

REPORT ON

**AUTUMN AND EARLY WINTER
WILDLIFE SURVEYS
TALTSON EXPANSION PROJECT**

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1.0 INTRODUCTION

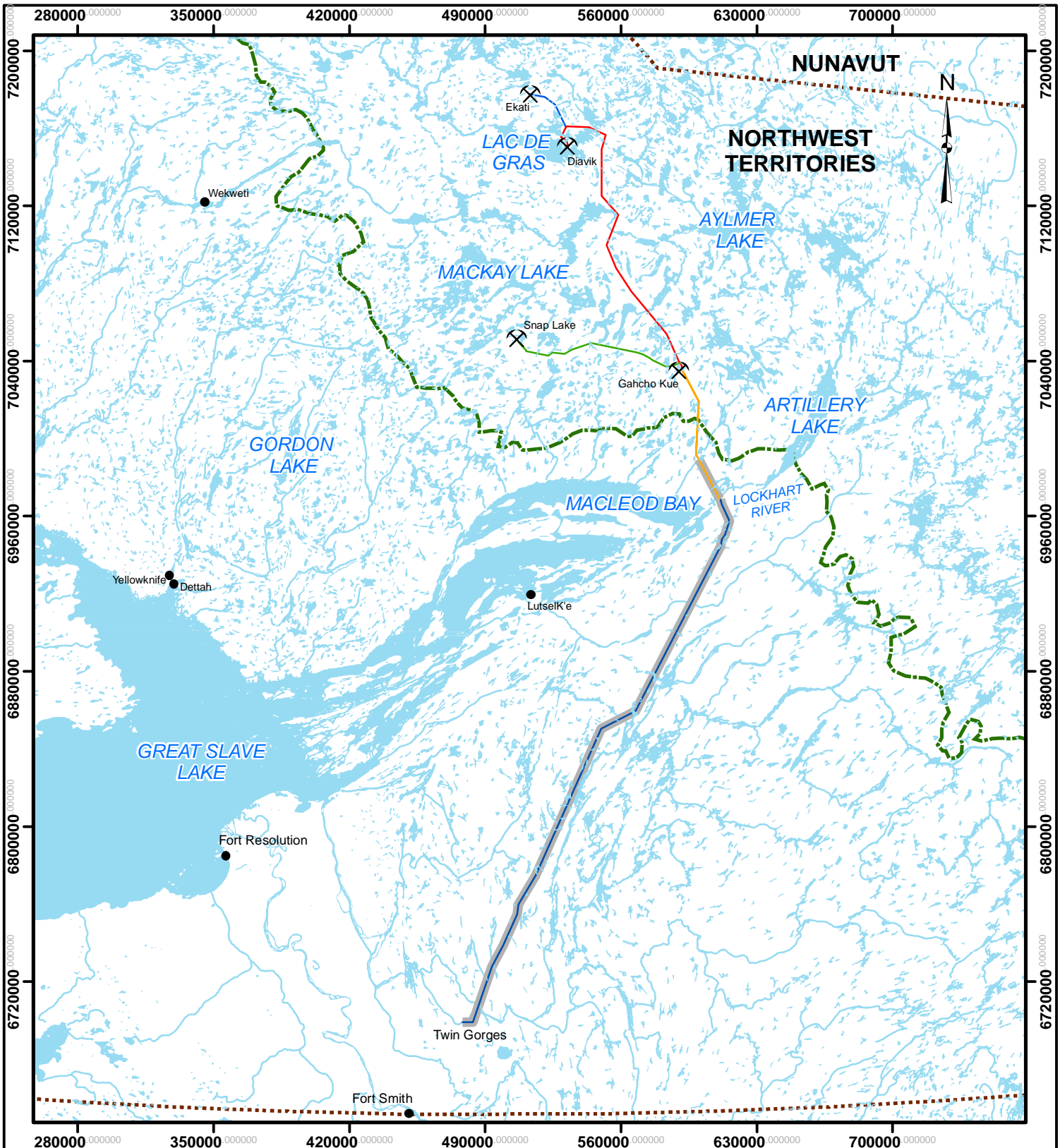
The Northwest Territories Power Corporation (NTPC) is proposing the Taltson Expansion Project (the Project), an initiative to construct and operate a transmission line, linking the Twin Gorges hydroelectric station on the Taltson River with the existing and proposed mines north of Great Slave Lake. Currently, potential endpoints for the transmission line include the Gahcho Kué Project (Gahcho Kué), Snap Lake Project (Snap Lake), Diavik Diamond Mine (Diavik), and Ekati Diamond Mine (Ekati [see Figure 1]). The final transmission line would be approximately 700 km in length if all four of these sites are supplied by the Project. Infrastructure required for the Project includes the placement of transmission towers, upgrades to the hydroelectric facilities at Twin Gorges, several substations, and the clearing of a 30 m corridor in areas where trees have the potential to interfere with the transmission line. Where changes in direction of the transmission line are necessary (referred to as a Point of Intersection [PI]), larger towers will be installed.

To determine the potential environmental impacts of the Project, the existing environmental conditions must be documented. To this end, NTPC has completed a series of wildlife studies along the transmission line, which documented the wildlife present along the southern sections (*i.e.*, below the treeline) of the proposed transmission line in both the summer and winter (Rescan Environmental Services Ltd [Rescan] 2005; Golder Associates Ltd. [Golder] 2006). The studies reported here were commissioned to provide further information regarding the presence of wildlife along the northern sections of the transmission line.

During the wildlife studies, a distinction was made between the areas north and south of the treeline. This distinction was associated with the differences in the wildlife species found in the boreal and tundra environments, differences in aerial survey methods used for forested and nonforested areas, and because caribou of the Bathurst herd winter south of the treeline (see Figure 1).

In this document, we report on wildlife and wildlife habitat studies completed in the autumn and early winter of 2006 along those sections of the transmission line, which are above the treeline. The study had the following objectives:

- to document wildlife along the proposed transmission line alignment in the autumn and early winter, with a focus on caribou;
- to document wildlife sign along the proposed alignment;
- to document significant wildlife habitat features (*e.g.*, eskers, cliffs) along the alignment; and,
- to identify sensitive wildlife habitat features near the PI sites.

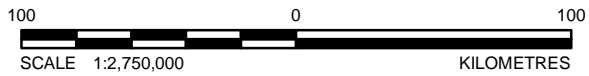


LEGEND

- Community
- ⌵ Existing or Proposed Diamond Mines
- Approximate Treeline
- Area Not Surveyed
- Transmission Line Section
 - Diavik to Ekati
 - Gahcho Kue to Diavik
 - Gahcho Kue to Snap Lake
 - Lockhart River to Gahcho Kue
 - Twin Gorges to Lockhart River
 - ⋯ Northwest Territories/Nunavut Border

REFERENCE

Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT	Fall and Early Winter Wildlife Surveys, Taltson Expansion Project		
TITLE	Regional Map		
	PROJECT No. 06-1328-014	SCALE AS SHOWN	REV. 0
	DESIGN KB Nov. 2006		
	GIS KB Nov. 2006		
	CHECK DP Nov. 2006		
	REVIEW JV Dec. 2006		



FIGURE: 1

Project: N:\2006\Active\GIS\06-1328-014_NITPCI\Figure 1

2.0 OBJECTIVES

For each objective, the study was designed to record a number of measurements that could be used to assess baseline environmental conditions along the proposed transmission line corridor. Aerial survey methods were designed with caribou as the species of primary interest, and the timing of the surveys was aimed at documenting their fall and early winter movements. Observations of other wildlife species were also recorded, encompassing all those species identifiable from a helicopter, at the flight altitude commonly used for surveying caribou. This included medium and large-size mammals such as grizzly bears, wolves, wolverine, muskox, and moose. Occasionally, waterfowl and raptors could also be identified. Particular attention was given to species at risk. Such species included the grizzly bear, wolverine, northern pintail, long-tailed duck, white-winged scoter, surf scoter, and the tundra peregrine falcon (see Golder 2006 for a detailed listing of species at risk within the range of the Project). Specific measurements related to observing caribou and other wildlife included:

- distribution, group composition, and group behaviour of caribou during the fall and early winter movements; and,
- distribution and presence of other wildlife species, which could be observed during the aerial surveys.

Large and repeated movements of caribou through the same area typically leave trails in the ground where the vegetation has been trampled and the soil compacted. In the tundra environment, these 'historic' trails persist for many years, are easily visible from the air, and may be correlated with the 'path of least resistance' through the area. Post-calving and fall migrations are the most likely cause of the trails, as the northern migration takes place predominantly during the snow-covered season in the vicinity of the transmission line (vegetation is less likely to be trampled when frozen and covered with snow). Although no information is available on the scale of caribou movement required to create these trails or their longevity, the trails can be used as an indicator of preferred or historic caribou migration routes and 'geographic bottlenecks' (where migrating caribou are funnelled into a small area, such as at a water crossing, at the shoreline of a large lake, or near cliffs). These bottlenecks are potentially sensitive areas for migrating caribou, as the bottlenecks are host to higher densities of caribou than surrounding areas, and they leave the caribou with less freedom of movement to avoid a disturbance. Examples of caribou trails observed near Contwoyto Lake are presented in Photos 1 and 2, Appendix VII.

In addition to the trails left in the vegetation during the post-calving migrations, caribou also leave tracks and trails in the snow during the snow-covered seasons. These snow tracks can be used as an indicator of recent caribou movements (*i.e.*, since the last major snowfall or strong wind). Therefore, specific measurements related to recording caribou sign included:

- the location and relative extent of historic caribou trails along the proposed transmission line; and,
- the location and relative extent of caribou snow tracks (if sufficient snow cover was present).

The third objective was to document significant wildlife habitat features along the proposed alignment, specifically cliffs and eskers. Cliffs provide nesting habitat for raptors, while eskers are used as travel corridors for caribou, wolves, and bears and as denning habitat for bears and wolves. Cliffs and eskers within 200 m of the transmission line were therefore recorded. Specific measurements included:

- identify all cliffs located along the proposed transmission line and record signs of recent raptor nesting; and,
- the location of eskers, which intercept the proposed transmission line.

The fourth objective was to investigate the PI locations. At certain points along the transmission line route, a change in direction is required. These are referred to as a PI. The PI sites are anticipated to have a slightly larger tower and foundation (measuring up to 10 m by 10 m). Transmission line towers between the PI towers will have a smaller structure and footprint. The following measurements were recorded at each PI location to determine the suitability of habitat for wildlife:

- land cover type;
- slope, aspect, and topography; and,
- distance to nearest waterbody, cliff, and esker.

3.0 METHODS

The objectives were met using helicopter and aerial surveys, supported by background studies prior to the aerial surveys to identify the expected caribou migration routes, raptor nest sites, and eskers. The movements of satellite-collared Bathurst cows were also used to find the optimal timing of the aerial surveys, and to describe the movements of the Bathurst herd in the fall and early winter of 2006.

Three aerial surveys were completed on September 11, October 2, and November 1, 2006. The aerial surveys were scheduled to provide a wide spread of survey dates, and to maximize the chance of observing caribou in the vicinity of the transmission line (as determined through the location of satellite-collared Bathurst caribou). Pete Enzo, of Lutsel K'e, assisted with one of the aerial surveys (Photo 3, Appendix VII)

Bathurst caribou, like other barren-ground caribou herds, display distinctive seasonal patterns in their movements and distribution, defined by Gunn *et al.* 2002 and referred to here as biological seasons. For example, the winter season is characterized by relatively little movement predominantly south of the treeline, while the northern migration is characterized by a quick, direct movement from the wintering grounds to the calving grounds near Bathurst Inlet. The aerial surveys spanned three of these biological seasons, the post-calving migration (August and September), rut (October), and the beginning of the winter season (November to April).

Aerial surveys involved flying the proposed transmission line alignment above the treeline (Figure 1). Maps and a Global Positioning System (GPS) programmed with the transmission line route were used to navigate. The Off Course function of the GPS was used to maximize adherence to the proposed route. The entire north of treeline length of the proposed transmission line alignment was surveyed on each survey (Figure 1), with the exception of the section between Diavik and Gahcho Kué on the first survey, and the section south of Gahcho Kué on the November 1 survey.

Three observers and one pilot conducted each survey with a Bell 206 helicopter. Observations were made along the center line of the proposed alignment by the observer in the front seat, and 200 m either side of the alignment by the two observers in the back of the aircraft. Surveys were flown at approximately 100 m to 125 m above ground level, and at speeds of 80 km/h to 100 km/h. These methods were similar to those used by Rescan (2005) and Golder (2006), with the exception of the survey altitude, (the 2003 and 2004 surveys were flown at a lower altitude to increase detection of animals in forested terrain below the treeline). Immediately following the survey, the GPS units and digital cameras were downloaded, and the observations were entered into a database.

3.1 Wildlife Observations

Surveys were focused on recording caribou, moose, muskox, grizzly bear, black bear, wolf, wolverine, and where possible, waterfowl, loons, and raptors. When wildlife were observed, the species, number, ungulate group composition (males, females, calves), behaviour, land cover (habitat) type, and GPS location were recorded. Predominant group behaviour for ungulates was categorized as bedded, feeding, alert, walking, trotting, running, or courting-sparring. The land cover type was categorized as heath tundra, tussock/hummock, heath/bedrock, heath/boulder, spruce forest, riparian tall shrub, sedge wetland, lichen veneer, boulder association, bedrock association, esker complexes, and water (Matthews *et al.* 2001).

3.2 Wildlife Sign Observations

Caribou trails in the tundra vegetation appear as a series of roughly defined, parallel, and largely un-vegetated dark ruts in the ground. They are generally 15 cm to 30 cm in width, may extend for hundreds of metres (with occasional breaks in the line over exposed bedrock). Historic trails range in profile from being level with the surrounding vegetation to displaying a marked trench, with overhanging shrubs. The trails are often found in clusters, running parallel to one another, and often merging or splitting.

While flying the transmission line route, a GPS location was recorded each time caribou trails were encountered within 200 m of the alignment. Each observation of caribou trails was categorized by the approximate number of parallel trails (*i.e.*, less than 10, 10 to 20, 21 to 50, and greater than 50) and by the approximate length of the trail cluster (*i.e.*, less than 200 m, 201 m to 400 m, 401 m to 600 m, and greater than 600 m). The categorization was conducted by means of a visual assessment.

As sufficient snow cover was present during the November 1 survey, caribou snow tracks were also recorded. Snow track density was recorded every two minutes by each observer on either side of the helicopter, and subjectively categorized as none, low (occasional single tracks), medium (regular single tracks or occasional trails), or high (network of single tracks or regular trails). Each pair of track density observations were compiled to create an index of the track density at that location.

3.3 Significant Wildlife Habitat Features

The Northwest Territories Department of Environment and Natural Resources (ENR) maintains a database of all known raptor nests in the Northwest Territories. Prior to the survey, the database was searched to identify raptor nests near the proposed transmission line. As the nearest nest was approximately 13 km from the proposed transmission line route, this information was not considered further. During the survey, all cliffs that were visible from the helicopter and had a suitable cliff face for nesting raptors were recorded. These cliffs were subsequently surveyed for raptors and raptor sign (*e.g.*, jewel lichen, white wash, and stick nests). Because the surveys commenced in September, many raptors may have begun their southern migration.

Prior to the survey, the relevant topographic maps and the land cover classification of the Slave Geological Province (Matthews *et al.* 2001) were investigated to determine where eskers were most likely to be present adjacent to the transmission line corridor. During the survey, eskers were noted where they approached within 200 m of the transmission line route. Some eskers were parallel to the transmission line, and a GPS location was recorded when they first approached within 200 m of the transmission line.

3.4 Point of Intersection Locations

A total of 38 PI locations were assessed between Snap Lake, Gahcho Kué, Diavik, Ekati, and the Lockhart River. Information collected during the field assessment of each PI on the September 11 survey included:

- a digital photograph of the PI location;
- a visual assessment of the land cover types (Matthews *et al.* 2001) within a 200 m radius of the PI location, and an estimate of the percent cover of each habitat type;
- observations and estimates of the distance to water, cliffs, eskers, and historic caribou trails; and,
- a description of the aspect, slope, and topography.

4.0 RESULTS

4.1 Wildlife Observations

All caribou observations are presented in Figure 2, and other wildlife in Figure 3. The details regarding each observation are provided in tabular form in Appendix I. A description of the wildlife observations are provided below.

4.1.1 Caribou

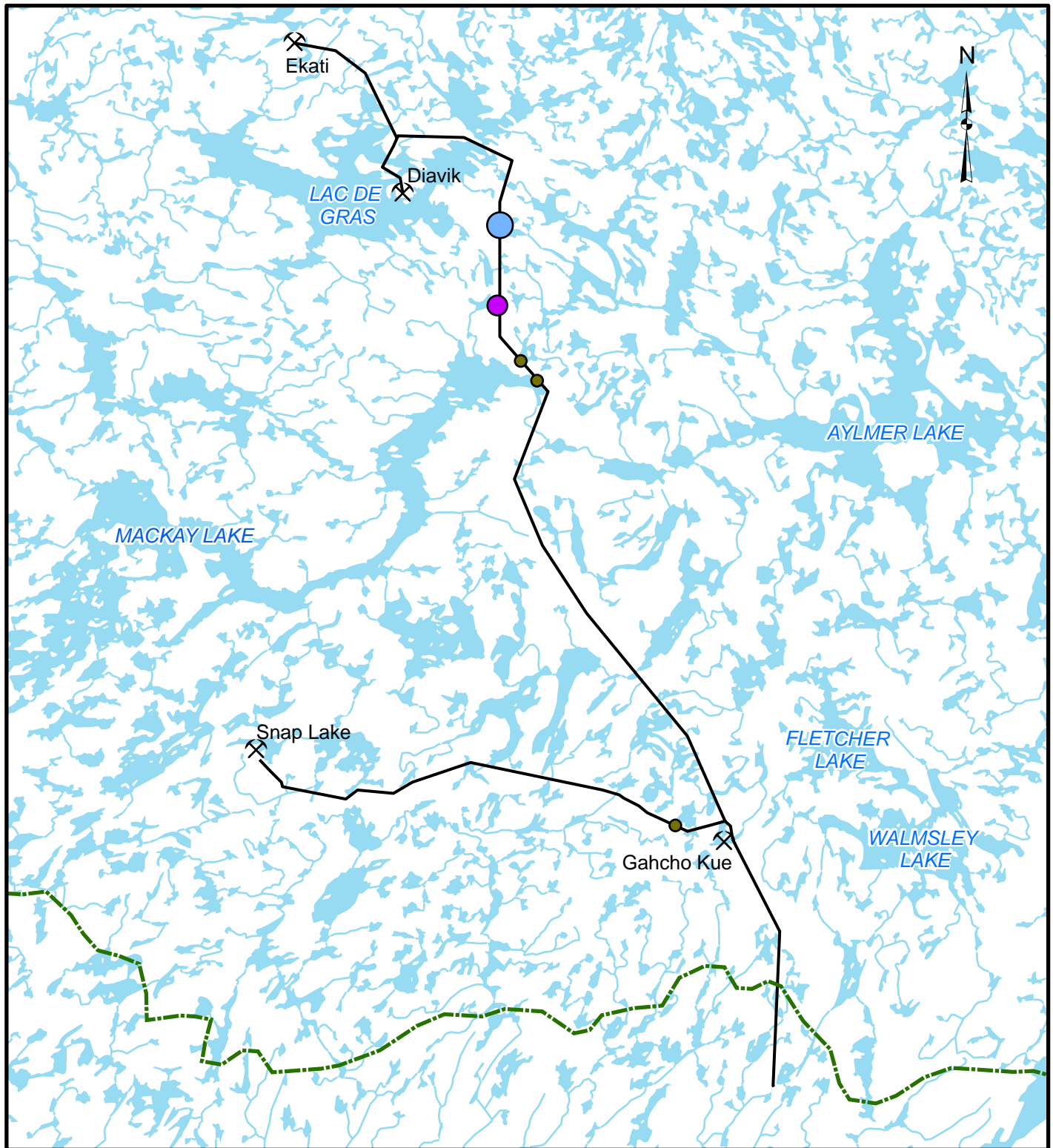
During the three surveys, 18 caribou in five groups were recorded (Figure 2; Appendix I). All groups were observed on heath tundra. On the September 11 survey (during the post-calving migration) three single males were observed. One male was observed between Snap Lake and Gahcho Kué, while the two other lone males were observed at the eastern end of MacKay Lake between Gahcho Kué and Diavik. No caribou were observed on the October 2 survey (rutting season). During the November 1 survey (beginning of the winter season), two groups of caribou were observed. One group contained six adults (females and males), and the other group was comprised of nine males. No calves were observed during the surveys.

4.1.2 Other Wildlife

A group of seven muskox, bedded in a wetland/tussock hummock area, and a lone male muskox were observed between Snap Lake and Gahcho Kué on September 11 (Figure 3; Appendix I). A second lone male was observed feeding between the Lockhart River and Gahcho Kué. On October 2, a single male muskox was observed standing on heath tundra between the Lockhart River and Gahcho Kué.

On October 2, a pair of wolves were observed running over heath tundra north of MacKay Lake. Further north, near Diavik, a grizzly bear sow and cub were observed standing in heath tundra (Figure 3).

On September 11, one flock of approximately two hundred greater white-fronted geese were observed near Gahcho Kué. A flock of four common mergansers were observed on the same survey near MacKay Lake (Figure 3).

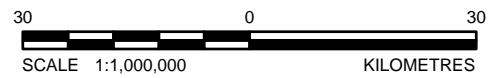


LEGEND

- Existing or Proposed Diamond Mines
- Caribou Group Size**
- One Caribou
- Six Caribou
- Nine Caribou
- Approximate Treeline
- Transmission Line

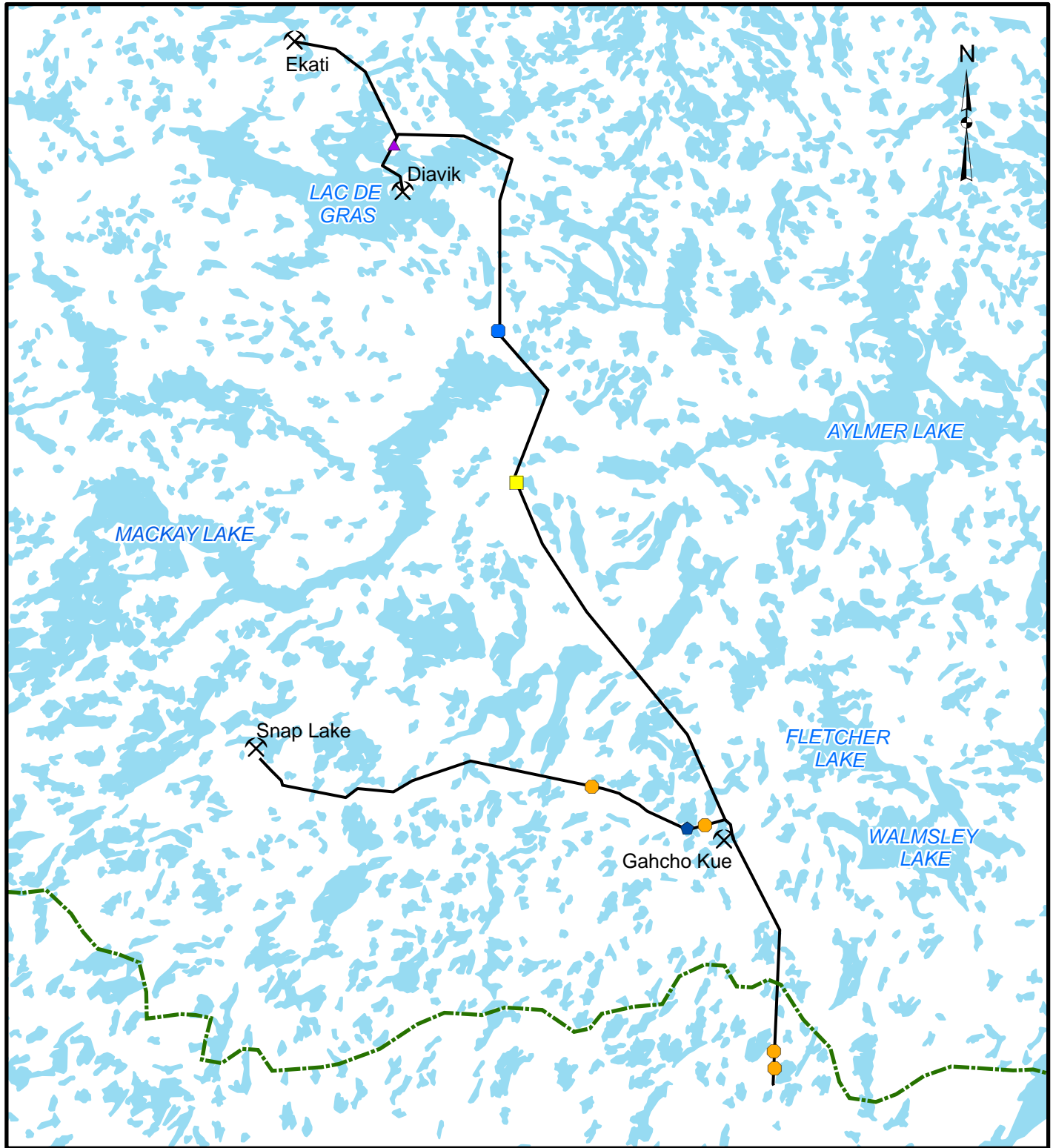
REFERENCE

Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT	Fall and Early Winter Wildlife Surveys, Taltson Expansion Project		
TITLE	Caribou Observations Along the Transmission Line Corridor		
 Yellowknife, Northwest Territories	PROJECT No.	06-1328-014	SCALE AS SHOWN
	DESIGN	KB Nov. 2006	REV. 0
	GIS	KB Nov. 2006	
	CHECK	DP Nov. 2006	
	REVIEW	JV Dec. 2006	

FIGURE: 2

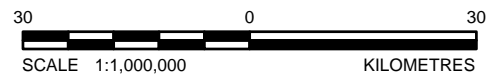


LEGEND

- | | | | |
|--|------------------------------------|--|----------------------|
| | Existing or Proposed Diamond Mines | | Approximate Treeline |
| | Common Merganser | | Transmission Line |
| | Grizzly Bear | | |
| | Greater White-fronted Geese | | |
| | Muskox | | |
| | Wolf | | |

REFERENCE

Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT	Fall and Early Winter Wildlife Surveys, Taltson Expansion Project		
TITLE	Wildlife Observations Along the Transmission Line Corridor		
 Yellowknife, Northwest Territories	PROJECT No.	06-1328-014	SCALE AS SHOWN
	DESIGN	KB Nov. 2006	REV. 0
	GIS	KB Nov. 2006	
	CHECK	DP Nov. 2006	
	REVIEW	JV Dec. 2006	

FIGURE: 3

4.2 Wildlife Sign Observations

Historic caribou trails were observed frequently along the entire length of the proposed transmission line north of the treeline (Figure 4; Appendix II). Particularly high densities were observed east of Lac de Gras and MacKay Lake, and between the east ends of these two lakes. The index for historic trails was also high near Gahcho Kué. The frequency and density of caribou trails decreased as the transmission line route entered the forest below the treeline (Figure 4). The forest was discontinuous in this area, and forest canopy remained open.

As snow conditions were favourable, the aerial survey observers looked for caribou snow tracks during the November 1 survey. Caribou snow tracks were only observed between MacKay Lake and Lac de Gras (Figure 5). Low snow track density was the most frequent observation (11 of 14 observations). One high density observation was recorded east of Lac de Gras.

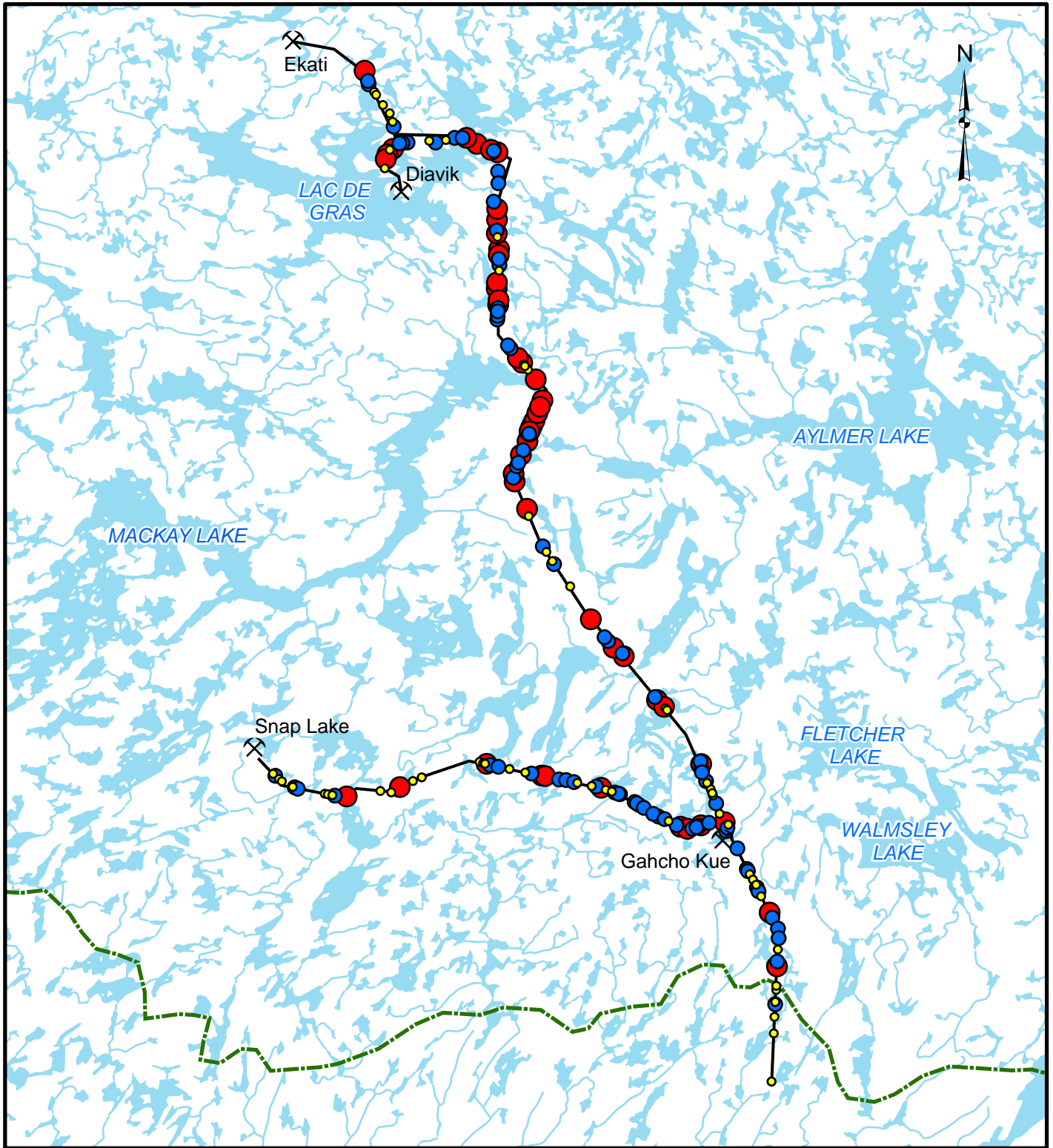
4.3 Satellite-collared caribou

Five of the 19 satellite-collared Bathurst caribou crossed the transmission line route in the fall of 2006. All crossings of the proposed transmission line took place north of MacKay Lake (Figure 5), between October 14 and November 9 (classified as rut and early winter movements by Gunn *et al.* 2002). Four of these collared caribou appeared to have crossed the proposed transmission line route at least twice, possibly three times. The collared caribou approached from the north, and eventually continued their migration towards the southeast. The period between locations was five days.

4.4 Significant Wildlife Habitat Features

Between Snap Lake and Gahcho Kué nine cliffs were observed within 200 m of the proposed transmission line corridor (Figure 6; Appendix III). No raptors, nests, or jewel lichen were observed at any of these cliffs. White wash was observed on two of the cliffs. No cliffs were observed within 200 m of the proposed route on any of the other transmission line sections. Of the raptor nest locations documented in the ENR database, the nearest was approximately 13 km from the proposed transmission line corridor.

Thirty-four eskers were observed to intercept the proposed transmission line route. Eskers were observed on all sections of the proposed transmission line (Figure 6; Appendix IV). Between Snap Lake and Gahcho Kué, 10 eskers were observed. Between Gahcho Kué and the treeline, five eskers were observed. Between Gahcho Kué and Diavik, 18 eskers were observed, and one was observed between Diavik and Ekati.



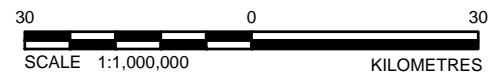
LEGEND

Caribou Trail Index

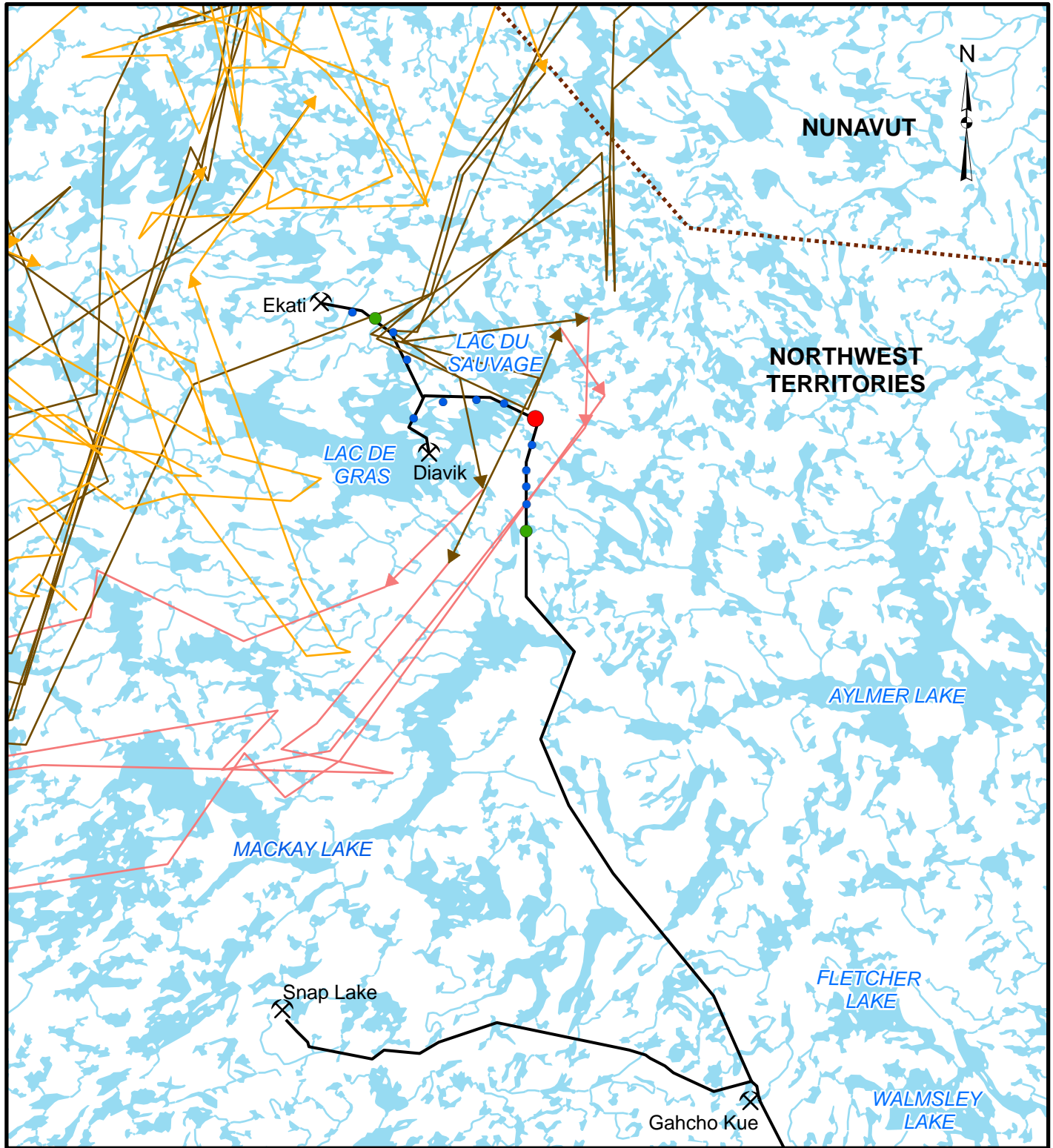
- Low
- Medium
- High
- Existing or Proposed Diamond Mines
- Approximate Treeline
- Transmission Line

REFERENCE










Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT		Fall and Winter Wildlife Surveys, Taltson Expansion Project	
TITLE		Caribou Trail Observations Along the Transmission Line Corridor	
 Golder Associates Yellowknife, Northwest Territories	PROJECT No. 06-1328-014	SCALE AS SHOWN	REV. 0
	DESIGN KB Nov. 2006	FIGURE: 4	
	GIS KB Nov. 2006		
	CHECK DP Nov. 2006		
REVIEW JV Dec. 2006			

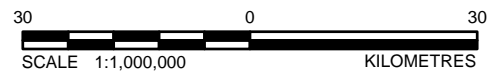



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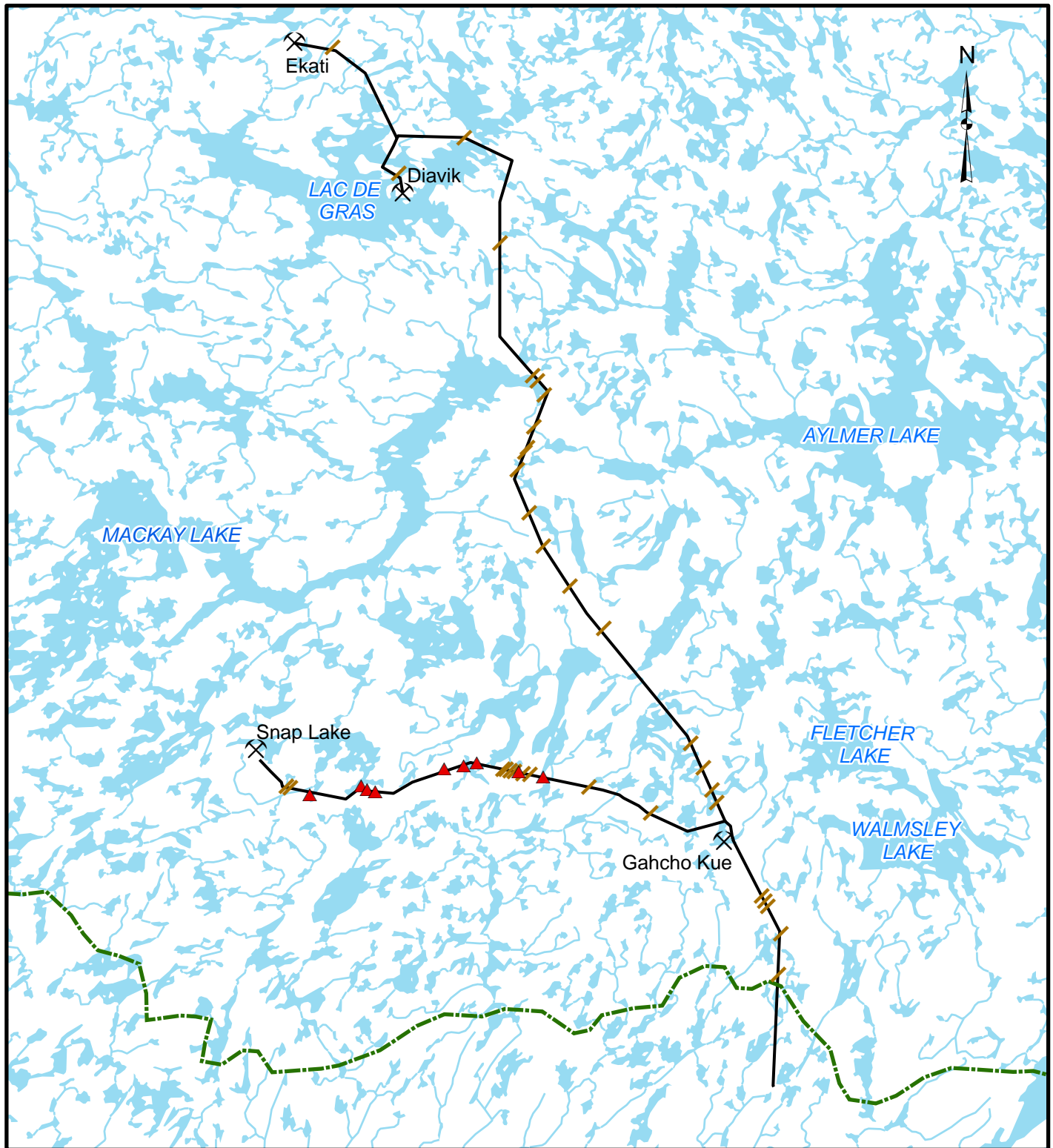
-  Existing or Proposed Diamond Mines
-  Bathurst Caribou Post-Calving Movement
-  Low
-  Medium
-  High
-  Bathurst Caribou Rut Movement
-  Bathurst Caribou Winter Movement
-  Transmission Line
-  Northwest Territories/Nunavut Border

REFERENCE

Collard Caribou Data Courtesy of the Environment and Natural Resources
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT	Fall and Early Winter Wildlife Surveys, Taltson Expansion Project		
TITLE	Caribou Satellite Collar Movements and Snow Track Index Along Transmission Line Corridor		
	PROJECT No. 06-1328-014	SCALE AS SHOWN	REV. 0
	DESIGN KB Nov. 2006	FIGURE: 5	
	GIS KB Nov. 2006		
	CHECK DP Nov. 2006		
	REVIEW JV Dec. 2006		
Yellowknife, Northwest Territories			

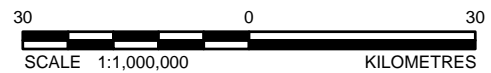


LEGEND

- ▲ Cliffs
- T Eskers
- Existing or Proposed Diamond Mines
- - - Approximate Treeline
- Transmission Line

REFERENCE

Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12

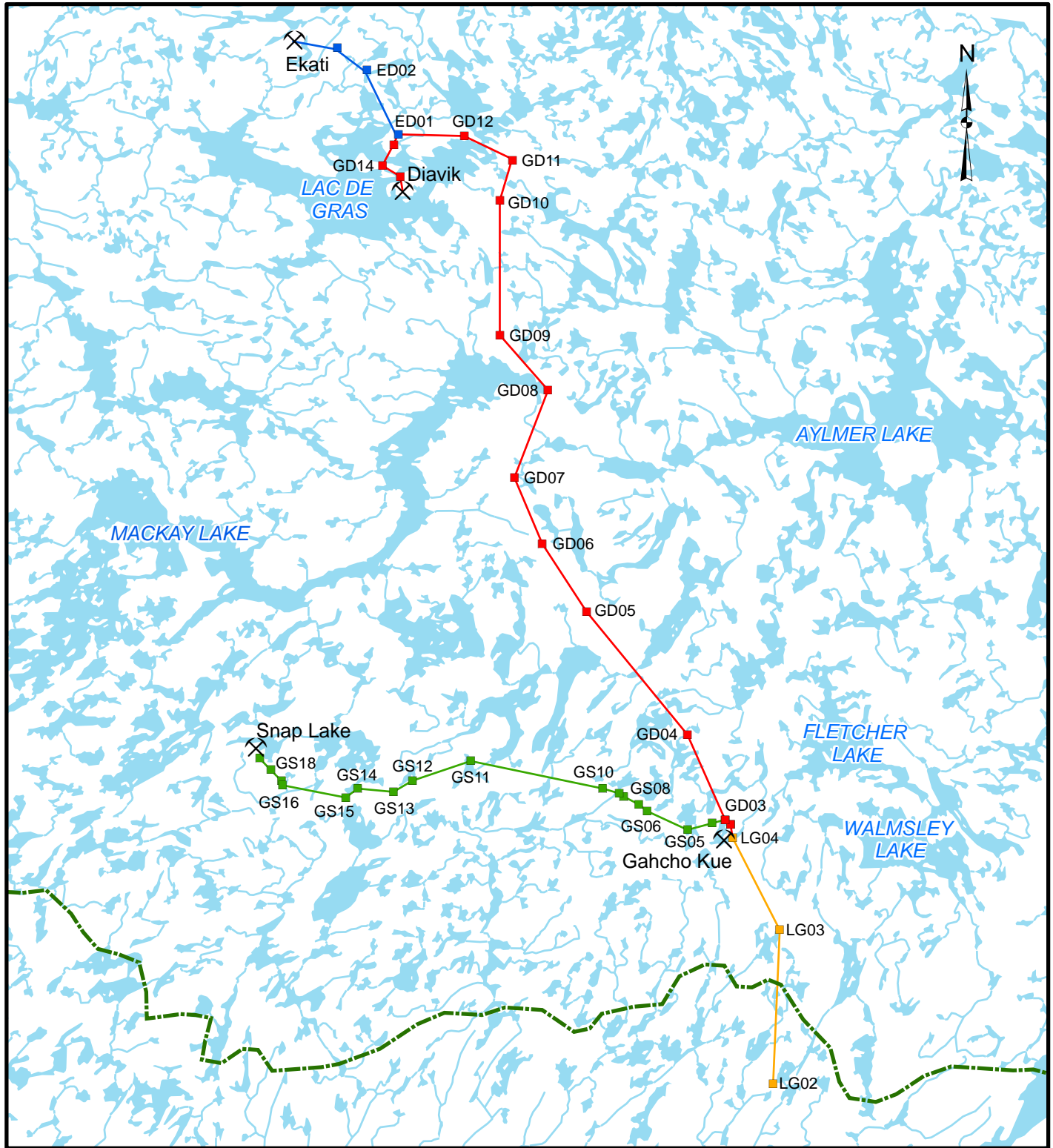


PROJECT	Fall and Early Winter Wildlife Surveys, Taltson Expansion Project		
TITLE	Location of Cliffs and Eskers Along the Transmission Line Corridor		
 Golder Associates <small>Yellowknife, Northwest Territories</small>	PROJECT No. 06-1328-014	SCALE AS SHOWN	REV. 0
	DESIGN KB Nov. 2006	FIGURE: 6	
	GIS KB Nov. 2006		
	CHECK DP Nov. 2006		
REVIEW JV Dec. 2006			

4.5 Point of Intersection Locations

PI locations are illustrated in Figure 7, and the proportion of each land cover type within 200 m radius of each PI location is provided in Appendix V. Within the 200 m radius, heath tundra was the dominant land cover type among all PI locations, followed by tussock/hummock, heath/bedrock, and water. Other land cover types observed included spruce forest, heath/boulders, riparian tall shrub, sedge wetland, boulder association, lichen veneer, bedrock association, and eskers.

A description of the physical setting, and distance to the nearest sensitive habitat feature (*i.e.* cliff, esker, or waterbody) is presented in Appendix VI. An estimated 79% of the terrain at the PI locations (N=38) was classified as either flat or undulating with a hillside location (Appendix VI). All points were within 500 m of a waterbody and three points (GS08, GD08, GD10) were within 10 m of a waterbody. Due to the large number of waterbodies on the barrenlands, it was expected that PI locations would be near waterbodies. No attempt was made to classify the size of the waterbody. In addition to the data presented in Appendix VI, high numbers of historic caribou trails were observed within 200 m of GD06, GD08, and LG04.

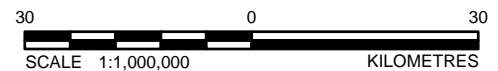


LEGEND

- Existing or Proposed Diamond Mines
- Diavik to Ekati
- Gahcho Kue to Diavik
- Gahcho Kue to Snap Lake
- Lockhart River to Gahcho Kue
- Approximate Treeline

REFERENCE

Base Map Courtesy of WWF
 Projection: Transverse Mercator Datum: NAD 83 Coordinate System: UTM Zone 12



PROJECT		Fall and Early Winter Wildlife Surveys, Taltson Expansion Project	
TITLE		Location of Points of Intersection Along the Transmission Line Corridor	
PROJECT No. 06-1328-014		SCALE AS SHOWN	REV. 0
DESIGN	KB Nov. 2006	FIGURE: 7	
GIS	KB Nov. 2006		
CHECK	DP Nov. 2006		
REVIEW	JV Dec. 2006		



5.0 DISCUSSION

Data from the satellite-collared caribou indicated that caribou only intercepted the northern parts of the proposed transmission line route following calving in 2006. Bathurst caribou exhibit two large-scale migrations each year. In the spring, they migrate northward to calving grounds near Bathurst Inlet, and following calving, they return to the treeline to overwinter. In 2006, data from satellite-collared animals suggested that the Bathurst herd remained north of the treeline for longer than usual, which may have been associated with the mild weather conditions during autumn. Near the end of the rut (October) and beginning of the winter (November to February), four collared caribou approached Ekati from the north, crossed the proposed transmission line, and later continued southwest and along the north shore of MacKay Lake. All crossed the proposed transmission line route at points north of MacKay Lake.

The movements of satellite-collared Bathurst caribou appeared to support aerial survey observations. The timing of the satellite-collared caribou movements from Lac de Gras to MacKay Lake (between October 14 and November 9) corresponded with the observations made on the final survey (November 1) when caribou snow tracks and two caribou groups were observed, all at MacKay Lake or further north. No cows and no caribou snow tracks were observed along the transmission line route south of MacKay Lake during any of the surveys. As only cows are collared, and bulls display different movement patterns from the cows, the observation of bulls along the transmission line route south of MacKay Lake does not contradict this pattern observed for female caribou.

Some areas of the transmission line route appear to have a higher probability of caribou presence than others. The large size and geographic position of Lac de Gras and MacKay Lake, combined with ice-free conditions in the fall, may lead to natural geographic bottlenecks for migrating caribou, or areas where migrating caribou are funnelled. Caribou trails offer a means of inferring where these bottlenecks occur, understanding historical movements, and predicting future migration paths. The importance of Lac de Gras and MacKay Lake in affecting caribou post-calving migrations is evident in the high number of historic trail observations made near the two lakes. Analysis of the annual movement of satellite-collared caribou from 1996 through 2005 also suggested that the sections of the transmission line near these lakes had a higher probability of caribou occurrence during the post-calving migration (Golder 2006).

On a larger scale, the number of caribou intercepting the transmission line will be variable from year-to-year. The northern migration corridor and post-calving migration corridor of the Bathurst herd can be defined as the eastern and western extents of caribou movements during these two migrations, taken cumulatively over several years (illustrated using collared caribou data in Gunn *et al.* 2002). In any one year, the predominant migration appears to only use a portion of these corridors; caribou are not distributed homogeneously throughout their seasonal range. As the transmission line spans only a portion of either of these two migration corridors (Gunn *et al.* 2002; Golder 2005), it can be expected that the transmission line route will be subject to differing proportions of the Bathurst herd among years. Therefore, there should be large year-to-year variation in the number of caribou (during both the northern and post-calving migrations) crossing the transmission line.

The narrows between Lac de Gras and Lac du Sauvage is an important geographic bottleneck, which concentrates caribou. This has been confirmed by wildlife monitoring at the Ekati mine (BHP Billiton Diamonds Inc. 2004), and the fact that the area is often hunted by sport hunters from the Lac de Gras East Fishing and Hunting Camp (operated by Courageous Lake Caribou Camps). Further, it appears that three of the satellite-collared caribou traveled very close to the narrows in 2006, and most likely used the narrows. This passage is to be spanned by the proposed transmission line (between PI locations GD11 and GD12). Although it is not as well reflected in the data collected, large numbers of caribou trails also were observed where the proposed transmission line route passes the eastern end of MacKay Lake (between PIs GD07 and GD08). As the Lockhart River flows out of MacKay Lake at this point, this is also a major river crossing area.

The number of historic caribou trails decreased as the transmission line reached the treeline. However, the tree canopy remained open, and the observers' ability to identify caribou trails was not compromised. The 'treeline' is more accurately described as a gradient, where disconnected patches of trees become regular, and trees are present beyond sheltered areas. The topography was observed to change at the treeline, from relatively flat near Gahcho Kué to large bedrock hills further south towards the Lockhart River. The observation of fewer caribou trails south of the treeline may have been due to this change in topography, which may scatter large caribou groups. It may also be due to behavioural changes (such as lower movement rates, or less direction to the movements), or a function of the vegetation being either frozen or snow-covered during the months when the caribou are south of the treeline.

Some important habitat features were observed along the transmission line route. Between Snap Lake and Gahcho Kué there are many cliffs and eskers, particularly between PI locations GS11 and GS10. Though few observations of wildlife were recorded in this area, the six eskers and four cliffs may provide important habitat for a number of species. For example, cliffs are used as nesting habitat for a variety of raptors (although the timing of the surveys may have been too late to document raptors, Court *et al.* 1988). No stick nests were observed on the cliffs, suggesting that no hawks or eagles had nested, but the presence of whitewash on two of the cliffs suggests that they may be used as perches for raptors or for nesting by falcons. Eskers are important habitat features for wolves, grizzly bears, and foxes. Because of their sandy surface, they may be more susceptible to trail imprinting by caribou. Between Gahcho Kué and Diavik there are seven esker complexes that fall between PI locations GD07 and GD09, which coincided with many high caribou trail index observations.

6.0 CLOSURE

We hope that this report meets your requirements. If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

GOLDER ASSOCIATES LTD.

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APPENDIX I
TABLE OF WILDLIFE OBSERVATIONS

Date	Species	Number	Composition	Behaviour	Habitat	UTM (Zone 12V)
11-Sept-06	Muskox	7	Unknown	Bedded	Sedge Wetland	566366 7044807
11-Sept-06	Caribou	1	Male	Walking	Heath Tundra	581294 7038065
11-Sept-06	Greater White-fronted Goose	200	Unknown	Unknown	Unknown	586578 7037895
11-Sept-06	Muskox	1	Male	Running	Unknown	586578 7037895
11-Sept-06	Muskox	1	Male	Feeding	Unknown	598905 6997622
11-Sept-06	Common Merganser	4	Unknown	Unknown	Lake	552918 7098936
11-Sept-06	Caribou	1	Male	Feeding	Heath Tundra	556593 7117370
11-Sept-06	Caribou	1	Male	Feeding	Heath Tundra	553680 7120891
02-Oct-06	Muskox	1	Male	Standing	Heath Tundra	599010 6997490
02-Oct-06	Wolf	2	Unknown	Running	Heath Tundra	549661 7125927
02-Oct-06	Grizzly Bear	2	Sow/cub	Standing	Heath Tundra	531049 7159201
1-Nov-06	Caribou	6	Female/Male	Feeding	Heath Tundra	549507 7130764
1-Nov-06	Caribou	9	Male	Standing	Heath Tundra	549968 7145075

Species	Total Number Observed	Groups
Caribou	18	5
Muskox	10	4
Wolf	2	1
Grizzly Bear	2	1
Greater White-fronted Goose	200	1
Common Merganser	4	1

APPENDIX II

TABLE OF CARIBOU TRAIL OBSERVATIONS

Transmission Line Section	Zone	Easting	Northing	Approximate Number of Parallel Trails	Approximate Length of Trail (m)
Snap Lake to Gacho Kué	12V	509702	7047027	<10	<200
Snap Lake to Gacho Kué	12V	510105	7046675	<10	400-600
Snap Lake to Gacho Kué	12V	510775	7046105	<10	200-400
Snap Lake to Gacho Kué	12V	511279	7045675	<10	<200
Snap Lake to Gacho Kué	12V	513222	7044707	<10	200-400
Snap Lake to Gacho Kué	12V	513553	7044616	<10	400-600
Snap Lake to Gacho Kué	12V	514121	7044356	10-20	200-400
Snap Lake to Gacho Kué	12V	518945	7043473	10-20	<200
Snap Lake to Gacho Kué	12V	519484	7043367	<10	<200
Snap Lake to Gacho Kué	12V	520293	7043225	<10	<200
Snap Lake to Gacho Kué	12V	520730	7043134	10-20	200-400
Snap Lake to Gacho Kué	12V	522850	7042988	20-50	400-600
Snap Lake to Gacho Kué	12V	528861	7043952	<10	<200
Snap Lake to Gacho Kué	12V	530822	7043713	<10	<200
Snap Lake to Gacho Kué	12V	532355	7044657	20-50	400-600
Snap Lake to Gacho Kué	12V	534689	7045734	<10	200-400
Snap Lake to Gacho Kué	12V	536271	7046401	<10	200-400
Snap Lake to Gacho Kué	12V	538208	7047199	<10	<200
Snap Lake to Gacho Kué	12V	542385	7048504	<10	<200
Snap Lake to Gacho Kué	12V	546607	7049162	<10	<200
Snap Lake to Gacho Kué	12V	547243	7048924	20-50	400-600
Snap Lake to Gacho Kué	12V	547570	7048820	10-20	200-400
Snap Lake to Gacho Kué	12V	547862	7048801	10-20	200-400
Snap Lake to Gacho Kué	12V	548425	7048587	<10	200-400
Snap Lake to Gacho Kué	12V	549941	7048285	10-20	<200
Snap Lake to Gacho Kué	12V	551950	7047867	10-20	400-600
Snap Lake to Gacho Kué	12V	554758	7047261	20-50	400-600
Snap Lake to Gacho Kué	12V	555884	7047068	20-50	400-600
Snap Lake to Gacho Kué	12V	558291	7046622	<10	400-600
Snap Lake to Gacho Kué	12V	560773	7046012	10-20	200-400
Snap Lake to Gacho Kué	12V	562049	7045897	20-50	<200
Snap Lake to Gacho Kué	12V	563447	7045544	<10	<200
Snap Lake to Gacho Kué	12V	564048	7045389	<10	200-400
Snap Lake to Gacho Kué	12V	566601	7044844	10-20	400-600
Snap Lake to Gacho Kué	12V	567442	7044735	20-50	400-600
Snap Lake to Gacho Kué	12V	568331	7044534	10-20	<200
Snap Lake to Gacho Kué	12V	569132	7044176	<10	<200
Snap Lake to Gacho Kué	12V	570201	7043846	<10	400-600
Snap Lake to Gacho Kué	12V	570754	7043672	<10	400-600

Continued

Transmission Line Section	Zone	Easting	Northing	Approximate Number of Parallel Trails	Approximate Length of Trail (m)
Snap Lake to Gacho Kué	12V	571392	7043473	10-20	400-600
Snap Lake to Gacho Kué	12V	571673	7043383	10-20	400-600
Snap Lake to Gacho Kué	12V	574289	7041983	<10	400-600
Snap Lake to Gacho Kué	12V	574652	7041748	10-20	400-600
Snap Lake to Gacho Kué	12V	575053	7041452	<10	400-600
Snap Lake to Gacho Kué	12V	575919	7040947	<10	400-600
Snap Lake to Gacho Kué	12V	577606	7039862	20-50	200-400
Snap Lake to Gacho Kué	12V	578539	7039388	<10	400-600
Snap Lake to Gacho Kué	12V	579648	7038942	<10	200-400
Snap Lake to Gacho Kué	12V	580376	7038590	10-20	400-600
Snap Lake to Gacho Kué	12V	581785	7037842	20-50	400-600
Snap Lake to Gacho Kué	12V	582495	7037583	20-50	400-600
Snap Lake to Gacho Kué	12V	583690	7037224	10-20	200-400
Snap Lake to Gacho Kué	12V	584582	7037247	<10	400-600
Snap Lake to Gacho Kué	12V	585349	7037506	20-50	200-400
Snap Lake to Gacho Kué	12V	585856	7037718	50+	200-400
Snap Lake to Gacho Kué	12V	586148	7037844	10-20	200-400
Snap Lake to Gacho Kué	12V	587591	7038275	20-50	400-600
Gacho Kué to Lockhart River	12V	590384	7038388	20-50	<200
Gacho Kué to Lockhart River	12V	592643	7033730	<10	400-600
Gacho Kué to Lockhart River	12V	593681	7031708	10-20	200-400
Gacho Kué to Lockhart River	12V	594330	7030059	<10	<200
Gacho Kué to Lockhart River	12V	594525	7029670	<10	<200
Gacho Kué to Lockhart River	12V	594847	7029110	<10	<200
Gacho Kué to Lockhart River	12V	595418	7028167	10-20	400-600
Gacho Kué to Lockhart River	12V	595982	7027231	10-20	200-400
Gacho Kué to Lockhart River	12V	596141	7026750	10-20	<200
Gacho Kué to Lockhart River	12V	596425	7026062	20-50	400-600
Gacho Kué to Lockhart River	12V	596877	7025191	10-20	400-600
Gacho Kué to Lockhart River	12V	598394	7022289	10-20	400-600
Gacho Kué to Lockhart River	12V	598860	7021374	20-50	200-400
Gacho Kué to Lockhart River	12V	599891	7019447	<10	<200
Gacho Kué to Lockhart River	12V	600022	7017720	<10	400-600
Gacho Kué to Lockhart River	12V	599868	7015691	50+	200-400
Gacho Kué to Lockhart River	12V	599764	7013562	<10	<200
Gacho Kué to Lockhart River	12V	599707	7012691	<10	200-400
Gacho Kué to Lockhart River	12V	599596	7009220	<10	<200
Gacho Kué to Lockhart River	12V	599582	7008499	20-50	200-400
Gacho Kué to Lockhart River	12V	599420	7006349	10-20	<200

Continued

Transmission Line Section	Zone	Easting	Northing	Approximate Number of Parallel Trails	Approximate Length of Trail (m)
Gacho Kué to Lockhart River	12V	599403	7005939	<10	<200
Gacho Kué to Lockhart River	12V	599266	7003686	<10	<200
Gahcho Kué to Diavik	12V	599148	7000744	10-20	200-400
Gahcho Kué to Diavik	12V	598737	6992165	20-50	<200
Gahcho Kué to Diavik	12V	590628	7036794	<10	200-400
Gahcho Kué to Diavik	12V	590865	7037406	10-20	<200
Gahcho Kué to Diavik	12V	591033	7037953	<10	400-600
Gahcho Kué to Diavik	12V	589481	7039899	10-20	<200
Gahcho Kué to Diavik	12V	588857	7041740	<10	<200
Gahcho Kué to Diavik	12V	588291	7043148	<10	200-400
Gahcho Kué to Diavik	12V	588156	7043583	<10	<200
Gahcho Kué to Diavik	12V	587888	7044269	<10	400-600
Gahcho Kué to Diavik	12V	587223	7045386	10-20	200-400
Gahcho Kué to Diavik	12V	587067	7045708	<10	600+
Gahcho Kué to Diavik	12V	586307	7047285	10-20	600+
Gahcho Kué to Diavik	12V	586226	7047832	20-50	200-400
Gahcho Kué to Diavik	12V	586191	7048754	<10	<200
Gahcho Kué to Diavik	12V	586035	7049237	10-20	<200
Gahcho Kué to Diavik	12V	583657	7053468	10-20	600+
Gahcho Kué to Diavik	12V	580088	7058370	20-50	600+
Gahcho Kué to Diavik	12V	579787	7058683	<10	600+
Gahcho Kué to Diavik	12V	579539	7058967	10-20	600+
Gahcho Kué to Diavik	12V	578278	7060176	10-20	400-600
Gahcho Kué to Diavik	12V	577923	7060693	10-20	600+
Gahcho Kué to Diavik	12V	572348	7067965	10-20	400-600
Gahcho Kué to Diavik	12V	572103	7068466	<10	600+
Gahcho Kué to Diavik	12V	570526	7069480	10-20	600+
Gahcho Kué to Diavik	12V	569562	7070667	<10	<200
Gahcho Kué to Diavik	12V	568927	7071371	20-50	200-400
Gahcho Kué to Diavik	12V	566472	7074574	<10	200-400
Gahcho Kué to Diavik	12V	562771	7080437	<10	200-400
Gahcho Kué to Diavik	12V	559899	7084390	<10	400-600
Gahcho Kué to Diavik	12V	559596	7084927	<10	<200
Gahcho Kué to Diavik	12V	558514	7086569	20-50	600+
Gahcho Kué to Diavik	12V	557889	7087559	50+	600+
Gahcho Kué to Diavik	12V	555367	7092971	<10	600+
Gahcho Kué to Diavik	12V	555068	7094254	20-50	600+
Gahcho Kué to Diavik	12W	552860	7099117	50+	600+
Gahcho Kué to Diavik	12W	552612	7099795	10-20	200-400

Continued

Transmission Line Section	Zone	Easting	Northing	Approximate Number of Parallel Trails	Approximate Length of Trail (m)
Gahcho Kué to Diavik	12W	552689	7100520	50+	200-400
Gahcho Kué to Diavik	12W	553222	7101842	10-20	400-600
Gahcho Kué to Diavik	12W	553531	7102477	20-50	600+
Gahcho Kué to Diavik	12W	553977	7103878	10-20	200-400
Gahcho Kué to Diavik	12W	555159	7106289	10-20	600+
Gahcho Kué to Diavik	12W	555426	7107650	50+	600+
Gahcho Kué to Diavik	12W	555527	7108054	50+	600+
Gahcho Kué to Diavik	12W	555799	7108722	50+	600+
Gahcho Kué to Diavik	12W	556406	7109995	20-50	600+
Gahcho Kué to Diavik	12W	556923	7111303	20-50	600+
Gahcho Kué to Diavik	12W	557376	7112432	50+	600+
Gahcho Kué to Diavik	12W	557836	7113609	10-20	600+
Gahcho Kué to Diavik	12W	555245	7119042	<10	200-400
Gahcho Kué to Diavik	12W	554700	7119701	<10	<200
Gahcho Kué to Diavik	12W	554470	7119976	10-20	<200
Gahcho Kué to Diavik	12W	554197	7120283	50+	600+
Gahcho Kué to Diavik	12W	553427	7121181	10-20	600+
Gahcho Kué to Diavik	12W	552141	7122868	<10	600+
Gahcho Kué to Diavik	12W	551672	7123383	20-50	200-400
Gahcho Kué to Diavik	12W	549794	7125749	50+	<200
Gahcho Kué to Diavik	12W	549754	7127990	20-50	<200
Gahcho Kué to Diavik	12W	549827	7128654	10-20	200-400
Gahcho Kué to Diavik	12W	549838	7129459	20-50	200-400
Gahcho Kué to Diavik	12W	549859	7130051	20-50	600+
Gahcho Kué to Diavik	12W	549907	7130573	20-50	400-600
Gahcho Kué to Diavik	12W	549992	7131462	50+	600+
Gahcho Kué to Diavik	12W	549665	7133532	50+	600+
Gahcho Kué to Diavik	12W	549707	7134616	<10	200-400
Gahcho Kué to Diavik	12W	550076	7136712	10-20	400-600
Gahcho Kué to Diavik	12W	550131	7137709	10-20	400-600
Gahcho Kué to Diavik	12W	550024	7138780	20-50	400-600
Gahcho Kué to Diavik	12W	550010	7139481	50+	600+
Gahcho Kué to Diavik	12W	550079	7140521	<10	200-400
Gahcho Kué to Diavik	12W	549778	7142707	10-20	600+
Gahcho Kué to Diavik	12W	549677	7143343	<10	600+
Gahcho Kué to Diavik	12W	549647	7143875	10-20	600+
Gahcho Kué to Diavik	12W	549721	7145787	50+	200-400
Gahcho Kué to Diavik	12W	549749	7147725	20-50	200-400
Gahcho Kué to Diavik	12W	549119	7149004	<10	400-600

Continued

Transmission Line Section	Zone	Easting	Northing	Approximate Number of Parallel Trails	Approximate Length of Trail (m)
Gahcho Kué to Diavik	12W	549951	7152302	10-20	400-600
Gahcho Kué to Diavik	12W	549916	7154400	10-20	600+
Gahcho Kué to Diavik	12W	549798	7157802	10-20	200-400
Gahcho Kué to Diavik	12W	549113	7158065	20-50	400-600
Gahcho Kué to Diavik	12W	548626	7158251	20-50	600+
Gahcho Kué to Diavik	12W	546115	7159297	10-20	600+
Gahcho Kué to Diavik	12W	544235	7160382	<10	400-600
Gahcho Kué to Diavik	12W	542135	7160370	20-50	200-400
Gahcho Kué to Diavik	12W	540583	7160006	<10	200-400
Gahcho Kué to Diavik	12W	538756	7159536	10-20	400-600
Gahcho Kué to Diavik	12W	537604	7159853	<10	200-400
Gahcho Kué to Diavik	12W	533746	7159560	<10	600+
Gahcho Kué to Diavik	12W	532825	7159450	10-20	400-600
Gahcho Kué to Diavik	12W	532268	7159379	50+	<200
Diavik to Ekati	12W	531244	7162382	10-20	400-600
Diavik to Ekati	12W	531052	7163236	<10	200-400
Diavik to Ekati	12W	530535	7164759	<10	200-400
Diavik to Ekati	12W	529328	7166243	<10	200-400
Diavik to Ekati	12W	528098	7168068	<10	<200
Diavik to Ekati	12W	527768	7168578	<10	200-400
Diavik to Ekati	12W	526774	7169933	<10	400-600
Diavik to Ekati	12W	526649	7170512	<10	400-600
Diavik to Ekati	12W	526042	7172334	10-20	600+
Diavik to Ekati	12W	531107	7158414	20-50	600+
Diavik to Ekati	12W	530531	7158243	<10	<200
Diavik to Ekati	12W	530111	7157429	20-50	400-600
Diavik to Ekati	12W	529815	7156599	20-50	400-600
Diavik to Ekati	12W	529652	7154935	<10	200-400

APPENDIX III
TABLE OF CLIFF LOCATIONS

Raptor Presence	Nest Presence	Jewel Lichen Presence	UTM (Zone 12V)
No	No	No	515976 7043527
No	No	Yes	525153 7045142
No	No	No	525646 7044478
No	No	Yes	527015 7044087
No	No	No	539990 7048147
No	No	No	545578 7048881
No	No	No	545788 7049195
No	No	No	553313 7047596
No	No	No	557691 7046714

APPENDIX IV
TABLE OF ESKER LOCATIONS

Transmission Line Section	Zone	UTM
Snap Lake to Gacho Kué	12V	511771 7045166
Snap Lake to Gacho Kué	12V	512531 7044814
Snap Lake to Gacho Kué	12V	550456 7048172
Snap Lake to Gacho Kué	12V	550983 7048111
Snap Lake to Gacho Kué	12V	551722 7047920
Snap Lake to Gacho Kué	12V	552519 7047752
Snap Lake to Gacho Kué	12V	554052 7047406
Snap Lake to Gacho Kué	12V	555259 7047201
Snap Lake to Gacho Kué	12V	565824 7044934
Snap Lake to Gacho Kué	12V	576847 7040407
Gahcho Kué to Lockhart River	12V	596665 7025595
Gahcho Kué to Lockhart River	12V	597250 7024559
Gahcho Kué to Lockhart River	12V	597745 7023657
Gahcho Kué to Lockhart River	12V	600132 7018869
Gahcho Kué to Lockhart River	12V	599666 7011614
Gahcho Kué to Diavik	12V	588651 7042230
Gahcho Kué to Diavik	12V	587779 7044445
Gahcho Kué to Diavik	12V	586243 7048384
Gahcho Kué to Diavik	12V	583980 7052751
Gahcho Kué to Diavik	12V	568487 7073250
Gahcho Kué to Diavik	12V	562447 7080740
Gahcho Kué to Diavik	12V	557684 7087883
Gahcho Kué to Diavik	12V	555135 7093918
Gahcho Kué to Diavik	12W	553022 7101488
Gahcho Kué to Diavik	12W	554368 7104708
Gahcho Kué to Diavik	12W	554820 7105485
Gahcho Kué to Diavik	12W	556007 7109163
Gahcho Kué to Diavik	12W	557855 7114922
Gahcho Kué to Diavik	12W	556615 7117334
Gahcho Kué to Diavik	12W	555769 7118361
Gahcho Kué to Diavik	12W	549958 7142015
Gahcho Kué to Diavik	12W	543551 7160664
Diavik to Ekati	12W	520024 7176866
Gahcho Kué to Diavik	12W	531870 7154339

APPENDIX V

**TABLE OF LAND COVER TYPES AT EACH POINT OF
INTERSECTION LOCATION**

PI Site Number	Land Cover Type (% Composition Within 200m)												
	Water	Sedge Wetland	Tussock/Hummock	Riparian Tall Shrub	Birch Seep	Esker Complex	Heath Tundra	Heath/Bedrock	Heath/Boulders	Boulder Association	Bedrock Association	Lichen Veneer	Spruce Forest
ED01	-	-	-	-	-	-	20	40	-	40	-	-	-
ED02	30	20	-	-	-	-	20	-	30	-	-	-	-
ED03	10	25	10	-	-	-	-	20	10	-	25	-	-
GS02	5	10	40	-	-	-	45	-	-	-	-	-	-
GS03	5	-	20	5	-	-	70	-	-	-	-	-	-
GS04	20	5	30	-	-	-	35	-	-	-	-	10	-
GS05	20	-	-	30	-	-	40	-	-	-	-	10	-
GS06	10	-	Trace	5	-	-	80	-	-	-	-	5	Trace
GS07	-	-	20	Trace	-	-	70	-	-	-	-	10	-
GS08	70	-	5	5	-	-	20	-	-	-	-	-	-
GS09	10	-	-	20	-	-	-	-	65	-	-	-	5
GS10	-	-	15	10	-	-	75	-	-	-	-	-	-
GS11	10	-	-	20	-	-	30	30	-	-	-	-	10
GS12	20	-	5	5	-	-	-	55	-	5	-	-	10
GS13	-	-	20	10	-	-	-	60	-	10	-	-	Trace
GS14	-	-	-	10	-	-	55	-	-	20	-	-	15
GS15	-	-	-	10	-	-	75	-	-	10	-	-	5
GS16	20	-	20	20	-	-	-	40	-	-	-	-	Trace
GS17	30	-	20	-	-	-	-	50	-	-	-	-	Trace
GS18	30	-	20	-	-	-	30	-	-	10	-	-	10
GS19	20	30	-	-	-	-	40	-	-	10	-	-	-
GD02	-	20	30	-	-	-	50	-	-	-	-	-	-
GD03	-	-	-	-	-	-	100	-	-	-	-	-	-
GD04	30	-	Trace	Trace	-	-	-	40	-	-	-	-	30

Continued

PI Site Number	Land Cover Type (% Composition Within 200m)												
	Water	Sedge Wetland	Tussock/Hummock	Riparian Tall Shrub	Birch Seep	Esker Complex	Heath Tundra	Heath/Bedrock	Heath/Boulders	Boulder Association	Bedrock Association	Lichen Veneer	Spruce Forest
GD05	10	-	10	-	-	-	-	-	50	30	-	-	-
GD06	-	-	10	30	-	10	-	-	45	-	-	5	-
GD07	-	-	40	-	-	-	60	-	-	-	-	-	-
GD08	5	-	40	-	-	-	55	-	-	-	-	-	-
GD09	-	-	-	-	-	-	100	-	Trace	-	-	-	-
GD10	50	-	10	-	-	-	-	-	40	-	-	-	-
GD11	-	-	50	-	-	-	50	-	-	-	Trace	-	-
GD12	10	10	20	-	-	Trace	60	-	-	Trace	-	-	-
GD13	-	-	10	20	-	-	60	-	-	10	-	-	-
GD14	-	30	40	-	-	-	30	-	-	Trace	-	-	-
GD15	30	-	15	-	-	-	-	55	-	-	-	-	-
LG02	10	-	10	-	-	-	-	40	-	-	-	20	20
LG03	-	-	-	5	-	-	-	85	-	-	10	-	Trace
LG04	30	-	-	5	-	-	65	-	-	-	-	-	Trace

APPENDIX VI

SETTING AND DISTANCE TO WATERBODY, ESKER AND CLIFF FOR EACH POINT OF INTERSECTION LOCATION

PI Site Number	Slope	Aspect	Topography	Location	Distance to (m):		
					Waterbody	Cliff	Esker
ED01	-	-	undulating	hillside	200	> 1000	> 1000
ED02	20	NW	hilly	hillside	200	> 1000	> 1000
ED03	-	-	undulating	n/a	20	> 1000	> 1000
GS02	-	-	flat	n/a	20	> 1000	> 1000
GS03	-	-	flat	n/a	200	> 1000	> 1000
GS04	-	-	flat	n/a	50	> 1000	> 1000
GS05	5	S	undulating	hillside	50	> 1000	> 1000
GS06	10	N	undulating	hillside	150	> 1000	> 1000
GS07	10	E	undulating	hillside	250	> 1000	> 1000
GS08	30	E	undulating	hillside	5	> 1000	> 1000
GS09	10	S	undulating	hillside	200	> 1000	> 1000
GS10	-	-	undulating	hilltop	500	> 1000	> 1000
GS11	10	W	undulating	hillside	50	> 1000	> 1000
GS12	-	-	flat	n/a	20	> 1000	> 1000
GS13	-	-	flat	hilltop	200	> 1000	> 1000
GS14	-	-	flat	n/a	500	> 1000	> 1000
GS15	-	-	flat	n/a	400	> 1000	> 1000
GS16	-	-	flat	n/a	50	> 1000	300
GS17	-	-	undulating	n/a	100	> 1000	600
GS18	-	-	undulating	n/a	50	> 1000	> 1000
GS19	-	-	flat	n/a	200	> 1000	> 1000
GD02	-	-	flat	n/a	600	> 1000	> 1000
GD03	-	-	flat	n/a	400	> 1000	> 1000
GD04	-	-	flat	n/a	50	> 1000	> 1000
GD05	-	-	flat	n/a	150	> 1000	> 1000
GD06	-	-	flat	n/a	250	> 1000	100
GD07	-	-	flat	n/a	500	> 1000	> 1000
GD08	-	-	flat	n/a	10	> 1000	200
GD09	-	-	undulating	hilltop	300	> 1000	> 1000
GD10	-	-	flat	n/a	10	> 1000	> 1000
GD11	-	-	flat	n/a	500	> 1000	> 1000
GD12	-	-	flat	n/a	20	> 1000	100
GD13	10	S	undulating	hillside	200	> 1000	> 1000
GD14	-	-	undulating	hilltop	50	> 1000	> 1000
GD15	-	-	flat	n/a	50	> 1000	> 1000
LG02	20	W	hilly	hillside	100	> 1000	> 1000
LG03	10	S	undulating	hilltop	500	> 1000	> 1000
LG04	5	S	flat	n/a	30	> 1000	> 1000

APPENDIX VII
PHOTOGRAPHS



Photo 1. A dense network of caribou trails in the tundra.



Photo 2. Merging caribou trails at a stream crossing.



Photo 3. Pete Enzo of Lutsel K'e assisting with an aerial survey, October 2, 2006.