of the Quest Rare Minerals project.

Historically, navigation activities were practised on the waterways located within the territory likely to be affected by the current project, notably by the Naskapi and Labrador Innu (mainly from the community of Natuashish) in the area of the proposed mine site, as well as by the Nunatsiavut Inuit and Labrador Innu (mainly from the community of Natuashish), in and around Edward Cove, Voisey’s bay and on Reid and Ikadlivik brooks.

More recently, the Naskapi have been boating on Mistinibi and Cananée lakes (located some 15 km south of the proposed mine site), since they operated an outfitting operation in this area until the late 1990s. Boating activities took place there during guided fishing trips or during the Naskapi employees' free time. In the early 2000s, the outfitter's facilities were used to introduce young people from Kawawachikamach to life on the land, leading to further boating activities on Canané and Minstinibi lakes. Sporadic boating activities subsequently took place on these same lakes, as well as on Brisson Lake, by Naskapi employed by non-Indigenous outfitters, mining exploration companies or provincial ministries. On the Labrador coast, more recent navigation activities have been carried out by the Inuit of Nunatsiavut and the Innu of Labrador in Anaktalak Bay (including Edward Cove), Voisey Bay, as well as on Reid and Ikadlivik brooks.

As part of the ESIA for the Strange Lake Rare Earth Mining Project, a new study will be conducted with the various Indigenous groups concerned to describe their current and projected use of the territories likely to be affected by the various project components (the proposed mine site, the seasonal access road, the handling and storage facilities at Edward Cove or the port facilities at Voisey's Bay, as well as the Sept-Îles separation and purification plant). To this end, we will meet with land managers and land users to discuss a range of topics, such as the areas frequented, the activities practised, the harvested resources, the camps and campsites used, and the travel routes used. This last point will make it possible to determine whether navigation is practised or planned on the various waterways that cross or border the sectors concerned by the various project components. Interviews with Indigenous land managers and users will also help identify navigation-specific issues that could arise in connection with the Torngat Metals project.

At the same time, the ESIA will describe the effects of the project on the various components of the water environment, such as the water table, watersheds, average flows and water levels on the surrounding watercourses. By coupling this information with that concerning current and projected navigation, it will then be possible to assess the effects of the project on the navigability of the waterways. The ESIA will also describe the intensity, extent and duration of these effects, in order to assess their significance.

17 Indigenous People physical and cultural heritage, structure, site or thing that is of historical, archaeological, paleontological or architectural significance

SI 17.1 : Importance of considering the George River not only as a habitat to some keystone species of fish, but also as a historically and culturally significant place for First Nation and Inuit. Burial grounds and archaeological artifacts can be found along the George River and its shorelines.

A 17.1 :

Torngat Metals is aware of the historical and cultural significance of the George River, and in particular of Indian House Lake. The area to be considered for the land use and Indigenous knowledge study will encompass Indian House Lake, including the Wedge Point area. However, the study area for archaeology will include all areas where soil could potentially be disturbed during the various phases of the project. As these areas are all well away from the George River, there are no plans to carry out archaeological studies in the vicinity of this river during the ESIA.

SI 17.2 : Need more information on the archaeological work planned near the mine site and the road and on the archaeological sites discovered by the proponent.

A 17.2 :

A general assessment of archaeological potential will be carried out for each location affected by the various project components, i.e. the mine site, the proposed seasonal road corridors, the storage and handling area at Edward Cove or the port facilities at Voisey's Bay (both options are being studied), as well as the area planned for the Sept-Îles Rare Earth Separation Plant. A 50 m buffer zone will also be considered to include any archaeological potential that may be found around the periphery of these various components. The overall assessment will :

- provide information on the geography and history of the areas affected by the project, as well as on the current state of the territory;
- provide information on any archaeological work that may have been carried out in the areas concerned;
- identify and map known archaeological sites, areas of archaeological potential and the characteristics of archaeological potential in the areas concerned;
- determine whether there is a potential for archaeological sites on the territories concerned and propose a field inventory if necessary;
- work in collaboration with Nunatsiavut Government archaeologists and other concerned Indigenous groups to recommend appropriate strategies for field inventory, if required;
- comply with the technical requirements of federal, provincial and territorial legislation to conserve and protect the environment in accordance with Indigenous knowledge, culture and values.

The review will focus on publicly available data. The following sources will be examined:

- aerial imagery and ArcGis data where available;
- archaeological databases of Quebec (ISAQ) and the Nunatsiavut Government (a database covering all of Labrador);
- previous archaeological research and anthropological studies ;
- historical reviews and publications ;
- websites of Labrador and Quebec tourism companies and associations (e.g. outfitters, AllTrails, etc.);
- information on hunting, trapping, fishing and other traditional or recreational uses obtained through previous anthropological research.

The information gathered during the scoping study will then be validated during a field assessment. The field assessment will be carried out under permits issued by the *Provincial Archaeology Office (PAO)* of Newfoundland and Labrador, the Department of Language, Culture and Tourism of the Nunatsiavut Government, and the *Ministère de la Culture et des Communications du Québec*. In addition, it will follow all the standards and guidelines of the *Archaeological Exploration Permit Regulations* under the *Historic Resources Act* (Government of Newfoundland and Labrador, 1990*),* the *Labrador Inuit Land Claims Agreement Act* (Government of Canada, 2005) and the *Cultural Heritage Act* (MCCQ, 2012).

The field assessment will validate the presence of archaeological resources in previously identified potential areas. It will also include a visual inventory of all areas potentially affected by the project. It will also include surveys[13] in areas identified as having the potential to host unrecorded archaeological sites. More specifically, it will allow:

- to carry out a primary visual inspection at the proposed mine site and to dig systematic test pits;
- to carry out an excavation at the HbDa-b site identified during the 2011-2012 Quest Rare Minerals project surveys,
- to assess the extent of known archaeological sites in the areas affected by the project (notably site HcCm-08, an important archaeological site located at Edward Cove);
- to carry out a primary visual inspection of the new seasonal road corridors by helicopter, and dig systematic boreholes (at 10 m intervals on a single transect in the center of selected areas);
- to carry out a primary visual inspection of the Sept-Îles Rare Earth Separation Plant site in conjunction with a physical field inventory consisting of systematic boreholes with multiple transects.
- to carry out excavations on any known archaeological sites or sites discovered during surveys, which will be disturbed (i.e. if avoidance is impossible) during the various phases of the project.

The method used for site excavations will be as follows:

- Removal of the vegetation covering the remains;
- Stripping of the first stratigraphic layers;
- If possible, set up a geolocalized grid by surveyors;
- Removal of the stones forming the vestige, with notes and photographs of each level of stone removed;
- If possible, remove the sediments that make up the soil (earth or sand) in successive, even layers, using tools adapted to the terrain;
- Note-taking, photography and drawings throughout the excavation to place artifacts and remains in context;
- Application of field-appropriate short- and long-term conservation measures to artifacts discovered;
- Study and analysis of field data and artifact collection;
- Drafting of the excavation report, which will attempt to reconstruct human behavior according to the material traces recovered.

The archaeological data gathered during the potential study and field surveys will be integrated into a georeferenced database. This data will also be used in drafting the ESIA to assess the project's potential impact on archaeological resources. Appropriate mitigation measures will then be developed to minimize the effects of the project on identified archaeological resources, or on those that may be discovered incidentally during the various phases of the project.

[13] Boreholes will be 40 cm in diameter and dug to a depth determined to be free of possible human occupation, or until bedrock is reached. They will be examined for traces of fill, stratigraphy or archaeological features. All excavated soil will be screened with 6 mm wire mesh to facilitate artifact recovery. The test pits will then be backfilled.

References

Government of Canada. 2005. *Labrador Inuit Land Claims Agreement Act*. S.C. 2005, c. 27. Current to 2023-05-17. [Online]: https://laws-lois.justice.gc.ca/eng/acts/L-4.3/
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Government of Newfoundland And Labrador. 1990. *Historic Resources Act*. RSNL1990 Chapter H-4. [Online] : https://www.assembly.nl.ca/legislation/sr/statutes/h04.htm
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Ministère de la Culture et des Communications du Québec (MCCQ). 2012. *Cultural Heritage Act*. Chapter P-9.002. [Online]: https://www.legisquebec.gouv.qc.ca/en/pdf/cs/P-9.002.pdf
(Page consulted in January 2024)

SI 17.3 :	Concern about the potential changes to the location and access to historical camp sites, to ancestral and historical travel routes and on landscape. Importance of considering mitigation measures for those aspects.

A 17.3 :

As mentioned in the DPD, it is possible that the activities carried out as part of the various phases of the project will have an impact on the occupation and use of the territory by the Indigenous groups concerned. For example, travel routes on the territory could be temporarily impeded or modified. It is also possible that access to traditional camp sites and camps could be temporarily interrupted, due to certain work activities, or even permanently.

A land use study will be carried out as part of the ESIA. In particular, it will document the current and projected use by Indigenous people of territories potentially affected by the various project components during the preparation, construction, operation and closure phases. Interviews will therefore be conducted with Indigenous managers and land users. In particular, data will be collected on the use and frequentation (annual and/or seasonal) of traditional campsites and camps, as well as on the various travel routes used (roads, access roads, snowmobile trails, ATV trails, navigation routes, etc.). With a good understanding of the areas occupied and used, as well as the travel routes used by each Indigenous group, it will then be possible to determine how the project might affect these elements.

As mentioned in section 19.2 of the DPD, mitigation measures will be developed to limit or even eliminate the impact that the various phases of the project could have on travel routes, as well as on camps and camp sites frequented by Indigenous groups. These measures will be developed in consultation with the Indigenous groups concerned. However, various measures that could potentially be implemented have already been identified by the proponent, including :

- Inform Indigenous communities, businesses and organizations of the work schedule and potential risks to users, and maintain contact with them throughout the various phases of the project to enable them to identify any problems related to the use of roads, camps and campsites;
- Install signs indicating the presence of work zones close to travel routes, to inform users likely to travel there or engage in activities in the vicinity;
- Fencing off work areas;
- Maintain accessibility in areas not targeted for work;
- In the event of temporary or permanent disruption to travel routes, plan bypass routes or new safe routes in conjunction with indigenous community authorities or other relevant stakeholders. Inform the population concerned of these bypass or new routes.
- Throughout the various phases of the project, regularly inform workers of the potential presence of Indigenous users in the area concerned, particularly along the travel routes used;
- Implement measures to limit the impact of shipping on the activities of indigenous groups in the bays concerned;
- Restrict machinery traffic to work areas.

18 Public and Indigenous Engagement and Consultation

SI 18.1 : Need for the proponent to meet and discuss with First Nations and Inuit the appropriate way to consult each community. The proponent is invited to consult the comments shared by First Nations and Inuit on the Canadian Impact Assessment Registry regarding how they want to be consulted.

A 18.1 :

Torngat Metals has developed and implemented a robust engagement program with Indigenous groups affected by the Strange Lake mining project. This program includes a variety of activities adapted to the expectations and operating methods of these groups. For example, Torngat Metals has held community meetings, met with representatives of Indigenous authorities, created and mobilized liaison committees, and established specific relationships with key local managers such as those involved in employment and training, and environment and land management. In addition, Torngat Metals intends to set up a consultation program that will include group discussions with different segments of the Indigenous population, who could be differentially affected by the project, such as Elders, young people or women. Torngat Metals will also take into account all suggestions from members of Indigenous groups to encourage their consultation and participation in the project.

SI 18.2 :	Importance of consulting and engaging, early and in a thorough and comprehensive manner during all stages of the impact assessment, with First Nations and Inuit potentially impacted by the project. Communications must be open, honest and continuous throughout the process. Importance of reviewing and discussing information on First Nations and Inuit with the concerned communities before they are published.

A 18.2 :

Torngat Metals intends to implement best practices in consultation and engagement with affected Indigenous groups, not only during the ESIA, but also throughout the various phases of the project. The principles of openness and transparency, as well as considering the expectations and concerns of Indigenous groups, are at the heart of Torngat Metals' approach to information and communication. In particular, Torngat Metals has set up a website (Plan Engage) giving Indigenous groups easy access to the various documents (reports, maps, etc.) produced as part of the project. In addition, Torngat Metals intends to set up steering committees to promote the transmission and exchange of information between the company and the Indigenous groups concerned. As part of the natural environment inventory activities carried out in 2023, Torngat Metals shared information on caribou movement observations with the Indigenous groups concerned. The concerns and opinions expressed by the Indigenous groups were also considered when organizing and carrying out the field campaigns. These initiatives are in keeping with the spirit of transparency and collaboration valued by the company.

SI 18.3 :	Importance for the proponent to commit to obtaining the explicit consent of First Nations and Inuit that are potentially impacted and consider the social acceptability of the project by First Nations and Inuit, before developing its project.

A 18.3 :

Torngat Metals is committed to implementing the necessary and reasonable means to build transparent and harmonious relations with the Indigenous groups concerned, with a view to obtaining their free, prior and informed consent. Torngat Metals understands that this consent is an important step towards the social acceptability of the project. This commitment will be enshrined in the private agreements that Torngat Metals intends to sign with the Indigenous groups concerned.

SI 18.4 : Importance of sharing and communicating in both official languages and in local Indigenous languages so that First Nations and Inuit, including Elders, can fully understand and participate in all stages of the project.

A 18.4 :

During all consultation activities with the various Indigenous communities concerned, as well as during the studies conducted with the populations of these communities as part of the ESIA (particularly those concerning land use and Indigenous knowledge), translation services will be provided to enable all participants, including Elders, to express themselves in the language of their choice and to fully understand what is being discussed. Translation services will also be provided at all public information meetings related to the Torngat Metals project.

Summaries of the ESIA will be translated into Nunavik Inuktitut and Labrador Inuktitut, as well as Naskapi and Innu Aimun, and sent to the various Indigenous communities affected by the project.

SI 18.5 :	Importance of diminishing the major barriers preventing Indigenous women and other marginalized identities from getting involved in impact assessments by providing, amongst other things, in-person engagements, childcare available at engagements, adequate time to review long technical documents, and adequate consideration of Indigenous knowledge.

A 18.5 :

Torngat Metals understands that it is more difficult for certain groups within a community to participate fully in the project's consultation and mobilization process. These include women, the elderly and youth, or people with little or no command of English and French. As a result, Torngat Metals has put in place various measures to encourage their effective participation. These include, but are not limited to: simultaneous translation services during public and group meetings in Indigenous communities; measures or compensation to enable community members (especially women) to have their children looked after while they participate in consultation and engagement activities; broadcasting information and consultation sessions on local radio to reach people who cannot attend in person; allowing community members the time they need to consult relevant documentation and express their views. These measures are examples of how Torngat Metals intends to encourage the participation of women and marginalized groups. Other relevant and appropriate measures may be developed and implemented in consultation with the communities concerned.

SI 18.6 : Importance of consulting First Nations and Inuit on fieldwork assessments and inventories, given their knowledge of the area, the environment and the wildlife.

A 18.6 :

The area affected by the various components of the Strange Lake mining project is frequented by various Indigenous groups. As a result, they have developed extensive knowledge of the area and the species found there.

Since each Indigenous group has its own unique knowledge, interviews will be conducted with members of each group to document their knowledge of the territory and the various plant and animal species likely to be affected by the Torngat Metals project. These data will be added to those drawn from the most up-to-date scientific literature, as well as those gathered during the various field inventories conducted by AECOM biologists, to produce a baseline report on the status of environment and wildlife in the project area. It is also planned that inventories and activities under the ESIA will be overseen by steering committees established with each of the Indigenous groups concerned, namely the Nunavik Inuit, the Naskapi Nation of Kawawachikamach, the Nunatsiavut Inuit, the Quebec Innu and the Labrador Innu. Each of these committees will be made up of representatives of the Indigenous group concerned, representatives of Torngat Metals and representatives of AECOM's research team. The methodology employed and the areas to be covered during the various field inventories will be discussed within this committee, and the results of the inventories carried out will be presented. Mitigation and protection measures aimed at limiting or eliminating the project's impacts on caribou will then be developed in conjunction with these various steering committees.

A committee has already been set up in Kangiqsualujjuaq and another in Kawawachikamach. The Kawawachikamach committee has been working on plans for the summer 2023 inventories to ensure that Naskapi knowledge of caribou is considered in the application of impact avoidance and minimization measures. As well, Torngat Metals has already contacted Indigenous research centers such as those in Nunavik and Nunatsiavut to identify existing sources of information that could be shared with AECOM's research team. Discussions are also underway to develop collaborations for future field inventories.

SI 18.7 : Need more information on the proponent’s plan to involve and work with community environmental monitoring working groups.

A 18.7 :

Discussions will be initiated with each of the Indigenous groups concerned to identify whether community working groups on environmental monitoring exist. Where appropriate, these will be consulted during the various stages of the ESIA and the project.

It is also planned to set up steering committees for each of the Indigenous groups involved in the study. These groups will be made up of representatives of the Indigenous group concerned, representatives of the promoter and representatives of AECOM's research team (who will only be present during the ESIA). The steering committee meetings will involve the various Indigenous groups concerned in the ESIA process and subsequent environmental follow-up. They will not only allow us to consider the elements brought forward by Indigenous groups, but also to ensure that they are fully involved in the process. In addition, these meetings will provide an opportunity to develop measures to be implemented or modifications to be made to the project to address issues identified by Indigenous groups, or to explain why comments made cannot be taken into account.

SI 18.8 :	Importance of considering existing data, such as land use study, as well as new data, including Indigenous Knowledge, to better understand the potential impacts of the project on First Nations and Inuit rights including current use, as well as physical and cultural heritage, and to develop mitigation measures.

A 18.8 :

As part of the ESIA, studies will be carried out to determine the Project's impact on the quality of life and socio-economic conditions of the various Indigenous groups concerned, as well as on their use of the land and resources.

For each of the Indigenous groups concerned, it is planned that the entire process will be overseen by steering committees made up of representatives of the Indigenous group concerned, representatives of the promoter and representatives of AECOM's research team. The methodology used, the subjects to be covered and the informants to be met will all be determined by this committee. Indigenous committee members will then be able to identify any background studies or assessments that the research team will need to consult in order to properly identify and document the issues related to the project, as well as the expectations, concerns and perceptions of the population(s) concerned. This will also limit the fatigue associated with consultation within the various communities, since the use of existing data will limit the solicitation of key informants, particularly land users.

SI 18.9 : Importance of considering Indigenous Knowledge for all aspects of the project, including the construction and operation of the road.

A 18.9 :

During the course of the ESIA, Indigenous knowledge will be taken into account and incorporated into the study results. To this end, a study of Indigenous knowledge will be carried out among the various groups concerned. The preparation of this study and the analysis of the resulting data will involve not only social environment specialists, but also biological and physical environment specialists, to ensure that Indigenous knowledge is taken into account in all facets of the ESIA.

Indigenous knowledge will be considered not only during the ESIA, but also throughout the various phases of the project, as part of the environmental monitoring programs. This will enable us to identify any issues that may arise along the way, and to discuss the strategies to be adopted with the various Indigenous groups concerned. These discussions will take place through the local monitoring committees we plan to set up with the various Indigenous groups involved. These committees will include representatives of the Indigenous group concerned, representatives of Torngat Metals, and representatives of AECOM's research team (who will only be present during the ESIA). The follow-up committee meetings will involve the various Indigenous groups concerned in the ESIA process and subsequent environmental follow-up. They will not only ensure that the input provided by Indigenous groups are considered, but also ensure that they are fully involved in the process. In addition, these meetings will provide an opportunity to develop measures to be implemented or modifications to be made to the project to address issues identified by Indigenous groups, or to explain why comments made cannot be taken into account.

SI 18.10 : Need to clearly define the methodology used to collect, protect, and respect Indigenous knowledge.

A 18.10 :

As part of the ESIA, a study of land use and Indigenous knowledge will be carried out with the Indigenous groups concerned. In addition to documenting the current and projected use of the territory by these various groups, this study will also gather information on their knowledge of the territories concerned, as well as the animal and plant species found there.

The first stage of this study will be to conduct interviews with local managers with a good knowledge of land use in each of the Indigenous communities concerned. These interviews will form the starting point of the study and will provide an overview of the situation. They will also enable us to identify the various studies that may have been carried out by the communities, or in collaboration with them, concerning their knowledge or their occupation and/or use of the territories concerned by the present project. These initial interviews will also make it possible to determine whether these territories (or their surroundings) have been visited by members of these communities in recent years. Where appropriate, more detailed interviews will be carried out with local land users (people practising traditional or recreational activities on the land concerned). The number of users to be interviewed will be determined with the various communities concerned (via steering committees), according to the intensity of use. The choice of users to be interviewed will also be made in consultation with each of the communities concerned. People of different genders and ages will be identified to ensure good representativeness and to take into account the views of different sections of the population. Informants may be interviewed individually or in small groups. If necessary, interviews will be conducted in the interviewees' mother tongue, with the help of a local interpreter.

Interviews with land users will aim to provide a good description of current use of the areas concerned by the present project (areas visited, activities carried out, resources used or harvested, length of stay, season or period of use, approximate number of users frequenting the area, activities planned for future years, etc.). The various interviews conducted during the study with local managers and land users will also enable us to gather their expectations and concerns regarding the present project. In addition, interviews with local managers and land users will provide relevant information on knowledge of the area and the plant and animal species found there (such as valued species, valued locations, etc.).

Informants (managers and users) interviewed will be asked to consent to the use of the information provided for the study report. They will also have to consent to their image being used in this same document if photos are taken during the interviews. A consent form will be prepared for this purpose. This form will specify that the participant;

- was fully informed of the progress and objectives of the study;
- agrees to participate in the study;
- may refuse to answer any question, terminate the discussion at any time and ask questions of the interviewer or representative during the interview or meeting;
- understands that the information provided will be used exclusively for this study;
- consent to the use of the information provided in this study for the preparation of a public report.

The data collected during the interviews will be used only for the purposes of the ESIA. All source data, including interview notes, audio recordings of interviews, photos, inventory maps, synthesis maps and geomatic databases produced, will be returned to the Indigenous communities concerned at the end of the ESIA[14] . AECOM and Torngat Metals undertake not to keep any copies of the material collected from the various Indigenous informants interviewed, and not to proceed with any publication without the authorization of the Indigenous group(s) concerned.

[14] How and to whom this data will be provided remains to be determined in conjunction with each of the Indigenous communities concerned.

Furthermore, AECOM undertakes not to carry out any mandate for another client based on information gathered in the community without the authorization of the Indigenous group(s) concerned.

The methodology presented here can be adapted according to the requests of the various Indigenous groups concerned. It is also possible that certain Indigenous groups will themselves carry out (in whole or in part) the portion of the study on land use and traditional knowledge that concerns them. This is notably the case for the Inuit of Nunatsiavut, who will conduct the land use/traditional knowledge study in accordance with the rules laid down by the Nunatsiavut Research Centre. All the information gathered during the land use and indigenous knowledge study will be used to assess the effects of the Strange Lake Mining Project and identify appropriate mitigation measures.

For each of the Indigenous groups involved, the entire process will be overseen by a steering committee made up of representatives of the Indigenous group, representatives of Torngat Metals and representatives of the AECOM research team. The methodology employed, the topics to be covered and the choice of informants to be interviewed will all be determined by these committees. At the end of the inventory, the information gathered on land use and occupation, as well as Indigenous knowledge, will be presented to each of these committees. An assessment of the project's impact on land and resource use will also be presented to each of these committees. At the same time, measures aimed at limiting or mitigating the project's impacts will be developed, taking into account the issues raised by the various informants we met during the study, as well as the expectations and concerns raised during the study and during engagement activities held within the communities concerned. These measures will be developed in conjunction with the steering committees set up with the various Indigenous groups concerned.

SI 18.11 : Importance of considering OCAP principles (ownership, control, access, possession) when integrating or adopting Indigenous knowledge.

A 18.11 :

Indigenous knowledge is one of the elements that will be taken into account during the Strange Lake Mining Project ESIA. Provisions to protect Indigenous knowledge will be established in collaboration with the various Indigenous communities concerned.

As each Indigenous group has its own unique knowledge, the communities affected by the various project components (the proposed mine site, the seasonal access road, the handling and storage facilities at Edward Cove / the port facilities at Voisey's Bay, as well as the Sept-Îles Rare Earth Separation Plant) will be engaged separately as part of the land use and Indigenous knowledge study. The study will be carried out with the same Indigenous groups met in 2012-2013 as part of the Quest Rare Minerals project (AECOM, 2013), in order to update information on land use, with the exception of the Nunatsiavut Inuit, who will conduct their own study according to the rules laid down by the Nunatsiavut Research Centre. In addition, since the Sept-Îles Rare Earth Separation Plant was not part of the Quest Rare Minerals project, a land use and indigenous knowledge study of the Uashat mak Mani-utenam Innu will be carried out to describe their potential use of the area around the proposed mine site, as well as the area around the proposed Separation Plant in the city of Sept-Îles.

The information gathered during the land use and Indigenous knowledge study will aim to provide a detailed description of the use of the various sectors affected by the present project, and will cover, among other things, the areas and sites used and occupied, the resources harvested, the species and places valued, as well as knowledge relating to certain animal and plant species likely to be affected by the project.

Given the diversity of the Indigenous groups involved, ethical principles regarding ownership, control, access and possession (OCAP®) of data will be established at the outset of the project, in accordance with the respective protocols of each of the Indigenous groups involved, or their own confidentiality laws (FNIGC/CGIPN, 2023). These protocols may include guidelines for the collection, use, interpretation and protection of Indigenous knowledge. As a first step, the proponent will discuss with each Indigenous group how best to conduct the land use/Indigenous knowledge study with a view to including Indigenous knowledge in the assessment process. The Indigenous groups involved will need to determine with Torngat Metals how this data will be collected, protected, used and shared. The First Nations of Quebec and Labrador Research Protocol (APNQL, 2014), which aims to regulate and frame research activities that take place on First Nations territory, proposes model agreements covering data sharing, data confidentiality and security, informed consent for the participant, as well as the conduct of the research, which can be used - if applicable - by the First Nations of Quebec and Labrador that are targeted by the project. As stated in the *Document d'orientation : Pratiques visant la protection du savoir autochtone confidentiel en vertu de la Loi sur l'évaluation d'impact* (Governement du Canada, 2023), while protocols regarding Indigenous knowledge may be provided in writing, there may also be oral traditions, including unwritten rules or protocols, which may also be considered.

As indicated in the DPD, Torngat Metals also plans to identify studies that may have been carried out by, or in collaboration with, the Indigenous group(s) concerned, concerning their knowledge and/or use of the land. If an Indigenous group or groups are willing to share these studies, the Indigenous knowledge derived from them will also be the subject of an agreement with the group or groups concerned as to how this information will be used, interpreted and protected as part of the ESIA.

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SI 18.12 : Importance of engaging with the public earlier in the impact assessment.

A 18.12 :

Torngat Metals recognizes the importance of engaging the public from the earliest stages of the project. Even before the project was registered, Torngat Metals implemented an engagement plan with the Indigenous groups concerned. Several visits and meetings were held in the Indigenous communities of Quebec and Labrador to present the project to the people and gather their questions, expectations, and concerns. A record of these activities is presented in Appendix C of the DPD.

SI 18.13 : Concern about the social acceptability of the Project in Sept-Îles.

A 18.13 :

The social acceptability of the Sept-Îles Rare Earth Separation Plant is one of the project's major challenges. Torngat Metals has developed a stakeholder mobilization plan, taking into account the recommendations of municipal authorities, in order to respond to the expectations and concerns of civil society and institutional stakeholders. Public information meetings will be organized and held in Sept-Îles starting in the first quarter of 2024. These will be followed by meetings with targeted groups, such as citizens' associations and environmental groups. Also, to encourage dialogue with the local population, Torngat Metals will open a place of business in Sept-Îles in the first quarter of 2024. Citizens will be able to visit the site to obtain further information about the project, or to express their expectations or concerns.

Appendix B
List of the Information and Consultation Activities Held by Torngat Metals with the Indigenous Groups and Stakeholders since 2022

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2024-01-15	Land Holding Corporation (LHC) Kangiqsualujjuaq	Virtual	Individual meeting	Next visit in Kangiqsualujjuaq; consultation with radioactivity specialists in Université Laval
2024-02-13	Land Holding Corporation (LHC) Kangiqsualujjuaq	Virtual	Individual meeting	Next visit in Kangiqsualujjuaq; agenda and logistics
2024-02-29	Land Holding Corporation (LHC) Kangiqsualujjuaq	Virtual	Individual meeting	Next visit in Kangiqsualujjuaq; agenda and logistics
2024-03-18	Land Holding Corporation (LHC) Kangiqsualujjuaq, Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Community assembly	Community presentation with a PowerPoint.
2024-03-18	Land Holding Corporation (LHC) Kangiqsualujjuaq, Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Liaison committee meeting	Follow-up meeting with the Kangiqsualujjuaq Liaison Committee. Agenda: Project Update, answers to previous questions and concerns, 2024 summer work programs, engagement with other Indigenous groups, Next actions with the committee
2024-03-19	Land Holding Corporation (LHC) Kangiqsualujjuaq, Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Liaison committee meeting	Debrief meeting on the community meeting and discussion on land use study, potential PDA and economic benefits.
2023-05-04	Administration portuaire du Saguenay, Développement économique Sept-Îles, Port de Sept-Îles, Promotion Saguenay, Société du Plan Nord	Sept-Îles	Site visit	•Site selection process for rare earth metals purification plant •Site visits over 3 days (visiting 1 site per day) with selected stakeholders
2023-06-05	Atmacinta	Virtual	Individual meeting	- Receive preliminary comments of the Naskapi on the Torngat Metals 2023 summer program - Identify a date and time to discuss the program with the Naskapi leadership
2023-07-10	Atmacinta	Virtual	Individual meeting	The Naskapi suggest to wait early August to begin the exploration works at the Lake Brisson in order to avoid any impact on ther caribou during the calving season. 3 concerns regardins Torngats Metals mitigation measures to protect the caribou: the avoidance radius seems to be to short; not clear what Torngat Metals is doing with the incidental observations; the Naskapi consider that the planned caribou survey in the fall is not necessary. Concerns to be discussed at the next caribou group meeting to be organized as soon as possible.
2023-02-20	Atmacinta, Kawawachikamach Village	Virtual	Group meeting	•Establish initial contact with a representative of the Naskapi leadership •Identify a potential date and location for an initial meeting with Naskapi leadership •Gather preliminary information on Naskapi expectations and concerns •Information of interest: the Federal is now consulting the Indigenous groups about the EA harmonization process; the Naskapi will soon have in the community a training session on environmental related jobs
2023-09-22	Building Trades Council – Indigenous	HV-GB Labrador	Meeting	•Key organization for recruitment of Indigenous employees, and support to employees throughout employment •Well integrated and partnered with other support organizations, including LATP, TSI, Women in Resource Development (WRDC), Association of New Canadian (ANC)
2024-02-28	Bureau des droits territoriaux de Uashat mak Mani-Utenam	Sept-Îles	Individual meeting	Presentation of the Torngat Metals project and discussion on the future community engagement
2023-11-01	Canadian Minister O'Regan official	St. John's	Meeting	•Labrador opportunities •Funding programs accessed •Critical minerals strategy alliance
2024-02-21	Chambre de commerce de Sept-Îles-Uashat mak Mani-utenam	Sept-Îles	Individual meeting	Meeting with General Manager John Blanchette to present the project and receive suggestions for future consultation activities.

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-11-02	College of North Atlantic officials	St. John's (CIMM conference)	Meeting	•Opportunities: mining engineering technicians training; industry led innovation; green transition funding; increasing female participation; experienced consultants and expertise in the province
2024-03-05	Conseil Régional de l'environnement de la Côte-Nord, Corporation de protection de l'environnement de Sept_Iles (CPESI), AECOM, Ville de Sept-Îles, Port de Sept-Îles, Torngat Metals	Sept-Îles	Group meeting	Group meeting with various stakeholders already briefed on the project to discuss environmental and technical issues and concerns relating to the project. Accompanied by an attached PP Presentation.
2024-02-28	Conseillère municipale Sept-Îles	Sept-Îles	Individual meeting	Presentation of the Torngat Metals project and potential environmental impacts and mitigations
2024-02-28	Corporation de développement économique de Uashat mak Mani-Utenam	Sept-Îles	Individual meeting	Presentation of the Torngat Metals project and potential economic benefits for uashat mak Mani-Utenam
2024-02-21	Corporation de protection de l'environnement de Sept-Iles (CPESI) and Conseil Régional de l'environnement de la Côte-Nord	Sept-Îles	Group meeting	First meeting with the Conseil régional de l'environnement Côte-Nord and the Corporation de protection de l'environnement de Sept-Îles. The Conseil régional has been involved in the assessment of uranium projects.
2023-09-22	Gov NL Labrador Affairs officials	HV-GB Labrador	Meeting	Project update •Need to increase engagement with Labrador Affairs office
2023-11-02	Gov NL officials	St. John's (CIMM conference)	Meeting	•Preference for processing plant and mine in Labrador •Exempt Mineral Land designation on Labrador Inuit Land (LIL) not settled •Risks of radioactivity are unknown e.g. uranium, thorium; policies related to transport not developed; province wants radioactive materials removed from waste stream before brought into he province •Opportunities with Memorial University for innovation research, process engineering
2023-09-18	Gov NL officials of several depts	Virtual	Meeting	Project update •Volume mined and moved •Vale involvement •Radioactivity of concentrate •Crown land surface tenure identified yet •Trucking operation, volume of trucks •Intended baseline studies
2023-06-28	Impact Assessment Agency of Canada (IAAC - AEIC)	Virtual	Group meeting	Virtual meeting requested by AECOM with IAAC to discuss with DFO/DFO Labrador our approach to road sampling (stream crossings).
2023-02-09	Innu Nation	Ottawa	Group meeting	•Establish initial contact with Innu Nation leadership • Provide the Innu with up-to-date information on the Strange Lake project. •Gather Innu expectations and concerns.

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-09-21	Innu Nation	HV-GB Labrador	Meeting	Project update and presentation •Caribou herd, land, and conditions are paramount; and will drive expected •Reassurances by Voisey's Bay developers and studies that there would be no impact on fish and wildlife, and now Innu can't find fish, char; studies are great but not proof •The region of the mine, and the road, is the 'heartland of caribou' •Innu burial sites have been found in the region •IN say Caribou are 'heart of compensation' •Innu concerned with safety of caribou in light of continued decline in population, with contributing factors of mining and exploration •Innu expect more minerals will be found •IN claim Voisey's Bay open pit and tailings leaked, expect accidents, witnesses 'horrors of Wabush and Labrador City' mines •IN acknowledge balancing benefits related to climate catastrophe with impact; IN sees impact of climate change in Natuashish, since 1960s, but also see impact of Voisey's Bay •Road will cover caribou moss that caribou rely on •Natuashish camps near Strange Lake call the tundra area 'Beautiful Tree Standing'; Innu people were born there •Grand Chief urged lots of consultation, expect lots of questions, focus on generations yet to be born' elders warned of impact on calving grounds •Jobs from Voisey's Bay did not appear as promised, 'is this another scheme'? •Innu people will decide, as 'you are building a mine right in our territory', they will be concerned with the impact on their culture; "caribou not coming into our territory"; 'Will they come if there's a mine there' •TM wants to learn about the lessons from Voisey's Bay •IN referred to the letter they sent earlier in the day to TM, describing their position that NCC has is not an Indigenous people, has no rights under section 35 of the Canadian constitution, and therefore TM is not required to consult with them for Indigenous
2023-11-02	Innu Nation Grand Chief and officials	St. John's (CIMM conference)	Meeting	•Employment for Innu people, especially youth; avoid discrimination especially related to minor offenses on criminal records •Strange Lake was originally named for an uncle •Innu consultation required, will take time •Innu involvement in environmental assessment •Acknowledgement of Innu Nation and NG's request to not consult with NunatuKavut Community Council •Land use study with Innu people •Provide transparency about the project •Fears of impact as from flooding of Innu lands with Churchill hydro project; and Voisey's Bay mine •Impact on caribou when herd is in danger •Mitigation of pollution and radioactivity; work with Innu people as monitors •Access to business opportunities
2024-02-13	Innu Nation official	Virtual	Meeting	New road option C, south of LIL •River impact on Reid, Conrad, Ikadlivik, lower Conrad River •Port services opportunities; multi-users

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-01-21	Innu Nation, NL Government, Nunatsiavut Gouvernment	Virtual	Group meeting	TSI : has direct and in-depth knowledge and experience with Vale's Voisey's Bay Port, would be a valuable advisor and analyst for shaping an agreement between TM and Vale; and a potential partner with TM Nunatsiavut : Generally, appears to be acceptance of economic development, and an unspoken interest in connection to development of NG's LIL property at Strange Lake Some assembly members reject the road, but will be expected to hear and take direction from their constituents perspective before putting their personal interest first EA process and consultation throughout all NG communities is expected to be thorough TM requested to support NG positions: Govt NL land use plan for LIL at Strange Lake, rejection of consultation with NCC. No NCC or NO Deal. Dirk's personal story resonates deeply – as a scientist, who is gravely concerned with impacts of climate change, and has longstanding experience in researching and developing rare earth minerals as a solution IBA negotiation will be challenging Economic development is a priority, including development of Strange Lake NG: The Assembly is generally in favour of the project; but work hard to consult, in all communities Noted that only about 6 families in Nain rely on fish from Ikadlivik Brook Some members who personally oppose the project, will eventually take the direction of their constituents Wood PLC is a partner with Wally, and subsequently requested a meeting Labrador Aboriginal Training Partnership: can provide valuable training to Indigenous clients for TM workforce TM can access generous training funds, and an available pool of Indigenous workers
2023-10-03	Innu Nation, Nunatsiavut Gouvernment	Lac Brisson	Site visit	- After arriving at site, most walked from the airstrip through the camp seeing the buildings and walking paths - During lunch in the dining area, they viewed maps and brochures, and participated in a question-and-answer session was led primarily by Ed Walker, and interpreted throughout by Maggie, and others, for Kenny. - The group viewed the core samples - The charter plane pilots used the road route map to return to Nain
2023-02-17	Kativik Regional Government	Kuujjuaq	Group meeting	•Establish initial contact with KRG leadership •Provide Inuit with up-to-date information on the Strange Lake project •Gather Inuit expectations and concerns
2023-02-16	Kativik Regional Government, Northern Village of Kangiqsualujjuaq	Kuujjuaq and Kangiqsualujjuaq	Group meeting	•Establish initial contact with the leadership and population of Kangiqsualujjuaq. •Provide Inuit with up-to-date information on the Strange Lake project •Gather Inuit expectations and concerns

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-10-02	Kativik Regional Government, Northern Village of Kangiqsualujjuaq, Land Holding Corporation (LHC) Kangiqsualujjuaq	Lac Brisson	Site visit	•A question-and-answer session was led primarily by Ed Walker, and interpreted throughout by Maggie, and others, for Kenny. •The group viewed the core samples-Water from mine entering lakes and rivers – doubt about filtration, water management, necessity of releasing water that will enter lake and river system rather than let it soak into natural ground filtration •Differentiate crushing and flotation at site from 'smelter' and processing plant in south •Explain the reduced volume of concentrate, from tons crushed and stockpiled or sent concentrators to ship 10%, and then the further reductions at the processing plant in Sept Iles, to the final volume of dysprosium sold to market (not an iron ore mine in terms of final volume, closer to gold mine volumes) Dust cannot be prevented completely
2023-04-12	Kawawachikamach Village	Virtual	Group meeting	Prepare the first meeting between Torngat Metals and the Naskapi leadership Information thet the Naskapi has hired a Mining liaison officer : Michel Bacon. To be invited at the meeting. Information that Natalie D'Astous is the Naskapi special adviser on the caribou. To be invited at the meeting. Indication that the Naskapi leadership will want to discuss primary about the caribou issue and the potential risks of the Strange Lake Project on the caribou.
2023-06-06	Kawawachikamach Village	Virtual	Group meeting	- Preparation of the meeting with the Naskapi leadership to discuss the Torngat Metals 2023 summer program. - Next meeting with the Naskapi Leadership (Caribou working group) June 8th at 15h00.
2023-06-13	Kawawachikamach Village	Virtual	Mail	- Map sent to the Naskapi that identified the AECOM caribou incidental observations. - 5 transmissions : June 13th, June 15th, June 20th, July 28th and August 3rd 2023.
2023-07-13	Kawawachikamach Village	Virtual	Group meeting	- Decide that Torngat metals will not begin drilling activities until August 1st in order to avoid any impact on the caribou - Discussion on the idea of developing a land guardian program in order to make sure that the Naskipi are fully implicated in the environmental protection and monitoring. To be discussed further during a special on that specific matter. - The Naskapi employement officer will make contact to Torngat Metals HR to identify potential candidates for the environmental monitor job at the camp site. - A special meeting should also be organized to discuss the future Torngat Metals caribou survey. The Naskapi estimate that this survey is not necessary and the use of historic and
2023-09-27	Kawawachikamach Village	virtual	Liaison committee meeting	•History of the site and previous Quest owner •Spent long minutes looking at the ridge of the hill to understand where will be develop the facilities for the operation, taking pictures •Explained about the road design and its utilisation (season road and the trucking traffic) •Talked about the port facilities •Need to be cautious about the water discharge and the dust prevention •Inquired about the caribou herd presence on camp surroundings, especially during the calving season
2024-02-09	Kawawachikamach Village	Virtual	Negociation meeting	First meeting to negotiate a PDA.
2024-02-22	Kawawachikamach Village	Virtual	Negociation meeting	Second negotiation meeting on the PDA proposed by the Naskapi. The document is reviewed paragraph by paragraph.
2024-04-02	Kawawachikamach Village	Kawawachikamach	Community assembly	First project presentation to the population of Kawawachikamach.
2024-04-02	Kawawachikamach Village	Kawawachikamach	Group meeting	Update on the project. PowerPoint presentation attached.
2024-04-03	Kawawachikamach Village	Kawawachikamach	Group meeting	3rd negotiation meeting with the Naskapi

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2024-01-15	Lab North Chamber of Commerce	HV-GB Labrador	Meeting	•Update on project; interest in ExpoLabrador •Promoting business opportunities and economic development •Interest in sponsoring and attending ExpoLabrador
2023-09-22	Labrador Aboriginal Training Partnership	HV-GB Labrador	Meeting	•LATP can provide valuable training to Indigenous clients for TM workforce •TM can access generous training funds, and an available pool of Indigenous workers •LATP is available to provide cultural awareness training to TM – consider inviting Keith to Montreal executive team meeting
2023-06-13	Land Holding Corporation (LHC) Kangiqsualujjuaq, Makivvik Corporation, Northern Village of Kangiqsualujjuaq	Virtual	Mail	- Map sent to the Nunavik Inuit that identified the AECOM caribou incidental observations. - 5 transmissions : June 13th, June 15th, June 20th, July 28th and August 3rd 2023.
2023-02-15	Makivvik Corporation	Kuujjuaq	Group meeting	•Establish initial contact with Makivik Corporation leadership •Provide Inuit with up-to-date information on the Strange Lake project •Gather Inuit expectations and concerns
2023-05-25	Makivvik Corporation	Virtual	Individual meeting	Identify the next mobilization actions with Inuit.
2023-07-07	Makivvik Corporation	Virtual	Individual meeting	- Makivik is waiting for Kangisualujjuaq comments on proposed terms of references (TOR) for the implementation of a Local Liaison Committee. - Torngats Metals will also send TORs for a Community Liaison Officer. - The two representatives of the Nunavik Reasearch Center met in february by Torngat Metals are on a long leave and won't be able to comment on the 2023 Summer program. - A meeting between the Makivik Executive and the Naskapi leadership is planned to discuss territorial issues.
2023-08-02	Makivvik Corporation	Virtual	Individual meeting	- Transmission of the Inuit comments on the CLC TORs
2023-08-29	Makivvik Corporation	Virtual	Individual meeting	- Follow-up on the implementation of the liaison committee. - Identify potential date for next activities: site visit and community visit. - Jean-Marc will get back to us to identify potential date for the site visit and community visit.
2023-12-08	Makkivik Corporation	Virtual	Individual meeting	Topics discussed: new Makkivik mining officer; New mining policy and moratorium; Caribou issue; renewable energy and Torngat Metals's needs; New Makkivik procurment policy to come; Business opportunities.
2023-03-22	Matimekush Lac-John Band Council	Virtual	Individual meeting	•Contact the chief of Matimekosh lac-John •Plan an initial meeting •Chief Réal McKenzie proposes a dinner meeting between April 20 and 22 in Quebec City. Martin Côté will check Torngat's availability and come back with a specific date and location
2023-04-12	Matimekush Lac-John Band Council	Virtual	Individual meeting	- Present to the Innu leadership the update of the Strange Lake Project. - Identify Innu expectations and concerns. - Identify next actions in terms of engagement
2023-04-25	Matimekush Lac-John Band Council	Québec	Group meeting	Torngat Metals presented an overview of the Strange Lake Rare Earth Project and explained its plans to engage and partner with the Naskapi Nation. Torngat provided an overview of its draft caribou avoidance plan that it proposes to implement for work being done at site in 2023.

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-06-08	Matimekush Lac-John Band Council	Virtual	Individual meeting	Goals of the meeting: -Review the planned bird survey due to start the week of June 12. Discussion on why and how the bird survey will be done. -Improve avoidance and protection measures for caribou. -Discuss the overall summer planning. -NaskapiTorngat Caribou Working Group meeting protocols, document sharing, meeting frequency, whether/when to expand this Group to include other Nations.
2023-07-12	Matimekush Lac-John Band Council	Virtual	Individual meeting	- Return on the key elements discussed at the April 19th meeting. - Proposition by AECOM to organize a community visit after the vacation period. - The Matimekush Lac-John adviser will discuss with the leadership to identify the best period and will get back to AECOM.
2023-11-28	Member of House of Assembly for Torngat	Virtual	Discussion	•Early consultation and engagement is critical •Communications to ensure residents are informed and engaged •Lack of support in Nain, and among key groups, e.g. Keepers of the Circle
2023-12-08	Member of House of Assembly for Torngat	Virtual	Discussion	•Potential revenue for NG •Opportunity for NG development of Strange Lake B zone •Thorough baseline environmental assessment work; and land use studies with Innu Nation and NG beneficiaries •Communications to ensure residents are informed and engaged
2024-02-06	Member of House of Assembly for Torngat	Virtual	Discussion	•Determine economic benefits, especially if road option A is on LIL
2023-10-03	Ministère de l'Environnement, de la Lutte contre les changements climatiques... (MELCCFP)	Virtual	Individual meeting	Discussion of rare earth purification and separation plant project with MELCCFP
2024-02-26	Ministre kateri Champagne Jourdain	Virtual	Individual meeting	Presentation of the Torngat Metals Project to Émilie Paquet, political attachée
2023-11-15	Nain NG constituents	Nain / Teams	Constituency meeting with Assembly member	•NG process for environmental assessment not understood; concern if integration of IAAC, and NL assessments will consider residents concern •Vale IBA not seen as best for benefits, and Vale concern with royalty •Consultation process with advance notice •Concern about impact on caribou, geese, partridges, wolverines, foxes, brook trout, lake trout, use of land •Vale port land blocked access to land used for wood •Why road in Labrador when mine and plant is in Quebec •Use of name 'Torngat' presumes partnership with beneficiaries •Indigenous ownership in company •Dust, water concerns •Mining elements, calcium, hurts skin, quoted skin damage at Vale mine •Lack of consultation and silence before IPD was filed •Nain does not support; do not come back •Concerns with trucking volumes, distance, frequency, safety on steep slopes, accidents, spills, landslides, other minerals exposed •Transporting fuel •Diesel power •Loss of land for cabins •Quebec impact re caribou crossing to Labrador •Complete change of life, forever if road goes ahead

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-11-14	Nain Ordinary Member in NG Assembly	Nain	Phone	Project concerns •Petition circulating in Nain to refuse the road; Keepers of the Circle and other groups coordinating information groups in Makkovik and other communities •Concern that the road is already approved; decision is made •EA process not explained or understood •Private road not available to public •Caribou population is threatened – road could interfere with migration routes •IBA may not be enough to convince Nunatsiavut beneficiaries •Radioactivity concerns •Dust concerns •Fear situation of PCB waste similar to Hopedale military WW II base; Labrador Grenfell Health required to monitor cancer cases •Trust issues •Opportunities for people to monitor route share data •Employment •Risk of negative impact seen as too big •Use of 'Torngat' is offensive to some people •Ikadlavik Brook is very important source of food, seasonal char •Other brooks and rivers impacted – Frank's Brook, Conrad Brook •The full bay Anadtalak and Voisey's Bays included is one of the highest char populations in the world; family fishing camps •Use of Labrador as cheapest option appears to be about economics not impact on Inuit way of life •While efforts to visit communities for consultation is weather impacted, consultation in person is necessary; avoid key times e.g. Advent; Christmas, Easter and special days e.g. Moravian Boys Day and Girls Day •Planning to lead community consultation on Nov 14

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-05-18	Nain Village, Nunatsiavut Gouvernment		Group meeting	Community consultation is expected soon and will be a driving force in NG's decision, particularly reviewing the road tracing in detail to gather concerns and potential solutions. NG is deeply resistant to NunatuKavut and resent federal and provincial requirement to consult with them. Understand TM's position, but want their message sent. NG and its companies have good relations and business experiences with Innu Nation and Innu businesses, as well as with Quebec Inuit and Makivik. NG is intrigued and interested in Cerebus' investment Memories and experiences of Quest need to be updated with TM actions and plans. Opportunity to inform and engage Nunatsiavut beneficiaries and residents about rare earth mining processes, demand and environment impact and business models. Increased importance of coastal harvesters and hunters in area of port, and Ikadlivik Brook, likely tied to lack of caribou as a food source. Prove why the road needs to go through Labrador rather than Quebec – likely related to balancing environmental impact with economic opportunity for Nunatsiavut. Remain alert to concerns about radioactivity, dust, volume of shipments, in addition to impact on caribou and fish and food sources. Important to understand NG's intentions to develop Strange Lake deposit in Labrador – monitor NG's relations with the govt of Newfoundland and Labrador for development of deposit on Labrador Inuit Lands, as well as NG's business interest and development plans, including intentions for other rare earth deposits and uranium developments in their territory e.g., Flower's Bay complex near Hopedale, and Central Mineral Belt. NG employees are engaged, alert, and supportive of the process, and available for permitting decisions, and review of environmental assessment submissions. They defer to Nunatsiavut Government through its executive council and elected assembly to determine support, and expectations. Clarity on use of Vale's port facility required soon.
2023-06-26	Nayumivik LandHolding Corporation (LHC) Kuujjuaq	Kangiqsualujjuaq	Group meeting	Update on the project and the goal of our visit in Nunavik. Wants to be informed of our next visit and goal in his community.

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-10-03	NG & Innu Nation leaders and officials	Strange Lake	Site tour and meeting	Project update •Need to be convinced the levels of radium are acceptable, demonstrate efforts for monitoring, safety, dust content etc. •Road route definition, and its practicality is doubtful •Impact on wildlife and way of life will be major •Road will 'wake a sleeping giant', as more interest and development is expected to occur along the route; increased exploration and development; elders are concerned with way of life, impact on wildlife; youth seem to have a different interest, and in development •Mining process – blasting, sorting of bulk ore, crushing, magnetic separation and remove feldspar, quartz •Amount of ore and concentrate – high grading, processing stockpiles •Road engineering – reduced footprint, winter road, and some changes in exact route •With an open pit, and blasting, what will happen with the high levels of uranium and thorium, and if its harmful for handling •Treatment of tailings – there will be no tailings ponds, water will be removed, and piles will be dry stacked •Water use / treatment – all water will be retrieved, using ditches, settling ponds, collected ad treated; no tailings ponds; water will be used for dust control; water will be recycled; water balance will be maintained; designed for no discharge, but there will be seasonal and peak times when discharge of treated water will be necessary •Employees wear TLD monitors •Use of Voisey's Bay port –interest in business case for Innu Nation and NG as parties to the port agreement •Business opportunities – for Nunatsiavut Group of Companies, Torngait Services Inc., Innu Development Limited Partnership •Outcome if people of Labrador don't want the road - the airship option remains, but is not available in time, appreciate concern with impact, and pace of development
2023-08-22	NG officials	Virtual	Group meeting	•Budget •Involvement of previous researchers •TM on steering committee •NG reviews permits for Vale
2023-09-06	NG officials	Virtual	Meeting	•Vale port goes through NG EA •Port infrastructure park arrangement to be determined, after Val;e consultation •Timing of consultations given Nain airport EA likely in October •Interested in visit for NG ministers and officials to Strange Lake •IBA will go through executive committee •EA process will involve lands, economic development and social wellbeing
2023-11-17	NG Officials	Virtual	Discussion	Consultation required to provide information on environmental process, construction, and to obtain social acceptance •Concerns about caribou; Alaska experience •Majority of residents in Nain area do not support road
2023-11-30	NG Officials	Nain	Meetings	•Nain Airport environmental assessment process underway; local concerns with road accessibility; Vale mine site road closed at times in severe winter weather •Concentrate radioactivity at mine site, along road and at port, measurement techniques •Vale discussions •Plans for IBA to be determined

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-09-22	NG officials	HV-GB Labrador	Meeting	•Economic development is a priority, including development of Strange Lake, but frustrated by Gov NL delays in finalizing land use plan with NG •NG wants a much larger and engaged role, beyond relying on royalty payments, and ownership position •Youth are seeking different opportunities than elders; traditional reliance on lands and harvesting is changing, as wage economy and access to services changes •NG wants balanced development
2023-11-02	NG officials and Minister	St. John's (CIMM conference)	Meeting	•Development of Strange Lake in Labrador zone B blocked until Exempt Mineral Land designation on Labrador Inuit Land (LIL) is settled; LIL land development is priority for NG possible future expansion of
2024-01-15	NG Upper Lake Melville Ordinary Member of Assembly	HV-GB Labrador	Meeting	•Update on project •Employment opportunities •Economic development opportunities
2023-02-17	Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Individual meeting	•Debrief the previous day's public meeting •Identify next steps to develop relations between the community and the Torngat project
2023-05-25	Northern Village of Kangiqsualujjuaq	Virtual	Community assembly (radio)	- Present the Torngat Metals 2023 summer program (exploration and environmental surveys) to the people of Kangiqsualujjuaq. - Identify the Inuit expectations and concerns regarding the program. - Presentation online and broadcast at the local radio station.
2023-06-27	Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Liaison committee meeting	Update the project and start conversation on putting in place a committee of liaison and to go through the terms of reference, Employment opportunities at the mine site for the summer
2023-12-05	Northern Village of Kangiqsualujjuaq	Kangiqsualujjuaq	Liaison committee meeting	PowerPoint presentation: update on the Project; environmental mitigation measures; radioactivity; water management; dust control; land use baseline study; environmental impact assessment; communication and medias; economic opportunities.
2023-02-17	Northern Village of Kuujjuaq	Kuujjuaq	Group meeting	•Establish initial contact with Kuujjuaq town council •Provide Inuit with up-to-date information on the Strange Lake project •Gather Inuit expectations and concerns
2023-06-30	Northern Village of Kuujjuaq	Kuujjuaq	Individual meeting	present project and try to plan for next meetings

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-09-21	Nunatsiavut Assembly members	Hopedale	Meeting	Project update and presentation •Concerns with Ikadlavik Brook •Number of bridges, and construction materials •Difference than Quest proposal •Timeline •Sulphuric acid use •Ratio of overburden to product volume •Any association with south coast of Labrador Search Minerals rare earth project •Impacts expected at mine site, water treatment •Road impact very important to people in Nain •Go to communities to consult first •Use of port at Voisey's Bay •Partnership with NGC •Value to NG include IBA, what else •Impact of China on global supply •NG's lack of land use plan with Govt NL will require TM support to help resolve •Fear of the road being the longest road ever seen by many Labrador Inuit; other taking advantage for exploration •Not just about compensation, but value of land. Wildlife and fish, and future generations •Road – erosion, wildfires, impact on salmon rivers, char rivers, partridge, caribou, moose •Green energy understood •'or land will be destroyed' it will 'rip away a way of life from Ikadlavik Brook •Caribou heard will be diminished even more •In EA and IBA, discuss impact on Ikadlavik brook; fish from the river is a main source of food in Nain •Recover plans for mine site •Employment levels at mine, and processing plant; types of jobs; Labrador Inuit not

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2024-02-05	Nunatsiavut Beneficiaries	Nain	Public info session	update; presentation; road option C •Requested presence of NG elected representatives; NG environment act and process will be followed •Town of Nain not in support of road •Ensure impact on Innu Nation, Inuit of Quebec is considered •Impact of contamination on animals returning to mine site after closure •Any oxidation •Water treatment and balances, recycling, discharge from concentrator, ponds •Tree cutting near Voisey's mine port •Road: maintenance quarries along road; types of vehicles; raised portions of roads; washouts; seasonal use; impact on watershed areas; one way traffic management; expensive and constant maintenance expected; sand and gravel for road construction; blowing snow, drifting, and avalanches especially along Ikadlavik Brook; daily monitoring and inspections for safety, emergency vehicles with convoy; type and size of convoy; winter driving conditions •Fuel transport, cleanup trucking, storage •Blasting along road and at mine •Impact on renewable resources e.g., caribou, char, moose •Stockpiling ore at shore of Voisey's Bay; and management of concentrate storage •Green energy options at mine site, rather than fuel e.g. wind turbines; electric vehicles •Transport of ore materials from pit on trucks to crusher •Containment of concentrate, volume, number of containers •Radioactivity along road, at storage site, distance between containers •Other road options through Quebec rather than through Labrador
2024-02-05	Nunatsiavut Beneficiaries	Nain	Public info session	•Provide more precise indication of proximity of proposed road to Ikadlavik Brook; visual view winter and summer •Impact if option C not on LIL, economic impact, loss NG control through environmental protection act
2024-02-07	Nunatsiavut beneficiaries	Hopedale	Public Info Session	•Size and facilities at mine site: open pit, stockpiles, runway •Fuel storage at port •Water crossings, culverts, and bridges, size of transporting wind turbines to mine site •Move away from ridge at Ikadlavik Brook •Option C impact on Frank's Brook, Bobby's Place, sandbar •Stay on north side of bay •Multi-user port services, including weather monitoring, shelter, food •Avoid first ice freeze up times •Airship status, as proposed by Quest •Power consumption; and power line options

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2024-02-08	Nunatsiavut beneficiaries	Hopedale	Public Info Session	•Maps and plain language information for communities •Road: types of bridges, engineering •Fuel tank farm •Road option A has steep slopes; could be drifting snow problems •Seasonal use •Size of ships •Option C at Voisey's Bay impact on Frank's Brook, goose lands, sandbanks •If not on LIL, without royalties, focus on spinoffs and economic impact •Potential for option C port to provide access for delivering or transshipping wood for northern community elders heating, including wood and brush cut for road •Option C port services potential for landing strip, accommodations, as well as bear guards and monitors Inuit Advisory Committee as done for Vale mine
2024-03-12	Nunatsiavut Beneficiaries	HV-GB Labrador	Public Info Session	Update on project; option C for road• Road traffic management e.g. passing on single lane road; accessible to other users if road is private; transporting fuel safely • If road option is not on LIL: will it lessen influence of Nunatsiavut beneficiaries on Govt of Canada and NL decisions to approve, without NG authority through environmental protection act; economic impact for NG beneficiaries if not on LIL • More information on volumes and operation of concentrator at mine site tailings going into H1; water flows; 100 years impact • Radioactivity and assurance that concentrate is sealed in containers safely • Impact of market prices if not profitable - will operation close; available funds for closure plans; reclamation of road •Impact on strained medical facilities in NG communities •Availability of training for women •Will underground mining access resources under LIL at Strange Lake
2023-02-10	Nunatsiavut Gouvernment	Ottawa	Group meeting	•Establish initial contact with Nunatsioavut Government leadership •Provide Inuit with up-to-date information on the Strange Lake project •Gather Inuit expectations and concerns
2023-02-24	Nunatsiavut Gouvernment	Virtual	Group meeting	- Present the environment and social team of AECOM to the direction of the environment of the ministry of Land and Resources of the Nunatsiavut. - Present an update of the Strange Lake Project - Identify the key steps on the Nunatsiavut environmental assessment procedure - The Nunatsiavut process: independant process or harmozination with the Federal and the Provincial - All the project's components must be under review - A process of a minimum of 520 days, which includes a 90 days of public consultation - A project can be registered prior having confirmation of an harmonization process - They Inuit would prefer to proceed to the update of the 2015 land use study realize for the Strange Lake Project - Importance to having early consultation with the leadership and the communities

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-05-02	Nunatsiavut Gouvernment	Virtual	Individual meeting	Phone conversation with Isabella Pain, Nunatsiavut Government (NG) Secretariat Deputy Minister re: outstanding Quest payment, strategic direction for engaging NG and elected assembly approval, and for potential agreements, Innu overlap, Voisey's Bay area and infrastructure park agreement , unresolved Naskapi of Nunavik claim, references to Labrador Inuit Land Claim Agreement Chapter 2, NG's in-house legal counsel and possibility of external counsel as needed, secure meeting dates with President Lampe, may schedules likely unavailable, better in June, ITK event in Ottawa, contact Jim Goudie for caribou collar data, Theresa Baikie for workforce, Patricia DeSouza for mining development; developed and sent agenda of items to discuss with Jim Goudie, Nunatsiavut Government Deputy Minister, Lands and Natural Resources, email exchange
2023-05-09	Nunatsiavut Gouvernment	Virtual	Teams meeting	conversation with Claude Sheppard re: early community engagement, plans to be in Nain, experience with EAs, advice on coordinating within NG, inclusion of archaeologists, Labrador Inuit Lands and exempt mineral land situation and processes for development, proactive economic development balanced with environmental protection, confirming road route, recommended contact with Brent Denniston, Director of Lands and Henry Shiwak, Manager of Lands, decision making process of NG executive council meetings and deadlines for permits, EA process. Significance and importance of Ikadlivik Brook
2024-03-12	Nunatsiavut Gouvernment	Virtual	Group meeting	Discussion with NG representatives on the land use study Terms of reference.
2023-06-26	Nunatsiavut Gouvernment, Sheshatshiu Band Council, Vale, Innu Nation, Nain Village, Newfoundland and Labrador Indigenous Affairs and Reconciliation, NL Government		Group meeting	Meeting in Labrador with : Atlantic Canada Opportunities Agency (ACOA), Nunatsiavut Government, Sheshatshiu Innu First Nation, Vale - ACOA doesn't fund mining developments, nor road infrastructure - Will advocate for NL projects to access federal infrastructure and trade corridor funding - Open to concept of the TM road as an economic development generator and support as anchor terminus for TM, Strange Lake and Vale at Voisey's Bay; as a resource corridor with potential for electricity and communications networks along the road
2024-04-05	Nunatsiavut Government official	Phone	Update	Progress with Vale re port; road option C actual Voisey's Bay; preparing for EIS guidelines re economic impact and benefits; preparing with legal and officials re approach to IBA •Impact of road option C on rivers: Conrad, Reid; Ikadlavik •NG working on agreement, EA guidelines
2024-03-08	Nunatsiavut Government officials	Virtual	Meeting	•TM responsible for costs as per Act •Scope for mine, road, and port •Interview Inuit for Inuit knowledge re: use of land, food sources, caribou, char and other species, cultural, and all uses •Fill gaps since previous study for Quest, intensity of use since then •NG appointed committee of Ministers, AngajukKâk (mayors), harvesters
2023-05-11	Nunatsiavut Group of Companies	Virtual	Teams meeting	role of AECOM, TM plans and Cerebus investor; potential partnerships with Innu and Makivvik, NGC partners Bird Construction and Kiewit, barge, integrated logistics shipping partner McKeil Marine; plan to meet in Goose Bay on way to Nain May 18. Environmental issues are salmon, fish, dust, route, caribou.

Date	Stakeholder	Location	Activity	Topic/Description/Question/Concern
2023-04-20	Nunatsiavut Group of Companies, Torngat Metals	Virtual	Individual meeting	- Understand interest and capability of Nunatsiavut Group of Companies and its partners to support road planning analysis - Open discussion with Chris Webb aobut the current stage of road analysis and our interest to bring in any and all expertise to collaborate with AECOM and us. Chris was interested to be asked and will follow up with his partners (Indigenous and non-Indigenous). - It was discussed that the road construction and maintenance contracts are a future discussion that we plan to have with him.
2024-02-06	Nunatsiavut officials	Nain	Meeting	•Baseline research plan for option C •More local work in communities •Caribou calving grounds west of western portion proposed roads
2023-02-23	Nunavik Research Center	Virtual	Group meeting	•Present the teams and research activities of the Nunavik Research Center and AECOM •identify avenues for collaboration between the research center and Torngat Metals •CNR explains its research activities: monitoring activities and in situ samples (water, fish, sand, etc.) •CNR has long-term data on exposure to contaminants in species consumed and used by the Inuit. This information is shared with the KRG.
2023-03-20	Nunavik Research Center	Kuujjuaq	Group meeting	Present the Strange Lake project and Networking with the different business present in Nunavik To present the project to all the Nunavik municipalities and to the other speakers invitated at the conference.
2024-02-21	Port de Sept-Îles	Sept-Îles	Group meeting	Meeting to update the project and present our communication plan.
2023-11-01	Prov Dept of Environment and Climate Change officials	St. John's	Meeting	•EA process for collaborative assessment with IAAC, NG
2024-01-29	Radiation Safety Institute of canada	Virtual	Training session	Internal training session on radiation
2024-02-12	Radiation Safety Institute of canada	Virtual	Training session	Internal training session on radiation
2024-04-11	Sept-Îles Population	Sept-Îles	Community presentation	Presentation of the Project and discussion with the population. Concerns over residue pile, water management, dust control and radioactivity.
2024-04-15	Sept-Îles Population	Sept-Îles	Community presentation	Presentation of the Project and discussion with the population
2023-09-22	Torngait Services Inc	HV-GB Labrador	Meeting	•TSI has direct and in-depth knowledge and experience with Vale's Voisey's Bay Port •Potential partner for road, mine, and port
2023-12-12	Torngait Services Inc.	HV-GB Labrador	Group meeting	•Potential involvement of TSI in port, road and mine site operations, staffing
2024-02-21	Ville de Sept-Îles	Sept-Îles	Group meeting	Project update meeting and presentation of communication plan in Sept-Îles.
2024-03-05	Ville de Sept-Îles	Sept-Îles	Group meeting	Meeting to present the project to the MP in the presence of her political attaché Nicolas Dupont. A PowerPoint presentation was given prior to the meeting.

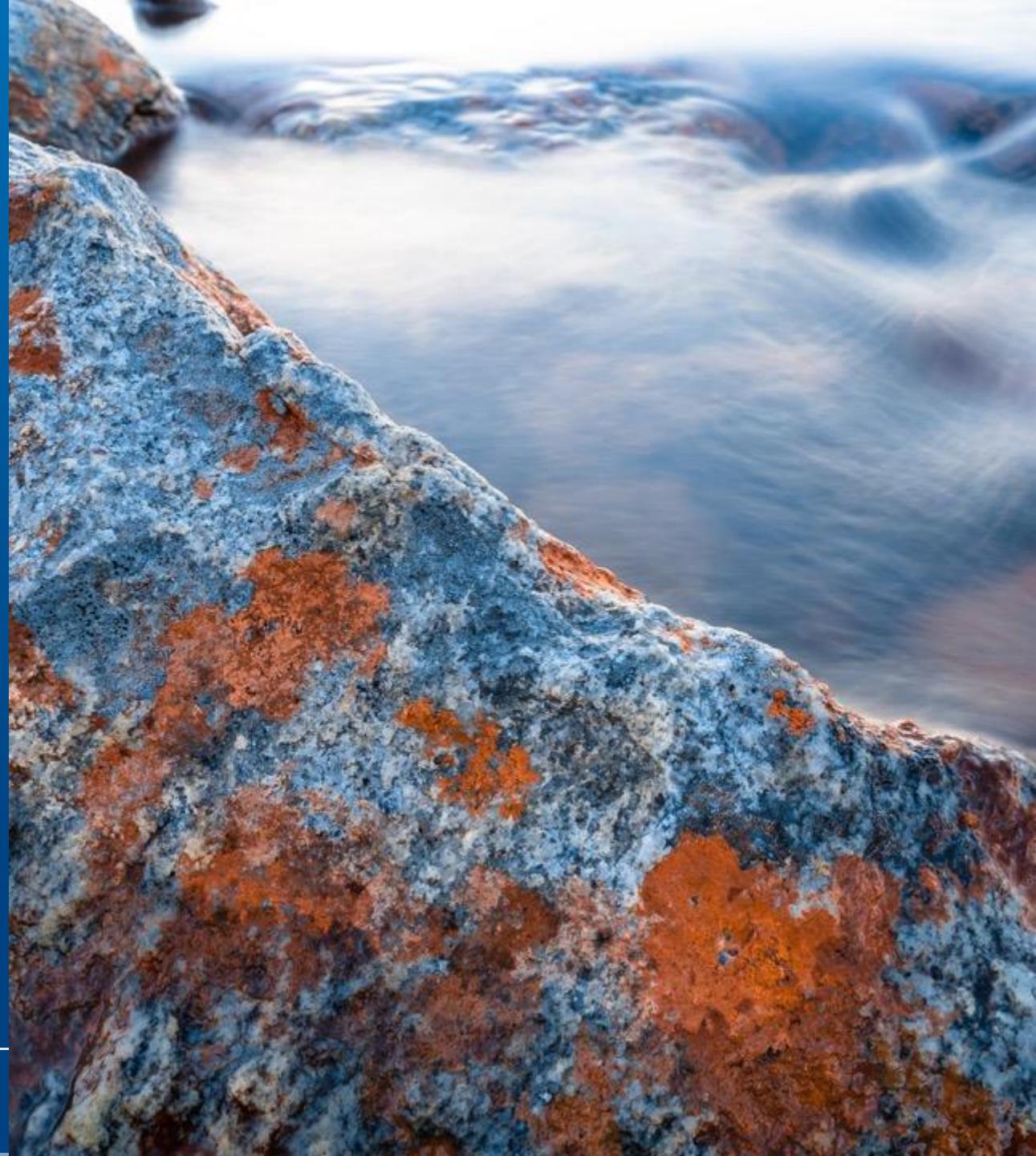
Appendix C
Communication Materials

MÉTAUX TORNGAT METALS

Strange Lake Rare Earth Project

Community Presentation

November 2023



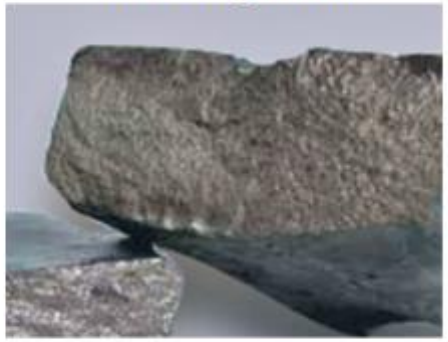
We can't address climate change without new sources of rare earths

The Strange Lake Project can help solve our global supply crisis:

- 4 of the 15 rare earths are used in permanent magnets (the other 11 are also commercially important)
- Permanent magnets used in high efficiency motors for drones, electric vehicles, wind turbine generators, and other climate solutions, as well as numerous industrial and consumer applications
- China currently dominates supply with insufficient volumes, reliability issues, and negative social & environmental impacts

Dysprosium

Praseodymium



Terbium

Neodymium

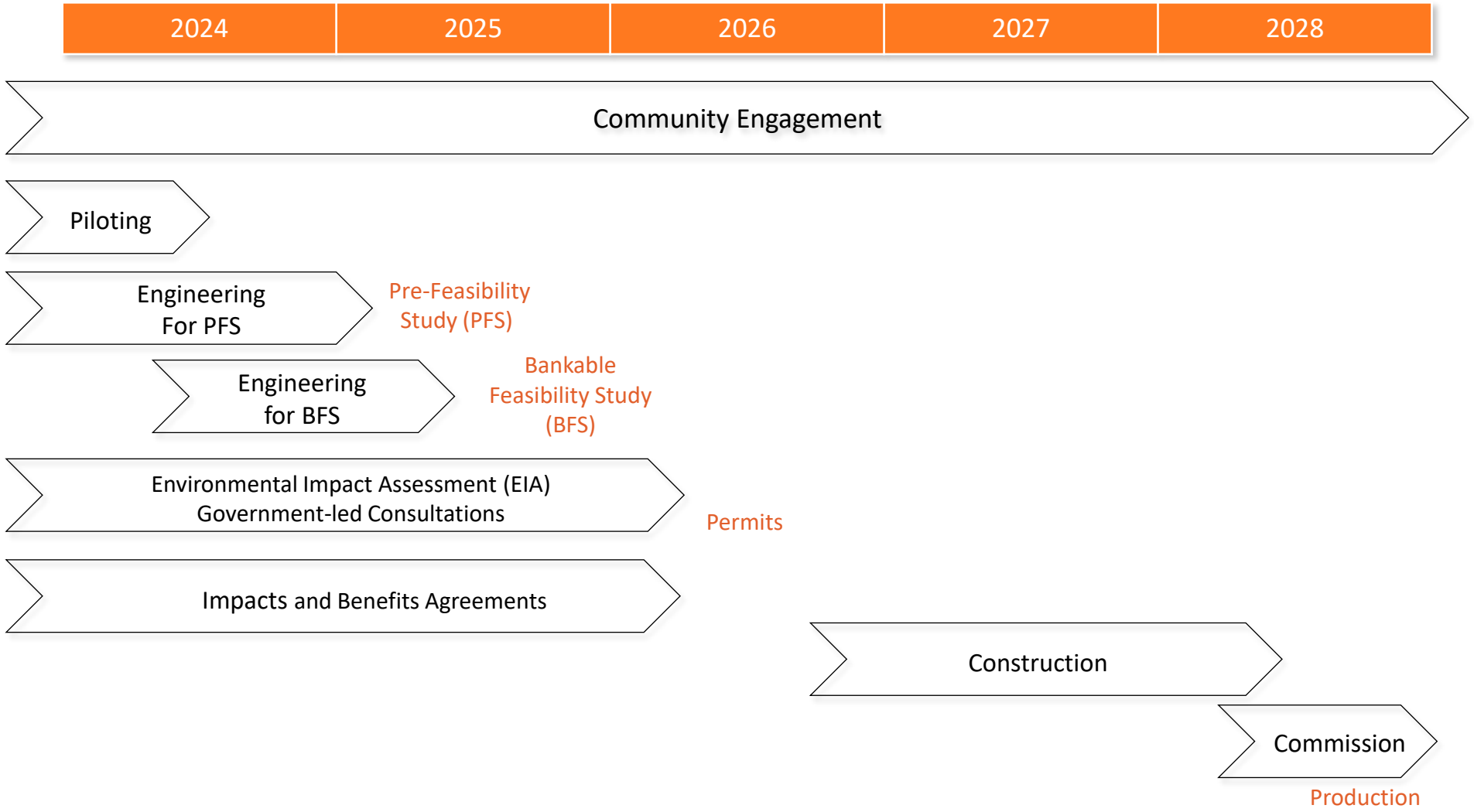
Purpose: Build the most ethical and secure supply of responsibly produced rare earths

Imperatives for success

- Indigenous partners and long-lasting community benefits
- Environment, Social, Governance + Indigenous (ESGI) leadership
- World leading sustainable technology and engineering
- Building rare earth industry in Canada
- Aligned with provincial and federal strategies for critical minerals, electrification and green economy

Our Proposed Timeline - will be updated

Key Milestones



The Strange Lake Project

We have been and will continue to meet with all impacted Indigenous Groups

- Nunatsiavut Inuit
- Labrador Innu
  Natuashish and Sheshatshiu
- Nunavik Inuit
- Naskapi
- Innu of Matimekush Lac-John
- Innu of Uashat mak Mani-Utenam

Proposed Project

Mine site – Lac Brisson

- One open pit working year-round – 30 years mine life
  - 0.5 km^2 versus 24 km^2 for Rio Tinto mine at Mont-Wright
- Concentration plant reduces volumes sent to refinery (crushing, optical sorting, magnetism, flotation)
  - 150,000 tons of rare earths concentrate (vs 26 million tonnes at Mont-Wright)
  - Complete water management system over entire site and maximizing water recycling
  - Environmentally safer dry stack tailings
  - 200 employees

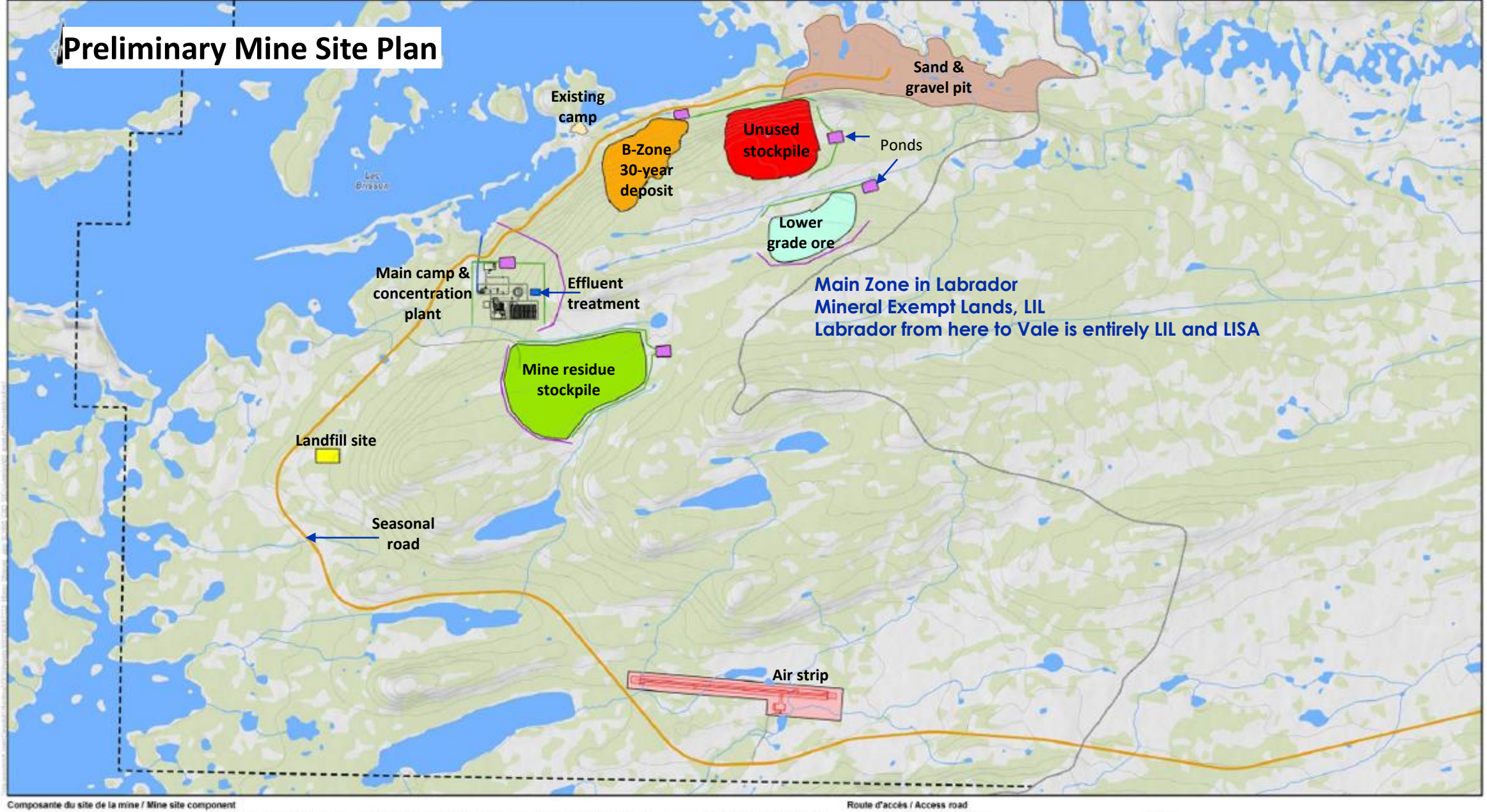
Road and Port

- 170 km new access road to port on Labrador cost
- Winter trucking
- Approximately 5 ships/year to refinery, ice-free season

Refinery – Sept-Îles

- Small refinery located in industrial park
- Will produce finished rare earths oxide products
- Production of approximately 10,000 tonnes/year vs Alouette Aluminum 600,000 tonnes/year
- 250 employees

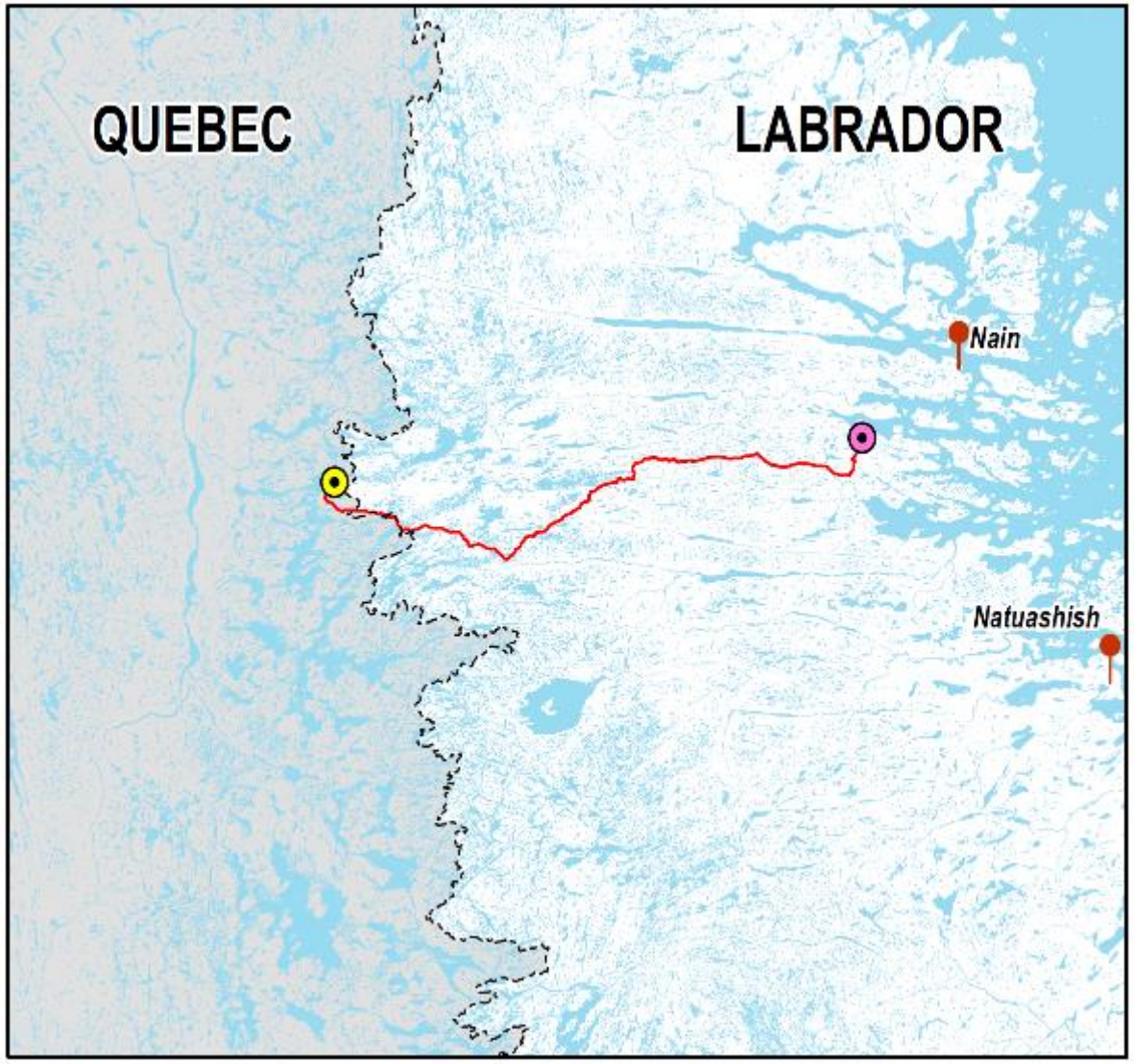
Preliminary Mine Site Plan



Proposed Road

Preliminary use and design

- Road design and operations will be developed in accordance with the local communities' suggestions and feedback
- Proposed 170 km, one lane, seasonally-used access road with minimized footprint
- Move approx. 150,000 tons/year of rare earths concentrate in super bags, sealed in containers
- Move supplies, equipment, and fuel to mine site
- 3 major water crossings
- Construction to suit height of land, valleys, grades, materials, maintenance, safety
- Trucking plan in development: types, size, volumes, frequency, season
- Design for minimal impact on caribou, wildlife, hunting recreation, cultural, environment



Proposed Road

Designing ways to reduce impact

- **Safety**: emergency response; pull-overs; rest stations; communications; convoys; speed limits; grades; training
- **Rivers and Ocean:** 3 major water crossings; prevent wash outs; spill prevention and clean-ups; protect Ikadlivik Brook; trucking in winter
- **Wildlife and landscape:** protection; monitoring; work stoppage; diversion; environmental incident response; Indigenous partners
- **Concentrate**: industrial super bags kept in sealed steel sea containers from mine site to refinery
- **Dust**: control plans for weather; seasonality
- **Culture and Lifestyle**: respect and protect traditional land uses; land use studies; IBAs; Indigenous partnerships

Proposed Port Operations

Vale Voisey's Bay port in Anaktalak Bay

- Torngat Metals aims to negotiate terms Nunatsiavut Government, Innu Nation and Vale
- Will pay for upgrades and for use

Expected use

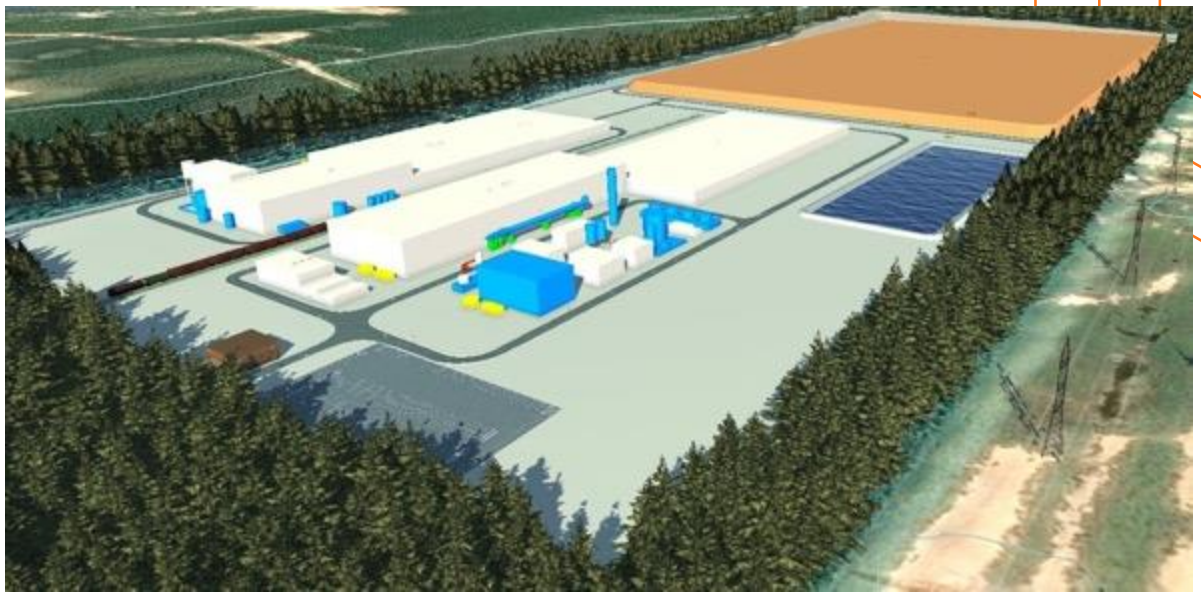
- Outbound
  - Approximately 5 vessels, during ice-free season
  - 1000+ containers per vessel

- Inbound
  - Fuel, construction materials, equipment, concentrator supplies

Proposed Refinery

Sept-Îles, Québec

- Processing and separation to produce high-purity rare earths products
- Approx. 140 hectares footprint
- Environmentally safer dry stack tailings
- Complete water management system over entire site and maximizing water recycling
- State-of-art refinery processes optimized to minimize impact (less energy, water, chemicals)



Rare earth oxide products to be produced at proposed refinery

Visits to Exploration camp Sept/Oct 2023

Leaders and representatives from all Indigenous Communities were invited to visit our Exploration camp at Strange Lake

From Nunatsiavut:

- President Lampe
- Minister Vincent
- Roxanne Barbour
- Isabella Pain
- Claude Sheppard

Also, from Innu Nation, Grand Chief Simon Pokue, Luc Rich and Prote Poker

Environmental Baseline Studies conducted in Summer 2023

Examples of key concerns from Indigenous community members

This is a partial list of what Torngat Metals has heard, and we are committed to addressing all concerns

- Impact of the proposed project, minesite and road on:
  - Caribou
  - Ikadlivik Brook
  - Streams, rivers, ponds, lakes
  - Metals, radioactive elements, chemicals
  - Inuit way of life and country food
- Consultation and participation in environmental and social impact assessment, environmental monitoring and development of the project
- If project proceeds, training, jobs, business opportunities, and community support during development, construction and operations

Examples of Potential Positive and Negative Impacts

Minimize negatives: ask for Indigenous knowledge and combine with innovative design and technology

- Water management, treatment and recycling
- Dust control
- Habitat monitoring and protocols for fish, caribou and wildlife
- Environmental protections from metals, radioactivity and chemicals
- Operational protocols
- Land use mitigation

Maximize positives: for all communities based on communities' priorities

- Local investment in infrastructure and community initiatives
- Support for community-led social programs
- Training and employment
- Local business growth and new opportunities
- Economic growth
- Road possibilities
- Rare Earths production knowledge
- Global influence in rare earth industry

We look forward to meeting you again and to receiving your comments, expectations and ideas for improving the proposed project.

A Small Team: Dedicated to Community Benefit and Climate Change

DIRK NAUMANN
President & CEO

CHRISTINE BUROW
Chief Marketing Officer

ALAIN WILSON
Chief Financial Officer

SYLVIE ST-JEAN
VP Environment

SAMANTHA DOIG
VP Human Resources

MAURO FERRARA
VP Finance

ÉRIC LUNEAU
VP Community Engagements & Partnerships

CLINTON SWEMMER
VP Project Management

PHILIPPE WATTEL
Consulting Engineer

MARILYN BUTLAND
Stakeholder Relations NL

NAVID ROHANI
Process Engineer

SUSAN SHEEHAN
ESGI + Communications

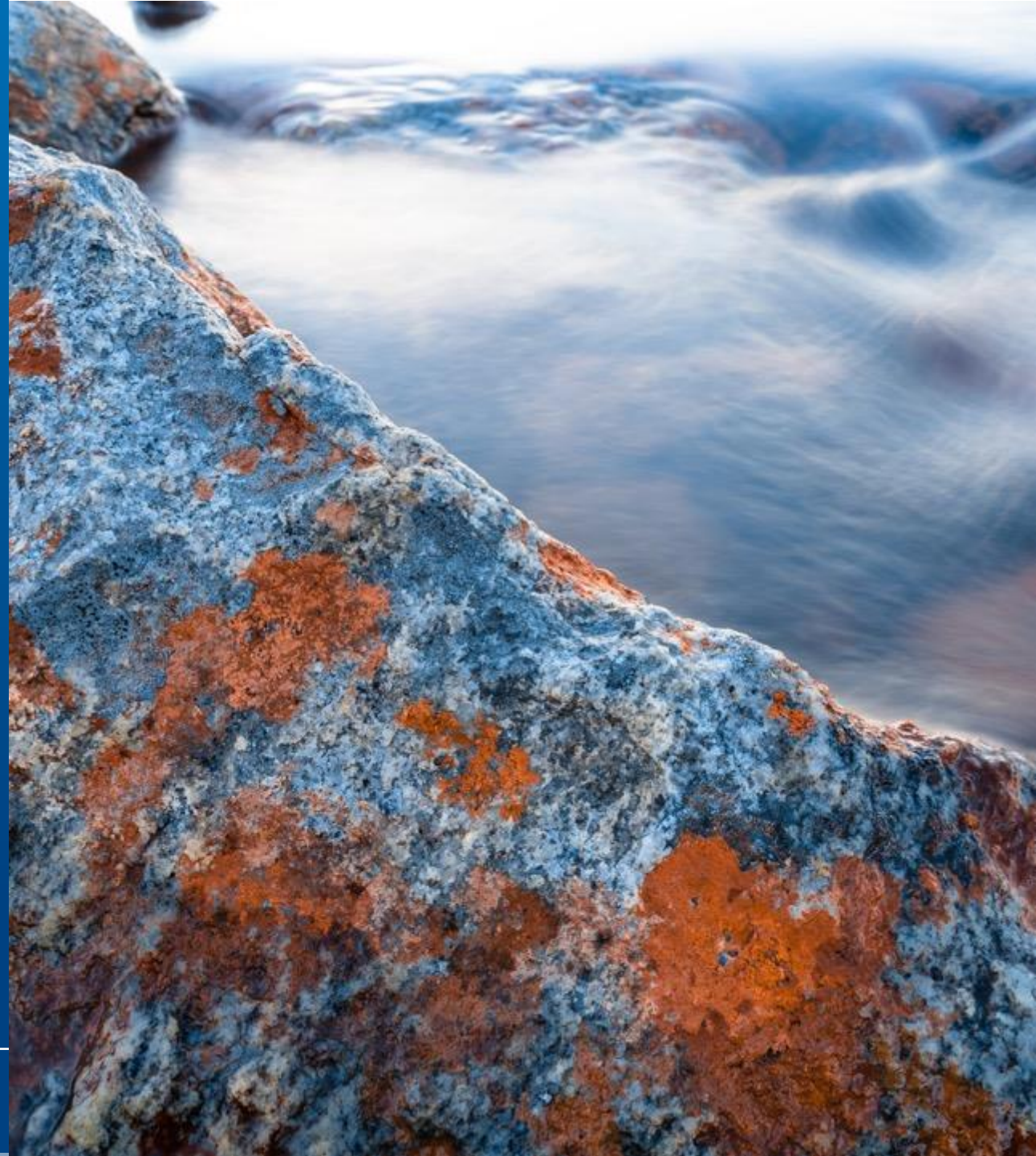
ED WALKER
Geologist

MÉTAUX TORNGAT METALS

Strange Lake Rare Earth Project

Kawawachikamach Community Presentation

April 2, 2024



A LOCAL, DEDICATED AND EXPERIENCED TEAM

President and CEO

Chief Marketing Officer

Chief Financial Officer

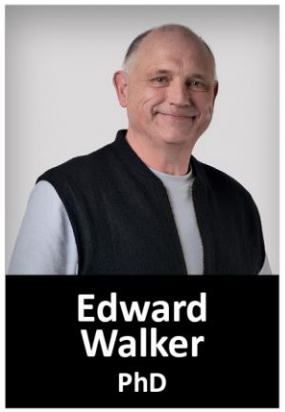
VP Human Resources

VP Finance

VP Community Engagements and Partnerships

VP Environment

VP Project Management



VP Resource Geology and Minerology

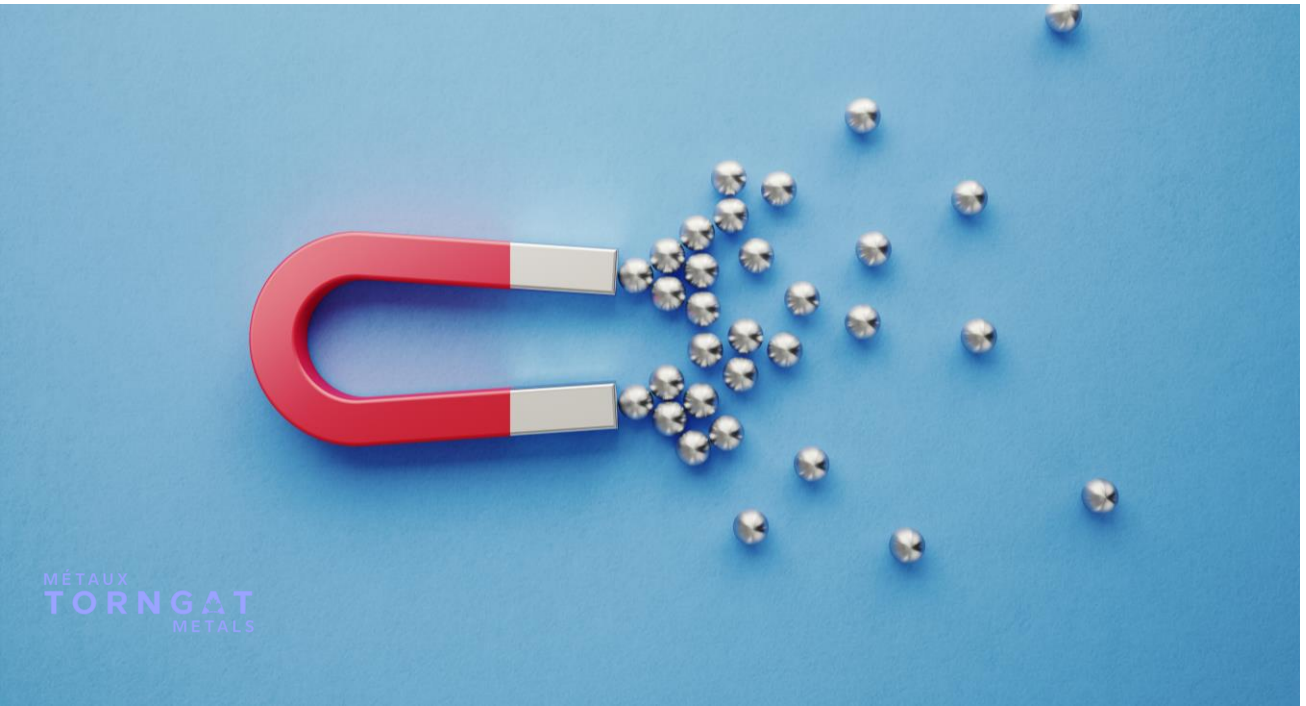
Community Engagement

Director of Engineering

Process Engineer

Indigenous, Environment and Social Governance

Consulting Engineer



WHAT ARE RARE EARTH ELEMENTS USED FOR?

- Manufacture of high-power magnets
- Magnets for electric motors
- Wind turbines
- Electronic chips
- Various medical equipment (imaging)
- Luminous tubes (neon lights)
- Electronics (screens, cell phones, computers)
- Drones, aviation
- Defense

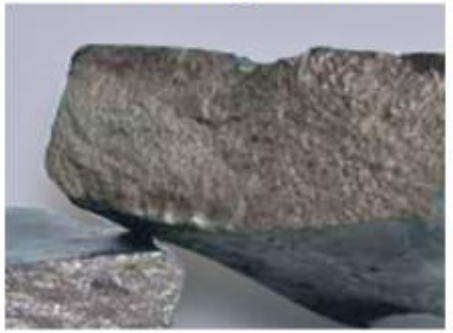
WE CAN'T ADDRESS CLIMATE CHANGE WITHOUT NEW RARE EARTH SOURCES

The Strange Lake Project can help solve the global supply crisis

- the only world-class deposit
- both light and heavy rare earth elements
- lifespan of 30+ years
- China dominates global supply
  - Stability concerns
  - Human rights record
  - Environmental lapses

Dysprosium

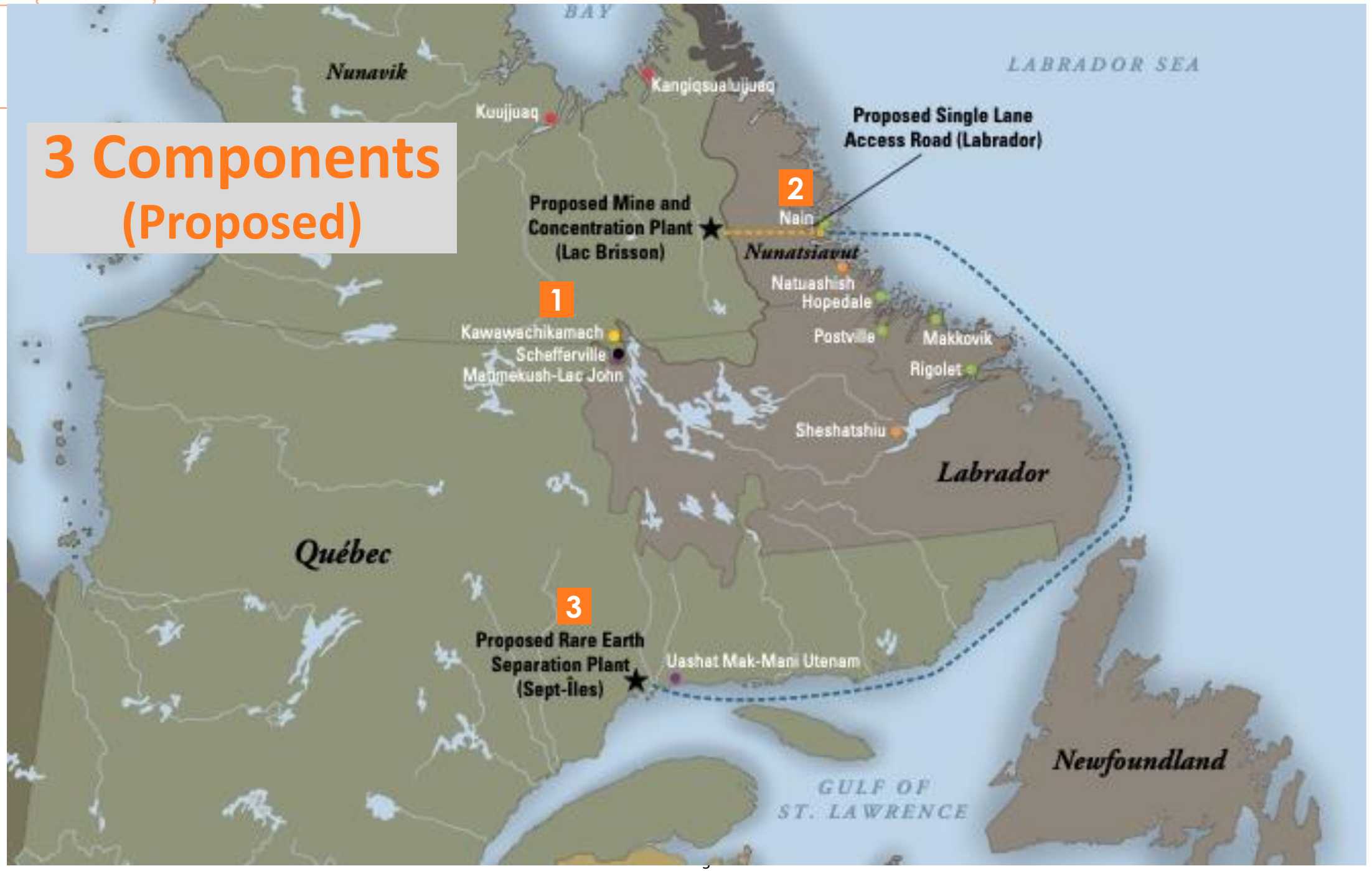
Praseodymium



Terbium

Neodymium

3 Components (Proposed)



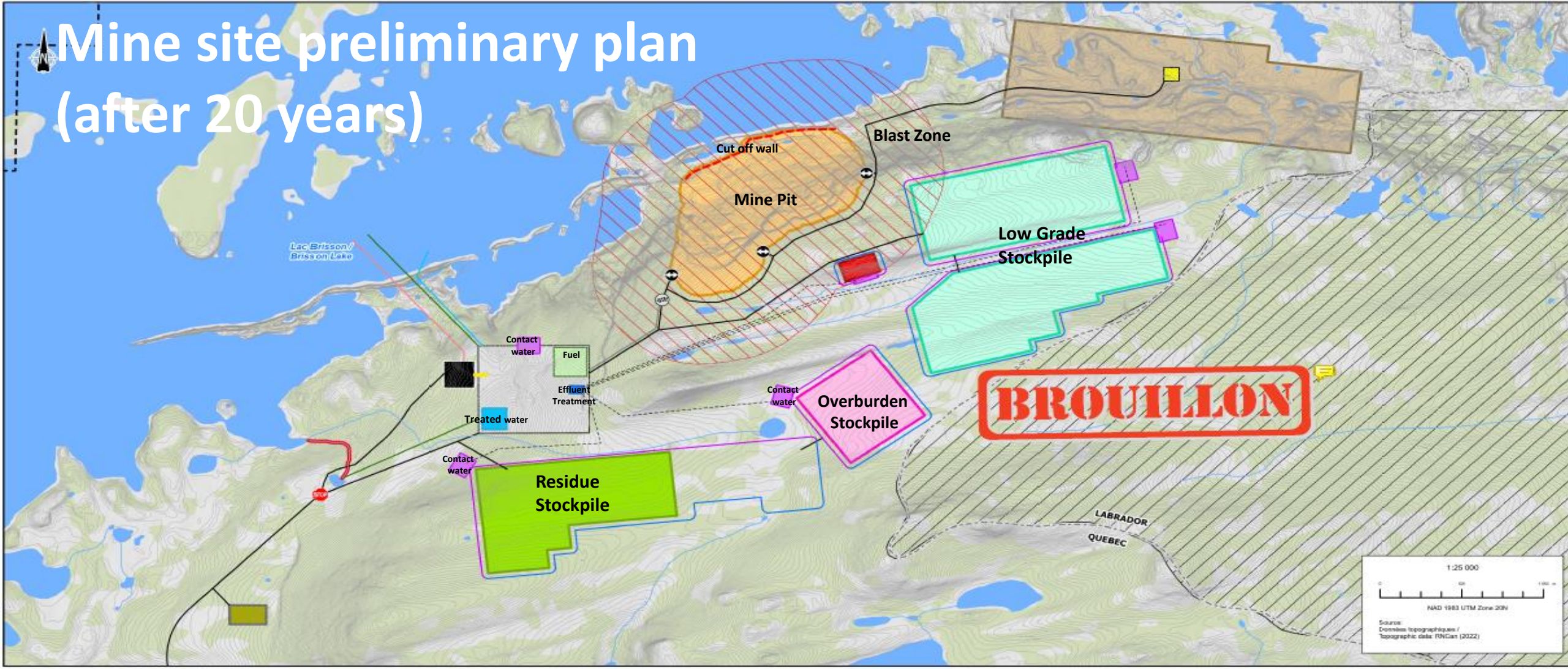
Engaging with All Impacted Indigenous Groups

- Naskapi of Kawawachikamach
- Inuit of Kangiqsualujjuaq
- Innu of Matimekush Lac-John
- Innu of Uashat mak Mani-Utenam
- Nunatsiavut Inuit
- Labrador Innu

Proposed Mine

Strange Lake Project (at Brisson Lake) in Nunavik (Québec)

Mine site preliminary plan (after 20 years)



Composante de la mine / Mine component

- Limite de propriété / Property limit
- Porte d'accès / Access gate
- Sortie de la fosse / Pit exit
- Station de concassage / Crushing Station
- Canalisation souterraine / Underground pipeline
- Convoyeur / Conveyor
- Point de rejet alternatif des eaux usées minières traitées / Alternative discharge point for treated contact and process wastewater
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Mur parafouille / Cut-off wall
- Prise d'eau / Water intake piping
- Routes de service et de halage / Service and hauling roads)
- Tunnel d'accès / Access tunnel
- Émissaire des eaux usées minières traitées / Treated contact and process wastewater outlet
- Émissaire des eaux usées domestiques traitées / Treated domestic wastewater outlet
- Aire d'accumulation des résidus miniers / Mine Residue Stockpile Area
- Aire d'entreposage de mort-terrain / Overburden stockpile
- Banc d'emprunt / Borrow pit
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Bassin d'entreposage des eaux traitées / Treated water storage pond
- Camp permanent des travailleurs / Permanent worker camp
- Halde de stérile / Waste rock
- Fabrication et stockage d'explosif / Explosive manufacturing and storage facilities
- Fosse minière / Mine pit
- Minérai à basse teneur / Low grade stockpile
- Stockage de carburant / Fuel tank farm
- Site d'enfouissement / Landfill site
- Zone industrielle / Industrial area
- Usine de traitement des eaux / Effluent treatment plant
- Zone de souffle d'explosion / Blast zone

Autre / Other

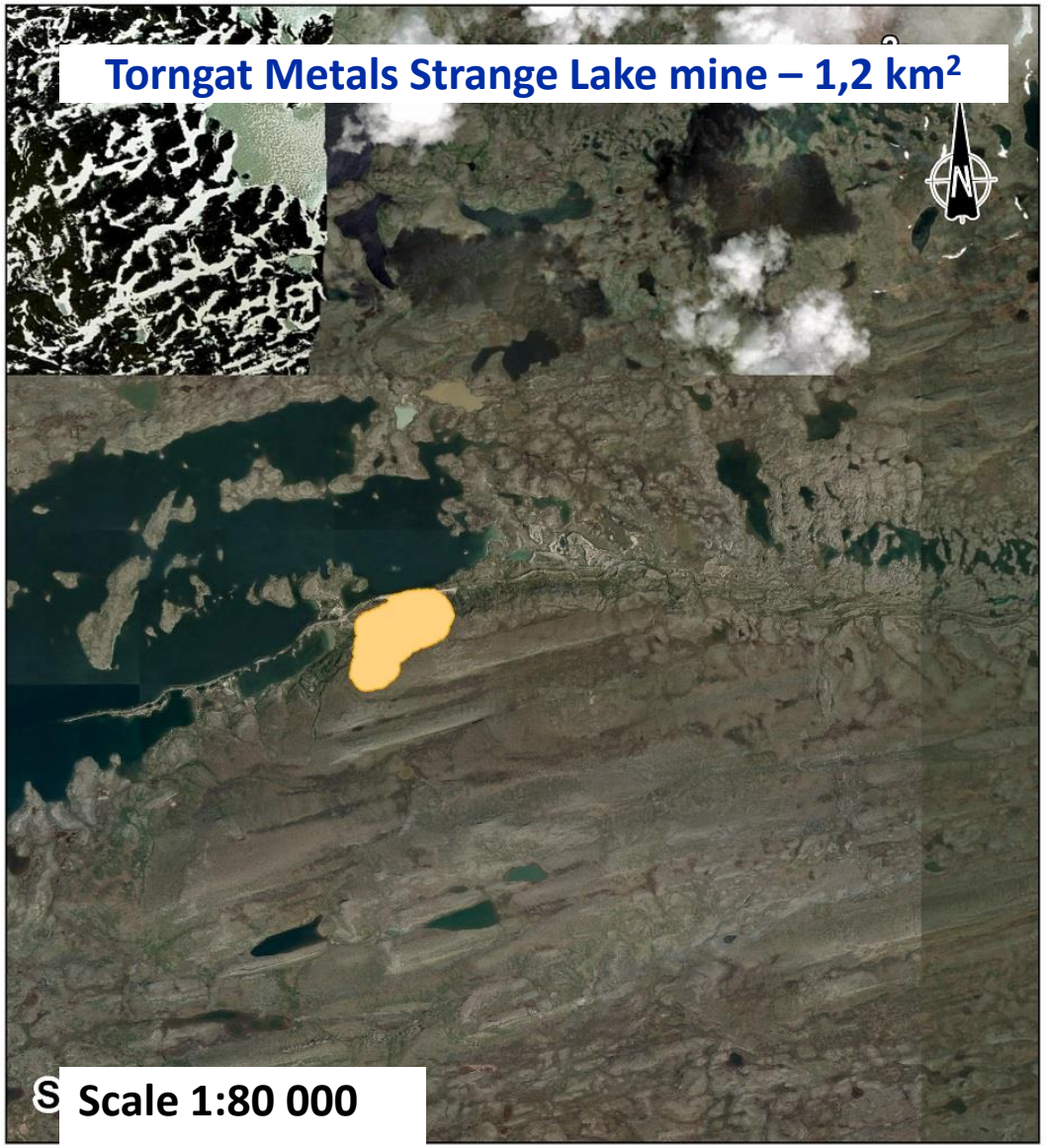
- Frontière / Border
- Terres des Inuits du Labrador / Labrador Inuit Lands (LIL)

Carte X
Composantes de la mine - 20 ans /

Map X
Mine Site Components - 20 years

AECOM

Open Pit Footprint



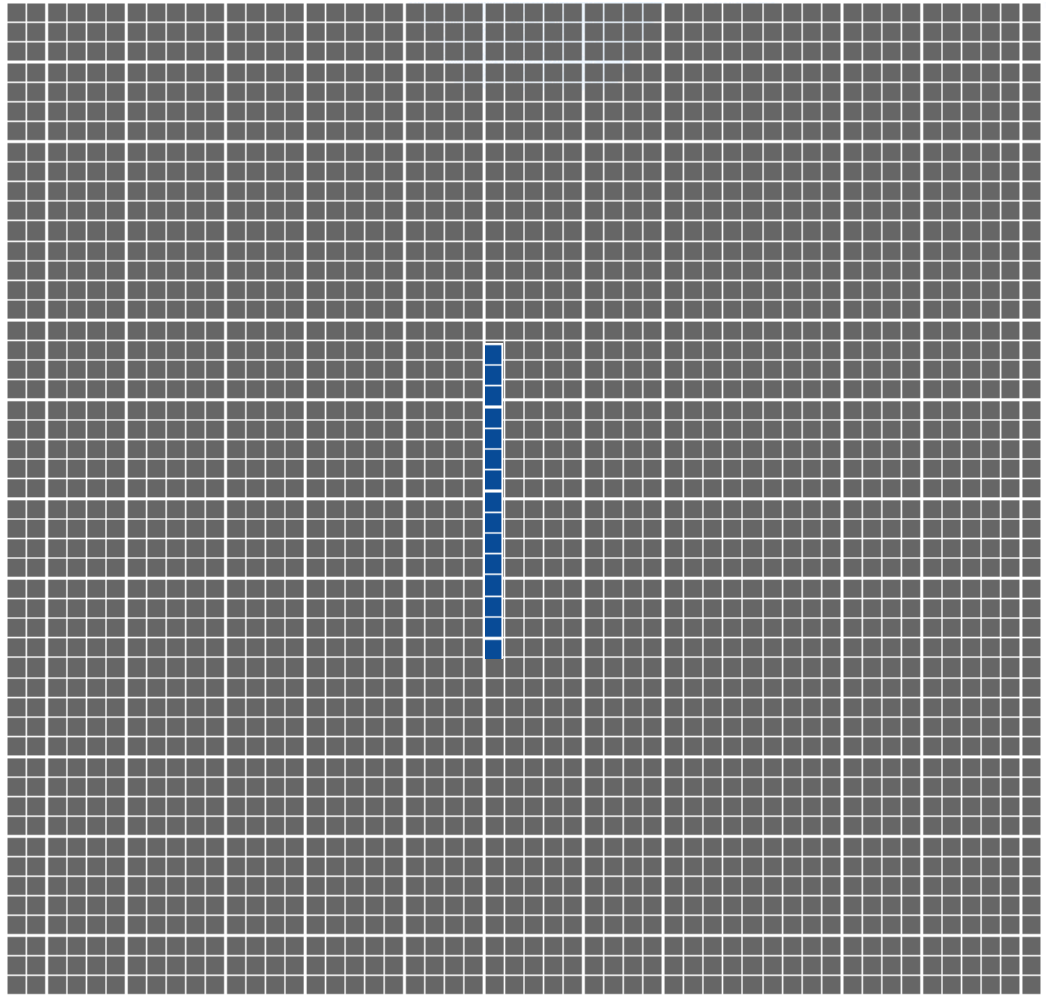
Planned Volume of Concentrate Production (at Lac Brisson)

Torngat Metals
Shipped Concentrate

150,000 tons per year

Typical
Iron Ore Plant

26,000,000 tons per year



Each square represent 10,000 tons

A preliminary sample of dry stack residues from proposed concentration plant

Proposed Design: Mine Site Concentration Plant

Open Pit Mine

Hauling

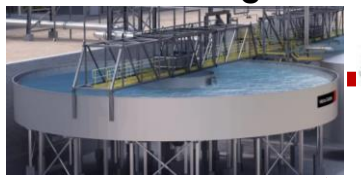
Crushing

Milling

Magnetic separation

Flotation

Residue Thickening



Filtration

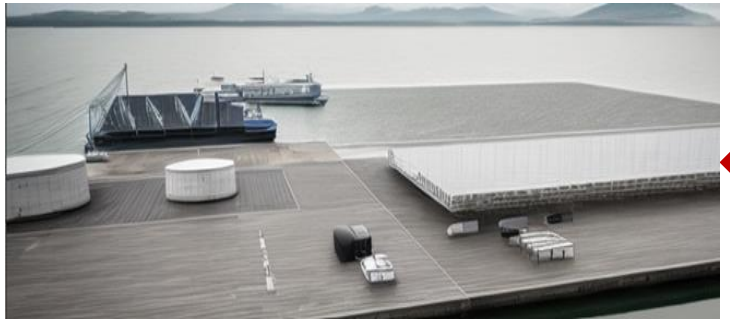
Dry Stacking

Concentrate Thickening

Filtration

Bagging into Containers

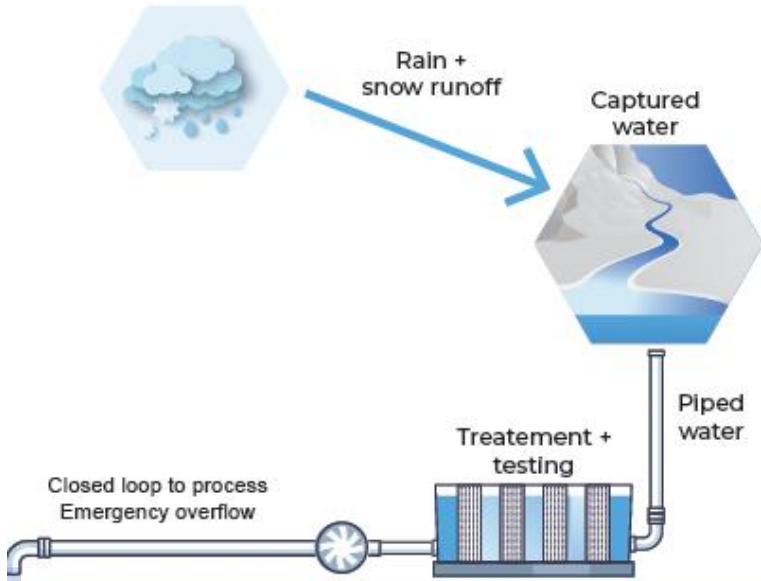
Trucking to port



Port

Water Management at Mine Site

SURFACE WATER

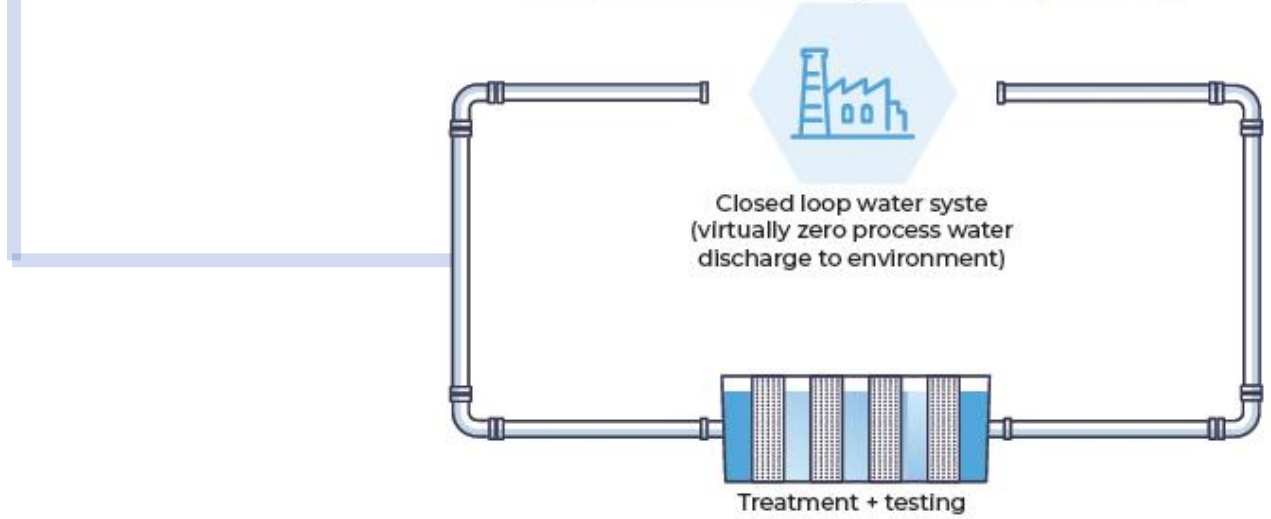


GROUNDWATER

- Protecting permafrost
- Pumping groundwater to dewatering pi
- Continuously monitoring water wells
- Injecting back to groundwater;
  or treat and release

PROCESS WATER:

Closed loop at the mine and concentration plant and the rare earth processing facility



Dust Control at Mine Site

Protocols

- binding agent active work areas
- Structuring blast patterns (dust contained within control areas)
- Use of emulsion and not ANFO (less ammonia)
- Crushed stockpile in enclosed domes or engineered structures
- Other stockpiles engineered to stabilize against dust
- Erosion and sediment controls
- Avoiding multiple handling of materials
- Lowering speed limits on mine site roads

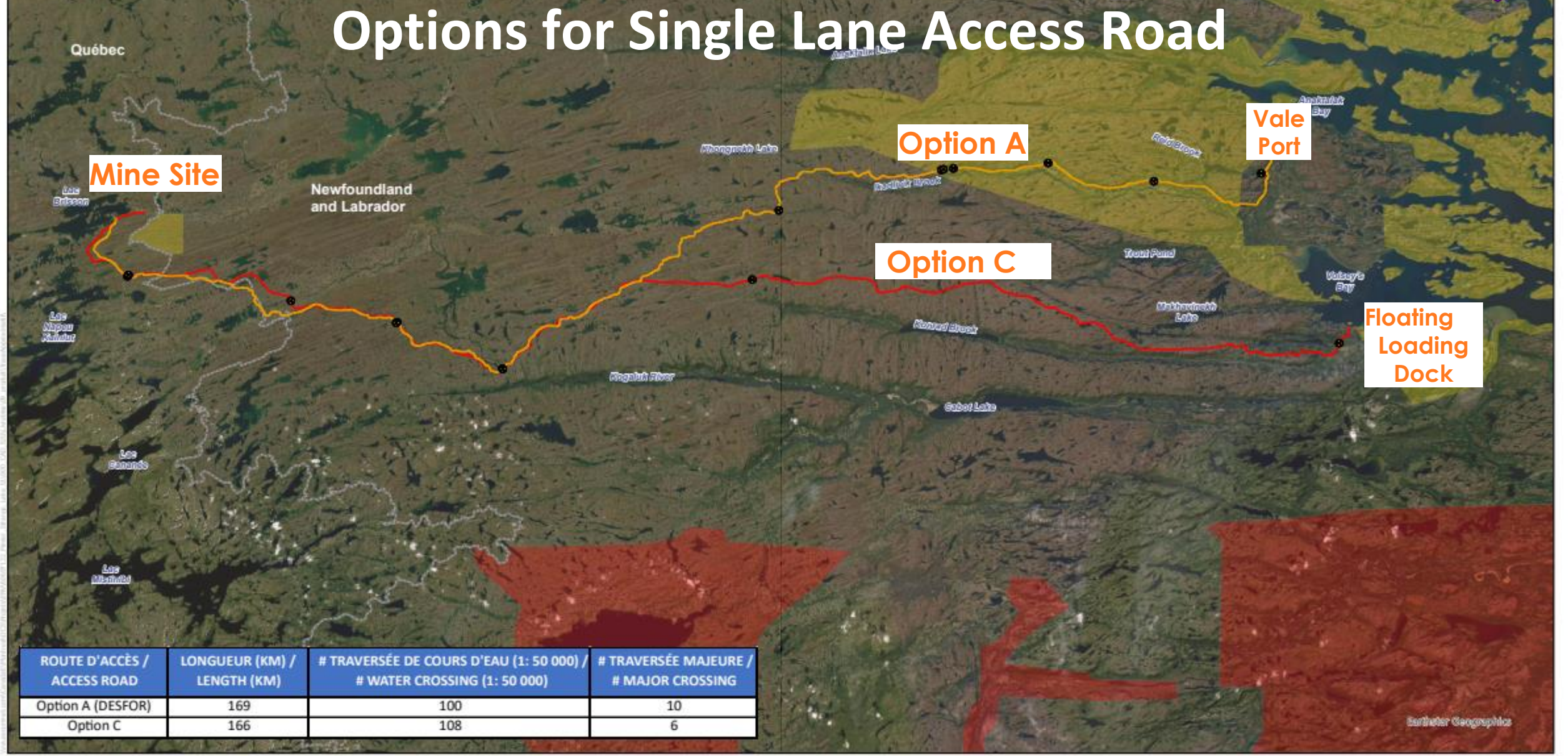
Equipment

- Enclosed conveyors and transfer points
- Enclosed buildings for process plant structures
- HVAC systems in structures
  (water systems, dust filters, etc.)

Radioactivity:
We Will Be Governed by Regulation

- We are not a uranium or nuclear operation.
- We expect some levels of NORM.
- This is typical in most natural resource operations (oil, mining, forestry).
- Our specific levels will be confirmed as we go through the planning, design and EA process, and will be monitored at all stages of operations.
- Worker exposure will be minimized using well established NORM guidelines.
- Waste at mine and separation plant will be managed to NORM and provincial guidelines.

Options for Single Lane Access Road



ROUTE D'ACCÈS / ACCESS ROAD	LONGUEUR (KM) / LENGTH (KM)	# TRAVERSÉE DE COURS D'EAU (1: 50 000) / # WATER CROSSING (1: 50 000)	# TRAVERSÉE MAJEURE / # MAJOR CROSSING
Option A (DESFOR)	169	100	10
Option C	166	108	6

Route d'accès / Access road
- Traversée majeure (Pont) / Major crossing (Bridge)
- Option A (DESFOR)
- Option C

Communauté / Community
- Inuit
- Terres des Inuit du Labrador / Labrador Inuit Lands (LIL)

Terres des Innus du Labrador / Labrador Innu Land
- Catégorie I / Category I

Autre / Other
- Frontière Québec et Labrador / Quebec and Labrador border

1:420 000
0 4 8 km
NAD 1983 UTM Zone 20N
Date : 2024-03-05 09:53

PRÉLIMINAIRE / PRELIMINARY

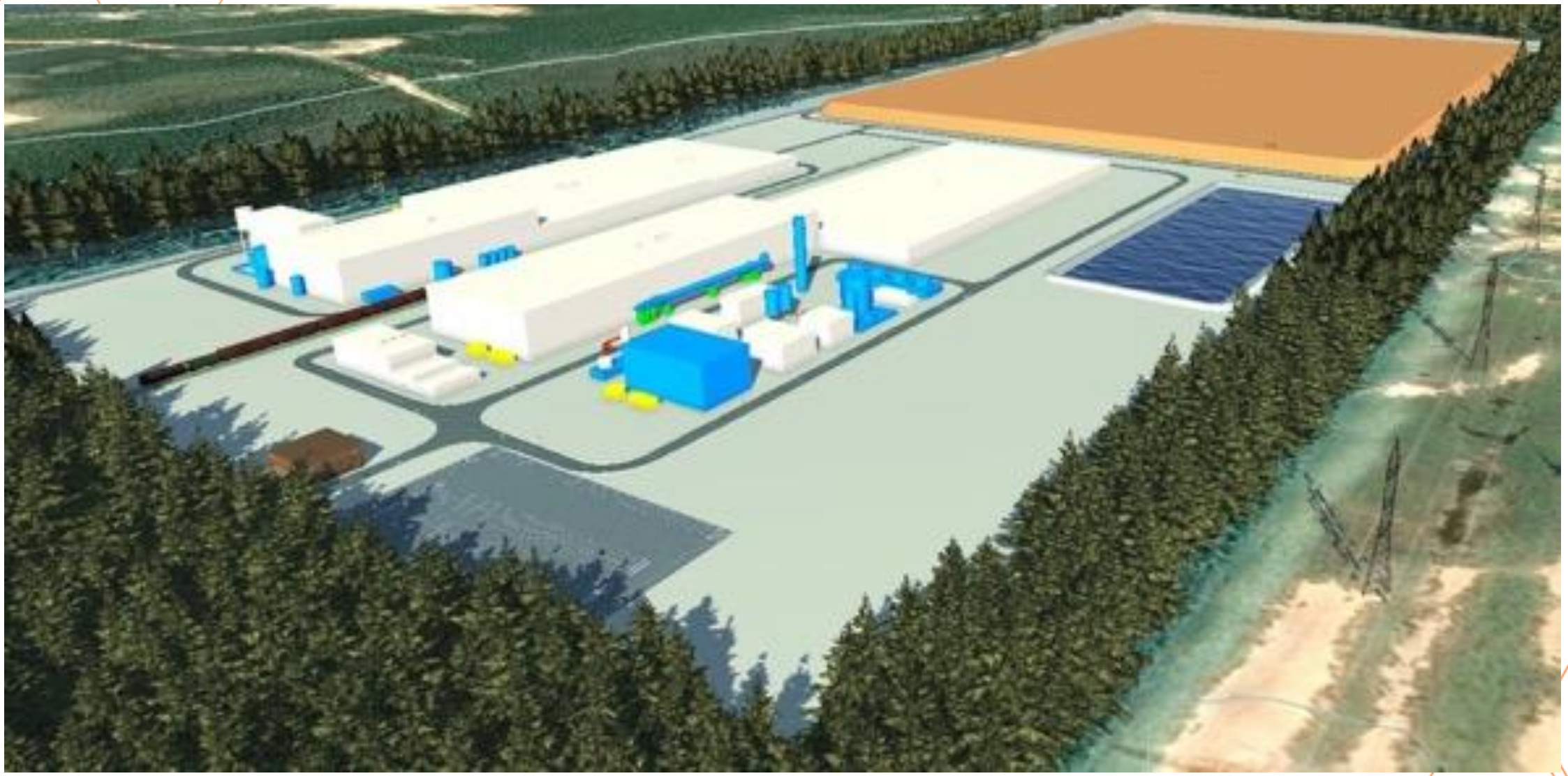
Source:
Données topographiques / Topographic data: RNCan (2022)
Terres des Inuit du Labrador / Labrador Inuit Lands (LIL):
Government of Newfoundland and Labrador (2011)

Variantes A (DESFOR) et C de la route d'accès saisonnière /

Variants A (DESFOR) and C of the seasonal access road

AECOM

Proposed Rare Earth Separation Plant (Sept-Îles)



Caribou Protection Measures During 2023

- Incorporating Naskapi knowledge on caribou in decision-making and field works
  - Caribou working group
  - Caribou incidental observation
  - Limit disturbance and stress on the caribou:
    - Suspend activities that produce significant noise when a caribou is observed near the work sites
    - Avoid direct movement of equipment (including drones) and personnel towards caribou
- Avoid attracting caribou predators
  - Store domestic waste in closed containers before incineration

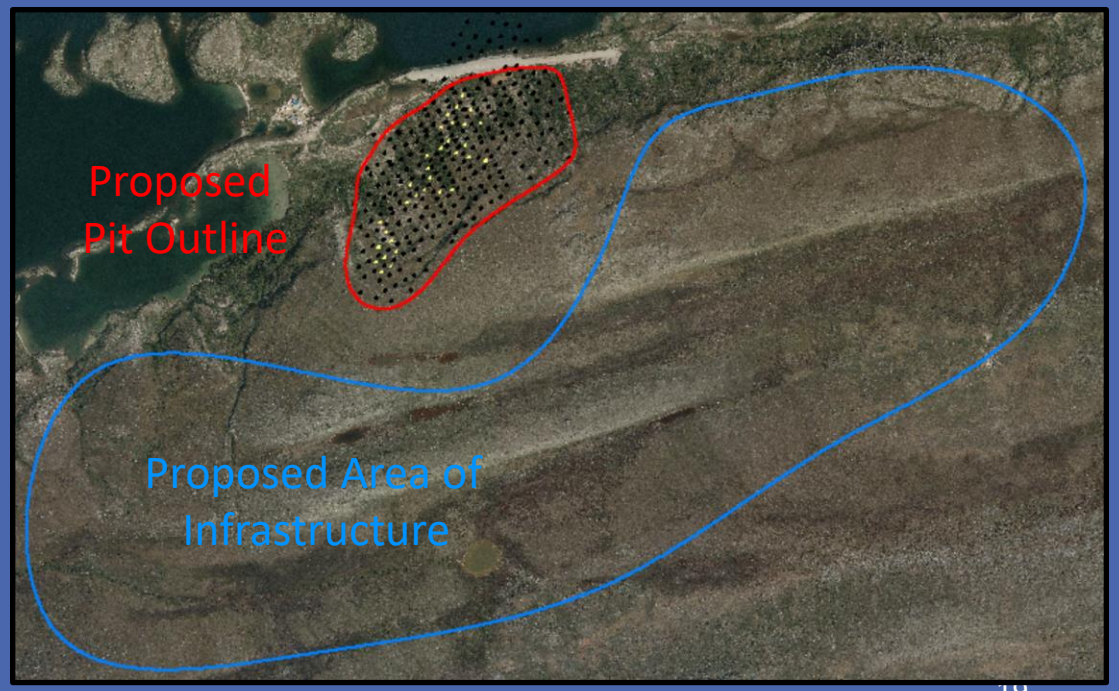
Drill Program: 2023 versus Proposed 2024

2023

- All drill holes within proposed pit
- 33 holes totalling 3,067 metres
- Approx. 20 holes: 1,000-1,500 m
- Drill rig moved by helicopter

2024

- Within proposed pit and infrastructure
- Approx. 40 holes, 3,000 - 3,500 m
- Approximately 20 holes: 1,000 - 1,500 m
- Drill rig moved by helicopter

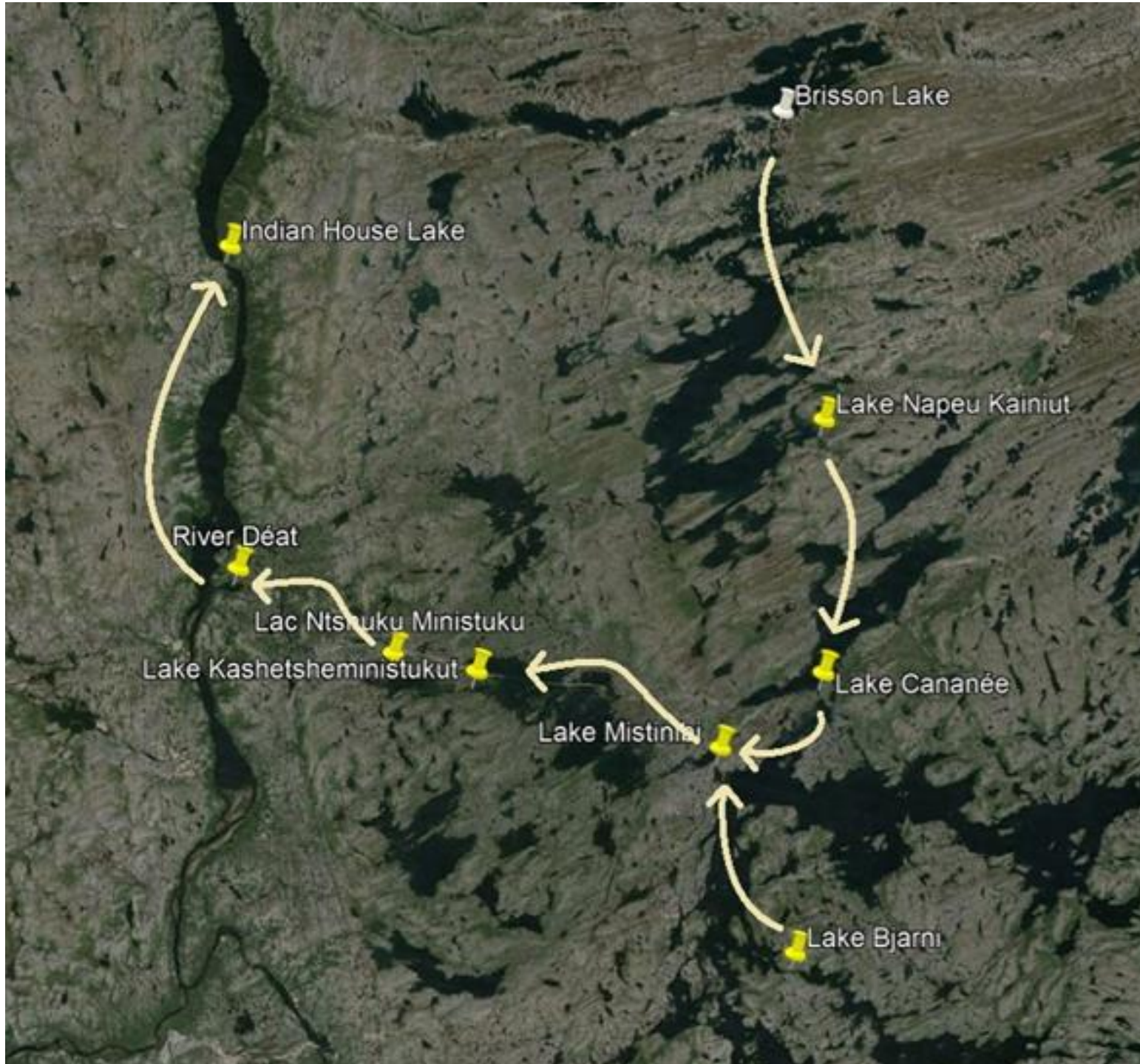


2024 Summer Environmental Fieldwork
Proposed Mine Site and Access Road

Preliminary Program

- GIS data acquisition (drone surveys)
- Bathymetry, hydrology and water management
- Water and sediment quality: hydrogeology and groundwater; surface water; sediment; fish habitat; salmonid spawning
- Terrestrial wildlife: avifauna; chiropteran; caribou
- Wetlands and vegetation
- Ambient noise
- Social environment: archaeology, landscape, land use and occupancy

Proposed Water Sampling Stations



Job Opportunities: *July-October 2024*

Estimated workforce during operations

Montreal head office – 50

Nunavik mine site – 200-230

Sept-îles separation plant – 250-280

- General Camp Labour
- Geo-technical Support
- Wildlife and Environmental Monitor
- Environmental Survey Assistant
- Assistant Cook
- Internships / Mentorships

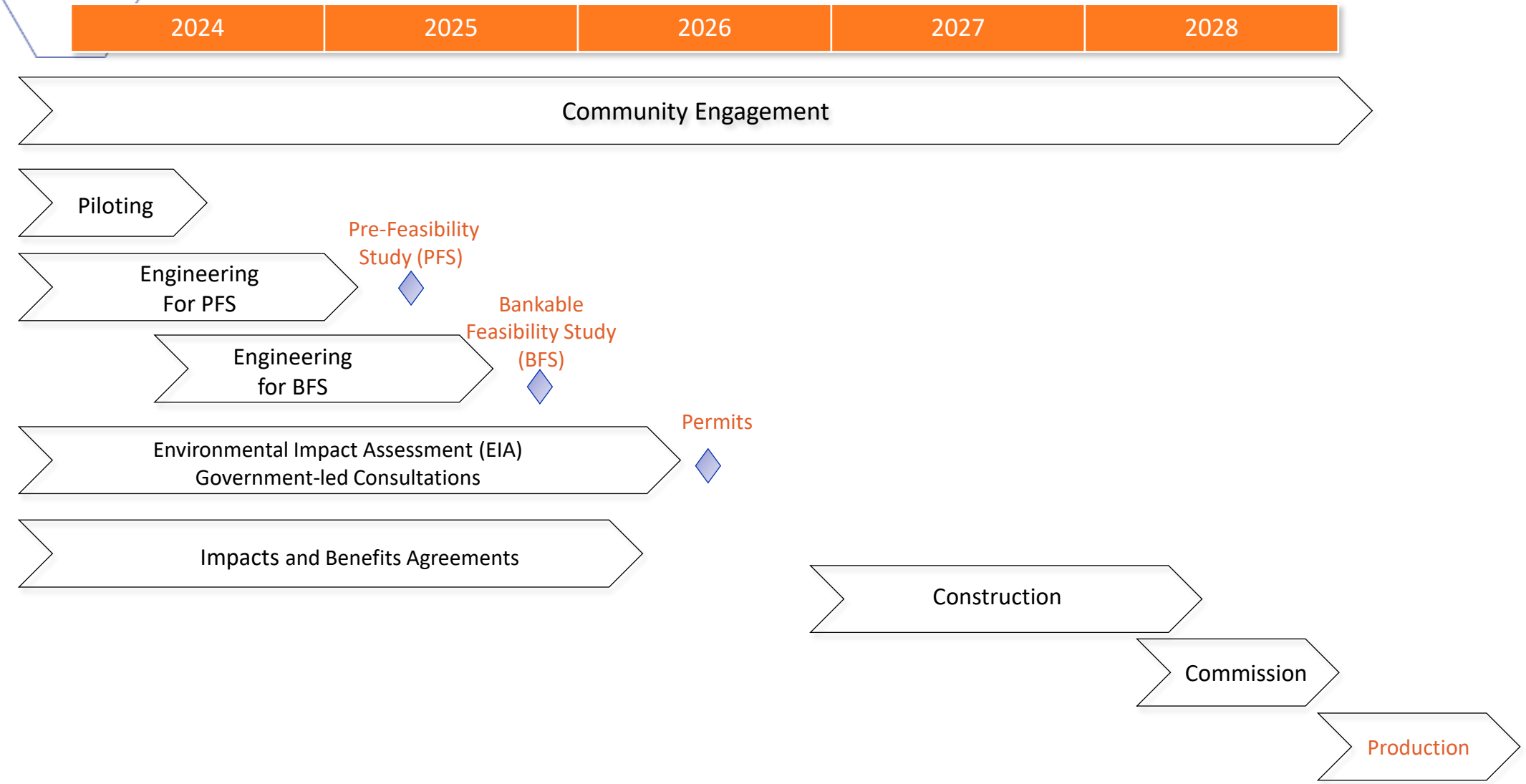
Naskapi Working Experience in 2023-2024

- ✓ Sorting and cutting rock samples in Schefferville
- ✓ Geological data entry
- ✓ Training provided by VP Geologist
- ✓ Full time work
- ✓ Highly paid salary

Why Choose Us?

- ✓ **Experience** is **not required** but considered an asset.
- ✓ **Training** and **mentorship** will be provided for all positions.
- ✓ Transport to/from the camp, lodging, and food will be provided.
- ✓ **Full time** and **part time** seasonal **work**, including rotations and short contracts
- ✓ **Salary starting at $30 / hour** depending on qualifications and experience.

Our Proposed Timeline - Key Milestones



Thank-you

Merci

Séance d'information publique

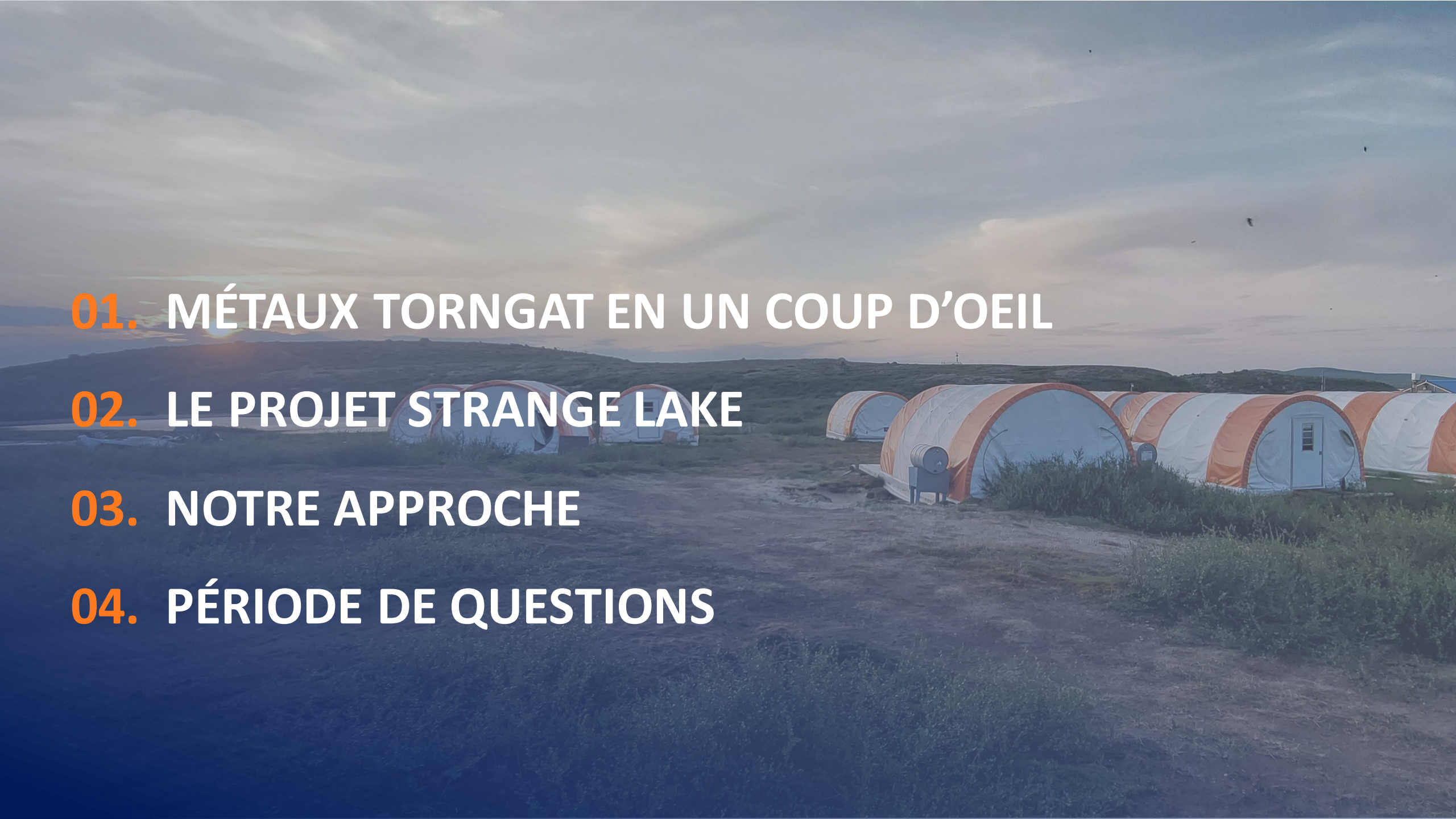
Projet d'usine de séparation des terres rares de Sept-Îles

MÉTAUX TORNGAT METALS

11 avril 2024

ENGAGEMENT ET COLLABORATION SUR LES TERRES ANCESTRALES

- Nous reconnaissons avec respect que notre projet se développe sur les terres ancestrales de différents peuples autochtones.
- Nous progresserons en accordant une place centrale aux partenariats avec les communautés autochtones, essentiels à la réussite de chacune des phases du projet, afin de créer des bénéfices économiques et sociaux durables.
- Nous sommes guidés par une approche inclusive centrée sur les enjeux autochtones, environnementaux, sociaux et de gouvernance.



01. MÉTAUX TORNGAT EN UN COUP D’OEIL

02. LE PROJET STRANGE LAKE

03. NOTRE APPROCHE

04. PÉRIODE DE QUESTIONS

Métaux Torngat en un coup d’œil

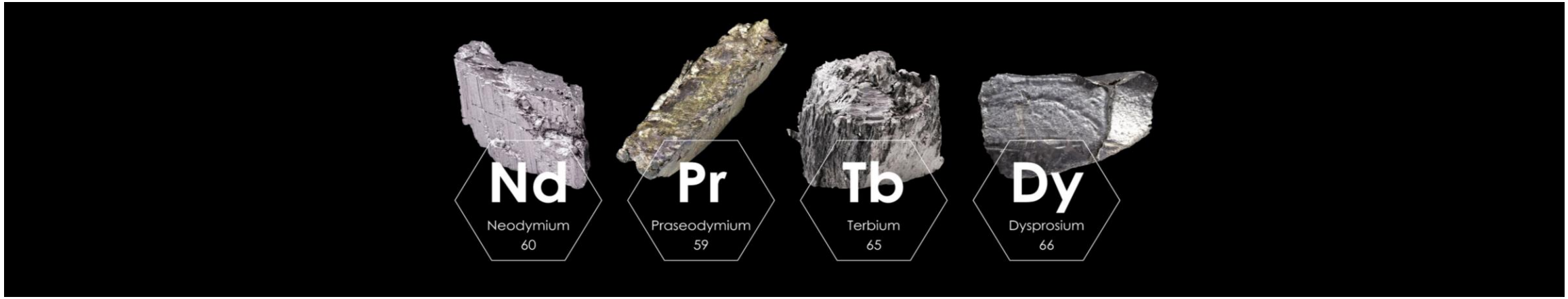
QUI SOMMES-NOUS ?

Notre raison d’être

Contribuer à la lutte contre les changements climatiques en commercialisant un gisement de classe mondiale de terres rares, essentielles à la transition énergétique vers une économie à faible émission de carbone.

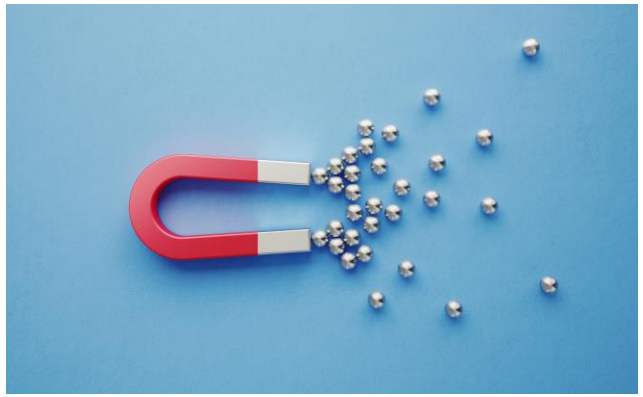
Notre approche

Bâtir un projet durable et responsable pour les 30 années à venir et plus, avec l'ensemble des communautés impliquées.



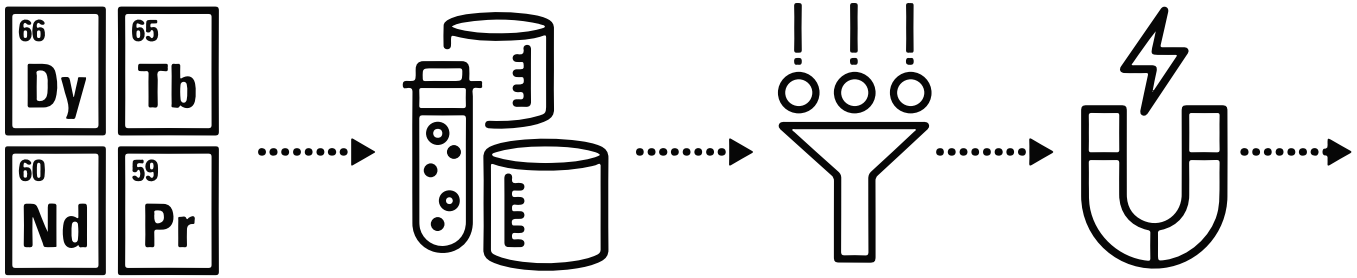
À QUOI SERVENT LES TERRES RARES ?

- Fabricants d'aimants permanents
  - Éoliennes
  - Moteurs des véhicules
  - Moteurs des applications industrielles (robots, air conditionné)
  - Équipements électroniques
- Équipements médicaux
- Verre à haute performance pour les écrans
- Lasers
- Éclairage LED
- Batterie nickel-hydrure métallique (pile rechargeable)

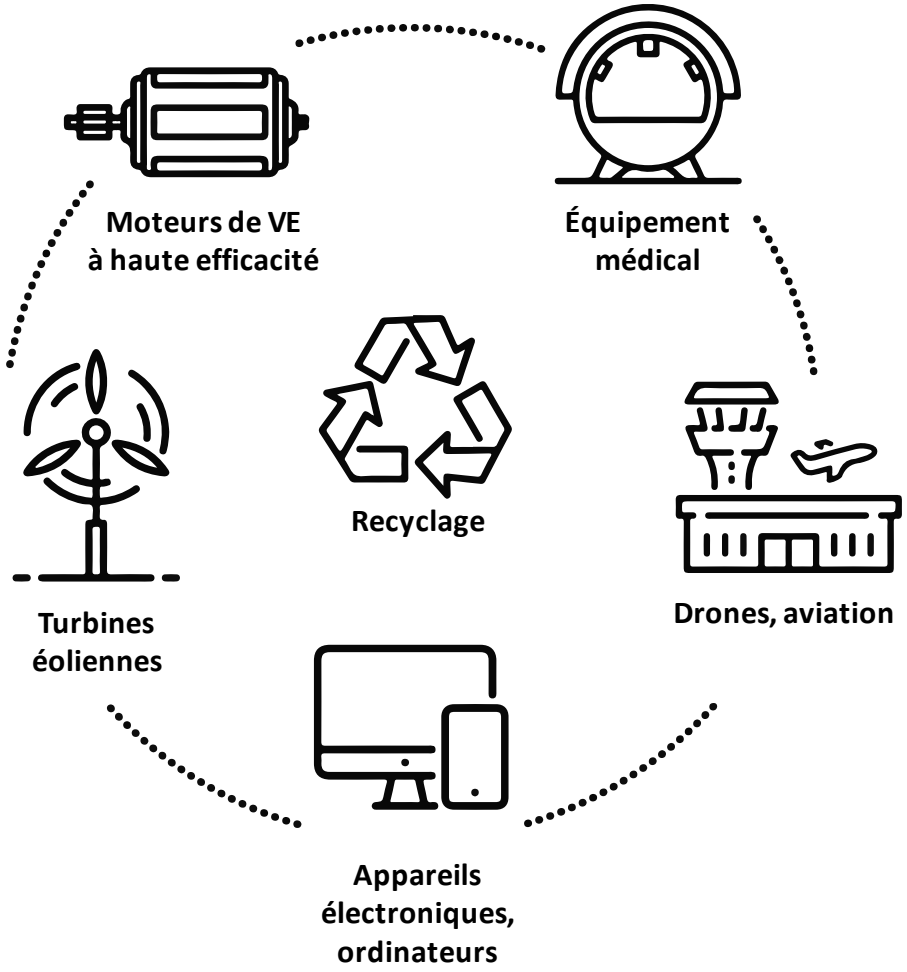


MÉTAUX TORNGAT METALS

UNE CHAÎNE D'APPROVISIONNEMENT RESPONSABLE



ET PRODUITS AVEC UNE FAIBLE EMPREINTE CARBONE



UNE ÉQUIPE EXPÉRIMENTÉE ET ENGAGÉE

Dirk Naumann
PhD

Président et chef de la direction

Christine Burow
BSc, MBA

Directrice exécutive du marketing

Alain Wilson
MBA

Chef de la direction financière

Samantha Doig
BSc

VP Ressources humaines

Mauro Ferrara
CPA-CA

VP Finance

Éric Luneau
B.A. et Sc.

VP Engagements communautaires et partenariats

Sylvie St-Jean
PhD

VP Environnement

Clinton Swemmer
BEng

VP Gestion de projet

Edward Walker
PhD

VP Géologie et minéralogie des ressources

Marilyn Butland
MBA

Relations avec les parties prenantes

Erich Meintjes
M. Eng. MBA

Directeur de l'ingénierie

Navid Rohani
M. Eng.

Ingénieur de processus

Susan Sheehan
MBA

AESG et Communications

Philippe Wattel
M. Eng.

Ingénieur conseil

MÉTAUX TORNGAT METALS

Le projet Strange Lake

UN PROJET DE TERRES RARES PORTEUR

Comment répond-t-on à la demande actuelle ?

La **Chine** contrôle actuellement plus de 90 % du marché des terres rares.

- Ceci crée une chaîne d'approvisionnement **imprévisible, instable et à l'éthique incertaine.**

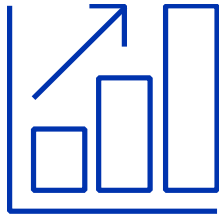
Notre valeur ajoutée

Strange Lake serait le **plus grand fournisseur mondial** d'éléments de terres rares lourdes **hors** de la Chine.

- **Un premier projet de terres rares responsable, respectant les normes** les **plus strictes** en matière de protection de l'environnement.

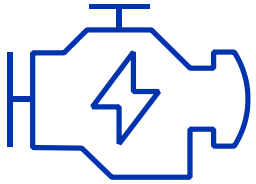
TERRES RARES ET AIMANTS PERMANENTS : UN AVENIR PROMETTEUR POUR SEPT-ÎLES ET LE QUÉBEC

- Plan social et économique du Québec : mener la transition énergétique propre
- Les aimants permanents à base d'éléments de terres rares (ETR) sont essentiels à cette transition



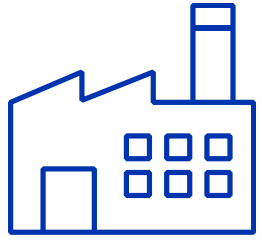
Répondre à la demande croissante

300-700 % dans les 15 prochaines années



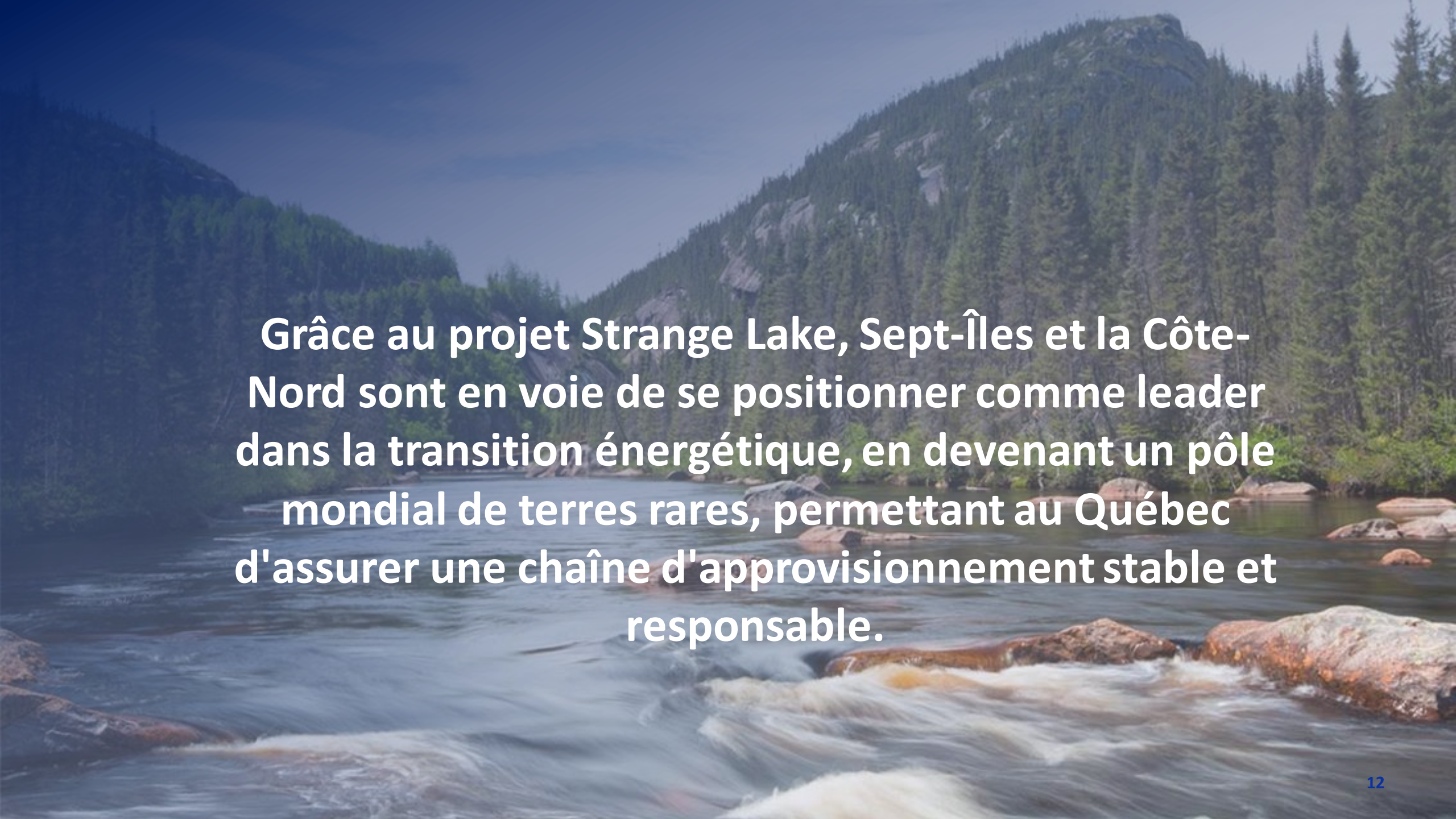
Transformer vers une économie plus propre et responsable

Terres rares → Aimants permanents → moteurs électriques performants



Exploiter les terres rares et développer l'expertise

Création d'une nouvelle chaîne d'approvisionnement de terres rares à Sept-Îles



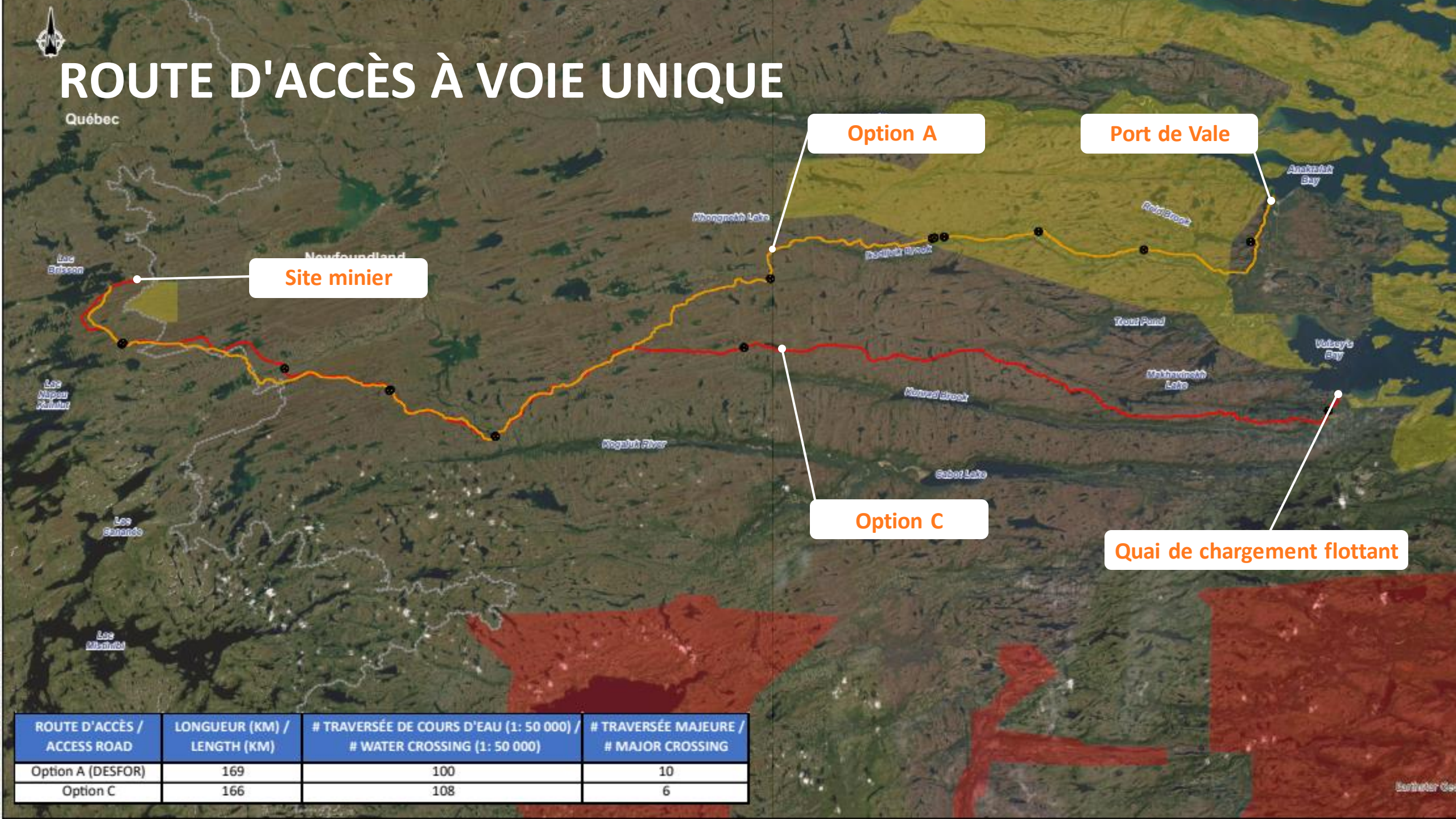
Grâce au projet Strange Lake, Sept-Îles et la Côte-Nord sont en voie de se positionner comme leader dans la transition énergétique, en devenant un pôle mondial de terres rares, permettant au Québec d'assurer une chaîne d'approvisionnement stable et responsable.

PROJET STRANGE LAKE : TROIS COMPOSANTES

1. Site minier et usine de concentration (Lac Brisson)
2. Route d’accès (vers le Labrador)
3. Usine de séparation de terres rares (Sept-Îles)

SITE MINIER

ROUTE D'ACCÈS À VOIE UNIQUE



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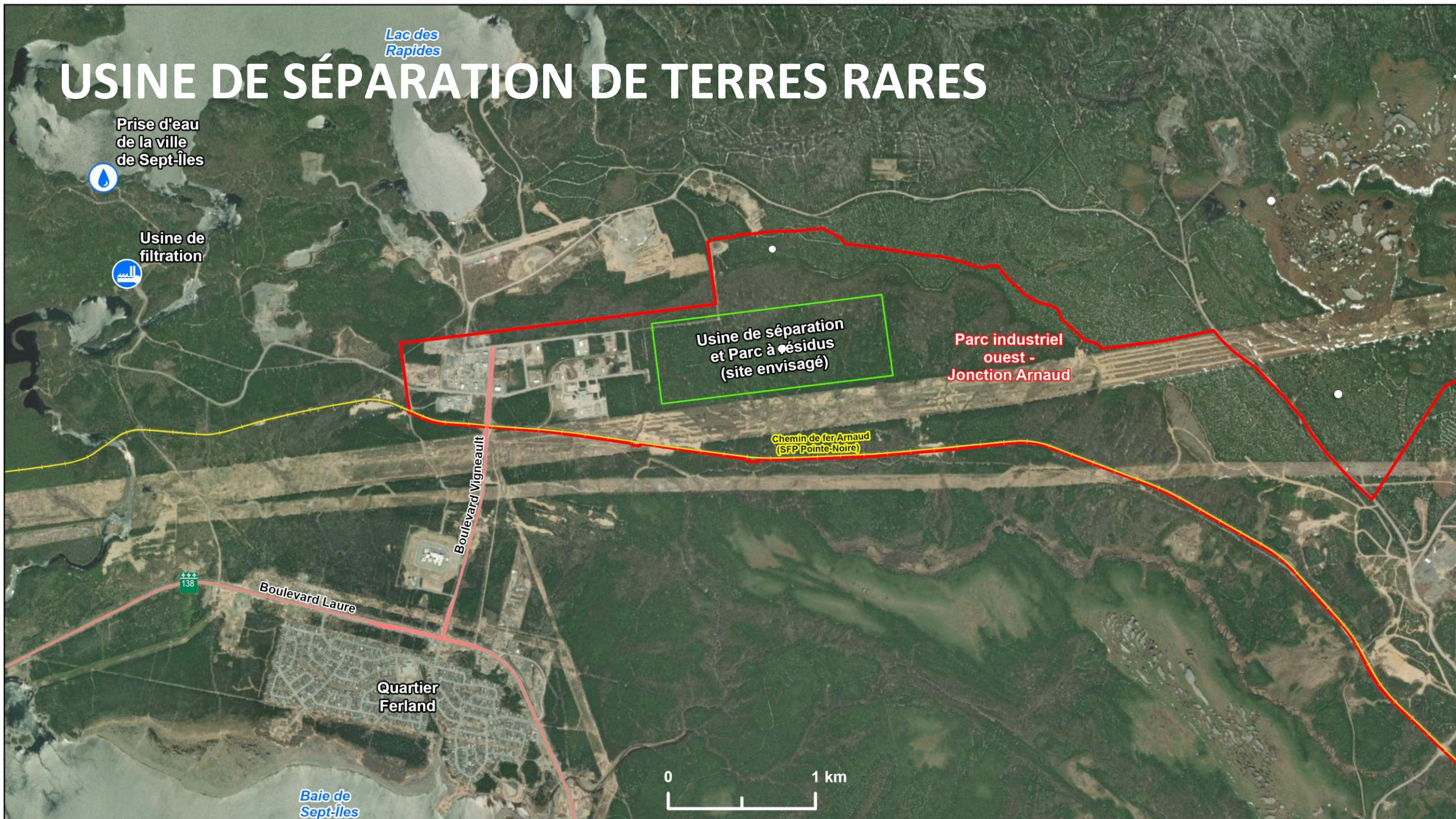
Option A (DESFOR)	169	100	10
Option C	166	108	6


Lac des Rapides
USINE DE SÉPARATION DE TERRES RARES
Prise d'eau de la ville de Sept-Îles
Usine de filtration
Usine de séparation et Parc à résidus (site envisagé)
Parc industriel ouest - Jonction Arnaud
Chemin de fer Arnaud (SFP Pointe-Noire)
Boulevard Vigneault
138
Boulevard Laure
Quartier Ferland
Baie de Sept-Îles
0
1 km

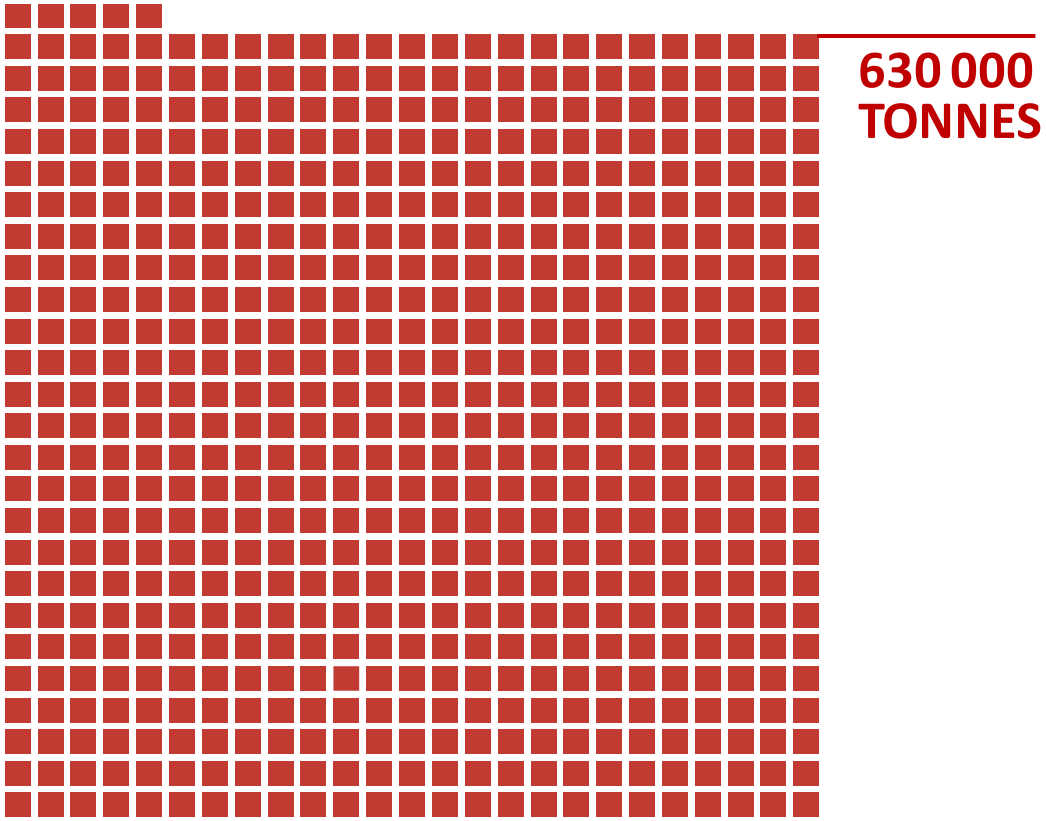
USINE DE SÉPARATION DE TERRES RARES (Sept-Îles)

- Traitement des terres rares
- Séparation par procédé de sulfatation et d'hydrométallurgie
- Parc à résidus
- Gestion de l’eau : recyclage et réutilisation
- Technologies de fine pointe

ÉCHANTILLON PRÉLIMINAIRE

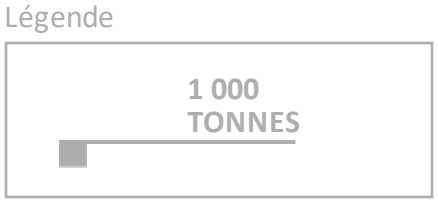
Résidus secs de l’usine de concentration

CAPACITÉ DE PRODUCTION ANNUELLE DE L'USINE



Autre compagnie/industrie de la région

Métaux Torngat



MÉTAUX TORNGAT METALS

UNE USINE MODERNE UTILISANT DES TECHNOLOGIES ÉPROUVÉES

Super sacs dans les conteneurs maritimes

Hydro Québec

Énergie à faible empreinte carbone

Prise d'eau à l'usine de traitement des eaux municipales

Procédés de sulfatation d'hydrométallurgie

Résidus secs

Traitement de l'eau

MINIMISER NOTRE IMPACT

De manière éthique, transparente et responsable, nous allons …

Gaz à effet de serre	Gestion des résidus	Qualité de l'air	Qualité de l'eau	Milieux humides	Qualité de vie
• Optimisation des procédés pour améliorer l'efficacité énergétique • Réduction des GES	• Mélangés avec du ciment • Couverture en tout temps • Réhabilitation progressive et responsable	• Transport dans des super sacs et conteneurs • Utilisation de technologies propres pour réduire les poussières • Surveillance de la qualité de l'air en temps réel avec des stations de monitorage	• Priorisation du recyclage et revalorisation de l'eau • Usine de traitement des eaux très performante • Suivis réguliers de la qualité de l'eau	• Suivi rigoureux pour évaluer l'impact sur les milieux humides et ajuster les pratiques • Collaboration avec les organismes environnementaux	• Création d'emplois locaux et formation professionnelle • Investissement dans les infrastructures locales • Soutien aux initiatives de développement communautaire et économique

DES BÉNÉFICES MAJEURS POUR SEPT-ÎLES

Projet à long terme

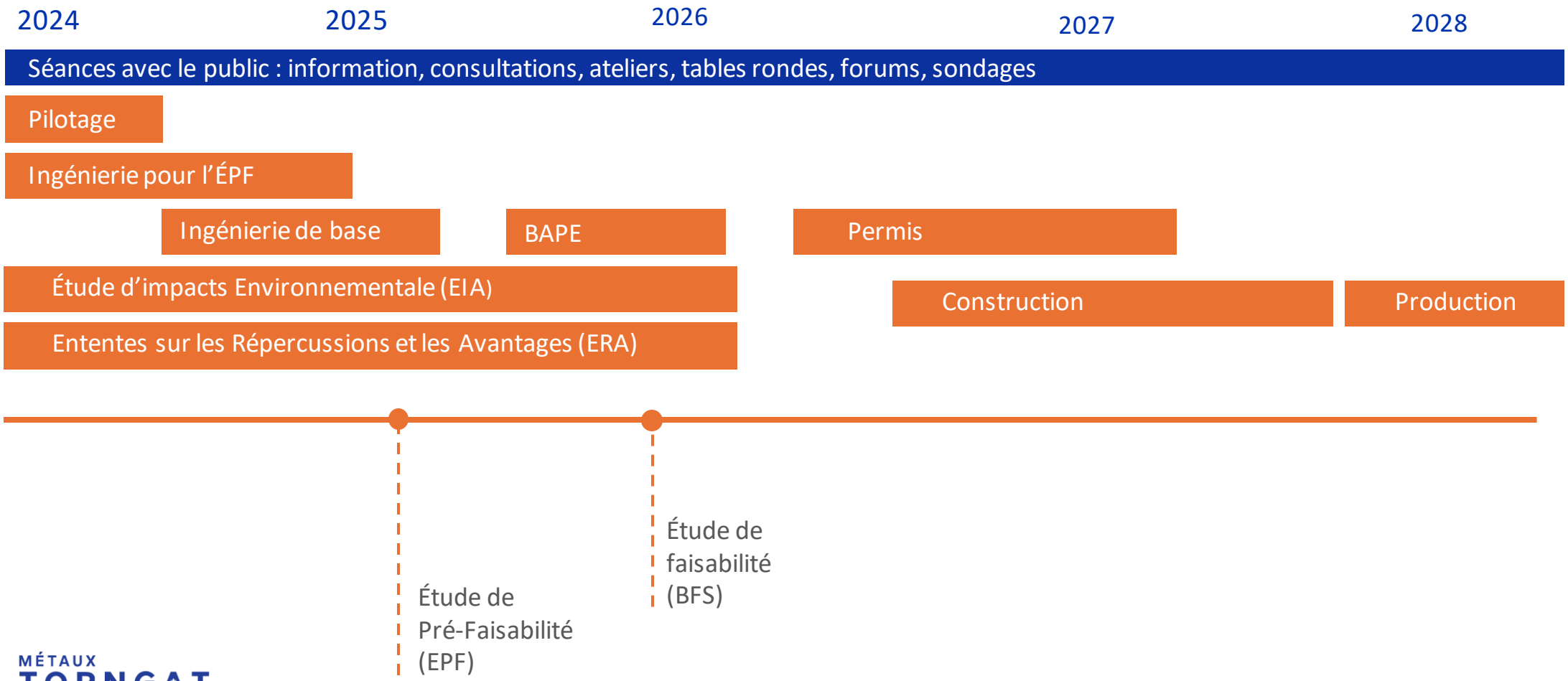
Création d’une expertise locale et engagée vers la transition énergétique

Diversité économique : 280 emplois de qualité et attractivité de la main-d'œuvre

Partenariats avec les institutions académiques et les entreprises locales

Projet local à rayonnement international

LES ÉTAPES CLÉS DU PROJET



Notre approche

NOTRE APPROCHE A-ESG

Nous respectons les normes les plus élevées

AUTOCHTONES

1. Approche intégrée à l'ensemble de nos décisions
2. Partenariats solides et durables
3. Alignement sur les objectifs des communautés, respectant autonomie et droits

ENVIRONNEMENT

1. Mine : exploitation sélective à faible impact
2. Route et transport maritimes saisonniers minimisant les impacts environnementaux
3. Usine : technologies spécialisées minimisant déchets, consommation d'eau et émissions, et une approche circulaire pour eau et minéraux

SOCIAL

1. Priorité à la santé et sécurité au travail pour tous nos employés, partenaires et pour la population
2. Engagement dans une éthique de travail inclusive et équitable
3. Occasions de développement

GOUVERNANCE

1. Gestion proactive des risques
2. Approche transparente et responsable avec nos parties prenantes
3. Priorité aux composantes Autochtones, Environnement et Social auprès de notre Conseil d'Administration et de notre direction senior

UNE PRÉSENCE SOUTENUE

Une approche locale et responsable

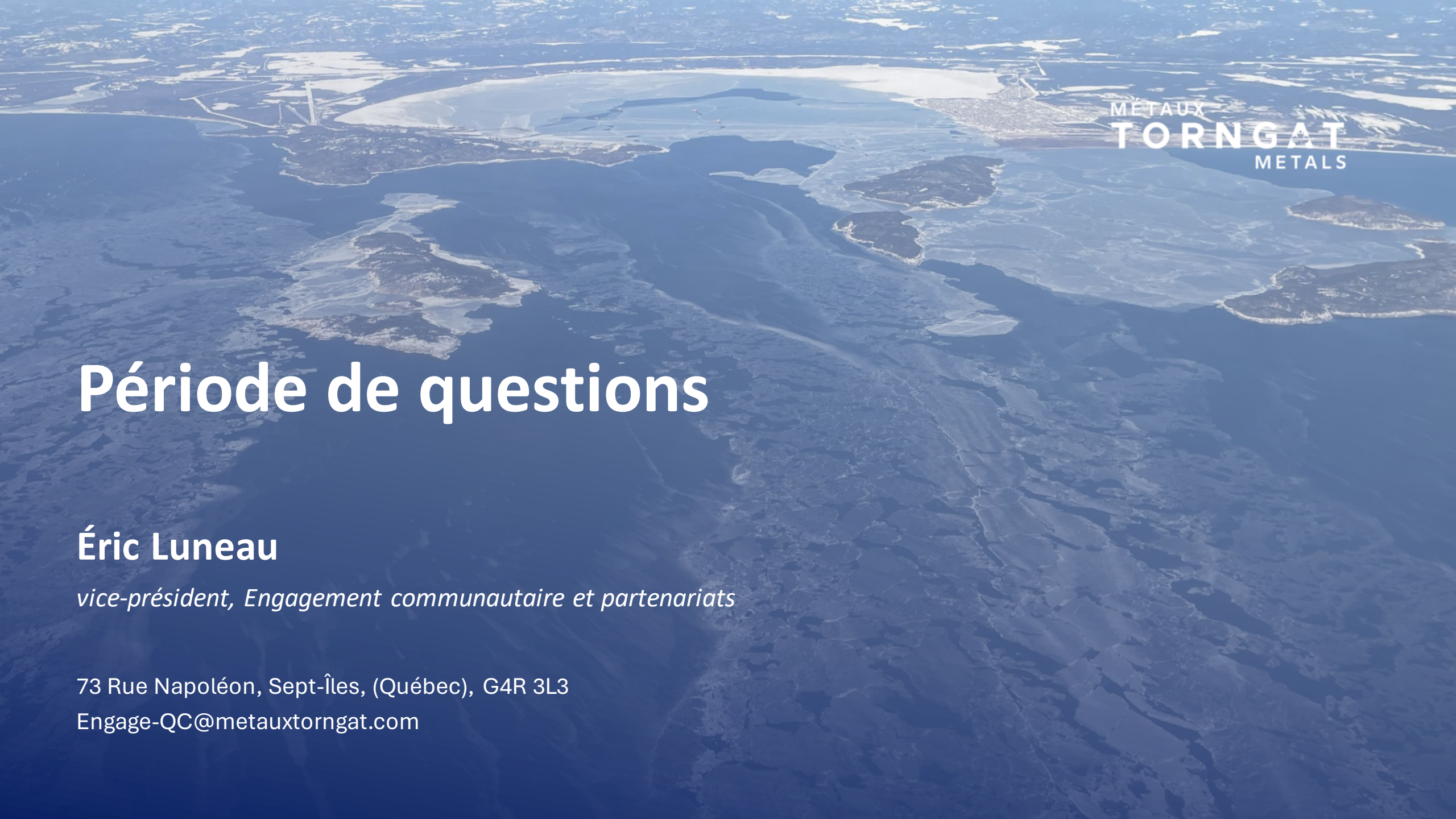
Nous souhaitons assurer une communication **claire, transparente et bidirectionnelle** avec l'ensemble des communautés de la Côte-Nord.

- Présence hebdomadaire de notre équipe de gestion
- Bureau à Sept-Îles (rue Napoléon)
- Plus d'une trentaine de rencontres déjà effectuées avec les acteurs locaux économiques, environnementaux, académiques, gouvernementaux, municipaux et syndicaux
- Plusieurs séances d'information publiques pour la population tout au long du projet

UNE APPROCHE ÉTHIQUE POUR RELEVER LES DÉFIS ACTUELS

Nous avons l'ambition de bâtir un projet **exemplaire** en matière d'acceptabilité sociale :

- Collaborer, écouter et respecter les communautés locales
- Optimiser notre empreinte sociale et environnementale
- Monitorer l'impact du projet, tout au long de sa durée
- Maintenir une transparence avec les communautés
- S'investir pleinement et à long terme dans la communauté pour léguer des bénéfices générationnels
- Collaborer avec les meilleurs experts et partenaires mondiaux



Période de questions

Éric Luneau

vice-président, Engagement communautaire et partenariats

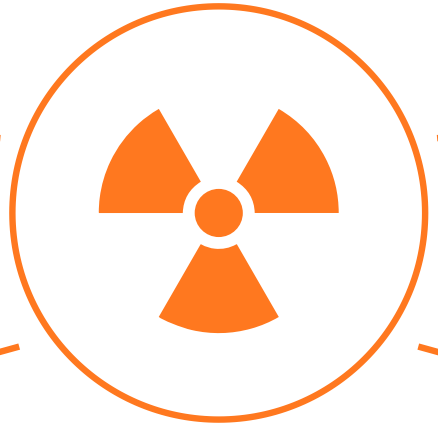
73 Rue Napoléon, Sept-Îles, (Québec), G4R 3L3

Engage-QC@metauxtorngat.com

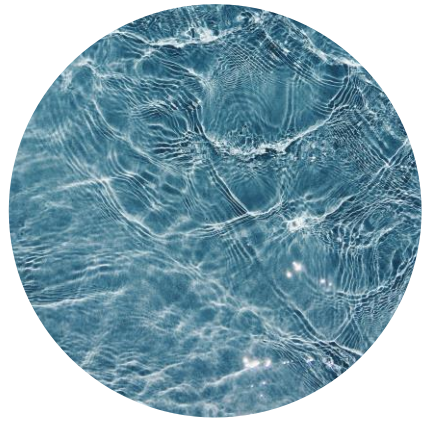
RADIOACTIVITÉ

Air

Nourriture



Terre



Eau

FAIBLE RADIOACTIVITÉ PRÉSENTE - MRN

- **PAS UNE MINE D'URANIUM :** Nous ne sommes pas une mine d'uranium, ni une installation nucléaire. Nous ne faisons aucune transformation nucléaire.
- **RADIATION NATURELLE :** Les MRN (matières radioactives naturelles) sont des éléments radioactifs que l'on trouve dans l'environnement (terre, eau, air). L'uranium et le thorium sont des exemples d'éléments toujours présents dans la croûte terrestre.
- **PRÉSENCE NORMALE :** Des MRN sont présentes sur le site de Strange Lake et dans le concentré produit. Ceci est typique dans l'industrie des ressources naturelles (pétrole, mine, forêt).
- **NIVEAUX FAIBLES :** L'exposition du public sera inférieure à la dose non-limitée de 0,3 mSv/an selon les lignes directrices canadiennes sur les MRN.
- **SÉCURITÉ AVANT TOUT :** L'exposition des travailleurs sera bien inférieure des lignes directrices canadiennes sur les MRN.

SÉCURITÉ ET RADIOACTIVITÉ DANS LA PRODUCTION DE TERRES RARES

- **EST-CE QUE LA TRANSFORMATION PRODUIRA DE LA RADIOACTIVITÉ ?**
  - Non. Notre processus de production ne génère pas plus de radioactivité que ce que l'on trouve naturellement dans notre sol.
- **QUELS SONT LES NIVEAUX DE RADIOACTIVITÉ DES RÉSIDUS ?**
  - Les niveaux de radioactivité restent semblables à ce que vous rencontrez dans la nature au Québec.
- **EST-CE QUE NOTRE EAU PEUT-ÊTRE CONTAMINÉE PAR LA RADIOACTIVITÉ ?**
  - Non. Grâce aux technologies avancées et nos procédures de filtration rigoureuses, nos méthodes de traitement élimineront la radioactivité – ou la réduiront à des niveaux convenus avec la municipalité, conformément aux seuils réglementaires provinciales et fédérales.
- **QUELS SONT LES RISQUES ASSOCIÉS À CETTE RADIOACTIVITÉ ?**
  - L'exposition à la radioactivité du projet sera même inférieure à celle que vous recevez du soleil et du sol chaque jour.

Appendix D
Geochemical Characterization Program, General Water Balance and Surface Water Balance (Preliminary Versions)

Calgary

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Calgary, AB T2P 3T7
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Memorandum

To: Sylvie St-Jean – Vice-President of Environment, Torngat Metals Ltd.

From: Tara Tuchiwsky, Senior Engineer

Cc: Jared Robertson – Okane Consultants;
Guy Gilron – Borealis Environmental Consulting

Our ref: 865-220-001

Date: April 9, 2024

Re: **Strange Lake Mine Geochemical Characterization Program Overview**

This memorandum has been prepared by Okane Consultants (Okane) and Borealis Environmental Consulting (Borealis) to provide Torngat Metals Ltd. (Torngat Metals) an outline of a geochemical / toxicity sampling plan for the Strange Lake Mine. Herein are details provided for recommended sample analyses given previous test work completed for the Strange Lake Mine that follows both industry standards and the guidance of the *Guide de caractérisation des résidus miniers et du minerai* (MELCC, 2020) for sample numbers and testing required over the life of mine (LOM). The characterization program is design to address risk characterization and uncertainty outlined as part of Directive 019 (MDDEFP, 2012) and the Strange Lake Rare Earths Mining Project Directive for Preparing the Environmental and Social Impact Assessment (CQEK, 2023).

Introduction

Torngat Metals Ltd. (Torngat Metals) owns and is in the process of developing the Strange Lake Mine (Strange Lake). Okane Consultants (Okane) is providing geochemical sampling recommendations to help inform Torngat Metals ongoing material characterization. Strange Lake will consist of an open pit, stockpiles for mine materials (including waste rock, low to medium grade ore, a tailings storage facility, and associated infrastructure). Okane has recommended additional static and kinetic testing be completed on potential mine materials that will be produced at Strange Lake.

The tests recommended herein were selected based on *Guide de caractérisation des résidus miniers et du minerai* (MELCC, 2020) and referenced sources within including Mine Environment Neutral Drainage (MEND) guidelines (Price, 1997; Price, 2009) and Directive 019 (MDDEFP, 2012) and Kativik Environmental Quality Commission (CQEK, 2023) which provide requirements for characterizing mine related waste materials and stockpiles, in addition to criteria for managing effluent and developing monitoring programs.

Background

Strange Lake is a rare earth element (REE) minerals deposit located in Nunavik, Québec, Canada. The mine is currently in the pre-feasibility study (PFS) stage, working on large volume pilot tests to optimize separation of rare earth oxides (Torngat Metals, 2023). The Strange Lake ore deposit is hosted in granites and pegmatites containing the minerals quartz (SiO_2), orthoclase ($KAlSi_3O_8$), albite ($NaAlSi_3O_8$), aegirine ($NaFe^{3+}Si_2O_6$), thorite ($ThSiO_4$), titanite ($CaTiSiO_5$) and zircon ($ZrSiO_4$). In addition, the ore deposit and associated rocks include uncommon Zr, Y, Be, Nb and REE-bearing minerals, such as:

- Elpidite ($Na_2ZrSi_6O_{15}{\cdot}3H_2O$) and armstrongite ($CaZrSi_6O_{15}{\cdot}3H_2O$), gittinsite ($CaZrSi_2O_7$) which are the principal sources of Zr;
- Pyrochlore ($(Na,Ca)_2Nb_2O_6(OH,F)$) which is the main source of Nb; and
- Kainosite ($Ca_2(Y,Ce)_2Si_4O_{12}(CO_3){\bullet}H_2O$) and gadolinite ($Y_2Fe^{2+}Be_2Si_2O_{10}$).

Additionally, some asbestiform minerals in trace amounts have been identified from previous studies, including richterite ($Na_2Ca(Mg,Fe^{2+})_5Si_8O_{22}(OH)_2$), arfvedsonite ($Na_2(Fe^{2+}{}_4Fe^{3+})Si_8O_{22}(OH)_2$), and riebeckite ($Na_2(Fe^{2+}{}_3Fe^{3+}{}_2)Si_8O_{22}(OH)_2$), and aegirine ($NaFe^{3+}Si_2O_6$) (Terrapex, 2014).

The South section of the proposed pit area is hematite-rich, the middle section is argillite-rich, while the North section of the pit is a mix of hematite and argillite (E. Walker, *personal communication*, September 11, 2023).

Previous Geochemical Characterization

Terrapex (2014) provided a summary of two geochemical programs conducted in 2013, which tested 28 samples, included 24 composite samples of high, medium, and low-grade ore, and four composite samples of waste rock. Previous findings were that:

- Metal concentrations in solids were above criteria for Quebec's Soil Protection and Rehabilitation of Contaminated Sites Policy for Ag, As, Cu, Cd, Mn, Sn, Pb, Se, and Zn;
- Leach tests were conducted by TCLP EPA 1311, SPLP EPA 1312 and CTEU-9. TCLP highlighted almost all samples had leachable levels considered "intermediate" risks; however, the SPLP and CTEU-9 protocols returned results concluding low-risk leachability;
- Static tests evaluating acid rock drainage (ARD) risk classified all samples from the 2013 programs as non-potentially acid generating (NAG) rock; and
- Radioactivity of all samples was tested as bulk solid and as leachate as per Directive 019. The findings of radioactivity tests concluded:
    - All samples (regardless of REE grade) were classified as radioactive in solid form.
    - Leachate from all samples concludes that no samples were classified as high-risk radioactive.
    - U, Th, and Be were identified as radioactive materials present in the tailings. The tailings sample (acid leach residue sample (T1)) was not radioactive, though there was some uncertainty about whether this sample was representative. It was recommended that representative tailings samples be obtained to make a further assessment.

Material Groupings

The following material types will be present on surface at Strange Lake:

1) Low to medium grade ore (LGO/MGO)
2) High grade ore (HGO)
3) Waste Rock
4) Overburden

The most recent (St-Jean S., *personal communication,* September 11, 2023) schedule for processing ore over the anticipated 30 years of mine life generally follows such that:

- Years 0 to 18: HGO will be sent for processing after excavation, while LGO will be temporarily stockpiled.
- Years 19 to 30: LGO will be processed from the surface stockpiles.

After processing the ore, it is anticipated that 121 Mt of tailings will be produced and stored at site. Two tailings streams are anticipated to be produced: tailings from the first beneficiation step (x-ray) and tailings from the Process Plant (using magnetic and flotation separation methods).

Geochemical Sampling Plan

The geochemical sampling plan was developed by Okane to provide support for future environmental assessments for Strange Lake. Geochemical characterization recommendations are based primarily on regulatory requirements and informed by previous regional experience and industry best practices (CQEK, 2023; MMDEFP, 2012; MELCC, 2020; Price, 1997; Price, 2009). MELCC (2020) details a staged characterization process where minimum sample requirements for both Stage I – Material Identification and Stage II – Assessment of Trait Variability is five samples per material type, and a statistical representativeness using the guidelines outlined by Price (1997 and 2009) is recommended. In Stage 3 – Targeted Characterization for Classification includes kinetic experiments with provisions for < five samples per material type based on judgement of qualified professionals and the findings of characterization work in earlier stages.

Okane has provided estimates of anticipated sampling numbers given the volumes of material anticipated to be mined over the 30-year LOM. However, as drilling programs and additional characterization work is ongoing, these tests will be phased over multiple years as additional samples representing more of the Open Pit volume are collected. Additionally, if stockpile tonnages change, it is recommended that these numbers are adjusted based on Price (1997) and MELCC (2020) guidelines. Geochemical testing will ensure methods and analyses are consistent with provincial testing requirements.

The number of samples actually analyzed may vary from the numbers presented in this document. Provisions are made for reducing or increasing the number of samples per material type, though not below the minimum five samples. Factors than can adjust recommended sample quantities include but are not limited to homogeneity in the material results, significant heterogeneity, and identification of high risk for a specific concern (e.g., if most samples from a given material are consistently elevated in total sulfur or carbon) (MELCC, 2020). Kinetic column experiments are recommended per MELCC (2020) and the number of recommended columns may vary depending on the variability and risk identified

from the results of preliminary static tests. There are provisions to have fewer than five kinetic column tests per material at the discretion of a qualified professional, though justification for the quantity must be provided (MELCC, 2020).

A summary of the total number of samples and analyses is provided below (Table 1). Additional details regarding the tests and sample selection process are provided for different material types below. As tests are completed over time, results can be analyzed for representativeness, and recommendations for future test work may be provided. Okane will advise Torngat Metals on sample numbers given the total planned mine volumes for stockpiling and can provide recommendations for sample location based on the block model. Torngat Metals will document samples selected through core photographs, sample descriptions, and, for composite samples, the identification of each sub-sample interval. Sample locations will be provided on geological maps and cross-sections that include waste rock samples, geology, mineralized zones, approximate location of the Open Pit, borehole traces and identification numbers, and a scale and legend.

It should be noted that any material sourced for road materials will be added to the sampling plan based on volume similar to what was done for other material types. At this time, no specific materials have been identified.

Table 1: Summary of Tests Recommended for Each Material Type at Strange Lake

Material Type	Mass (Mt)	Total Number of Samples	Test	Number of Samples Required for Testing
Overburden	11.7	22	Total C + S by LECO	22
			Acid Base Accounting (ABA)	11
			Trace Elemental Analysis (aqua regia)	11
			Li metaborate digestion, WRA by ICP-OES/MS	5
			Radionuclides	5
			Short Term Leach Tests	11
			QEMSCAN Mineralogy	5
			Asbestos Content	5
			Kinetic Column Tests[1]	2
Waste Rock	0.30	10	Total C + S by LECO	10
			ABA	5
			Trace Elemental Analysis (aqua regia)	5
			Li metaborate digestion, WRA by ICP-OES/MS	5
			Radionuclides	5
			Short Term Leach Tests	5
			QEMSCAN Mineralogy	5
			Asbestos Content	5
			Kinetic Column Tests[1]	2
	72	204	Total C + S by LECO	204

Material Type	Mass (Mt)	Total Number of Samples	Test	Number of Samples Required for Testing
Low to Medium Grade Ore			ABA	102
			Trace Elemental Analysis (aqua regia)	204
			Li metaborate digestion, WRA by ICP-OES/MS	41
			Radionuclides	41
			Short Term Leach Tests	102
			QEMSCAN Mineralogy	21
			Asbestos Content	11
			Kinetic Column Tests[1]	5
High Grade Ore	Variable[3]	5	Total C + S by LECO	5
			ABA	5
			Trace Elemental Analysis (aqua regia)	5
			Li metaborate digestion, WRA by ICP-OES/MS	5
			Radionuclides	5
			Short Term Leach Tests	5
			QEMSCAN Mineralogy	5
			Asbestos Content	5
			Kinetic Column Tests[1]	0
Mine Site Tailings (X-ray)	115	27	Total C + S by LECO	27
			ABA	14
			Trace Elemental Analysis (aqua regia)	27
			Li metaborate digestion, WRA by ICP-OES/MS	6
			Radionuclides	6
			Short Term Leach Tests	14
			QEMSCAN Mineralogy	5
			PSD	5
			Asbestos Content	5
			Humidity Cell Test[2]	1
			Kinetic Column Tests[1]	4
Tailings (Process Plant)	5.6	6	Total C + S by LECO	6
			ABA	5
			Trace Elemental Analysis (aqua regia)	6
			Li metaborate digestion, WRA by ICP-OES/MS	5
			Radionuclides	5
			Short Term Leach Tests	5
			QEMSCAN Mineralogy	5
			PSD	5
			Asbestos Content	5
			Kinetic Column Tests[1]	2
			Humidity Cell Test[2]	1

Material Type	Mass (Mt)	Total Number of Samples	Test	Number of Samples Required for Testing
Tailings Supernatant (Process Plant)	-	5	Total and Dissolved Metals/Hg + Hardness, Routine Water, Ammonia, Total N, Total P, Total Sulfide, TOC, DOC, radionuclides, Anions in Water by IC, REE Package	5

[1]The exact number of kinetic column tests will be confirmed pending the results of the static analyses.
[2]Humidity cell tests are initiated prior to kinetic column experiments to provide preliminary source terms to support other mine work.
[3]The high grade ore will be temporarily stockpiled during operations prior to processing at the mill. No long-term storage is anticipated.

Waste Rock and Ore Samples

Geochemical characterization work will be performed on solid rock samples provided by Torngat Metals from drill core. Assay data for drill holes has been collected to define the ore body and can be used to identify heterogeneities and select representative samples. Locations for sample numbers indicated in Table 1 will be selected and discussed with input from Torngat Metals to ensure representative sampling from current and planned drill programs to characterize the waste materials. It is understood that drill core from earlier drilling programs have been stored where they have been protected against the elements to minimize weathering.

Torngat Metals will be responsible for sample collection from the drilling programs or previously stored core samples and will then send samples to Okane's Saskatoon laboratory for organization and submission to commercial laboratories for analysis. Quality Assurance/Quality Control (QA/QC) will be followed at the commercial laboratories according to industry standards. Duplicate samples will be submitted at a rate of one duplicate per 20 samples with a minimum of one per material type.

Okane developed the following sample analytical plan based primarily on the *Guide de caractérisation des résidus miniers et du minerai* (MELCC, 2020) and informed by the MEND (2009) guidance for sample numbers. Okane recommends that an additional **two hundred and forty-one (241)** static tests should be performed. Previously 28 tests were completed on waste rock, low/medium grade ore and high grade ore (Terrapex 2014). This number is based on an anticipated 84.3 Mt of waste rock, overburden, LGO/MGO that will be stockpiled throughout the LOM to supplement the number of samples from the previous material characterization study. The recommended number of samples were broken down by percentages of total waste rock each material type represents and are presented in Table 2. The recommended number of samples are presented in Table 3.

Although 49.5 Mt of HGO is anticipated to be produced over the LOM, HGO is planned to be moved directly to the processing plant and processed soon after, and therefore HGO volumes have not been included in the total sample count recommendations. However, an additional five (5) samples have been recommended to provide additional preliminary results in the case that future stockpiling is considered.

Table 2: Mine Material Classification, Volumes, and Stockpile Contribution

Material Type	Total Mass Mined Material (Mt)	% of Total Stockpiled Mine Materials
Overburden	11.7	13.9%
Waste Rock	0.30	0.4%
Low to Medium Grade Ore	72	85.7%
High Grade Ore	49.5	0

Table 3: Recommended Number of Samples for Total Stockpile Volumes

Material Type	Total Mass Mined Material (Mt)	Recommended Total Number of Samples[1]	Number of Samples Previous Collected[2]	Recommended Additional Samples[1]
Overburden	11.7	22	0	22
Waste Rock	0.30	14	4	10
Low to Medium Grade Ore	72	224	20	204
High Grade Ore	49.5	9	4	5
Total	133.8	269	28	241

[1] Based on MELCC (2020) guidelines; [2] Terrapex (2014)

Tailings Samples

Although a large volume (121 Mt) of tailings are anticipated to be produced over the LOM, tailings are typically anticipated to be more homogeneous than waste rock samples. However, using the guidance of MELCC (2020) it is recommended that **thirty-three (33) tailings samples** be tested, including 27 from X-ray sorting and 6 from the process plant. As these samples are undergoing testing, it is also recommended that supernatant produced during the processing be sampled and collected to represent tailings water. These samples numbers may be adjusted depending on the availability of tailings during the early stages of the project. As results are made available the number of tailings samples may be revised down depending on the variability of the results.

Geochemical Analyses

The geochemical analytical program below is based on the recommendations of the *Guide de caractérisation des résidus miniers et du minerai* (MELCC, 2020). As part of the initial characterisation stage, total solid phase abundances and Total C and S by LECO furnace are recommended on all samples. Other analyses which are part of more targeted characterisation are not recommended for all samples. Okane recommends that those analyses are completely on earlier sample sets to better inform

the characterization and allow for informed decision making of revising analytical numbers either up or down, per MELCC (2020).

Acid Base Accounting

Acid base accounting (ABA) tests are used to assess concentrations of carbon and sulfur species to determine the balance of acid generating sulfide minerals and acid neutralizing carbonate minerals. Although previous static testing on 28 samples from 2013 all indicated both ore and waste rock classified materials as NAG, it is still standard practice to test and increase the number of samples to be representative. Furthermore, identification of sulfide minerals may be important for understanding metal leaching and mobility of other species. It is recommended that **all samples undergo analysis for Total C and S by LECO furnace** and **50% of all samples undergo ABA analysis**, which should include:

- Total sulfur and carbon by LECO furnace;
- Sulfur as sulfate by HCl leach;
- Sulfide as sulfur; calculated as the difference between total sulfur and sulfate sulfur and used to calculate acid potential (AP);
- Modified Sobek neutralization potential (NP) (MEND, 1991; Sobek, 1978; Price, 2009);
- Total inorganic carbon (TIC) by measurement of evolved CO_2 following HCl leach; and
- Paste pH and EC (MEND, 1991; Price, 2009).

Elemental Analysis

Elemental analysis and leach testing is recommended for **all whole rock samples** and **solid tailings samples**. Elemental analysis is used to identify elements that are enriched in the solid-phase relative to background regional geology and their variability using an aqua regia digest or lithium (Li) metaborate and Li tetraborate digest and inductively coupled plasma (ICP) mass spectrometry (MS) and optical emission spectrometry (OES) analysis to determine metal and metalloid composition of a sample. The Li metaborate/tetraborate digestion method is selected to ensure complete digestion of the sample for U and Th content in support of radionuclide analysis. Trace elemental analysis by aqua regia digest is recommended for all samples except for those also undergoing radionuclide analysis. Those samples should have trace elemental analysis by Li-metaborate/tetraborate digestion.

- The analytical suite for the elemental analysis will include a REE package to capture REE metals (Cerium, Dysprosium, Erbium, Europium, Gadolinium, Hafnium, Holmium, Lanthanum, Lutetium, Neodymium, Niobium, Praseodymium, Samarium, Tantalum, Terbium, Thulium, Ytterbium, Yttrium) present in these materials.

- The analytical suite for the elemental analysis will include U and Th to determine the potential for naturally occurring radioactive material (NORM) within the lithologies.
- The analytical suite for the elemental analysis will include elements such as F and P that are found in the minerals associated with the project but may require add-on tests.

Leach Testing

For leach testing, TCLP, CTEU-9 and SPLP leach tests are recommended per the characterization guide (MELCC, 2020) to identify soluble constituents of interest in terms of leachability. As the leachability test are part of the detailed characterization, exact test numbers may vary based on the homogeneity and risk factors identified in the samples. For planning purposes, it recommended that leach tests be conducted on **50% of all samples.**

- Extracted water will be tested for total and dissolved metals, REEs, routine parameters (pH, conductivity, hardness, total suspended solids (TSS), total dissolved solids (TDS), turbidity), ammonia, total nitrogen, total phosphorous, total orthophosphate, total sulfide, total organic carbon (TOC), dissolved organic carbon (DOC), anions in water by ion chromatography (IC).

Radionuclide Testing

Radionuclides were analyzed for all 28 samples previously assessed (Terrapex, 2014). Radionuclide analysis is recommended to be completed on **20% of all samples.** These samples are anticipated to be sent to Saskatchewan Research Council (SRC) Geoanalytical Laboratories for testing. Solid phase radionuclide analysis should include:

- Radionuclides on the uranium-238 decay chain, including thorium-234, thorium-230, lead-214, radium-226, thorium-230, lead-210, and polonium-210; and
- Radionuclides on the thorium-232 decay chain, including thorium-228, thorium-232, and radium-228.

If elevated radionuclide contents are observed in these samples, additional testing may be recommended at a future time. Analytical results will be screened with the measured whole rock U and Th concentrations to verify secular equilibrium was reached.

Mineralogical Analysis

Upon assessment of the above tests, **10% of samples are recommended for mineralogical analysis** on waste rock and ore samples (or a minimum of five for each material type). The *Guide de caractérisation des résidus miniers et du minerai* (MELCC, 2020) requires identification of phases that contain parameters

of interest or potential concern, (i.e., sulfides, elevated metals, REEs, radionuclides and asbestos). Additionally, it is recommended that if potentially problematic phases are present a detailed study of the grain size, crystal habit, and spatial association of the different phases be carried out. Given that the various mine materials are likely to be elevated in some of the above parameters (i.e., radionuclides and asbestiform phases), Okane recommends completing the mineralogical analysis using QEMSCAN analysis of all material types. It is recommended these tests be used to identify primary minerals of concern (e.g., pyrite) for samples based on the results of static samples and those materials selected for kinetic testing. For larger sample sets the number of recommended analyses may be revised lower if initial results show relative homogeneity in mineralogy for a given material.

Particle Size Distribution (PSD) Analysis

The *Guide de caractérisation des résidus miniers et du minerai* (MELCC 2020) requires analysis of particle size distribution in the mill tailings, specifically for all tailings streams. Okane recommends **10 % of tailings samples for PSD analysis** or a minimum of five for each material type. PSD analysis will be completed via laser diffraction.

Asbestos Content Analysis

The *Guide de caractérisation des résidus miniers et du minerai* (MELCC 2020) requires detailed asbestos content analysis if asbestos bearing phases are identified in the mineralogical characterization. Previous investigations identified that asbestos bearing phases are present in various ore grades at Strange Lake (Terrapex, 2014). It is recommended that **10% of samples are analyzed for asbestos content** on all material types (or a minimum of five for each material type). The recommended methodology in the guide is IRSST MA-244 (IRSST 2015) which uses optical microscopy and scanning electron microscopy if necessary. Asbestos content is recommended on all material types including tailings to assess potential concentrating or reduction of asbestos bearing phases during the milling process.

Kinetic Testing

Upon assessment of the above testing, kinetic column tests are recommended dependant on representative classifications of material types anticipated for waste rock stockpiles. At this stage, it is recommended that a minimum of **two (2) column tests** be completed for process plant and X-ray tailings, overburden and waste rock. Given the large volumes of low/medium grade ore, it is recommended that four (4) column tests are completed for low/medium grade.

Okane recommends that the kinetic tests are to be run for a minimum of 40 weeks, which may be extended depending on the time for stabilization of parameters in the leachate. The samples selected for kinetic testing should include one sample that is representative of median conditions (based on results of previous test work) and high-risk material types. Columns tests will consider material type, geology,

and geospatial variability in samples to appropriately capture the potential variability. The column tests will be developed with the static test results available to inform the range of composition and variability in the columns. Leachate from kinetic tests should be tested for:

- Extracted water will be tested for total and dissolved metals, radionuclides, REEs, routine parameters (pH, conductivity, hardness, total suspended solids (TSS), total dissolved solids (TDS), turbidity), ammonia, total nitrogen, total phosphorous, total orthophosphate, total sulfide, total organic carbon (TOC), dissolved organic carbon (DOC), and anions in water by ion chromatography (IC).

To support trial water treatment processes, a single humidity cell test is ongoing for process plant tailings to provide quick turnaround of potential leachate quality as interim kinetic data, while a more detailed column test protocol is defined. Additional kinetic tests may be recommended following the results of this geochemical characterization program.

Supernatant Water Samples

It is anticipated that supernatant water will be produced from additional process plant tests that can be collected and represents leachable water from the tailings material. Okane recommends collecting **five (5) samples** for process plant tailings. Supernatant samples from tailings should be collected in bottles and tested for:

- Total and dissolved metals, radio nuclides, REEs, routine parameters (pH, conductivity, hardness, total suspended solids (TSS), total dissolved solids (TDS), turbidity), ammonia, total nitrogen, total phosphorous, total orthophosphate, total sulfide, total organic carbon (TOC), dissolved organic carbon (DOC), and anions in water by ion chromatography (IC).

Toxicity Sampling Plan

Toxicity testing can be used in two different ways to help understand potential environmental effects/impacts related to the results of the geochemical characterization program (*i.e.,* primarily, surface water quality modelling results, including estimated concentrations of chemicals of potential concern (COPCs)).

These are as follows:

- Ecotoxicity testing of tailings/tailings supernatant/tailings leachate from experimental samples that reflect the characteristics of the anticipated waste materials from the Project; and,

- Testing of reagent-grade elements (usually salts of those elements), for the purpose of establishing water quality guidelines[1]/SSWQOs.

Toxicity data of REEs (and other elements listed above) will help support environmental risk assessment of these elements in receiving waters downstream of the Project; these data can either be culled from the literature or generated through an ecotoxicity testing program (using a standard suite of aquatic organisms).

The purpose for establishing the benchmarks, in addition to informing permitted concentrations in effluents, is to formulate strategies for managing and mitigating waste materials (and ultimately, effluents), so that elevated COPC concentrations can be mitigated.

Appendix A provides full details on the proposed approach to ecotoxicity testing.

Closure

We hope that the information provided here is informative of a geochemical characterization plan which allows an understanding of the scope of samples over the LOM and provides flexibility moving forward in the PFS stage. Please do not hesitate to contact me at 403 815 0009 or ttuchiwsky@okaneconsultants.com should you have any questions or comments.

Regards,

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Senior Engineer
ttuchiwsky@okaneconsultants.com

[1] Water quality guidelines are usually developed by regulatory agencies (various jurisdictions; national (*e.g.*, CCME), federal (*e.g.*, Environment and Climate Change Canada), provincial (*e.g.*, Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs), *etc.*) for use across industry sectors. The development of these guidelines require the collection of ecotoxicity data from the literature. Should data gaps exist, those can be filled by mining industry stakeholders, including Project proponents, and industry associations. While project proponents are rarely tasked with the generation of ecotoxicity data in support of regulatory guideline development, this has occurred in certain situations.

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Appendix A

Ecotoxicity Testing Program Memorandum

TECHNICAL MEMORANDUM

To:	Sylvie St.-Jean, Vice President, Environment, Torngat Metals Ltd.
Cc:	Tara Tuchiwsky, PEng, PMP, Geo-environmental Engineer / Project Coordinator (Okane Consultants)
From:	Guy Gilron, MSc, RPBio, Senior Environmental Scientist (Borealis Environmental Consulting Inc.) Josh Baker, MSc, PChem, Environmental Chemist (Nautilus Environmental)
Subject:	Rationale, Exposure Evaluation and Criteria to support selection of Ecotoxicity Test selection for simulated tailings - Strange Lake Mine, Quebec, Canada
Date:	March 21, 2024.

1.0 Introduction and Objective

It was a pleasure meeting with you two weeks ago.

In order to deliver a comprehensive ecotoxicity testing program in support of permitting for Torngat Metals Ltd. (Torngat's) Strange Lake Mine (Schefferville, Québec, Canada) (the "Project"), Okane has retained Borealis Environmental Consulting Inc. (Borealis) and Nautilus Environmental Company Inc. (Nautilus), as part of its Closure Visioning and Water Balance / Water Quality Support Program. Borealis and Nautilus are providing technical expertise to assist in developing an ecotoxicity workplan for the evaluation of waste materials resulting from the Project, including potentially developing site-specific water quality objectives for rare earth elements (REEs) (NOTE: this will be a subsequent phase of this work).

As part of Okane's geochemical characterization program (already underway), a 50-kg tailings sample with characteristics similar to those expected for the Project has recently been shipped to Canada (Saskatoon, SK) from Finland. With an aim to characterize the inherent ecotoxicity of the tailings, our understanding is that a sub-sample of these materials will be made available to us for testing and risk characterization. We further understand that the samples are dry (no supernatant), and that a sub-sample of the 50 kg characterization sample will be shipped to Nautilus for the above-mentioned testing.

We propose that testing be conducted on leached extracts of these tailings – see below - at the Nautilus Laboratory (Burnaby, British Columbia). The testing program will be designed to maximize the information that can be generated using the sample available.

This Technical Memorandum provides the following:

- a discussion of the rationale for the ecotoxicity testing program;
- exposure evaluation; and,
- proposed approach to the ecotoxicity testing program.

2.0 Rationale for the Ecotoxicity Testi

[redacted] process. [redacted] Resources [redacted] Lake Mine Geochemical Characterization Program Overview (Okane Consultants Inc., 2023) on October 3, 2023. Based on that review, NRCan provided the following specific comments related to toxicity testing as part of the geochemical characterization program: *"To minimize detrimental environmental effects, toxicity testing should be an important input to the proposed geochemical characterization program…."*. Toxicity testing can be used in two different ways to help understand potential environmental effects/impacts related to the results of the geochemical characterization program (*i.e.,* primarily, surface water quality modelling results, including estimated concentrations of chemicals of potential concern (COPCs)). These are as follows:

- ecotoxicity testing of tailings/tailings supernatant/tailings leachate from experimental samples that reflect the characteristics of the anticipated waste materials from the Project; and,
- testing of reagent-grade elements (usually salts of those elements), for the purpose of establishing water quality guidelines[1]/site-specific water quality objectives (SSWQOs).

The first of these two is addressed in this Technical Memorandum.

3.0 Exposure Evaluation

From recent discussions with you, and based on the Strange Lake mine scenario, we understand that potential exposure of the tailings to ecological receptors (*i.e.,* aquatic receptors, such as

[1]Water quality guidelines are usually developed by regulatory agencies (various jurisdictions; national (*e.g.,* CCME), federal (*e.g.*, Environment and Climate Change Canada), provincial (*e.g.,* Ministère de l'Environnement, de la Lutte contre les changements climatiques, de la Faune et des Parcs), *etc.*) for use across industry sectors. The development of these guidelines require the collection of ecotoxicity data from the literature. Should data gaps exist, those can be filled by mining industry stakeholders, including Project proponents, and industry associations. While project proponents are rarely tasked with the generation of ecotoxicity data in support of regulatory guideline development, this has occurred in certain situations.

invertebrates and fish) would occur rarely, since there is no plan for tailings and/or tailings supernatant (aqueous phase) to be discharged into the receiving environment. However, to ensure that environmental risks do not result from any accidental release, an understanding of the ecotoxicity of tailings supernatant is required.

4.0 Proposed approach to the Ecotoxicity Testing Program

4.1 Leachate protocol to simulate aqueous supernatant of tailings

There are various methods to generate leachate from a solid material; most leachate methods are designed for chemical analysis and, therefore, d[redacted]s for a [redacted]ethod i[redacted]at the [redacted]ons and[redacted]d in the [redacted]le also [redacted] leaching of

A leachate will be prepared with the dry tailings by mixing the tailings with a standard medium used in ecotoxicity testing (reconstituted, moderately-hard water; US EPA, 2002). Initially, a leachate trial will be conducted with unadjusted media (pH of 7.8) and media adjusted to two acidified conditions (*i.e.,* pH of 5.7 and 4.0, respectively); media will be adjusted with 1 M HCl to achieve the target pH. The pH of 5.7 will simulate conditions which could be present as a result of environmental factors (*e.g.,* acid rain). The pH of 4.0 has been proposed as an extraction pH, which will mobilize bioavailable forms of metals, but will not mobilize mineralized forms of metals (as would occur under extreme acid conditions; pH < 2.0) (Rodriguez *et al*., 2019). The media will be added to the tailings at four times the dry weight of tailings (as indicated in US EPA, 1988; and, Environment Canada, 1994). The media and tailings will be mixed continuously for 24 hours using a rotating mixer at approximately 30 rpm.

The resultant leachates will be analyzed for their constituents to support the assessment of leachate quality and COPCs. Chemical analyses will include dissolved and total metals, anions, nutrients, and other general parameters (*i.e.,* dissolved organic carbon, pH, conductivity, suspended solids). Subsequently, the leachates will be adjusted to circumneutral pH (*i.e.,* 7.0 ± 0.2) and centrifuged for 10 minutes at 10,000 rpm at 4°C (per US EPA, 1988), decanted, and re-analyzed for chemistry.

Ultimately, the leachate generated at a pH of 4.0, would likely be used for subsequent ecotoxicity testing as it represents the maximum leaching potential under the worst-case scenario. A review of the composition of this pH 4.0 leachate (after re-adjustment to pH 7.0) will be conducted to ensure that the appropriate conditions are still present for the ecotoxicity tests. If the pH 4.0 leachate is determined to have altered the test media in a manner that would reduce the success of the ecotoxicity testing due factors other than the COPCs (*e.g.,* a large reduction in water hardness), then the pH 5.7 leachate could be used as an alternative, if deemed appropriate. The leachates will be tested for toxicity within a week of generation using the ecotoxicity tests

described below; the leachate would be stored in the dark at 4 ± 2°C prior to use in the ecotoxicity tests.

4.2 Selection of ecotoxicity testing suite

A relevant/applicable suite of ecotoxicity tests will be selected to address the specific requirements of the testing program. The following criteria are proposed to establish the ecotoxicity testing suite:

1. Both acute and chronic ecotoxicity testing are proposed. This will include two regulatory compliance tests, rainbow trout (96-hr) and *Daphnia magna* (48-hr) acute lethality tests.
2. Sublethal tests used in previous evaluat[redacted] also be[redacted] *Ceriodaphnia* C, 2007[redacted] EC, 2013) s Envir[redacted] sed; specifically, Environment and Climate Change Canada (ECCC) biological test methods protocols for most acute and chronic tests of interest. The tests will be selected from list: https://www.canada.ca/en/environment-climate-change/services/wildlife-research-landscape-science/biological-test-method-publications.html
4. The toxicity tests will be conducted with seven test concentrations of the leachate, from undiluted lab water to a dilution of 1.56% (v/v); dilutions will be prepared with un-adjusted, reconstituted, moderately-hard water. The acute lethality tests with rainbow trout and *Daphnia magna* will be conducted first to ensure these dilutions are appropriate for the sublethal toxicity tests. Separate preparations of leachate will be conducted for both the acute and sublethal tests.

4.3 Conduct of tests and reporting of test endpoints

Upon selection of ecotoxicity tests, which we will finalize with Torngat, the selected tests will be conducted at Nautilus, and the results will be reported to Borealis and Okane.

The test endpoints for all the tests conducted will be summarized, and a full review and evaluation of the results will be conducted to assess the use of these data in the characterization of ecological risk from tailings release into the receiving environment.

Closure

We trust that this Technical Memorandum meets your requirements at the present time. Please do not hesitate to contact the undersigned at your convenience to discuss any aspects of this memorandum.

Sincerely,

BOREALIS ENVIRONMENTAL CONSULTING INC.

<original signed by>

Guy Gilron, MSc, RPBio
Senior Environmental Scientist/Principal

NAUTILUS ENVIRONMENTAL

<original signed by>

Josh Baker, MSc, PChem
Environmental Chemist

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MÉTAUX TORNGAT METALS

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GENERAL WATER BALANCE

CONCENTRATOR PLANT

GENERAL

Equipment No:	Item No:

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Overall water balance		
Water In		
- Water with ore	15	t/h
- Raw water In	32	t/h
Total incoming water	47	t/h
Water Out		
- Water bleed out with dry stacking	45	t/h
- Moisture content in the TREO concentrate	2	t/h
- Water discharge from Ambient PWRP	0	t/h
- Water discharge from Hot PWRP	0	t/h
Total outgoing water	47	t/h
Balance	0	t/h

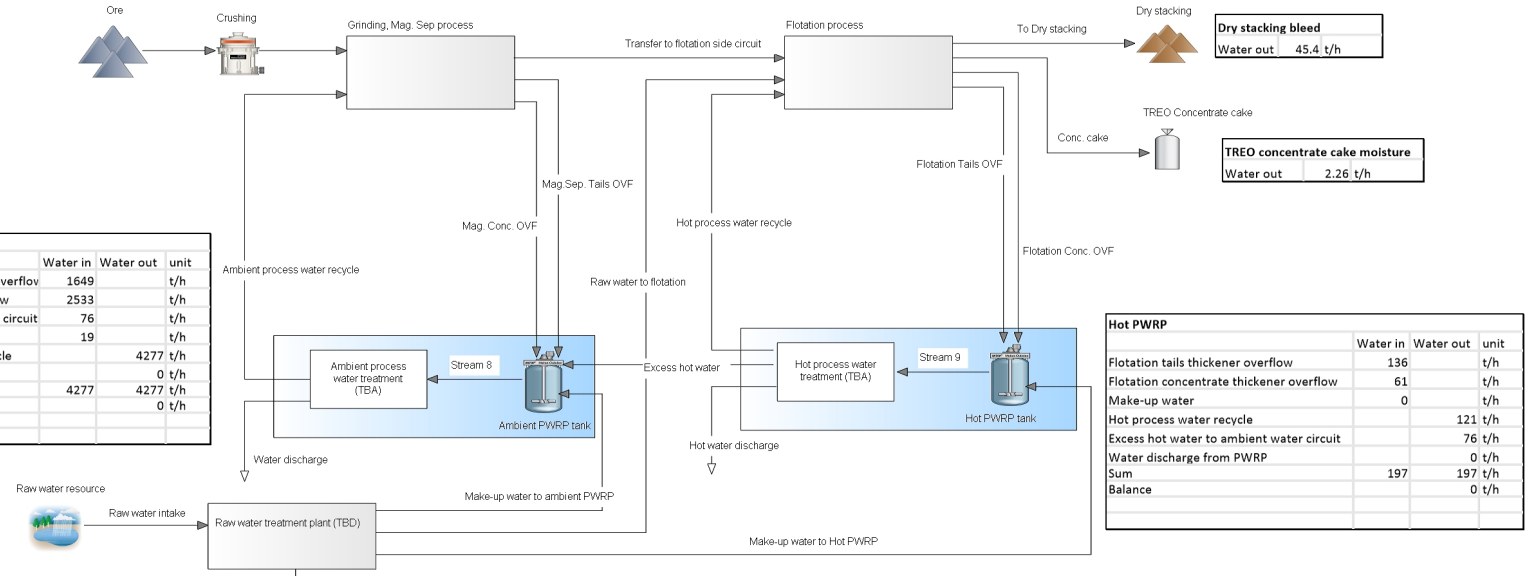
Grinding, Mag. Sep. Process	Water in	Water out	unit
Water coming with ore	15		t/h
Ambient process water recycle	4277		t/h
Mag. Sep tailings thickener overflow		1649	t/h
Mag. conc. thickener overflow		2533	t/h
Water transfer to flotation side circuit		110	t/h
Sum	4292	4292	t/h
Balance		0	t/h

Flotation Process	Water in	Water out	unit
Transfer of water to flotation side circuit	110		t/h
Hot process water recycle	121		t/h
Raw water addition	13		t/h
Flotation tailings thickener overflow		136	t/h
Flotation concentrate tickener overflow		61	t/h
To dry stacking		45	t/h
To TREO concentrate cake		2	t/h
Sum	244	244	t/h
Balance		0	t/h

Fresh ore in		
Water in	14.8	t/h

Dry stacking bleed		
Water out	45.4	t/h

TREO concentrate cake moisture		
Water out	2.26	t/h



Ambient PWRP	Water in	Water out	unit
Mag. Sep tailings thickener overflow	1649		t/h
Mag. conc. thickener overflow	2533		t/h
Excess water from hot water circuit	76		t/h
Make-up water	19		t/h
Ambient process water recycle		4277	t/h
Water discharge from PWRP		0	t/h
Sum	4277	4277	t/h
Balance		0	t/h

Hot PWRP	Water in	Water out	unit
Flotation tails thickener overflow	136		t/h
Flotation concentrate thickener overflow	61		t/h
Make-up water	0		t/h
Hot process water recycle		121	t/h
Excess hot water to ambient water circuit		76	t/h
Water discharge from PWRP		0	t/h
Sum	197	197	t/h
Balance		0	t/h

Raw water treatment	Water in	Water out	unit
Raw water intake	32		t/h
For auxilary uses	0		t/h
Make-up to ambient water circuit		19	t/h
Raw water to flotation circuit		13	t/h
Sum	32	32	t/h
Balance		0	t/h

Strange Lake Mine – Preliminary Site Wide Water Balance Model Report

May 1, 2024

MÉTAUX TORNGAT METALS

okane

Integrated Mine Closure and Relinquishment Solutions

Strange Lake Mine – Preliminary Site Wide Water Balance Model Report

865-221-001

May 2024

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EXECUTIVE SUMMARY

Okane developed a site-wide water balance model using Goldsim simulation software. The model represents a simplified representation of water management at the Strange Lake Rare Earth Mining Project (the Project) and provides estimates of water volumes in the water management pond (WMP) under various water balance scenarios, including the Directive 019 storm event, to inform decisions on required water storage capacity. The model can be used to support the development of a water management strategy for the site. However, a number of simplifying assumptions were made in the development of the model and will require improvements in the next stages of the Project, in particular the development of a water quality module and the integration of inputs from the groundwater model currently developed by others. Model results indicate that the WMP storage capacity is sensitive to the water levels at the end of winter, prior to spring freshet and to the mine water management strategy.

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1 INTRODUCTION

Okane Consultants (Okane) developed a site-wide water balance model (WBM) for the Strange Lake Rare Earth Mining Project (the Project) to support water management planning and inform decisions under different water management scenarios, to be defined by Torngat Metals Ltd. (Torngat Metals). The WBM provides an estimate of surface water pathways and discharge volumes for a base case scenario at a level suitable for Project decision-making.

Okane developed the WBM using GoldSim simulation software. GoldSim provides a powerful and visual way to address integrated water resource management problems and can be easily adjusted to take into account future changing site conditions, allowing the model to be developed iteratively to solve complex and poorly understood systems.

This report presents the proposed methodology and water balance model results for a base case scenario that assumes a fully developed mine operation and considers the maximum footprint of the Project where the major mine infrastructure exists.

1.1 Study Objective

The overarching study objectives are as follows:

1) Estimate the water volumes in the Water Management Pond under various climate scenarios; and

2) Inform on the required capacity at the Water Management Pond to meet regulatory requirements.

1.2 Report Organization

For convenient reference, this report has been divided into the following sections:

- Section 2: Background;
- Section 3: Methodology;
- Section 4: Model Details ;
- Section 5: Modeling Results;
- Section 6: Summary and Conclusions; and
- Section 7: Limitations.

2 BACKGROUND

2.1 Site Description

The Strange Lake Rare Earth Mining Project is located in Quebec, approximately 235 km northeast of Schefferville and 125 km west of Vale's nickel-copper mine near Nain in Labrador. An estimated 133 million tonnes of mining material will be extracted from an Open Pit during the 30-year operation. Rare earth concentrate will be produced by an on-site beneficiation plant. Ore concentrate is then transported by road from the mine site to the east coast of Labrador, either to Anatalak Bay or to Voisey's Bay, NL and from there shipped to a rare earth processing and high purity separation plant to be built in an existing industrial port in Sept-Îles, Quebec. It is expected, as a first estimate, that between 2,800 and 3,200 tonnes of rare earth oxides will be produced per year. The mine site will include an open pit, beneficiation plant, low -grade ore stockpiles, waste rock and overburden stockpiles, mine residue stockpile, access/haul roads, aerodrome, buildings, water management infrastructure and a water treatment plant.

2.2 Mine Site Infrastructure

Okane understands that water management at the mine site considers the use of ponds to collect contact water runoff from within the mine footprint from various mine infrastructure. The collection ponds will be located at the lowest elevation of each affected area and will be positioned to avoid mixing of water from different sources. The water accumulated in these ponds is directed to a water treatment plant (WTP), and the treated water is then stored in a water management pond (WMP) before being used to feed the beneficiation plant.

2.2.1 Open Pit

The Project's resources are contained within a single deposit identified as the B-Zone. The current life of mine (LOM) is 30 years with a majority of ore mined in the first 18 years in which the ore contains a higher concentration of the desired elements (high grade ore). The low grade ore will be stockpiled for further processing during the remaining 12 years. The open pit is located in close proximity to Lake Brisson.

2.2.2 Ore Stockpiles

Low grade ore will be stockpiled for processing after year 18 of the mine plan. The lower grade ore stockpile will be placed to facilitate future reclaiming and the exact location will be determined while aiming to minimize the potential effects on fish habitat (AECOM, 2023).

2.2.3 *Waste Rock and Overburden Stockpiles*

Waste rock and overburden will be stockpiled in two separate piles east of the mine pit. This material will come from excavations for the construction of the collection pond(s), as well as for any surface infrastructure required during operations. Waste rock is planned to be used to backfill the open pit once mining is complete. Waste rock that is non-acid generating (NAG) may be used for construction of dikes, roads and / or storage platforms. The stockpiles will be designed to ensure runoff is collected and treated prior to discharge into the environment should there be a need for discharge. (AECOM, 2023).

2.2.4 *Mine Residue Stockpile*

Residues from the concentration processes will be deposited into the mine residue stockpile. The residues will be thickened, filtered, and mixed with cement and transported by truck or by covered conveyor to the mine residue stockpile (AECOM, 2023). Okane understands that the mine residue stockpile will be covered at all times during operations which will result in clean surface runoff that does not require collection and storage in the WMP.

2.3 Groundwater

The primary source of groundwater flows are anticipated to report to the open pit. These have not been integrated into the current water balance model as a separate groundwater model is being developed by AECOM and is not ready for integration into the WBM. Groundwater flows are anticipated to be integrated into the water balance model during the next model update.

Groundwater flows reporting to the open pit may be returned to the environment if the water quality meets environmental criteria, otherwise, they will be transferred directly to the WMP. It is important to note that, in this report, the analysis does not consider the additional flow from the subsurface (unknown). The WMP capacity estimated here could be impacted considering this additional flow.

3 METHODOLOGY

3.1 GoldSim Model

GoldSim is a graphical mathematical model in which all parameters and input functions are user-defined and operate as individual elements or objects linked together by mathematical expressions. GoldSim is designed to facilitate understanding of the various factors that dictate the performance of an artificial or natural system. The advantages of using GoldSim are numerous, which led to its selection for the current evaluation. For example:

- The software is dimensional and allows the use of any type of units, checking dimensional consistency and automatically performing unit conversions throughout model development.
- The model framework can be easily adjusted to take into account future changing site conditions, allowing the model to be developed iteratively to solve complex and poorly understood systems.

The developed WBM will be linked in a future development to a water quality model. This will facilitate simultaneous updates of both models in the event of changes to the Project, or if Torngat Metals requires an evaluation of alternative water management strategies.

3.2 Modeling Approach

The development stages of the GoldSim model are as follows:

1) Construction of the model, considering the various links between site infrastructure and water management rules according to the conceptual model (Section 3.3); and

2) Integration of basic data into the model (i.e., climate, hydrology, watershed, etc).

To meet the study objective (Section 1.1), modeling was carried out using a predictive model, no calibration was made at this stage as the mine infrastructure does not exist yet. The predictive model was used to evaluate the needed storage capacities of the collection ponds, mainly the primary WMP. The analysis was made for a base case scenario corresponding to the full mine site development (30 year operation) where the key mine infrastructure has been fully developed. As part of the exercise, the storage capacity needed at the WMP will be assessed to manage the Directive 019 design storm event without overflowing to the environment.

3.3 Conceptual Model

Figure 1 presents the maximum footprint layout of the mine site including the collection ponds. As shown in the figure, several ponds will receive water within the mine footprint from various mine infrastructure.

The ponds are located at the lowest elevation of each affected area. The water balance is modeled so as to transform precipitation into surface runoff, exfiltration to collecting ditches and deep infiltration. Surface runoff and exfiltration will be collected by perimeter ditches and conveyed to temporary collection ponds. Water accumulating in the ponds will be conveyed to the WTP, and then to the WMP before being used in the beneficiation plant. The excess water (above the storm design event) will overflow to the environment. Figure 2 shows a conceptual representation of the water management approach which forms the basis of the water balance model development.

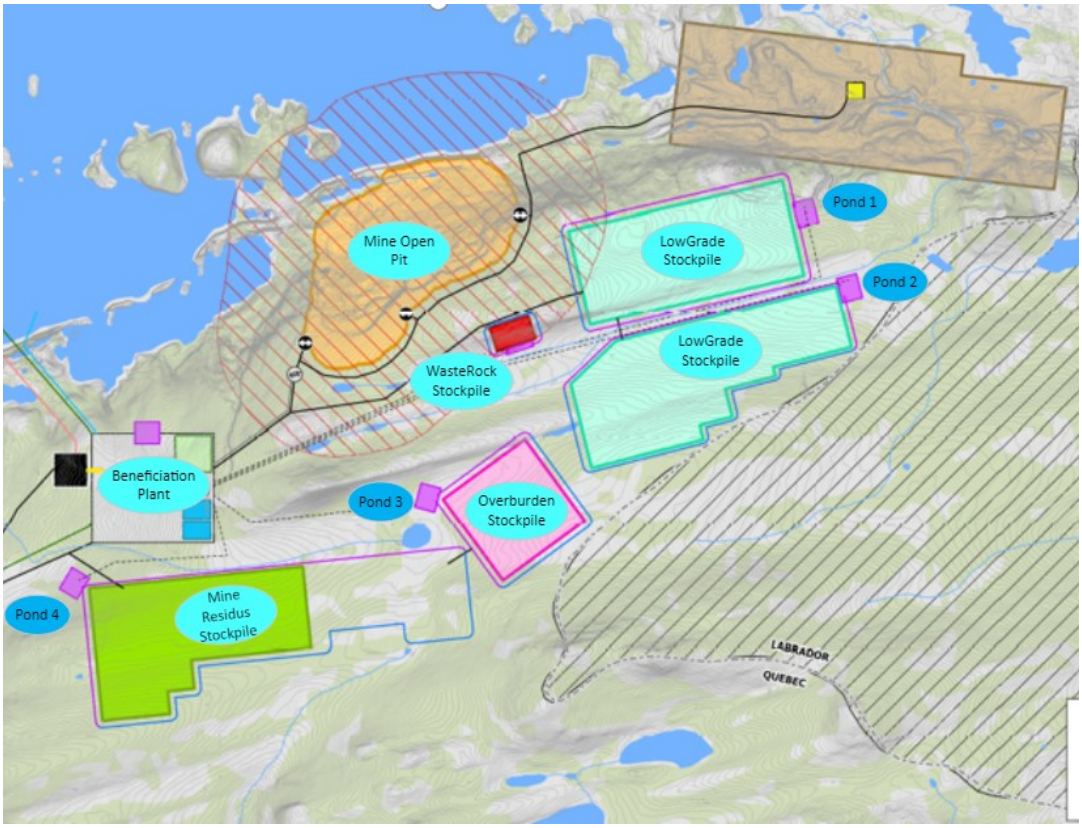

Figure 1: Site layout for the full mine site development, adapted from (AECOM, 2024).

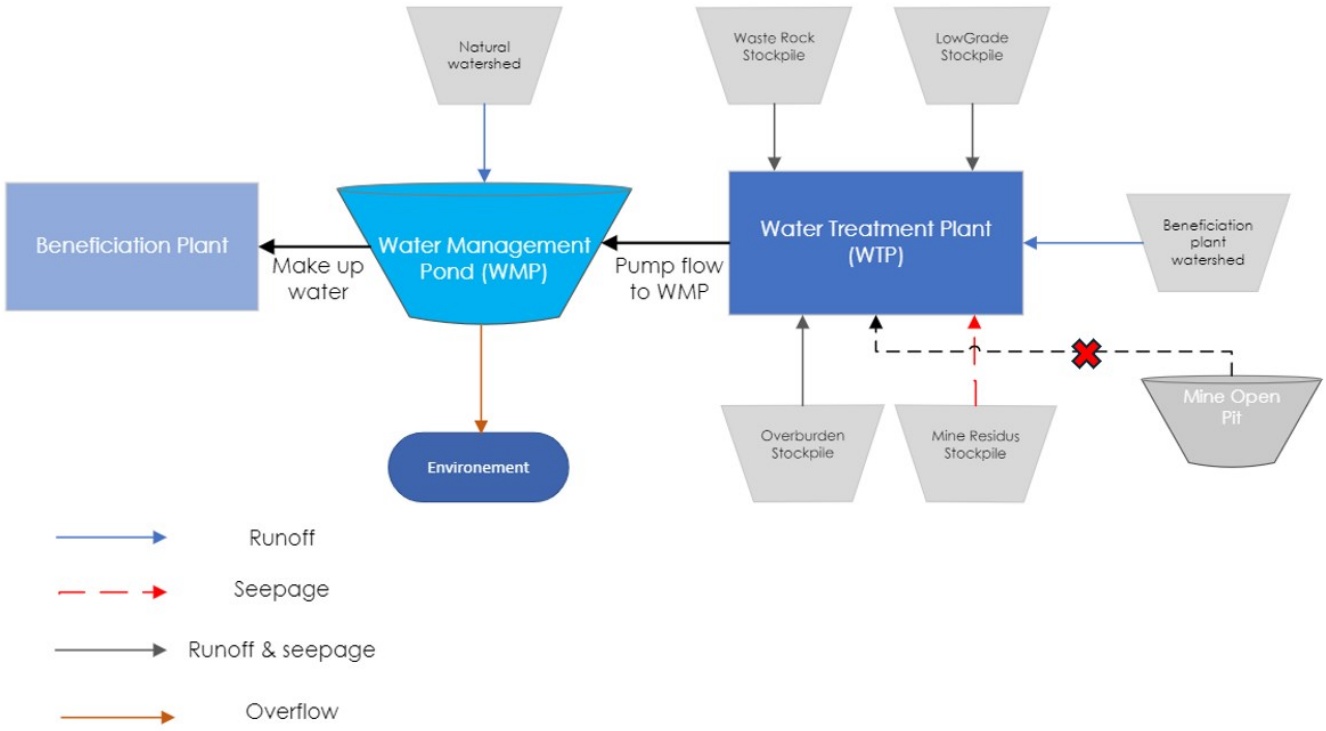

Figure 2: Conceptual flow diagram for the full mine site development.

4 MODEL DETAILS

4.1 Climate Data Inputs

The climate data used as input to the water balance model come mainly from the Schefferville weather station operated by Environment Canada, which has been in operation since 1948. An automatic weather station at the mine site was installed in the September 2011 on a hill on a peninsula in Brisson Lake. It recorded instantaneous values of temperature, barometric pressure, humidity, solar radiation, wind speed, wind direction, snow depth and rainfall. This station gathered data for over one year until at least November 2012. A review of the climate data from that station revealed that precipitation patterns at the mine site were not consistent with recorded precipitation patterns at the Schefferville weather station. This data could therefore not be used for the present water balance model. Air temperatures recorded at the mine site were however closer to those registered at the Schefferville weather station but were not used for the present water balance model as there isn't enough recorded data. In the fall of 2023, Torngat installed a new weather station (closer to the mine site). The collected data can be used during future updates of the water balance model.

Okane performed a climate analysis using available and relevant historical data from the Schefferville weather station including the following parameters: total precipitation, mean daily temperature, lake evaporation, potential evapotranspiration. A set of historical data has been developed and used in this water balance model. These variables are presented below:

- Precipitation and temperature: A developed daily data series for the period 2009 to 2024 based on data from the Schefferville weather station;
- Evapotranspiration: Daily reference evapotranspiration (ETO) is generated by the FAO56 Penman Monteith method using the daily maximum and minimum temperature, mean sunshine hours, and mean monthly wind speed for the period 2009 to 2024.

A specific climatic year and event have been defined using statistical climate analysis:

- Average climatic year: 2014 with a total annual precipitation of 607 mm.
- Project design storm event: Based on the Directive 019 (MDDEP, 2012) definition of a project design storm event for water retention structures and considering that the WMP will be collecting only the treated water from the WTP, the 100-year storm event (100 mm) was considered. The storm event was added to the average year and included climate change impact (SSP5-8.5 scenario)[1].

[1] IDF Data and Climate Change — ClimateData.ca

As shown in Figure 3, a total of 14 years of historical climate data (including wet, dry and average years) have been incorporated into the water balance model, covering the period ranging from 2010 to 2024 (the last full year). The set of data was used to allow Torngat Metals to evaluate the WMP volume variation for a better estimate of the needed capacity or conversely the additional needed volumes to meet process requirements. The 100-year, 24-hour Directive 019 design storm event was added to the average year (2014) to assess the WMP capacity.

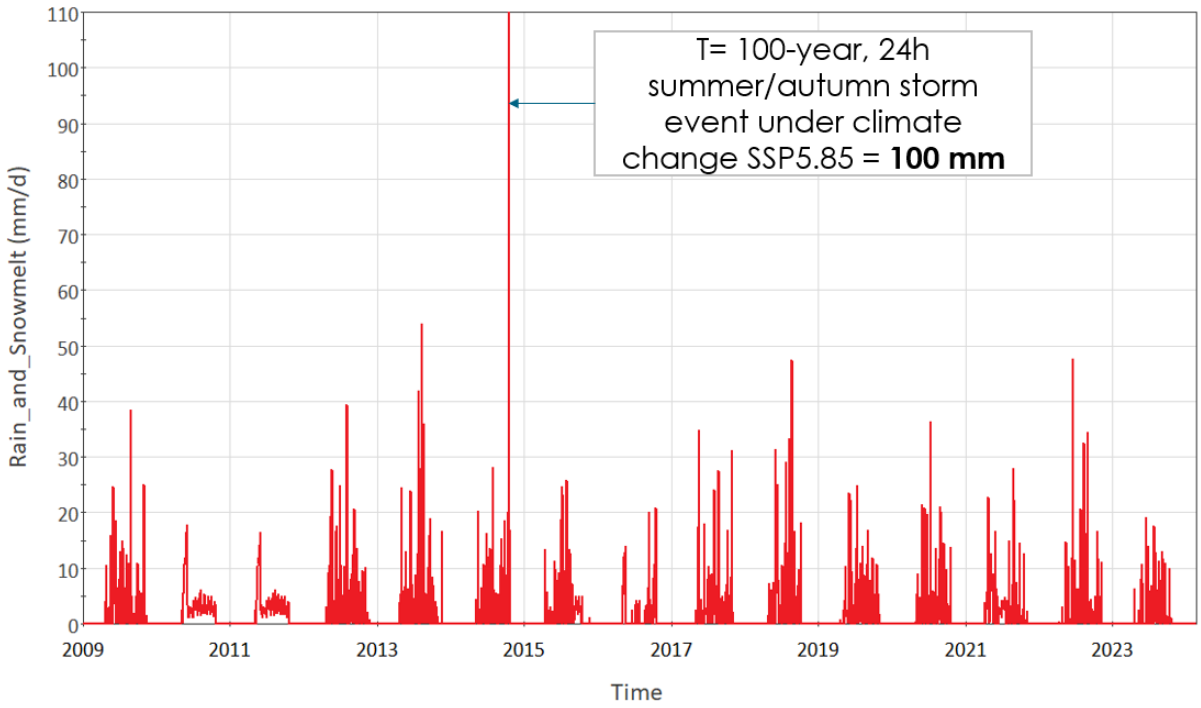

Figure 3: Daily rainfall and snowmelt considering the Directive 019 design storm event.

4.1.1 Precipitation and Runoff

Precipitation includes both rainfall and snowfall. Rainfall can infiltrate, evaporate, run off on surface, or accumulate in local depressions or vegetation. Snowfall does not contribute to runoff and is accumulated as snowpack cover until spring. During the spring snow melt, the snowpack is subject to sublimation and melting (the degree-day method was used to calculates daily snowmelt) and contributes to surface run off. The physical laws governing theses processes are complex and depend on short- and long-term conditions, on small and large scales, and on the characteristics of watersheds. Measured data representative of local watershed conditions during mine operations are needed to evaluate these processes. In the absence of such data, runoff parameters should be interpreted as best estimate.

4.2 Mine Facility Inputs and Assumptions

Catchment areas correspond to the drainage area reporting to the contact water collection pond for each mine infrastructure and assumes the maximum footprint of each mine infrastructure. Table 4.1 presents the catchment areas for each mine site infrastructure (AECOM, 2024).

Table 4.1: Catchment area of each mine site component.

Mine Infrastructure	Area (ha)
Low and Medium Grade Ore Stockpile	156.5
Overburden Stockpile	35.1
Waste Rock Stockpile	3.1
Mine Residue Stockpile	55.2
Beneficiation Plant	45.8

Okane understands that makeup water requirements will be 162 m^3/h, and the remainder of the water use will be from recirculation processes internal to the beneficiation plant (Metso, 2024). For the purpose of the water balance, the 162 m^3/h makeup water is assumed to be consumed by the plant and is therefore considered a loss to the water balance.

The main assumptions used to develop the water balance model are the following:

- Surface runoff and seepage will be collected for all the stockpiles except the mine residue stockpile where only seepage will be collected, and surface water runoff will be diverted from the system as it is considered clean.
- Areas included in the model are limited to those drained by the contact water collection system. It is assumed that the non-contact water management system is able to divert water out of the collection ponds.
- The pumping rate of the collection ponds is limited to the WTP treatment capacity. The evacuation capacities of the temporary ponds are assumed to be sufficient to evacuate all daily water inflows to the WMP in 24 hours, therefore, no accumulation of water in the collection ponds is assumed. The pumping rate of the collection ponds are limited by the treatment capacity of the WTP.
- During the Directive 019 storm event, it is assumed that there will be no electricity and that the WTP will be shutdown.

- The WMP is assumed to be able to store the design storm without overflowing to the environment. The WMP is supposed to be empty before spring freshets.

5 MODELING RESULTS

5.1 Water Management Pond Required Capacity to Manage the Design Storm Event

To evaluate the required capacity at the WMP to manage the Directive 019 design storm event, a series of average climate years were modeled. The design storm event, corresponding to the Directive 019 storm event, was added to the average year (2014) (Figure 4). The required capacity to manage the storm event is estimated to be approximately 500,000 m³.

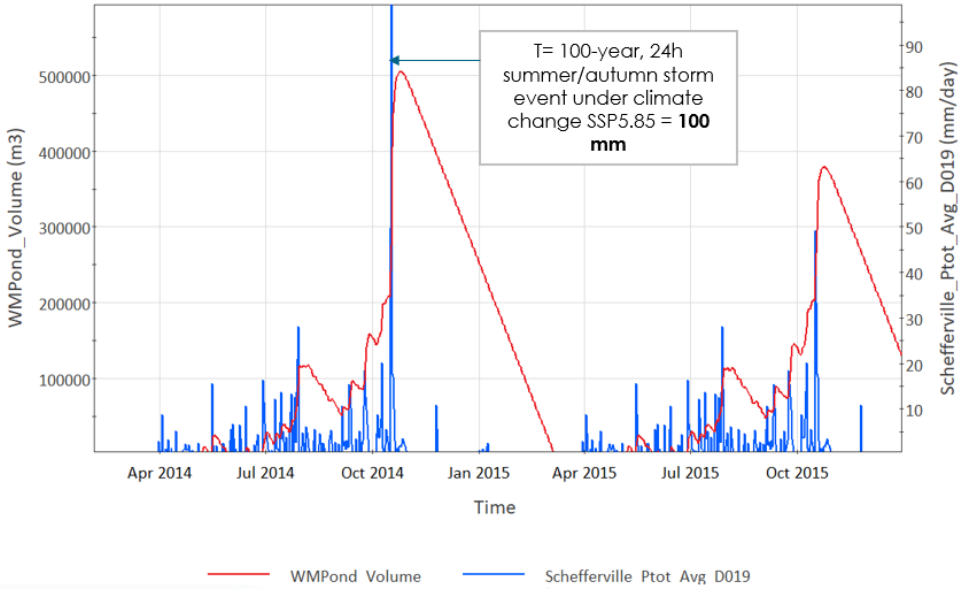

Figure 4: Water management pond capacity to manage Directive 019 design storm event.

Model results indicate that the estimated WMP capacity needed to handle the Project design storm event is sensitive to the make up water pumping rate/ initial volume in the pond. For this assessment, Okane has considered that the pond is empty at the start of the spring melt (approximately early May). Not being able to empty the pond (due to limitation on make up water pumping rate) before spring melt can have a significant impact on the required pond capacity. It is important to note that the WMP doesn't have to be emptied completely before spring melt to meet the needs of the beneficiation plant. This initial volume (to be determined later) must be considered when evaluating the required WMP storage capacity. Note that the WMP storage capacity is likely to be higher than estimated in this report as the water balance model does not include pit dewatering. Pit dewatering is anticipated to be integrated into the water balance model during the next model update.

5.2 Water Management Pond Volume Variation

Figure 5 illustrates the water volume variation at the WMP for a set of historical climate years considering the Directive 019 design storm event applied to the average year (2014).

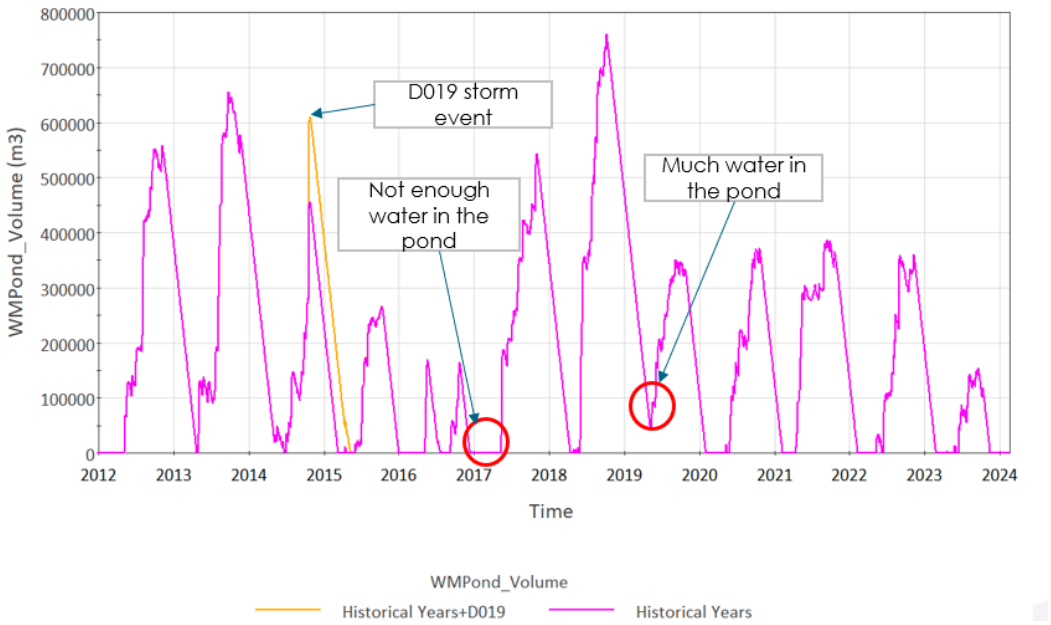

Figure 5: Water management pond volume variation using 14 historical years (including Directive 019 applied to the average year).

As mentioned above, assessing the WMP storage capacity is affected by the variability of climatic years (wet, dry). Starting from 2012, where the beneficiation plant is simulated to be running, the maximum predicted volume at the WMP is 0.75 Mm^3. Results indicate that during wet years (2018 to 2019), the water volume in the WMP increases and water consumption at the beneficiation plant is not able to reduce and empty the WMP at the end of the winter. Conversely, during dryer years (i.e., 2016), the volume of water in the WMP decreases significantly through the winter months, to the point where it can be anticipated that the following year (model year 2017) the WMP will be emptied for a period of time and won't be able to supply the beneficiation plant. The impact of a wet or dry year on the water storage in the WMP illustrates the importance of developing a water management strategy to meet the water needs considering variation in runoff volumes during operations.

6 SUMMARY AND CONCLUSIONS

Okane developed a water balance model using Goldsim simulation software. The model allows the estimation of water volumes in the WMP under various water balance scenarios and informs on the required capacity to manage the Directive 019 design storm event.

Model results indicate that:

- The WMP capacity required to manage the Directive 019 design storm event is approximately 0.5 Mm^3 for an average year. It is important to note that the estimated capacity depends greatly on climate conditions and the ability to reduce pond volumes during the winter months. Moreover, the assessment does not include pit dewatering flow, which are expected to increase the estimated required pond storage capacity.

- Overall, the site will have a positive water balance. By simulating different climate years, the amount of water in the pond is expected to vary widely, which can present a challenge in terms of water management and/or meeting the beneficiation plant's water needs.

Based on these results, it is recommended that:

- The water management strategy for the mine site should be revisited and updated to address questions related to the water supply requirements for the beneficiation plant, constraints on process water and discharge flows, and non-contact water management.

- An optimized water management strategy for the mine site considering alternative water storage options, such as added capacity in the pit and in the contact water collection ponds. Okane recommends modeling the Life of Mine (LOM) to assess the site's water optimization potential.

- The definition of the Directive 019 design storm event to be redefined. As the WMP is aimed to collect treated water, it has been deemed correct to consider the 1 in 100-year recurrence storm event. However, an environmental risk assessment must be carried out for a better understanding of the risks associated with uncontrolled discharge into the environment and thus a better definition of the project's design storm event.

- Results from the groundwater model developed by AECOM should be integrated in the water balance model. The groundwater / pit dewatering flows have not been considered at this stage of the project.

7 LIMITATIONS

The purpose of the modeling is to help Torngat Metals understand the mine's water balance to facilitate water management and water treatment decisions. While it is believed that the modeling approach presented in this document is justified and conducive to assessing the potential effects on water volumes associated with the Project, it is expected that actual water volumes will not be exactly as modeled due to climate-related uncertainties, simplifying assumptions made to address data gaps, and variations in mining operations. Rather, the forecasts are order-of-magnitude values reflecting anticipated water volumes on site assuming water management is similar to that modelled.

Thus, the most relevant limitations concerning the current version of the model are the following:

- The conceptual water management plan and water balance model are based on Okane's understanding of Torngat Metals overall mining project. They do not consider the limitations of projected mining operations, or at least do so only to the best of our knowledge.
- The mine site configuration (topography, infrastructure footprints, etc.) and the data and operation rules (pumping rates) considered in the model have been documented in this report. Changes could have significant impact on the presented results.
- Since hydrology appears to have significant impact on model results (results for average, dry, wet climatic years) it's important to note that the simulation was carried out using a series of historical climate data. They are not the results of statistical analysis and therefore do not represent all possible climatic conditions or extreme weather events. The uncertainty inherent in climate variability means that the results presented herein should not be taken as showing the upper and lower bounds of possible future results.

8 REFERENCES

AECOM. 2023. Strange Lake Rare Earth Mine Project – Initial Project Description (IPD) and Registration Document. September 2023.

AECOM. 2024. Strange Lake Rare Earth Mine Project - Preferred Mine Site Layout.

Minestére du Developpement durable, de l'Environnement et des Parcs (MDDEP). 2012. Directive 019 sur l'Industrie miniére. Online: https://environnement.gouv.qc.ca/milieu_ind/directive019/directive019.pdf

Metso. 2024. General Water Balance – Concentrator Plant General. April 17, 2024.

9 CLOSURE

We trust information provided is satisfactory for your requirements. Please do not hesitate to contact yalleando@okaneconsultants.com for further information or questions.

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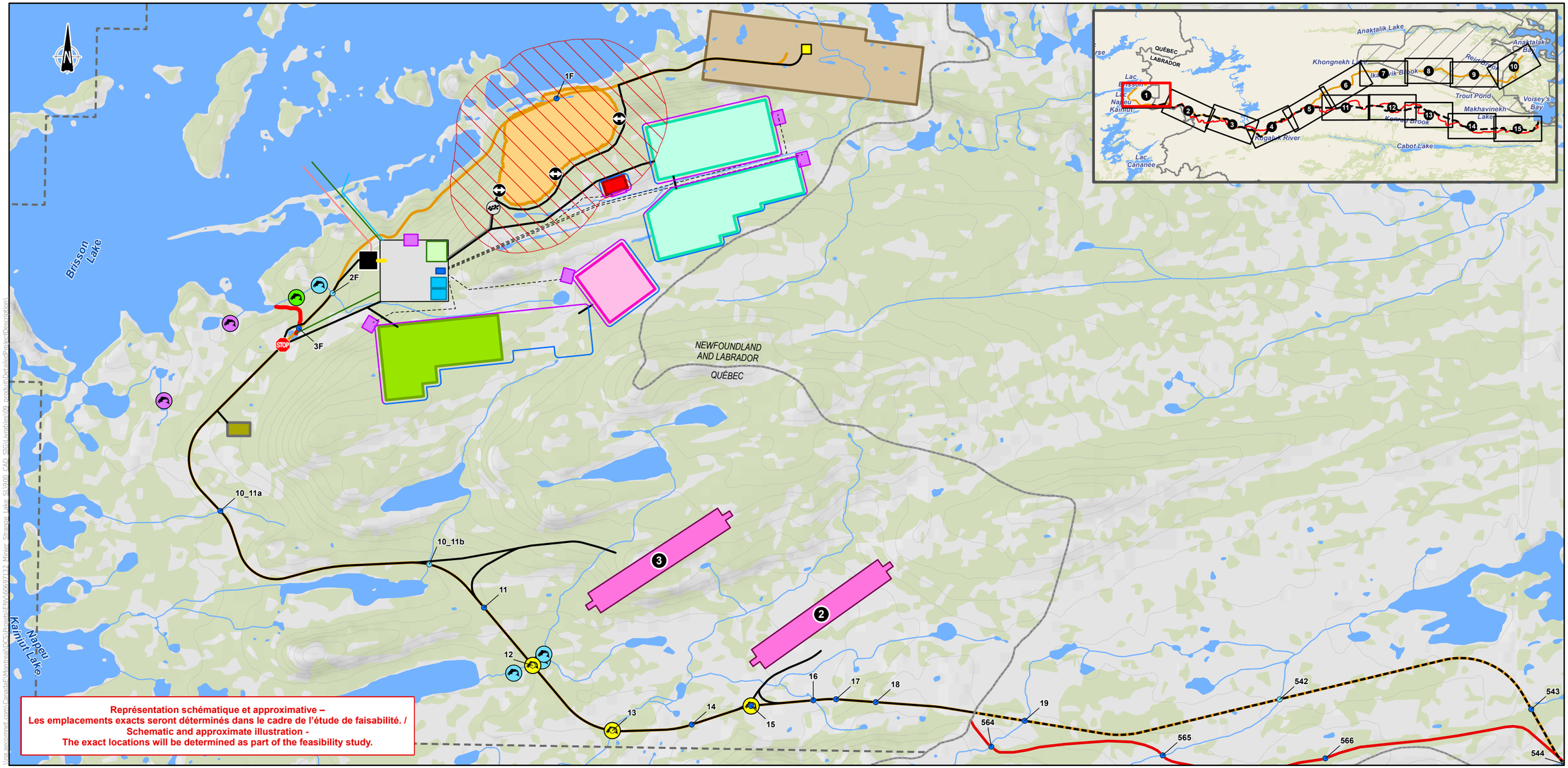
Web: www.okaneconsultants.com

Appendix E
Water Crossings Along the Access Road (15 sheets and aerial photos for Quebec Road Access)

MÉTAUX TORNGAT METALS

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



Représentation schématique et approximative –
Les emplacements exacts seront déterminés dans le cadre de l'étude de faisabilité. /
Schematic and approximate illustration -
The exact locations will be determined as part of the feasibility study.

Composante du site de la mine / Mine Site Component

- Limite de propriété / Property limit
- Porte d'accès / Access gate
- Sortie de la fosse / Pit exit
- Station de concassage / Crushing Station
- Canalisation souterraine / Underground pipeline
- Convoyeur / Conveyor
- Point de rejet alternatif des eaux usées minières traitées / Alternative discharge point for treated contact and process wastewater
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Prise d'eau / Water intake piping
- Routes de service et de halage / Service and hauling roads)
- Tunnel d'accès / Access tunnel
- Émissaire des eaux usées minières traitées / Treated contact and process wastewater outlet
- Émissaire des eaux usées domestiques traitées / Treated domestic wastewater outlet
- Zone de souffle d'explosion / Blast zone
- Aire d'accumulation des résidus miniers / Mine residue stockpile area
- Aire d'entreposage de mort-terrain / Overburden stockpile
- Banc d'emprunt / Borrow pit
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Camp permanent des travailleurs / Permanent worker camp
- Halde de stérile / Waste rock
- Fabrication et stockage d'explosif / Explosive manufacturing and storage facilities
- Fosse minière / Mine pit
- Ressource à basse teneur / Low-grade stockpile
- Stockage de carburant / Fuel tank farm
- Site d'enfouissement / Landfill site
- Zone industrielle / Industrial area
- Usine de traitement des eaux / Effluent treatment plant
- Bassins d'entreposage des eaux / Water storage ponds
- Piste d'aterrissage / Airstrip

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Classe de cours d'eau / Stream class

- A
- B
- C
- D

1:40 000
0 500 1 000 m
NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)

Inventaire aquatique / Aquatic Survey

- Habitat du poisson mais aucun salmonidés / Fish habitat but no salmonids
- Habitat du poisson pour l'omble de fontaine / Fish habitat for brook trout
- Frayère confirmée d'omble de fontaine / Confirmed brook trout spawning ground
- Frayère potentielle d'omble de fontaine / Potential brook trout spawning ground

Autre / Other

- Frontière Québec et Labrador / Quebec and Labrador border

Annexe E
Feuillet - 1
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 1
Water crossing along the access road

AECOM

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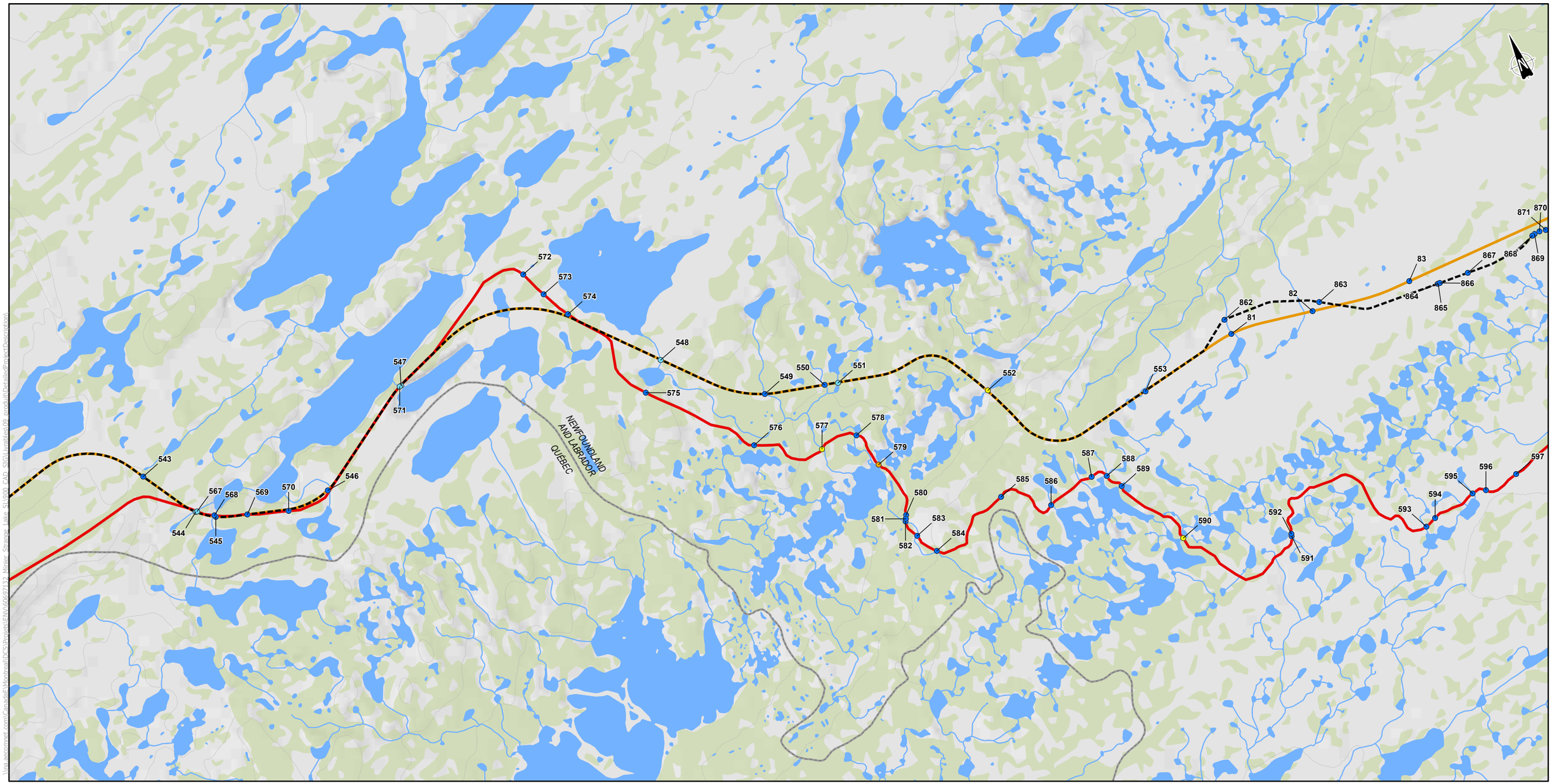
MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

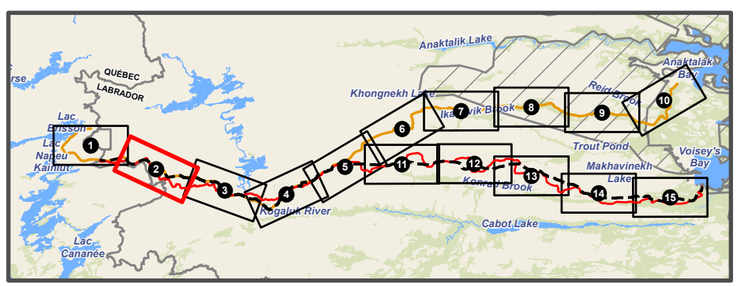
- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe E
Feuillet - 2
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 2
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

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

Kogaluk River

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

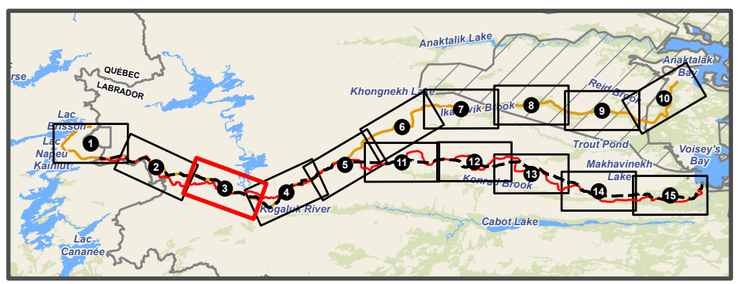
- Habitat du poisson mais aucun salmonidés / Fish habitat but no salmonids
- Habitat du poisson pour l'omble de fontaine / Fish habitat for brook trout

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E
Feuillet - 3
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 3
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

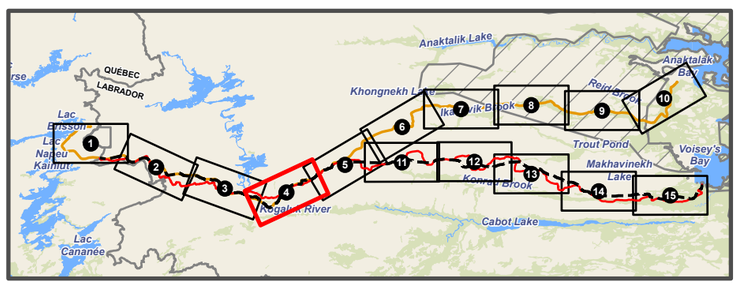
- Habitat du saumon d'atlantique et/ou de l'omble chevalier / Atlantic salmon and/or Arctic char habitat
- Habitat du poisson pour l'omble de fontaine / Fish habitat for brook trout
- Frayère potentielle d'omble de fontaine / Potential brook trout spawning ground

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E

Feuillet - 4

Traversées de cours d'eau le long de la route d'accès

Appendix E

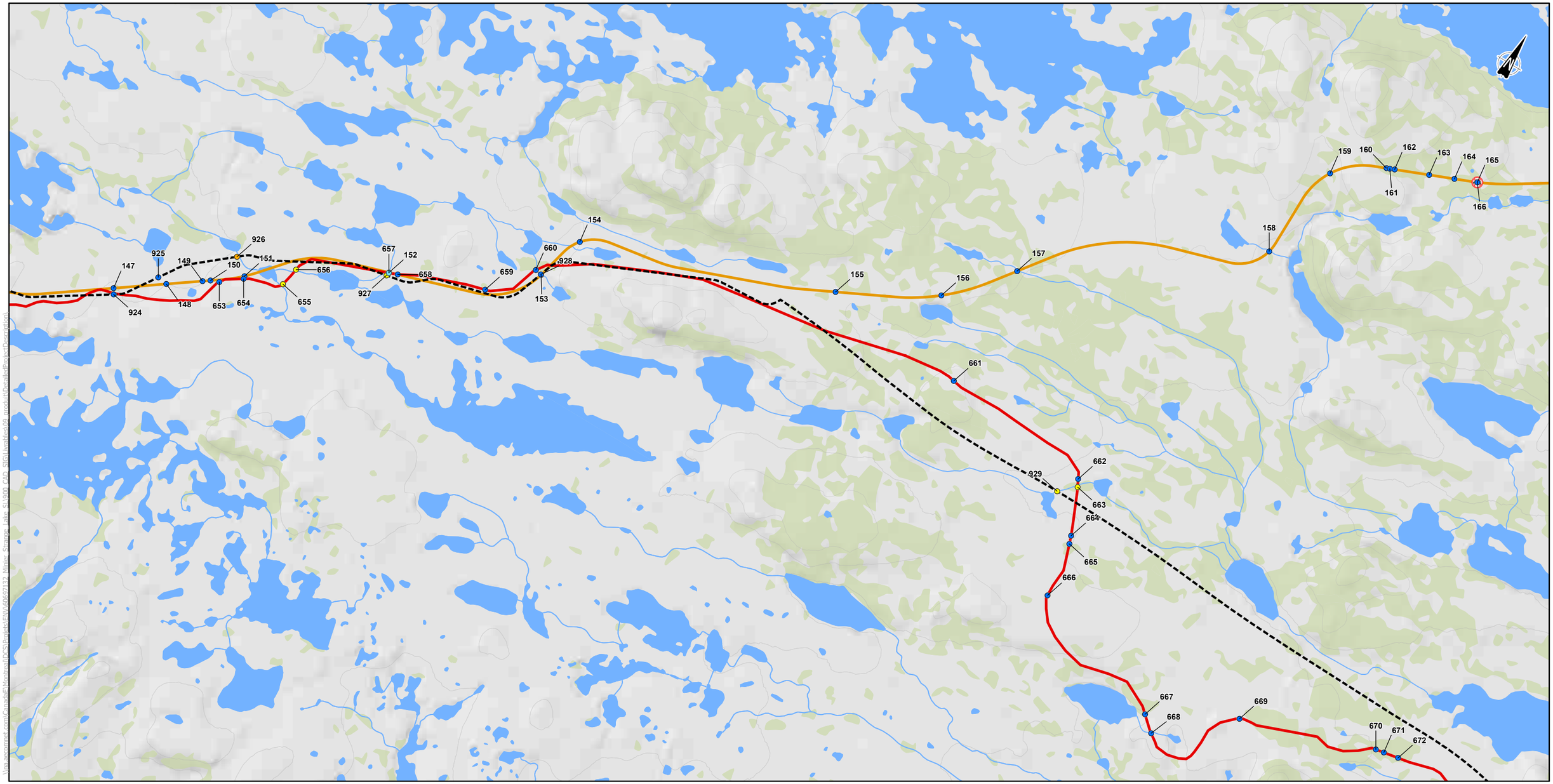
Sheet - 4

Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

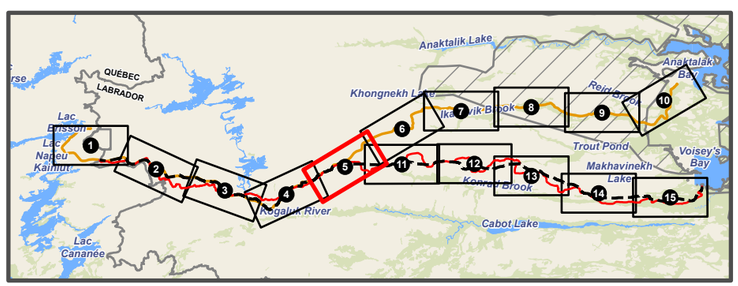
- Aucun habitat du poisson / No fish habitat

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



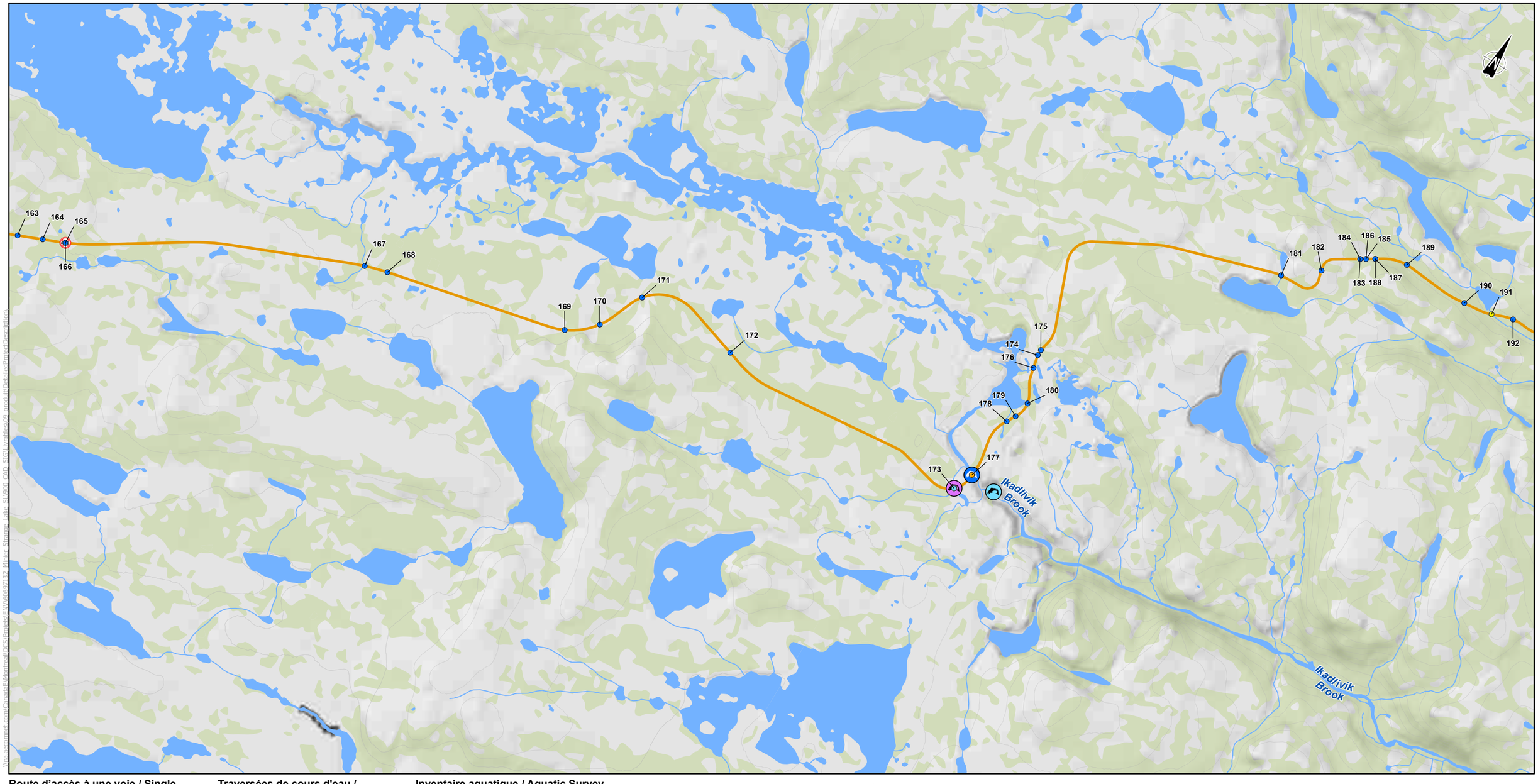
Annexe E
Feuillet - 5
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 5
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

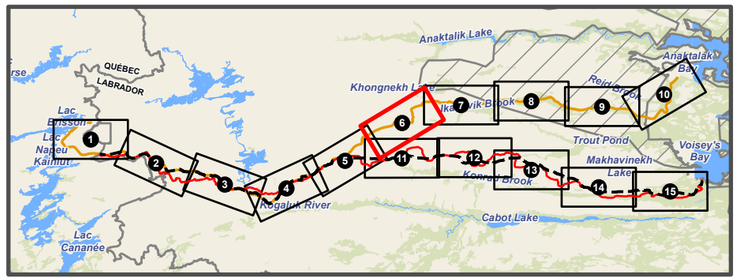
- Habitat d'alevinage de l'omble de fontaine / Brook trout rearing habitat and nursery
- Habitat du poisson pour l'omble de fontaine / Fish habitat for brook trout
- Aucun habitat du poisson / No fish habitat
- Frayère potentielle d'omble de fontaine / Potential brook trout spawning ground

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E
Feuillet - 6

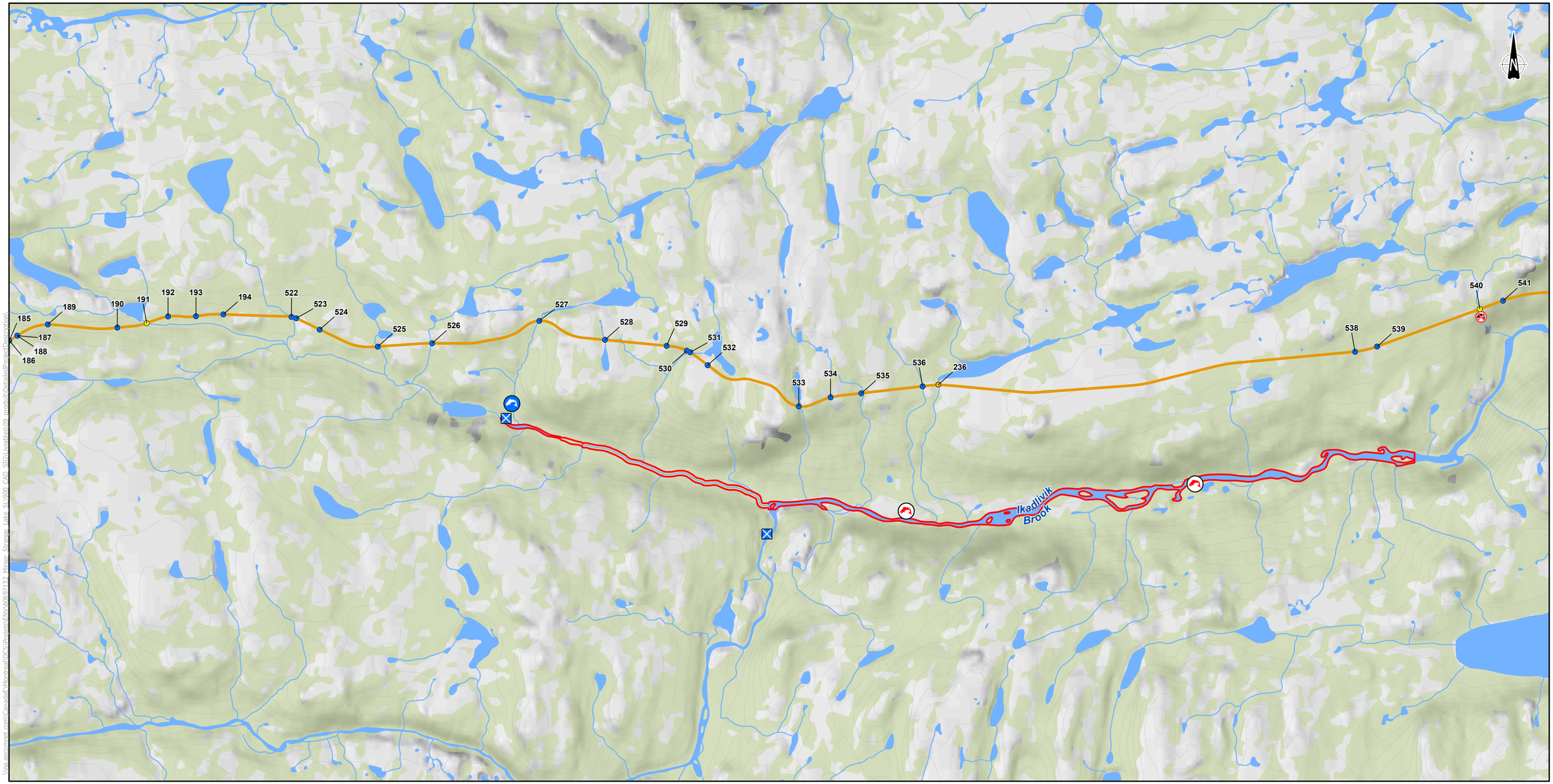
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 6
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

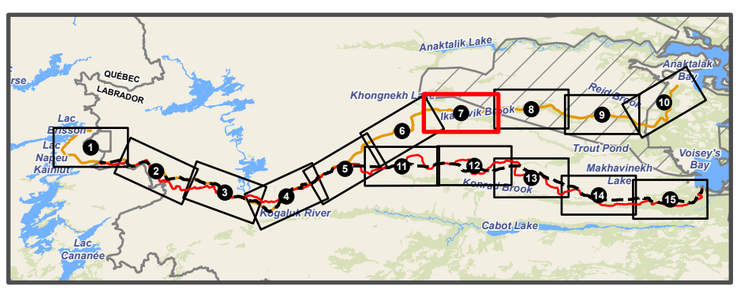
- Habitat d'alevinage de l'omble de fontaine / Brook trout rearing habitat and nursery
- Concentration de géniteurs d'omble chevalier / Aggregation of Arctic char spawners
- Aucun habitat du poisson / No fish habitat
- Obstacle infranchissable / Impassable obstacle
- Tronçon à fort potentiel de fraie (survol héliporté) / Reach with high spawning potential (aerial survey)

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



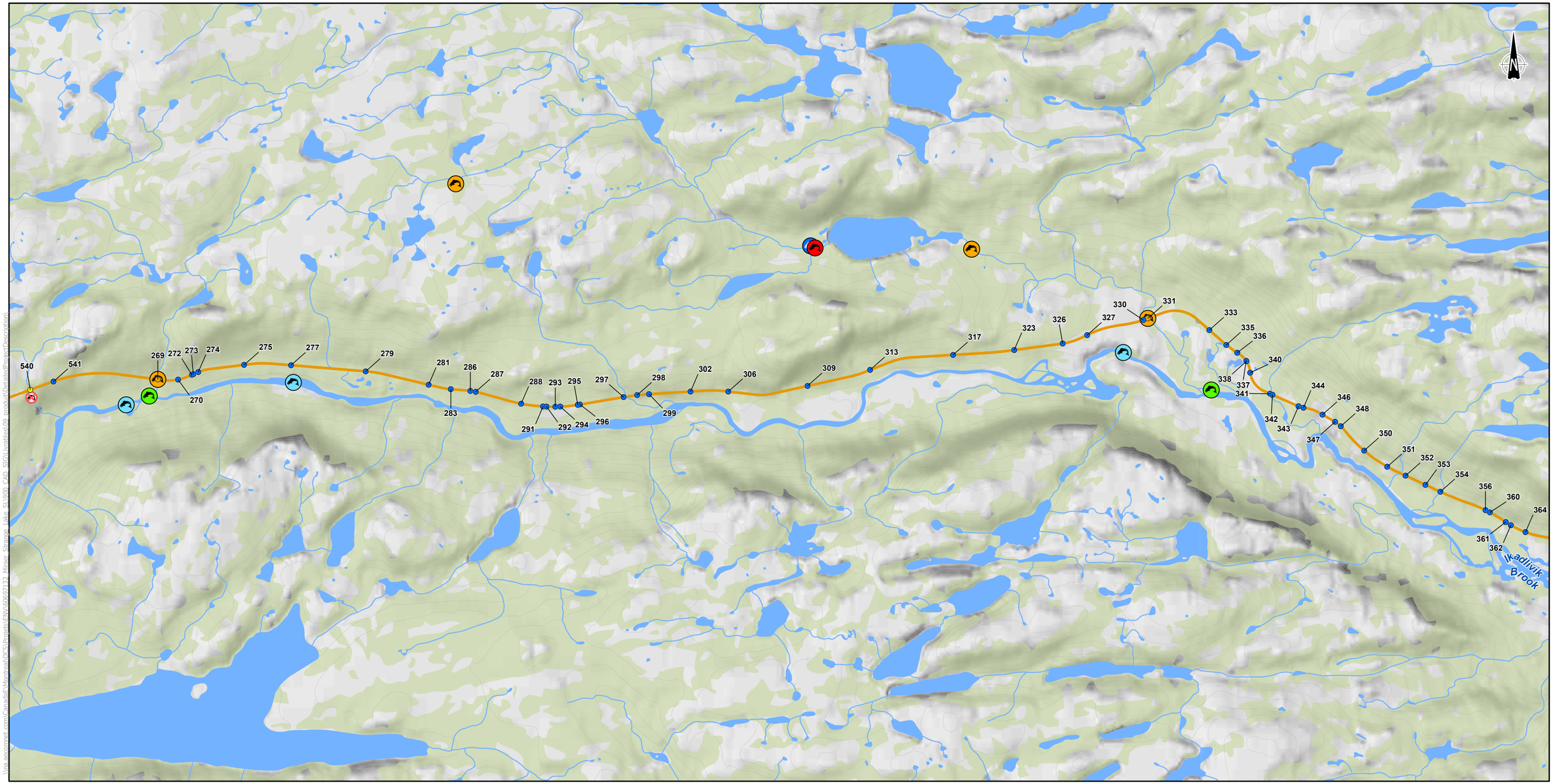
Annexe E
Feuillet - 7
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 7
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

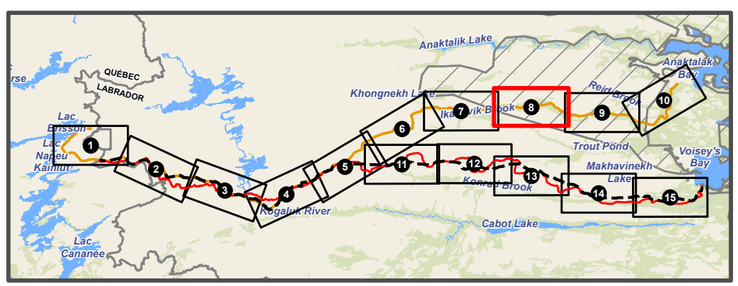
- Habitat du saumon d'atlantique et/ou de l'omble chevalier / Atlantic salmon and/or Arctic char habitat
- Frayère à salmonidés confirmée / Confirmed Salmonid Spawning Ground
- Habitat d'alevinage de l'omble de fontaine / Brook trout rearing habitat and nursery
- Aucun habitat du poisson / No fish habitat
- Frayère confirmée d'omble de fontaine / Confirmed brook trout spawning ground

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E
Feuillet - 8
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 8
Water crossing along the access road

AECOM

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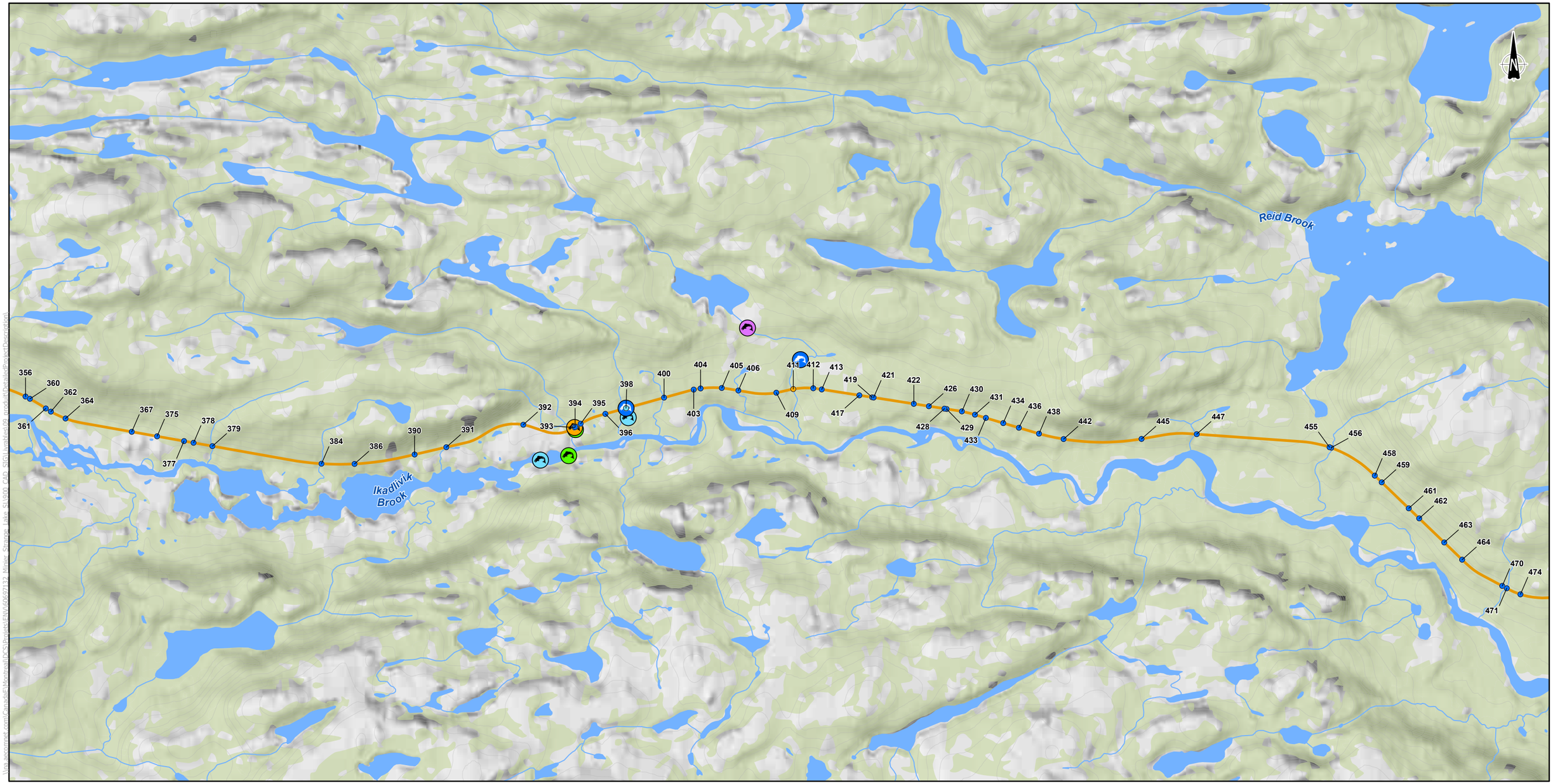
MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

Option A

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

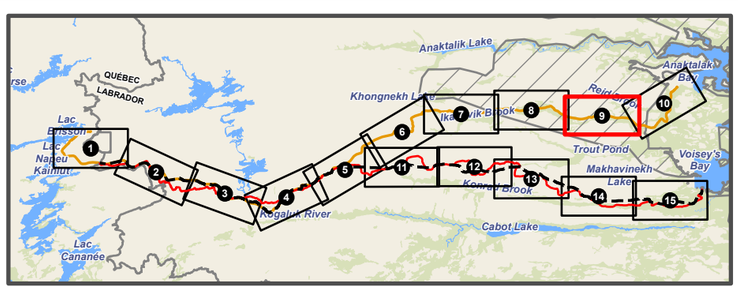
- Habitat du saumon d'atlantique et/ou de l'omble chevalier / Atlantic salmon and/or Arctic char habitat
- Habitat d'alevinage de l'omble de fontaine / Brook trout rearing habitat and nursery
- Habitat du poisson pour l'omble de fontaine / Fish habitat for brook trout
- Frayère confirmée d'omble de fontaine / Confirmed brook trout spawning ground
- Frayère potentielle d'omble de fontaine / Potential brook trout spawning ground

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E

Feuillet - 9

Traversées de cours d'eau le long de la route d'accès

Appendix E

Sheet - 9

Water crossing along the access road

AECOM

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MÉTAUX TORNGAT METALS

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

458 459 461 462 463 464 470 471 474 479 482 486 490 491 493 495 496 498 499 554 555 556 557 558 559 560 561 562 563

Ikadlivik Brook

Reid Brook

Route d'accès à une voie / Single Lane Access Road

- Site potentiel des installations portuaires / Potential site for Port Facilities
- Bail de surface de Vale Inco / Vale Inco Surface Lease
- Option A

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

Inventaire aquatique / Aquatic Survey

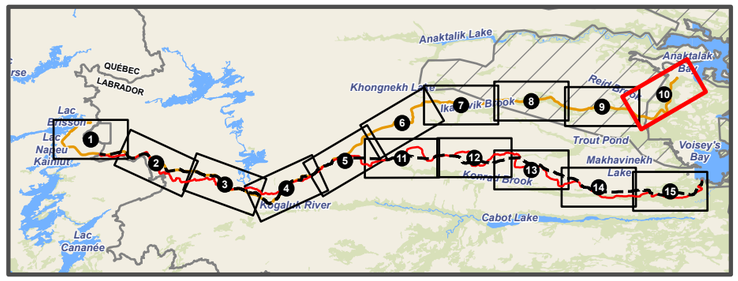
- Frayère à salmonidés confirmée / Confirmed Salmonid Spawning Ground
- Habitat d'alevinage de l'omble de fontaine / Brook trout rearing habitat and nursery
- Concentration de géniteurs d'omble chevalier / Aggregation of Arctic char spawners
- Frayère confirmée d'omble de fontaine / Confirmed brook trout spawning ground
- Frayère potentielle d'omble de fontaine / Potential brook trout spawning ground

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E
Feuillet - 10
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 10
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT

667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 930 931 932 933 934

Konrad Brook

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

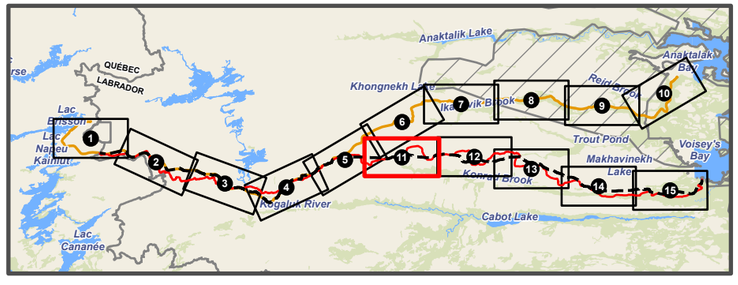
- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe E
Feuillet - 11
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 11
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
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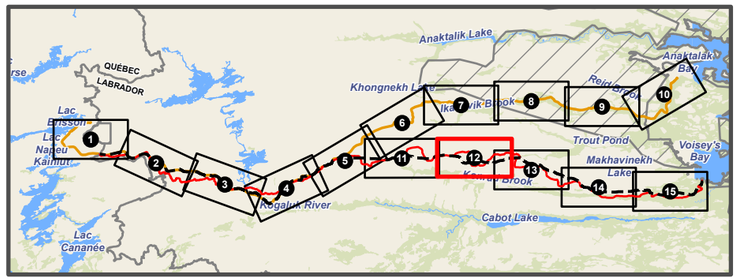
Topographic data: RNCan (2022)



Annexe E
Feuillet - 12
Traversées de cours d'eau le long de la route d'accès

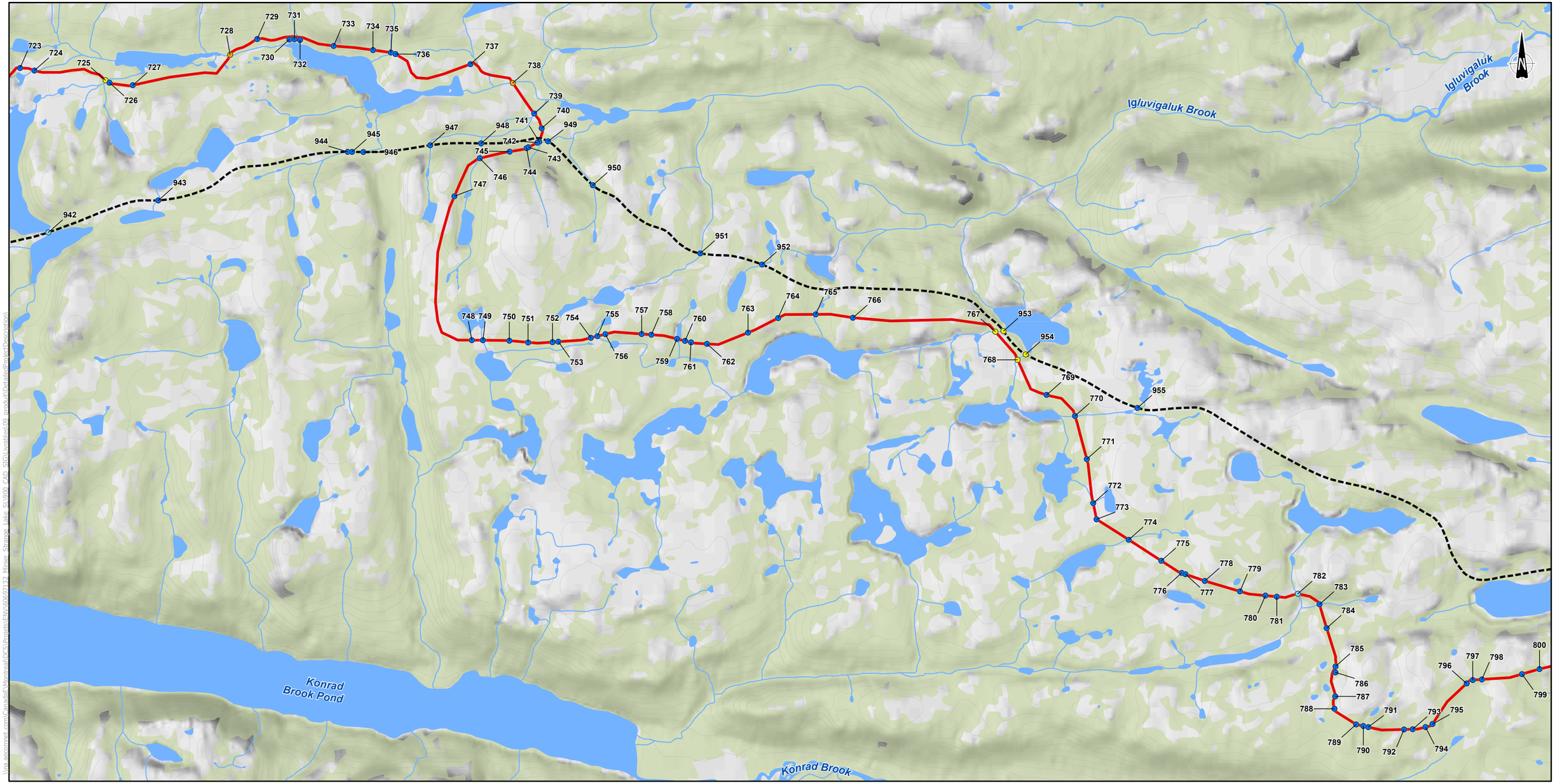
Appendix E
Sheet - 12
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

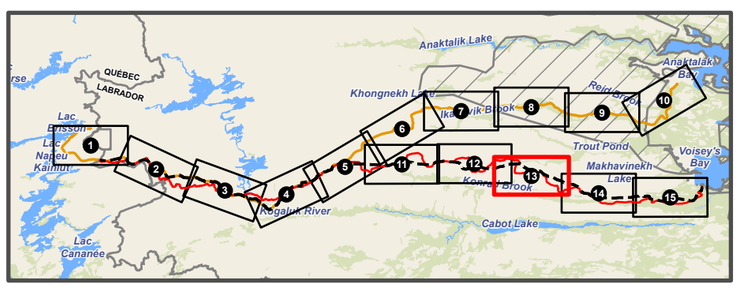
- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe E
Feuillet - 13
Traversées de cours d'eau le long de la route d'accès

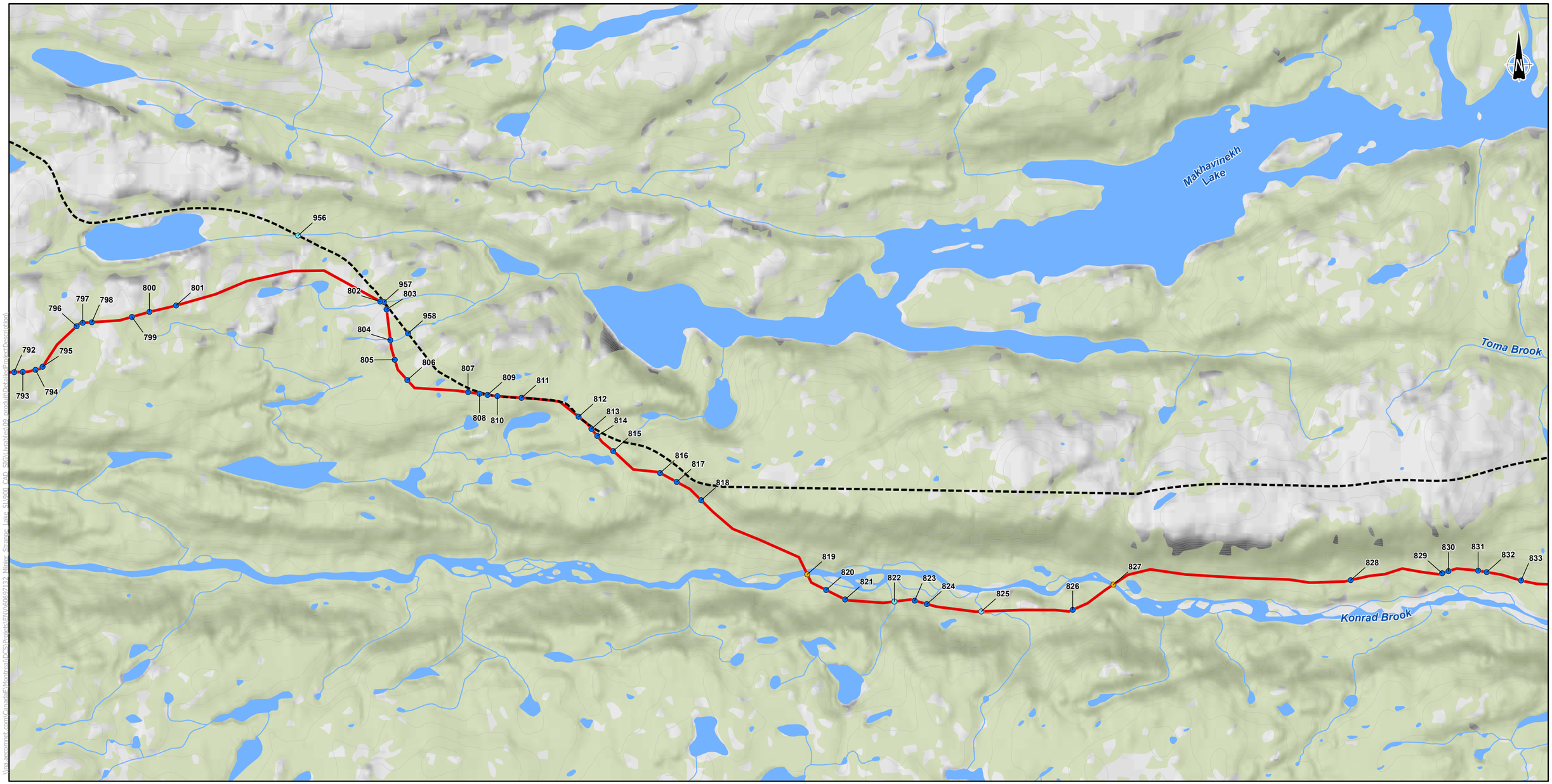
Appendix E
Sheet - 13
Water crossing along the access road

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

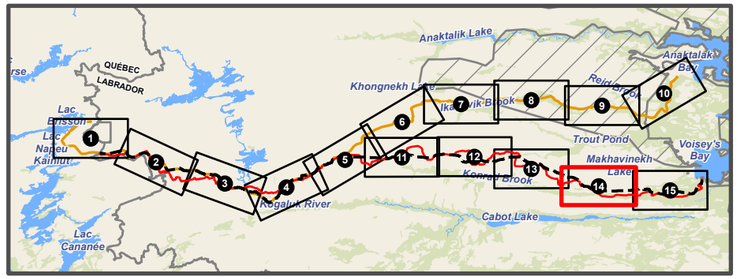
- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe E
Feuillet - 14
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 14
Water crossing along the access road

AECOM

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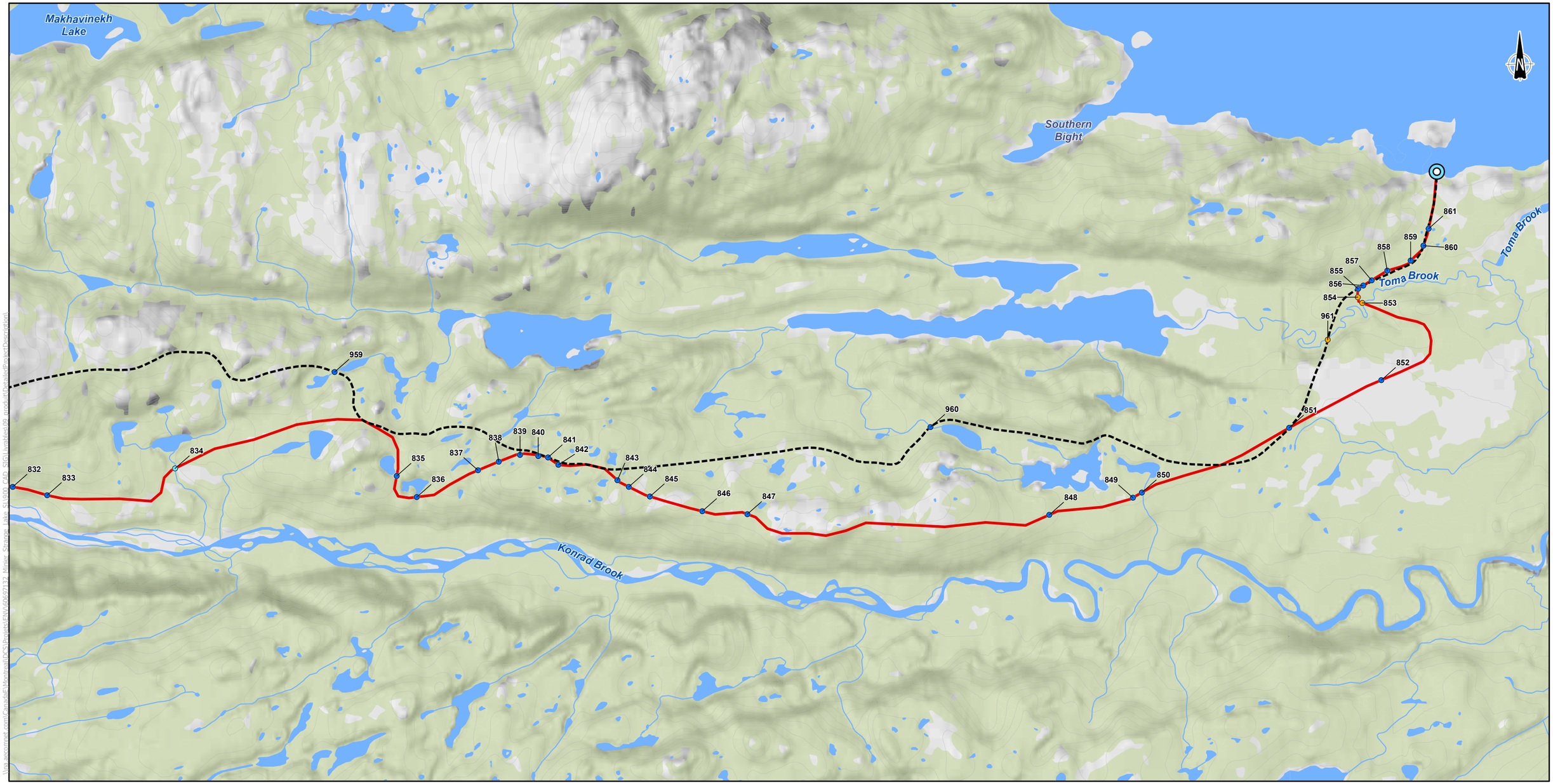
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Site potentiel des installations portuaires / Potential site for Port Facilities
- Option C1
- Option C2

Traversées de cours d'eau / Water crossing

Classe de cours d'eau / Stream class

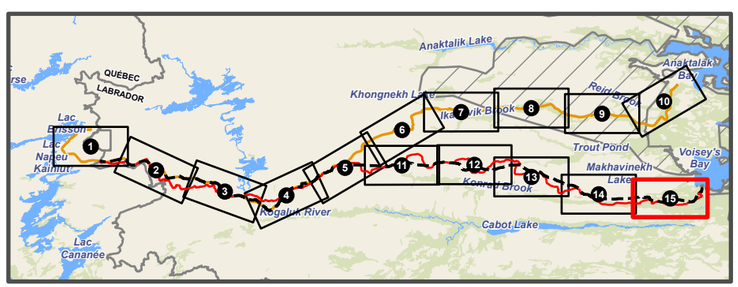
- A
- B
- C
- D

1:40 000

0 500 1 000 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe E
Feuillet - 15
Traversées de cours d'eau le long de la route d'accès

Appendix E
Sheet - 15
Water crossing along the access road

AECOM

Appendix F
2023 Results- Surface Water Characterization at the Mine Site

July 2023

Parameter	Unit	NF2	MELCCFP criterion[a]	CCME Guideline	NF6	MELCCFP criterion[a]	CCME Guideline	NF8	MELCCFP criterion[a]	CCME Guideline	NF9B	MELCCFP criterion[a]	CCME Guideline	NF11	MELCCFP criterion[a]	CCME Guideline	SW1.2	MELCCFP criterion[a]	CCME Guideline
Nutrients, ions and others																			
Alkalinity	mg/L - $CaCO_3$	4,4	n. d.	n. d.	3,9	n. d.	n. d.	3,8	n. d.	n. d.	4,0	n. d.	n. d.	4,0	n. d.	n. d.	3,9	n. d.	n. d.
Conductivity (*in situ*)	µS/cm	11,4	n. d.	n. d.	11,4	n. d.	n. d.	11,4	n. d.	n. d.	11,8	n. d.	n. d.	11,5	n. d.	n. d.	11,8	n. d.	n. d.
BOD_5	mg/L	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<5,3	3,0	n. d.	<4,0	3,0	n. d.
Dissolved Oxygen (*in situ*)	mg/L	9,35	6,00	6,50	9,40	6,00	6,50	9,47	6,00	6,50	9,59	6,00	6,50	9,37	6,00	6,50	9,47	6,00	6,50
pH (*in situ*)	-	6,73	6,5 à 9,0	6,5 à 9,0	**6,49**	6,5 à 9,0	6,5 à 9,0	**6,44**	6,5 à 9,0	6,5 à 9,0	6,77	6,5 à 9,0	6,5 à 9,0	6,62	6,5 à 9,0	6,5 à 9,0	6,76	6,5 à 9,0	6,5 à 9,0
Fecal coliforms	UFC/100 ml	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.
Suspended Solids	mg/L	0,54	n. a.	n. a.	0,42	n. a.	n. a.	0,20	n. a.	n. a.	0,22	n. a.	n. a.	0,32	n. a.	n. a.	0,32	n. a.	n. a.
Total Solids	mg/L	92	n. d.	n. d.	36	n. d.	n. d.	96	n. d.	n. d.	36	n. d.	n. d.	72	n. d.	n. d.	40	n. d.	n. d.
Temperature (*in situ*)	^{o} C	18,19	n. d.	n. d.	18,57	n. d.	n. d.	17,93	n. d.	n. d.	17,58	n. d.	n. d.	19,41	n. d.	n. d.	17,75	n. d.	n. d.
Turbidity	UTN	0,6	n. a.	n. a.	0,4	n. a.	n. a.	0,3	n. a.	n. a.	0,3	n. a.	n. a.	0,3	n. a.	n. a.	0,3	n. a.	n. a.
Total ammonia	mg/L - N	<0,020	2,30	3,96	<0,020	2,40	12,50	<0,020	2,40	12,50	<0,020	2,30	12,50	<0,020	2,20	12,50	<0,020	2,30	3,96
Unionized ammonia	mg/L - N		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019
Total Kjeldahl Nitrogen	mg/L	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.
Nitrates	mg/L - N	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	0,0	3,0	13,00
Nitrites	mg/L - N	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06
Brome	mg/L	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.
Bicarbonates	mg/L	4,4	n. d.	n. d.	3,9	n. d.	n. d.	3,8	n. d.	n. d.	4,0	n. d.	n. d.	4,0	n. d.	n. d.	3,9	n. d.	n. d.
Carbonates	mg/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Total Organic Carbon	mg/L	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,5	n. d.	n. d.	1,4	n. d.	n. d.
Dissolved Organic Carbon	mg/L	1,3	n. d.	n. d.	1,2	n. d.	n. d.	1,2	n. d.	n. d.	1,2	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.
Chlorophyl α (Total)	mg/L	0,0005	n. d.	n. d.	0,0003	n. d.	n. d.	0,0004	n. d.	n. d.	<0,0001	n. d.	n. d.	0,0003	n. d.	n. d.	0,0002	n. d.	n. d.
Chlorides	mg/L	0,18	120	120	0,16	120	120	0,15	120	120	0,17	120	120	0,16	120	120	0,21	120	120
Cyanures totaux	mg/L	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005
Fluorides	mg/L	0,12	1,26	0,12	<0,10	1,27	0,12	<0,10	1,25	0,12	**0,13**	1,27	0,12	0,12	1,28	0,12	**0,14**	1,27	0,12
Sulphates	mg/L	0,63	500,00	n. d.	0,66	500,00	n. d.	0,67	500,00	n. d.	0,64	500,00	n. d.	0,64	500,00	n. d.	0,66	500,00	n. d.
Sulphurs	mg/L	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.
Orthophosphate	mg/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Inorganic Phosphorus	mg/L	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.
Total Phosphorus	mg/L - P	<0,010	0,03	n. d.	<0,010	0,03	n. d.	<0,010	0,03	n. d.	<0,010	0,03	n. d.	<0,010	0,03	n. d.	<0,010	0,03	n. d.
Redox Potential	mV	460	n. d.	n. d.	460	n. d.	n. d.	440	n. d.	n. d.	460	n. d.	n. d.	390	n. d.	n. d.	420	n. d.	n. d.
Metals and Hardness																			
Hardness	mg/L - $CaCO_3$	3,8	n. d.	n. d.	3,9	n. d.	n. d.	3,6	n. d.	n. d.	3,9	n. d.	n. d.	4,1	n. d.	n. d.	4,0	n. d.	n. d.
Aluminum	mg/L	0,0057	0,1300	0,1000	**0,0054**	0,0850	0,0050	<0,005	0,0670	0,0050	0,0077	0,1400	0,1000	0,0190	0,1100	0,1000	0,0087	0,1500	0,1000
Antimony	mg/L	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	0,0	0,240	n. d.
Silver	mg/L	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025
Arsenic	mg/L	0,00008	0,1500	0,0050	<0,00008	0,1500	0,0050	0,0001	0,1500	0,0050	0,0001	0,1500	0,0050	<0,00008	0,1500	0,0050	<0,00008	0,1500	0,0050
Barium	mg/L	0,0015	0,0135	n. d.	0,0014	0,0139	n. d.	0,0014	0,0128	n. d.	0,0016	0,0139	n. d.	0,0015	0,0147	n. d.	0,0017	0,0143	n. d.
Berillium	mg/L	0,000082	0,000027	n. d.	0,000047	0,000028	n. d.	0,000052	0,000025	n. d.	0,000180	0,000028	n. d.	0,000067	0,000031	n. d.	0,000230	0,000030	n. d.
Bismuth	mg/L	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.
Boron	mg/L	0,0015	5,00	1,50	0,0011	5,00	1,50	0,0011	5,00	1,50	0,0017	5,00	1,50	0,0013	5,00	1,50	0,0018	5,00	1,50
Cadmium	mg/L	<0,000006	0,000024	0,000040	<0,000006	0,000024	0,000040	<0,000006	0,000023	0,000040	<0,000006	0,000024	0,000040	<0,000006	0,000025	0,000040	<0,000006	0,000025	0,000040
Calcium	mg/L	1,2	n. d.	n. d.	1,2	n. d.	n. d.	1,1	n. d.	n. d.	1,2	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.
Cesium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Chromium	mg/L	<0,00004	0,0059	n. d.	<0,00004	0,0060	n. d.	<0,00004	0,0057	n. d.	<0,00004	0,0060	n. d.	<0,00004	0,0063	n. d.	<0,00004	0,0062	n. d.
Cobalt	mg/L	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	0,0	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.
Copper	mg/L	0,00023	0,0006	0,0020	0,00025	0,0006	0,0020	0,00026	0,0005	0,0020	0,00027	0,0006	0,0020	0,00029	0,0006	0,0020	0,00028	0,0006	0,0020
Tin	mg/L	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.
Iron	mg/L	0,012	Voir Fct[b]	0,300	0,014	Voir Fct[b]	0,300	0,013	Voir Fct[b]	0,300	0,014	Voir Fct[b]	0,300	0,013	Voir Fct[b]	0,300	0,016	Voir Fct[b]	0,300
Correction Factor[b] (Iron)	mg/L	0,006	1,30	n. a.	0,007	1,30	n. a.	0,007	1,30	n. a.	0,007	1,30	n. a.	0,007	1,30	n. a.	0,008	1,30	n. a.
Gallium	mg/L	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.
Germanium	mg/L	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.
Hafnium	mg/L	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.
Indium	mg/L	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.
Lithium	mg/L	0,00023	0,44	n. d.	0,00024	0,44	n. d.	0,00021	0,44	n. d.	0,00026	0,44	n. d.	0,00026	0,44	n. d.	0,00025	0,44	n. d.
Magnesium	mg/L	0,20	n. d.	n. d.	0,20	n. d.	n. d.	0,19	n. d.	n. d.	0,20	n. d.	n. d.	0,20	n. d.	n. d.	0,20	n. d.	n. d.
Manganese	mg/L	0,0048	0,109	0,230	0,0051	0,112	0,210	0,0061	0,104	0,200	0,0057	0,112	0,230	0,0032	0,117	0,210	0,0056	0,114	0,230
Mercury	mg/L	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026
Molybdenum	mg/L	0,00008	3,2	0,073	0,00007	3,2	0,073	0,00006	3,2	0,073	0,00010	3,2	0,073	0,00009	3,2	0,073	0,00010	3,2	0,073
Nickel	mg/L	<0,00003	0,0033	0,0250	<0,00003	0,0034	0,0250	<0,00003	0,0031	0,0250	<0,00003	0,0034	0,0250	<0,00003	0,0035	0,0250	<0,00003	0,0034	0,0250
Niobium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.
Gold	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Palladium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Lead	mg/L	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	0,000012	0,00005	0,0010
Potassium	mg/L	0,25	n. d.	n. d.	0,27	n. d.	n. d.	0,27	n. d.	n. d.	0,26	n. d.	n. d.	0,27	n. d.	n. d.	0,27	n. d.	n. d.
Rhenium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Rubidium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Ruthenium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Selenium	mg/L	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001
Sodium	mg/L	0,47	n. d.	n. d.	0,45	n. d.	n. d.	0,46	n. d.	n. d.	0,51	n. d.	n. d.	0,50	n. d.	n. d.	0,55	n. d.	n. d.
Strontium	mg/L	0,0073	21,0000	n. d.	0,0072	21,0000	n. d.	0,0072	21,0000	n. d.	0,0078	21,0000	n. d.	0,0074	21,0000	n. d.	0,0080	21	n. d.
Tantallum	mg/L	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.
Tellurium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Thallium	mg/L	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008
Thorium	mg/L	0,000005	n. d.	n. d.	0,000005	n. d.	n. d.	0,000005	n. d.	n. d.	0,000009	n. d.	n. d.	0,000008	n. d.	n. d.	0,000009	n. d.	n. d.
Titanium	mg/L	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.
Tungsten	mg/L	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.
Uranium	mg/L	0,000061	n. d.	0,015	0,000054	n. d.	0,015	0,000058	n. d.	0,015	0,000082	n. d.	0,015	0,000078	n. d.	0,015	0,000086	n. d.	0,015
Vanadium	mg/L	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.
Zinc	mg/L	<0,0005	0,0075	n. d.	<0,0005	0,0077	n. d.	<0,0005	0,0072	n. d.	<0,0005	0,0077	n. d.	<0,0005	0,0080	n. d.	0,0	0,0078	n. d.
Zirconium	mg/L	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.
Rare Earth Elements																			
Cerium	mg/L	0,000053	n. d.	n. d.	0,000090	n. d.	n. d.	0,000047	n. d.	n. d.	0,000071	n. d.	n. d.	0,000095	n. d.	n. d.	0,000073	n. d.	n. d.
Dysprosium	mg/L	0,000011	n. d.	n. d.	0,000011	n. d.	n. d.	0,000007	n. d.	n. d.	0,000021	n. d.	n. d.	0,000009	n. d.	n. d.	0,000025	n. d.	n. d.
Erbium	mg/L	0,000008	n. d.	n. d.	0,000007	n. d.	n. d.	0,000006	n. d.	n. d.	0,000015	n. d.	n. d.	0,000007	n. d.	n. d.	0,000017	n. d.	n. d.
Europium	mg/L	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.
Gadolinium	mg/L	0,000012	n. d.	n. d.	0,000012	n. d.	n. d.	0,000007	n. d.	n. d.	0,000020	n. d.	n. d.	0,000012	n. d.	n. d.	0,000021	n. d.	n. d.
Holmium	mg/L	0,000002	n. d.	n. d.	0,000002	n. d.	n. d.	0,000002	n. d.	n. d.	0,000005	n. d.	n. d.	0,000003	n. d.	n. d.	0,000006	n. d.	n. d.
Lanthanum	mg/L	0,000048	n. d.	n. d.	0,000070	n. d.	n. d.	0,000046	n. d.	n. d.	0,000062	n. d.	n. d.	0,000069	n. d.	n. d.	0,000066	n. d.	n. d.
Lutecium	mg/L	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.
Neodym	mg/L	0,000046	n. d.	n. d.	0,000062	n. d.	n. d.	0,000041	n. d.	n. d.	0,000074	n. d.	n. d.	0,000061	n. d.	n. d.	0,000008	n. d.	n. d.
Praseodyme	mg/L	0,000012	n. d.	n. d.	0,000015	n. d.	n. d.	0,000011	n. d.	n. d.	0,000018	n. d.	n. d.	0,000019	n. d.	n. d.	0,000019	n. d.	n. d.
Samarium	mg/L	0,000010	n. d.	n. d.	0,000010	n. d.	n. d.	0,000007	n. d.	n. d.	0,000016	n. d.	n. d.	0,000012	n. d.	n. d.	0,000021	n. d.	n. d.
Scandium	mg/L	<0,000003	n. d.	n. d.	0,000005	n. d.	n. d.	<0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.
Terbium	mg/L	0,000020	n. d.	n. d.	0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000003	n. d.	n. d.	0,000002	n. d.	n. d.	0,000004	n. d.	n. d.
Thulium	mg/L	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.
Ytterbium	mg/L	0,000007	n. d.	n. d.	0,000006	n. d.	n. d.	0,000005	n. d.	n. d.	0,000012	n. d.	n. d.	0,000006	n. d.	n. d.	0,000014	n. d.	n. d.
Yttrium	mg/L	0,000062	n. d.	n. d.	0,000072	n. d.	n. d.	0,000044	n. d.	n. d.	0,000130	n. d.	n. d.	0,000057	n. d.	n. d.	0,000140	n. d.	n. d.
Isotopes																			
Radium-228	Bq/L	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.
Lead-210	Bq/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Potassium-40	Bq/L	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.
Radium-226	Bq/L	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.
Thorium-228	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-230	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-232	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-234	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-235	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-238	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Hydrocarbons and Phenols																			
Acenaphtene	mg/L	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058
Anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(a)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(b)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(j)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(k)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(a)pyrene	mg/L	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015
Chrysene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Dibenzo(a,h)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Fluoranthene	mg/L	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004
Fluorene	mg/L	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003
Indeno(1,2,3-cd)pyrene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Naphtalene	mg/L	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011
Phenanthrene	mg/L	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004
Pyrene	mg/L	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025
HAP totaux (RES)	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Dimethylphenol-2,4	mg/L	<0,00006	0,38	n. d.	<0,00006	0,38	n. d.	<0,00006	0,38	n. d.	<0,00006	0,38	n. d.	<0,00006	0,38	n. d.	<0,00006	0,38	n. d.
Dinitrophenol-2,4	mg/L	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.
Methyl-4,6-dinitrophenol-2	mg/L	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.
Nitrophenol-4	mg/L	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.
Phenol	mg/L	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04
Chlorophenol-2	mg/L	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007
Chlorophenol-3	mg/L	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007
Chlorophenol-4	mg/L	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007
Dichlorophenol-2,3	mg/L	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002
Dichlorophenol-2,4+2,5	mg/L	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002
Dichlorophenol-2,6	mg/L	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002
Dichlorophenol

August 2023

Parameter	Unit	NF2	MELCCFP criterion[a]	CCME Guideline	NF6	MELCCFP criterion[a]	CCME Guideline	NF8	MELCCFP criterion[a]	CCME Guideline	NF9B	MELCCFP criterion[a]	CCME Guideline	NF11	MELCCFP criterion[a]	CCME Guideline	SW1.2	MELCCFP criterion[a]	CCME Guideline
Nutrients, ions and others																			
Alkalinity	mg/L - $CaCO_3$	3,4	n. d.	n. d.	3,5	n. d.	n. d.	3,6	n. d.	n. d.	3,6	n. d.	n. d.	3,5	n. d.	n. d.	3,8	n. d.	n. d.
Conductivity (*in situ*)	µS/cm	11,2	n. d.	n. d.	11,0	n. d.	n. d.	11,1	n. d.	n. d.	11,4	n. d.	n. d.	11,0	n. d.	n. d.	11,4	n. d.	n. d.
BOD_5	mg/L	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.
Dissolved Oxygen (*in situ*)	mg/L	9,21	5,0	5,5	9,3	5,0	5,5	9,58	5,0	5,5	9,17	5,0	5,5	9,76	6,0	6,5	9,29	6,0	6,5
pH (*in situ*)	-	7,14	6,5 à 9,0	6,5 à 9,0	7,32	6,5 à 9,0	6,5 à 9,0	7,28	6,5 à 9,0	6,5 à 9,0	7,17	6,5 à 9,0	6,5 à 9,0	7,19	6,5 à 9,0	6,5 à 9,0	7,26	6,5 à 9,0	6,5 à 9,0
Fecal coliforms	UFC/100 ml	0,0	n. d.	n. d.	1,0	n. d.	n. d.	0,0	n. d.	n. d.	1,0	n. d.	n. d.	1,0	n. d.	n. d.	0,0	n. d.	n. d.
Suspended Solids	mg/L	0,50	n. a.	n. a.	0,40	n. a.	n. a.	0,50	n. a.	n. a.	0,31	n. a.	n. a.	0,50	n. a.	n. a.	0,60	n. a.	n. a.
Total Solids	mg/L	64	n. d.	n. d.	56	n. d.	n. d.	300	n. d.	n. d.	12	n. d.	n. d.	48	n. d.	n. d.	20	n. d.	n. d.
Temperature (*in situ*)	^{o} C	14,9	n. d.	n. d.	15,1	n. d.	n. d.	14,8	n. d.	n. d.	15,2	n. d.	n. d.	14,4	n. d.	n. d.	15,1	n. d.	n. d.
Turbidity	UTN	0,3	n. a.	n. a.	0,3	n. a.	n. a.	0,5	n. a.	n. a.	0,4	n. a.	n. a.	0,3	n. a.	n. a.	0,3	n. a.	n. a.
Total ammonia	mg/L - N	0,04	2,40	5,74	<0,020	2,20	1,83	<0,020	2,20	1,83	<0,020	2,40	5,74	0,03	2,50	5,74	<0,020	2,20	1,83
Unionized ammonia	mg/L - N		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019
Total Kjeldahl Nitrogen	mg/L	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.
Nitrates	mg/L - N	<0,020	3,0	13,00	<0,020	3,0	13,00	0,0	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00
Nitrites	mg/L - N	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06
Brome	mg/L	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.
Bicarbonates	mg/L	3,4	n. d.	n. d.	3,5	n. d.	n. d.	3,6	n. d.	n. d.	3,6	n. d.	n. d.	3,5	n. d.	n. d.	3,8	n. d.	n. d.
Carbonates	mg/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Total Organic Carbon	mg/L	1,5	n. d.	n. d.	1,5	n. d.	n. d.	1,5	n. d.	n. d.	1,4	n. d.	n. d.	1,6	n. d.	n. d.	1,4	n. d.	n. d.
Dissolved Organic Carbon	mg/L	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,4	n. d.	n. d.	1,2	n. d.	n. d.	1,4	n. d.	n. d.	1,5	n. d.	n. d.
Chlorophyl α (Total)	mg/L	0,0003	n. d.	n. d.	0,0005	n. d.	n. d.	0,0004	n. d.	n. d.	0,0004	n. d.	n. d.	0,0003	n. d.	n. d.	0,0004	n. d.	n. d.
Chlorides	mg/L	0,18	120	120	0,15	120	120	0,17	120	120	0,16	120	120	0,37	120	120	0,15	120	120
Cyanures totaux	mg/L	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005
Fluorides	mg/L	**0,13**	1,27	0,12	0,11	1,28	0,12	0,11	1,29	0,12	**0,14**	1,27	0,12	**0,14**	1,26	0,12	**0,14**	1,27	0,12
Sulphates	mg/L	0,69	500,00	n. d.	0,68	500,00	n. d.	0,65	500,00	n. d.	0,68	500,00	n. d.	0,63	500,00	n. d.	0,66	500,00	n. d.
Sulphurs	mg/L	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.
Orthophosphate	mg/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	0,0	n. d.	n. d.	<0,010	n. d.	n. d.	<0,020	n. d.	n. d.
Inorganic Phosphorus	mg/L	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.
Total Phosphorus	mg/L - P	0,0020	0,030	n. d.	0,0025	0,030	n. d.	0,0024	0,030	n. d.	0,0020	0,030	n. d.	n. d.	0,030	n. d.	0,0018	0,030	n. d.
Redox Potential	mV	490	n. d.	n. d.	500	n. d.	n. d.	470	n. d.	n. d.	470	n. d.	n. d.	490	n. d.	n. d.	480	n. d.	n. d.
Metals and Hardness																			
Hardness	mg/L - $CaCO_3$	3,9	n. d.	n. d.	4,2	n. d.	n. d.	4,4	n. d.	n. d.	4,0	n. d.	n. d.	3,8	n. d.	n. d.	4,0	n. d.	n. d.
Aluminum	mg/L	0,0050	0,2900	0,1000	0,0051	0,3500	0,1000	0,0052	0,3600	0,1000	0,0060	0,2800	0,1000	0,0120	0,3000	0,1000	0,0060	0,3600	0,1000
Antimony	mg/L	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.
Silver	mg/L	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025
Arsenic	mg/L	0,00008	0,1500	0,0050	0,0001	0,1500	0,0050	0,0001	0,1500	0,0050	<0,00008	0,1500	0,0050	0,0001	0,1500	0,0050	<0,00008	0,1500	0,0050
Barium	mg/L	0,0013	0,0139	n. d.	0,0013	0,0151	n. d.	0,0012	0,0158	n. d.	0,0014	0,0143	n. d.	0,0015	0,0135	n. d.	0,0014	0,0143	n. d.
Berillium	mg/L	0,000067	0,000028	n. d.	0,000037	0,000032	n. d.	0,000044	0,000035	n. d.	0,000130	0,000030	n. d.	0,000064	0,000027	n. d.	0,000130	0,000030	n. d.
Bismuth	mg/L	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.
Boron	mg/L	0,0016	5,00	1,50	0,0014	5,00	1,50	0,0012	5,00	1,50	0,0017	5,00	1,50	0,0017	5,00	1,50	0,0018	5,00	1,50
Cadmium	mg/L	<0,000006	0,000024	0,000040	<0,000006	0,000026	0,000040	<0,000006	0,000027	0,000040	<0,000006	0,000025	0,000040	<0,000006	0,000024	0,000040	<0,000006	0,000025	0,000040
Calcium	mg/L	1,4	n. d.	n. d.	1,3	n. d.	n. d.	1,4	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,4	n. d.	n. d.
Cesium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Chromium	mg/L	<0,00004	0,0060	n. d.	<0,00004	0,0064	n. d.	<0,00004	0,0067	n. d.	<0,00004	0,0062	n. d.	<0,00004	0,0059	n. d.	<0,00004	0,0062	n. d.
Cobalt	mg/L	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.
Copper	mg/L	0,00020	0,0006	0,0020	0,00022	0,0006	0,0020	0,00020	0,0006	0,0020	0,00020	0,0006	0,0020	0,00023	0,0006	0,0020	0,00021	0,0006	0,0020
Tin	mg/L	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.
Iron	mg/L	0,016	Voir Fct[b]	0,300	0,019	Voir Fct[b]	0,300	0,017	Voir Fct[b]	0,300	0,018	Voir Fct[b]	0,300	0,014	Voir Fct[b]	0,300	0,016	Voir Fct[b]	0,30
Correction Factor[b] (Iron)	mg/L	0,0080	1,30	n. a.	0,0095	1,30	n. a.	0,0085	1,30	n. a.	0,0090	1,30	n. a.	0,0070	1,30	n. a.	0,0080	1,30	n. a.
Gallium	mg/L	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.
Germanium	mg/L	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.
Hafnium	mg/L	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.
Indium	mg/L	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.
Lithium	mg/L	0,00025	0,44	n. d.	0,00022	0,44	n. d.	0,00022	0,44	n. d.	0,00024	0,44	n. d.	0,00027	0,44	n. d.	0,00024	0,44	n. d.
Magnesium	mg/L	0,20	n. d.	n. d.	0,19	n. d.	n. d.	0,19	n. d.	n. d.	0,21	n. d.	n. d.	0,20	n. d.	n. d.	0,20	n. d.	n. d.
Manganese	mg/L	0,0042	0,112	0,260	0,0037	0,119	0,260	0,0039	0,124	0,260	0,0041	0,114	0,260	0,0024	0,109	0,260	0,0039	0,114	0,260
Mercury	mg/L	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026
Molybdenum	mg/L	0,00009	3,2	0,073	0,00008	3,2	0,073	0,00007	3,2	0,073	0,00009	3,2	0,073	0,00009	3,2	0,073	0,00009	3,2	0,073
Nickel	mg/L	0,000037	0,0034	0,0250	0,000190	0,0036	0,0250	0,000110	0,0037	0,0250	<0,00003	0,0034	0,0250	0,000320	0,0033	0,0250	0,000360	0,0034	0,0250
Niobium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.
Gold	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Palladium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Lead	mg/L	0,000	0,00005	0,00100	0,000120	0,00006	0,00100	<0,00001	0,00006	0,00100	0,000010	0,00005	0,00100	0,000013	0,00005	0,00100	0,000012	0,00005	0,00100
Potassium	mg/L	0,27	n. d.	n. d.	0,28	n. d.	n. d.	0,27	n. d.	n. d.	0,28	n. d.	n. d.	0,28	n. d.	n. d.	0,27	n. d.	n. d.
Rhenium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Rubidium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Ruthenium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Selenium	mg/L	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001
Sodium	mg/L	0,53	n. d.	n. d.	0,52	n. d.	n. d.	0,50	n. d.	n. d.	0,54	n. d.	n. d.	0,52	n. d.	n. d.	0,53	n. d.	n. d.
Strontium	mg/L	0,0077	21,0000	n. d.	0,0073	21,0000	n. d.	0,0073	21,0000	n. d.	0,0077	21,0000	n. d.	0,0071	21,0000	n. d.	0,0076	21	n. d.
Tantallum	mg/L	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.
Tellurium	mg/L		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.		n. d.	n. d.
Thallium	mg/L	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008
Thorium	mg/L	0,000007	n. d.	n. d.	0,000006	n. d.	n. d.	0,000006	n. d.	n. d.	0,000008	n. d.	n. d.	0,000008	n. d.	n. d.	0,000007	n. d.	n. d.
Titanium	mg/L	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.
Tungsten	mg/L	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.
Uranium	mg/L	0,000057	n. d.	0,015	0,000051	n. d.	0,015	0,000051	n. d.	0,015	0,000064	n. d.	0,015	0,000064	n. d.	0,015	0,000064	n. d.	0,015
Vanadium	mg/L	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.
Zinc	mg/L	<0,0005	0,0077	n. d.	<0,0005	0,0082	n. d.	<0,0005	0,0085	n. d.	<0,0005	0,0078	n. d.	<0,0005	0,0075	n. d.	<0,0005	0,0078	n. d.
Zirconium	mg/L	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.
Rare Earth Elements																			
Cerium	mg/L	0,000062	n. d.	n. d.	0,000063	n. d.	n. d.	0,000054	n. d.	n. d.	0,000056	n. d.	n. d.	0,000100	n. d.	n. d.	0,000057	n. d.	n. d.
Dysprosium	mg/L	0,000008	n. d.	n. d.	0,000006	n. d.	n. d.	0,000006	n. d.	n. d.	0,000014	n. d.	n. d.	0,000009	n. d.	n. d.	0,000016	n. d.	n. d.
Erbium	mg/L	0,000007	n. d.	n. d.	0,000005	n. d.	n. d.	<0,000004	n. d.	n. d.	0,000010	n. d.	n. d.	0,000005	n. d.	n. d.	0,000012	n. d.	n. d.
Europium	mg/L	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.
Gadolinium	mg/L	0,000009	n. d.	n. d.	0,000007	n. d.	n. d.	0,000007	n. d.	n. d.	0,000013	n. d.	n. d.	0,000011	n. d.	n. d.	0,000014	n. d.	n. d.
Holmium	mg/L	0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000003	n. d.	n. d.	0,000002	n. d.	n. d.	0,000004	n. d.	n. d.
Lanthanum	mg/L	0,000051	n. d.	n. d.	0,000050	n. d.	n. d.	0,000046	n. d.	n. d.	0,000051	n. d.	n. d.	0,000073	n. d.	n. d.	0,000053	n. d.	n. d.
Lutecium	mg/L	0,000001	n. d.	n. d.	<0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.
Neodym	mg/L	0,000045	n. d.	n. d.	0,000043	n. d.	n. d.	0,000038	n. d.	n. d.	0,000051	n. d.	n. d.	0,000065	n. d.	n. d.	0,000050	n. d.	n. d.
Praseodyme	mg/L	0,000012	n. d.	n. d.	0,000011	n. d.	n. d.	0,000011	n. d.	n. d.	0,000012	n. d.	n. d.	0,000019	n. d.	n. d.	0,000013	n. d.	n. d.
Samarium	mg/L	0,000010	n. d.	n. d.	0,000007	n. d.	n. d.	0,000007	n. d.	n. d.	0,000011	n. d.	n. d.	0,000011	n. d.	n. d.	0,000014	n. d.	n. d.
Scandium	mg/L	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.
Terbium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000003	n. d.	n. d.
Thulium	mg/L	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.
Ytterbium	mg/L	0,000005	n. d.	n. d.	<0,000004	n. d.	n. d.	0,000004	n. d.	n. d.	0,000008	n. d.	n. d.	0,000004	n. d.	n. d.	0,000009	n. d.	n. d.
Yttrium	mg/L	0,000059	n. d.	n. d.	0,000039	n. d.	n. d.	0,000036	n. d.	n. d.	0,000085	n. d.	n. d.	0,000051	n. d.	n. d.	0,000094	n. d.	n. d.
Isotopes																			
Radium-228	Bq/L	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.
Lead-210	Bq/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Potassium-40	Bq/L	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.
Radium-226	Bq/L	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.
Thorium-228	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-230	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-232	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-234	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-235	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-238	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Hydrocarbons and Phenols																			
Acenaphtene	mg/L	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058
Anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(a)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(b)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(j)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(k)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(a)pyrene	mg/L	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015
Chrysene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Dibenzo(a,h)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Fluoranthene	mg/L	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004
Fluorene	mg/L	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003
Indeno(1,2,3-cd)pyrene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Naphtalene	mg/L	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011
Phenanthrene	mg/L	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004
Pyrene	mg/L	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025
HAP totaux (RES)	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Dimethylphenol-2,4	mg/L	<0,001	0,38	n. d.	<0,001	0,38	n. d.	<0,001	0,38	n. d.	<0,001	0,38	n. d.	<0,001	0,38	n. d.	<0,001	0,38	n. d.
Dinitrophenol-2,4	mg/L	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.
Methyl-4,6-dinitrophenol-2	mg/L	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.
Nitrophenol-4	mg/L	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.
Phenol	mg/L	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04
Chlorophenol-2	mg/L	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007
Chlorophenol-3	mg/L	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007
Chlorophenol-4	mg/L	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007
Dichlorophenol-2,3	mg/L	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002
Dichlorophenol-2,4+2,5	mg/L	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002	<0,0003	0,011	0,0002
Dichlorophenol-2,6	mg/L	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002	<0,0004	n. d.	0,0002

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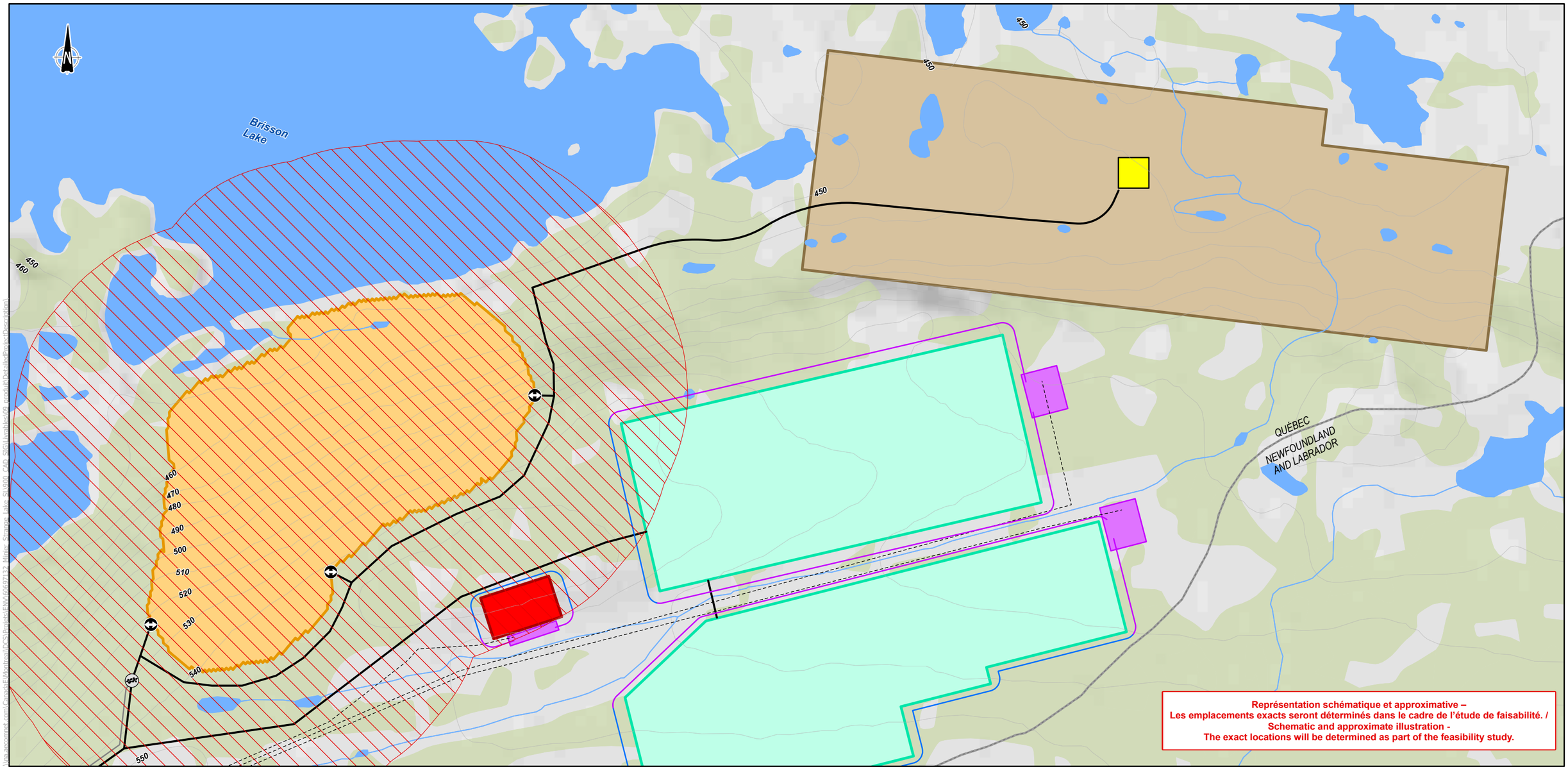
Parameter	Unit	NF2	MELCCFP criterion[a]	CCME Guideline	NF6	MELCCFP criterion[a]	CCME Guideline	NF8	MELCCFP criterion[a]	CCME Guideline	NF9B	MELCCFP criterion[a]	CCME Guideline	NF11	MELCCFP criterion[a]	CCME Guideline	SW1.2	MELCCFP criterion[a]	CCME Guideline
Nutrients, ions and others																			
Alkalinity	mg/L - $CaCO_3$	4,0	n. d.	n. d.	3,4	n. d.	n. d.	3,6	n. d.	n. d.	3,7	n. d.	n. d.	3,7	n. d.	n. d.	3,8	n. d.	n. d.
Conductivity (*in situ*)	µS/cm	11,6	n. d.	n. d.	11,6	n. d.	n. d.	11,6	n. d.	n. d.	11,8	n. d.	n. d.	12,1	n. d.	n. d.	11,8	n. d.	n. d.
BOD_5	mg/L	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.	<4,0	3,0	n. d.
Dissolved Oxygen (*in situ*)	mg/L	10,99	7,0	6,5	11,69	7,0	6,5	11,53	7,0	6,5	11,14	7,0	6,5	11,78	8,0	6,5	11,15	7,0	6,5
pH (*in situ*)	-	**6,48**	6,5 à 9,0	6,5 à 9,0	**6,43**	6,5 à 9,0	6,5 à 9,0	**6,38**	6,5 à 9,0	6,5 à 9,0	**6,47**	6,5 à 9,0	6,5 à 9,0	**6,45**	6,5 à 9,0	6,5 à 9,0	**6,47**	6,5 à 9,0	6,5 à 9,0
Fecal coliforms	UFC/100 ml	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.	0,0	n. d.	n. d.
Suspended Solids	mg/L	0,50	n. a.	n. a.	0,70	n. a.	n. a.	0,51	n. a.	n. a.	0,60	n. a.	n. a.	1,10	n. a.	n. a.	1,10	n. a.	n. a.
Total Solids	mg/L	48	n. d.	n. d.	640	n. d.	n. d.	68	n. d.	n. d.	620	n. d.	n. d.	750	n. d.	n. d.	44	n. d.	n. d.
Temperature (*in situ*)	^{o} C	6,9	n. d.	n. d.	5,8	n. d.	n. d.	5,4	n. d.	n. d.	7,0	n. d.	n. d.	4,8	n. d.	n. d.	7,1	n. d.	n. d.
Turbidity	UTN	0,36	n. a.	n. a.	0,18	n. a.	n. a.	0,31	n. a.	n. a.	0,35	n. a.	n. a.	0,22	n. a.	n. a.	0,28	n. a.	n. a.
Total ammonia	mg/L - N	<0,020	4,90	39,72	<0,020	4,90	39,72	<0,020	4,90	39,72	<0,020	6,50	39,72	<0,020	4,90	39,72	<0,020	4,90	39,72
Unionized ammonia	mg/L - N		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019		n. d.	0,019
Total Kjeldahl Nitrogen	mg/L	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.	<0,40	n. d.	n. d.
Nitrates	mg/L - N	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00	<0,020	3,0	13,00
Nitrites	mg/L - N	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06	<0,020	0,020	0,06
Brome	mg/L	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.	<0,10	0,00027	n. d.
Bicarbonates	mg/L	4,0	n. d.	n. d.	3,4	n. d.	n. d.	3,6	n. d.	n. d.	3,7	n. d.	n. d.	3,7	n. d.	n. d.	3,8	n. d.	n. d.
Carbonates	mg/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Total Organic Carbon	mg/L	1,3	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,3	n. d.	n. d.	1,4	n. d.	n. d.	1,3	n. d.	n. d.
Dissolved Organic Carbon	mg/L	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,4	n. d.	n. d.	1,3	n. d.	n. d.
Chlorophyl α (Total)	mg/L	0,0008	n. d.	n. d.	0,0010	n. d.	n. d.	0,0011	n. d.	n. d.	0,0005	n. d.	n. d.	0,0006	n. d.	n. d.	0,0	n. d.	n. d.
Chlorides	mg/L	0,17	120	120	0,16	120	120	0,16	120	120	0,16	120	120	0,16	120	120	0,16	120	120
Cyanures totaux	mg/L	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005	<0,0030	0,005	0,005
Fluorides	mg/L	<0,10	1,28	0,12	<0,10	1,27	0,12	<0,10	1,28	0,12	0,10	1,28	0,12	<0,10	1,29	0,12	0,10	1,28	0,12
Sulphates	mg/L	0,64	500,00	n. d.	0,64	500,00	n. d.	0,62	500,00	n. d.	0,62	500,00	n. d.	0,64	500,00	n. d.	0,61	500,00	n. d.
Sulphurs	mg/L	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.	<0,020	n. d.	n. d.
Orthophosphate	mg/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Inorganic Phosphorus	mg/L	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.	<0,030	n. d.	n. d.
Total Phosphorus	mg/L - P	0,0040	0,030	n. d.	0,0024	0,030	n. d.	0,0021	0,030	n. d.	0,0025	0,030	n. d.	0,0034	0,030	n. d.	0,0023	0,03	n. d.
Redox Potential	mV	270	n. d.	n. d.	320	n. d.	n. d.	280	n. d.	n. d.	340	n. d.	n. d.	280	n. d.	n. d.	300	n. d.	n. d.
Metals and Hardness																			
Hardness	mg/L - $CaCO_3$	4,1	n. d.	n. d.	4,0	n. d.	n. d.	4,1	n. d.	n. d.	4,1	n. d.	n. d.	4,3	n. d.	n. d.	4,2	n. d.	n. d.
Aluminum	mg/L	**0,036**	0,0940	0,0050	<0,022	0,0770	0,0050	<0,022	0,0780	0,0050	<0,022	0,0940	0,0050	<0,022	0,0960	0,0050	<0,022	0,0920	0,0050
Antimony	mg/L	0,0000078	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.	<0,000005	0,240	n. d.
Silver	mg/L	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025	<0,000003	0,0001	0,00025
Arsenic	mg/L	<0,00008	0,1500	0,0050	<0,00008	0,1500	0,0050	<0,00008	0,1500	0,0050	0,0001	0,1500	0,0050	<0,00008	0,1500	0,0050	0,0001	0,1500	0,0050
Barium	mg/L	0,0013	0,0147	n. d.	0,0014	0,0143	n. d.	0,0014	0,0147	n. d.	0,0014	0,0147	n. d.	0,0017	0,0154	n. d.	0,0014	0,0151	n. d.
Berillium	mg/L	0,000064	0,000031	n. d.	0,000042	0,000030	n. d.	0,000039	0,000031	n. d.	0,000140	0,000031	n. d.	0,000061	0,000033	n. d.	0,000130	0,000032	n. d.
Bismuth	mg/L	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.	<0,000009	n. d.	n. d.
Boron	mg/L	0,0013	5,00	1,50	0,0011	5,00	1,50	0,0012	5,00	1,50	0,0015	5,00	1,50	0,0012	5,00	1,50	0,0016	5,00	1,50
Cadmium	mg/L	<0,000006	0,000025	0,000040	<0,000006	0,000025	0,000040	<0,000006	0,000025	0,000040	<0,000006	0,000025	0,000040	<0,000006	0,000026	0,000040	<0,000006	0,000026	0,000040
Calcium	mg/L	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.	1,3	n. d.	n. d.
Cesium	mg/L	<0,00002	n. d.	n. d.	<0,00002	n. d.	n. d.	<0,00002	n. d.	n. d.	<0,00002	n. d.	n. d.	<0,00002	n. d.	n. d.	<0,00002	n. d.	n. d.
Chromium	mg/L	<0,00004	0,0063	n. d.	<0,00004	0,0062	n. d.	<0,00004	0,0063	n. d.	<0,00004	0,0063	n. d.	<0,00004	0,0065	n. d.	<0,00004	0,0064	n. d.
Cobalt	mg/L	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	<0,000008	0,10	n. d.	0,0	0,10	n. d.
Copper	mg/L	0,00023	0,0006	0,0020	0,00020	0,0006	0,0020	0,00018	0,0006	0,0020	0,00023	0,0006	0,0020	0,00021	0,0006	0,0020	0,00020	0,0006	0,0020
Tin	mg/L	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.	<0,00005	n. d.	n. d.
Iron	mg/L	0,017	Voir Fct[b]	0,300	0,021	Voir Fct[b]	0,300	0,015	Voir Fct[b]	0,300	0,016	Voir Fct[b]	0,300	0,011	Voir Fct[b]	0,300	0,017	Voir Fct[b]	0,30
Correction Factor[b] (Iron)	mg/L	0,009	1,30	n. a.	0,011	1,30	n. a.	0,008	1,30	n. a.	0,008	1,30	n. a.	0,006	1,30	n. a.	0,009	1,30	n. a.
Gallium	mg/L	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.	<0,001	n. d.	n. d.
Germanium	mg/L	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.	<0,005	n. d.	n. d.
Hafnium	mg/L	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.	<0,0005	n. d.	n. d.
Indium	mg/L	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.	<0,0001	n. d.	n. d.
Lithium	mg/L	0,00023	0,44	n. d.	0,00022	0,44	n. d.	0,00022	0,44	n. d.	0,00025	0,44	n. d.	0,00026	0,44	n. d.	0,00024	0,44	n. d.
Magnesium	mg/L	0,21	n. d.	n. d.	0,22	n. d.	n. d.	0,21	n. d.	n. d.	0,22	n. d.	n. d.	0,23	n. d.	n. d.	0,22	n. d.	n. d.
Manganese	mg/L	0,0041	0,117	0,210	0,0032	0,114	0,200	0,0034	0,117	0,200	0,0040	0,117	0,210	0,0022	0,122	0,210	0,0044	0,119	0,210
Mercury	mg/L	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026	<0,000002	0,00091	0,000026
Molybdenum	mg/L	0,00009	3,2	0,073	0,00008	3,2	0,073	0,00008	3,2	0,073	0,00011	3,2	0,073	0,00010	3,2	0,073	0,00011	3,2	0,073
Nickel	mg/L	<0,000098	0,0035	0,0250	<0,000098	0,0034	0,0250	<0,000098	0,0035	0,0250	<0,000098	0,0035	0,0250	<0,000098	0,0036	0,0250	<0,000098	0,0036	0,0250
Niobium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.
Gold	mg/L	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.
Palladium	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Lead	mg/L	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00005	0,0010	<0,00001	0,00006	0,0010	<0,00001	0,00006	0,0010
Potassium	mg/L	0,30	n. d.	n. d.	0,30	n. d.	n. d.	0,31	n. d.	n. d.	0,30	n. d.	n. d.	0,31	n. d.	n. d.	0,30	n. d.	n. d.
Rhenium	mg/L	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.
Rubidium	mg/L	0,00076	n. d.	n. d.	0,00077	n. d.	n. d.	0,00076	n. d.	n. d.	0,00077	n. d.	n. d.	0,00078	n. d.	n. d.	0,00076	n. d.	n. d.
Ruthenium	mg/L	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.
Selenium	mg/L	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001	<0,00005	0,005	0,001
Sodium	mg/L	0,59	n. d.	n. d.	0,59	n. d.	n. d.	0,58	n. d.	n. d.	0,61	n. d.	n. d.	0,62	n. d.	n. d.	0,62	n. d.	n. d.
Strontium	mg/L	0,0079	21,0000	n. d.	0,0078	21,0000	n. d.	0,0079	21,0000	n. d.	0,0081	21,0000	n. d.	0,0083	21,0000	n. d.	0,0083	21	n. d.
Tantallum	mg/L	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.	<0,05	n. d.	n. d.
Tellurium	mg/L	<0,0003	n. d.	n. d.	<0,0003	n. d.	n. d.	<0,0003	n. d.	n. d.	<0,0003	n. d.	n. d.	<0,0003	n. d.	n. d.	<0,0003	n. d.	n. d.
Thallium	mg/L	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008	<0,00001	0,0072	0,0008
Thorium	mg/L	0,000004	n. d.	n. d.	0,000004	n. d.	n. d.	<0,000004	n. d.	n. d.	0,000005	n. d.	n. d.	0,000005	n. d.	n. d.	0,000005	n. d.	n. d.
Titanium	mg/L	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.	<0,0004	n. d.	n. d.
Tungsten	mg/L	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.	<0,00004	n. d.	n. d.
Uranium	mg/L	0,000047	n. d.	0,015	0,000050	n. d.	0,015	0,000050	n. d.	0,015	0,000067	n. d.	0,015	0,000066	n. d.	0,015	0,000067	n. d.	0,015
Vanadium	mg/L	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.	<0,00005	0,012	n. d.
Zinc	mg/L	<0,0066	0,0080	n. d.	<0,0066	0,0078	n. d.	<0,0066	0,0080	n. d.	<0,0066	0,0080	n. d.	<0,0066	0,0083	n. d.	<0,0066	0,0082	n. d.
Zirconium	mg/L	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.	<0,0002	n. d.	n. d.
Rare Earth Elements																			
Cerium	mg/L	0,000050	n. d.	n. d.	0,000053	n. d.	n. d.	0,000050	n. d.	n. d.	0,000058	n. d.	n. d.	0,000099	n. d.	n. d.	0,000061	n. d.	n. d.
Dysprosium	mg/L	0,000007	n. d.	n. d.	0,000006	n. d.	n. d.	0,000006	n. d.	n. d.	0,000014	n. d.	n. d.	0,000008	n. d.	n. d.	0,000017	n. d.	n. d.
Erbium	mg/L	0,000006	n. d.	n. d.	0,000004	n. d.	n. d.	0,000004	n. d.	n. d.	0,000009	n. d.	n. d.	0,000005	n. d.	n. d.	0,000011	n. d.	n. d.
Europium	mg/L	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.
Gadolinium	mg/L	0,000005	n. d.	n. d.	0,000007	n. d.	n. d.	0,000007	n. d.	n. d.	0,000011	n. d.	n. d.	0,000008	n. d.	n. d.	0,000013	n. d.	n. d.
Holmium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000003	n. d.	n. d.	0,000002	n. d.	n. d.	0,000003	n. d.	n. d.
Lanthanum	mg/L	0,000044	n. d.	n. d.	0,000045	n. d.	n. d.	0,000045	n. d.	n. d.	0,000050	n. d.	n. d.	0,000071	n. d.	n. d.	0,000053	n. d.	n. d.
Lutecium	mg/L	0,000001	n. d.	n. d.	<0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.
Neodym	mg/L	0,000038	n. d.	n. d.	0,000036	n. d.	n. d.	0,000038	n. d.	n. d.	0,000051	n. d.	n. d.	0,000065	n. d.	n. d.	0,000053	n. d.	n. d.
Praseodyme	mg/L	0,000010	n. d.	n. d.	0,000010	n. d.	n. d.	0,000010	n. d.	n. d.	0,000013	n. d.	n. d.	0,000017	n. d.	n. d.	0,000014	n. d.	n. d.
Samarium	mg/L	0,000007	n. d.	n. d.	0,000007	n. d.	n. d.	0,000006	n. d.	n. d.	0,000011	n. d.	n. d.	0,000011	n. d.	n. d.	0,000012	n. d.	n. d.
Scandium	mg/L	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	<0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	0,000003	n. d.	n. d.	0,000003	n. d.	n. d.
Terbium	mg/L	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000002	n. d.	n. d.	<0,000002	n. d.	n. d.	0,000002	n. d.	n. d.
Thulium	mg/L	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.	0,000002	n. d.	n. d.	0,000001	n. d.	n. d.	0,000001	n. d.	n. d.
Ytterbium	mg/L	0,000004	n. d.	n. d.	<0,000004	n. d.	n. d.	<0,000004	n. d.	n. d.	0,000009	n. d.	n. d.	0,000005	n. d.	n. d.	0,000009	n. d.	n. d.
Yttrium	mg/L	0,000040	n. d.	n. d.	0,000035	n. d.	n. d.	0,000033	n. d.	n. d.	0,000083	n. d.	n. d.	0,000047	n. d.	n. d.	0,000091	n. d.	n. d.
Isotopes																			
Radium-228	Bq/L	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.	<0,50	n. d.	n. d.
Lead-210	Bq/L	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.	<1,0	n. d.	n. d.
Potassium-40	Bq/L	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.	<50	n. d.	n. d.
Radium-226	Bq/L	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.	<0,01	n. d.	n. d.
Thorium-228	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-230	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Thorium-232	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-234	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-235	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Uranium-238	Bq/L	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.	<0,010	n. d.	n. d.
Hydrocarbons and Phenols																			
Acenaphtene	mg/L	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058	<0,00003	0,038	0,0058
Anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(a)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Benzo(b)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(j)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(k)fluoranthene	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Benzo(a)pyrene	mg/L	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015	<0,000008	n. d.	0,000015
Chrysene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Dibenzo(a,h)anthracene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Fluoranthene	mg/L	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004	<0,00003	0,0016	0,00004
Fluorene	mg/L	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003	<0,00003	0,012	0,003
Indeno(1,2,3-cd)pyrene	mg/L	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.	<0,00003	n. d.	n. d.
Naphtalene	mg/L	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011	<0,00003	0,011	0,0011
Phenanthrene	mg/L	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004	<0,00003	0,0014	0,0004
Pyrene	mg/L	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025	<0,00003	n. d.	0,000025
HAP totaux (RES)	mg/L	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.	<0,00006	n. d.	n. d.
Dimethylphenol-2,4	mg/L	<0,0006	0,38	n. d.	<0,0006	0,38	n. d.	<0,0006	0,38	n. d.	<0,0006	0,38	n. d.	<0,0006	0,38	n. d.	<0,0006	0,38	n. d.
Dinitrophenol-2,4	mg/L	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.	<0,010	0,019	n. d.
Methyl-4,6-dinitrophenol-2	mg/L	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.	<0,010	0,00029	n. d.
Nitrophenol-4	mg/L	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.	<0,001	0,20	n. d.
Phenol	mg/L	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04	<0,0006	0,45	0,04
Chlorophenol-2	mg/L	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007	<0,0005	0,018	0,007
Chlorophenol-3	mg/L	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007	<0,0005	n. d.	0,007
Chlorophenol-4	mg/L	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007	<0,0004	0,015	0,007
Dichlorophenol-2,3	mg/L	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002	<0,0005	n. d.	0,0002
Dichlorophenol-2,4+2,5	mg/L	<0,0003	0,

Appendix G
Project Components (58 sheets at 1:12 500)

MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

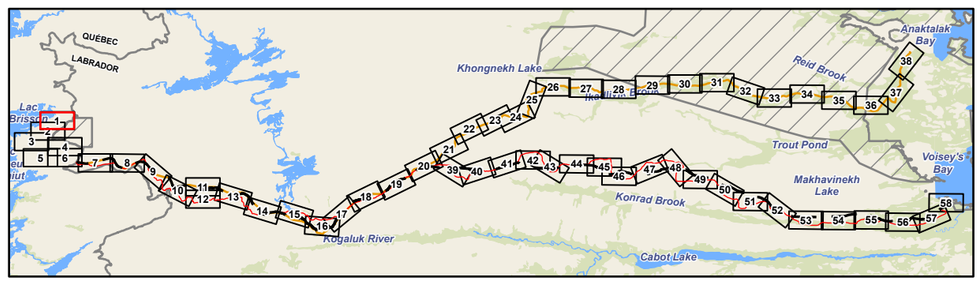
- Limite de propriété / Property limit
- Sortie de la fosse / Pit exit
- Station de concassage / Crushing Station
- Canalisation souterraine / Underground pipeline
- Convoyeur / Conveyor
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Routes de service et de halage / Service and hauling roads)
- Zone de souffle d'explosion / Blast zone
- Banc d'emprunt / Borrow pit
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Halde de stérile / Waste rock
- Fabrication et stockage d'explosif / Explosive manufacturing and storage facilities
- Fosse minière / Mine pit
- Ressource à basse teneur / Low-grade stockpile

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



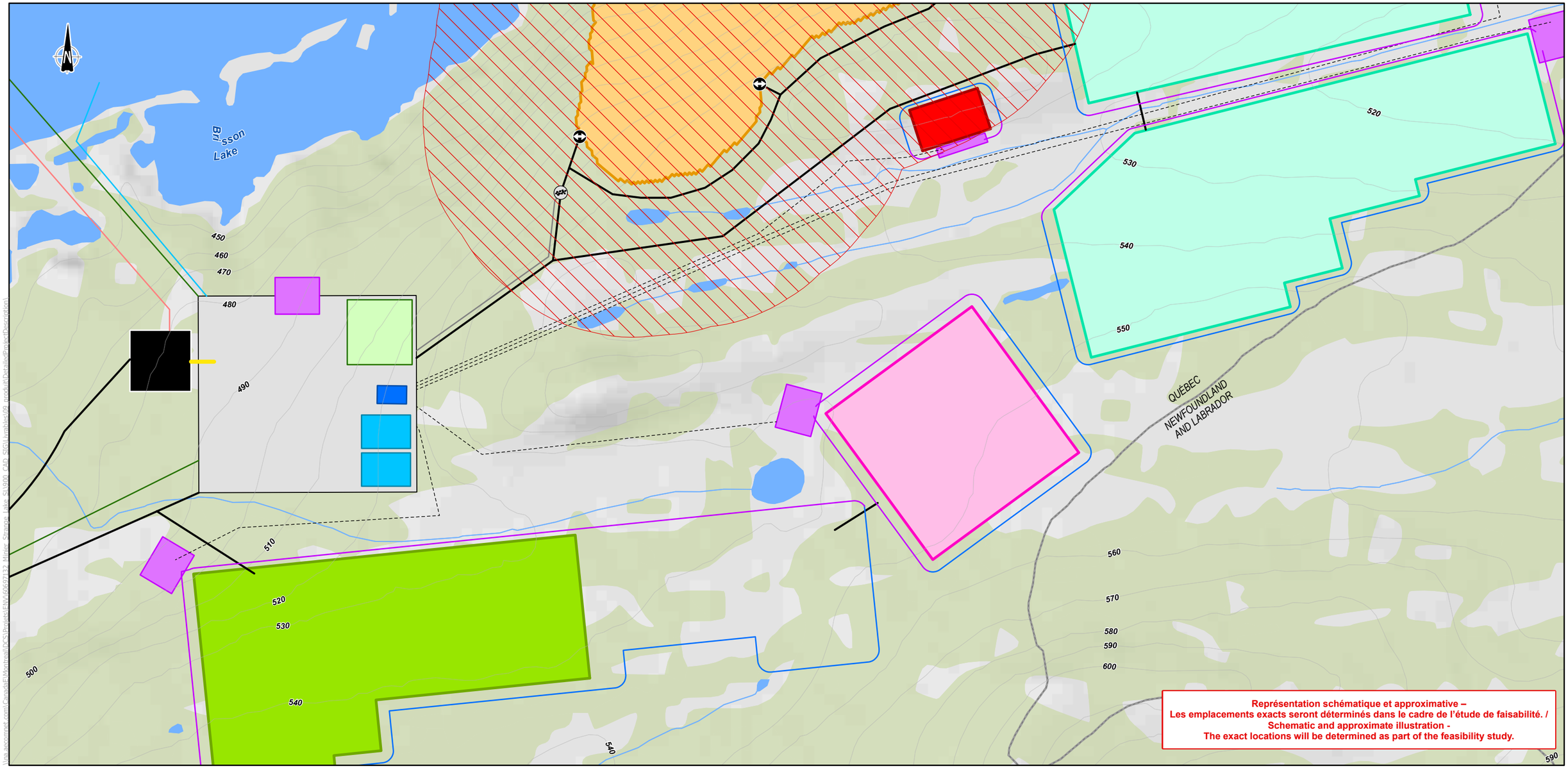
Annexe G
Feuillet - 1
Composantes du projet

Appendix G
Sheet - 1
Project Components

AECOM

MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

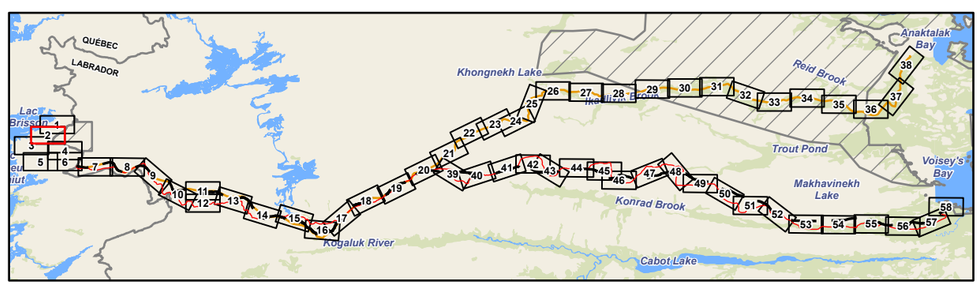
- Limite de propriété / Property limit
- Sortie de la fosse / Pit exit
- Station de concassage / Crushing Station
- Canalisation souterraine / Underground pipeline
- Convoyeur / Conveyor
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Prise d'eau / Water intake piping
- Routes de service et de halage / Service and hauling roads)
- Tunnel d'accès / Access tunnel
- Émissaire des eaux usées minières traitées / Treated contact and process wastewater outlet
- Émissaire des eaux usées domestiques traitées / Treated domestic wastewater outlet
- Zone de souffle d'explosion / Blast zone
- Aire d'accumulation des résidus miniers / Mine residue stockpile area
- Aire d'entreposage de mort-terrain / Overburden stockpile
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Camp permanent des travailleurs / Permanent worker camp
- Halde de stérile / Waste rock
- Fosse minière / Mine pit
- Ressource à basse teneur / Low-grade stockpile
- Stockage de carburant / Fuel tank farm
- Zone industrielle / Industrial area
- Usine de traitement des eaux / Effluent treatment plant
- Bassins d'entreposage des eaux / Water storage ponds

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe G
Feuillet - 2
Composantes du projet

Appendix G
Sheet - 2
Project Components

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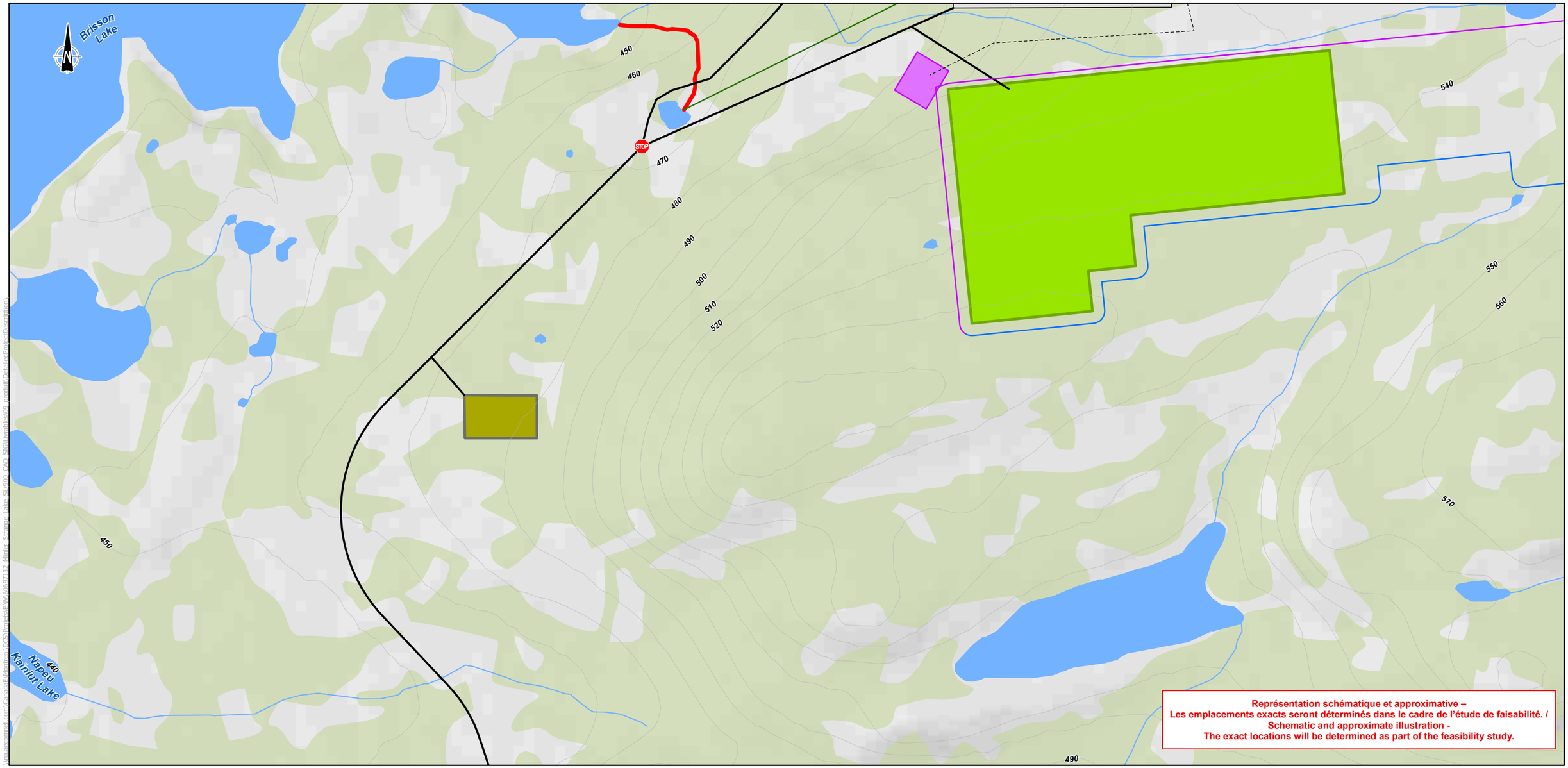
MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

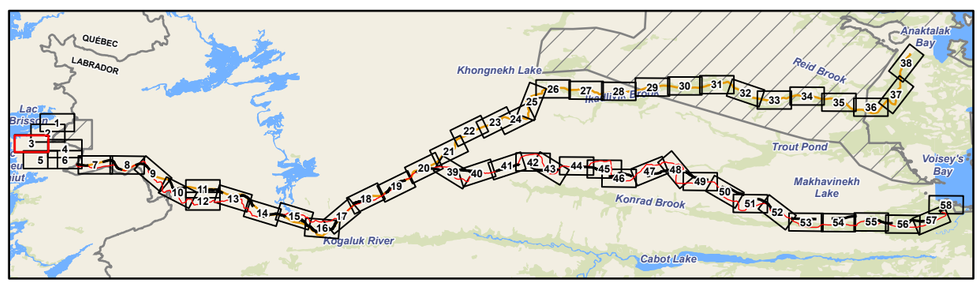
- Limite de propriété / Property limit
- Porte d'accès / Access gate
- Canalisation souterraine / Underground pipeline
- Point de rejet alternatif des eaux usées minières traitées / Alternative discharge point for treated contact and process wastewater
- Fossé d'eaux usées minières / Contact water ditch
- Fossé d'eaux de ruissellement du bassin versant / Non-contact water ditch
- Routes de service et de halage / Service and hauling roads)
- Émissaire des eaux usées minières traitées / Treated contact and process wastewater outlet
- Aire d'accumulation des résidus miniers / Mine residue stockpile area
- Bassin de collecte d'eaux usées minières / Contact water collection pond
- Site d'enfouissement / Landfill site
- Zone industrielle / Industrial area

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G
Feuillet - 3
Composantes du projet

Appendix G
Sheet - 3
Project Components

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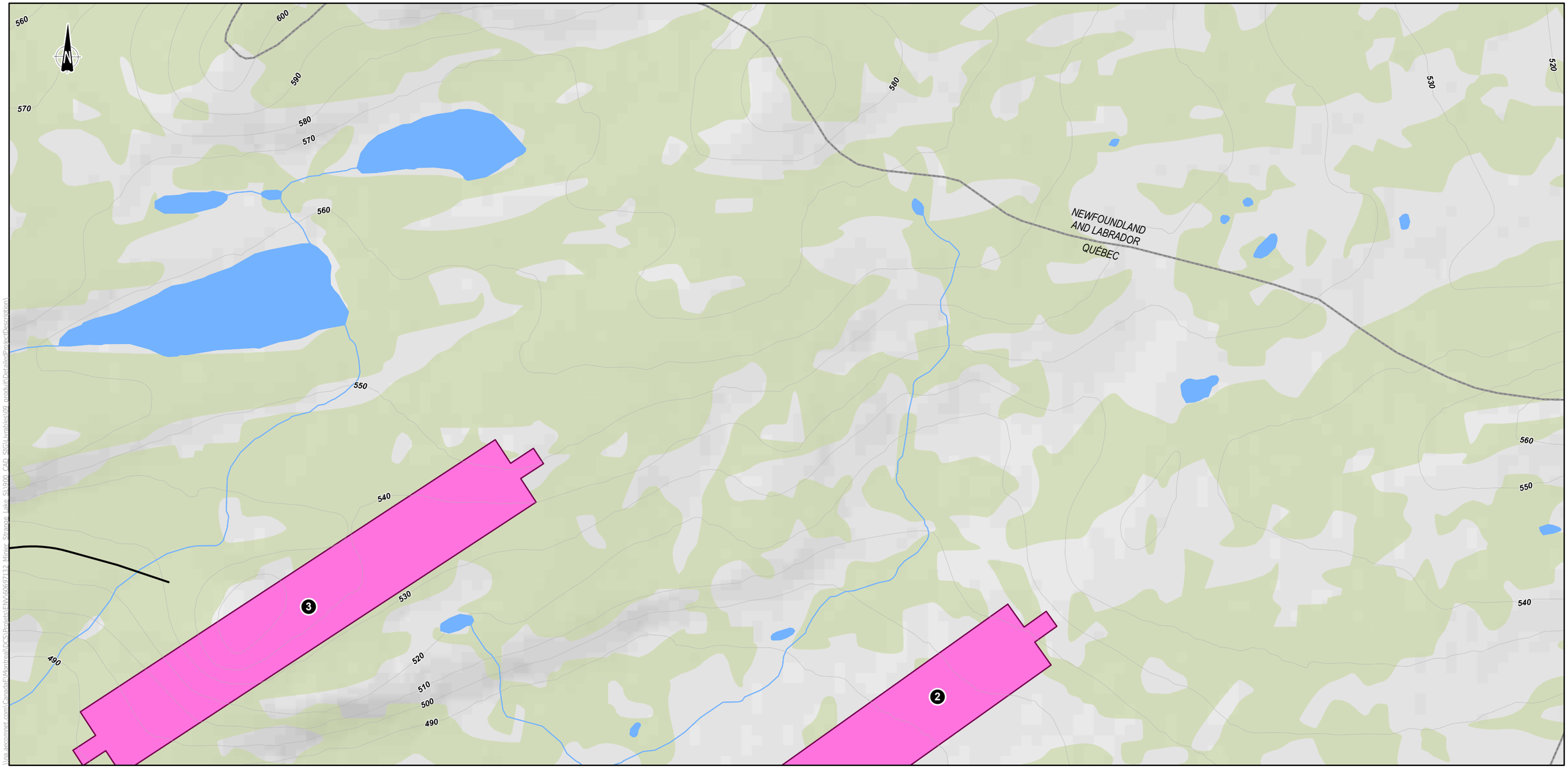
MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

- Limite de propriété / Property limit
- Routes de service et de halage / Service and hauling roads)
- Piste d'atterrissage / Airstrip

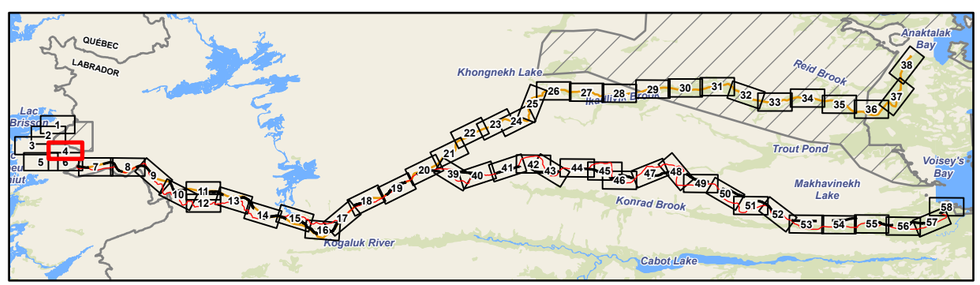
Représentation schématique et approximative –
Les emplacements exacts seront déterminés dans le cadre de l'étude de faisabilité. / Schematic and approximate illustration -
The exact locations will be determined as part of the feasibility study.

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe G
Feuillet - 4
Composantes du projet

Appendix G
Sheet - 4
Project Components

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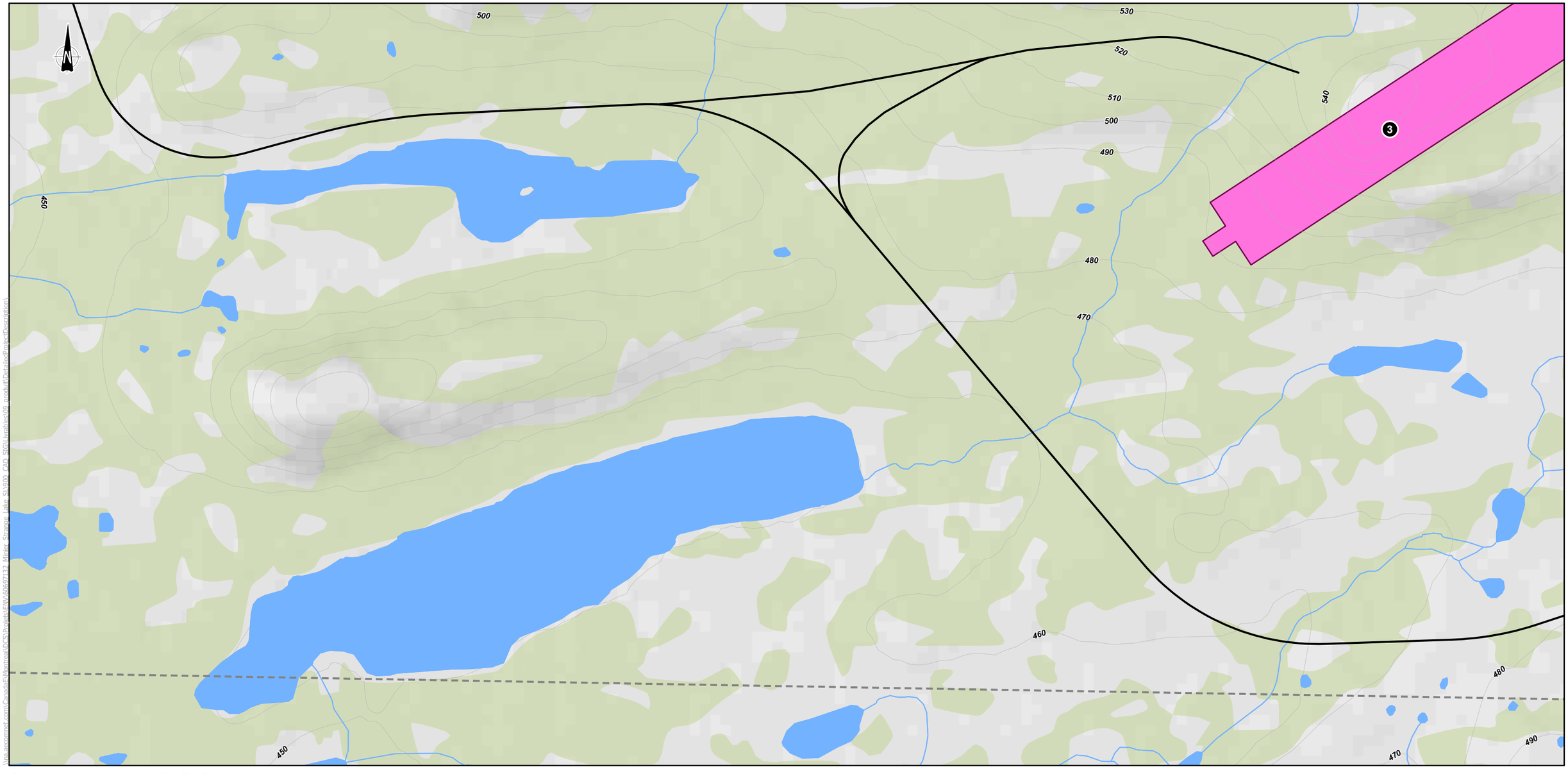
MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

- Limite de propriété / Property limit
- Routes de service et de halage / Service and hauling roads)
- Piste d'atterrissage / Airstrip

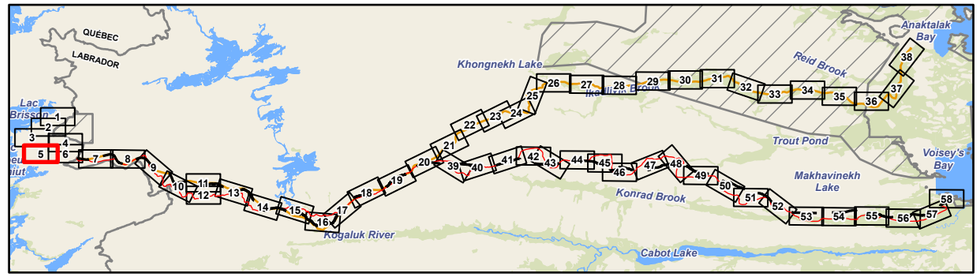
Représentation schématique et approximative –
Les emplacements exacts seront déterminés dans le cadre de l'étude de faisabilité. /
Schematic and approximate illustration -
The exact locations will be determined as part of the feasibility study.

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe G
Feuillet - 5
Composantes du projet

Appendix G
Sheet - 5
Project Components

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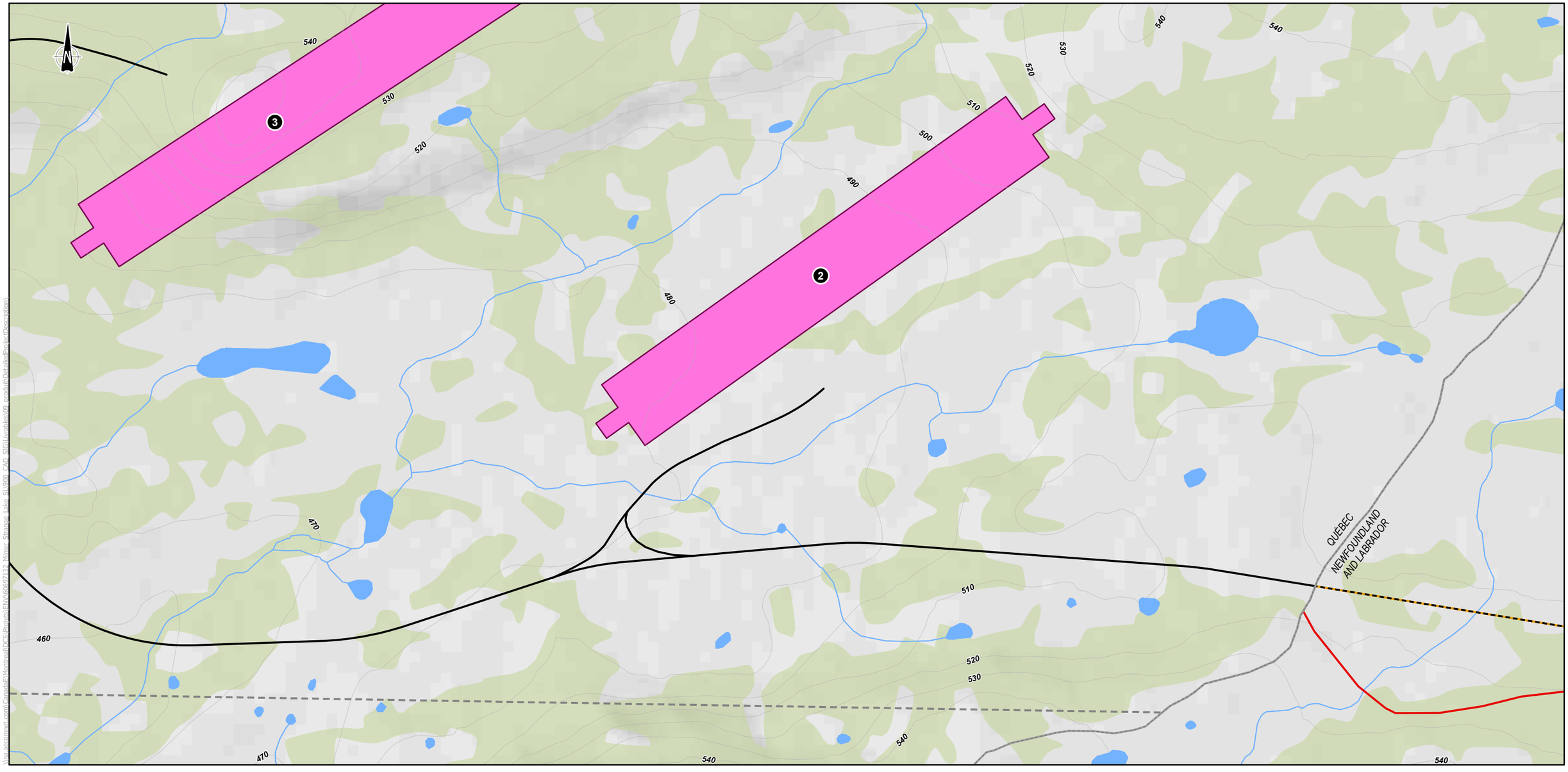
MÉTAUX TORNGAT METALS

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



Composante du site de la mine / Mine Site Component

- Limite de propriété / Property limit
- Routes de service et de halage / Service and hauling roads)
- Piste d'atterrissage / Airstrip

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

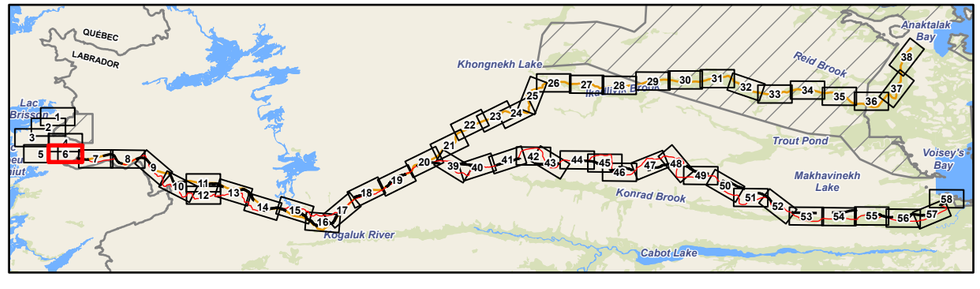
Représentation schématique et approximative –
Les emplacements exacts seront déterminés dans le cadre de l'étude de faisabilité. /
Schematic and approximate illustration -
The exact locations will be determined as part of the feasibility study.

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



Annexe G
Feuillet - 6
Composantes du projet

Appendix G
Sheet - 6
Project Components

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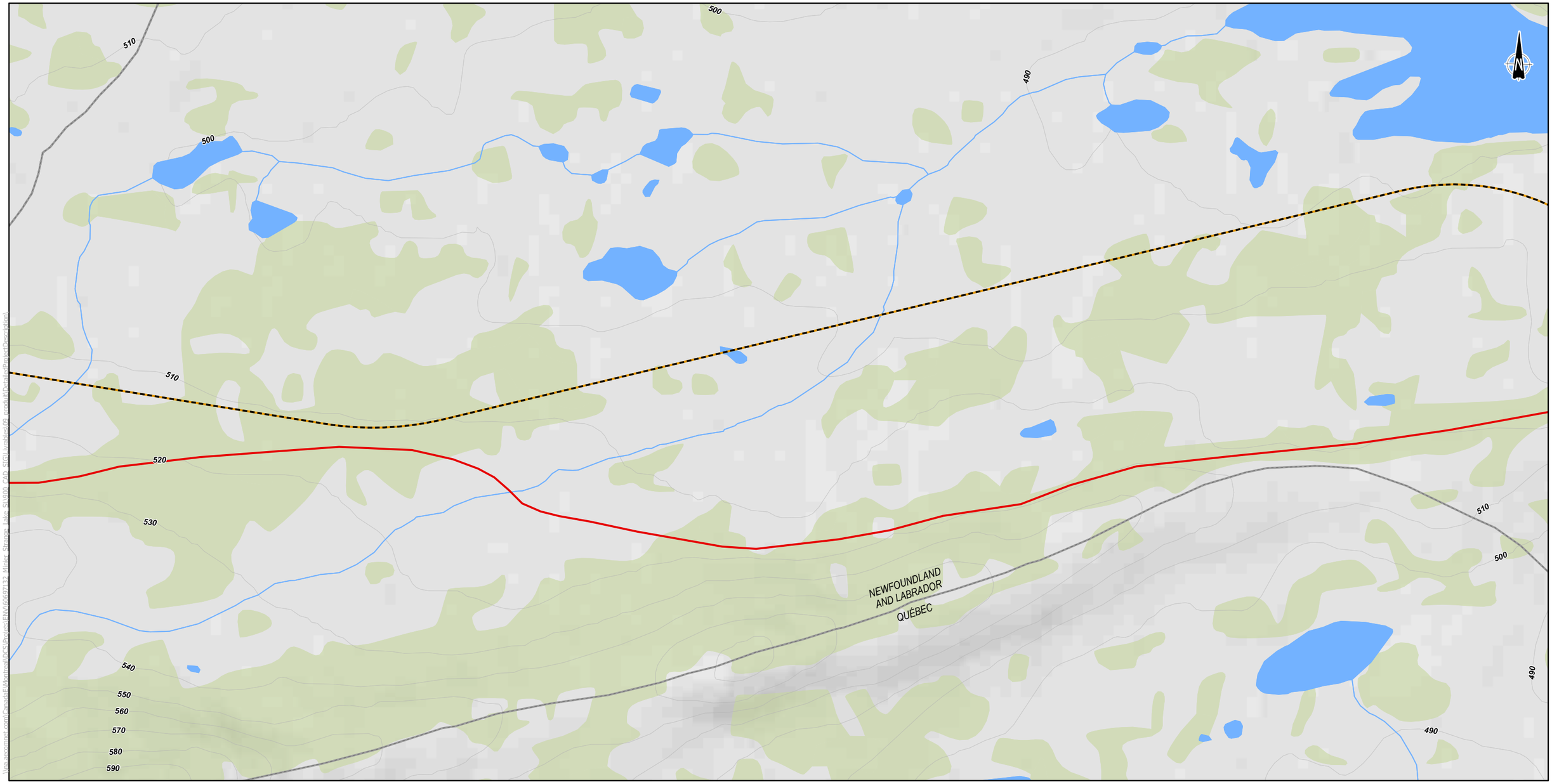
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

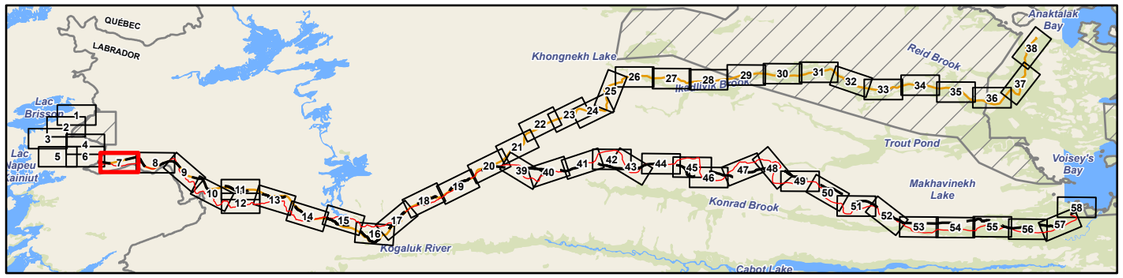
- Courbe d'élévation / Elevation contour
- Frontière Québec et Labrador / Quebec and Labrador border

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 7
Composantes du projet

Appendix G

Sheet - 7
Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

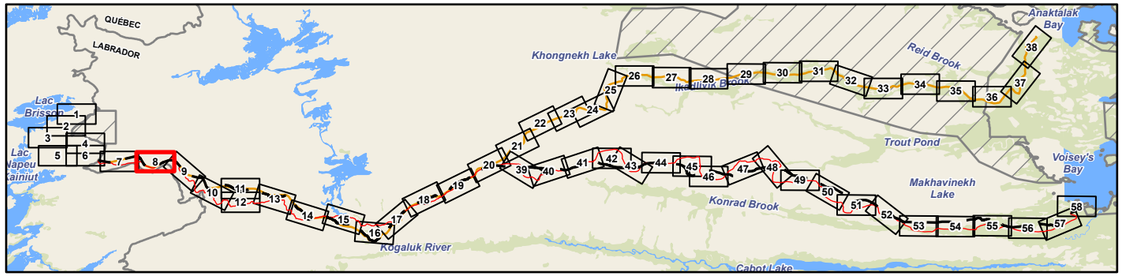
- Courbe d'élévation / Elevation contour
- Frontière Québec et Labrador / Quebec and Labrador border

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 8
Composantes du projet

Appendix G

Sheet - 8
Project Components

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MÉTAUX TORNGAT METALS

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

480

460

NEWFOUNDLAND AND LABRADOR

QUÉBEC

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

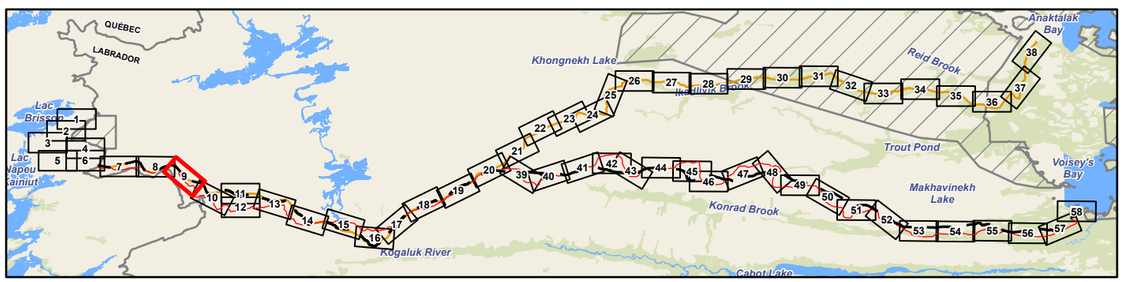
- Courbe d'élévation / Elevation contour
- Frontière Québec et Labrador / Quebec and Labrador border

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 9
Composantes du projet

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Project Components

AECOM

MÉTAUX TORNGAT METALS

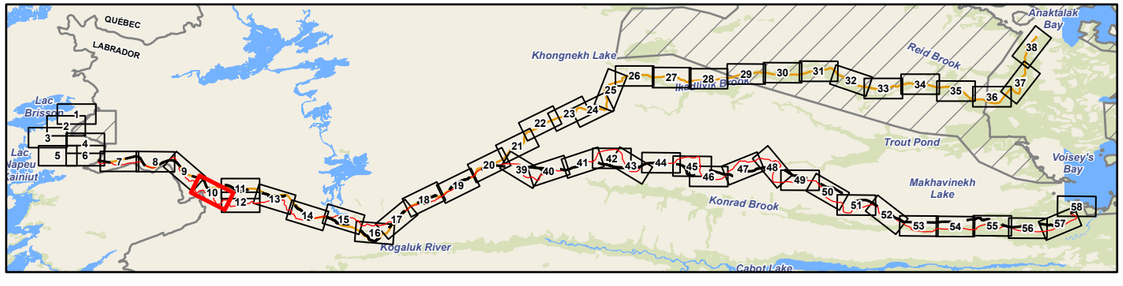
PROJET MINIER DE TERRES RARES DU LAC STRANGE
STRANGE LAKE RARE EARTH MINING PROJECT

460
460
480
NEWFOUNDLAND AND LABRADOR
QUÉBEC

Route d'accès à une voie / Single Lane Access Road
- Option A
- Option C1
- Option C2

Autre / Other
- Courbe d'élévation / Elevation contour
- Frontière Québec et Labrador / Quebec and Labrador border

1:12 500
0 100 200 m
NAD 1983 UTM Zone 20N
Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G
Feuillet - 10
Composantes du projet

Appendix G
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Project Components

AECOM

MÉTAUX TORNGAT METALS

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

460

480

480

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1

Autre / Other

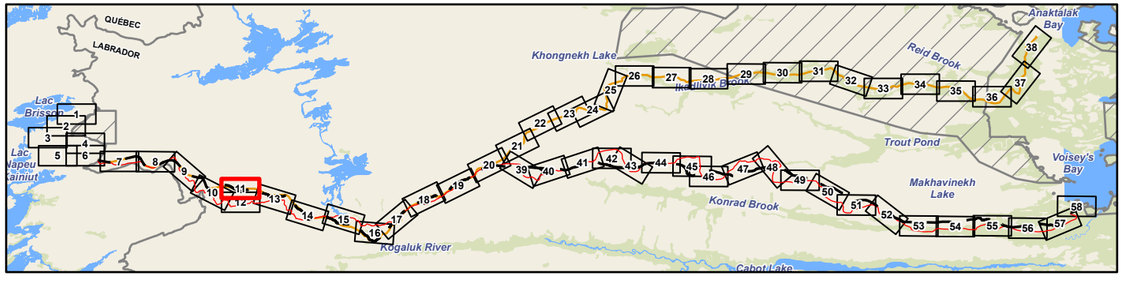
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 11
Composantes du projet

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Project Components

AECOM

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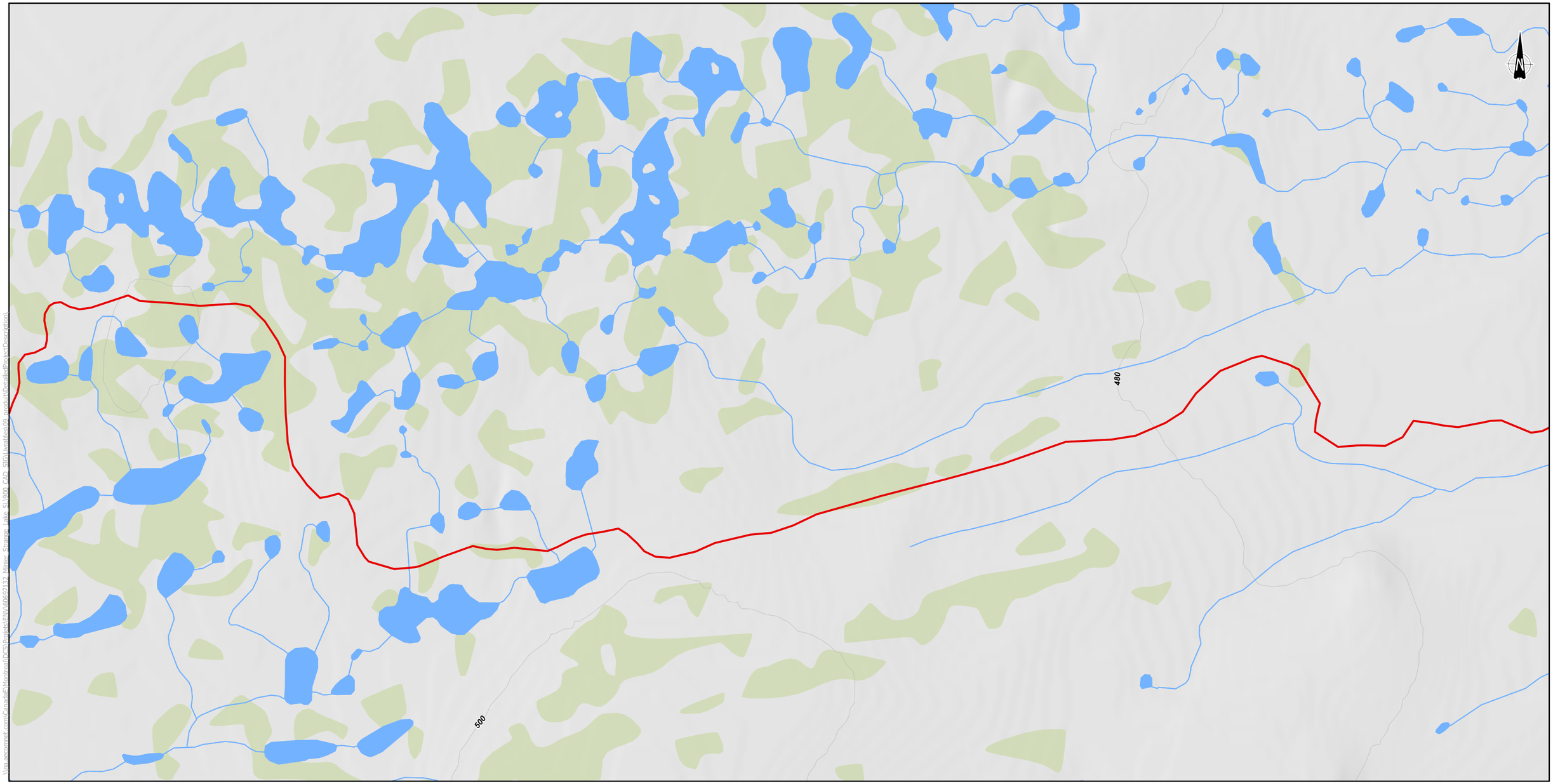
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option C2

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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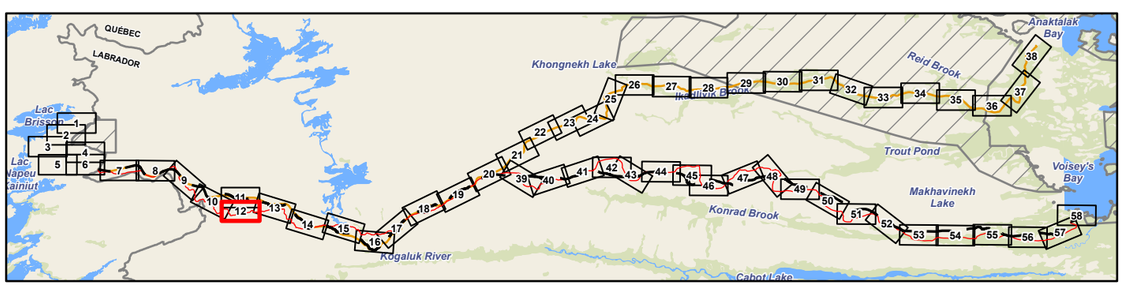

Annexe G

Feuillet - 12
Composantes du projet

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Project Components

AECOM

MÉTAUX TORNGAT METALS

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

460
440

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

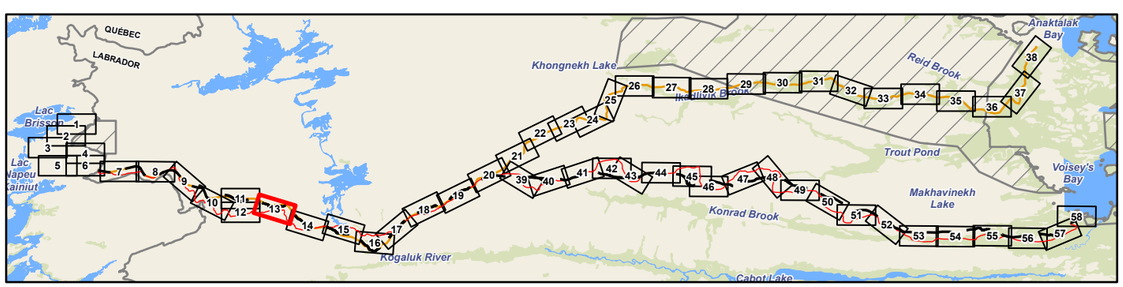
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 13
Composantes du projet

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Project Components

AECOM

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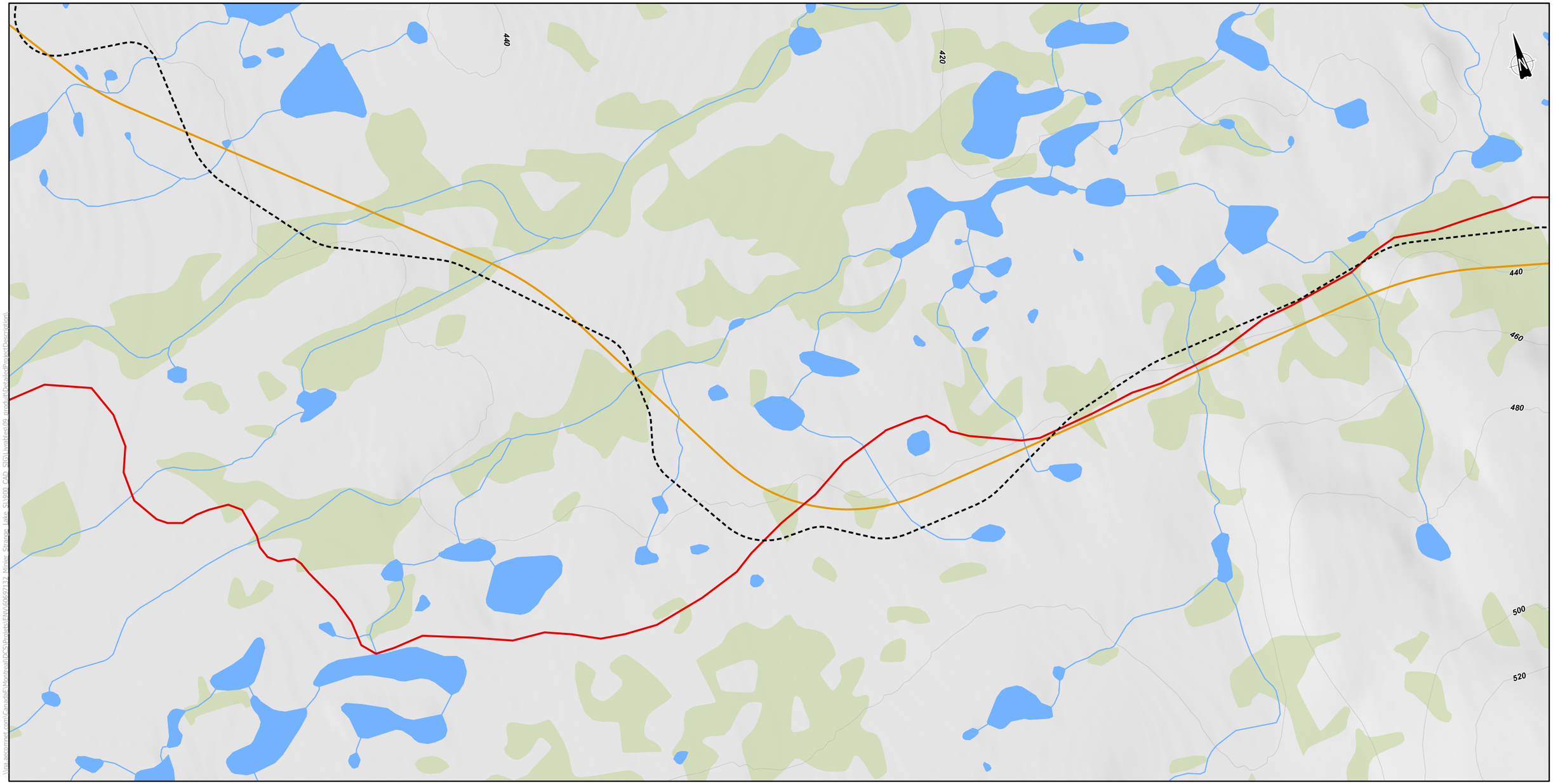
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

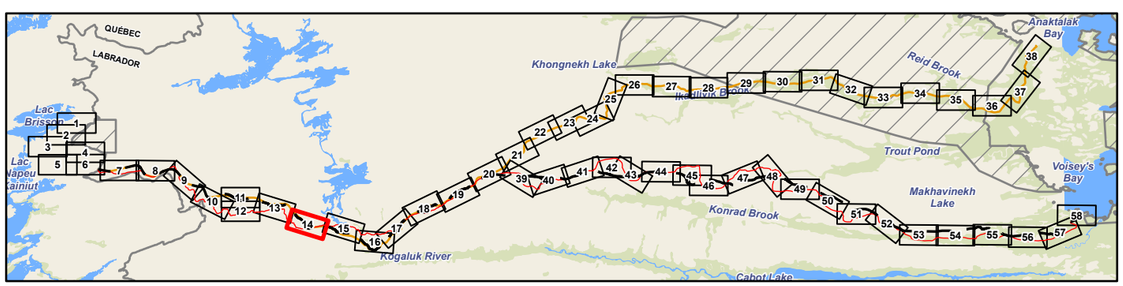
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 14
Composantes du projet

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Project Components

AECOM

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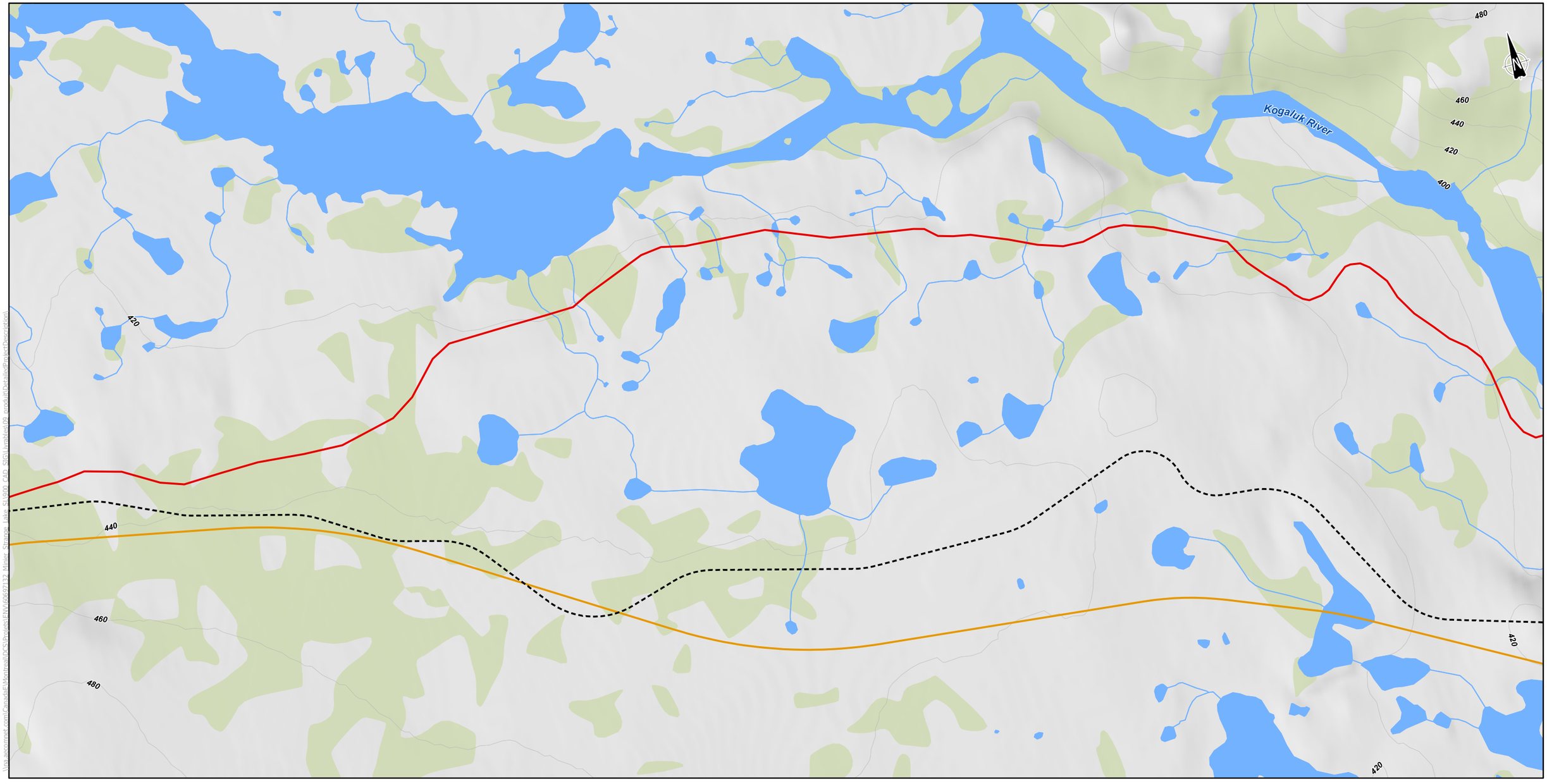
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

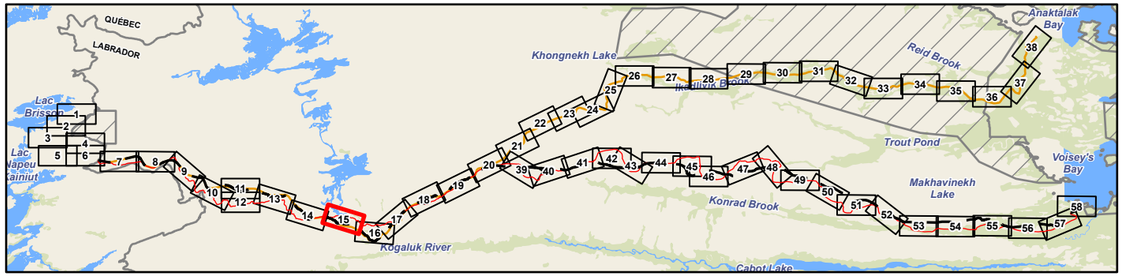
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 15
Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

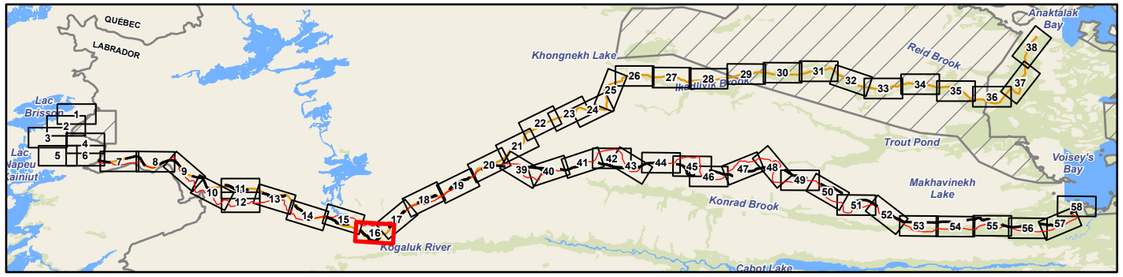
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 16
Composantes du projet

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Project Components

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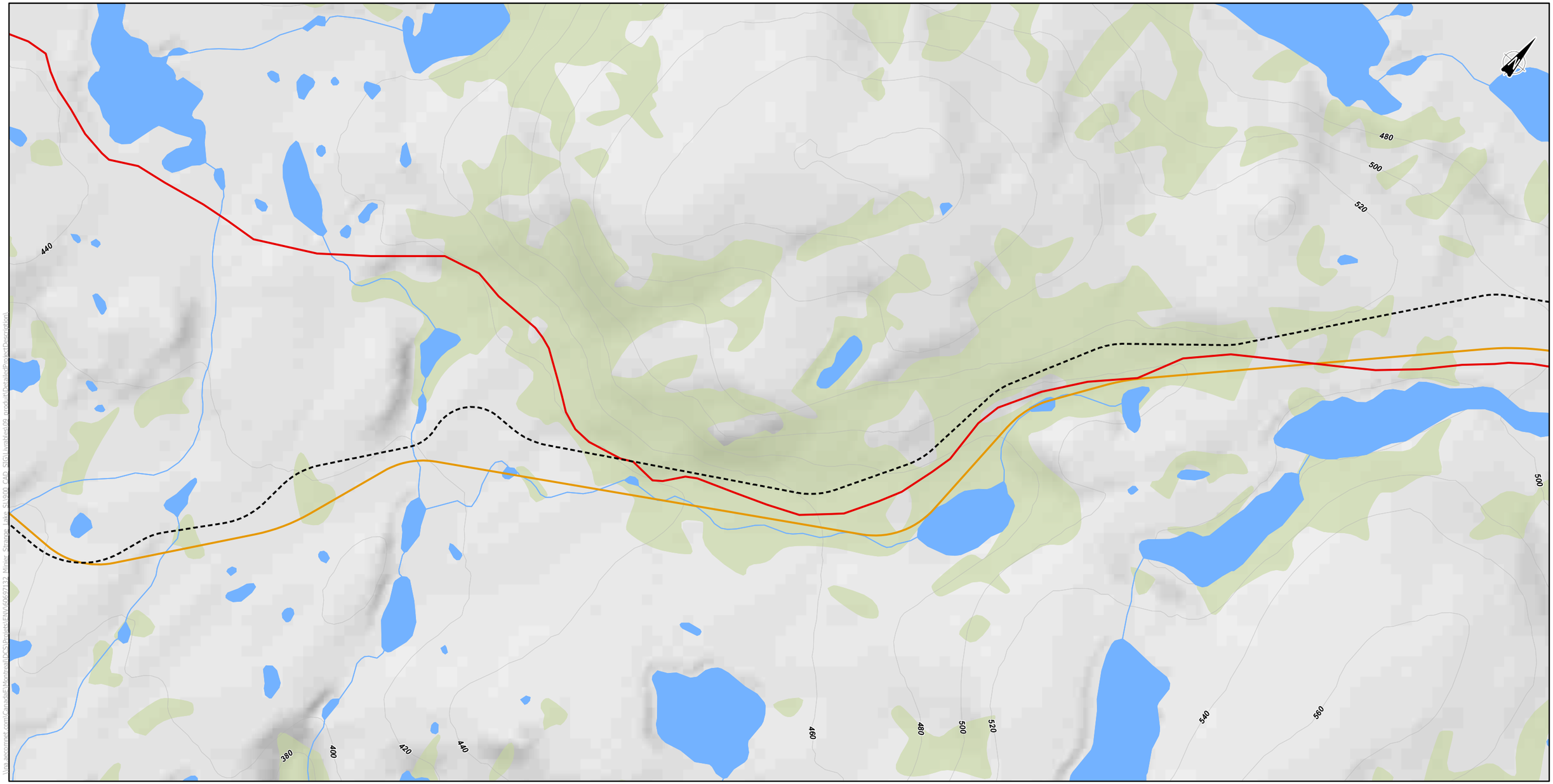
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

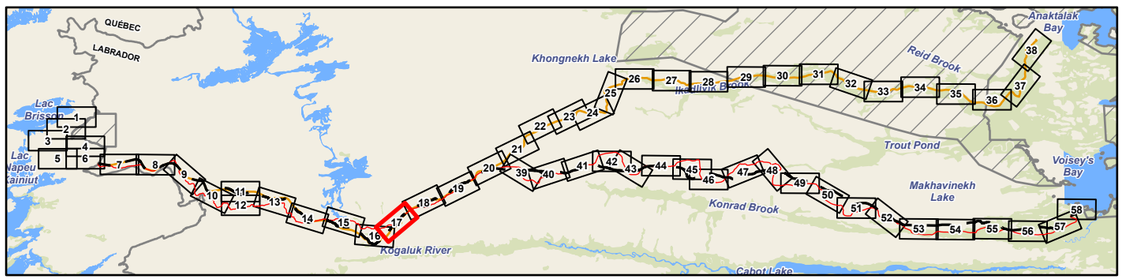
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



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Feuillet - 17
Composantes du projet

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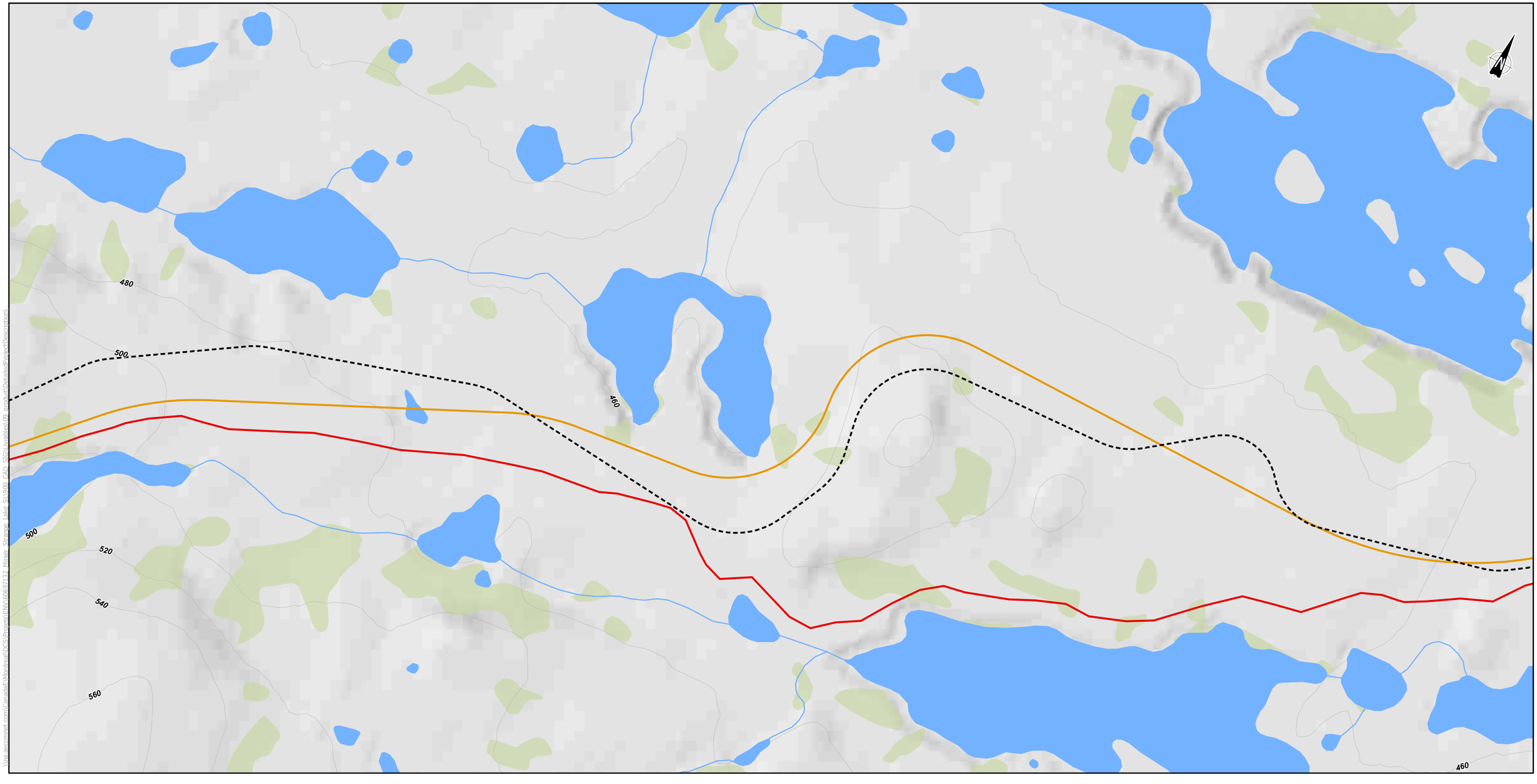
Project Components

AECOM

MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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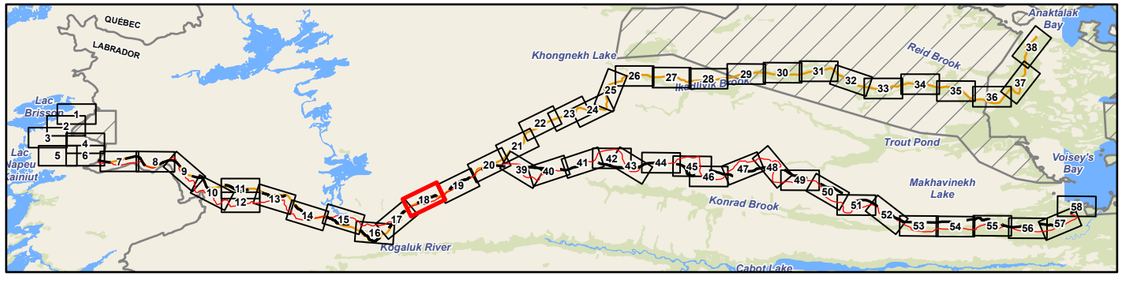

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Composantes du projet

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AECOM

MÉTAUX TORNGAT METALS

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

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480
460
480
480
480

Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

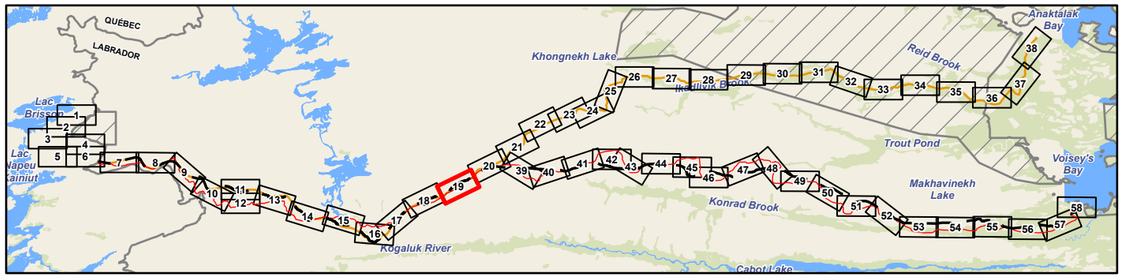
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques /
Topographic data: RNCan (2022)



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Composantes du projet

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Project Components

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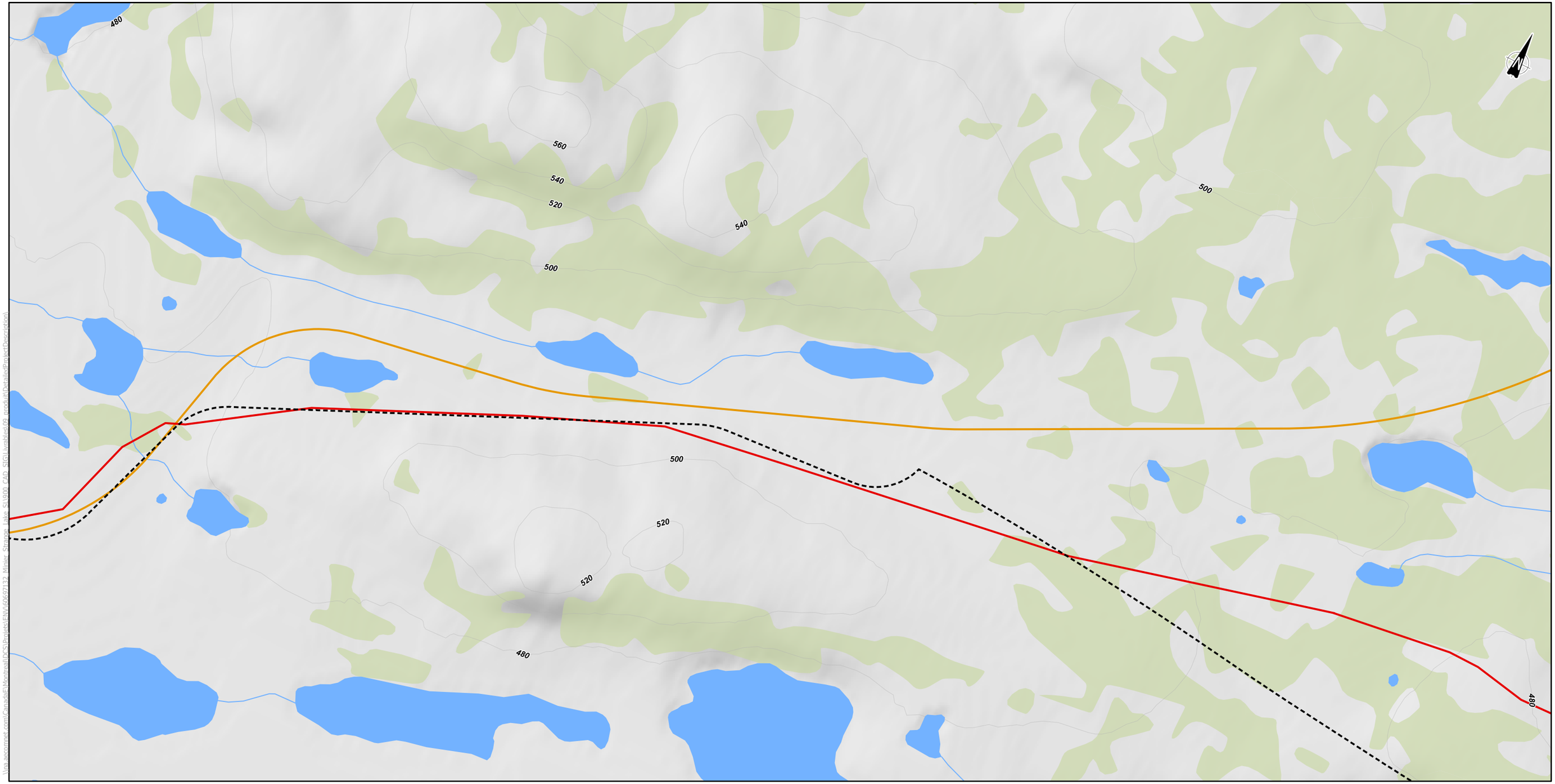
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option A
- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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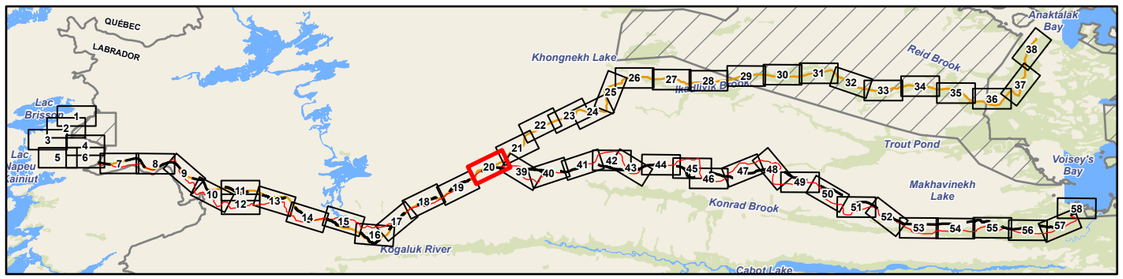

Annexe G

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Composantes du projet

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Project Components

AECOM

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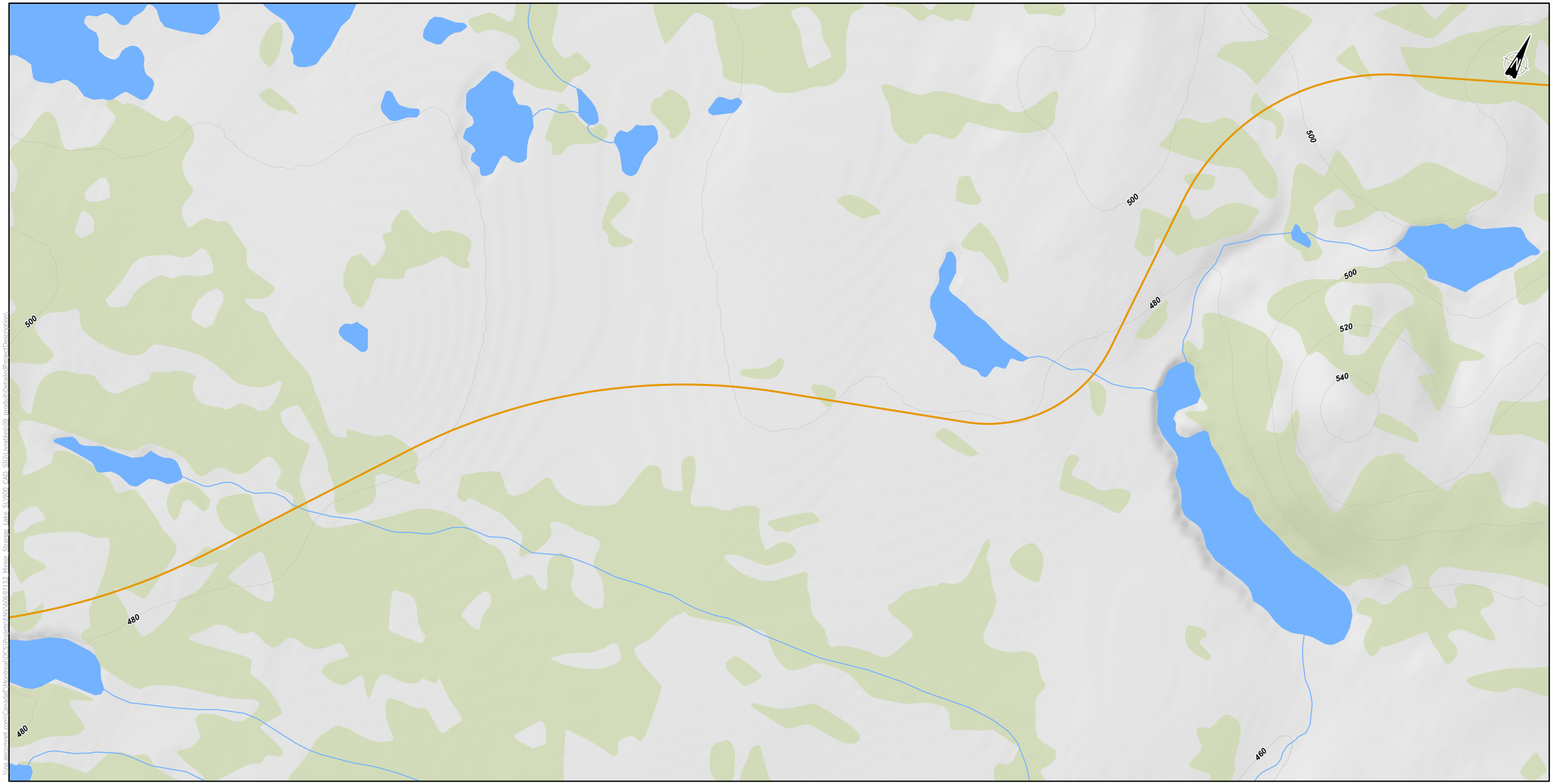
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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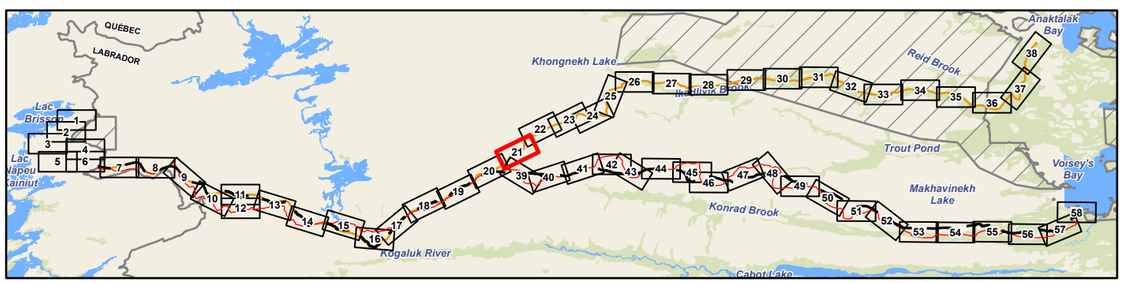

Annexe G

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Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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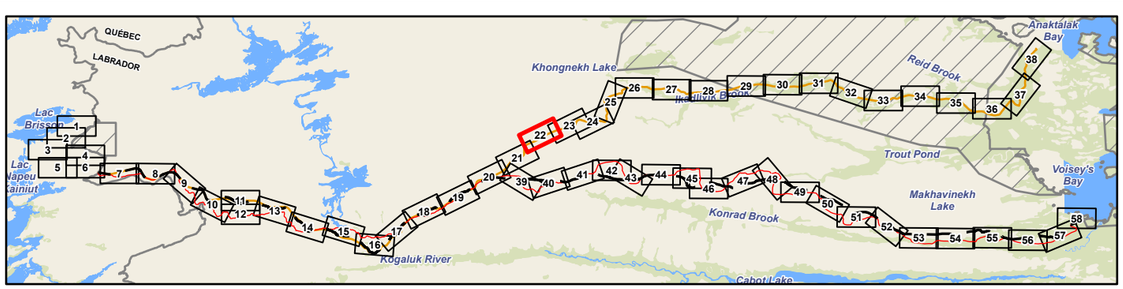

Annexe G

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Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

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460
480
500
520
480
500
520

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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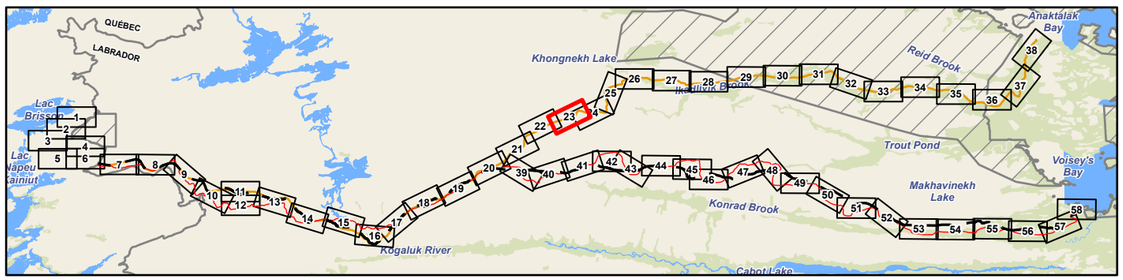

Annexe G

Feuillet - 23
Composantes du projet

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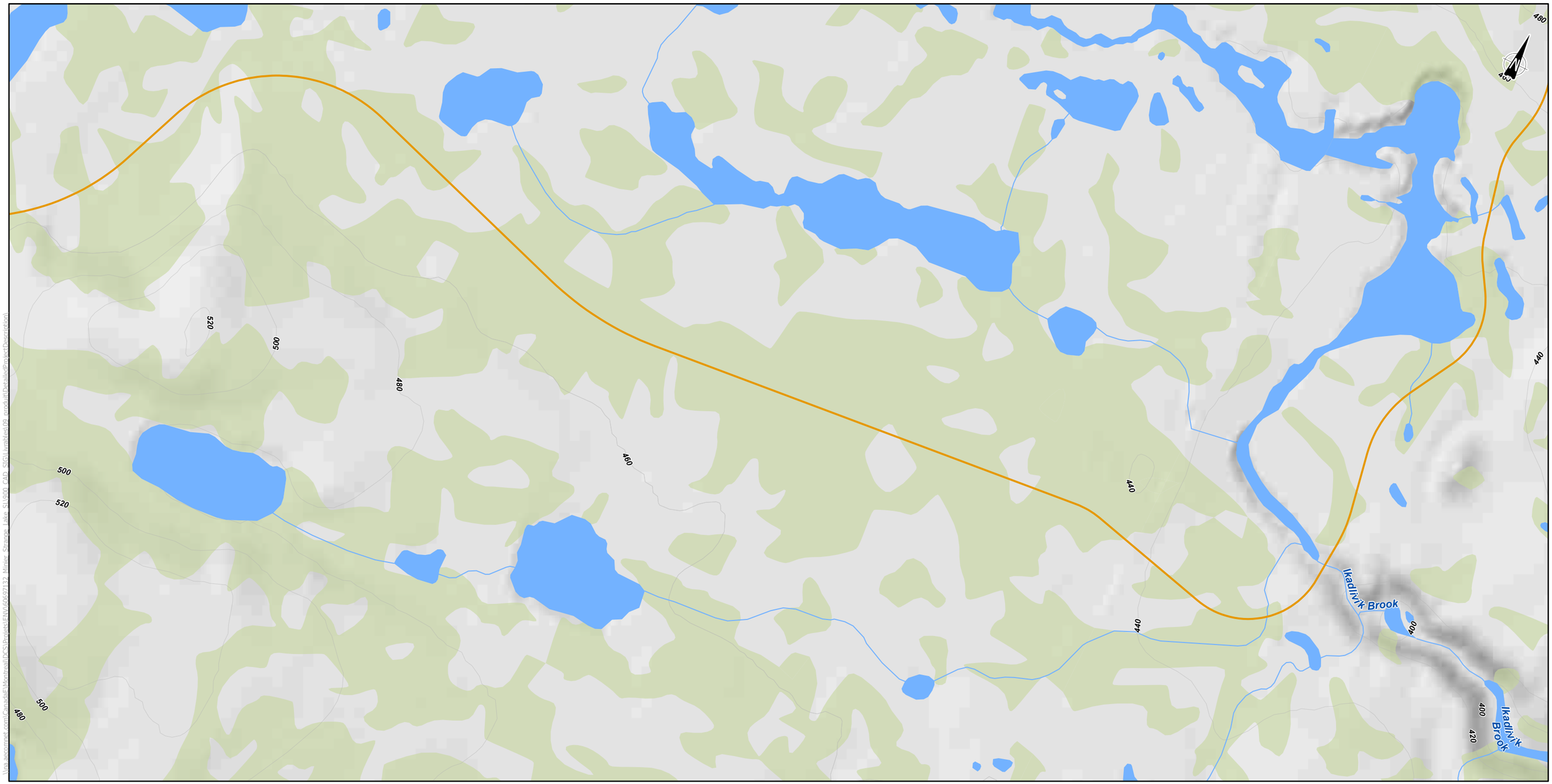
Project Components

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road
Option A

Autre / Other
Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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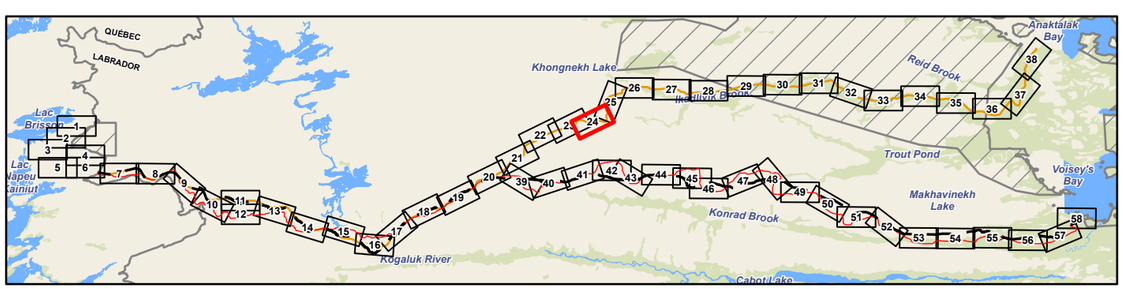

Annexe G
Feuillet - 24
Composantes du projet

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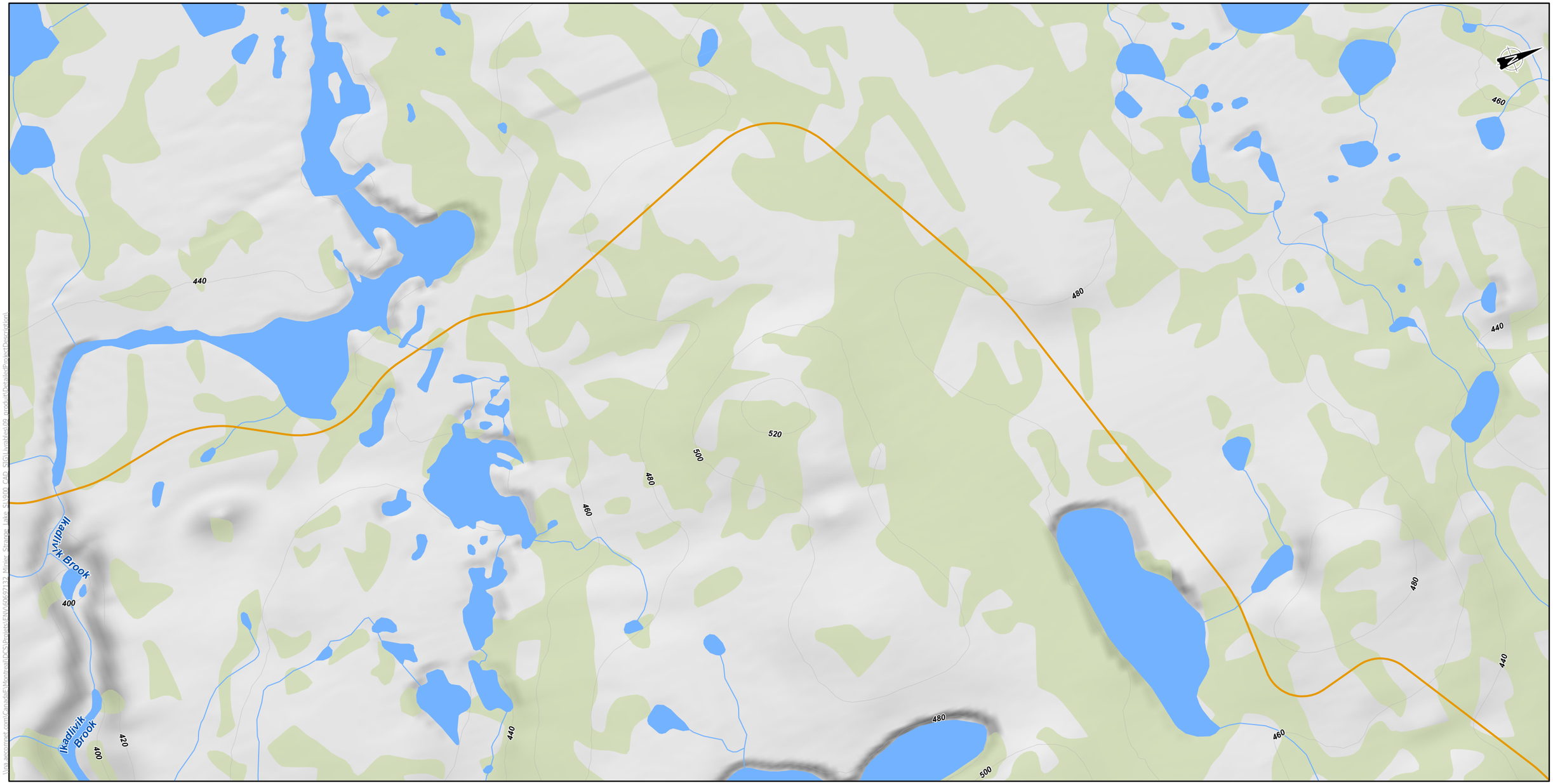
Project Components

AECOM

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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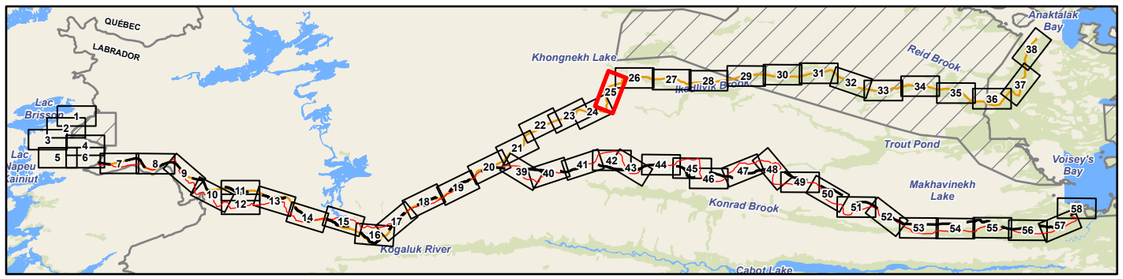

Annexe G

Feuillet - 25
Composantes du projet

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Project Components

AECOM

MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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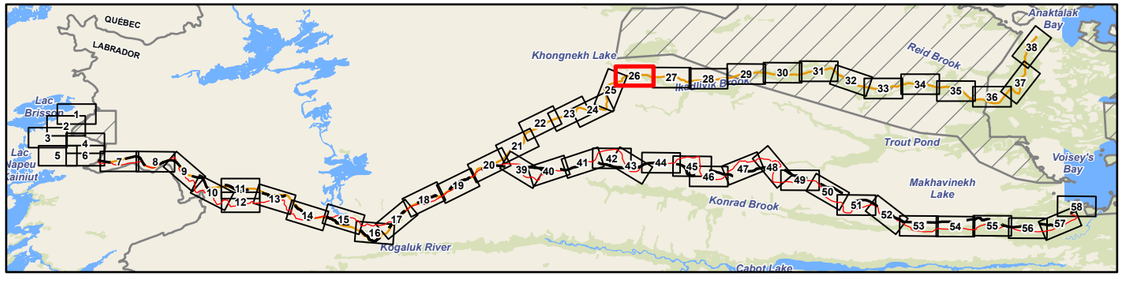

Annexe G

Feuillet - 26
Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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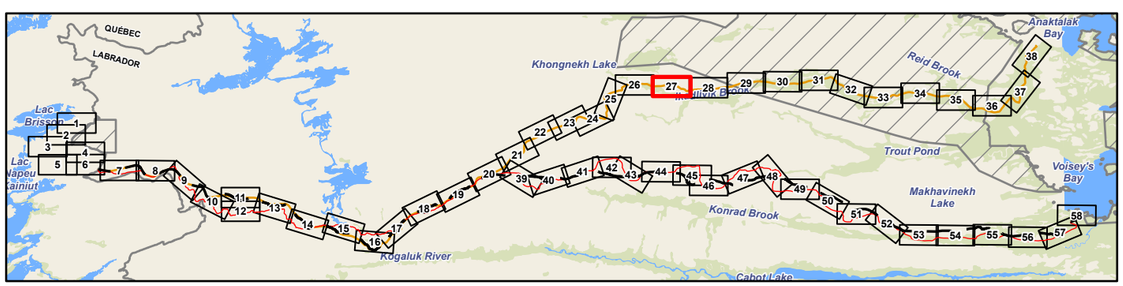

Annexe G

Feuillet - 27
Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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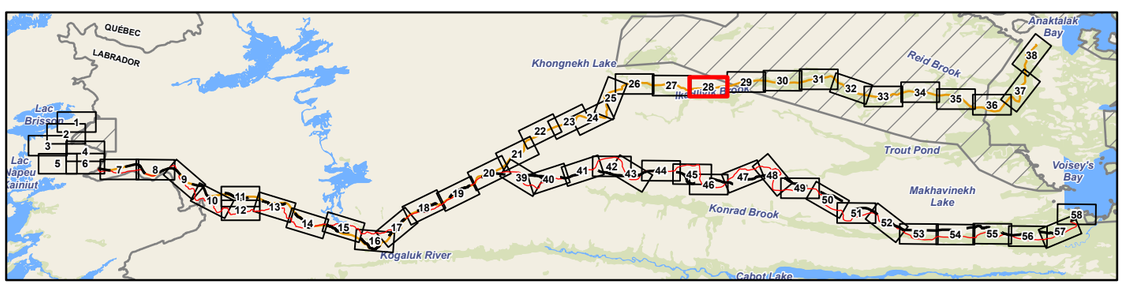

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

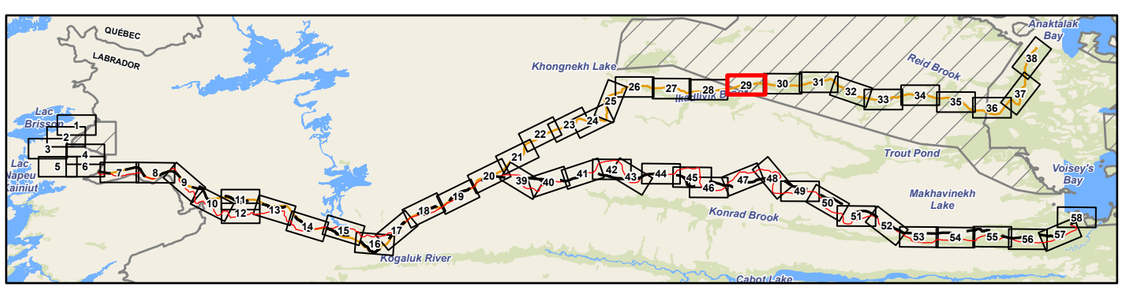
Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



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Project Components

AECOM

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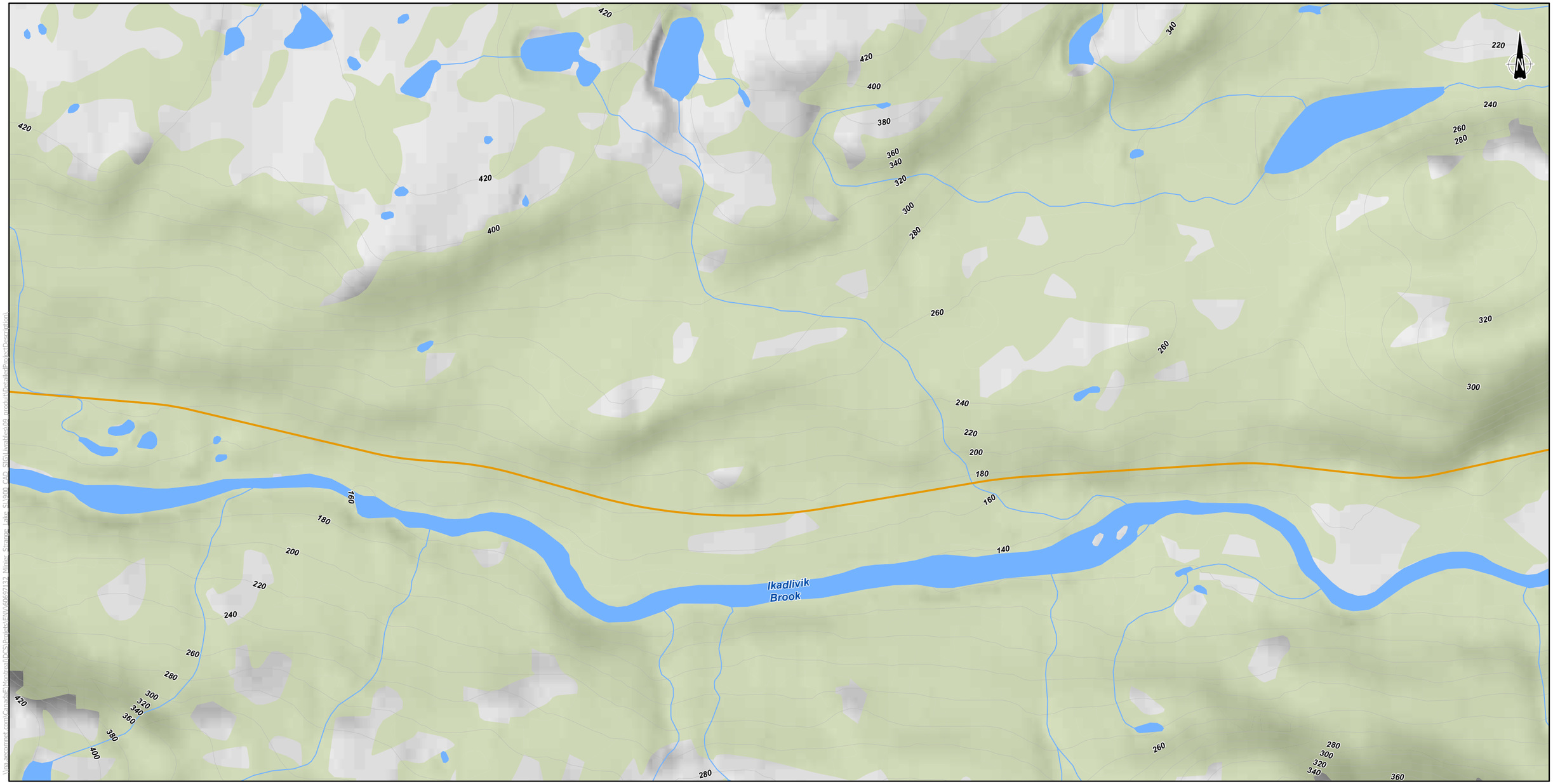
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

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Composantes du projet

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

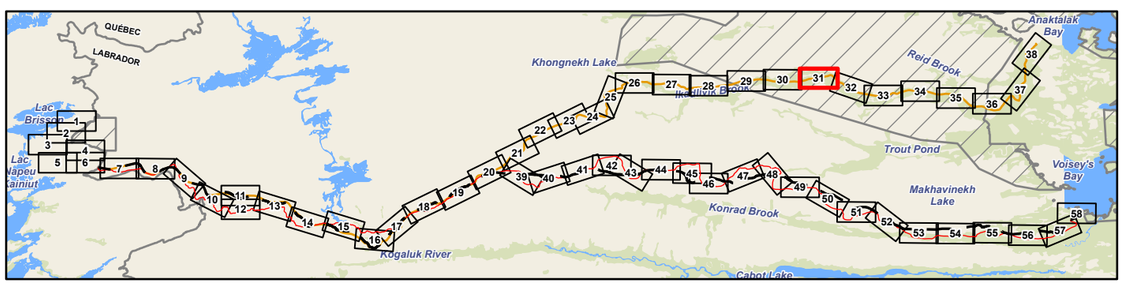
Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



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Composantes du projet

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

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MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

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Composantes du projet

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MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

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Composantes du projet

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Project Components

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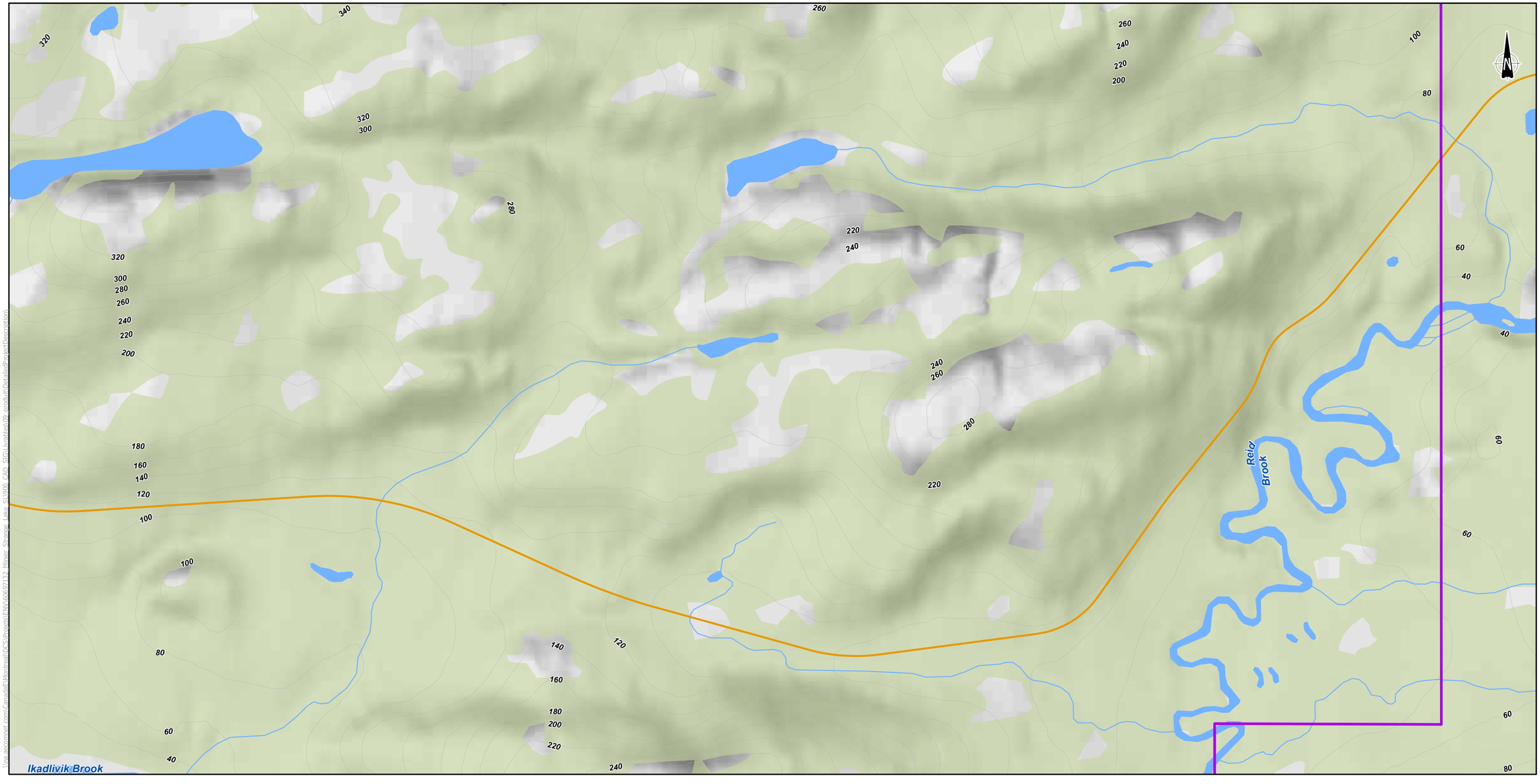
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Bail de surface de Vale Inco /Vale Inco Surface Lease

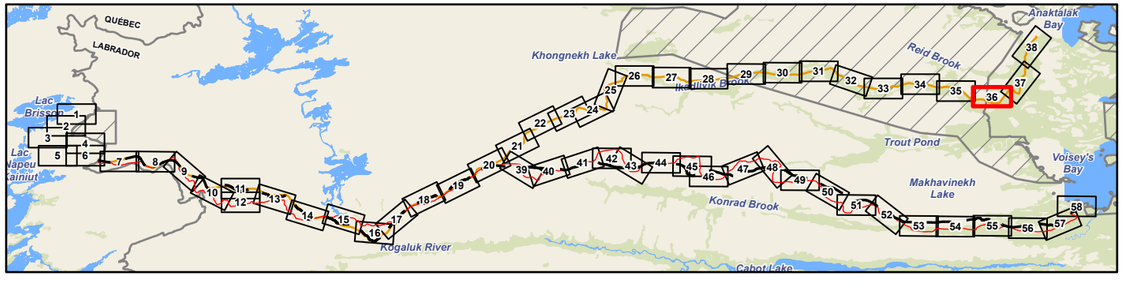
Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



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Project Components

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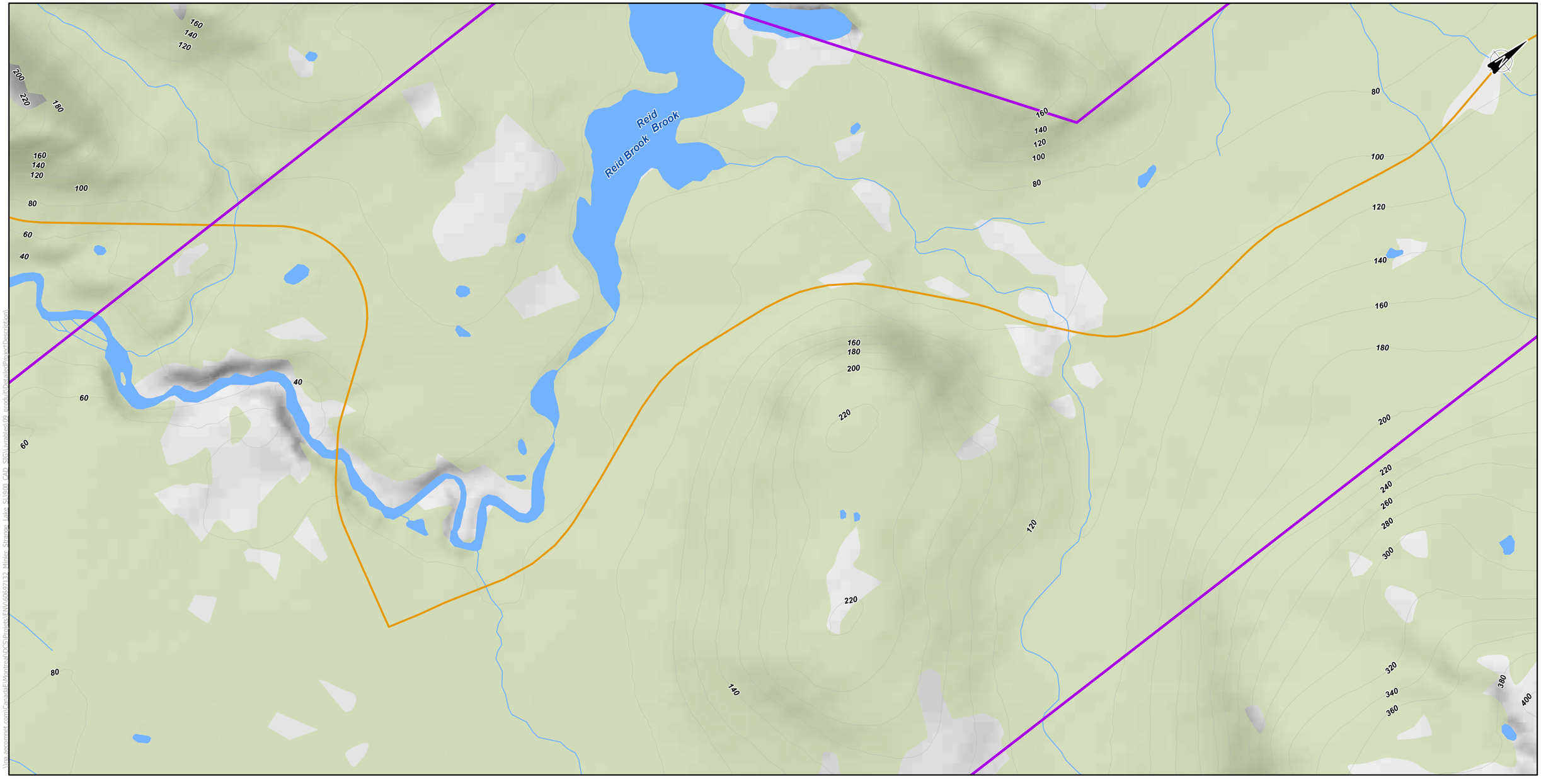
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Bail de surface de Vale Inco /Vale Inco Surface Lease

Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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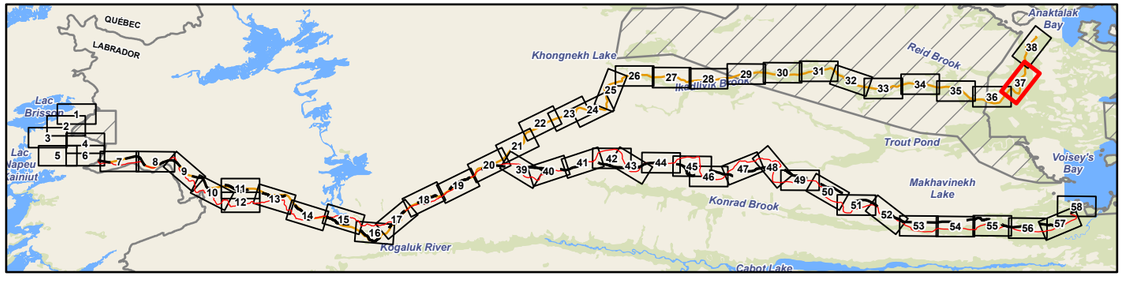

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

Option A

Autre / Other

Site potentiel des installations portuaires / Potential site for Port Facilities

Bail de surface de Vale Inco /Vale Inco Surface Lease

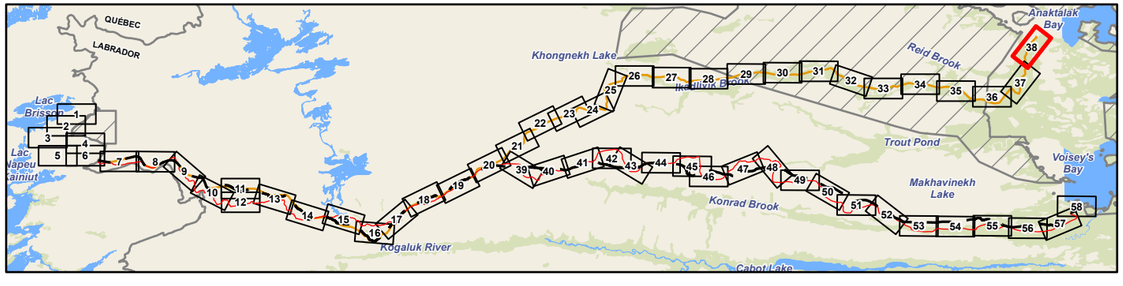
Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



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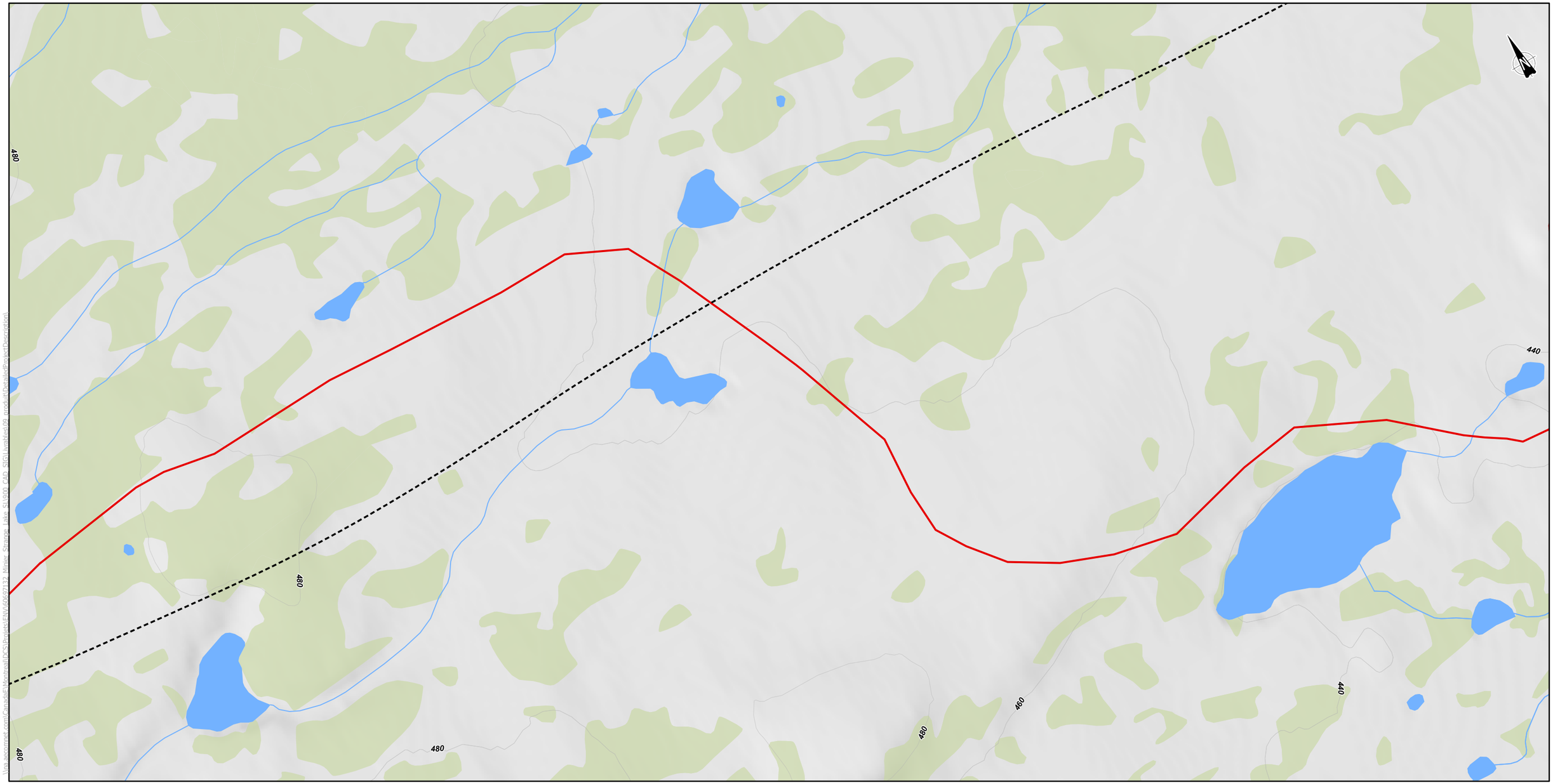
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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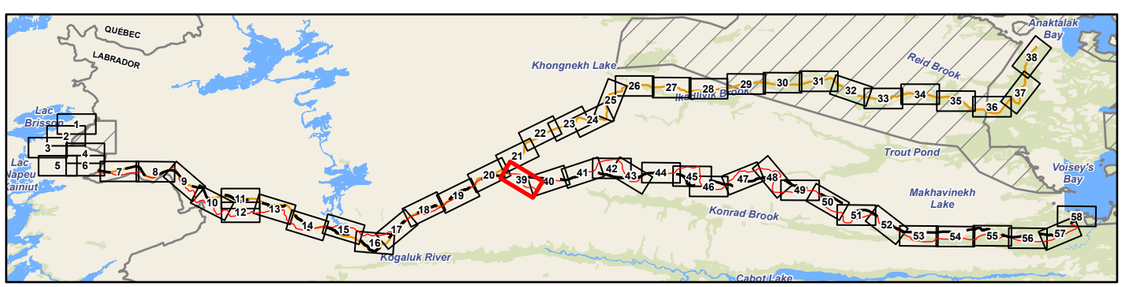

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Project Components

AECOM

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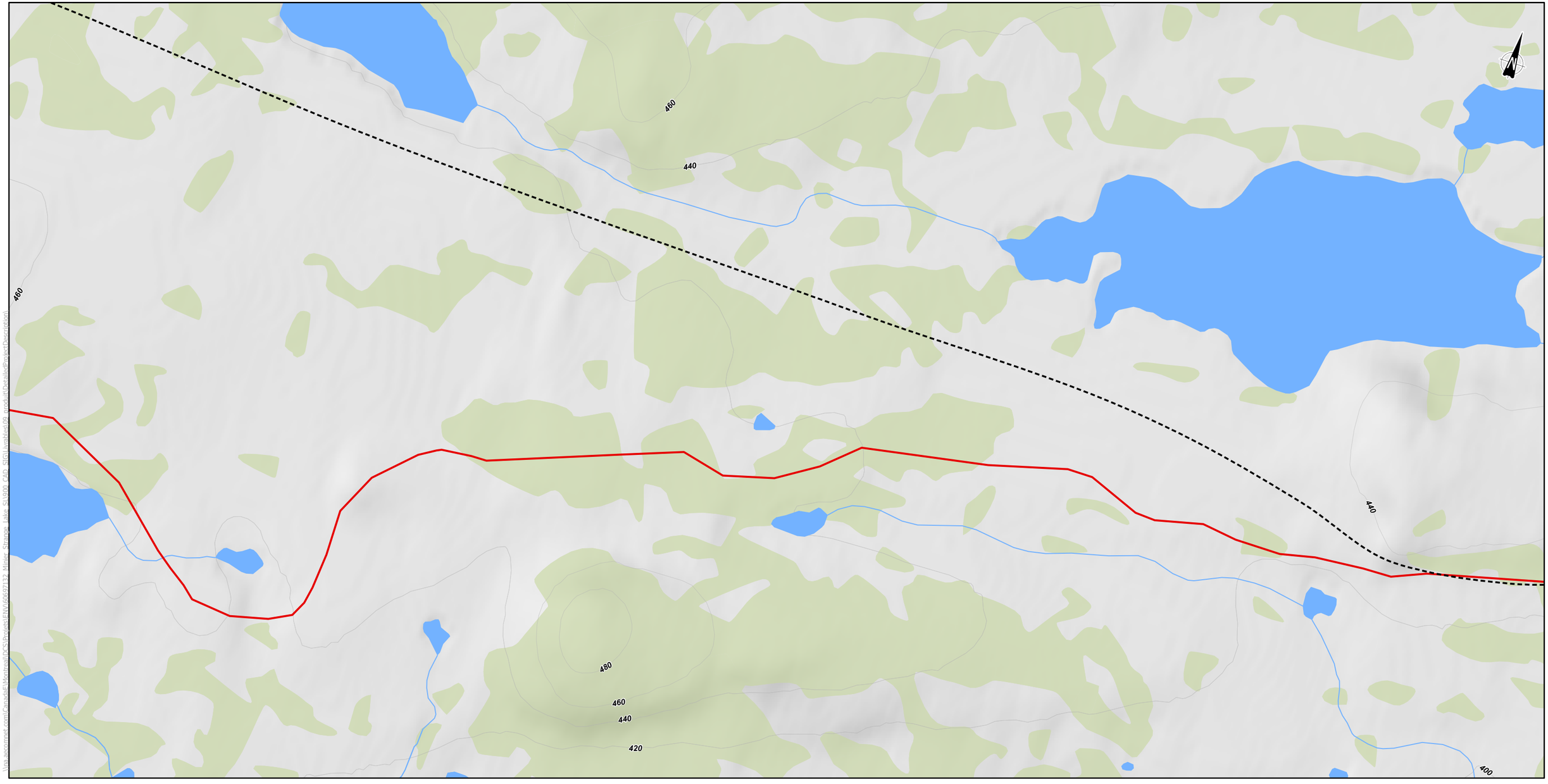
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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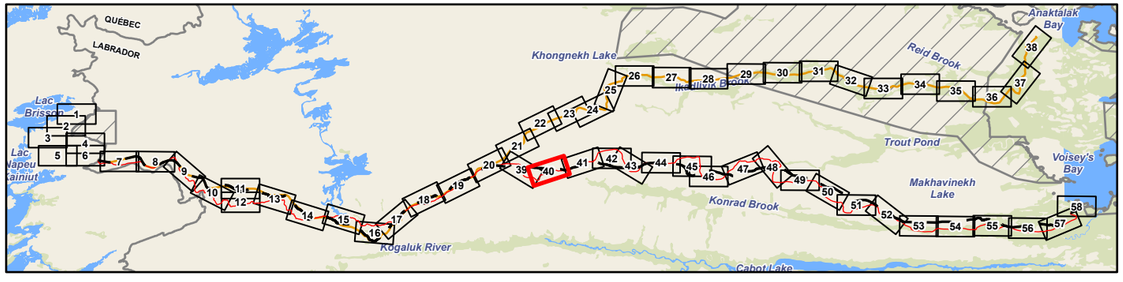

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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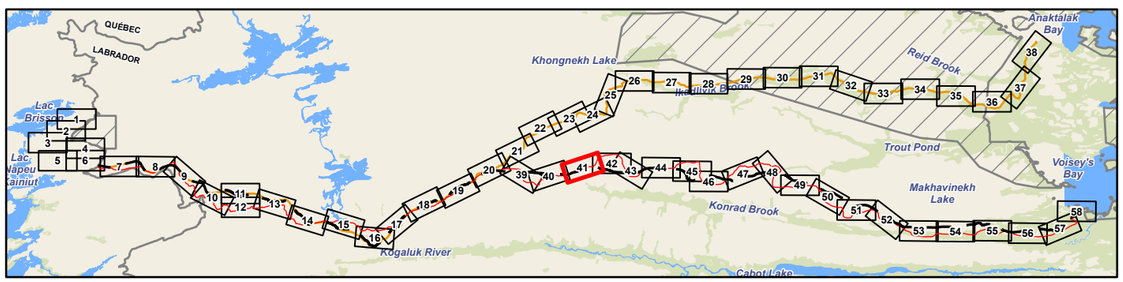

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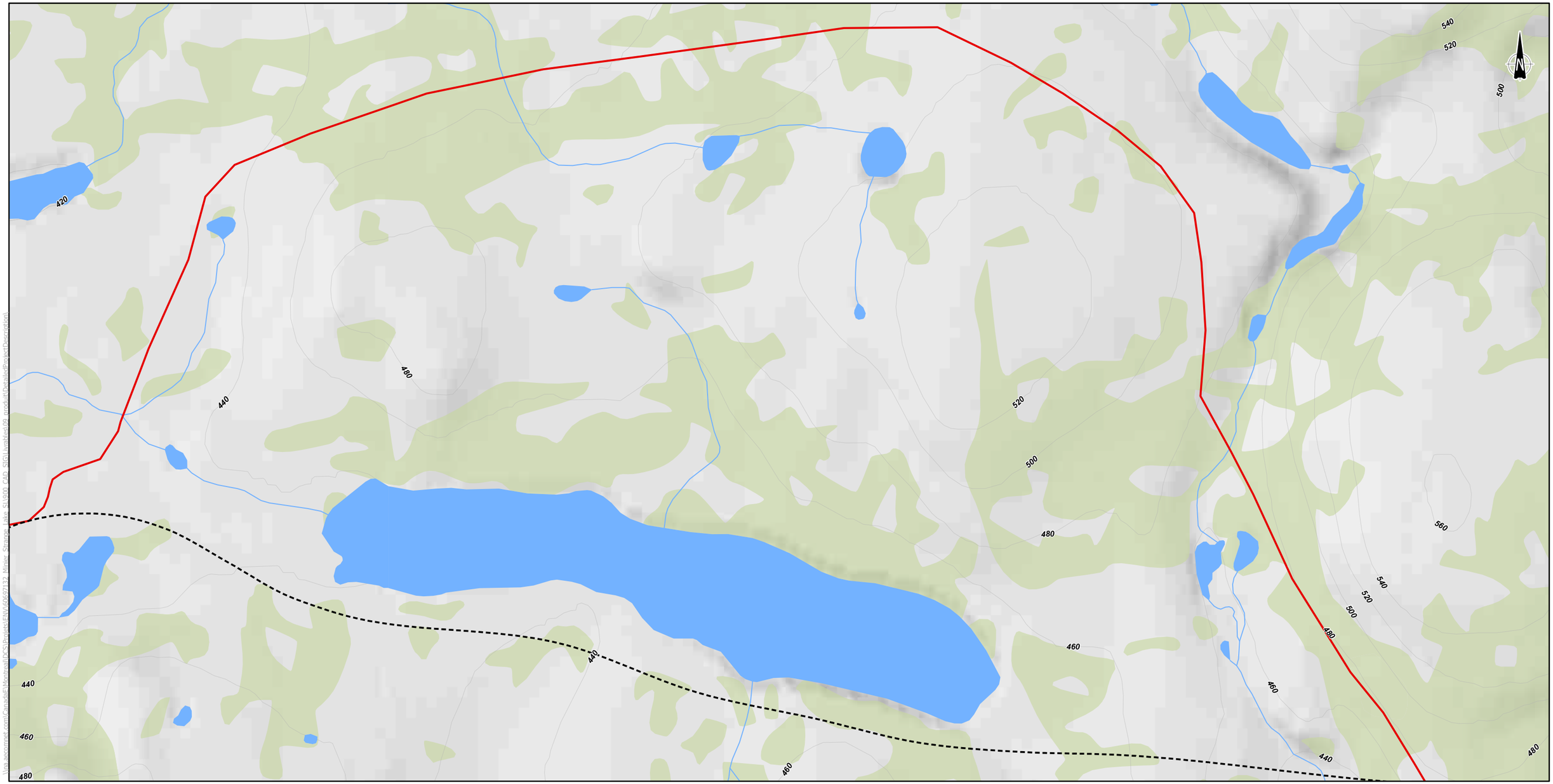
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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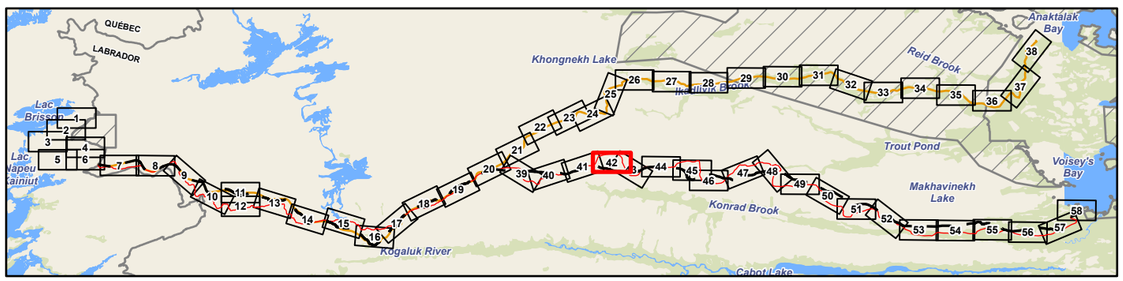

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Project Components

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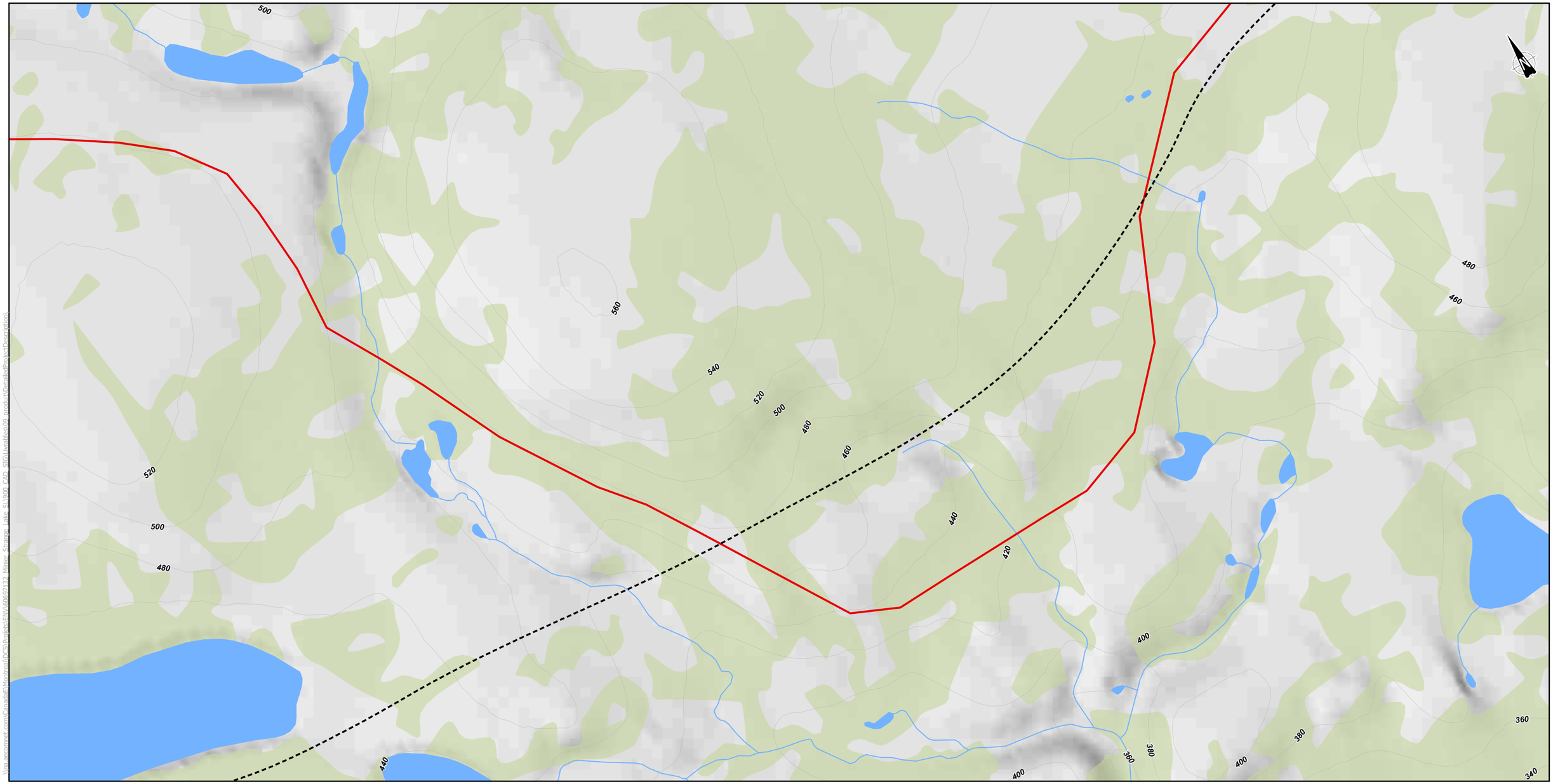
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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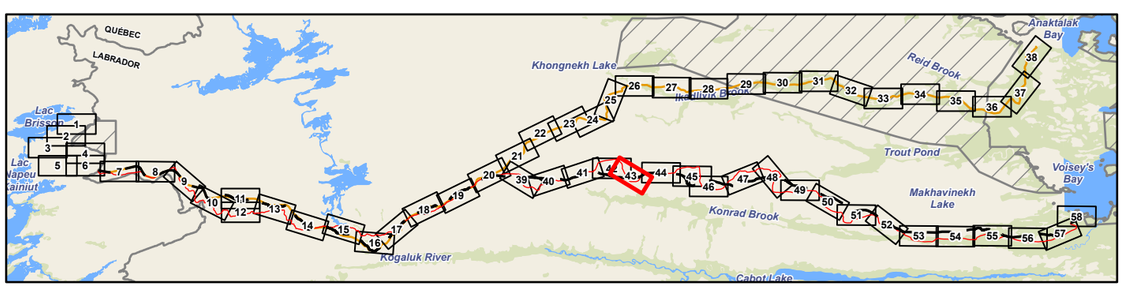

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Project Components

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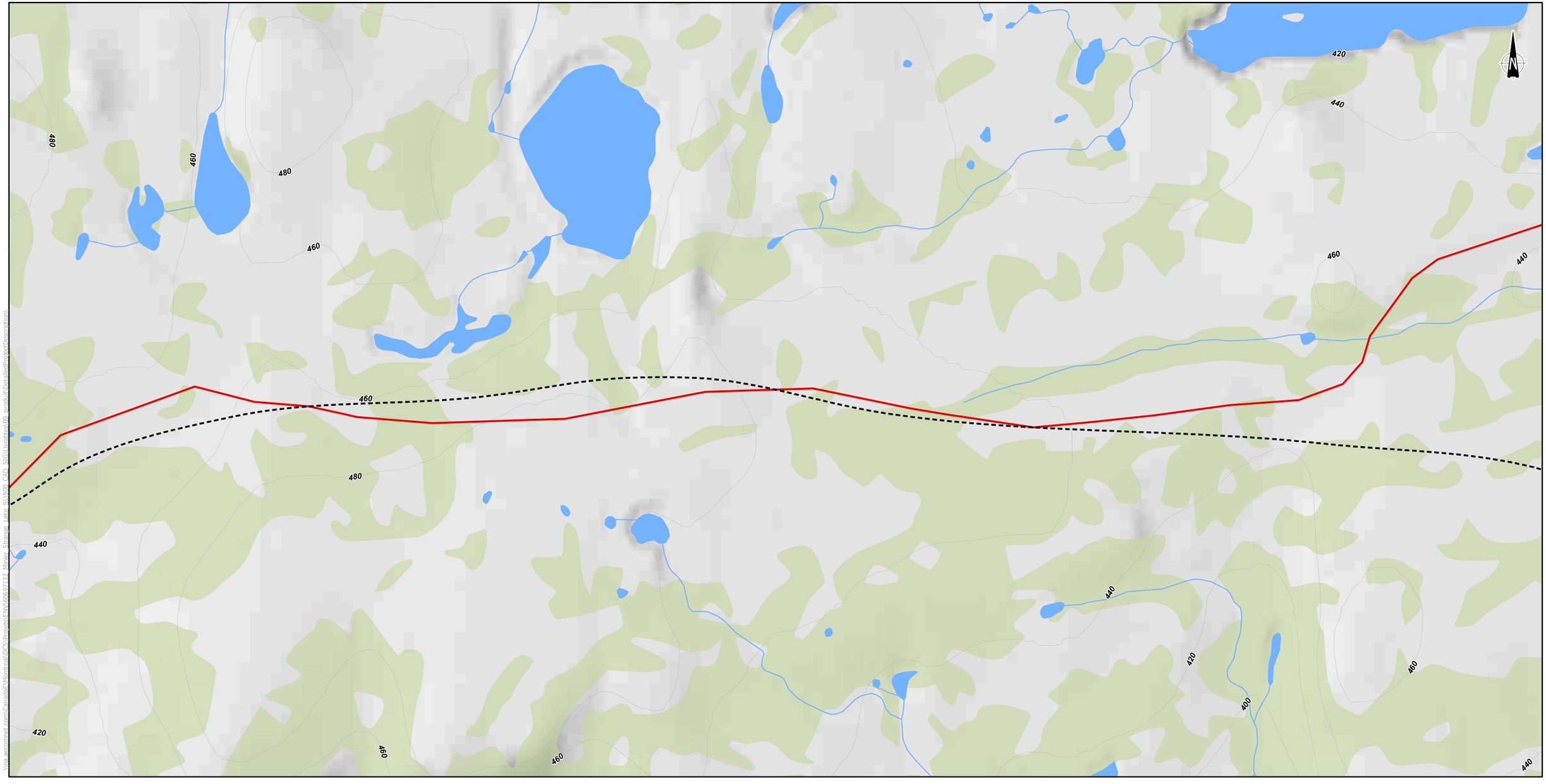
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
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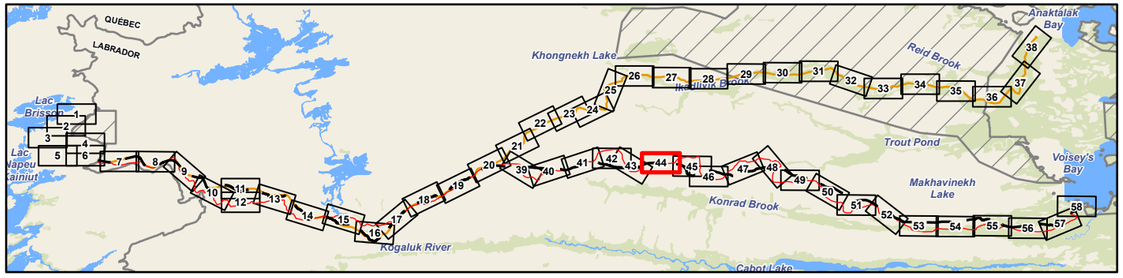

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Project Components

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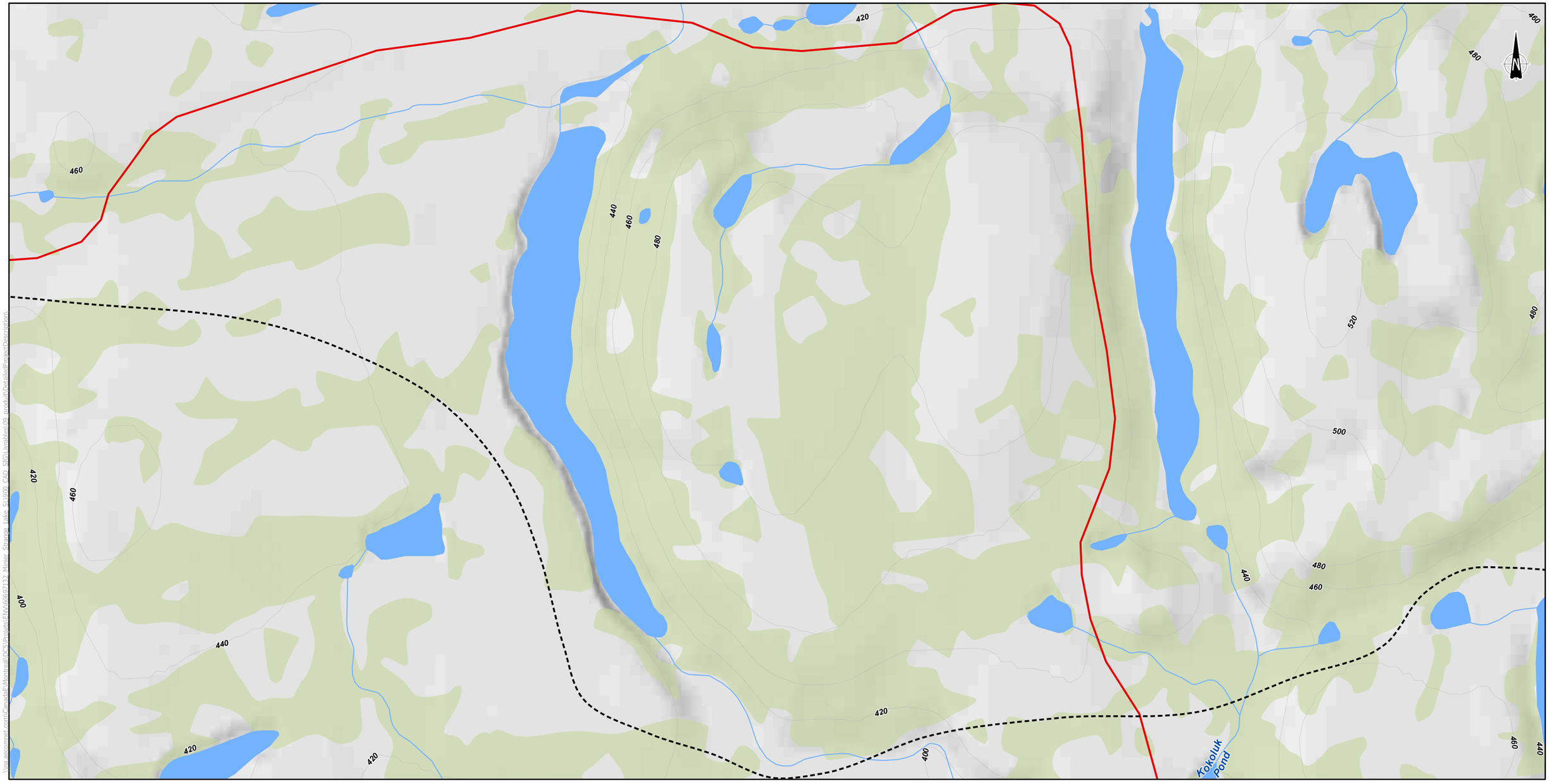
MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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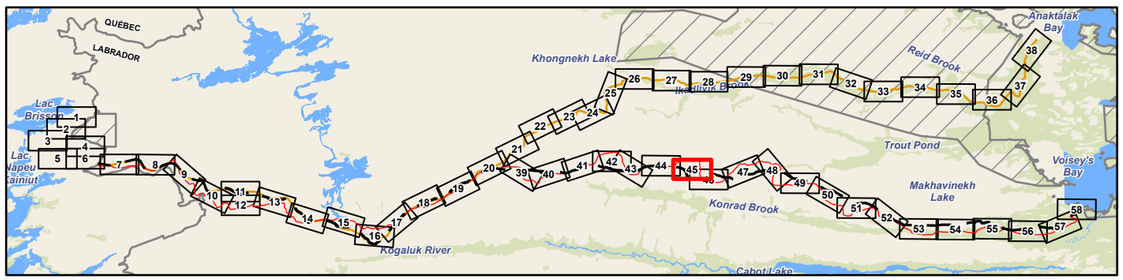
Données topographiques / Topographic data: RNCan (2022)



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Project Components

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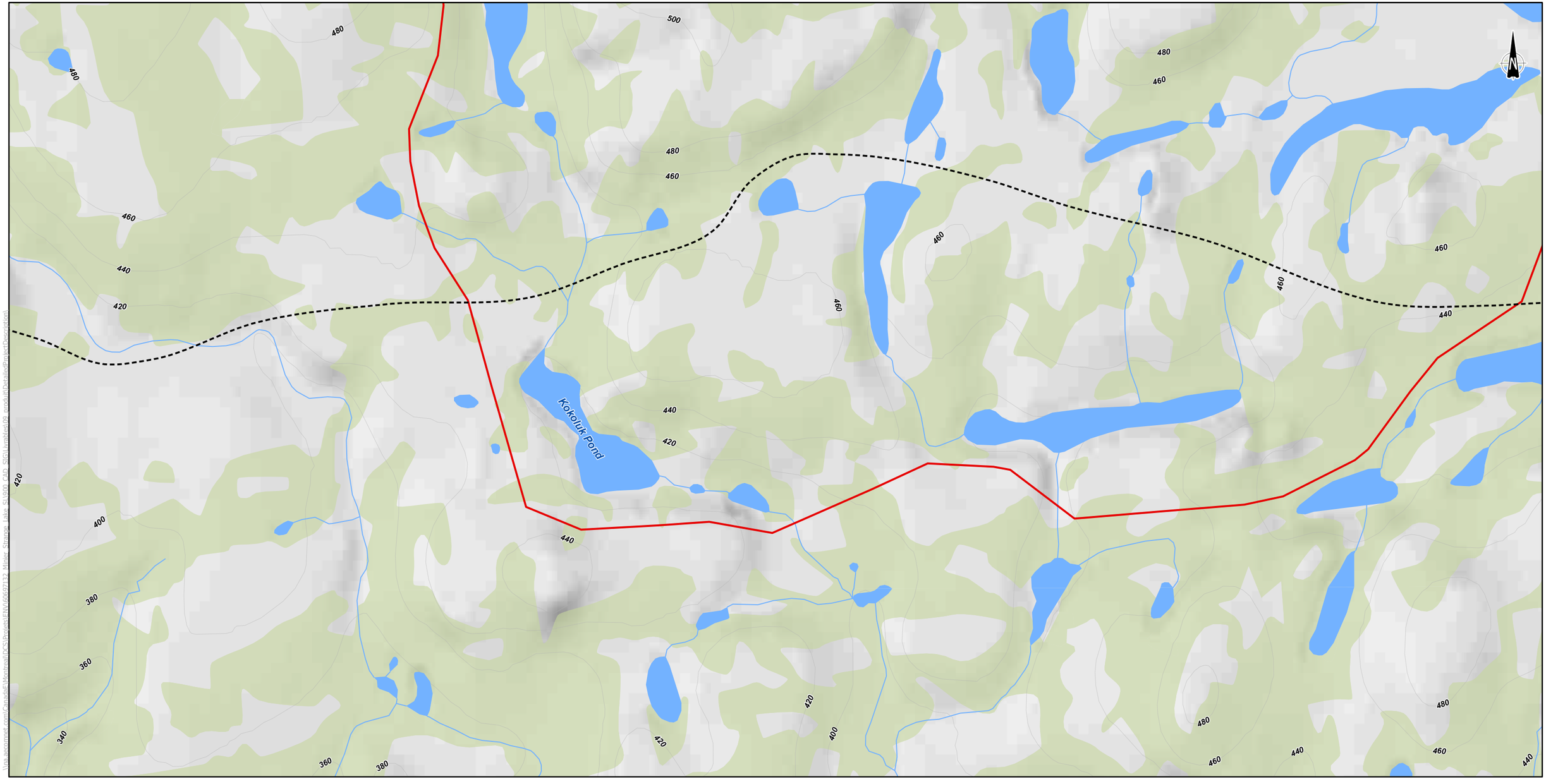
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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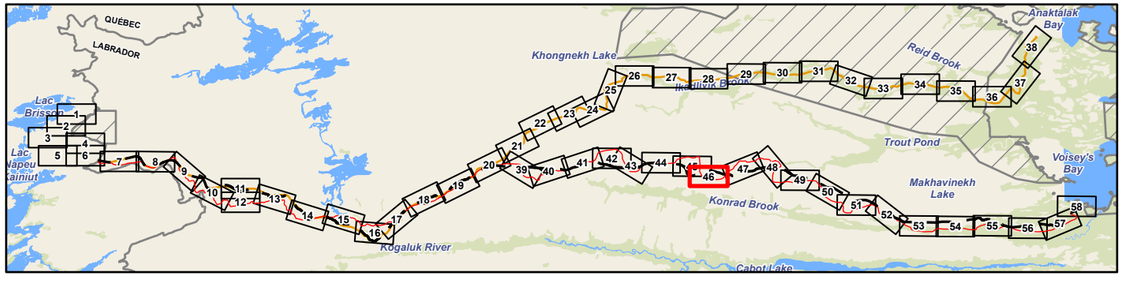

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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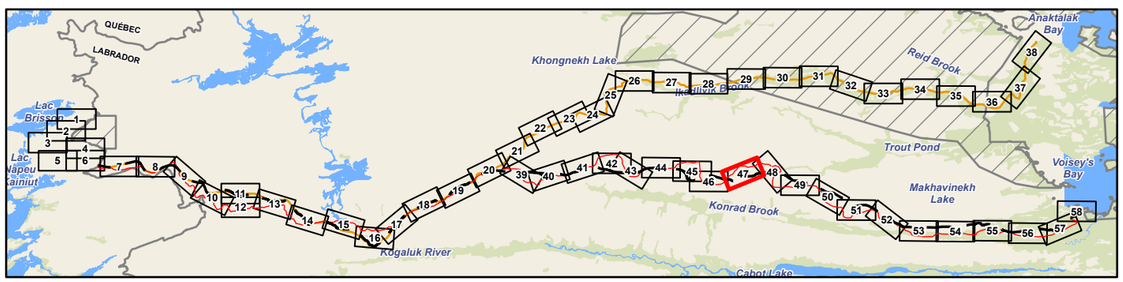

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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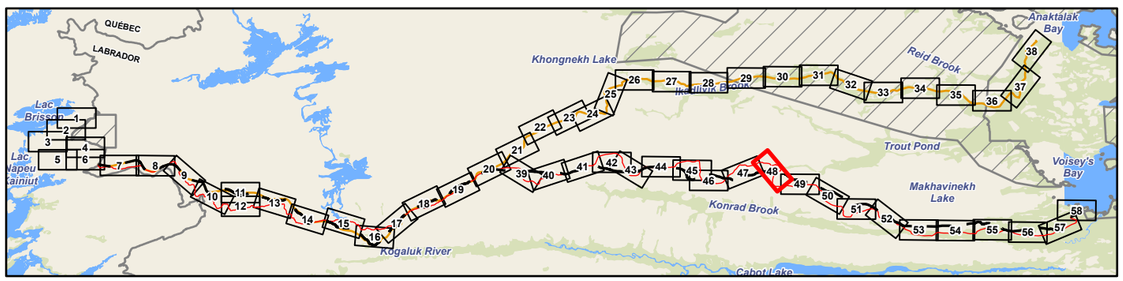

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

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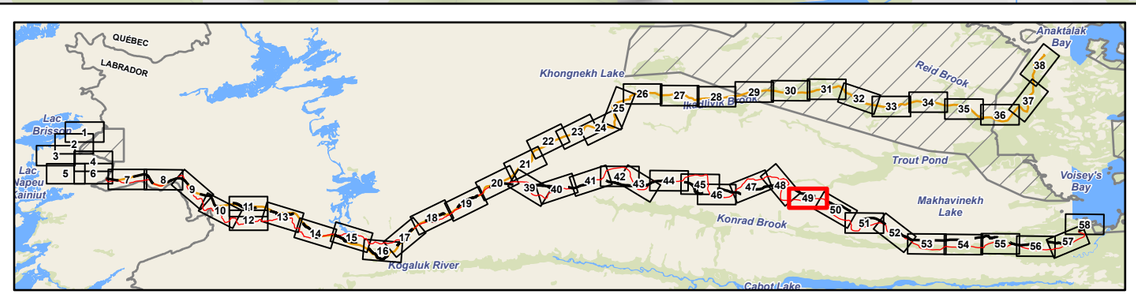

Annexe G

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Composantes du projet

Appendix G

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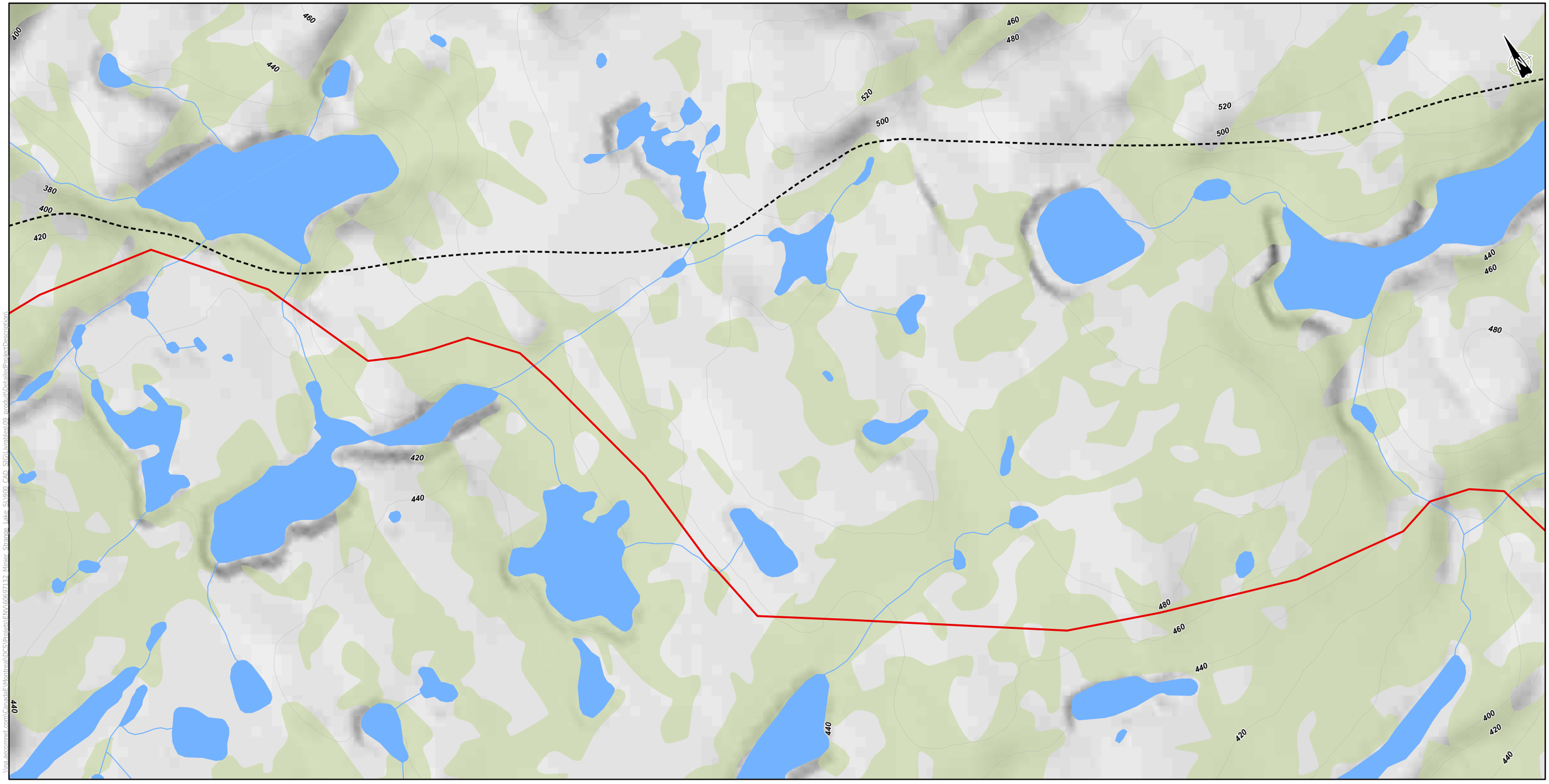
Project Components

AECOM

\\na.aecomnet.com\Canada\Montreal\DCS\Projects\ENV\60652132 Mines_Strange_Lake_SLN00_CAD_GIS\Layouts\09_produit\Feuille\Plan1.mxd Description)

MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)

Annexe G

Feuillet - 50
Composantes du projet

Appendix G

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

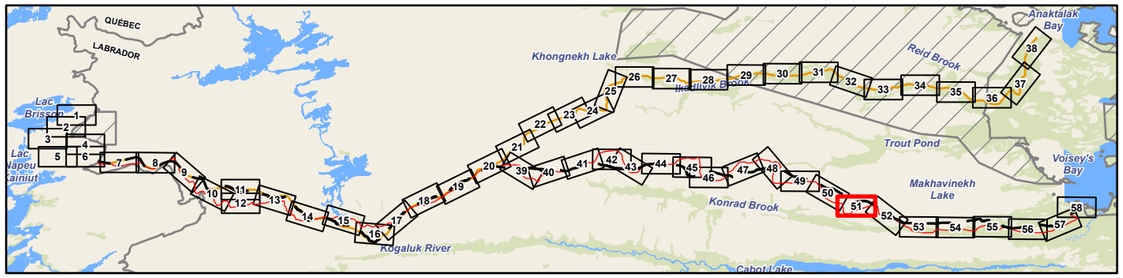
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 51
Composantes du projet

Appendix G

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Project Components

AECOM

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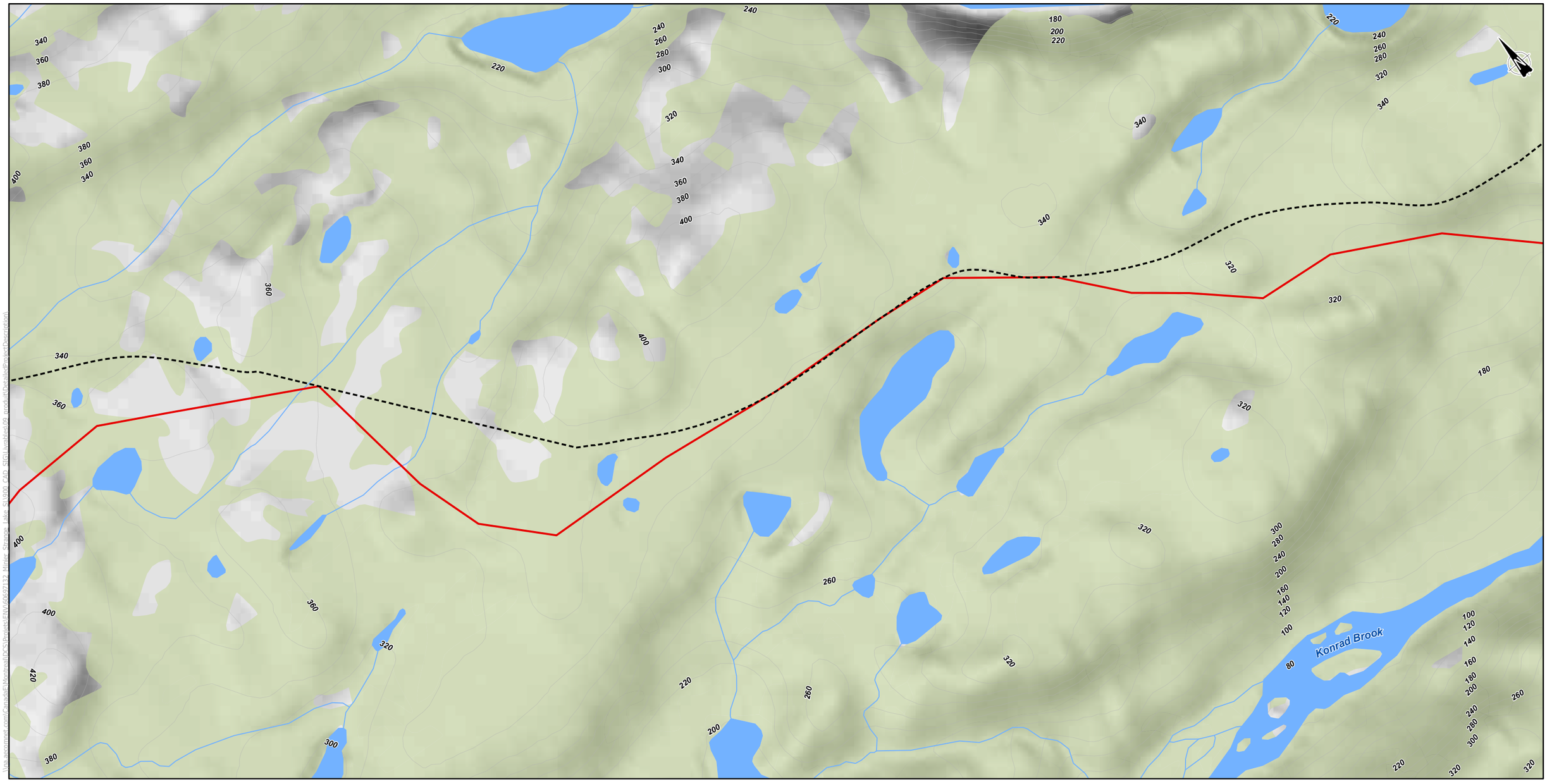
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

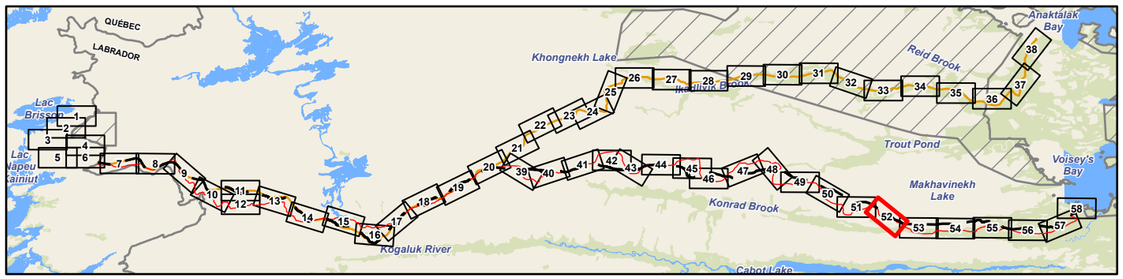
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 52
Composantes du projet

Appendix G

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Project Components

AECOM

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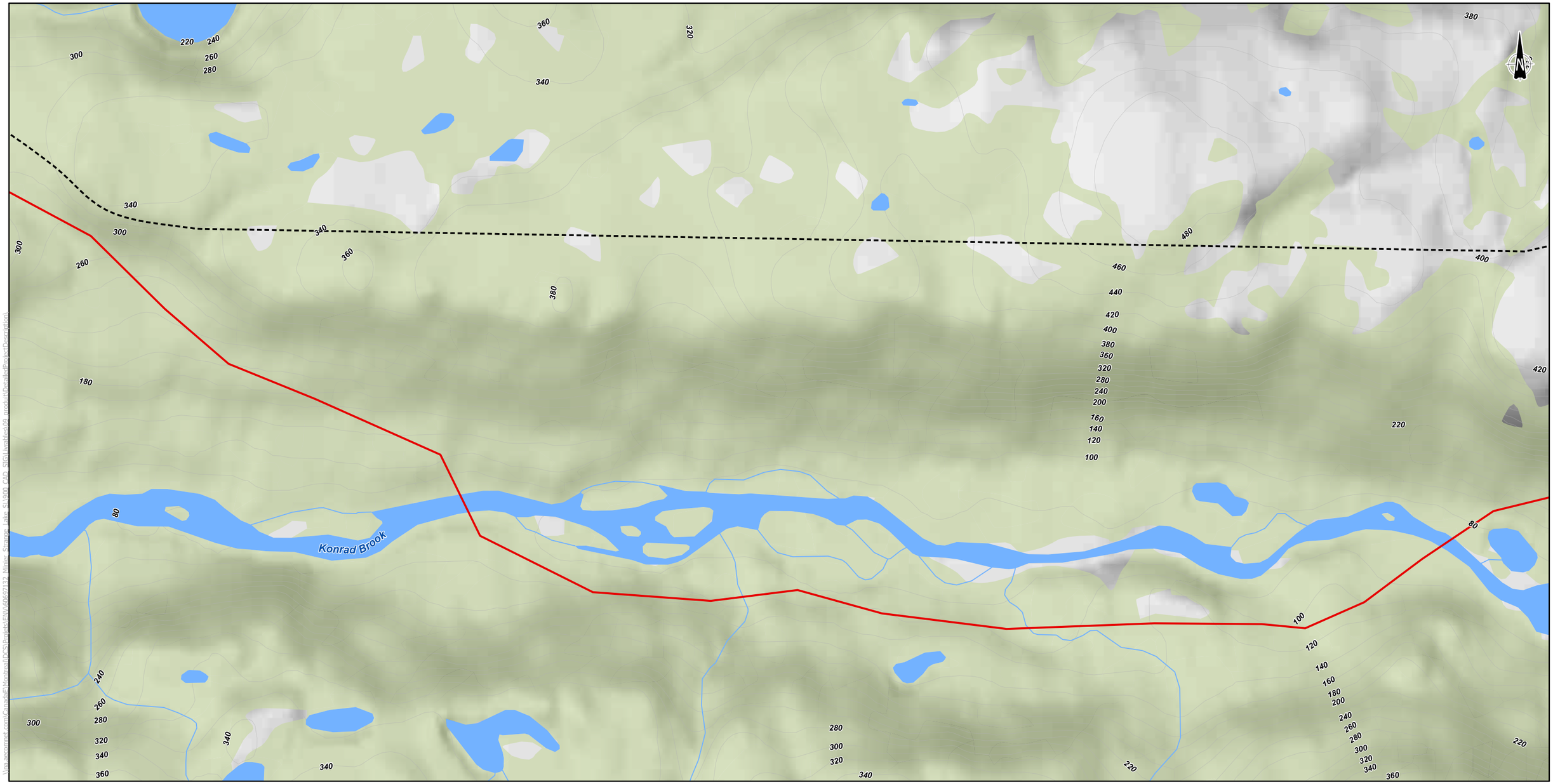
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

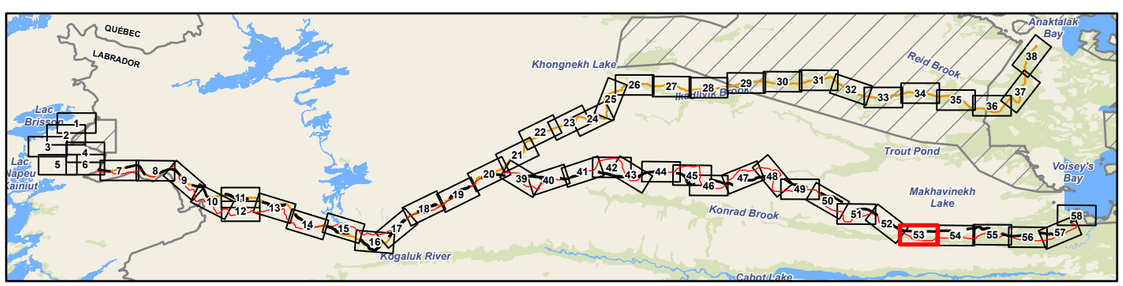
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 53
Composantes du projet

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Project Components

AECOM

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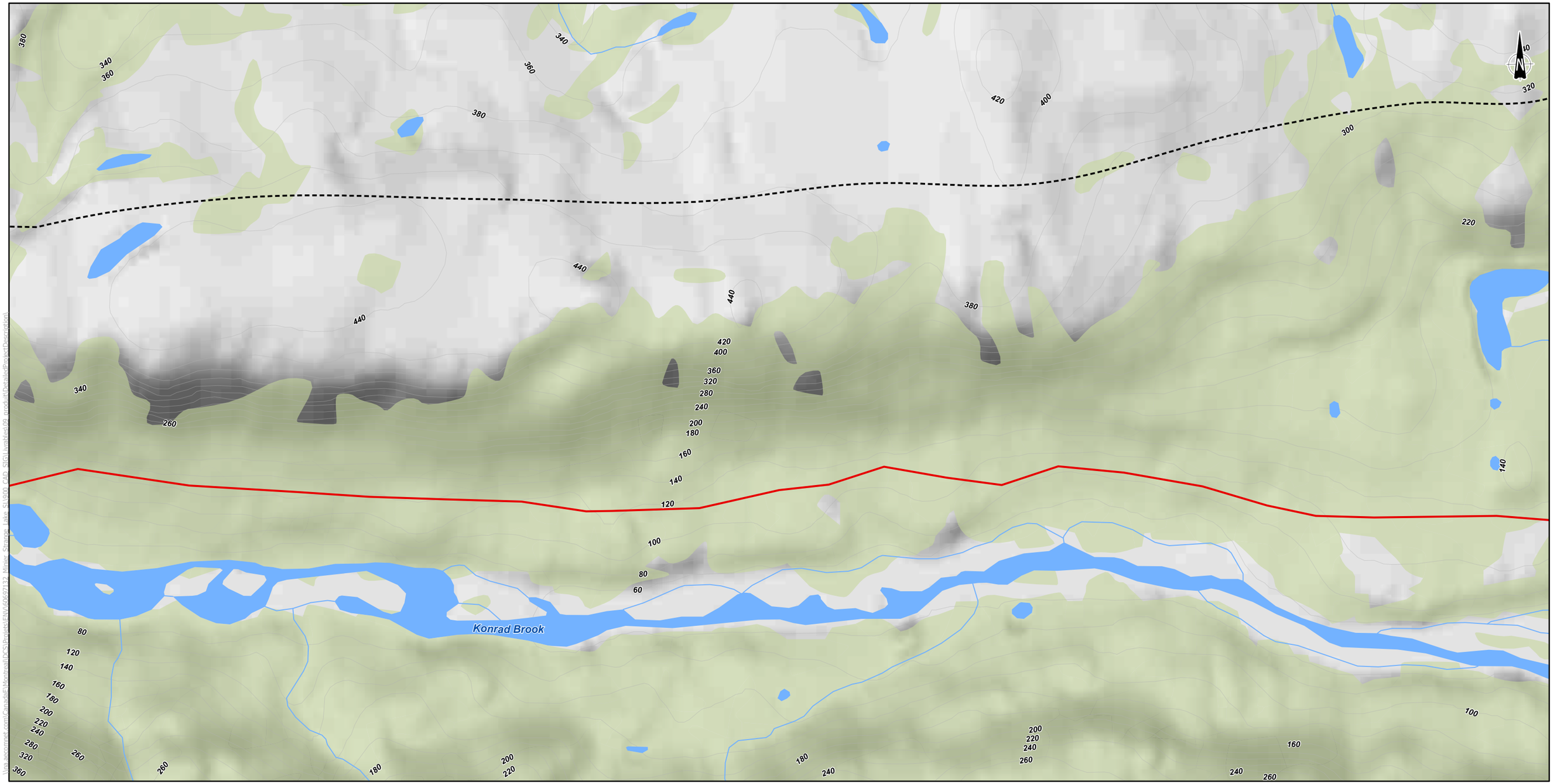
MÉTAUX TORNGAT METALS

PROJET MINIER DE TERRES RARES DU LAC STRANGE

STRANGE LAKE RARE EARTH MINING PROJECT



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

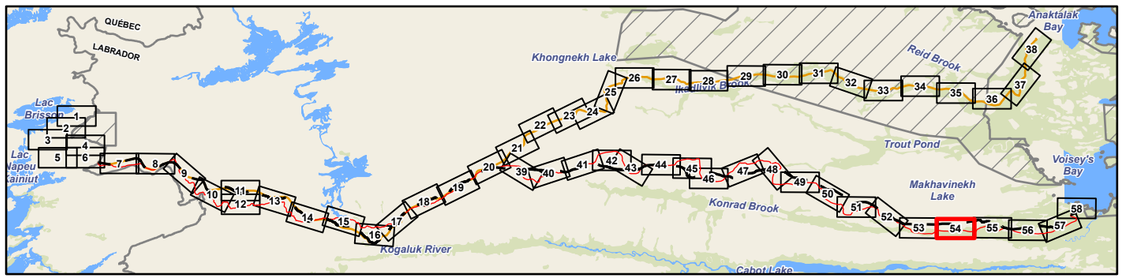
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 54
Composantes du projet

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Project Components

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

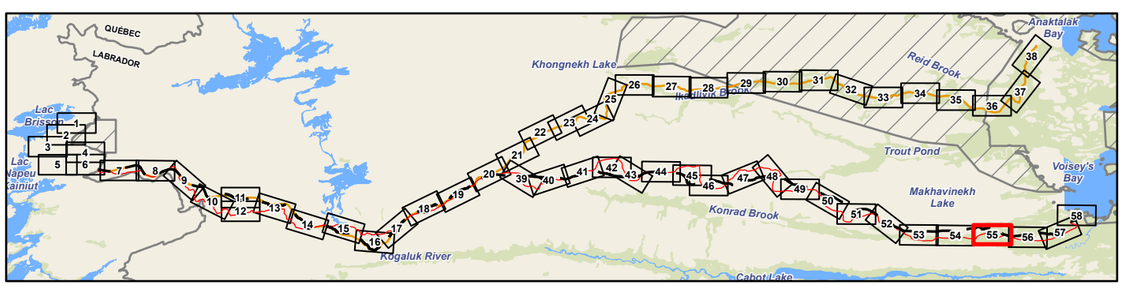
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 55
Composantes du projet

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Project Components

AECOM

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MÉTAUX TORNGAT METALS

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

Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

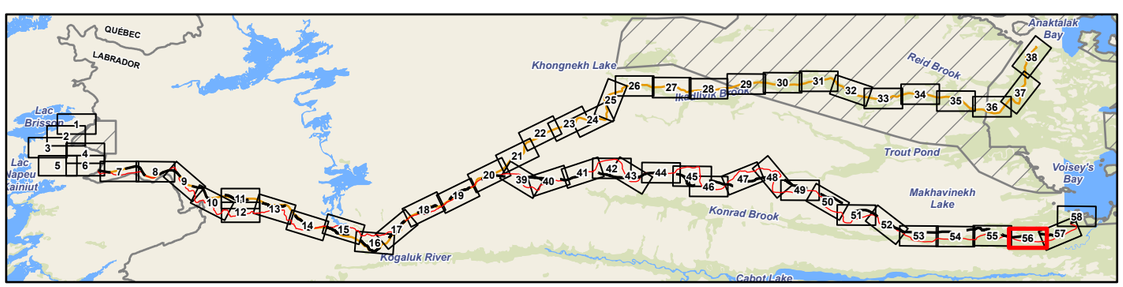
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 56
Composantes du projet

Appendix G

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Project Components

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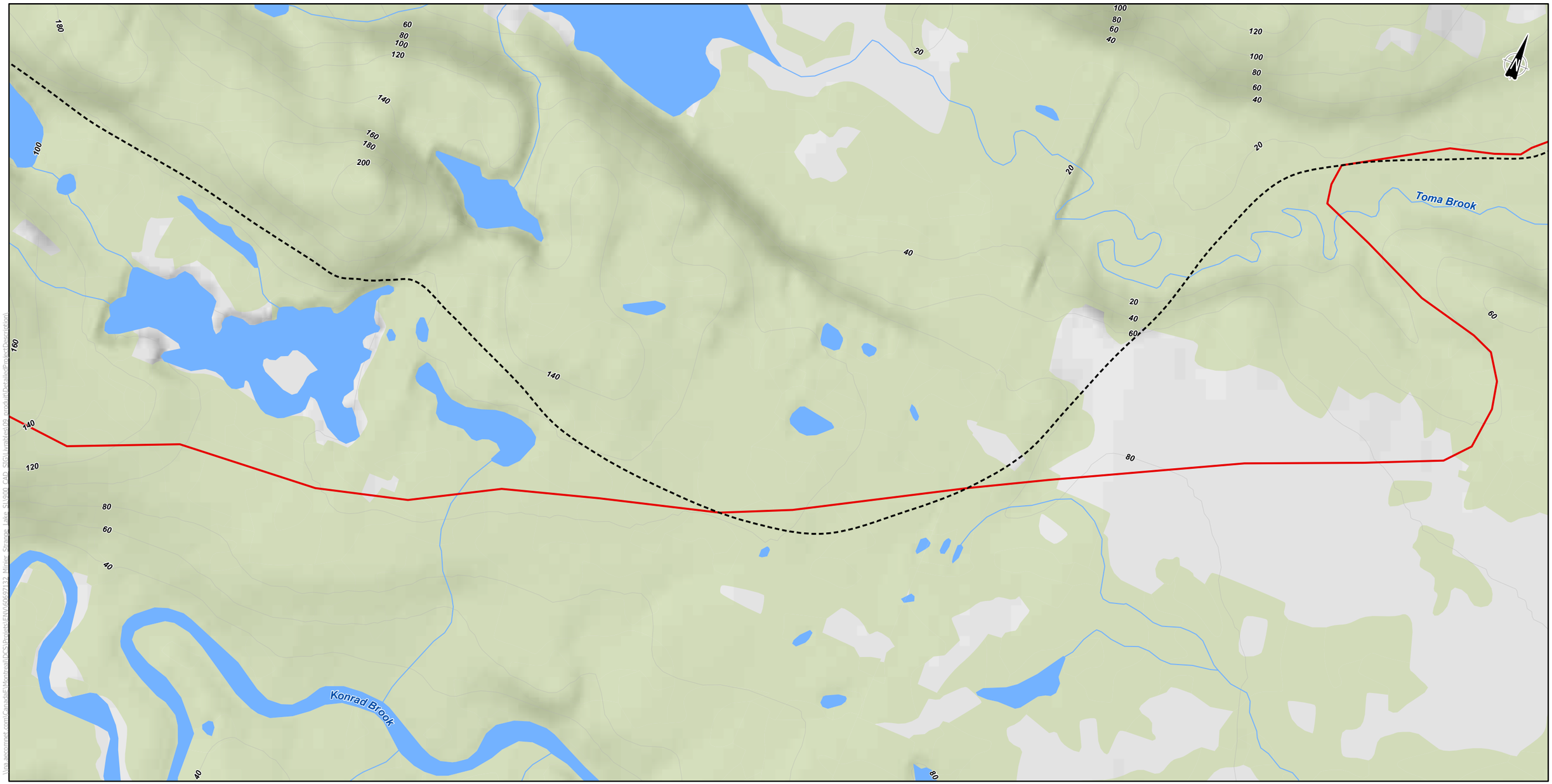
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

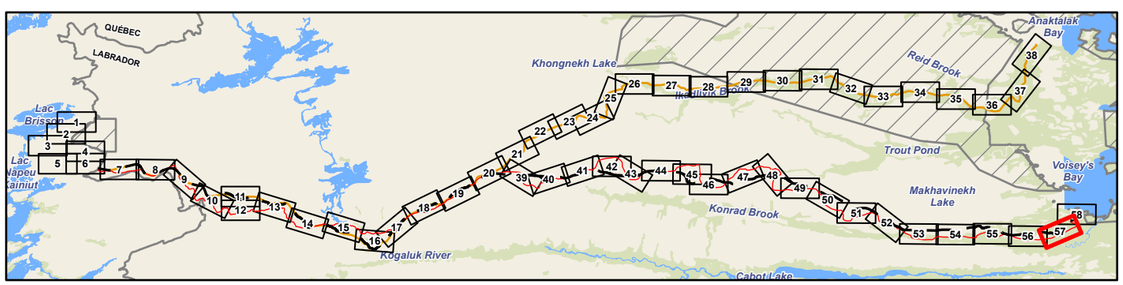
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 57
Composantes du projet

Appendix G

Sheet - 57
Project Components

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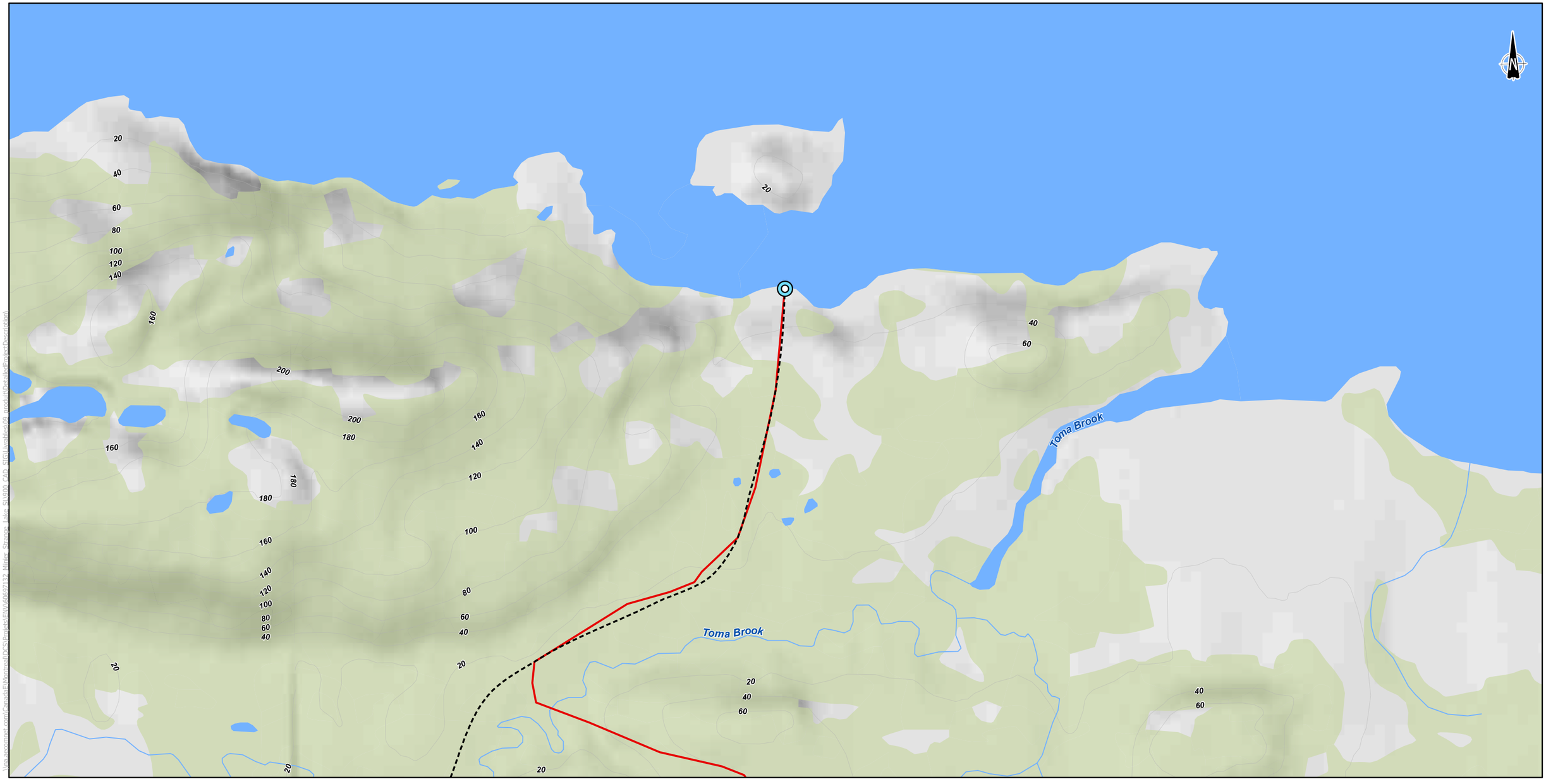
MÉTAUX TORNGAT METALS

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



Route d'accès à une voie / Single Lane Access Road

- Option C1
- Option C2

Autre / Other

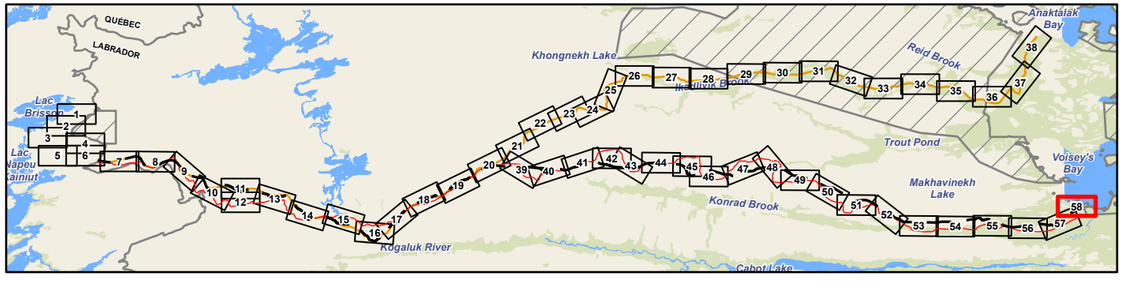
- Site potentiel des installations portuaires / Potential site for Port Facilities
- Courbe d'élévation / Elevation contour

1:12 500

0 100 200 m

NAD 1983 UTM Zone 20N

Source:
Données topographiques / Topographic data: RNCan (2022)



Annexe G

Feuillet - 58
Composantes du projet

Appendix G

Sheet - 58
Project Components

AECOM

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Appendix H
Maps of Indigenous Land Use from the 2012-2013 AECOM Study

Wedge Point

Dihourse Lake

Brisson Lake

AUBERGE DE LA RIVIÈRE GEORGE

Napeu Kainiut Lake

Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
- Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)

- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 1A / *Sheet 1A*

AECOM

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Indian House Lake

Rivière Déat

CLUB CHAMBEAUX INC.

CLUB CHAMBEAUX INC.

Lac Canarée

Mistinibi Lake

Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
- Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)
- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 1B / *Sheet 1B*

AECOM

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Brisson Lake

AUBERGE DE LA RIVIÈRE GEORGE

Napeu Kainiut Lake

Labrador

Québec

Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
- Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)

- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 1 / *Sheet 1*

AECOM

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Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
  Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)

- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 2 / *Sheet 2*

AECOM

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Khongnekh Lake

Ikadlivik Brook

Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
  Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)

- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 3 / *Sheet 3*

AECOM

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Anaktalak Bay
Edward's Cove
Little Reid Brook
Reid Brook
Reid Pond
Ikadlivik Brook
Ikadlivik Brook
Camp Pond
Trout Pond

Utilisation des terres / *Land Use*

- Aire primaire de chasse au Caribou / *Primary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire secondaire de chasse au Caribou / *Secondary Caribou Hunting Area* (Makkovik, 1960-1970)
- Aire occasionnelle de chasse au Caribou / *Occasional Caribou Hunting Area* (Killiniq People, 1960)
  Aire de pêche et de chasse au Caribou / *Fishing and Caribou Hunting Area* (May Familly, Kuujjuaq, 1960-1970)
- Piégeage occasionnel / *Occasional Trapping* (1960-1970)
- Pêche sur glace occasionnelle / *Occasional Ice Fishing (1960-1970)*
- Chasse à l'oie / *Goose Hunting* (2009)

- Site archéologique / *Archaeological Sites*
- Site de camp / *Camp Site (Killiniq People, 1960's)*
- Pourvoirie / *Outfitter*
- Bail minier de Quest / *Quest RM Property*
- Corridor potentiel de Quest / *Potential Quest Corridor*

1:100 000

0 0.75 1.5 2.25 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCES :

Kativik Regional Gouvernment, 2006.
Regional Trails, Kangiqsualujjuaq, Nunavik.
Renewable Resources Department.

Inventaire AECOM, 2012

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Inuit du Nunavik /
Land Use and Occupancy - Nunavik Inuit

Novembre 2013 / *November 2013* **CARTE 4 / *MAP 4*** Feuillet 4 / *Sheet 4*

AECOM

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400 000

400 000

4,5,6

9

Pourvoirie Jack Home

1

1

1

4

4,5

4,5,6

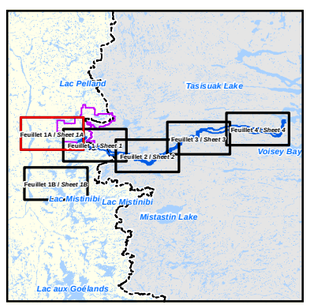
AUBERGE DE LA RIVIÈRE GEORGE
SCP07 LAC BRISSON
CAMP

Légende / *Legend*

- Chasse / *Hunting*
- Pêche / *Fishing*
- Pourvoirie / *Outfitter*
- Camps de toile / *Tented Camp*
- Site archéologique / *Archaeological Site*
- Voyage de chasse au caribou 2009 (trajets effectués par des Naskapis) / *Caribou Hunting Trip 2009 (journey made by the Naskapis)*
- Voyage de chasse au caribou 2010 (trajets effectués par des Naskapis) / *Caribou Hunting Trip 2010 (journey made by the Naskapis)*
- Passage connu de caribous / *Known Caribou Crossing*
- Corridor potentiel de Quest / *Potential Quest Corridor*
- Bail minier de Quest / *Quest RM Property*

Espèce / *Species*

1 - Caribou
2 - Porc-Épic / *Porcupine*
3 - Lagopède / *Ptarmigan*
4 - Touladi / *Trout*
5 - Omble Chevalier / *Artic Char*
6 - Omble Fontaine / *Brook Trout*



0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 1A / *Sheet 1A*

AECOM

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400 000

CLUB CHAMBEAUX INC.
SCP01 LAC NAPEUKAINIUT EST
CAMP

CLUB CHAMBEAUX INC.
SCP02 LAC NAPEUKAINIUT OUEST
CAMP

1

4,5,6

4,5,6

Linda's Camp (Club Tuktu)

4,5,6,7,8

4,5,6,7,8

6

4

4,5,6,7,8

Lac Mistinibi

4,5,7

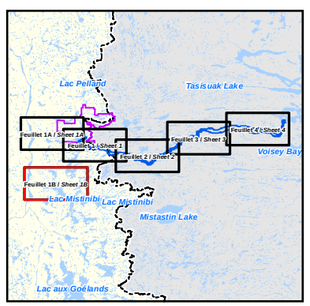
400 000

Légende / *Legend*

- Chasse / *Hunting*
- Pêche / *Fishing*
- Pourvoirie / *Outfitter*
- Camps de toile / *Tented Camp*
- Site archéologique / *Archaeological Site*
- Voyage de chasse au caribou 2009 (trajets effectués par des Naskapis) / *Caribou Hunting Trip 2009 (journey made by the Naskapis)*
- Voyage de chasse au caribou 2010 (trajets effectués par des Naskapis) / *Caribou Hunting Trip 2010 (journey made by the Naskapis)*
- Passage connu de caribous / *Known Caribou Crossing*
- Corridor potentiel de Quest / *Potential Quest Corridor*
- Bail minier de Quest / *Quest RM Property*

Espèce / *Species*

1 - Caribou
2 - Porc-Épic / *Porcupine*
3 - Lagopède / *Ptarmigan*
4 - Touladi / *Trout*
5 - Omble Chevalier / *Artic Char*
6 - Omble Fontaine / *Brook Trout*



0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 1B / *Sheet 1B*

AECOM

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1
1
1
4
5
2,3
4,5
4,5,6
AUBERGE DE LA RIVIÈRE GEORGE
SCP07 LAC BRISSON
CAMP
Labrador
Québec

Légende / *Legend*

- Chasse / *Hunting*
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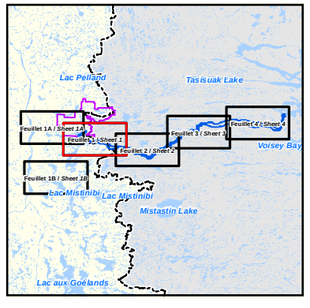

0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 1 / *Sheet 1*

AECOM

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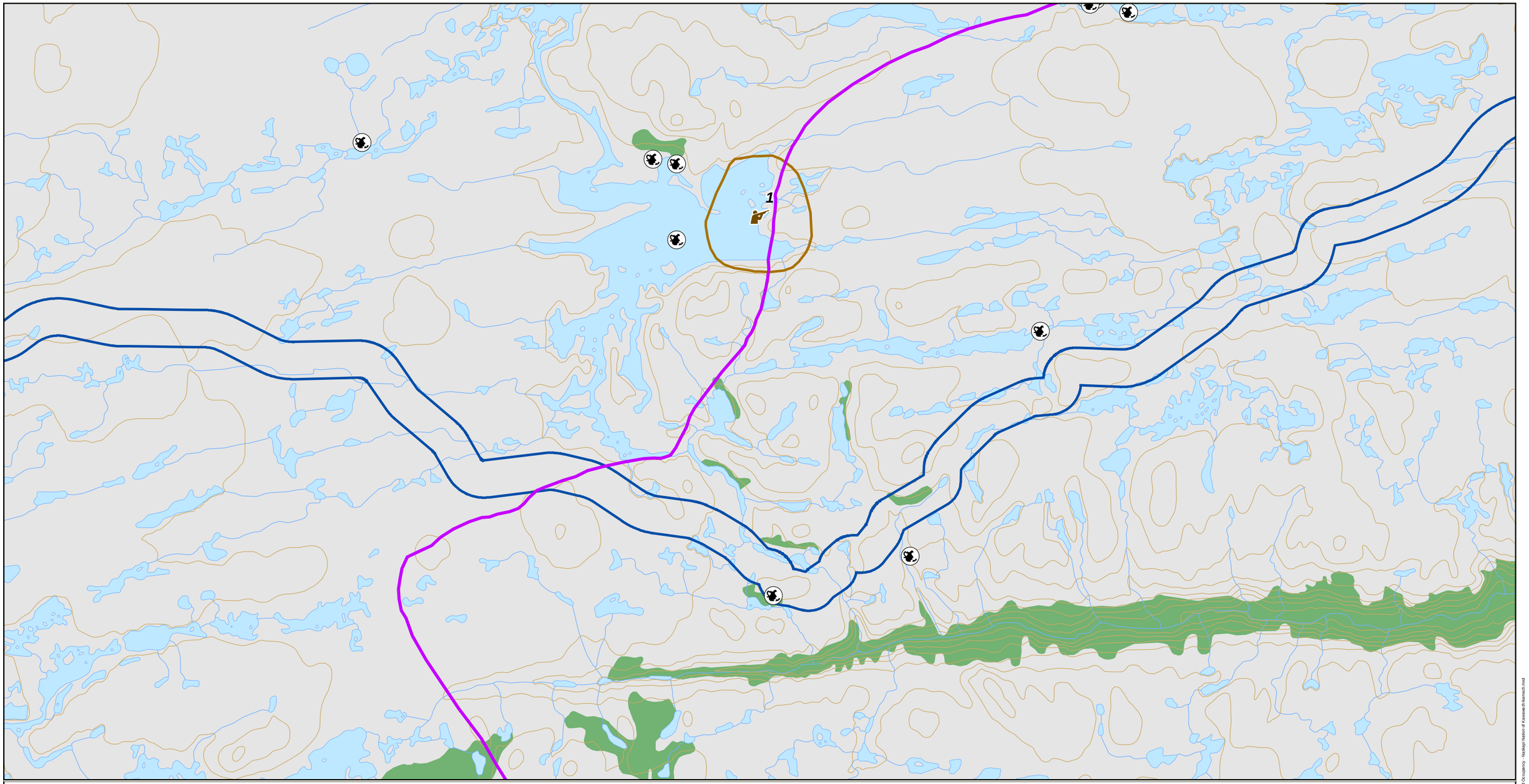

Légende / *Legend*

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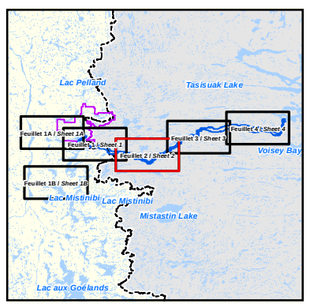

0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 2 / *Sheet 2*

AECOM

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500 000

500 000

1

Légende / *Legend*

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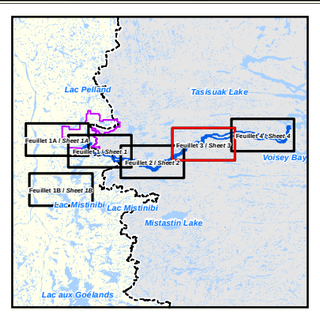

0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 3 / *Sheet 3*

AECOM

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Légende / *Legend*

- Chasse / *Hunting*
- Pêche / *Fishing*
- Pourvoirie / *Outfitter*
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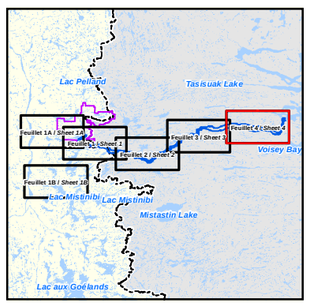

0 1 2 3 4 km

Échelle / *Scale* = 1 : 100 000

Source : Inventaire AECOM, 2012.

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Naskapis de Kawawachikamach

Land Use and Occupancy - Naskapi Nation of Kawawachikamach

Novembre 2013 / *November 2013* **CARTE / *MAP 5*** Feuillet 4 / *Sheet 4*

AECOM

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Aventure Ashini / Corporation des Amis du Mushuau-nipi

Nain
Voisey Bay
Natuashish
Hopedale
Makkovik
Postville
Rigolet
Sheshatshit
Happy Valley-Goose Bay
Lac Mistinibi
Mistastin Lake
Lac Napeu Kainiut
Lac Tudor
Lac Champdoré
Lac Machault
Lac aux Goélands
Lac Otelnuk
Lac Romanet
Lac Castignon
Lac Wakuach
Matimekosh
Kawawachikamach
Schefferville
Smallwood Reservoir
Lac au Bouleau
Lac Falaise
Réservoir de Caniapiscau
Lac Nouveau
Lac Néret
Réservoir Laforge 1
Lac Tilly
Réservoir La Grande 3
Réservoir La Grande 4
Lac de la Corvette
Lac Dalmas
Lac Nichicun
Lac Opiscotéo
Lac Naococane
Réservoir de l'Eastmain 1
Lac Bienville
Lac D'Iberville
Lac à l'Eau Claire
Petit lac des Loups Marins
Lacs des Loups Marins
Lac Guillaume-Delisle
LABRADOR
QUÉBEC
Lac Pouterel
Lac Kerbodot
Lac La Jannaye
Wabush
Fermont
Lac Ménistouc
Lac Brûlé
Lac Fleur-de-May
Petit lac Manicouagan
Lac Pletipi
Réservoir de la Sainte-Marguerite 3
Réservoir Manicouagan
Lac Albanel
Lac Mistassini
Lac Albanel
Mistissini
Baie du Poste
Lac Waconichi
Lac Chibougamau
Lac Manouane
Lac Perdu
Lac Berté
Lac Péribonka
Réservoir Outardes 4
Réservoir Manic 3
Réservoir Pipmuacan
Gallix
Moisie
Sept-Îles
Port-Cartier
Rivière-au-Tonnerre
Longue-Pointe
Havre-Saint-Pierre
Aguanish
Natashquan
La Romaine
Lac Musquaro
Chevery
La Tabatière
Tête-à-la-Baleine
Saint-Augustin
Vieux-Fort
Blanc-Sablon
Lourdes-de-Blanc-Sablon
St. Anthony
Golfe du Saint-Laurent

75°0' 70°0' 65°0' 60°0' 55°0'
55°0' 50°0'

Légende / *Legend*

- Entreprise touristique Innu opérant à Wedge Point / *Innu Tourism Business operating at Wedge Point*
- Axes de circulation employés par la bande de Moisie (1900-1956) / *Circulation Road used by the Moisie Band (1900-1956)*
- Limite approximative du territoire de la bande de Moisie [1] / *Approximate Boundary of the Moisie's Band Territory*
- Corridor potentiel de Quest / *Potential Quest Corridor*
- Bail minier de Quest / *Quest RM Property*

1 *Conseil des Attikamekw et des Montagnais (CAM), 1983.*

Échelle / *Scale* = 1 : 3,700,000

0 30 60 90 120 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Innus du Québec / *Land Use and Occupancy - Quebec Innus*

Novembre 2013 / *November 2013*

CARTE 6 / *MAP 6*

AECOM

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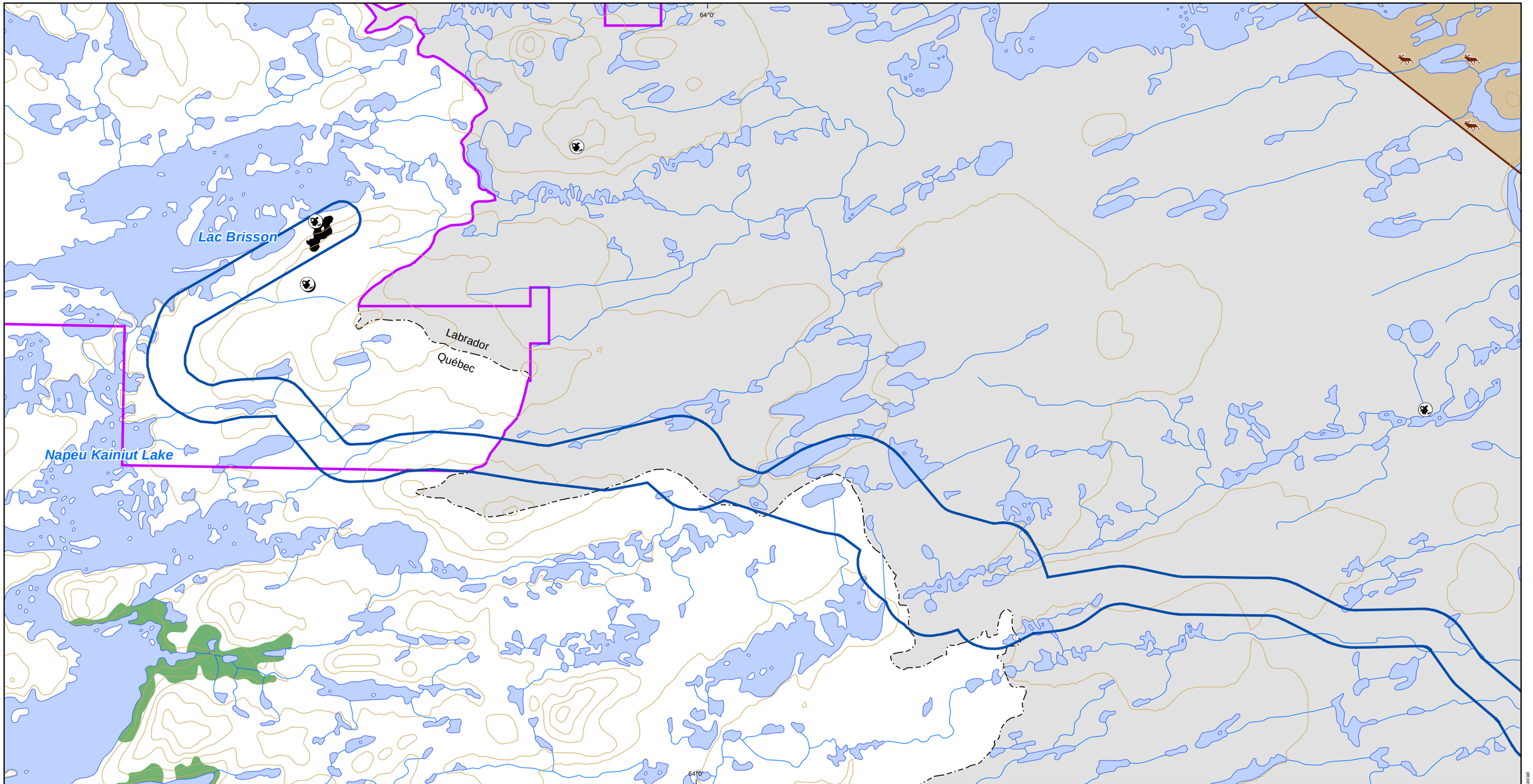


Éléments principaux du milieu humain / *Human Environmental Key Features*

- Site archéologique / *Archaeological Site*
- Camp / *Cabin* [1]
- Piste de motoneige / *Snowmobile Trail* [1]
- Hutte de castor / *Beaver house*
- Observation de béluga / *Beluga sighting*
- Tanière de renard / *Fox den*
- Aigle royal / *Golden Eagle*
- Phoque / *Harbour Seal*
- Canard arlequin / *Harlequin Duck*
- Observation d'orignal / *Moose sighting*
- Chouette épervière / *Northern Hawk Owl*
- Balbuzard / *Osprey*
- Faucon pélerin / *Peregrine Falcon*
- Trou de respiration de phoque / *Seal breathing hole*
- Oie des neiges / *Snow Goose*
- Carcajou / *Wolverine*

Activités automne - hiver / *Autumn - Winter Activities*

- Aire de cueillette de baies / *Berry Picking Area*
- Chasse du caribou / *Hunting Caribou*
- Pêche sur la glace / *Ice fishing*
- Aire de trappage / *Trapping area*
- Aire de chasse en bateau de la sauvagine et du phoque / *Hunting Area - Waterfowl and Seal by boat*
- Ligne de piégeage / *Trap Line*

Activités printemps - été / *Spring - Summer Activities*

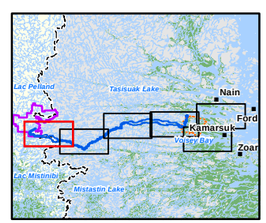
- Aire de collecte d'oeufs / *Egg Collecting Areas*
- Pêche sur la glace / *Ice fishing*
- Chasse au phoque sur la glace / *Otok hunting (basking seal on ice)*
- Région de la Baie de Voisey (exclue de LISA) / *Voisey's Bay Area (excluded from LISA)*

Pêche commerciale / *Commercial Fishing Locations*

- Omble chevalier / *Arctic Char* (1975-1993)
- Frayère de l'omble chevalier / *Arctic Char Spawning River*
- Saumon / *Salmon* (1975-1993)

Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
- B-Zone minéralisée / *B-Zone Mineral Deposit*
- Bail minier de Quest / *Quest RM Property*



1:100 000

0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Nation des Inuit du Labrador / *Land Use and Occupancy - Labrador Inuit*

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 1 / Sheet 1**

AECOM

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1 Rough Approximation based on a single snowmobile user - to be confirmed during baseline. No outfitter camp registered in NL within road corridor.

63°30'

63°30'

Éléments principaux du milieu humain / *Human Environmental Key Features*

- Site archéologique / *Archaeological Site*
- Camp / *Cabin* [1]
- Piste de motoneige / *Snowmobile Trail* [1]
- Hutte de castor / *Beaver house*
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Activités automne - hiver / *Autumn - Winter Activities*

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Activités printemps - été / *Spring - Summer Activities*

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Pêche commerciale / *Commercial Fishing Locations*

- Omble chevalier / *Arctic Char* (1975-1993)
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Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
- B-Zone minéralisée / *B-Zone Mineral Deposit*
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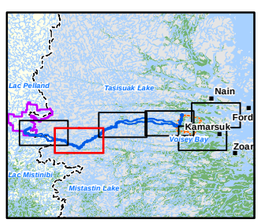

1:100 000

0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Nation des Inuit du Labrador /
Land Use and Occupancy - Labrador Inuit

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 2 / Sheet 2**

AECOM

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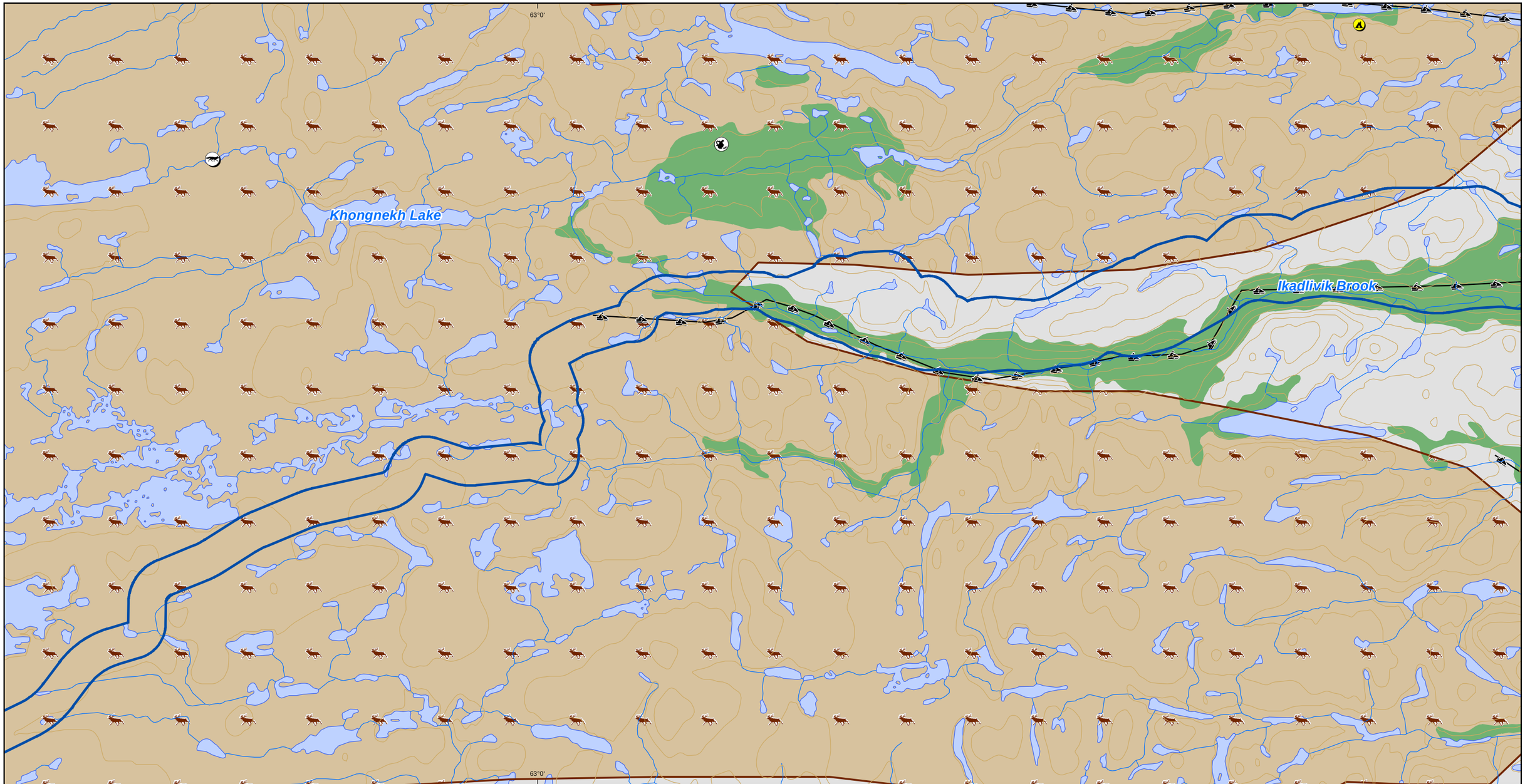
1 *Rough Approximation based on a single snowmobile user - to be confirmed during baseline. No outfitter camp registered in NL within road corridor.*



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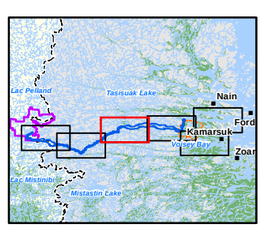

1:100 000

0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Nation des Inuit du Labrador /
Land Use and Occupancy - Labrador Inuit

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 3 / Sheet 3**

AECOM

1 Rough Approximation based on a single snowmobile user - to be confirmed during baseline. No outfitter camp registered in NL within road corridor.

K:\05\21\50\00921891_strange lake\07_Plans\03_Geomatique\09_produit\Decembre_2013\Social

62°30'

62°0'

Anaktalak Bay

Edward's Cove

Little Reid Brook

Reid Brook

Reid Pond

Reid Falls

Ikadlivik Brook

Camp Pond

Otter Pond

Headwater Pond

Trout Pond

Voisey Bay

62°30'

62°0'

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- Camp / *Cabin* [1]
- Piste de motoneige / *Snowmobile Trail* [1]
- Hutte de castor / *Beaver house*
- Observation de béluga / *Beluga sighting*
- Tanière de renard / *Fox den*
- Aigle royal / *Golden Eagle*
- Phoque / *Harbour Seal*
- Canard arlequin / *Harlequin Duck*
- Observation d'orignal / *Moose sighting*
- Chouette épervière / *Northern Hawk Owl*
- Balbuzard / *Osprey*
- Faucon pélerin / *Peregrine Falcon*
- Trou de respiration de phoque / *Seal breathing hole*
- Oie des neiges / *Snow Goose*
- Carcajou / *Wolverine*

Activités automne - hiver / *Autumn - Winter Activities*

- Aire de cueillette de baies / *Berry Picking Area*
- Chasse du caribou / *Hunting Caribou*
- Pêche sur la glace / *Ice fishing*
- Aire de trappage / *Trapping area*
- Aire de chasse en bateau de la sauvagine et du phoque / *Hunting Area - Waterfowl and Seal by boat*
- Ligne de piégeage / *Trap Line*

Activités printemps - été / *Spring - Summer Activities*

- Aire de collecte d'oeufs / *Egg Collecting Areas*
- Pêche sur la glace / *Ice fishing*
- Chasse au phoque sur la glace / *Otok hunting (basking seal on ice)*

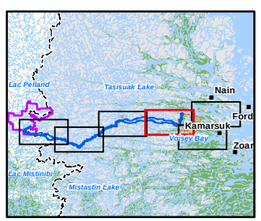
- Région de la Baie de Voisey (exclue de LISA) / *Voisey's Bay Area (excluded from LISA)*

Pêche commerciale / *Commercial Fishing Locations*

- Omble chevalier / *Arctic Char* (1975-1993)
- Frayère de l'omble chevalier / *Arctic Char Spawning River*
- Saumon / *Salmon* (1975-1993)

Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
- B-Zone minéralisée / *B-Zone Mineral Deposit*
- Bail minier de Quest / *Quest RM Property*



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0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire - Nation des Inuit du Labrador /
Land Use and Occupancy - Labrador Inuit

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 4 / Sheet 4**

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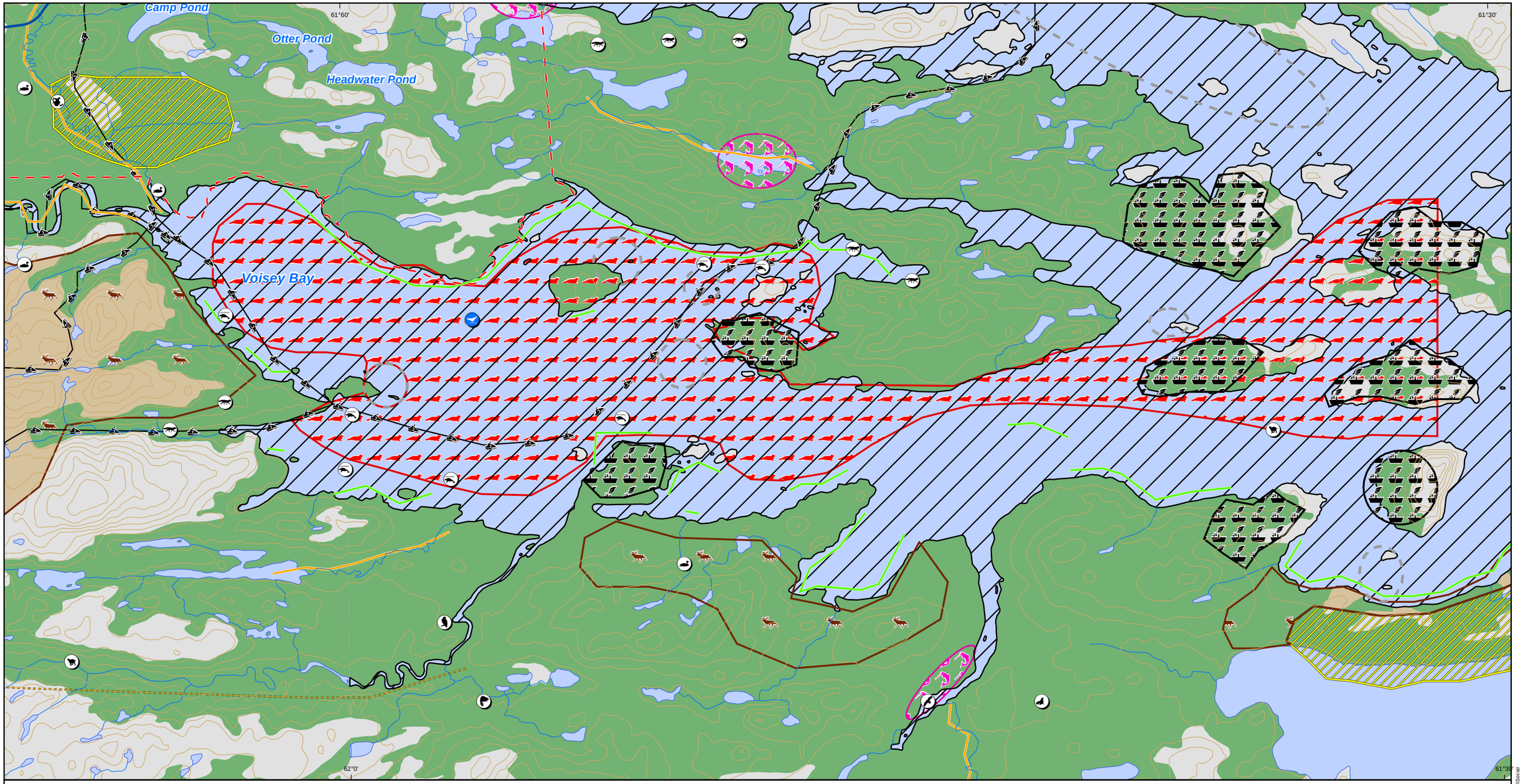
1 Rough Approximation based on a single snowmobile user - to be confirmed during baseline. No outfitter camp registered in NL within road corridor.



Éléments principaux du milieu humain / *Human Environmental Key Features*

- Site archéologique / *Archaeological Site*
- Camp / *Cabin* [1]
- Piste de motoneige / *Snowmobile Trail* [1]
- Hutte de castor / *Beaver house*
- Observation de béluga / *Beluga sighting*
- Tanière de renard / *Fox den*
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Activités automne - hiver / *Autumn - Winter Activities*

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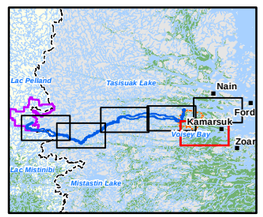

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

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QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Inuit du Labrador /
Land Use and Occupancy - Labrador Inuit

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 5 / Sheet 5**

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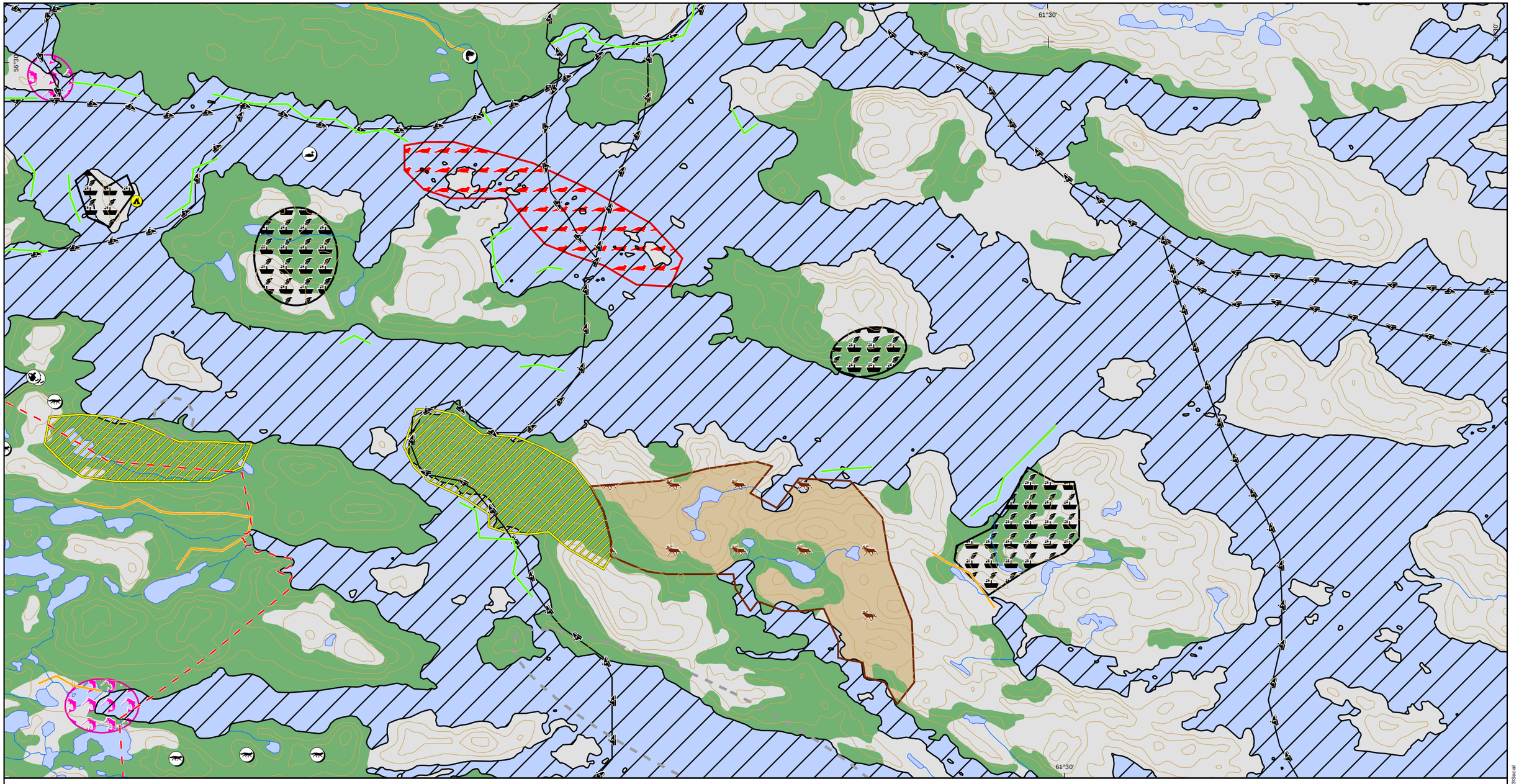

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- Ligne de piégeage / *Trap Line*

Activités printemps - été / *Spring - Summer Activities*

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- Pêche sur la glace / *Ice fishing*
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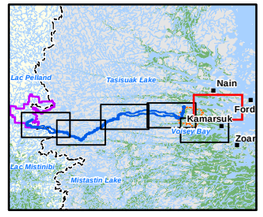

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0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

SOURCE:
Williamson 1997, Armitage 1989, Contemporary Innu Land Use and Occupancy, Innu Nation, Appendix 11.

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QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Inuit du Labrador /
Land Use and Occupancy - Labrador Inuit

Novembre 2013 / *November 2013* CARTE / *MAP* 7 - **Feuillet 6 / Sheet 6**

AECOM

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64°0'

Lac Brisson

Labrador

Québec

Napeu Kainiut Lake

64°0'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
- Pêche de l'omble chevalier / *Artic char fishing*
- Aire de cueillette de baies / *Berry Picking Area*
- Pêche de l'omble de fontaine / *Brook trout fishing*
- Chasse du caribou, de la perdrix et du porc-épic / *Caribou, Partridge and Porcupine hunting*
- Chasse du caribou / *Caribou hunting*
- Chasse à la sauvagine, aire de cueillette de baies / *Waterfowl hunting, berry picking*
- Chasse à la bernache du canada/ *Goose hunting*
- Pêche sur la glace / *Ice fishing*
- Ice fishing / Artic char / Brook trout
- Chasse à la sauvagine / *Waterfowl hunting*

- Piste de caribou (automne) / *Caribou trail (autumn)*
- Piste de caribou (printemps) / *Caribou trail (spring)*
- Trajet en motoneige et/ou en bateau / *Snowmobile and/or boat path*
- Camp / *Cabin*
- Tente / *Tent*

Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
- B-Zone minéralisée / *B-Zone Mineral Deposit*
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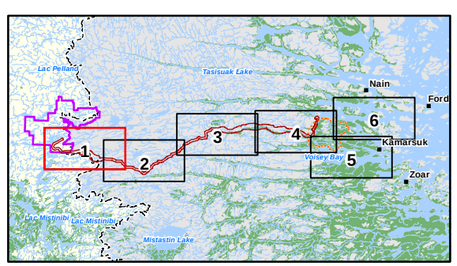

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0 1 2 3 km

Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013* CARTE / *MAP* 8 - **Feuillet 1 / Sheet 1**

AECOM

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63°30'

63°30'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
- Pêche de l'omble chevalier / *Artic char fishing*
- Aire de cueillette de baies / *Berry Picking Area*
- Pêche de l'omble de fontaine / *Brook trout fishing*
- Chasse du caribou, de la perdrix et du porc-épic / *Caribou, Partridge and Porcupine hunting*
- Chasse du caribou / *Caribou hunting*
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- Tente / *Tent*

Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
- B-Zone minéralisée / *B-Zone Mineral Deposit*
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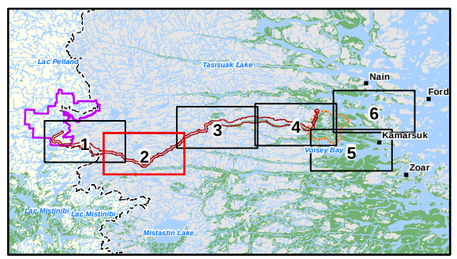

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013* CARTE / *MAP* 8 - **Feuillet 2 / Sheet 2**

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63°0'

Khongnekh Lake

Ikadlivik Brook

63°0'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
- Pêche de l'omble chevalier / *Artic char fishing*
- Aire de cueillette de baies / *Berry Picking Area*
- Pêche de l'omble de fontaine / *Brook trout fishing*
- Chasse du caribou, de la perdrix et du porc-épic / *Caribou, Partridge and Porcupine hunting*
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- Camp / *Cabin*
- Tente / *Tent*

Composantes du projet / *Project Components*

- Corridor potentiel de Quest / *Potential Quest Corridor*
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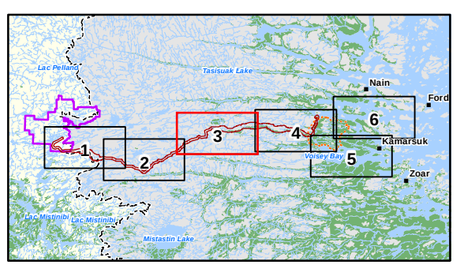

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013* CARTE / *MAP* 8 - **Feuillet 3 / Sheet 3**

AECOM

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62°30'

62°0'

Anaktalak Bay

Edward's Cove

Little Reid Brook

Reid Brook

Reid Pond

Reid Falls

Ikadlivik Brook

Camp Pond

Otter Pond

Headwater Pond

Trout Pond

Voisey Bay

62°30'

62°0'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
- Pêche de l'omble chevalier / *Artic char fishing*
- Aire de cueillette de baies / *Berry Picking Area*
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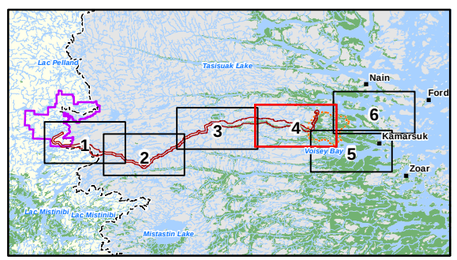

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013*

CARTE / *MAP* 8 - **Feuillet 4 / Sheet 4**

AECOM

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Camp Pond
Otter Pond
Headwater Pond
Voisey Bay
61°60'
61°30'
62°0'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
- Pêche de l'omble chevalier / *Artic char fishing*
- Aire de cueillette de baies / *Berry Picking Area*
- Pêche de l'omble de fontaine / *Brook trout fishing*
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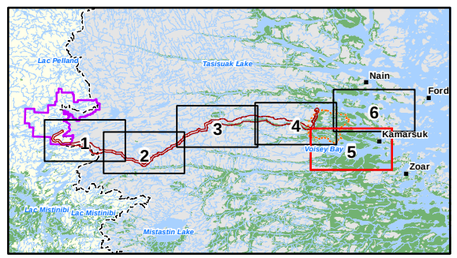

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013* CARTE / *MAP* 8 - **Feuillet 5 / Sheet 5**

AECOM

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61°30'

56°30'

Légende / *Legend*

- Potentiel ou site archéologique / *Archaeological potential or site*
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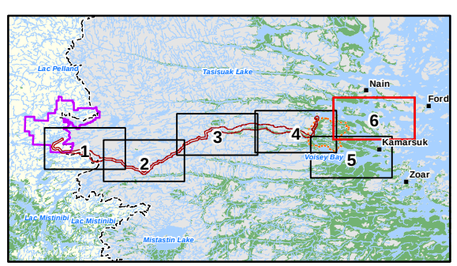

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Projection: Universal Transverse Mercator, zone 20
Datum : NAD83

QUEST RARE MINERALS LTD.

Strange Lake B-Zone and Road Corridor

Utilisation et occupation du territoire -
Nation des Innus du Labrador (1998-2013) /
Land Use and Occupancy - Labrador Innus (1998-2013)

Novembre 2013 / *November 2013* CARTE / *MAP* 8 - **Feuillet 6 / Sheet 6**

AECOM

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À propos d'**AECOM**

Société de services-conseils en infrastructure de renommée mondiale, AECOM exécute des services professionnels tout au long du cycle de vie des projets, de la consultation à la gestion de la construction, en passant par la planification, la conception, l'ingénierie et la gestion de programmes. Dans le cadre de projets dans des secteurs aussi variés que le transport, le bâtiment, l'eau, les nouvelles énergies et l'environnement, nos clients des secteurs public et privé nous font confiance pour résoudre leurs problèmes les plus complexes. Grâce à notre expertise technique et numérique inégalée, à une culture d'équité, de diversité et d'inclusion, et à un engagement en faveur de priorités environnementales, sociales et de gouvernance, nos équipes visent un même but : Offrir un monde meilleur. Les services professionnels d'AECOM, une entreprise du Fortune 500, ont enregistré des revenus de près de 14,4 milliards de dollars américains durant l'exercice financier 2023.

Découvrez de quelle manière nous transmettons un héritage durable aux générations à venir sur aecom.com et @AECOM.

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