CUMBERLAND
RESOURCES LTD.

MEADOWBANK GOLD PROJECT

ACCESS & AIR TRAFFIC MANAGEMENT

JANUARY 2005

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DESCRIPTION OF SUPPORTING DOCUMENTATION

Cumberland Resources Ltd. (Cumberland) is proposing to develop a mine on the Meadowbank property. The property is located in the Kivalliq region approximately 70 km north of the Hamlet of Baker Lake on Inuit-owned surface lands. Cumberland has been actively exploring the Meadowbank area since 1995. Engineering, environmental baseline studies, and community consultations have paralleled these exploration programs and have been integrated to form the basis of current project design.

1. The Meadowbank project is subject to the environmental review and related licensing and permitting processes established by Part 5 of the Nunavut Land Claims Agreement. To complete an environmental impact assessment (EIA) for the Meadowbank Gold project, Cumberland followed the steps listed below:

2. Determined the VECs (air quality, noise, water quality, surface water quantity and distribution, permafrost, fish populations, fish habitat, ungulates, predatory mammals, small mammals, raptors, waterbirds, and other breeding birds) and VSECs (employment, training and business opportunities; traditional ways of life; individual and community wellness; infrastructure and social services; and sites of heritage significance) based on discussions with stakeholders, public meetings, traditional knowledge, and the experience of other mines in the north.

3. Conducted baseline studies for each VEC and compared / contrasted the results with the information gained through traditional knowledge studies (see Column 1 on the following page for a list of baseline reports).

4. Used the baseline and traditional knowledge studies to determine the key potential project interactions and impacts for each VEC (see Column 2 for a list of EIA reports).

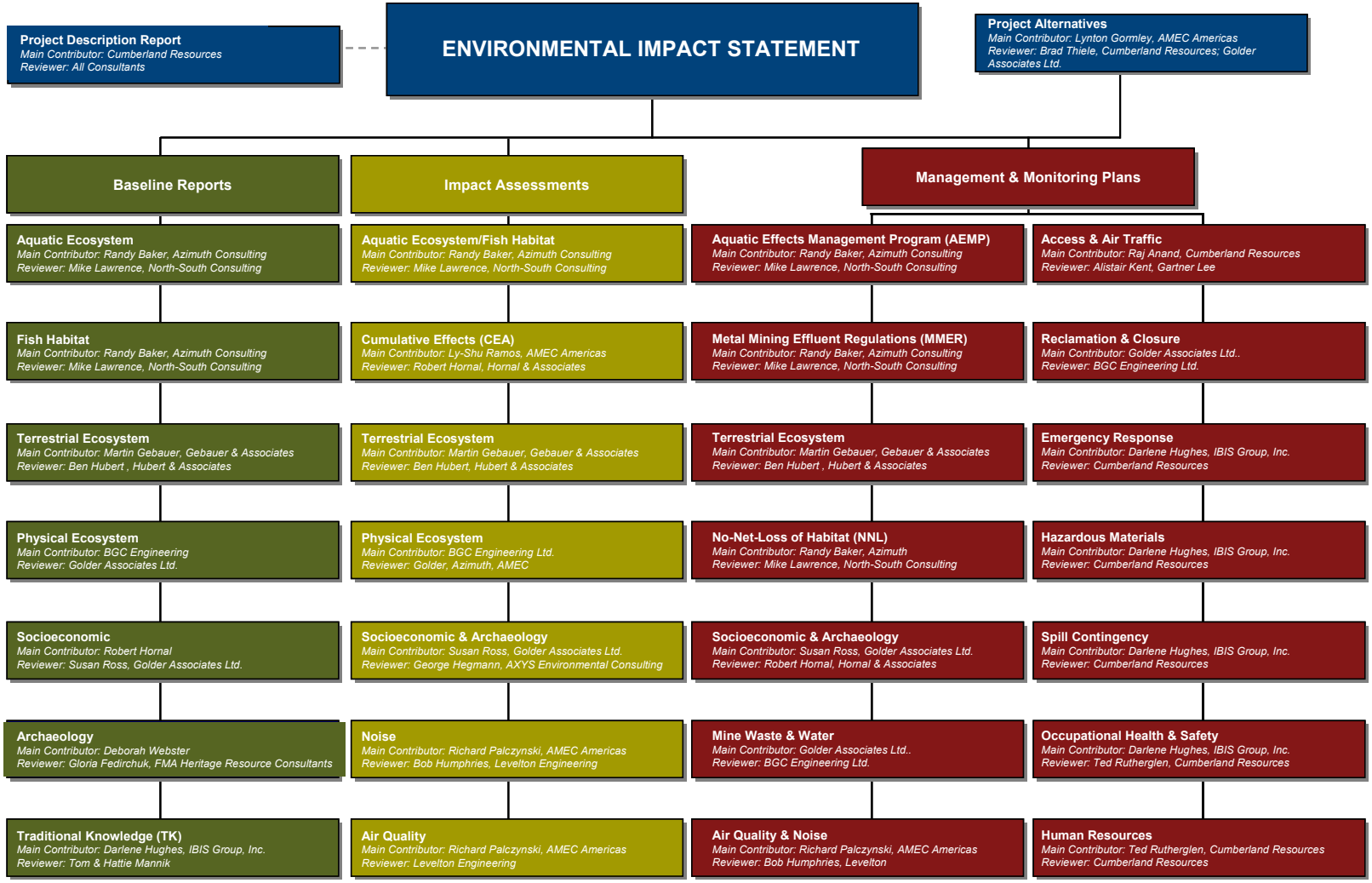
5. Developed preliminary mitigation strategies for key potential interactions and proposed contingency plans to mitigate unforeseen impacts by applying the precautionary principle (see Column 3 for a list of management plans).

6. Developed long-term monitoring programs to identify residual effects and areas in which mitigation measures are non-compliant and require further refinement. These mitigation and monitoring procedures will be integrated into all stages of project development and will assist in identifying how natural changes in the environment can be distinguished from project-related impacts (monitoring plans are also included in Column 3).

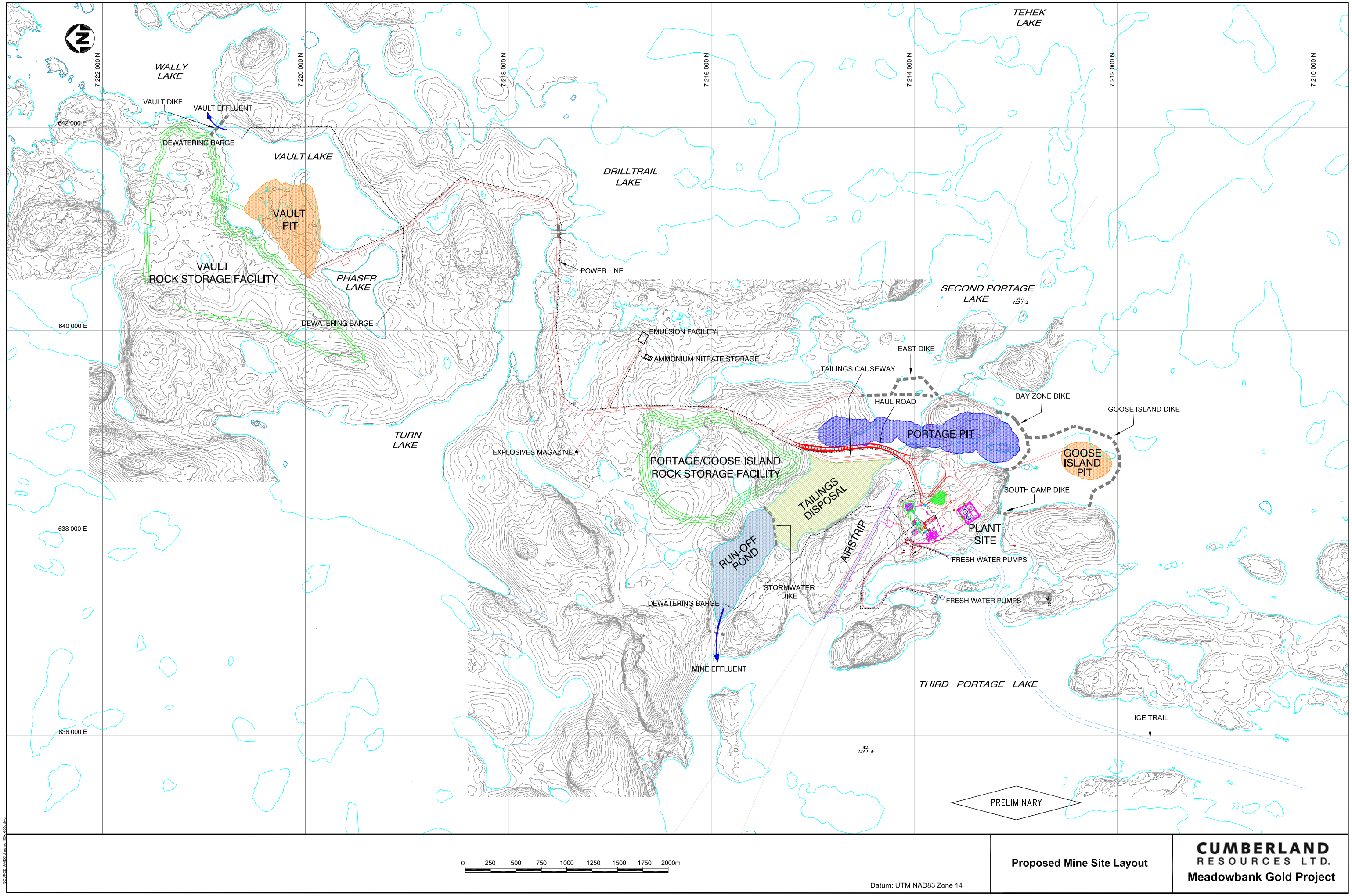
7. Produce and submit an EIS report to NIRB.

As shown on the following page, this report is part of a documentation series that has been produced during this six-stage EIA process.

EIA Documentation Organization Chart



PROJECT LOCATION MAP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TEHEK LAKE
VAULT DIKE
VAULT EFFLUENT
DEWATERING BARGE
VAULT LAKE
DRILLTRAIL LAKE
VAULT PIT
VAULT ROCK STORAGE FACILITY
PHASER LAKE
POWER LINE
SECOND PORTAGE LAKE
DEWATERING BARGE
EMULSION FACILITY
AMMONIUM NITRATE STORAGE
EAST DIKE
TAILINGS CAUSEWAY
HAUL ROAD
BAY ZONE DIKE
GOOSE ISLAND DIKE
PORTAGE PIT
GOOSE ISLAND PIT
TURN LAKE
EXPLOSIVES MAGAZINE
PORTAGE/GOOSE ISLAND ROCK STORAGE FACILITY
TAILINGS DISPOSAL
SOUTH CAMP DIKE
PLANT SITE
AIRSTRIP
FRESH WATER PUMPS
RUN-OFF POND
STORMWATER DIKE
FRESH WATER PUMPS
DEWATERING BARGE
MINE EFFLUENT
THIRD PORTAGE LAKE
ICE TRAIL
PRELIMINARY
0 250 500 750 1000 1250 1500 1750 2000m
Datum: UTM NAD83 Zone 14
Proposed Mine Site Layout
CUMBERLAND RESOURCES LTD.
Meadowbank Gold Project

SECTION 1 • INTRODUCTION

This access and air traffic management plan briefly describes the main on-site access facilities for the Cumberland Resources Ltd. (Cumberland) Meadowbank project and the off-site access and supply facilities at Baker Lake. The description includes the transportation and access components, their key design parameters, their method of operations, and key safety and environmental protection measures. Other traffic management plans (e.g., Diavik) were reviewed during the preparation of this document.

SECTION 2 • VEHICLE TRANSPORTATION SYSTEM

2.1 GENERAL DESCRIPTION

For a detailed description of the design and construction of the main access and mine roads and the airstrip, refer to the Project Description Report. The following brief description is provided for ready reference.

Three types of roads will provide on-site access and external access to the project site:

- *Haul roads* – permanent, all season roads for mining trucks hauling ore to the process plant and waste rock to various containment and construction sites
- *Service roads* – permanent, all season roads to provide service and maintenance vehicle access to all areas of the proposed project
- *Winter haulage route* – between Baker Lake and the Meadowbank mine site.

The first two types of the above roads would be constructed above grade, using quarry or mined country rock of appropriate size. The winter haulage route from Baker Lake to the project site has been located mostly over water bodies, making use of sufficiently thick ice during winter. All terrain vehicles will be used and conventional portage road construction, as such, is not proposed for development of the winter haulage route.

Local service roads within the site boundaries and haul roads will meet all applicable standards of the "DIAND Land Use Guidelines for Access Roads and Trails" and the *Nunavut Mine Health and Safety Act* where applicable.

The planned widths of running surfaces for roads will be between 20 to 30 m for haul roads, well in excess of the minimum requirement for three times the width of the largest haul truck, and 6 m for service roads. Final design of all site roads will specify curves with minimum radii commensurate with design speeds selected for optimum efficiency and meeting mine safety requirements. Maximum grades will be 8%.

Side berms will be provided when road elevations are greater than 3 m above surrounding terrain. The side berms will be of relatively short length, typically less than 100 m, along several isolated sections, such as at the Turn Lake crossing. Side berms are therefore not expected to significantly disrupt the passage of caribou and other wildlife.

The terrain at the mine site is gently undulating, and mine haul roads will be constructed above grade, using mine waste rock. Material forming the running surface may be screened to remove oversize material and to reduce tire wear. If necessary, mine rock will be screened or crushed to provide material for road surfacing.

No significant subgrade cuts are proposed. To preserve underlying permafrost, road fills will generally be no greater than 1 to 2 m thick. There will be virtually no removal or disturbance of the natural

ground surface, except in very localized instances. Wherever possible, permanent freezing of the natural subgrade will be promoted by placing fills when the ground is frozen to surface. Appropriate controls on material selection will be applied to ensure that geochemical impacts on water quality are controlled and limited to acceptable levels.

Except for the crossing of Turn Lake by the Vault pit haul road, site roads will cross only minor drainages. Relatively small corrugated metal pipe (typically less than 2 m diameter) will be installed at these drainages. These culverts will be inspected and cleaned out regularly, especially during spring thaw.

Dust control on the roads will be achieved through regular watering during the dry periods and is not anticipated to be required in winter. Calcium chloride may be used if necessary.

All roads will be maintained for safe and efficient operation by regular grading, repair of potholes, application of additional material if required, and snow clearing.

2.2 MINE HAUL ROADS

2.2.1 Description

Ore haulage roads will connect each open pit with the ore crushing station and the adjacent raw ore stockpile. Initially, ore will be hauled from the Portage pit, approximately 1 km to the crusher. In Year 2, ore will be hauled 7 km from the Vault pit. During years 6 and 7, ore will be hauled 2 km from the Goose Island pit to the crusher. Ore haulage trucks will re-fuel at the fuel facility dispensing station located adjacent to the crusher on the southern margins of the process plant complex, as part of their haulage cycle, or when exiting the heavy vehicle maintenance shop.

Potentially non-acid-generating (non-PAG) waste mine rock will be used to construct the airstrip, the crusher ramp, and other mine access roads linking the pits and waste rock storage piles. Waste mine rock not required for construction will be permanently consigned to mine waste dumps located to the northwest of the Portage pit and to the west of the Vault pit.

2.2.2 Mobile Equipment

The mine haulage fleet will be:

- 10 CAT 777 size haul trucks with GVW of 165 tonnes when fully loaded
- five of these trucks will operate in the Portage pit on both ore and waste haulage duties, and the other five will operate in the Vault pit.

Traffic during operations will include haul trucks, service trucks, mobile cranes, graders, dozers, loaders, and employee transport vehicles during the construction, operations, and closure phases of the mine. The haul trucks will be in operation continuously, 24 h/d, 7 d/wk.

2.3 SITE SERVICE ROADS

Service roads will connect the water supply intake, the airstrip parking apron, and the tailings impoundment with the north side of the plant site complex, completely avoiding contact with large mine equipment. These service roads will join the access road around the perimeter of the north side of the complex, which includes the camp at the west end. Additional access for light vehicles will be allowed around the west side of the camp to connect with the laydown area, fuel storage, and dispensing facility and the west side of the maintenance shop.

Light vehicles for mine operations supervision, and maintenance and supply trucks, will access the mine area using the mine haulage roads. Side roads will extend from the Vault pit haul road to the explosives storage and manufacturing facilities, located approximately midway between the Portage and Vault pits.

2.4 WINTER HAULAGE FROM BAKER LAKE

Most construction and operations freight will be transported to the site along the traditional winter access corridor that has serviced the site during exploration, and also is typically used by the local people to access the region (see Figures 2.1 and 2.2). Low ground pressure all-terrain haulage vehicles are proposed to transport all goods to site, including fuel. This type of equipment has been used successfully in recent years to service the exploration project. The prime movers, while carrying up to about 20 tonnes, will tow one or more trailers or sleds, with a similar load, along a trail of packed snow and ice.

The route for the winter haulage trail follows a series of lakes separated by relatively short portages. The portages will not require disturbance of the natural terrain, and will be formed only across frozen ground to minimize environmental impact. Additional snow and ice will be placed to protect the natural terrain if necessary. Approaches to lakes, streams, and rivers will be built up with snow and ice to achieve desirable grades.

The winter haulage vehicles will operate at relatively slow speeds in the range of 10 to 20 km/h. Since it is anticipated that the vehicles will be able to operate in marginal weather conditions, snow-clearing equipment will not be required. Equipment will generally operate in convoys and will be supported with state of the art GPS technology to follow established trails of packed snow. Markers will be placed at close-spaced intervals to delineate the route as a back up for the GPS system. The vehicles will be equipped with safety provisions and equipment so that major blizzards can be safely waited out at any point on the route. The winter haulage route will be established in early January when it is determined that minimum required lake ice thickness has been achieved. Based on experience during the exploration phase of the project, the route may be used until mid-May, if necessary. The estimated loads anticipated during construction ranges from approx 30,000 tonnes per season to approximately 40,000 tonnes (excluding diesel fuel). Diesel fuel haulage during construction is anticipated to range from 6 to 30 ML per season. During operations, the annual haulage is anticipated to be approximately 20,000 tonnes of dry goods and approximately 45 ML of diesel fuel.

Figure 2.1: Site Access & Transportation

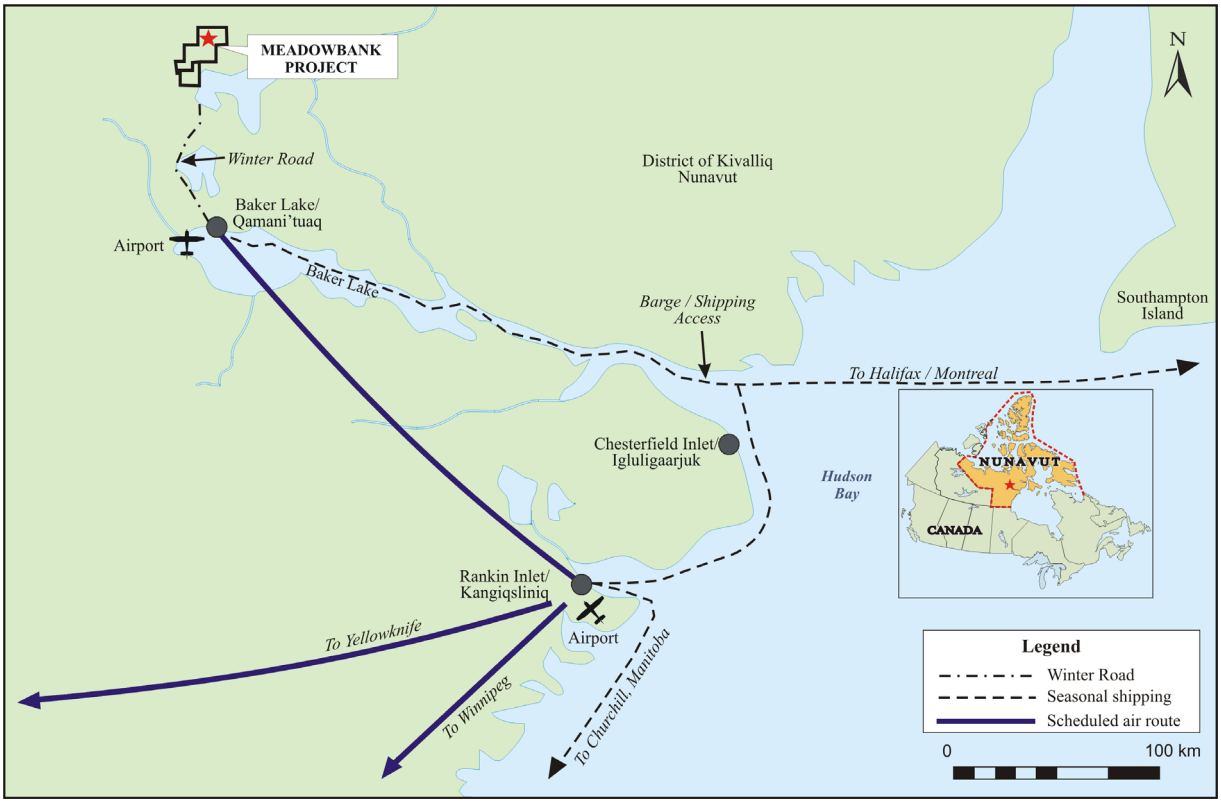
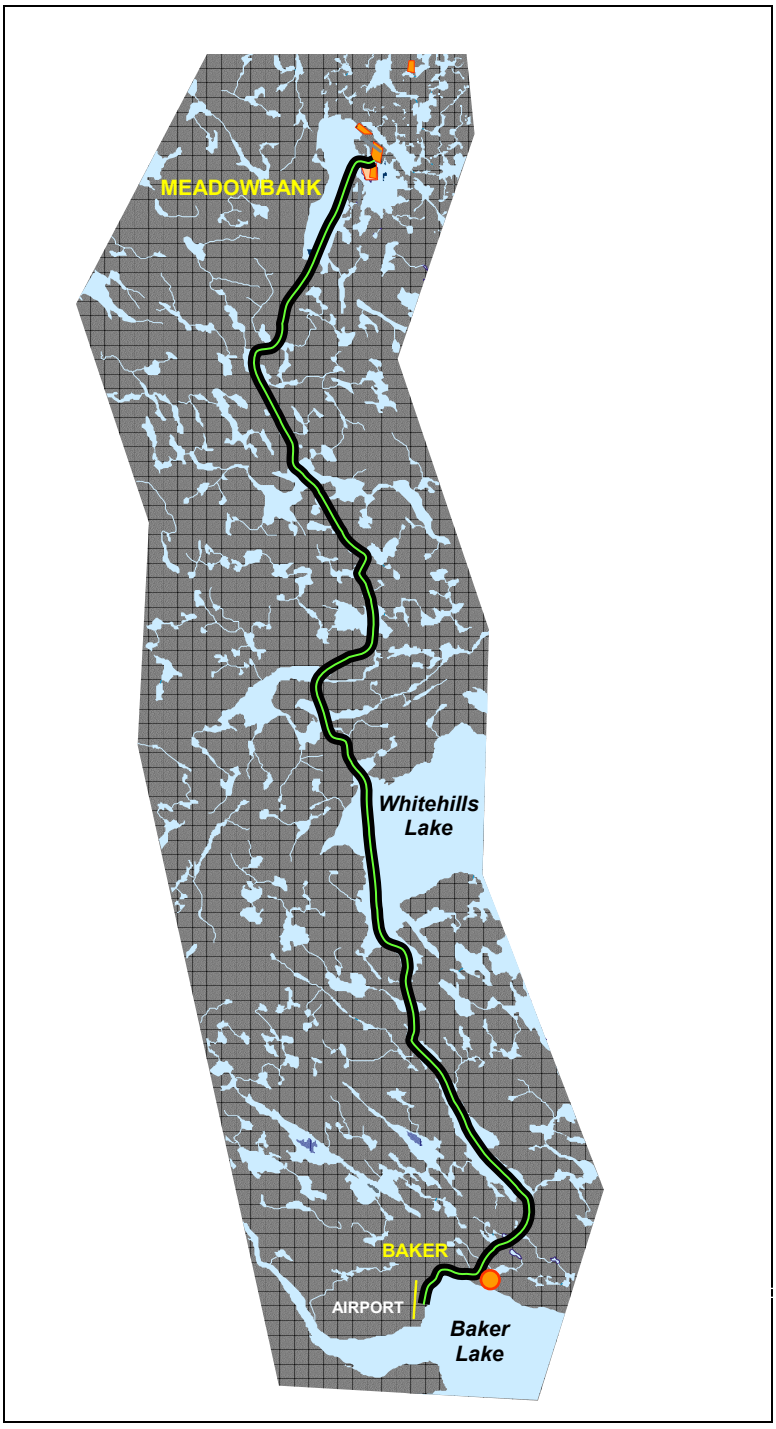


Figure 2.2: Winter Haulage Route from Baker Lake to Meadowbank



2.5 SITE ROAD TRAFFIC MANAGEMENT & VEHICLE SAFETY

Site traffic management encompasses the objectives of monitoring and progressive improvement through the life of the project. To achieve high safety standards and to minimize the potential for adverse effects on the environment, the following will be implemented:

- All vehicle operators will be appropriately qualified and/or receive proper training before operating any vehicle on site.
- No personal vehicles belonging to site staff will be allowed on site.
- All vehicles will use only designated roads at the project site.
- Drivers will be advised about wildlife activity and appropriate precautionary measures.
- Snowmobiles will be used only for such activities as environmental monitoring, and only if sufficient snow cover allows environmental protection.
- Drivers of all vehicles, large and small, will be instructed to reduce speed in the vicinity of wildlife.
- All vehicles must give groups of caribou or other wildlife the right-of-way.
- New wildlife sightings will be reported to Cumberland's Environmental Coordinator to supplement data in wildlife tracking programs and initiate appropriate precautionary measures.
- Wherever practical, large mining equipment will be separated from smaller project service vehicles to minimize accident risk. All drivers will be instructed in defensive driving techniques.
- Speed will be controlled through use of signs and driver briefings. Speed limits (i.e., <50 km/h) will be selected as appropriate to specific segments of roadway by site supervisors and in compliance with applicable regulations of Nunavut.
- Seatbelts will be worn by drivers and passengers of all vehicles except with specific approval of mine supervisors and subject to applicable regulations.
- All Cumberland vehicles will be the subject of proactive preventative maintenance, and all drivers will be instructed in basic vehicle pre-start checking before use.
- Mine operations supervisors will impose road closures in the event of adverse weather conditions such as white-outs, when wildlife management dictates, and during open pit or construction blasting.
- All vehicles will have radios and mine operations staff may require light vehicles to notify entry to selected areas for safety reasons.
- All light vehicles will be equipped with flashing lights and buggy whips to ensure maximum visibility by large mining equipment.
- Intersections will be marked and controlled. The layout of intersections will promote visibility in each direction.

2.6 WINTER ROAD SAFETY & HAULAGE

The winter haulage route from Baker Lake to the site will be operated by a contractor whose personnel will be required to observe the following guidelines:

- Only drivers licensed in a Canadian province for the appropriate class of vehicle will be allowed to operate ATVs on the winter trail.

- The winter haulage contractor will be responsible for all vehicle movements on the route, taking into account lake ice conditions, weather, and vehicles on the route.

- ATV equipment will typically operate in convoy.

- All spills of any materials will be reported and cleaned up, as set out in the spill contingency plans. The haulage contractor will be required to have appropriate spill containment and clean-up equipment on hand or available on demand.

- A large sign will be posted at the entrance to the winter trail advising the general public that it is a private operation. While it will not be practical to exclude skidoo traffic, it will be important that they are discouraged and advised of the risks of interaction with large equipment.

- Large signs will be posted at key points near and around the site again to advise the public traveling by skidoo that they are in a restricted and potentially hazardous area. They will be directed to follow a certain route or direction to avoid the site, particularly haul roads and open pits. If they wish to visit the main complex they will be directed to the entrance where the winter trail enters the laydown area at the southwest edge of the complex.

Table 2.1: Estimated Haulage Weights by Construction Year

Year 1	**Diesel fuel 5.6 ML**	
	Construction equipment and buildings (such as accommodation buildings, pre-engineered building components, process equipment, mobile equipment, cement, etc.)	up to 50,000 tonnes
	Process first fills, etc.	(approximately 3,000 tonnes)
Year 2	**Diesel fuel 20 ML**	
	Construction equipment and buildings (such as accommodation buildings, pre-engineered building components, process equipment, mobile equipment, cement, etc.)	up to 40,000 tonnes
	First operating year's consumables	up to 20,000 tonnes
Years 1-10	**Diesel fuel 45 ML**	
	Process supplies, as shown in Table 2.2 (approximately 20,000 tonnes each year)	

Table 2.2: Annual Process Supplies Requirements

Reagent	Use	Approx. Daily Usage	Annual Consumption	Solid / Liquid	Normal Delivery Format	On-Site Storage
Quicklime	pH control	20 t	3,720 t	solid	1 t supersacs	pallet
Steel balls	grinding	10 t	3,650 t	solid	45 gal drums	pallet drums
Sodium cyanide	leaching	1,500 kg	550 t	solid	1 t box bag	pallet
Hydrochloric acid	refining stripping	200 kg	75 t	liquid	20 gal drums	pallet drums
Activated carbon (granular)	gold recovery	200 kg	75 t	solid	500 kg Bag	pallets
Sodium metabisulphite	CN destruction	3,500 kg	1,500 t	solid	1 t supersacs	pallet
Copper sulphate	CN destruction	120 kg	40 t	solid	25 kg bags	pallet
Anti-scalant	water treatment	0.05 m^3	18.5 m^3	liquid	650 kg tote tank	pallet drums
Flocculant	settling aid	180 kg	65 t	solid	25 kg bags	pallet
Caustic soda	refining stripping	200 kg	80 t	solid	25 kg bags	pallet
Steel wool	refining electrowinning	50 kg	35 t	solid	25 kg bags	pallet
Refinery fluxes	refining smelting	50 kg	35 t	solid	25 kg bags	pallet

2.7 MITIGATION MEASURES

Proposed mitigative measures for potential effects from traffic during mine construction and mine operations are:

- providing informational and training sessions regarding the potential for wildlife/vehicle collisions
- implementing dust control measures during construction and operations
- restricting vehicles to designated roads and approved construction areas
- banning any off-road vehicles to avoid damage to vegetation
- monitoring and reporting of wildlife observed in the vicinity of roads and immediately reporting to appropriate environmental mine staff who will issue notices to vehicle operators accordingly
- posting appropriate speed limits (e.g., < 50 km/h)
- giving wildlife the "right-of-way", and reducing traffic speeds when animals are detected near roads or other approved work areas
- reporting and disposing of accidental wildlife mortalities near the mine site.

2.8 DECOMMISSIONING & RECLAMATION

All mine haul and service roads will be decommissioned by loosening compacted surfaces and flattening side slopes, and removing all culverts and other potential obstructions to drainages paths. Details are provided in the closure and reclamation plan. Decommissioning of the winter haulage road is not anticipated because there will be no portages and its ice and snow substrate will melt each spring.

SECTION 3 • AIRCRAFT OPERATIONS

3.1 PROPOSED FIXED-WING OPERATIONS

All staff and crew access to the project will be by air from both local communities and a southern hub, likely Thompson, Manitoba. Perishable supplies and other unanticipated requirements will be flown to site, unless winter haulage is an option.

A 1,000 m long airstrip will be provided initially, due to a shortage of available materials. This airstrip is suitable for medium sized turboprop commuter aircraft, such as the HS748 that is commonly in use in the north. In the future, Cumberland intend to extend the airstrip to at least 1,500 m long, to accommodate Hercules aircraft, thus providing the ability to bring in unanticipated heavy spare parts and other operating supplies. It is also possible and feasible that the airstrip could be further extended to approximately 1,900 m length, and widened, to accommodate jet aircraft such as the Boeing 737.

The airstrip will be located on the peninsula separating Second and Third Portage lakes to the immediate north of the plant site. The geometry of the proposed alignment provides a buffer zone of approximately 400 m from the Portage open pit, and is aligned with the predominant northwest wind direction. The geometry also meets Transport Canada aviation guidelines for flight path clearance of surrounding topographic high points.

During construction daily flights to site are expected, comprising both regular carriers and charter flights. The flight frequency is expected to decrease to approximately three or four per week during operations.

Aircraft approach and take-offs will primarily occur during daylight hours (80%) and the remainder will occur during the evening (20%). There will be no scheduled night flights. Aircraft altitudes below 300 m typically extend about 6 km along the arrival path and about 2 to 5 km along the departure flight path. The flight path for arrival to and departure from the airstrip crosses Second Portage Lake from the southeast and terrain to the north of Third Portage Lake to the northwest. Aircraft over-flights from incoming and departing aircraft typically will turn at about the 300 m altitude towards or away from the airstrip.

3.2 PROPOSED HELICOPTER OPERATIONS

A limited number of helicopter flights are anticipated, but the number is difficult to predict—possibly one per week during construction, and one per month during operations. Helicopter flights directly associated with the project during operations will primarily be used for environmental monitoring. Helicopter use for ongoing minerals exploration will continue to be based at the Meadowbank exploration camp for a few years, and decline to less than 500 hours per year within several years. Project-related helicopter use is estimated as 30% of the total hours during the construction phase and 20% of the 500 helicopter hours during the operations phase—the remaining hours considered are for exploration activities.

Helicopter landings will normally occur at the helipad, located at the airstrip parking apron. Helicopter flight paths will normally be direct flights to a given destination and thus the helicopter flight paths are less predictable than the flight paths of fixed-wing aircraft.

3.3 MITIGATION OF AIRCRAFT ACTIVITY

Potential adverse environmental impacts due to air traffic will be minimized by:

- following the applicable guidelines for aircraft operating procedures and the applicable *Wildlife Act* for harassment of wildlife
- avoiding flying below 300 m whenever possible, except on landings, departures, and during inclement weather
- monitoring caribou and muskox in proximity to the airstrip and if necessary, herding caribou off the airstrip prior to aircraft landing and departure; herding may also require the use of bull horns or cracker shells
- avoiding helicopter flights over areas of known active raptor nests, flying in close proximity (i.e., <500 m) to waterfowl and shorebird staging areas during critical seasons, and avoiding helicopter harassment of wildlife, especially grizzly bear, muskoxen, caribou, wolves, and wolverine (i.e., avoid flying below 300 m whenever possible)
- implementing dust control measures on the airstrip as required.

Aircraft activities during the post-closure phase might entail periodic flights for a few years to support environmental monitoring and remedial restoration tasks. The number of flights would decline with time as restoration and monitoring tasks were completed. Restoration and closure for the airstrip are described in the closure and reclamation plan.

SECTION 4 • PEDESTRIANS

During both construction and operations all site-based personnel will be directed to minimize adverse environment effects of pedestrians by:

- participating in awareness training as part of orientation for all new arrivals
- avoiding any identified sensitive wildlife habitats
- maintaining a minimum distance of 200 m between pedestrians or vehicles and large wildlife
- reporting all new wildlife sightings to Cumberland's site environmental manager or designate.

SECTION 5 • WILDLIFE INTERACTION & MANAGEMENT

Wildlife is expected occasionally to be observed on the site roads, the airstrip, or the winter haulage route. Caribou and other wildlife will have the right-of-way at all times. All project personnel will be notified by dispatch radio if any wildlife is observed in the site vicinity. In some cases, it may be practical for environmental staff to safely herd caribou away from roads and airstrips towards compatible and safe pathways. Wildlife movement will be monitored throughout mine life and improvements in mitigation plans made as appropriate.

Wildlife mitigation for potential effects of road and airstrip construction will include:

- protecting locally sensitive areas
- constructing roads with as low a profile as practical
- temporarily suspending construction and/or mining activities when the safety of caribou, grizzly bears, or other wildlife is threatened and using appropriate herding techniques to remove caribou and other wildlife from hazardous areas before resumption of activities.
- implementing dust control measures.

SECTION 6 • EXPLOSIVES TRANSPORT

All explosives materials will be transported from eastern ports by ship or barge to Baker Lake in summer, and will be stored in a designated storage area at the proposed Baker Lake laydown facility, located approximately 1.5 km east of the Hamlet. The explosives materials will be trans-shipped to the Meadowbank site explosives storage facilities during the winter haulage season by the winter haulage contractor using ATV equipment, as described in this document. As required by applicable regulations, high explosives, ammonium nitrate (AN), and fuel will be shipped on separate haulage units. It is noted that AN alone is not an explosive, but it is used to manufacture explosives at site. Haulage operators will be trained in appropriate emergency procedures when hauling these and other hazardous materials (for more information, see Cumberland's "Hazardous Materials Management Plan").

The explosives materials storage facilities at Baker Lake and at the mine site will be fenced and gated. Both regular and emulsified ammonium nitrate/fuel oil (ANFO) will be used at the mine site. Transfer trucks that are built to purpose will deliver mixed ANFO to the open pits using the mine haul roads. High explosives and detonating materials will be delivered separately. Standard best practices will be used to control all traffic within appropriate safety zones when blasting is conducted. All mobile equipment at the mine site will be radio equipped, and notified of such activities and restrictions. The approximate quantities of explosives materials are estimated as follows:

- Ammonium nitrate: 5,000 t/a in prill form in tote bags stored in a designated AN storage area
- Fuel: 2,200 L/d delivered from main storage tank farm at plant site on a daily basis
- High explosives and detonating caps: 40 t/a; probably containerized and stored at designated magazine site.

SECTION 7 • REAGENT TRANSPORTATION

Cyanide will be transported to site in containers in the form of dry pellets packaged in tote bags, within crates, and/or on pallets. Other reagents will be packaged according to best practices, and in accordance with applicable regulations in Canada and Nunavut. All shipments of reagents will be clearly identified in shipping manifests, and ATV operators will be briefed in applicable spill mitigation procedures.

For more information on cyanide transport, see the “Hazardous Materials Management Plan.”

SECTION 8 • SPILL PREVENTION & MITIGATION

A trained site-based emergency response and spill clean-up team will be available on site with appropriate equipment to respond to all spills.

For more information, see the “Spill Contingency Plan” and “Emergency Response Plan” included in this documentation series under separate cover. These management plans will be implemented by environmental staff who will advise, document, and report on initial response and clean-up actions.