

# **WILDLIFE PROTECTION PLAN**

## ***LUPIN WINTER ACCESS***

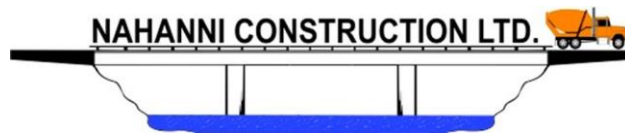
**Lac de Gras, NWT to Lupin Mine, NU**

**September 2019**



Prepared by:





## PLAIN LANGUAGE SUMMARY

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This Plan describes possible effects the Project may have on wildlife and their habitat and describes what Nahanni Construction Ltd (NCL) will do to minimize the effects from the Lupin Mine Winter Access Road. The road follows an existing alignment from Lac de Gras in the Northwest Territories (NT; Lac de Gras) to the Lupin Mine in Nunavut (NU; Lupin).

## REVISION HISTORY

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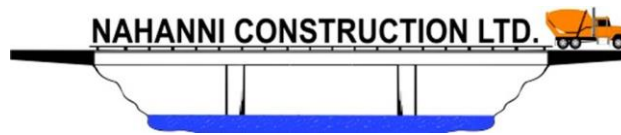
Revision #	Date	Section	Summary of Changes	Author	Approver
1	December 2018	-	New document	EDI Environmental Dynamics Inc.	K. Ruptash
2	September 2019	4.3.5, 5.0, 5.2, 5.2.3	Updates based on NIRB terms and conditions	EDI Environmental Dynamics Inc.	J. Buchko
		1.1, 3.0, 4.3.3	Revised to include use of temporary construction camps in NWT		



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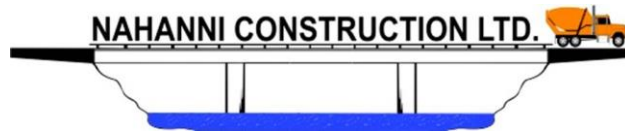
## 1. INTRODUCTION

Nahanni Construction Ltd. (NCL) wishes to construct and operate a portion of the Tibbitt to Contwoyto Winter Road (TCWR). The Lupin Mine Winter Access Project (the Project) involves the construction, operation and closure of a winter road occurring within the existing corridor of the Tibbitt to Contwoyto Winter Road (TCWR) from the Ekati Mine turnoff on Lac de Gras in the Northwest Territories (NT; Lac de Gras) to the Lupin Mine in Nunavut (NU; Lupin) (Figure 1). The access route will traverse 95 km in NT and 118 km in NU for a total of 213 km. This is a transboundary project. Once constructed the winter access road will be used to mobilize and demobilize equipment and supplies that may be used for ongoing reclamation of the Lupin Mine in the Kitikmeot Region of Nunavut (Program).

These activities have the potential to affect wildlife and wildlife habitat. This *Wildlife Protection Plan* (the Plan) identifies wildlife typically found in the area, describes effects that project activities may have, outlines actions NCL will take to mitigate effects to wildlife and wildlife habitat, and considers the guidance provided in Table 1.

Table 1. Relevant guidance documents including legislation, permits and licences.

Document	Authority
<i>Species at Risk Act</i> (2002)	Environment and Climate Change Canada
<i>Migratory Birds Convention Act</i> (1994)	Environment and Climate Change Canada
<i>Canada Wildlife Act</i> (1985)	Government of Canada
<i>Nunavut Wildlife Act</i> (2003)	Government of Nunavut
Draft Nunavut Land Use Plan (2016)	Nunavut Planning Commission
<i>NT Reindeer Act and Regulation</i> (2014)	Government of NT
<i>NT Wildlife Act</i> (2017)	Government of NT
Draft Bathurst Caribou Range Plan (2018a)	Department of Environment and Natural Resources, NWT
Environmental Guidelines for the Construction, Maintenance and Closure of Winter Roads in the Northwest Territories (1993)	Government of Northwest Territories
Screening Decision Report	Nunavut Impact Review Board
Approval Without a Licence	Nunavut Water Board
Land Use Permits	Crown-Indigenous Relations and Northern Affairs Canada Government of Northwest Territories
Spill Contingency Plan, Lupin Winter Access, Lac de Gras NWT to Lupin, NU (2019a)	Nahanni Construction Ltd.
Abandonment and Restoration Plan, Lupin Winter Access, Lac de Gras NWT to Lupin, NU (2019b)	Nahanni Construction Ltd.
Environment and Heritage Resources Protection Plan, Lupin Winter Access, Lac de Gras NWT to Lupin, NU (2019c)	Nahanni Construction Ltd.



## 1.1 SCOPE

This Plan applies to construction and operation activities associated with the Lupin Winter Access Project. The use of the winter road is expected to be seasonal for up to two (2) consecutive years, commencing in January 2019, however, as a contingency, use over a five (5) period is being sought in the event of unforeseen delays. Construction is expected to occur in December and January each year. Operations are expected to occur from January to April, depending on ice conditions. Closure will occur seasonally once ice conditions are such that ice travel is deemed unsafe. Typically, this will occur in April.

Construction of the winter road will follow best practices and standards for winter road construction. Depending on conditions and staging area availability, construction will start at Lupin with crews working southward. Alternatively, as available, crews may also start simultaneously at Lac de Gras and Lupin, working both northwards and southwards. Crews will be accommodated at the mine site throughout construction, operation and closure, or in a mobile construction camps in NWT. A mobile, temporary camp will be used to provide emergency shelter as needed.

Operation of the winter road will occur generally in accordance with the procedures already in place for the TCWR, along with those identified in the documents listed in Table 1. Access and use of the road will be limited to NCL staff and contractors.

Operational activities include:

- Transport of equipment and supplies required for mine reclamation activities;
- Maintenance of the winter road including removal of blowing snow and repairing potholes and rough areas.

Seasonal closure of the winter road will occur once conditions are deemed unsafe for operations which typically occurs in April to early May.

## 1.2 OBJECTIVES

NCL acknowledges that wildlife, including caribou, have the potential to occur within the Project area, and that the Project has the potential to affect wildlife and wildlife habitat. Accordingly, this Plan strives to prevent or minimize potential Project-related effects on caribou and other wildlife with the primary purpose of the Plan being to outline wildlife protection, avoidance and mitigation strategies.

The objectives of the Plan are to:

- Minimize any Project-related effects on wildlife and their habitat; and
- Minimize wildlife and Project personnel interactions.



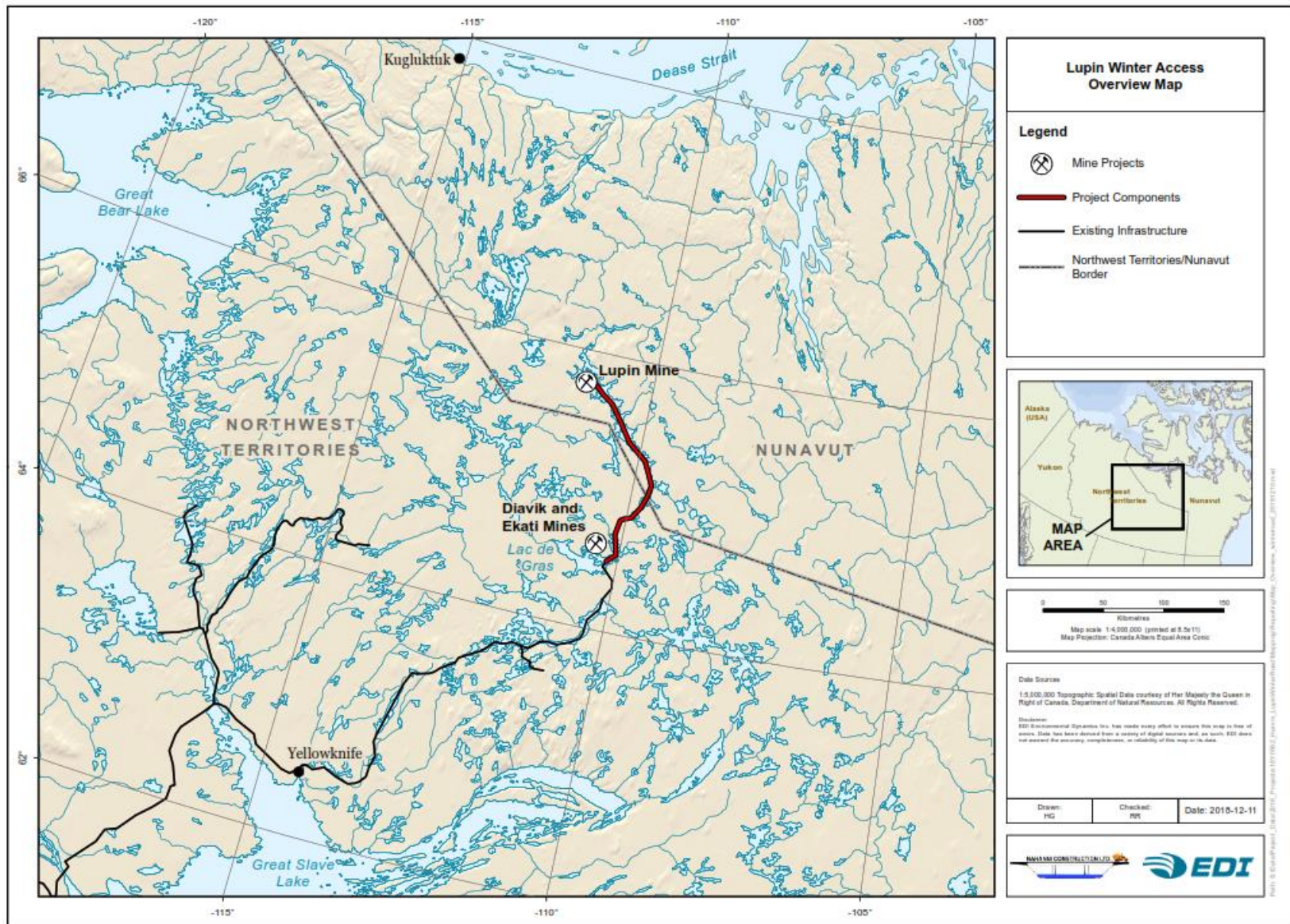


Figure 1. Lupin Mine Winter Access Project location.

### 1.3 SITE DESCRIPTION

The Project is located within the Southern Arctic Ecozone and the Takijug Lake Upland Ecoregion. Much of this region is composed of unvegetated rock outcrops and vegetative cover is characterized by shrub tundra, consisting of dwarf birch, willow, northern Labrador tea, *Dryas* spp. and *Vaccinium* spp. Organic Cryosols are the dominant soils in the lowlands and permafrost is deep and continuous. The proposed winter road is located north of the treeline.

Characteristic wildlife includes caribou, muskoxen, grizzly bear, wolverine, hare, arctic fox, and wolf. Small mammals (e.g., Arctic ground squirrel, voles, and lemmings) are distributed throughout the region and provide an important food source for predators. Many species of migratory birds are present in the area during the summer season, including waterfowl, upland birds, and shorebirds, while some bird species are present year round (e.g., ptarmigan, gyrfalcon, and common raven).

Notwithstanding the existing biodiversity in the region, the Project area **does not** contain any of the following:

- Important Bird Areas (IBA);
- Key Habitat Sites for migratory birds and species at risk;
- Wetlands of International Importance (RAMSAR);
- Migratory Bird or Wildlife Sanctuaries; or
- Heritage Rivers.

### 1.4 PLAN MANAGEMENT

This Plan considers wildlife species and their habitat that have the potential to occur within or adjacent to the Project area, and the related potential effects arising from Project-related activities. The Plan will be reviewed annually by the Project Manager and may be updated if:

- The Program scope changes to include new activities;
- Changes in conditions that could be biologically meaningful have been observed, such as caribou calving within the Project area;
- Results of ongoing stakeholder engagements indicate a Plan revision is necessary.

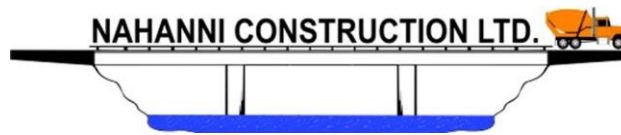
### 1.5 PLAN IMPLEMENTATION

This Plan is effective upon approval and is valid throughout all phases of the Project.

The Project Manager or designate is responsible for Plan implementation.

A copy of this Plan is maintained in NCL's office in Yellowknife.





## 2.0 ROLES AND RESPONSIBILITIES

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NCL is responsible for activities associated with the Lupin Mine Winter Access Project, including implementation and management of this Plan. Nahanni Construction Ltd.'s contact information is provided below.

### **Nahanni Construction Ltd.**

P.O. Box 2076

100 Nahanni Drive

Yellowknife, NT

X1A 2P6

Phone: 867-873-2975

Fax: 867-873-9620

## 2.1 STAFF, CONTRACTORS, SUPPLIERS AND VISITORS

All personnel conducting activities on site, including staff, contractors, suppliers and visitors, are required to implement this Plan as it pertains to their activities on site. Specifically, these responsibilities include:

- Completing site orientation including wildlife awareness training;
- Reporting all incidental wildlife observations to the Project Manager; and
- Responding appropriately to Security Patrol wildlife advisories.

## 2.2 MANAGERS AND SUPERVISORS

Managers and supervisors have a responsibility to ensure that staff, contractors, consultants and visitors have been trained in NCL wildlife mitigation expectations and procedures. Additional supervisor and manager responsibilities include:

- Conducting wildlife awareness training; and
- Ensuring that all personnel adhere to recommended mitigation measures.

## 2.3 PROJECT MANAGER

In addition to the duties outlined above, the Project Manager is responsible for:

- Responding to wildlife sightings and implementing recommended mitigation measures;
- Responding to wildlife interactions; and
- Managing wildlife documentation.

## 2.4 NCL SECURITY

NCL security patrol the road 24 hours per day. In addition to the above, they are responsible for:

- Notifying drivers of wildlife present on the road; and
- Advising drivers how to respond to wildlife situations at they arise, in accordance with this Plan.

### 3.0 POTENTIAL EFFECTS

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Project construction and operation activities could potentially have the following effects on wildlife and their habitat:

- Disturbance caused by road traffic;
- Mortality (road kills);
- Greater access for hunters, leading to increase in mortality; and
- Attraction of wildlife to food sources along the winter road or within the camps.

### 4.0 GENERAL MITIGATION MEASURES

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A variety of mitigation measures will be employed to avoid, control, or reduce potential Project-related effects on wildlife and their habitat. General measures are outlined below, while additional species-specific mitigation measures are presented in subsequent sections. The measures presented are designed to be practicable, effective and relative to the Program scope. The Plan incorporates best management practices and the latest available scientific information.

#### 4.1 COMPLIANCE

The first step in mitigating effects is compliance with relevant regulatory instruments, as outlined below.

##### 4.1.1 Federal and Territorial Legislation

Mitigation and management measures to reduce Project effects on wildlife are derived from federal and territorial legislation.

The *Migratory Birds Convention Act* (1994) prohibits killing or taking of migratory birds, their nests and eggs, and the deposition of harmful substances in areas frequented by migratory birds. The purpose of the *NWT Wildlife Act* (2017) and the *Nunavut Wildlife Act* (2003) is to establish a comprehensive program for the management of wildlife and their habitat including the conservation, protection and recovery of species at risk.

The *Species at Risk Act* (SARA 2002) was created to protect at risk wildlife on federal lands, as well as defining the critical habitat of listed species.

##### 4.1.1.2 Species at Risk Occurring Within the Project Area

The Grizzly Bear (*Ursus arctos*) is listed federally as a species of special concern since 2012. Human activities such as campsites and industrial development in the NWT may lead to bear-human conflicts and human-caused mortalities. Grizzly bears are becoming more common in areas of the NWT and Nunavut where they used to be rarely seen (Environment Canada 2014). However, it is likely that grizzly bears will be hibernating during the season that the road will be active.

Wolverine (*Gulo gulo*) is listed federally as a species of special concern since 2003. The potential threat to wolverine in the Territories is associated with human development or activities, disturbances to denning areas and human-caused mortalities due to conflicts (Environment Canada 2014).

Peregrine Falcon (*Falco peregrinus anatum/tundrius*) is federally listed as a species of special concern since 2007. Potential threats in the Territories include poaching of eggs for falconry, declining songbird or seabird prey populations, and susceptibility to organochlorine pesticide contamination (Environment Canada 2014); the Project poses none of these threats to Peregrine falcon. Peregrine falcons will likely not be present during the winter season construction and operation of the road.

Short-eared Owl (*Asio flammeus*) is listed federally as a species of special concern since 2008. The potential threat in the Territories is human disturbance during the nesting period, which often results in the nest being deserted. Nests are found on the ground in grasslands, tundra, bogs, marshes and other open non-forested habitats (Environment Canada 2014). Short-eared owl will likely not be present during the winter season construction and operation of the road.

## **4.2 GENERAL WILDLIFE**

### **4.3.1 Potential effects to specific wildlife species**

Grizzly bears are present within the vicinity of the winter road but should be hibernating in dens when the winter road is constructed and operational. Grizzly bears in this area generally enter dens that are excavated on a well drained slope and typically with a southern aspect in late October and occupy the den for as long as seven months (timing varies by sex and age) (Species at Risk Committee 2017). Potential effect of the winter road on grizzly bears include:

- Disturbance to bears in their dens caused by road traffic, noise and vibration.

Tundra wolves are present within the vicinity of the winter road and are active all winter. Tundra wolves follow the barren-ground caribou herds. Tundra wolf dens can be located on the tundra, in the tree line transition area and potentially in the boreal forest. These wolves do not burrow to create dens but use caves and rocks that provide shelter. The denning period for wolves usually begins in early May (after road closure). Potential effects of the winter road on wolves include:

- Disturbance caused by road traffic;
- Mortality (road kills);
- Greater access for hunters, leading to increase in mortality;
- Attraction of wolves to food sources along the winter road.

Wolverine are present within the vicinity of the winter road and are active all winter. Sites where wolverine dens have been found include ravines or drainages where snow accumulates, snow-covered rocky scree or boulder talus, taiga peat bogs with rocky areas. The key factor in wolverine denning habitat is an area with deep snow throughout the denning season. Wolverine denning period can be as early as February and can last till late May. There is a very low possibility that a wolverine would establish a den near the active winter road. Issues related to the potential effect of the winter road on wolverine include:

- Disturbance caused by winter road traffic and noise;
- Mortality (road kill); and
- Greater access for hunters, leading to potential overharvest.



Arctic fox den sites are typically located on the tops or sides of eskers, or the tops of banks of lakes or rivers where the soil is sandy, dry, and stable. Den sites are usually free of snow earlier than the surrounding landscape. Pairs often return to the same area and dens may be up to 300 years old and possess as many as 100 entrances. Arctic fox pairs start to seek den sites beginning in February and March. This corresponds to a period when the winter road will be operational. Foxes are usually established within their dens by early May after the winter road has closed for the season. Arctic fox can tolerate high levels of human disturbance. Issues related to the potential effect of the winter road on foxes include:

- Mortality (road kills); and
- Greater access for trappers.

The potential for the road to disturb any denning wildlife including grizzly bear is very low because the majority of the route is on lakes. There are eight (8) portage areas where there is the small possibility of a grizzly bear den site or arctic fox den or wolf den. If the route is within 300 m of an area with possible grizzly bear, fox or wolf denning habitat, a den survey should be completed prior to construction. The survey area should include 200 m off the centerline on each side of the road. If a den site is observed within the survey area, the proposed road should be rerouted around the den site to the greatest extent possible (as conditions permit). Any located potential grizzly bear den site should be verified to confirm if the den is active and all active den site should be monitored by NCL Security and/or the Project Manager when they are patrolling the route, to verify if the road traffic is disturbing the denning bear by recording any signs of bear activity (signs of bear leaving the den). Similarly, all located arctic fox dens should be monitored to ensure that the use of the road is not disturbing arctic fox pairs into abandoning the den site. The Government of Nunavut or Government of Northwest Territories Conservation Officer will be informed if there are signs that the road is disturbing the hibernating bear or other denning wildlife and other possible mitigation measures may be discussed.

All wildlife observations will be documented.

#### **4.3.2 Problem Wildlife**

Problematic wildlife situations may arise where an animal acts in an aggressive manner, is a repetitive nuisance, or poses a threat to worker safety. Early detection and reporting of wildlife interactions supports proactive rather than reactive measures to be taken to prevent injury or destruction of a problem animal. If problem wildlife or evidence of problem wildlife is observed:

- Immediately notify the Project Manager;
- Take action to deal with an attractant, where relevant; and
- If a persistent or emergent wildlife-related issue exists, Project Manager, or designate, shall inform the Government of Nunavut or Government of Northwest Territories Conservation Officer to determine suitable action to be taken.

#### **4.3.3 Waste Management**

Managing waste so as not to attract wildlife is a key mitigation measure. Typical waste management measures employed include:

- Garbage, including all food wastes, is kept within vehicles transiting the road;
- Food waste arising from use of the camps will remain indoors until it can be properly disposed;
- In the event of a spill response, wastes and materials are handled in accordance with the *Spill Contingency Plan* (NCL 2019a); and
- No garbage or food waste will be left along the road.

#### **4.3.4 Sensory Disturbance**

Project-related activities that create noise have the potential of creating sensory disturbances to wildlife. Sensory disturbance is minimized by managing noise emitted by vehicles and heavy equipment. Noise control measures include:

- Maintain all equipment and fit with appropriate mufflers.

#### **4.3.5 Awareness and Training**

The purpose of personnel training and awareness is to demonstrate that it is each person's responsibility to minimize Project effects on wildlife, including disruption and disturbance to wildlife, and ensure the safety of all personnel involved with the exploration Program. Nahanni will ensure that all project personnel are made aware of the measures to protect wildlife and will be provided with training and/or advice on how to implement the measures listed in this document.

As a part of the Site Orientation, all personnel, including staff and contractors, are engaged in a discussion on local wildlife resources including the following:

- Basic local wildlife ecology and possible Project-related effects on wildlife and wildlife habitat;
- Operating protocols such as incidental observation reporting;
- Awareness of known wildlife-sensitive areas such as breeding areas, den sites, nests and wildlife-sensitive periods;
- Project protocols associated with dealing with aggressive or unusual wildlife behaviour around work areas;
- Wildlife attractant management;
- Wildlife safety including bears and predators;
- Wildlife incidental/accident reporting and response procedures; and
- Compliance expectations and non-compliance disciplinary actions that may be enforced.

The following wildlife specific-training measures, awareness and responsibilities apply to avoid project effects to wildlife:

- Project personnel will not harass wildlife. This includes persistently circling, chasing, pursuing or in any other way harass wildlife, or disturbing large group of animals;
- Avoid any contact with wildlife including approaching and feeding wildlife;
- Where possible, try to stay out of sight of wildlife;



- All wildlife have the right-of-way on the winter road. Vehicles are required to slow down or stop and wait to permit the free and unrestricted movement of wildlife across the winter road at any location;
- NCL security will patrol the route 24 hours a day during construction and operation of the road and notify all drivers of wildlife observed so that drivers can stop on the portages and wait for wildlife to pass;
- NCL security will inform the drivers when it is safe to proceed;
- If caribou cows and calves, muskoxen groups or other wildlife aggregations are observed foraging or migrating within a work area as crews approach, where safety permits, avoid the work area until the animals have moved at least 200 m from the site;
- If caribou or muskoxen groups are observed within 200 m of the road and are approaching the road, NCL security will stop and inform all drivers of the sighting. Security will then wait until the animals have move across the road and moved beyond 200 m and then inform all drivers it is safe to proceed;
- Drivers will maintain at least 500 metres spacing when traveling in convoys to ensure drivers have time to react to any caribou on the winter road;
- If the vehicle driver can not stop at a portage site or can't find a safe spot to stop, they will reduce their speed and cautiously approach the area where the wildlife were observed (wildlife will be given the right of way);
- NCL security will be responsible of ensuring that all vehicles are driven at safe speed limits to ensure drivers have sufficient time to react in a safe manner if wildlife are encountered on the winter road;
- Project personnel and contractors are not permitted to hunt or fish while conducting business on behalf of NCL within the entire Project area unless proper authorizations has been acquired; and
- Record all wildlife sightings in the Wildlife Incidental Observation Log (Appendix A).



## 5.0 CARIBOU

The Project is located within the Bathurst caribou herd range (Figure 2). Individuals from the Bluenose-east and the Beverley herds may also wander into the Project area (Figure 3).



Figure 2. The Bathurst Caribou Range planning area and historical range extent as identified by traditional knowledge (Government of Northwest Territories 2018a).

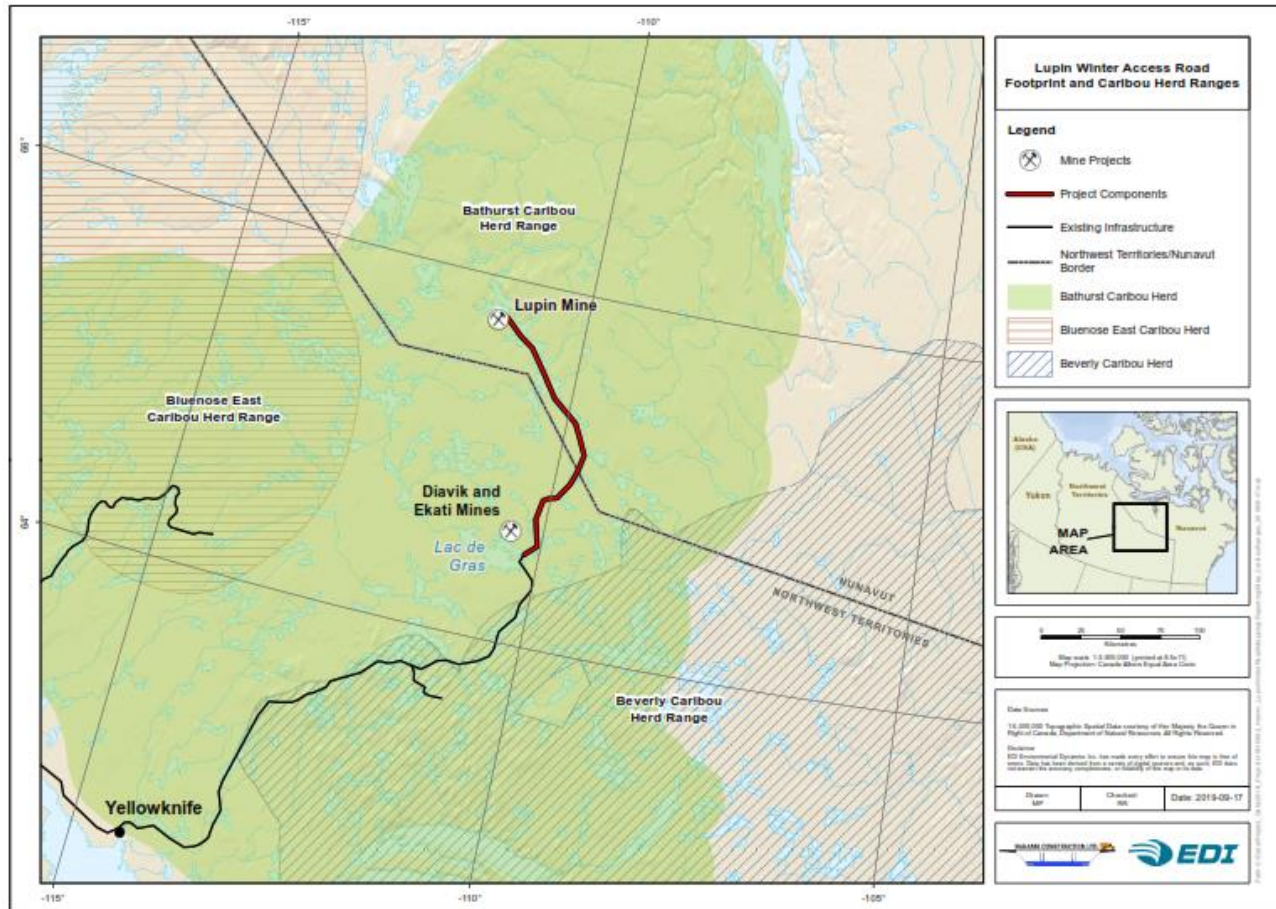


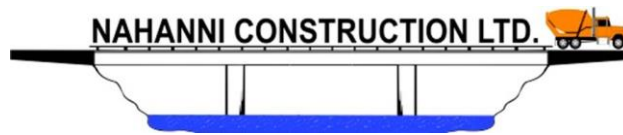
Figure 3. Ranges of the Bathurst, Bluenose-east and Beverly caribou herds relative to the Lupine Winter Access Road.

## 5.1 CARIBOU MANAGEMENT

In general, the purpose of caribou management and range plans is to provide guidance to manage this keystone species which plays a key ecological and cultural role in northern ecosystems. three caribou management or range plans are applicable to the caribou populations that may interact with the Project area. The potential relevance of these plans to this WPP are described below.

### Draft Bathurst Caribou Range Plan

The Northwest Territories Department of Environment and Natural Resources has drafted a Bathurst Caribou Range Plan (Range Plan) that aims to balance the diverse interests of all governments, communities and stakeholders across the range in Nunavut, Northwest Territories and northern Saskatchewan (Government of Northwest Territories 2018a). This range plan primarily has the goal of addressing issues related to cumulative land disturbance but is focused on managing disturbance to caribou and habitat to support recovery of the herd.



The Range Plan includes four specific management objectives:

1. Ensure the integrity of important habitats.
2. Ensure connectivity between seasonal ranges.
3. Ensure the amount of human-caused land disturbance is kept below certain levels.
4. Ensure the development, design and use of roads is managed with consideration to caribou.

The majority of the Project area is located within a lower use spring migration use area and by the time caribou start their migration towards calving and summer area, the winter road should be near closing. However, some sections of the winter road can be found within higher and mid-use utilization areas (Government of Northwest Territories 2018a). Accordingly, it is reasonable to expect to see Caribou any time of the year along the route.

#### **Cape Bathurst, Bluenose-west, and Bluenose-east Barren-ground Caribou Herds Management Plan**

In 2008, the Advisory Committee for Cooperation on Wildlife Management (ACCWM) was established. The ACCWM is made up of seven co-management boards and agencies with the priority to develop a plan for the Cape Bathurst, Bluenose-west and Bluenose-east caribou herds. The Cape Bathurst, Bluenose-west and Bluenose-east barren-ground herds management plan goals are to:

- Maintain herds within known natural range of variation;
- Conserve and manage caribou habitat; and
- Ensure that harvesting is respectful and sustainable (ACCWM 2014).

The following principles from the management plan are reflected in this WPP:

- Impacts to caribou herds and their habitat will be anticipated; and
- Adequate habitat (quantity and quality) is fundamental to the welfare of the herds (ACCWM 2014).

The WPP includes mitigation measures that align with these goals and principles, where appropriate.

#### **Beverly and Qamanirjuaq Caribou Management Plan 2013-2022**

The Beverly and Qamanirjuaq Caribou Management Board (BQCMB) manages these two caribou herds that migrate across Manitoba, Saskatchewan, the Northwest Territories and Nunavut. The BQCMB is made up of hunters, biologists and wildlife managers from Northern Canada. The mission of the BQCMB is to ensure the long-term conservation of the Beverly and Qamanirjuaq caribou herds. This management plan defines and outlines nine key goals:

1. To conserve the Beverly and Qamanirjuaq caribou herds in a cooperative manner;
2. To strengthen support for caribou conservation;
3. To increase knowledge of barren-ground caribou and the caribou-human system;
4. To monitor caribou population status over time;
5. To monitor the harvest of caribou;
6. To conserve the Beverly and Qamanirjuaq caribou herds within their natural range of abundance;
7. To ensure adequate amounts of high quality habitat;



8. To strive for the sustainable [wise] use of caribou; and
9. To influence commercial land use in a way that protects Beverly and Qamanirjuaq caribou and their habitats (BQCMB 2014).

The WPP includes mitigation measures that align with these goals, where appropriate.

## **5.2 POTENTIAL PROJECT INTERACTIONS**

Given the social and ecological importance of caribou to the economy and residents of the Territories, and the specific consideration afforded caribou, it is important to consider caribou-specific Project interactions and understand the relative risk posed by the Project to caribou.

The Bathurst barren-ground caribou herd range has traditionally spanned from southern and central Northwest Territories to the herd's calving grounds west of Bathurst Inlet in Nunavut. A decline in the population has been observed over the last 30 years and 2018 survey results indicate the population is now approximately 8,200 individuals (Government Northwest Territories 2018b). Since this herd migrates across territorial borders, it is managed collaboratively by the Government of the Northwest Territories, the Wek'èezhìi Renewable Resources Board and the Nunavut Wildlife Management Board. It is reasonable to expect to see caribou from this herd any time of the year along the route.

As illustrated in Figure 3, the Project Winter Road is beyond the delineated range for the Bluenose-east and the Beverly caribou herds, including known calving areas; however, it is possible for individuals to wander near the Project Winter Road while it is being constructed, in use or being deactivated.

Caribou and their associated habitats can be affected by various factors associated with construction, operational and closure activities, including removal of habitat, disturbance from vehicles and equipment, and possible camp activities. The Project may interact with caribou via:

- Indirect habitat loss
  - Avoidance or reduce use of areas near a disturbance;
  - Increased energy expenditure due to a response to sensory disturbance;
- Disruption of movement
  - Delayed crossing or avoidance of Project area;
- Mortality
  - Direct, through collision with vehicle;
  - Indirect, through increased hunter knowledge of caribou in the area that may arise through informal and social communications.

Currently, the use of the Winter Road does not overlap with migration movements, thus Project effects to caribou movement are likely minimal. The use of the winter road may disrupt caribou movement patterns; however, the potential is low as the Project construction and operational schedule does not overlap with any migratory movement except project closure may overlap with the start of the spring migration. Because of the limited use by caribou within the winter season within the Project area, the risk

of caribou mortality due to vehicle collisions is considered low, as is indirect mortality associated with an increase access for hunters to the Project area.

There is no likely Project interaction with caribou during calving or post-calving periods since the Project area is located outside of these sensitive areas. There is the potential for caribou to wander into the Project area during the early spring season since the area is located within caribou migration range. There is also the possibility of caribou from other herds to wander into the Project area. Mitigation and management measures apply to all caribou.

### **5.3 MITIGATION AND MANAGEMENT MEASURES FOR CARIBOU**

In addition to the general wildlife mitigation measures presented in Section 4.3.4 and Section 4.3.5 the following caribou-specific mitigations measures have been considered for the Lupin Mine Winter Access Project:

- Minimize sensory disturbance;
- Where possible, during road maintenance, graders will use a wing to support development of snowbanks that have a low angle of repose, reducing snow bank height;
- If caribou are observed within 300 m of the road, graders will reduce their speed and limit the distance that snow is thrown towards the caribou;
- For areas where snowbanks are taller than a meter, breaks should be created every 500 m so the snowbank does not act as a barrier to caribou movement; and
- To protect caribou, the winter access road will have caribou advisory signs to ensure caribou and other wildlife are given the right of way.

#### **5.2.2 Sensory Disturbance**

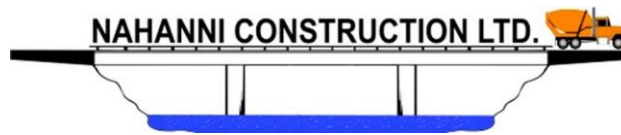
The construction, use and maintenance, and closure of the winter access road could possibly cause caribou to alter their behavior and movements. This effect will be mitigated by:

- Avoiding direct movement of equipment and people toward caribou;
- Giving caribou and all wildlife the right of way;
- Stop vehicles where it is safe to do so and allow caribou and all wildlife to cross the road if they are seen within 200m of the road and moving towards to the road;
- In the presence of caribou, remain in the vehicle, as caribou may perceive you as a predator if you leave the vehicle; and
- Should they be used, all-terrain vehicles and snow machines should neither stop within sight of a caribou nor approach a caribou.

#### **5.2.3 Caribou and Muskox Migration**

The construction, use and maintenance, and closure of the winter access road could possibly cause caribou and muskox to alter their movements. This effect will be mitigated by:

- Stopping all activities likely to interfere with caribou or muskox migration until the caribou or muskox have passed;
- Not interfering with any paths or crossings known to be frequented by caribou during periods of migration; and



- Suspending all Project activities when pregnant caribou cows, cows with young calves, or groups of 50 or more caribou are observed within one (1) kilometre of Project operations until the observed caribou are no longer in the immediate area.

## **5.4 MONITORING**

The initial step in monitoring and mitigation for caribou is to determine, using all available information, when caribou may interact with the Project. Ongoing observation by Project personnel will support monitoring for any observed change in distribution of caribou.

Incidental observations by drivers may trigger immediate mitigation measures, such as avoiding caribou. Relevant incidental observations may also trigger measures and active monitoring.

## **6.0 REPORTING AND DOCUMENTATION**

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All wildlife sightings are documented, as are interactions, observed sensitive habitat occurrences including denning sites, and implementation of traffic control measures. The Project Manager maintains these records in the NCL office and makes them available to a Land Use Inspector upon request.



## 7.0 REFERENCES

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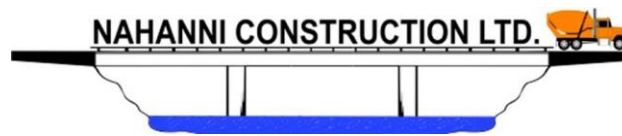
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## APPENDIX A: WILDLIFE SIGHTING FORM

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Your name	Date	Location Description	Coordinates (NAD 83)		Type of Animal	# of Animals	Comments (behavior, response, etc.)
			Northing	Easting			