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June 21, 2023 EDI Project No: 23C0111

Baffinland Iron Mine Corporation (Baffinland)
2275 Upper Middle Road East, Suite 300
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Attention: Site Department, Environment Department

RE: MARY RIVER PROJECT | Helicopter Overflights — Caribou Mitigation Procedure

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Baffinland has committed to developing and refining a Caribou Mitigation Procedure in relation to helicopter overflights. The intention is to provide operational tools that inform decision-making to avoid and otherwise minimize potential adverse effects on Caribou. Baffinland currently have and apply mitigation procedures for helicopter overflights pertaining to migratory bird corridors and key sites for moulting snow geese (refer to PC #59, PC #71 and PC #72[1] in the Nunavut Impact Review Board Project Certificate). The following memorandum — adapted from the Project's Terrestrial Environment Mitigation and Monitoring Plan (2023 TEMMP) — is intended to support these requirements based on these existing mitigations at the Project and to provide a "seat pocket" guide to mitigation.

Yours truly,

EDI Environmental Dynamics Inc.

Alex deBruyn, MSc.
Biologist

[1] *PC #59 — "The Proponent shall ensure that aircraft maintain, whenever possible (except for specified operational purposes such as drill moves, take offs and landings), and subject to pilot discretion regarding aircraft and human safety, a cruising altitude of at least 610 metres during point to point travel when in areas likely to have migratory birds, and 1,000 metres vertical and 1,500 metres horizontal distance from observed concentrations of migratory birds (or as otherwise prescribed by the Terrestrial Environment Working Group) and use flight corridors to avoid areas of significant wildlife importance…"*

PC #71 — "Subject to safety requirements, the Proponent shall require all project related aircraft to maintain a cruising altitude of at least: 650 m during point-to-point travel when in areas likely to have migratory birds; 1,100 m vertical and 1,500 m horizontal distance from observed concentrations of migratory birds; 1,100 m over the area identified as a key site for moulting Snow Geese during the moulting period (July–August), and if maintaining this altitude is not possible, maintain a lateral distance of at least 1,500 m from the boundary of this site."

- *PC #72 — The Proponent shall ensure that pilots are informed of minimum cruising altitude guidelines and that a daily log or record of flight paths and cruising altitudes of aircraft within all Project Areas is maintained and made available for regulatory authorities such as Transport Canada to monitor adherence and to follow up on complaints."*

MARY RIVER PROJECT

Helicopter Overflights | Caribou Mitigation Procedure

DRAFT

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May 2023

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Down to Earth Biology

Background and Objectives

Caribou are sensitive to disturbance from vehicles and aircraft (Horejsi 1981), particularly during the calving and post-calving season (Maier et al. 1998). The Mary River Project (hereafter the Project) overlaps with caribou calving habitat. This document summarizes helicopter flight procedures to 1) meet Mary River Nunavut Impact Review Board Project Terms and Conditions related to helicopter overflights, and 2) minimize disturbance that helicopters can cause to wildlife and land users. This document highlights:

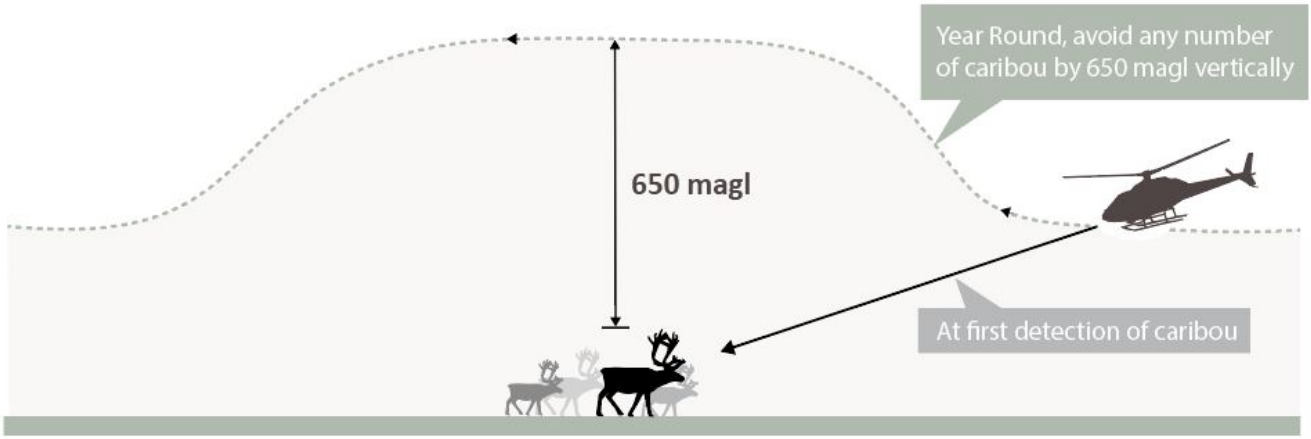
- Flight altitude/horizontal distance guidelines when operating over and near wildlife and identified wildlife areas
- Identified sensitive wildlife areas
- Wildlife reporting procedures for pilots and passengers
- Flight log tracking requirements

Year-Round Helicopter Operations

Subject to safety requirements and operational exceptions (described in further headings):

- All project-related aircraft will maintain a minimum cruising altitude of **650 m above ground level during point-to-point travel**.
- Pilots/passengers will report caribou sightings and movements during calving and post-calving periods to on-site Environment, so that these areas can subsequently be avoided.
- If/when wildlife are observed (and at the Pilot's discretion for safety) gain altitude or divert to a distance of at least the minimum guidance if not already flying at that distance.
- **Document all wildlife observations** using the standard form (Attachment 1)

If large concentrations of wildlife are observed, or sensitive areas, such as calving grounds, are identified, pilots will be informed and avoid these areas to the extent possible as per the flight restrictions above.



Sensitive Wildlife Habitat Area and Restricted Timing Windows

Avoid where possible and practical overflights of sensitive wildlife habitats. Caribou calving and post-calving areas, and the Snow Goose moulting areas are sensitive wildlife habitats. **Table 1 summarizes restricted timing windows for caribou and snow goose. Field maps with locations of key wildlife/habitat features are presented in Attachment 2.**

Caribou — The caribou calving and post-calving period can extend from **15 May to 15 July**. At all times, pilots should maintain an altitude of **> 650 m agl** during point-to-point travel. **Pilots should keep an eye out for caribou with calves and avoid them to the extent possible.**

There are currently no specifically identified caribou calving areas in the Project area, but caribou can calve on high and barren rocky areas. At high densities, caribou in the greater Baffin Island population calve in large groups. Whereas at low densities (such as they are now), females calve alone in individual home ranges (COSEWIC 2016). Areas where they have been known to calve include the higher ground adjacent the Tote Road corridor north to Milne Inlet, and the higher ground south along the proposed corridor to Steensby Inlet.

Birds — There is a known Snow Goose moulting area south and west of the Mary River Deposit No. 1 (Attachment 2). This area has moulting geese and flight restrictions apply in July and August. During this timing window, maintain **1,100 m above** ground level vertical and/or **1,500 m horizontal** distance from observed concentrations of **migratory birds. Pilots should keep an eye out for groupings of birds and avoid them to the extent possible.**

Table 1. Restricted Timing Window for Wildlife/Habitat Features.

Wildlife/Habitat Features	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Restricted Timing Window
Caribou (Calving + Post-Calving)													15 May – 15 July
Birds (Snow Goose Moulting)													1 July – 31 Aug

Exceptions

Every effort should be made to meet the mitigations outlined above. However, the mitigations are subject to safety requirements and operational justification. In situations where a mitigation cannot be met (e.g., due to slinging, short distance, inspection, maintenance, and geophysical survey) pilots are required to document the rationale for low-level flights. Types and descriptions of common Pilot Rationales for low-level flights are summarized in Table 2.

Table 2. Types and Descriptions of Pilot Rationales for Low-Level Flights.

Rationale	Descriptions
Slinging	Helicopters slinging external loads fly low for safety purposes, so if there is an issue, the load can be quickly lowered to the ground in a controlled manner or dropped and maintain visual reference of the landing location
Short Distance	At the discretion of the pilot who is operating the aircraft during the flight, by considering the distance travelled during a flight as well as other contributing factors, it is determined that gaining an altitude of 650 magl is unreasonable, unsafe, or impractical. **Note:** *These types of trips are generally associated with specific monitoring programs that are MANDATORY and there are no other practical ways of completing them (water sampling locations not accessible by foot or boat, dustfall sampling, wildlife observations, noise sampling, etc. also prospecting)*
Weather	Poor visibility associated with low cloud restricts pilots to flying below the cloud line, which is under 650 magl; high winds and/or flat light conditions (reduces a pilot's depth-of-field causing poor ground reference) can make it difficult to maintain a consistent 650 magl flight height. **Note:** *Even if pilots have enough ceiling to reach the required altitude at take off, poor weather conditions can occur along the route or later in the day. Flights to return staff from remote work areas to camp are required regardless of the ceiling*
Search and Rescue	Flying the aircraft at low levels where Search and Rescue members have sufficient visual detail of the ground
Inspection	Visual inspection of features of the ground (e.g., water bodies, site infrastructure) where low level flying is required for personnel to have sufficient visual detail
Maintenance Flight	Flying the aircraft at low levels for purposes related to maintenance of the aircraft
Emergency Response	Flying the aircraft for purposes of a medical evacuation and/or Emergency Response where efficiency and/or other factors are of utmost importance
Geophysical Survey	Low level flying is required as part of the survey methodology (e.g., flying a low-level grid pattern for a geophysical survey, keeping a sensor at a constant elevation relative to the ground). Length of survey is dependent on size of area to be surveyed. These surveys, if required, are conducted outside of bird nesting or moulting windows

Cited Literature

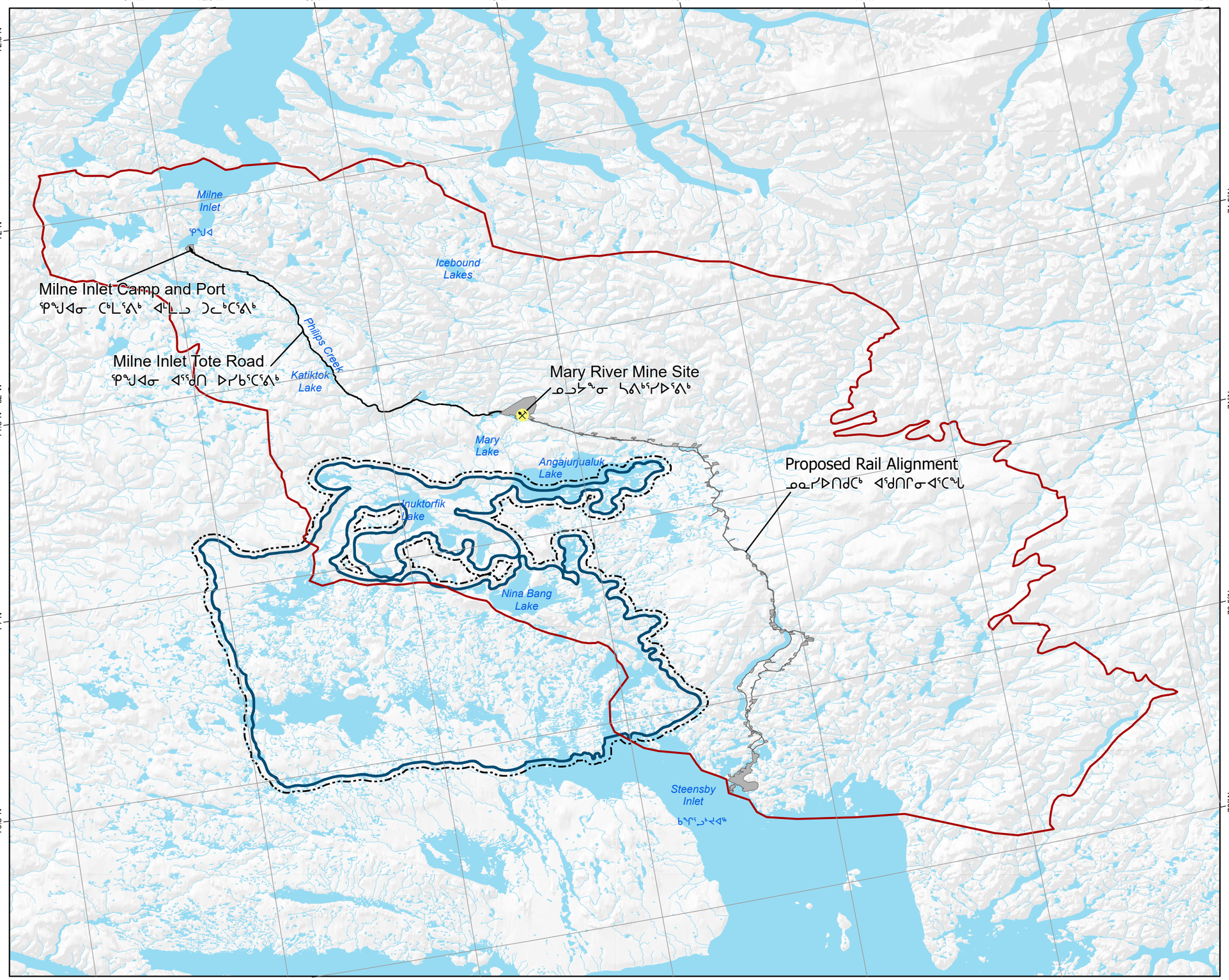
COSEWIC. 2016. COSEWIC Assessment and Status Report on the Caribou Rangifer tarandus, Barren-ground Population, in Canada. Ottawa.

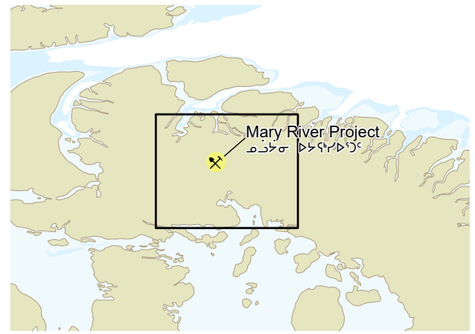
Horejsi, B. L. 1981. Behavioral Response of Barren Ground Caribou to a Moving Vehicle. Arctic 34:180–185.

Maier, J. A. K., S. M. Murphy, R. G. White, and M. D. Smith. 1998. Responses of Caribou to Overflights by Low-Altitude Jet Aircraft. The Journal of Wildlife Management 62:752–766.

Attachment 1 | Caribou Observation

Date/Time:	
Pilot/Observer:	
Project Activity/Identifier:	
Location of Sighting (Area):	
Location of Sighting (UTM):	
Caribou Observation [Species, Sex, Age Class (Calf/Adult), # Individuals]	
Caribou Behaviour (Deflection To/From Project, Duration, Other Notable Indicators)	
Mitigation Measures (Work Stoppage or Deterrence, Duration) and Outcomes (If Observed)	
Site/Environment Sign-Off	
Data Logged: **Environmental Coordinator** **Date/Time:**	





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- Mary River Project ᓄᓇᒃᓵᓂᐅ ᐅᓴᖏᓯᐅᑎᑦᑕ
- Environment Canada Area of Interest (Snow Goose) July and August
- 1,500 m Horizontal Buffer (Snow Geese Management Area) - Environment Canada Area of Interest (Snow Geese) July and August
- Milne Inlet Tote Road ᑭᓚᐊᓂᐅ ᐊᖅᓄᑎ ᐅᓯᒃᑕᖏᕐᑲᒃ
- Potential Development Area ᓄᓐᓀ ᐊᒃᑐᑦᑕᐅᑐᐃᓀᓇᐊᓕᒃ ᓴᓂᒃᓴᓯᐅᑎᑦᑐᓐᓂᑦ
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Map Projection: North America Albers Equal Area Conic

Potential Development Area and Milne Tote Road provided by BIM (2019).

Snow goose area of interest (management area) provided by Environment Canada.

This document is not an official land survey and the spatial data presented is subject to change without notice.

Scale ᐊᖑᓂᓪᓚᒃ 0 10 20 30 40 50 Km ᑭᓪᓕᑦ

Baffinland

Helicopter Overflights
Wildlife Mitigation Procedure

EDI

Date: 2023-06-21

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