



# ENVIRONMENTAL AND WILDLIFE MANAGEMENT PLAN

Coppermine River Property, NU

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Effective Date: March 2026

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# 1 Introduction

This Environmental Management Plan (“EMP”) has been developed on behalf of Tundra Copper Corp. (“Tundra” or the “Company”) in accordance with applicable legislation, guidelines, and best practices which applies to activities associated with the Coppermine River Property (the “Property” or the “Project”), Nunavut, Canada.

The EMP will come into effect in September 2025, pending approval from all relevant regulatory bodies and will be replaced if there are any significant changes to the activities outlined in the existing permits.

Along with this EMP, an Emergency Response Plan (“ERP”), Abandonment and Restoration Plan (“ARP”), Spill Contingency and Fuel Management Plan (“SCFMP”), and Waste Management Plan (“WMP”) will be created for the Property as part of a property-wide management system.

## 1.1 Project Description

The Coppermine River Property (the “Property” or the “Project”) consists of 125 contiguous mineral claims covering approximately 169,515 hectares (~1695km<sup>2</sup>) located on National Topographic System (“NTS”) map sheet 086O12, 086O13, 086O14, 086N08, 086N10, 086N16, 086N09, 086N15 and 086O11 and centered at 545000 mE, 7510000 mN North American Datum 1983 (“NAD83”) Universal Transverse Mercator (“UTM”) Zone 11N and one non-contiguous mineral claim (“MAC”), located south of the main claim block, on NTS map sheet 086N08 and centered at 523980 mE, 7480630 mN NAD83 UTM Zone11N.

Tundra Copper Corp. (“Tundra” or the “Company”) staked the mineral claims comprising the Property between 2013 and 2015. The Property is situated on Crown Lands, the nearest corner of which is located approximately 7 km southwest of the Hamlet of Kugluktuk, NU. Exploration activities at the Property to date include drill pad building, diamond drilling, and prospecting/mapping. No exploration activities are planned to take place on Inuit-owned lands.

The mineral claims comprising the Coppermine River Property were staked between 2013 and 2015, well in advance of the Draft Nunavut Land Use Plan (2023). Under the provisions of the Nunavut Planning and Project Assessment Act and the Draft NLUP, these claims are recognized as existing, grandfathered rights and are listed in Appendix A of the Plan. This status ensures that exploration activities associated with these claims may continue, even where new land use designations such as Limited Use or Special Management areas are introduced. Within the footprint of these rights, associated exploration infrastructure (e.g., temporary camps, access routes, fuel caches, drill pads) is also permitted. While any transition to advanced exploration or mine development would require a new conformity review, the underlying mineral tenure and exploration rights remain valid and protected.

Tundra is proposing a 2026/27 exploration program for the Property that is anticipated to run for 244 days beginning in March 2026 and ending in October (weather permitting). Similar field programs, including the same types of exploration activities, are expected to take place annually between March and October in subsequent years. Specific dates will be relayed to the CIRNAC

engineer and any other necessary regulatory agencies. The proposed exploration program will include general exploration activities such as prospecting, geological mapping, geochemical sampling (rock, soil, till), drone photogrammetry, airborne or ground geophysics (IP, AMT), downhole geophysics, core drilling from up to 4 diamond drills, and RC drilling from up to 2 RC drill rigs. Drillhole depth is expected to average <400m with the total annual program expected to be less than approximately 25,000m. Drillhole locations are still to be determined, but locations will be submitted to the Nunavut Water Board (“NWB”) and Crown-Indigenous Relations and Northern Affairs Canada (“CIRNAC”) for approval prior to any ground disturbance. All planned drillhole pads will be inspected for the presence of archaeologically significant artifacts prior to commencement of drilling.

The 2026/27 program will include the establishment of a seasonal 50-person camp at 526027 mE, 7478945 mN (the Hope Lake airstrip), including a storage facility and a fuel cache. Structures for the proposed camp will include 50 small individual (Arctic Oven) sleeper tents, or 16 canvas sleeper tents or similar, 4 kitchen tents/dry tents (with showers), 1 office tent, 6 core logging tents, a generator shack, a storage facility, a fuel cache, an incinerator, and outhouses/pacto system. Most of the structures will be Arctic Oven sleeper tents or canvas prospector tents, or similar, often with plywood floors.

Three to five camp construction personnel will be on site for approximately 17 days (10 days for set up and 7 days for take down). Staff on site for the duration of the work program will consist of up to 8 to 12 geologists, 4 to 6 helicopter-company personnel, 1 to 2 cooks, 1 or 2 camp managers, and 26 to 28 drill-company personnel. Total amount of time spent on site will amount up to approximately 12,200 man-days per calendar year. This man-day estimate assumes full occupancy of the camp for 50 personnel for the entire 244 days of the planned exploration season.

All waste, including organic and inorganic materials, will either be incinerated on-site in accordance with regulatory guidelines or transported to Kugluktuk, NU, or Yellowknife, NWT for proper disposal. Water is currently available on site; however, a water pump may be moved to a stream-fed lake 700m from camp to form the balance of water required for the expanded camp.

The proposed work will be helicopter-supported and require the occasional landing of the aircraft. To mitigate any potential impact on wildlife, the helicopter will always maintain a minimum altitude of 610 m (2,100 ft) above ground level except during landing, take-off or if there is a specific requirement for low level flying (e.g. airborne surveys, drill rig moves, camp assembly). Wildlife will be avoided, and the helicopter will not land in the presence of wildlife except in an emergency.

When their use is completed, empty fuel drums will be returned to Kugluktuk, NU, or Yellowknife, NWT for disposal.

The Nunavut Planning Commission (“NPC”) previously reviewed works associated with the Property and issued conformity determinations (April 1, 2015; September 16, 2016; May 6, 2021; and April 17, 2024), confirming that the Project is located outside the area of an applicable regional land use plan. The associated NPC File Nos are: 148333, 149531, 150294, and 150439. In addition, associated activities at the Property were previously screened by the Nunavut Impact Review Board (“NIRB”) (NIRB File No. 15EN009). Activities at the Property are currently authorized by CIRNAC Class A Land Use Permit (“LUP”) N2024C017 and NWB Water License (Type B) 2BE-

COP2429. The current approved water usage authorized under the Water License (Type B) 2BE-COP2429 is 21m<sup>3</sup>/day - 18 m<sup>3</sup>/day for drills and 3 m<sup>3</sup>/day for camp use. Tundra will apply to amend the existing NWB Water License (Type B) to allow for 299 m<sup>3</sup>/day for camp and drilling use and will apply for an amendment of the existing CIRNAC Class A LUP for the proposed program.

Absolutely no activities will be conducted that will interfere with caribou cows and calves, and no exploration activities will cause a diversion in the migration patterns of any caribou. Tundra will communicate with all interested parties regarding caribou sightings and appraised movements in the area.

Notifications will be sent to the Hamlet and the Hunters and Trappers Organization, and in the event that further consultation is required, Tundra will ensure that best efforts are made to engage with the community and organizations as advised by regulatory agencies.

## **1.2 Tundra's Environmental Statement**

Tundra's environmental statement is aimed at fully complying with existing laws and regulations to safeguard the environment. We plan to actively collaborate with other groups dedicated to environmental preservation and ensure that our employees, contractors, government entities, and the public are well-informed about our environmental protection procedures. The following are some objectives at the Property:

1. Develop the project in a socially and environmentally responsible manner.
2. Ensure full compliance with all relevant environmental legislation and regulations.
3. Collaborate with federal, territorial, and local governments, along with other pertinent regulatory bodies and the public, to address environmental concerns and policies.
4. Identify and mitigate potential environmental impacts while minimizing risks to the health and safety of all personnel and the public.
5. Implement an emergency response plan to mitigate the effects of unexpected incidents.
6. Offer continuous training on the Property's environmental policies, spill prevention, and response plans to all employees and contractors.
7. Enforce adherence to Property's environmental policies and procedures by contractors.
8. Maintain transparency by keeping employees, contractors, inspectors, government agencies, and regulatory bodies informed of any site changes or project activities.
9. Establish clear responsibilities and reporting protocols for spill incidents with the use of the Coppermine River Property SCFMP.
10. Offer site-specific details about facility infrastructure and emergency procedures.
11. Ensure easy access to emergency information for cleanup teams, management, and governmental bodies.
12. Encourage the safe management and utilization of potentially dangerous substances.
13. Encourage efficient and secure recovery of spilled hazardous materials.
14. Minimize environmental harm caused by spills on both water and land.
15. Adhere to federal and territorial regulations and guidelines concerning the development of a Spill Prevention and Response Plan, as well as notification obligations in the event of a spill.
16. Address the environmental requirements for diamond drilling.

## 2 Designated Environmental and Socio-Economic Areas

The Property does not fall within any federally or territorially designated Protected Areas according to Environment and Climate Change Canada's definitions. The nearest National Park, Tukturnogait National Park, is situated approximately 200 km northwest of the Property in the Northwest Territories. No wildlife/game or migratory bird sanctuaries are within proximity of the Property.

According to the Draft Nunavut Land Use Plan, sections of the Property are situated within areas identified as Community Identified Priority Locations for Community Use, areas with Community Drinking Water Supply Within Municipal Boundaries and Water Supply Outside Municipality, areas with Canadian Heritage Rivers (Coppermine Rivers), Caribou Calving Areas, Caribou Post-Calving Areas, Caribou Migration Corridors, Caribou Rutting Areas, and Caribou Summer and Late Summer Areas

## 3 Environmental Protection Measures

Exploration activities conducted at the Property will undergo rigorous assessment to identify and mitigate environmental impact risks. We are committed to safeguarding and preserving the natural environment, employing every available measure for its protection. Throughout the program's duration, meticulous documentation and photographic records of all activities will be maintained to adhere to environmental due diligence standards.

All on-site personnel, including employees and contractors, will receive comprehensive environmental training to ensure compliance with relevant regulations. The Project Supervisor will oversee the implementation of environmental policies, training initiatives, and the management of the environmental monitoring program.

### 3.1 Archaeological or Paleontological Sites

To safeguard archaeological and palaeontological sites and artifacts, the following measures will be implemented:

1. All staff, contractors, and visitors are prohibited from driving vehicles over known or suspected archaeological or palaeontological sites.
2. Disturbance or removal of archaeological artifacts, sites, fossils, or palaeontological sites is prohibited by company personnel or visitors.
3. Immediate notification to the **Nunavut Department of Culture and Heritage ("CH") at (867) 934-2046 or (867) 975-5500** is required if any such site or specimen is encountered or disturbed. A detailed report, including GPS coordinates, descriptions, and photos (if available), will be submitted to CH and CIRNAC.
4. Activities that may disturb archaeological or palaeontological sites must cease immediately upon their discovery, pending authorization from CH.
5. Restoration of disturbed sites will be carried out according to the directives of CH and CIRNAC.
6. Full cooperation will be provided to CH regarding the documentation and management of all encountered archaeological and palaeontological sites and artifacts.

7. Field personnel involved in geochemical sampling, geological mapping, prospecting, ground geophysical surveys, and drilling will be equipped with maps identifying known sites.
8. Prior to any ground-disturbing work, thorough surveys will be conducted to identify archaeological or palaeontological sites.
9. Construction of inuksuk structures is strictly prohibited.
10. Tundra will ensure that all individuals under its authority are aware of and comply with these regulations concerning archaeological and palaeontological sites and artifacts.

CONTACT	CONTACT NUMBERS
Nunavut Department of Culture and Heritage	867-975-5500
Jeremy Fraser   CIRNAC Field Operations Manager	Telephone: 867-975-4553 Alternate Telephone: 867-975-2761 Fax: 867-979-6445 Email: jeremy.fraser@rcaanc-cirnac.gc.ca

### 3.2 Air and Noise Quality

Exploration programs in northern regions are typically small-scale and conducted seasonally, primarily due to weather constraints. Given the brief duration of these programs, their low-impact nature, and the remote setting of the property, significant impacts on air and noise quality are not expected.

Potential impacts on air and noise quality resulting from activities at the Property for the program are from usage of helicopters, emissions from generators, emissions from incineration, drilling operations, and diesel generators. If caribou and/or muskoxen are spotted within the survey area, geophysical survey flights and drilling operations must be postponed until they are at least five (5) kilometers away. Helicopters must maintain a minimum altitude of 610 meters when wildlife is observed. Additionally, they are instructed to steer clear of caribou calving grounds while traveling to or from the project area. More detailed wildlife mitigation measures are outlined in chapter 4 of this plan.

### 3.3 Vegetation and Soil Disturbance Mitigation

The Property is primarily covered with moss, lichens, stunted plants, and Arctic grasses, with grasses typically observed in lower elevations near river drainage basins. Camp activities and drilling activities have the potential to impact vegetation and permafrost. To mitigate these effects, measures such as limiting vegetation disruption, marking footpaths, and elevating heated camp structures to prevent permafrost thaw are implemented. Sumps are constructed in areas devoid of vegetation, with topsoil collected for re-vegetation efforts and sumps barricaded until backfilled.

The Property is situated within continuous permafrost terrain, which presents specific challenges for sump construction, performance, and monitoring. Active layer depth, seasonal thaw progression, and freeze-thaw cycles can affect the infiltration capacity, structural integrity, and drainage behaviour of excavated sumps used for greywater and drill cuttings management. The following sump monitoring procedures will be implemented throughout the operating season:

1. Sumps will be visually inspected daily during active use, with observations recorded in the site inspection log. Inspections will assess fluid levels and freeboard, condition of sump walls and berms, evidence of seepage or overtopping, and the presence of hydrocarbon sheen or discoloration.
2. Active layer thaw depth in the area surrounding each sump will be monitored periodically (minimum weekly) during the thaw season using a graduated probe. Observations will be recorded to track thaw progression and assess whether changes in active layer depth are affecting sump drainage or infiltration capacity.
3. The surrounding ground surface within a 5-metre radius of each sump will be inspected for signs of ground settlement, thermokarst development, or surface water ponding that may indicate subsurface thaw or drainage changes resulting from the sump's thermal influence.
4. Where monitoring identifies reduced infiltration capacity, persistent pooling, or risk of overtopping, the following response actions will be implemented as warranted: redirecting inflow to an alternate sump or suitable natural depression at least 31 metres from the high-water mark; reducing loading to the affected sump by throttling back water discharge rates; constructing additional sump capacity at a new location selected to avoid vegetated areas and maintain required setbacks; and increasing inspection frequency to daily until conditions stabilize.
5. GPS coordinates and dimensions of all sumps will be documented at the time of construction and upon closure. Sump closure locations will be recorded for inclusion in post-closure monitoring conducted under the Abandonment and Restoration Plan to verify that backfilled sumps are not exhibiting settlement, ponding, or permafrost degradation effects in subsequent seasons.

Soil quality may be affected by fuel spills and waste discharge, necessitating preventative measures like proper storage, ensuring all fuel, hazardous materials, and drilling are a minimum of 31 meters away from any watercourses, and careful refueling procedures. Regular inspection of equipment and placement of absorbent materials in fuel transfer areas are also employed. For detailed protocols, refer to the Tundra Copper Coppermine River Property Spill Contingency and Fuel Management Plan (SCFMP).

### **3.4 Groundwater Impacts and Mitigation**

Drilling may affect groundwater quantity and quality through flow disruption, contamination, and increased solids or metals. Tundra is committed to protecting water resources and will implement environmental policies to mitigate these impacts.

- Drilling fluids will be directed into a designated sump or suitable natural depression (or other containment) at least 31 meters from the high-water mark, ensuring no direct flow into water bodies or additional impacts.
- If artesian water flow is detected, the hole will be promptly plugged and cemented in bedrock to prevent further flow.
- Tundra will ensure that water sources can sustain drilling operations without affecting lake levels or flow.
- Drilling will use recirculation and filtration systems to minimize water and additive loss, with non-toxic, biodegradable fluids used whenever possible.

- Fuel and hazardous materials at drill sites and remote caches will be stored in secondary containment, such as "Arctic Insta-Berms," with hydrocarbon filtration systems like "RainDrain" to manage water safely.
- Hazardous materials will be handled at least 31 meters from water bodies, with spill kits and firefighting equipment placed strategically at drill sites, fuel caches, and in helicopters.
- Containers will be inspected before and after transfer and regularly during storage.

## **4 Potential Impacts to Wildlife and Mitigation Measures**

While all interaction with wildlife is discouraged, employees and contractors will receive training on appropriate actions to take when encountering wildlife in the field. Intentionally approaching, disturbing, or feeding wildlife is strictly prohibited, with any incidents thoroughly investigated and disciplined. Efforts will be made to respect all wildlife and their habitats, with personnel required to record any sightings and follow appropriate protocols.

Any wildlife sightings will be documented in the "Wildlife Record Log" and reported to relevant authorities as part of the Annual Reports. If wildlife enters the operational area, protective measures will be implemented, and operations halted until the animal has moved away. Bears or nuisance wildlife will be reported immediately to project supervisors and relevant authorities.

Exploration activities at the property, including geochemical sampling, geological mapping, and ground surveys, are generally low impact. Drilling activities may generate noise that could disturb passing wildlife; however, drill pads will be strategically placed away from nests or dwellings to minimize impact. Habitat disturbance from exploration is temporary, resulting from activities and infrastructure. Progressive reclamation will be implemented, ensuring areas are restored before program completion. Additionally, there is a potential risk of fuel or oil spills at the camp or drill sites, which will be managed through proper spill prevention and response measures. Measures outlined in SCFMP will be strictly followed to mitigate the risk of fuel or oil spills.

Aircraft support, including helicopter operations, is necessary for daily activities such as including pick up/drop off of field personnel and drill rig and fuel moves. Steps will be taken to minimize potential impacts such as fuel spills and noise disturbances. Helicopters will maintain a minimum altitude of 610 meters when wildlife is observed. Additionally, they are instructed to steer clear of caribou calving grounds while traveling to or from the project area. Low-altitude flights will be avoided near wildlife, nests, and dwellings, with pilots instructed not to land unless in an emergency. Any landings in the presence of wildlife will be documented and reported in the Annual Reports.

To reduce the risk of fish entrapment, appropriate screens will be installed over all water intake at the camp and at the drill.

### **4.1 Species at Risk**

According to the "Species at Risk in Nunavut 2021" document, here are some of the wildlife that will be looked out for at the Property:

#### *4.1.1 Caribou*

The Species at Risk (SAR) at the Property includes:

- Barren-ground Caribou – Napaaqtuqangituqmiut Tutungit
- Dolphin and Union Caribou - Qikitaqmiut Tutungit Tulvin Ammalu Junian
- Peary Caribou – Qutiktuup Tutungit

These mitigation measures follow the Draft Nunavut Land Use Plan (2023) for the Kitikmeot region and will be updated in Tundra’s EWMP should guidelines change. Tundra has also reviewed the Kivalliq Inuit Association’s Mobile Caribou Conservation Measures: 2022 update, which outlines seasonal timing windows, buffer radii, and thresholds used to trigger activity suspensions. While these measures were developed for Inuit-owned lands, similar proactive triggers will be applied to Crown lands within the Property.

The following describes how Table 2 thresholds will be operationalized on Crown lands within the Property. The full KIA Mobile Caribou Conservation Measures: 2022 Update is included as Appendix 2 of this Plan.

### Kivalliq Inuit Association’s Mobile Caribou Conservation Measures (Table 2)

Table 2. Seasons, zone sizes and thresholds of caribou numbers counted in the Early Warning Zone (EWZ) and Zone of Influence (ZOI) to trigger corresponding mitigation actions (from Schedule B<sup>10</sup>, KivA land access license applicable to IOL) Analysis of movement rates and local input are needed to refine the dates and number of seasons for other regions.

Season	Timing	Suggested zone radii (km)		Threshold number of collars/adult caribou		Summarized mitigation actions if thresholds passed in the ZOI
		EWZ <sup>2</sup>	ZOI	EWZ	ZOI <sup>5</sup>	
<b>Within designated calving grounds</b>						
Calving / Post-calving	1 May – 31 Jul	N/A	N/A	N/A	N/A	Closed
Summer	1 Aug – 30 Sep	30	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
Fall/winter	1 Oct – 15 Apr	30	2.5	1/50	50	immediately reduce above-ground activities that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes).
Spring migration (pre-calving)	16 Apr – 30 Apr	50	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
<b>Other seasonal ranges (outside of designated calving grounds)</b>						
Calving / Post-calving	1 Jun – 15 Jul	50	5	1/10	10	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
Summer	16 Jul – 30 Sep	30	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes) and camp closure.
Fall/winter	1 Oct – 15 Apr	30	2.5	1/50	50	immediately reduce above-ground activities that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes).
Spring migration (pre-calving)	16 Apr – 31 May	50	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.

<sup>1</sup> Dates provided for the Qamanirjuaq herd from Caslys (2016). The actual dates will differ among herds.

<sup>2</sup> The Early Warning Zone radius begins at the outer extent of the 5 km radius Zone of Influence.

<sup>3</sup> Proposed numbers based on differences in relative risk among seasons. Caribou thresholds (generally collared individuals or incidental sightings) within the Early Warning Zone would justify notice to the exploration manager and the land use inspector of a potential suspension of flights and operations should caribou enter the Zone of Influence, and would trigger monitoring surveys within the Zone of Influence (generally ground observations or incidental aerial observations).

<sup>4</sup> xx/yy represent thresholds of number of collared/observed caribou within the Early Warning Zone. The lower value of the collars or caribou will trigger a response. Thresholds triggered within the Early Warning Zone trigger increased monitoring.

<sup>5</sup> yy represent thresholds of number of observed caribou within the Zone of Influence to trigger main sets of mitigation responses.

**Monitoring Responsibility and Frequency:** The Project Supervisor will be responsible for coordinating all caribou monitoring activities. During the Spring Migration/Pre-calving period (March 1 – May 31), Calving period (June 1 – June 30), and Post-calving period (July 1 – July 31), field crews will conduct height-of-land visual surveys from elevated terrain every second day to detect caribou approaching the Early Warning Zone (EWZ). During the Summer period (August 1 – October 31), monitoring frequency may be reduced to twice weekly unless caribou activity in the region indicates otherwise. The Project Supervisor will also review available collar data from the Government of Nunavut, the Kugluktuk Hunters and Trappers Organization (HTO), and any other sources to supplement visual monitoring.

**Early Warning Zone (EWZ) – Increased Monitoring:** When the number of collared caribou or observed caribou within the EWZ meets or exceeds the seasonal threshold specified in Table 2, the Project Supervisor will: increase monitoring frequency to every second day (if not already at that frequency); deploy additional height-of-land surveys or remote camera stations to track movement direction; issue an alert to all field crews, drill operators, and helicopter pilots; and notify the Kitikmeot Inuit Association and the Kugluktuk HTO of caribou presence and Tundra’s monitoring status.

**Buffer Zone – Operational Restrictions:** When caribou numbers within the Buffer Zone meet or exceed the seasonal threshold specified in Table 2, the Project Supervisor will: increase monitoring to daily; reduce non-essential vehicle and ground movements; restrict helicopter flights to essential operations only, maintaining  $\geq 610$  m AGL; and notify the Kitikmeot Inuit Association, the Kugluktuk HTO, and relevant regulatory authorities that operational restrictions are in effect.

**Zone of Influence (ZOI) – Activity Suspension:** When caribou numbers within the ZOI meet or exceed the seasonal threshold specified in Table 2, the Project Supervisor will immediately: suspend all drilling operations, blasting activities, and geophysical survey operations; suspend all non-essential ground movements and aircraft traffic below 300 m AGL (except as necessary for emergency purposes); initiate camp closure procedures and removal of non-essential personnel where warranted by the scale and proximity of caribou presence; and notify the Kitikmeot Inuit Association, the Kugluktuk HTO, CIRNAC, and the Government of Nunavut Department of Environment that activities have been suspended.

**Resumption of Operations:** Suspended activities may resume only when caribou numbers within the applicable zone have fallen below the seasonal threshold for a minimum of 24 consecutive hours, as confirmed by visual monitoring or collar data review. The Project Supervisor will document the date, time, and caribou count at the time of resumption in the Wildlife Record Log. A notification will be provided to the Kitikmeot Inuit Association and the Kugluktuk HTO confirming that operations have resumed.

**Documentation and Reporting:** All caribou observations, monitoring results, threshold exceedances, operational restrictions, activity suspensions, and resumptions will be recorded in the Wildlife Record Log with date, time, GPS coordinates, estimated caribou count, and a description of the response actions taken. These records will be compiled and reported in the Annual Reports submitted to CIRNAC, the NWB, and other regulatory authorities, and will be made available to the Kitikmeot Inuit Association upon request.

For consistency, the EWMP will reference the original KIA measures rather than restating them in summary tables. Where timing discrepancies exist (e.g., June 30 vs. July 31 post-calving closure), Tundra will apply the earlier June 30 date unless updated regulatory guidance directs otherwise. Boundaries for designated calving grounds are identified in the Draft NLUP (2023, Appendix C) and will be used to guide implementation.

The Mobile Caribou Conservation Measures operate with three concentric zones, as a hierarchy of increasing surveillance effort (Fig. 2). An outer 'Early Warning Zone' relates to the presence or absence of collared caribou, or an estimated likelihood of caribou presence based on local or scientific knowledge. The size of the Early Warning Zone is scaled to the caribou season as movement rates and directionality varies seasonally (Tables 1, 2). For example, a smaller Early Warning Zone is used during winter when movement rates are generally lower and less directional. A larger Early Warning Zone is used during spring migration/pre-calving when distances moved are generally larger and more directional.

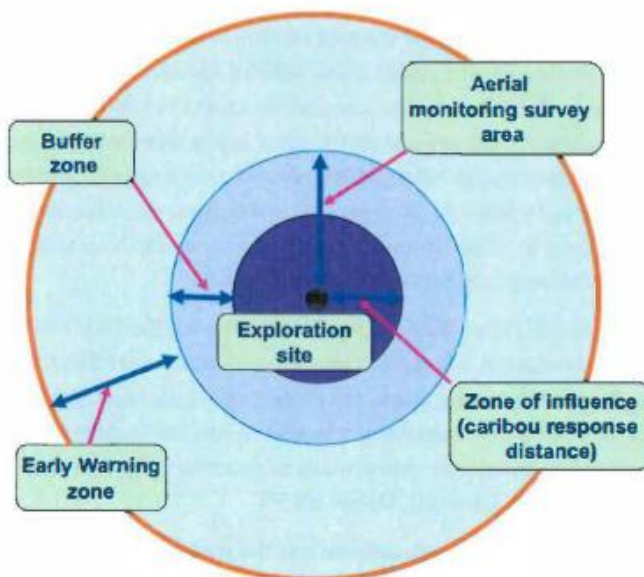


Figure 2. Schematic relationship between an exploration site, Zone of Influence, Buffer Zone, Early Warning Zone, and monitoring survey area.

### Observed Caribou(s)

Tundra will follow the thresholds in Table 2 of the “Kivalliq Inuit Association’s Mobile Caribou Conservation Measures: 2022 update for the Nunavut Planning Commission”, as referenced in the Draft Nunavut Land Use Plan (2023). which specify seasonal and timing considerations, zone radii, and observed numbers of collared or adult caribou to determine when to suspend exploration activities such as drilling.

Tundra is proposing a Spring to Fall field program for the Property, anticipated to run for 244 days between March and October (weather permitting). This period overlaps with the Spring Migration (pre-calving), Calving/Post-calving, and Summer seasonal ranges identified in Table 2 of the Kivalliq Inuit Association’s Mobile Caribou Conservation Measures (2022 Update), as referenced in the Draft Nunavut Land Use Plan (2023). The Coppermine River Property is situated within mapped calving

and post-calving areas, and exploration activities will therefore be subject to the seasonal restrictions and zone-based mitigation measures (EWZ/ZOI thresholds). Please refer to Appendix 2 on the mitigation measures Tundra will implement when caribou are observed.

### Flights

During seasonal sensitivities (i.e., pre-calving, calving, and post-calving caribou conservation periods, as well as near identified caribou water crossings), helicopters (drill equipment and personnel transport) and fixed-wing aircraft (airborne geophysical survey) will maintain a minimum altitude of 610 m (2,100 ft) above ground level during routine operations. Aircraft will never fly below this altitude in the presence of wildlife unless required for extreme emergency or safety reasons. No landings are permitted where migrating caribou, caribou with calves, or muskox nurse groups are present. Pilots are directed to avoid caribou calving grounds during transit.

For approved low-level airborne geophysical surveys, detailed work plans will be submitted to relevant authorities prior to commencement. Fixed-wing aircraft used for such surveys will typically operate at approximately 60 m above ground level and may only do so when no wildlife is present within the operational area.

### Crossings

Between May 15<sup>th</sup> and September 30<sup>th</sup>, no camps will be established, fuel-caches, or blasting conducted within 10 kilometers of designated caribou crossings, and no exploration activities such as drilling operations will take place within five (5) kilometers of these areas. Activities must not impede or divert caribou migration. Currently, there are no designated crossings on the Coppermine River Property

Tundra will implement the following measures, consistent with the Kivalliq Inuit Association's Mobile Caribou Conservation Measures: 2022 Update for the Nunavut Planning Commission (as referenced in the Draft Nunavut Land Use Plan, 2023):

- *If collar data or caribou observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou observed within twenty-five (25) km of the boundary of the Property that appear to be moving in the direction of the activities, then monitoring within a five (5) km buffer zone around the water crossing shall be conducted every second day (e.g., height of land surveys, remote camera surveys).*
- *If monitoring indicates that there are fifty (50) or more caribou within five (5) km of the boundary of the Property that appear to be moving in the direction of the water crossing, then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including suspension of drill operations, blasting activities and nonessential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations, camp closure, and removal of all non-essential personnel, until caribou numbers are below the threshold within the buffer zone.*

### Drilling

Drilling activities will be planned to avoid caribou whenever possible. Tundra will implement a caribou alert system to monitor and inform personnel of caribou presence near the camp, drill sites, and mapping, prospecting, or sampling areas. Tundra will follow the thresholds in Table 2 of the “Kivalliq Inuit Association’s Mobile Caribou Conservation Measures: 2022 update for the Nunavut Planning Commission,” which specify seasonal and timing considerations, zone radii, and observed numbers of collared or adult caribou to determine when to suspend drilling activities.

Tundra is proposing a Spring to Fall field program for the Property, anticipated to run for 244 days between March and October (weather permitting). This period overlaps with the Spring Migration (pre-calving), Calving/Post-calving, and Summer seasonal ranges identified in Table 2 of the Kivalliq Inuit Association’s Mobile Caribou Conservation Measures (2022 Update), as referenced in the Draft Nunavut Land Use Plan (2023). The Coppermine River Property is situated within mapped calving and post-calving areas, and exploration activities will therefore be subject to the seasonal restrictions and zone-based mitigation measures (EWZ/ZOI thresholds). Please refer to Appendix 2 on the mitigation measures Tundra will implement when caribou are observed.

#### 4.1.2 *Carnivores*

The Species at Risk (SAR) at the Property includes:

- Grizzly Bear – Aktait
- Polar Bear – Nanuq
- Wolverine – Qavvik

Proper food and waste storage measures will be implemented in camp, at drill sites, and in the field to minimize wildlife attraction. In the presence of bears, work activities must halt until they have safely left the area. Any human-bear interactions must be reported promptly to the Government of Nunavut (GN) Wildlife Biologist and any other relevant authorities.

Carnivore dens, both known and newly discovered, are to be avoided and reported to the regional wildlife biologist and any other relevant authorities. GPS coordinates of den sites will be recorded and provided to regulatory authorities, with no disturbance permitted. Exploration within specified den buffers, determined by the Government of Nunavut, must cease immediately upon discovery of the den. Buffer distances include:

- Grizzly Bear: 300m
- Polar Bear: 200m
- Wolverine: 2km

#### 4.1.3 *Birds*

The Species at Risk (SAR) at the Property includes:

- Eskimo Curlew - Akpingak
- Harris’s Sparrow – Qupanuaq or Qapanuarjuk (general songbird name)
- Peregrine Falcon – Kiggaviarjuk or Kigavik
- Red-necked Phalarope – Aupaluktuq Saurraq or Aupaqtuq Saarvaq
- Rusty Blackbird – Kajuangajuq Qiqniqtaq Qupanuaq
- Short-eared Owl – Siutikituq Ukpik

No eggs or nests are to be disturbed by any activities and special care and concern, including monitoring, will take place during migratory bird nesting periods in the area (May to mid-August). If an employee or contractor encounters an active nest, all activities must cease immediately to avoid disturbance. Coordinates of the nest location should be recorded in the wildlife incidental observation log and reported to Environment Canada. Disturbing or moving the nest of a migratory bird is a violation of the Migratory Birds Convention Act. Excessive hovering or circling over areas likely to have birds will be avoided.

The peregrine falcon, designated as a species of Special Concern by COSEWIC, requires special attention. A buffer zone of 1.5 kilometers is recommended around peregrine falcon nests. Any discovered nests must be recorded in the wildlife incidental observation log, and their GPS coordinates provided to relevant regulatory authorities and interested parties.

## **4.2 Aquatic Life**

To safeguard aquatic life on the Property, the following measures are implemented:

- Activities in and around waterbodies must be conducted in ways that prevent disturbance to aquatic life and their habitats.
- Waterlines must be properly positioned and screened as per the "Freshwater Intake End-of-Pipe Screen Guideline" from the Department of Fisheries and Oceans (DFO).
- No wastes, including from exploration camps, are permitted to enter water bodies.
- Sumps, fuel caches, and camps must maintain a distance of at least 31 meters from the high-water mark of any water body, unless authorized otherwise by regulatory authorities.
- Fishing while representing Tundra is strictly prohibited.

Additionally, the Coppermine River Property is not situated near any aquatic species at risk or their critical habitats, according to the "Aquatic Species at Risk Maps" provided by the Department of Fisheries and Oceans.

## **4.3 Firearms**

Registered 12-gauge shotguns will be available in camp and at drill sites for personnel safety, as they can fire both non-lethal deterrents and lethal rounds. All firearms will be stored unloaded, with those in camp regulated by the Project Supervisor and those at drill sites kept in gun cases.

Only individuals with a valid Firearms License and Project Supervisor approval may carry or handle firearms. Hunting is strictly prohibited and will result in immediate termination and potential legal action. Any firearm discharge must be reported immediately to the Project Supervisor. Firearms will only be used against aggressive wildlife as a last resort, with non-lethal deterrents being the preferred method whenever possible.

## **5 Property-Wide Management System**

Along with this EMP, the Abandonment and Restoration Plan ("ARP"), Spill Contingency and Fuel Management Plan ("SCFMP"), and Waste Management Plan ("WMP") will be used in conjunction to safeguard, preserve, and protect the natural environment at the Coppermine River Property.

### **5.1 Abandonment and Restoration Plan (“ARP”)**

Before permits or leases are terminated, all structures, equipment, supplies, fuel, and waste will be removed from the property, except for secured core box stacks. Salvageable materials will be salvaged, and locals can salvage remaining items. Contaminated areas will be treated as per the Spill Contingency and Fuel Management Plan. Inspection findings, documented with photos, will be reported to regulatory agencies. Wooden floors will be burned following guidelines, with regulatory approval. Disturbed areas will be fertilized if recommended for revegetation and eroded areas filled and re-contoured. Annual monitoring may include soil and water testing, documenting plant regrowth, runoff and erosion checks, and core rack stability assessments. Details are in the Coppermine River Property ARP.

### **5.2 Spill Contingency and Fuel Management Plan (“SCFMP”)**

All hazardous materials at the Property will adhere to the site's spill and fuel management plan, ensuring secondary containment with products like "Arctic Insta-Berms." Fuel and hazardous substance storage will be positioned at least 31 meters from water bodies. Transfers of diesel, jet fuel, and gasoline will use electric or hand wobble pumps with filtration devices. Measures like portable drip trays and fully stocked spill kits will mitigate spill risks. Proper labeling, WHMIS compliance, and training in spill and emergency response plans will be provided to all personnel handling hazardous materials. Details are in the Coppermine River Property SCFMP.

### **5.3 Waste Management Plan (“WMP”)**

Waste management at the Property follows a plan aligned with federal and territorial regulations. Various strategies are employed to minimize waste and ensure responsible disposal, including segregation into categories like combustible and hazardous materials. Inert materials are stored in sealed containers and removed for recycling or proper disposal. Hazardous waste is carefully sealed, labeled, and transported to licensed facilities. Greywater is treated in designated sumps, and pacto waste to be stored, sealed, and transported to Kugluktuk for proper disposal. Details are in the Coppermine River Property WMP.

**APPENDIX 1**  
**FIGURES**



## **APPENDIX 2**

### **KIVALLIQ INUIT ASSOCIATION'S MOBILE CARIBOU CONSERVATION MEASURES: 2022 UPDATE FOR THE NUNAVUT PLANNING COMMISSION**

## Kivalliq Inuit Association's Mobile Caribou Conservation Measures: 2022 update for the Nunavut Planning Commission

Mobile Caribou Conservation Measures (thence Mobile Measures) are flexible (i.e., follow the caribou), protect caribou within all seasonal ranges, and offer a greater balance between protection of caribou and mineral exploration. Mobile Measures have three components: (i) monitoring, the results of which are compared to pre-assigned thresholds; (ii) thresholds which trigger decisions about the intensity of tiered mitigation; and (iii) mitigation. Mitigation is implemented to avoid or minimize sensory disturbance to caribou. In turn, monitoring can be used to gauge the effectiveness of the mitigation.

The Kivalliq Inuit Association (KivIA) brought Mobile Measures forward as part of their recommendations to the Nunavut Planning Commission (NPC) on the Draft Nunavut land Use Plan (DNLUP) in 2015 and again in 2021. KivIA's approach to Mobile Measures was presented, for example, at the November 2015 NWMB workshop<sup>1</sup>. During reviews of the 2021 DNLUP, while the Kitikmeot and Qikiqtani Regional Inuit Associations (RIAs) and Kivalliq Wildlife Board are supportive of Mobile Measures, the 2021 DNLUP did not recommend Mobile Measures as a tool for protecting caribou and their habitat<sup>2</sup>. During the public hearings and commentary phase on the 2021 DNLUP, there was both support for and questioning of Mobile Measures. During conversations with NPC staff, they expressed a willingness to have more information on the Mobile Measures which is provided in the following text.

KivIA's Mobile Measures have been applied to Inuit Owned Lands (IOL) in the Kivalliq Region since 2016. They are an additional level of protection for caribou within Nunavut's integrated regulatory approach to land management which requires that NPC determines whether a land use project will conform with land use plans and be exempt from screening. If a project is not exempt, the Nunavut Impact Review Board (NIRB) screens the land-use activity and through public and land use agency input may include recommendations to protect caribou. NIRB's recommendations in the screening reports are a Nunavut-wide approach to protecting caribou during permitted land use activities, while KivIA's Mobile Measures are more specific conditions applied to exploration on IOL in the Kivalliq Region.

The following text summarizes the KivIA's Mobile Measures as to what they do, how they work, whether they protect caribou habitat, and how they relate to Nunavut's integrated regulatory approach to land use management. We offer a possible pathway forward for Mobile Measures based on concerns raised during the 2021 DNLUP hearings and on the Government of the Northwest Territories (GNWT's) recent framework and implementation guides for Mobile Measures. The pathway will also be included in KivIA's updated final comments on the 2021 DNLUP. We recognize that any wider application of Mobile Measures in other regions will have to be tailored using Inuit Qaujimagatunqangit, community knowledge and technical information for the different caribou herds and their ecology.

### 1. KivIA's Mobile Caribou Conservation Measures

KivIA's Mobile Measures are a follow-up to the longstanding Caribou Protection Measures in the Kivalliq Region where the Qamanirjuaq caribou herd migrates within the region for calving, post-calving through

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<sup>1</sup> <http://www.nwmb.com/en/public-hearings-a-meetings/workshops/november-2015-protecting-caribou-and-their-habitat-workshop#document-mobile-caribou-conservation-measures-eng>

<sup>2</sup> NPC Options and Recommendations Document- page 71

to the winter. Minimizing or avoiding any impacts of mineral exploration on the caribou has been incrementally developed since the 1970s. Relying on applying protection such as seasonal restrictions to fixed areas (DIAND's original Caribou Protection Measures) was effective unless caribou moved out of the Caribou Protection Area and were not monitored<sup>3</sup>. Land manager's attention shifted to considering protection that would move with the caribou – mobile measures<sup>4</sup> - to counter the disadvantages of area-specific protection. The DIAND's original Caribou Protection Measures are still included in the 2000 Keewatin Land Use Plan<sup>5</sup> which is applicable to Crown land. The Caribou Protection Measures are applied to a fixed area of calving, post-calving and water-crossings mapped in the late 1990s and are typically referenced in NIRB's screening reports for land use projects.

The KivIA subsequently developed Mobile Caribou Conservation Measures (Mobile Measures) in 2016 for land-use activities such as mineral exploration on IOL within the Kivalliq Region. KivIA's Mobile Measures work through monitoring caribou in the vicinity of a land use site to give early warning for mitigation. The monitoring component is flexible, does not rely on or require aerial monitoring, and can accommodate innovative technologies including drones or ground-based surveillance. The monitoring triggers mitigation based on pre-assigned thresholds (numbers and proximity of caribou to development coupled with seasonal sensitivity and movement rates). The thresholds trigger tiered mitigation applied with increasing intensity as increasing numbers of caribou approach the project, to avoid or minimize any potential sensory disturbance to caribou.

KivIA applies Mobile Measures in conditions attached to Land Use Licenses<sup>6</sup>. KivIA's Schedule B attached to licenses and leases is the guideline to Mobile Measures<sup>7</sup>. Schedule B provides for closure during calving and Mobile Measures for other seasons on calving grounds and for other seasonal ranges including water-crossings. Schedule B provides seasonal thresholds to trigger mitigation and the types of mitigation and for illustration, it is attached here as Appendix A.

Mobile Measures are only applicable to mineral exploration and not for mineral development such as active mine development sites, which are governed by NIRB's terms and conditions. NIRB's terms and conditions are determined during and following an environmental assessment that is part of Nunavut's robust regulatory system. With respect to enforcement of conditions attached to Land Use Licenses, KivIA relies on its land-use inspectors.

## 2. Mobile Measures and caribou habitat protection

Mobile Measures are designed to avoid and minimize indirect habitat loss by reducing or halting activities that would otherwise displace caribou from their habitat. Mobile Measures themselves do not protect against direct impacts to habitat, however, the KivIA's Mobile Measures are part of Land Use Licenses issued for access to IOL, that include conditions to avoid or minimize direct impacts to habitat from mineral exploration, inspection for compliance and the need for reclamation if habitat was

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<sup>3</sup> Gunn, A., K.G. Poole, J. Wierzchowski, and M. Campbell. 2007. Assessment of Caribou Protection Measures. Unpublished report submitted to Indian and Northern Affairs Canada, Gatineau, Québec, 45pp.

<sup>4</sup> Weihs, F.H., and P.J. Usher. 2001. Towards the development of a policy on the management of human activities in caribou calving and post-calving grounds. Contract # 00-0210 for Department of Indian Affairs and Northern Development, Ottawa.

<sup>5</sup> Keewatin Regional Land Use Plan, NPC Public Registry: <https://lupit.nunavut.ca/portal/registry.php?public=docs>

<sup>6</sup> <https://www.kivalliqinuit.ca/access-to-inuit-owned-lands-2/>

<sup>7</sup> <https://www.kivalliqinuit.ca/wp-content/uploads/2022/02/KIA-Land-Use-License-Terms-Conditions.pdf>

damaged. However, Mobile Measures benefit caribou habitat through their role in reducing caribou disturbance which otherwise can limit caribou habitat use.

### 3. Nunavut’s integrated regulatory system for mineral exploration.

Mineral exploration proposals within the Kivalliq Region start with the NPC who determines whether the proposal conforms to the land use plan and whether the proposal is exempt from screening<sup>8</sup> (typically government activities or small-scale activities only requiring a Class B permit<sup>9</sup>). If the activity is not exempt, the proposal goes to NIRB for screening. NIRB’s screening includes public consultation and management agency review which lead to project-specific terms and conditions with monitoring and reporting requirements. NIRB’s screening requirements for mineral exploration apply to both Crown lands and IOL. NIRB’s screening terms for caribou vary (Table 1) and how they depend on conditions such as the likelihood of caribou exposure or type of mineral exploration activity is not always specified. NIRB’s terms in the screening reports for mineral exploration specific to caribou typically include that the proponent should cease activities when caribou (a specified number or sex and age class) are in the vicinity (specified distance) so as to avoid diverting or blocking migration or movements. NIRB’s screening recommendations are consistent with the intent of Mobile Measures in the sense that the terms apply to the caribou where they are relative to an exploration site and may be triggered by the approach of caribou within threshold distances (Table 1).

KiviA’s Mobile Measures are more detailed about seasons and thresholds than NIRB’s terms for screening (Table 2). KiviA applies monitoring based on caribou sightings within two concentric zones centered on the exploration site, with surveillance effort to assess the likely arrival or presence of caribou. Monitoring includes Height-of-land surveys, ground observations and collared caribou. An ‘Early Warning Zone’ varies in size with caribou season (15–45 km radius which begins at the outer extent of the 5 km Zone of Influence [ZOI]). For example, a smaller Early Warning Zone is used during winter when movement rates are generally lower and less directional, and a larger Early Warning Zone is used during spring migration when distances moved daily are generally higher and more directional. The 5 km radius ZOI is the area around a project site where the behaviour and distribution of caribou may change in response to the site’s activities. The level of mitigation depends on the caribou numbers and the season.

Both KiviA and NIRB screening have requirements for the proponent to provide annual reports. NIRB’s reporting requirements are detailed and include for wildlife a summary of results and mitigation actions, wildlife observations, potential impacts from the project, and an analysis of the effectiveness of mitigation measures for wildlife.

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<sup>8</sup> [https://www.nirb.ca/sites/default/files/Integrated\\_Process\\_NuPPAA.pdf](https://www.nirb.ca/sites/default/files/Integrated_Process_NuPPAA.pdf)

<sup>9</sup> [https://www.nunavut.ca/sites/default/files/2020-10-23\\_revised\\_conformity\\_determination\\_internal\\_procedure.pdf](https://www.nunavut.ca/sites/default/files/2020-10-23_revised_conformity_determination_internal_procedure.pdf)

**Table 1. Examples of Terms recommended in NIRB screening reports (not all Terms would be applied to any one project). We add bold font to emphasize the reference to caribou**

<p>The Proponent shall avoid interfering with any paths or crossings known to be <b>frequented by caribou</b> during periods of migration as identified by current land use plans in place and/or by Inuit Qaujimaningit.</p>
<p>The Proponent shall not block or <b>cause any diversion to caribou</b> or muskox migration and shall cease activities likely to interfere with migration such as airborne geophysics surveys drilling or movement of equipment or personnel until such time as the caribou or muskox have passed.</p>
<p>Should <b>pregnant caribou cows, cows with young calves, or groups of 50 or more caribou</b> be observed within <b>one (1) kilometer of project operations</b> at any time, the Proponent shall suspend all operations in the vicinity, including low-level over flights, drilling, blasting/trenching, and use of snow mobiles and all-terrain vehicles outside the immediate vicinity of the camp, until caribou are no longer in the immediate area.</p>
<p>The Proponent shall implement <b>mobile caribou conservation measures</b> and immediately cease activities that may interfere with the migration or calving of caribou or muskox, until the caribou or muskox have passed.</p>
<p>The Proponent shall not construct or operate any camp cache any fuel or conduct <b>blasting within ten (10) kilometers or conduct any drilling operation within five (5) kilometers of any paths or crossings</b> known to be frequented by <b>caribou</b> (e.g., designated caribou crossings), the Proponent shall also suspend all operations in the vicinity including low-level over flights, blasting and use of snow mobiles and all-terrain vehicles until caribou are no longer in the immediate area.</p>
<p>During the period of May 15 to July 15, the Proponent shall suspend all project operations, including low-level over flights, drilling, blasting/trenching, and use of snow mobiles and all-terrain vehicles outside the immediate vicinity of the camp. Should the results of localized monitoring satisfy the Land Use Inspector that project operations may resume without <b>disturbing pregnant caribou cows or cows with young calves</b>, the suspension may be lifted for the period specified.</p>
<p>During the period of May 15 to July 15, the Proponent shall suspend all project operations outside of the . . . Camp, and activities at the . . . Camp are limited to those necessary to maintain the camp for occupation. Restricted activities include, but are not limited to, air and vehicle traffic, loud or repetitive noise or vibration disturbances, low-level overflights, blasting, and use of mobile equipment including snowmobiles and all-terrain vehicles, and <b>personnel walking within sight of the caribou group(s), until the caribou are no longer in the immediate area</b>. Should the results of localized monitoring satisfy the land use inspector the project operations may resume without <b>disturbing pregnant caribou cows or cows with young calves</b> the suspension may be lifted for the periods specified.</p>
<p>The Proponent shall retain independent wildlife monitors provided through the [named] Hunters and Trappers Organizations to <b>undertake monitoring for caribou</b> in proximity to project operations and ensure compliance with associated wildlife protection measures.</p>

**Table 2. Seasons, zone sizes and thresholds of caribou numbers counted in the Early Warning Zone (EWZ) and Zone of Influence (ZOI) to trigger corresponding mitigation actions (from Schedule B<sup>10</sup>, KivIA land access license applicable to IOL) Analysis of movement rates and local input are needed to refine the dates and number of seasons for other regions.**

Season	Timing	Suggested zone radii (km)		Threshold number of collars/adult caribou		Summarized mitigation actions if thresholds passed in the ZOI
		EWZ <sup>2</sup>	ZOI	EWZ	ZOI <sup>5</sup>	
<b>Within designated calving grounds</b>						
Calving / Post-calving	1 May – 31 Jul	N/A	N/A	N/A	N/A	Closed
Summer	1 Aug – 30 Sep	30	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
Fall/winter	1 Oct – 15 Apr	30	2.5	1/50	50	immediately reduce above-ground activities that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes).
Spring migration (pre-calving)	16 Apr – 30 Apr	50	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
<b>Other seasonal ranges (outside of designated calving grounds)</b>						
Calving / Post-calving	1 Jun – 15 Jul	50	5	1/10	10	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.
Summer	16 Jul – 30 Sep	30	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes) and camp closure.

<sup>10</sup> <https://www.kivalliqinuit.ca/wp-content/uploads/2022/02/KIA-Land-Use-License-Terms-Conditions.pdf>

Season	Timing	Suggested zone radii (km)		Threshold number of collars/adult caribou		Summarized mitigation actions if thresholds passed in the ZOI
		EWZ <sup>2</sup>	ZOI	EWZ	ZOI <sup>5</sup>	
Fall/winter	1 Oct – 15 Apr	30	2.5	1/50	50	immediately reduce above-ground activities that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes).
Spring migration (pre-calving)	16 Apr – 31 May	50	5	1/25	25	Immediately suspend drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes); Suspend ground operations and camp closure.

<sup>1</sup> Dates provided for the Qamanirjuaq herd from Caslys (2016). The actual dates will differ among herds.

<sup>2</sup> The Early Warning Zone radius begins at the outer extent of the 5 km radius Zone of Influence.

<sup>3</sup> Proposed numbers based on differences in relative risk among seasons. Caribou thresholds (generally collared individuals or incidental sightings) within the Early Warning Zone would justify notice to the exploration manager and the land use inspector of a potential suspension of flights and operations should caribou enter the Zone of Influence, and would trigger monitoring surveys within the Zone of Influence (generally ground observations or incidental aerial observations).

<sup>4</sup> xx/yy represent thresholds of number of collared/observed caribou within the Early Warning Zone. The lower value of the collars or caribou will trigger a response. Thresholds triggered within the Early Warning Zone trigger increased monitoring.

<sup>5</sup> yy represent thresholds of number of observed caribou within the Zone of Influence to trigger main sets of mitigation responses.

#### 4. Mobile Measures and GNWT's Bathurst Caribou Range Plan

KivIA was developing Mobile Measures in 2016, and by 2018 Mobile Measures were also being developed as a requirement for the Bathurst Caribou Range Plan (Range Plan)<sup>11</sup>. The Range Plan was co-developed by Indigenous governments and organizations, GNWT, Government of Nunavut (GN) and industry partners. Between 2018 and 2020, GNWT led a collaboration to develop Mobile Measures<sup>12</sup> built on the KivIA's measures and updated with minimum standards of monitoring and mitigation. Minimum standards were also a recommendation from GN's draft 2016 review of KivIA's Mobile Measures<sup>13</sup>.

Developing Mobile Measures for the Bathurst caribou herd included a framework document and considerable implementation detail, especially on government and the land use permit operator's roles and responsibilities, as well as reporting templates. The NWT government will provide mapping and advice to land use permit operators, but the costs of site monitoring and mitigation are borne by land use permit operator. COVID-19 limiting testing of the Range Plan Mobile Measures to desktop exercises but the intent is to implement the measures in 2022 (K. Clark, GNWT, pers. comm. 2022).

#### 5. Future application of Mobile Measures in Nunavut

Future application of Mobile Measures across Nunavut to avoid and minimize impacts of mineral exploration on caribou will draw on the existing KivIA's Mobile Measures, the GNWT framework and implementation guidelines, and NIRB's conditions applied to screening reports. The outcome will be a relatively standardized but adaptable conditions for land use permits and licenses applicable to barren-ground caribou seasonal ranges on IOL and Crown lands. The updated Mobile Measures would be applied as a condition, for example, within NPC's Conditional Use Areas.

Coordination among government, RIAs and land use operators will be essential to successfully implement Mobile Measures (Table 3). Land use operators will be provided with Mobile Measures documentation early in their planning to be aware that they will be expected follow the intent of the Mobile Measures to avoid disturbance to caribou. The land use operator is responsible for understanding the Mobile Measures as they apply to their proposed land use activity, to implement monitoring and mitigation actions, and to annually report on caribou protection.

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<sup>11</sup> Government of the Northwest Territories (GNWT). 2019. Bathurst Caribou Range Plan. August 2019. Environment and Natural Resources, Government of the Northwest Territories, Yellowknife, NT. 86 + iii pp.

<sup>12</sup> Government of the Northwest Territories (GNWT). 2022a. An Implementation Framework for Mobile Caribou Conservation Measures on the Bathurst Caribou Range. Environment and Natural Resources, February 2022.

Government of the Northwest Territories (GNWT). 2022b. Mobile Caribou Conservation Measures – Operational Guidance. Environment and Natural Resources, February 2022.

<sup>13</sup> Atkinson, S. 2016. Implementing Mobile Protection Measures for Caribou in Nunavut: Challenges, Costs and Effectiveness. Prepared for the Department of Environment, Government of Nunavut. September 2016 (draft v3). 90 pp.

**Table 3. Suggested progression of activities for a land use operation using Mobile Caribou Conservation Measures within Nunavut caribou range.**

	Task	Land Agency and NIRB	Land Use Operator
1	Planning	CIRNAC (Crown lands) and RIAs (on IOL) publicizes the need for Mobile Measures through Chamber of Mines, Mining Recorders Office, NIRB website, RIAs, etc.	Land use operator is made aware of requirements for Mobile Measures through Chamber of Mines, Mining Recorders Office, NIRB website, RIAs, etc.
2	Planning	CIRNAC/RIAs has point of contact for Mobile Measures oversight.	Land use operator contacts CIRNAC (or RIA on IOL).
3	Planning	CIRNAC/RIAs provides and discusses Operational Guidance document and clarifies expectations/requirements.	Discusses Operational Guidance document and clarifies expectations/requirements.
4	Planning	Discusses and determines location relative to range assessment area and season of proposed operation.	Discusses and determines location relative to range assessment area and season of proposed operation.
5	Planning	Summary of expected seasonal caribou abundance and residency provided in Operational Guidance document.	Reviews caribou information and responds with proposed schedule of operations.
6	Planning	Size of Early Warning Zone and trigger levels of caribou are discussed and understood.	Size of Early Warning Zone and trigger levels of caribou are discussed and understood.
7	Planning	Reviews and agrees upon suggested list of tiered mitigations.	Provides potential list of tiered mitigations based on mineral cycle stage and type of activity.
8	Planning	Ensures project site contact information is received for information sharing.	Provides project site contact information to CIRNAC/RIAs for information sharing (e.g., emailing collar location maps).
9	Operations	CIRNAC/RIAs provides timely emails with maps of collar locations relative to Early Warning Zone, Zone of Influence and project site.	Receives emails with maps of collar locations relative to Early Warning Zone, Zone of Influence and project site.
10	Operations	CIRNAC/RIAs available to respond to any questions or concerns during operations.	Monitors collar locations in the Early Warning Zone; ground or aerial observations.
11	Operations	CIRNAC/RIAs expects the operator to implement mitigation, and is available to respond to any questions and concerns during operations.	If caribou threshold exceeded, the land use operator will implement mitigation; monitoring within the Zone of Influence is advised.
12	Operations	CIRNAC/RIAs available to respond to any questions concerns during operations.	Continued monitoring and mitigation until caribou move out of the Early Warning Zone.
13	Reporting	CIRNAC/RIAs to provide an annual report on Mobile Measures-related activities within caribou ranges.	Land user to provide an annual report on Mobile Measures-related activities.
14	Review	Assess the effectiveness of the Mobile Measures including consideration of costs,	Assess the effectiveness of the Mobile Measures including actions taken, costs,

	Task	Land Agency and NIRB	Land Use Operator
		personnel requirements and achievement of desired outcomes.	personnel requirements and consequences to operations.

The current experience of NIRB’s screening recommendations and KivIA’s Mobile Measures have not revealed problems (although COVID-19 reduced activities over the past 2 years). However, overall review of terms and their effectiveness would increase confidence in the applicability of Mobile Measures. Questions about monitoring requirements and capacity are addressed through reliance on the land use proponent rather than needing to establish costly herd level monitoring programs including an expansion of existing, government-led GPS collaring programs. Mobile Measures are already part of existing land use regulatory systems with their existing enforcement potential, which addresses concerns about compliance. In summary, Mobile Measures are a flexible tool to reduce the potential impacts to caribou of industrial activity associated with exploration sites. Mobile Measures are a component of a regulatory system that also has provisions to protect caribou habitat.

Prepared for Kivalliq Inuit Association

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3 January 2023

## APPENDIX A.

Schedule B is part of <https://www.kivalliqinuit.ca/wp-content/uploads/2022/02/KIA-Land-Use-License-Terms-Conditions.pdf>

### Schedule “B”

#### MOBILE CONSERVATION MEASURES GUIDELINES

### Introduction

The Tenant shall comply with the measures set out herein. The Tenant shall immediately report to the Landlord any deviation from these measures, including the reason for the deviation.

The Landlord reserves the right, based on the presence of caribou within the area of the Land in any year, to vary the dates set out herein and shall provide notice to the Tenant of any such variation.

### Wildlife Monitoring Personnel

The Tenant shall have wildlife monitoring personnel present at the Property during any season when caribou are reasonably expected to be present. The names of such personnel shall be sent to the Landlord and they shall maintain communication at all reasonable times. The Tenant shall monitor and immediately report the presence of caribou to the Landlord in accordance with the following directives. The report shall specify the location and estimated numbers.

### A. IOL within designated calving grounds

**Section 1.** On IOL within designated calving grounds (as designated by the Government of Nunavut) between May 1<sup>st</sup> and July 31<sup>st</sup> (the closure period):

- 1) No activities shall occur except as authorized by the Landlord.

**Section 2.** On IOL within designated calving grounds between August 1<sup>st</sup> and September 30<sup>th</sup>, the Tenant shall conduct monitoring and mitigation as follows:

- 2i) If collar data or observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou observed within the thirty (30) km early warning zone from the boundary of the Property, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, remote camera surveys).

2ii) If monitoring indicates that there are twenty-five (25) or more caribou within five (5) km of the Property boundary, then the Tenant shall monitor within a five (5) km buffer zone around the Property on a daily basis, and shall immediately suspend work that has the potential to disturb caribou, including suspension of drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations and camp closure, until caribou numbers are below the threshold within the buffer zone.

**Section 3.** On IOL within designated calving grounds between October 1<sup>st</sup> and April 15<sup>th</sup>, the Tenant shall conduct monitoring and mitigation as follows:

- (3i) If collar data or observations indicate that there are one (1) or more collared caribou or fifty (50) or more caribou observed within thirty (30) km of the boundary of the Property, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, remote camera surveys).
- (3ii) If monitoring indicates that there are fifty (50) or more caribou within two and a half (2.5) km of the Property, then the Tenant shall immediately reduce above-ground activities that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), until caribou numbers are below the threshold within the buffer zone.

**Section 4.** On IOL within designated calving grounds between April 16<sup>th</sup> and April 30<sup>th</sup>, the Tenant shall conduct monitoring and mitigation as follows:

(4i) If collar data or observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou within fifty (50) km of the boundary of the Property that appear to be moving in the direction of the activities, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, snow track counts (if appropriate), remote camera surveys).

(4ii) If monitoring indicates that there are an estimated twenty-five (25) or more caribou within the five (5) km buffer zone for the Property, then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including suspension of drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations, and camp closure, until caribou numbers are below the threshold within the buffer zone.

## B. IOL within other seasonal caribou ranges

**Section 5.** On IOL between June 1<sup>st</sup> and July 15<sup>th</sup> outside of designated calving grounds, the Tenant shall conduct monitoring and mitigation as follows:

(5i) If collar data or observations indicate that there are one (1) or more collared caribou or ten (10) or more caribou observed within the fifty (50) km early warning zone for the Property, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land, road surveys, snow track counts (if appropriate), remote camera surveys).

(5ii) If monitoring indicates that there are an estimated ten (10) or more caribou within the five (5) km buffer zone for the Property, then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including suspension of drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations and camp closure until caribou numbers are below the threshold within the buffer zone.

**Section 6.** On IOL between July 16<sup>th</sup> and September 30<sup>th</sup> outside of designated calving grounds, the Tenant shall conduct monitoring and mitigation as follows:

(6i) If collar data or observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou observed within thirty (30) km of the Property, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, snow track counts (if appropriate), remote camera surveys).

(6ii) If monitoring indicates that there are twenty-five (25) or more caribou within five (5) km of the boundary of the Property, then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including suspension of drill operations, blasting activities, non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), and camp closure until caribou numbers are below the threshold within the buffer zone.

**Section 7.** On IOL between October 1<sup>st</sup> and April 15<sup>th</sup> outside of designated calving grounds, the Tenant shall conduct monitoring and mitigation as follows:

(7i) If collar data or observations indicate that there are one (1) or more collared caribou or fifty (50) or more caribou observed within thirty (30) km of the boundary of the Property, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, remote camera surveys).

(7ii) If monitoring indicates that there are fifty (50) or more caribou within 2.5 km of the boundary of the Property, then the Tenant shall immediately reduce aboveground operations that have the potential to disturb caribou, including non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for

emergency purposes), and suspension of above ground operations, until caribou numbers are below the threshold within the buffer zone.

**Section 8.** On IOL between April 16<sup>th</sup> and May 31<sup>st</sup>, the Tenant shall conduct monitoring and mitigation as follows:

(8i) If collar data or observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou observed within fifty (50) km of the boundary of the Property that appear to be moving in the direction of the activities, then monitoring within a five (5) km buffer zone shall be conducted every second day (e.g., height of land surveys, road surveys, snow track counts (if appropriate), remote camera surveys).

(8ii) If monitoring indicates that there are an estimated twenty-five (25) or more caribou within the five (5) km buffer zone for the Property, then then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations and camp closure, until caribou numbers are below the threshold within the buffer zone.

## C. Freshwater crossings

**Section 9.** On IOL between May 15<sup>th</sup> and September 30<sup>th</sup>, the Tenant will not construct camps or other permanent structures or conduct blasting within ten (10) km of designated caribou freshwater water crossings. Exploration activities will not be permitted within five (5) km of water-crossings between May 15<sup>th</sup> and September 30<sup>th</sup>. Between May 15<sup>th</sup> and September 30<sup>th</sup>, the Tenant shall conduct monitoring and mitigation as follows:

(9i) If collar data or observations indicate that there are one (1) or more collared caribou or twenty-five (25) or more caribou observed within twenty-five (25) km of the boundary of the Property that appear to be moving in the direction of the activities, then monitoring within a five (5) km buffer zone around the water crossing shall be conducted every second day (e.g., height of land surveys, remote camera surveys).

(9ii) If monitoring indicates that there are fifty (50) or more caribou within five (5) km of the boundary of the Property that appear to be moving in the direction of the water crossing, then the Tenant shall conduct monitoring within a five (5) km buffer zone on a daily basis, and shall immediately suspend any activities that have the potential to disturb caribou, including suspension of drill operations, blasting activities and non-essential ground movements and aircraft traffic below 300 m above ground level (except as necessary for emergency purposes), suspension of all ground operations,

camp closure, and removal of all non-essential personnel, until caribou numbers are below the threshold within the buffer zone.

## D. Aircraft

**Section 10.** The Tenant shall ensure that aircraft (fixed-wing and helicopter) flights over occupied calving and post-calving areas shall be at least 610 m above ground level and avoid areas of known caribou concentrations (subject to pilot discretion regarding aircraft and human safety). In other seasons aircraft shall be at least 300 m above ground level.