2.2 Tote Road

The Milne Inlet Tote Road was upgraded during the bulk sampling program in 2008 from a winter road to an all-season road adequate for transporting equipment and ore using 45 t trucks. The upgraded road follows the original alignment as constructed in the 1960s. Upgrades to the road will be completed as per the Approved Project. These upgrades will support the level of traffic proposed with year round ore haulage from the Mine Site to Milne Port using approximately 150 t trucks.

While the Tote Road was upgraded over the period of 2007 and 2008, the DFO authorizations for water crossings require Baffinland to replace the seacan container crossings and to improve other water crossings along the Tote Road, such as enlargement or replacement of existing culverts (DFO file No: NU-06-0084).

The upgrade of the rote road was an integral part of the FEIS and the Project Certificate No. 005. As part of the Approved Project, the following Tote Road upgrades were planned:

"The Milne Inlet Tote Road was upgraded in 2008 from a winter road to an all-season road adequate for transporting equipment and ore using 45-t trucks during the bulk sampling program. The upgraded road follows the original 1960s alignment.

The Tote Road is the only overland transportation link between the Milne Port and the Mine Site. During construction, the road and stream crossings will be maintained. Sections of the road will be upgraded to reduce hazards and risks. The construction activities consist of:

- *Improvement to the road base;*
- *Realignment of the road where necessary to facilitate passage of large loads and fuel tanker trucks;*
- *Improvement to the grade in certain areas; and*
- *On-going efforts to reduce risk at stream crossings through the implementation of the freshet management plan.*

No work other than routine maintenance and some improvements to stream crossings are envisaged" (as per existing DFO authorizations). *"Therefore, there is no requirement for an additional HADD authorization or NWB authorization for water crossings." (FEIS, Volume 3, section 2.3).*

As part of the 2013-2014 Work Plan, the road is to be realigned to bypass the existing four sea container crossings, and new bridges will be constructed. In consideration of the ERP requirements, these bridges will be designed to allow the passage of 190 tonnes (gross) ore truck loads. Oversized and very heavy loads will be transported via ice road type crossings during the winter season. The road alignment with the existing four sea container crossings will be used until the bridges have been constructed.

The road length is 98.5 km. Kilometer marking "0" begins at the ore stockpile located approximately 2.5 km from the Milne Port ore dock. The Tote Road ends at kilometer marking "98.5" at the Mine Site ore crushing and loading pad. The road starting point requires a realignment of a 2 km section of the Tote Road from the ore stockpile pad to connect to the existing road at approximate kilometer "2". The existing 2 km section of the Tote Road will remain in place to access the new landfarm.

Figure 3-2.8 presents an overview of the alignment of the Tote Road. Figures showing the detailed Tote Road alignment are presented in Appendix 3C.

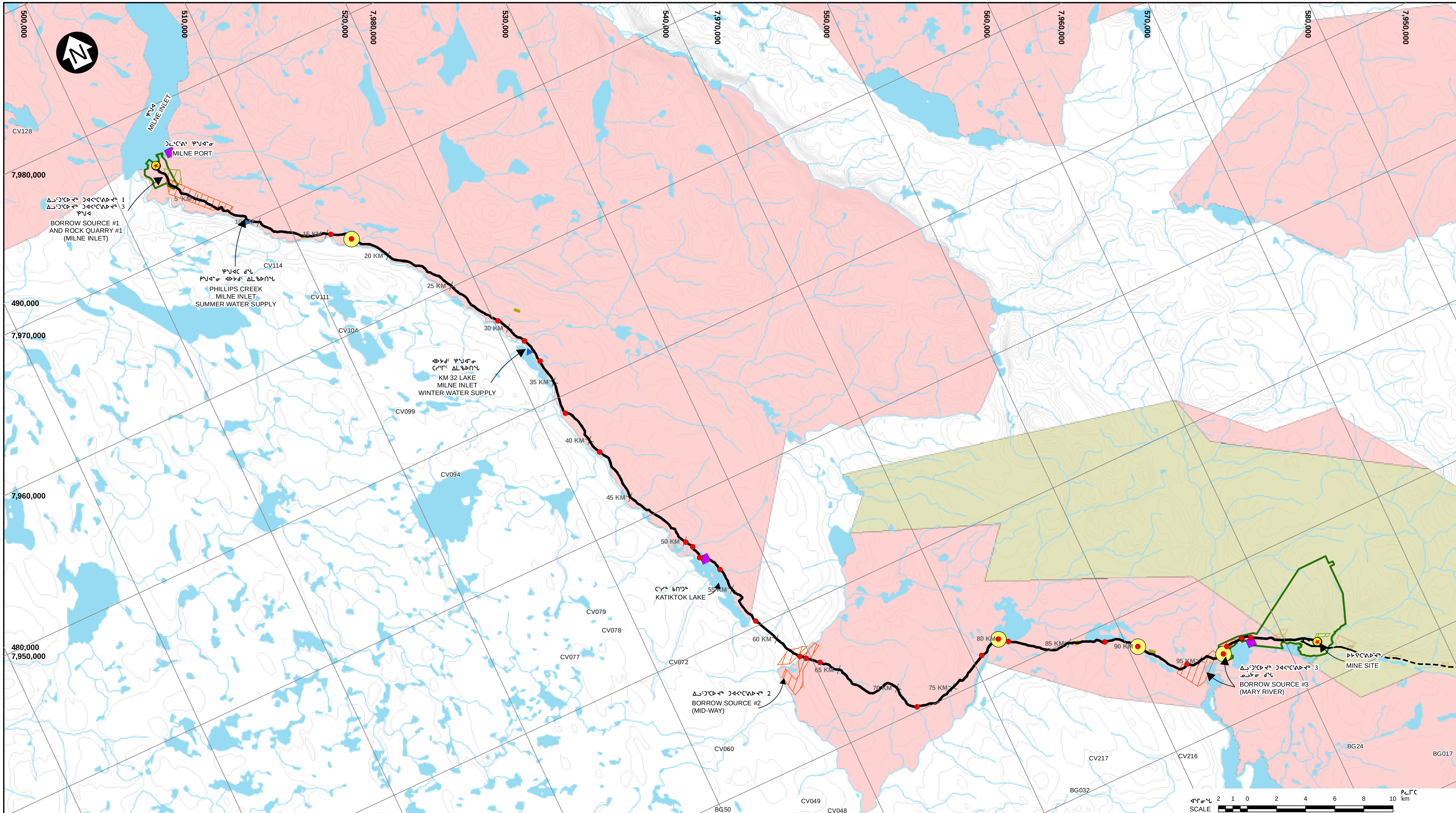


Figure ID: BL_Vol3_GIS_002 Mline Inlet Tote Road Figure 3-2-2.mxd

LEGEND:

- ᐃᒥᖅ / WATER
- ᑰᒃᑐᖅ/ᑰᓗᓛᒃᑐᖅ/ᑰᐱᐱᐅᔪᖅ / RIVER/STREAM/DRAINAGE
- ᕿᙵᐊᓂ ᐊᖅᑯᑎ ᐅᓯᒃᑕᖅᐱᒃ / MILNE INLET TOTE ROAD
- ᓄᓇᓯᐅᑎᑰᒃ ᐊᖅᑯᑎᓕᐅᕐᑕᖓ / PROPOSED RAILWAY ALIGNMENT
- ᑐᐊᕋᒃᑕᖅᐱᒃ ᐊᒻᒪ ᐊᐅᖅᑐᐊᖅᑕᐅᓯᒪᔪᖅ (ᒫᓐᓇ ᐊᐅᖅᑕᐅᔪᖅ) / QUARRY AND BORROW LOCATION (EXISTING)
- ᑖᒪᕐᕕᐅᔪᖅ ᓄᓇᖓ / **CAMP**
- ᕿᙵᐊᓂ ᐊᐅᔾᔪᑦ ᐃᒪᖃᐅᑎᖓ / MILNE INLET WATER SUPPLY
- CROSSINGS SUBJECT TO AN AUTHORIZATION UNDER THE *FISHERIES ACT*
- CROSSINGS SUBJECT TO AN APPROVAL UNDER THE *NAVIGABLE WATERS PROTECTION ACT*
- EXISTING BORROW AREA LEASE BOUNDARY (IOL COMMERCIAL LEASE)
- EXISTING ROCK QUARRY LEASE BOUNDARY (IOL COMMERCIAL LEASE)
- IOL SURFACE AND SUBSURFACE INCLUDING MINERALS
- IOL SURFACE ONLY EXCLUDING MINERALS
- POTENTIAL QUARRY DEVELOPMENT AREA
- POTENTIAL DEVELOPMENT AREA

NOTES:

1. BASE MAP: HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES, (2004).
2. COORDINATE GRID IS UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL VARIES.
4. QUARRY AND BORROW AREA DATA ACQUIRED FROM AMEC DATA EXCHANGE (SEPTEMBER 7, 2010).

ᖃᐅᔨᒪᔭᕆᐊᓕᑦ

1. ᓄᓇᙳᐊᓕᐊᖅᑕᐅᑦ: ᑯᐃᓐ ᑲᓇᑕᒧᑦ
2. ᓄᓇᙳᐊᑉ ᑎᑎᕐᓯᒪᓂᖓ ᒪᓕᒃᑐᖅ UTM (NAD83) ZONE 17
3. ᑎᑎᕐᓯᒪᔪᑦ ᒥᑕ: ᐊᕐᑯᓐᓂᖅᑦ ᐅᖓᓯᒃᑎᒋᒃᑐᑦ ᐊᔾᔨᒋᙱᑦᑐᑦ
4. ᑐᐊᕋᒃᑕᖅᐱᒃ ᐊᒻᒪ ᐊᐅᖅᑐᐊᖅᑕᐅᓯᒪᔪᖅ ᑎᑎᖅᑲᖏᑦ ᐱᔾᔪᑎᒋᔪᑦ AMEC ᑎᑎᖅᑯᑎᖏᓐᓂ (ᓯᑎᐱᕆ 7, 2010)

BAFFINLAND IRON MINES CORPORATION

ᓄᓘᔾᔨᓂ ᐅᔭᕋᓯᐅᕐᑐᑦ MARY RIVER PROJECT

ᕿᙵᐊᓂ ᐊᖅᑯᑎ ᐅᓯᒃᑕᖅᐱᒃ
ALIGNMENT OF THE TOTE ROAD

REF NO. **BL_Vol3_GIS_002**

ᑎᑎᖅᐅᔭᖅᓯᒪᔪᖅ **FIGURE** **3-2.8**

REV 0

2.2.1 Road Upgrade Work for the Approved Project

Upgrades to the existing Tote Road will be initiated in 2013 for the Approved Project. Consistent with Project Certificate No. 005 Terms and Conditions #29 for construction, engineering design and drawings will be provided as required to respective regulatory authorities. Once project facilities are constructed, Baffinland will provide as-built drawings and design to the appropriate regulatory authorities.

2.2.2 Aggregate and Borrow Material

A number of potential quarry and borrow sites have been identified along the Tote Road (Appendix 3C). Only non-ARD material will be used for the upgrades. The Quarry and Borrow Pit Management Plan outlines the development requirements. A detailed protocol for ARD testing of quarry material is included in this management plan, which was submitted to the Nunavut Water Board in support of Baffinland's Type A Water Licence application

2.2.3 Water Crossings

Culvert replacement - Where required, existing culverts along the Tote Road will be replaced or extended with new culverts (as part of the requirements of the DFO authorizations for Tote Road water crossings). The new culverts will be sized for the 1-in-25 year design storm at large water crossings and sized for the 1-in-10 year design storm at small and medium water crossings.

Replacement of the culverts will be done upon further consultation with DFO. An overview of the construction techniques, construction monitoring and post construction monitoring requirements is presented in the AEMP in the pending Type A Water Licence.

Drainage and surface water management for the Tote Road is addressed in the updated "Surface Water and Aquatic Ecosystems Management Plan" submitted to the Nunavut Water Board in support of the pending Type A Water Licence.

2.2.4 Schedule of the Work

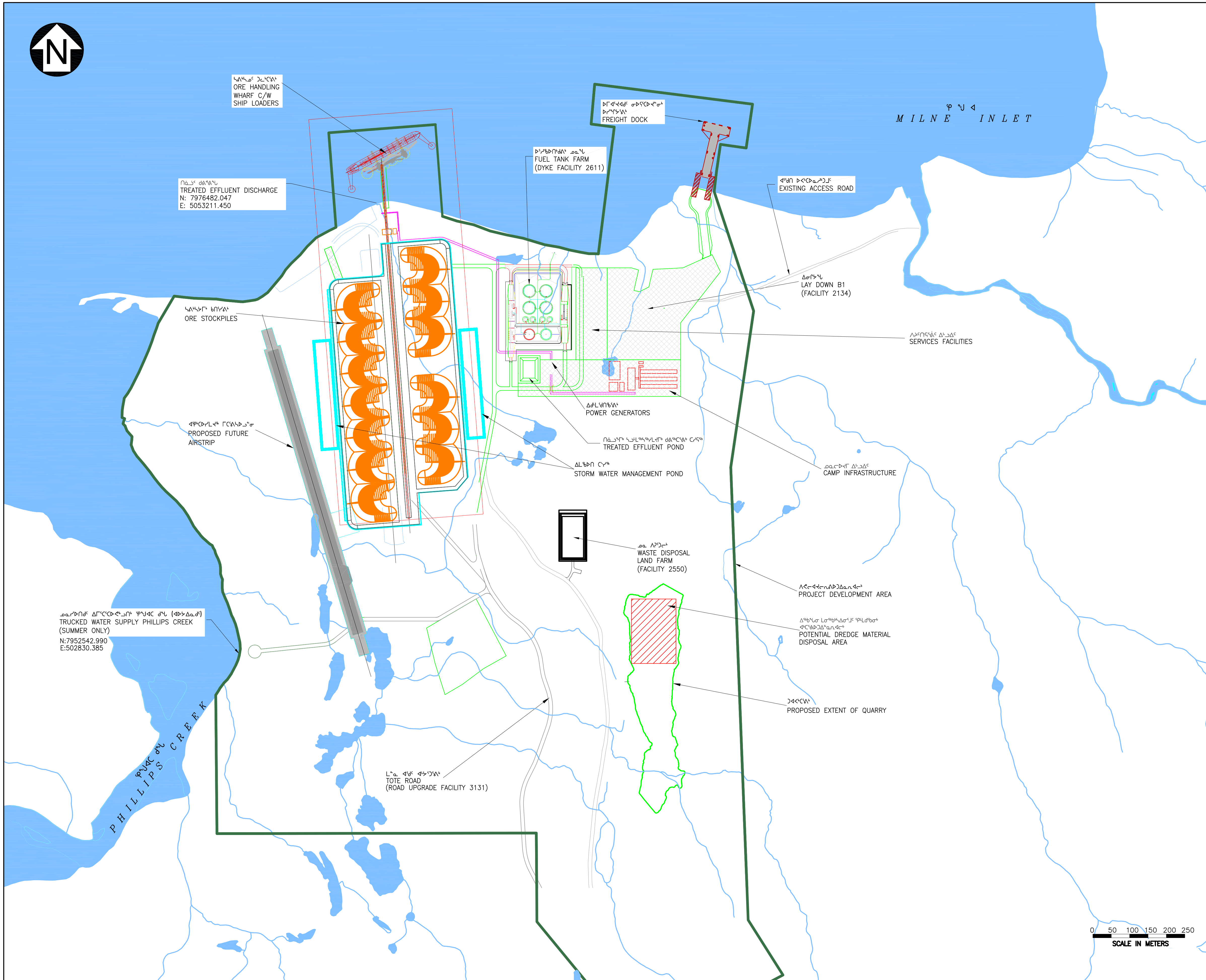
The upgrade of the Tote Road is an essential component for the development of the Approved Project as all of the equipment, materials and supplies required to develop the Mine Site will be delivered via Milne Port. As outlined in Baffinland's 2013 Work Plan (Appendix 3A), construction activities for upgrading the Tote Road (bridge construction) are expected to begin in Q4 2013 for approved works under the Project Certificate. Construction activities on culvert replacement and road realignment will carry through Q2 2014.

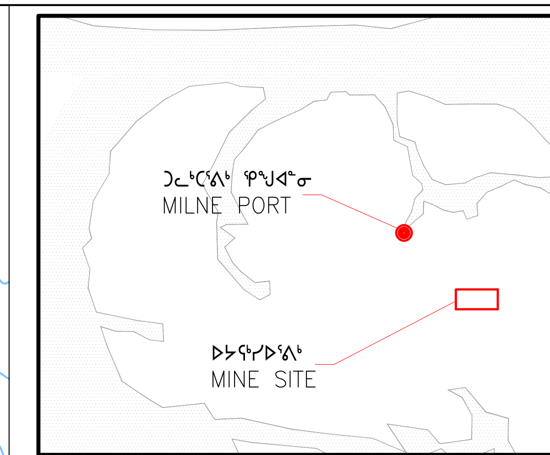
2.3 Milne Port

2.3.1 Site Development

The ERP layout for Milne Port is presented in Figure 3-2.9 and the layout of Milne Port for the Approved Project is presented in Figure 3-2.10. For the ERP, the Potential Development Area (PDA) at Milne Port remains unchanged. All aggregates required for site preparation works will be obtained from the Milne Inlet quarry Q1. Keys project facts for the Milne Port are presented in Appendix 3B.

Site drainage and surface water management for the Milne Port is addressed in the updated "Surface Water and Aquatic Ecosystems Management Plan" submitted to the Nunavut Water Board in support of the pending Type A Water Licence.





BAFFINALND IRON MINES CORPORATION

MARY RIVER PROJECT

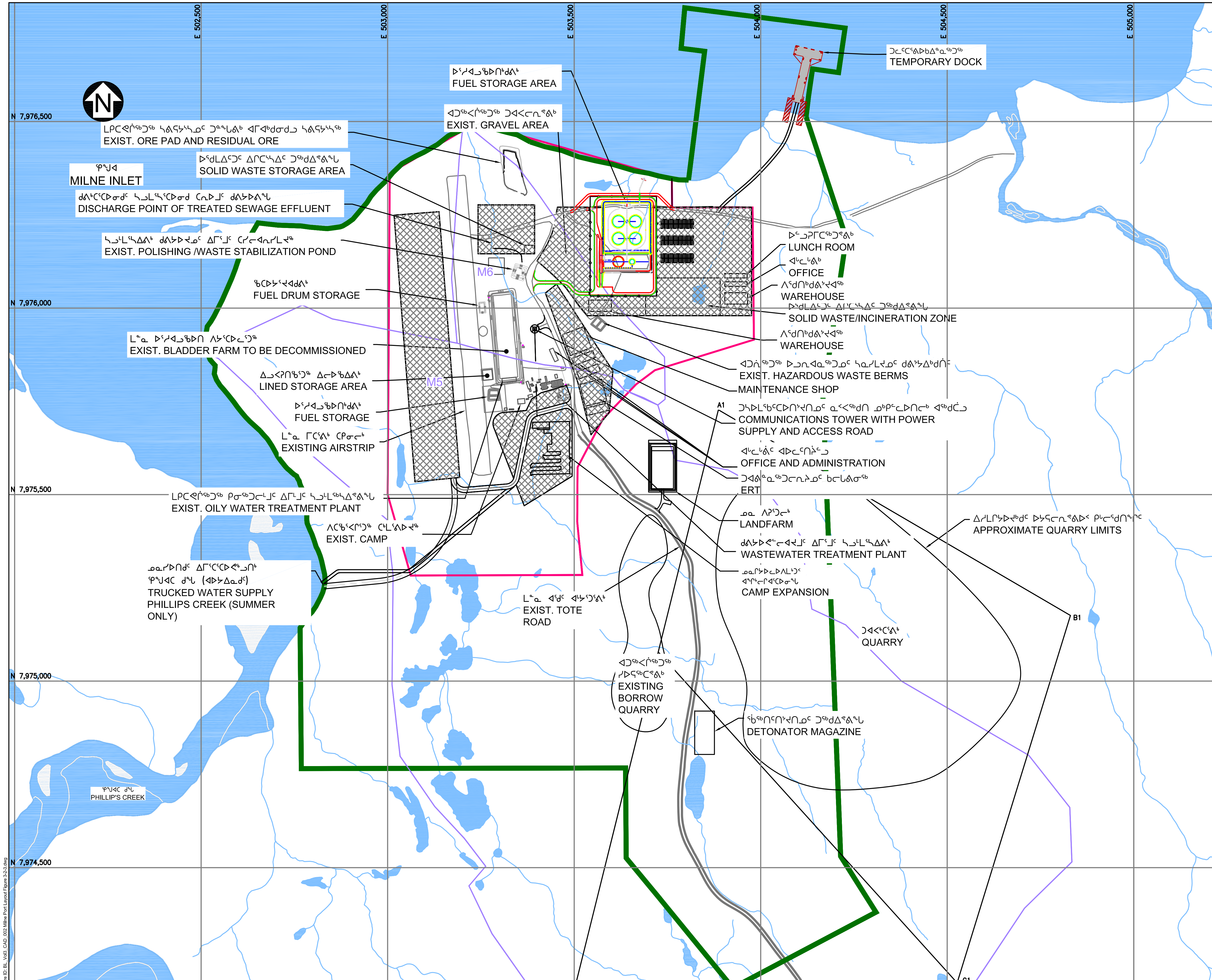
MILNE PORT LAYOUT - ERP

Baffinland

REF NO. BL ERP_Vol3_CAD_003

FIGURE 3-2.9

REV 0



POTENTIAL DEVELOPMENT AREA (ha)	
MARINE	LAND
11.345	269.487

LEGEND:

- WATER
- PROPOSED QUARRY BOUNDARY
- LAYDOWN AREA
- RIVER/STREAM/DRAINAGE
- POTENTIAL DEVELOPMENT AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- CATCHMENT AREA

1. EAGLE MAPPING (2005)
2. UTM (NAD83) ZONE 17
3. 5
4. 2008

NOTES:

1. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL IS 1.5 METRES.
4. AS-CONSTRUCTED INFORMATION PROVIDED BY GENIVAR IN 2008.

SCALE 100 50 0 100 200 300 400 500 m

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

MILNE PORT LAYOUT

Baffinland

REF NO. BL_Vol3_CAD_002

FIGURE 3-2.10 REV 0

2.3.2 Ore Stockpiling at Milne Port

The gross truck weight is 190 t. The payload of ore is approximately 150 t. The haul trucks equipped with side dump trailers will dump directly on the ground. Front end loaders will be used to transport the dumped ore to portable feeders, which will transfer the ore to telescopic portable radial stackers, which in turn will deposit the ore in the stockpiles. There will be four sets of portable feeders and portable radial stackers, each with a capacity of 1,500 tph. The feeders and stackers will be powered by an onboard diesel generator.

Due to the short and variable shipping season (60 – 90 days/season) the port stockpiles will hold the full year's production (up to 3.2 Mt). The two lump stockpiles will contain up to 1,200,000 tonnes; the fines stockpiles will hold up to 400,000 tonnes. The longitudinal piles will be located adjacent to each other in two rows with each row separated into two piles.

The stockpile will be located close to the ore dock. Approximately 225,000 m^3 of rock fill will be needed to construct the stockpile pad near shore. The material will be supplied from the Milne Inlet quarry Q1, less than 3 km haul distance one way.

The design basis is for a 250,000 m^2 ore stockpile pad with 2:1 fill slopes with riprap as needed and a maximum 2 % surface slope. The design consists of the following construction items:

- Development of the Milne Inlet quarry site was covered under the Tote Road cost;
- Drill/blast 75,000 m^3 of embankment materials and 7,000 m^3 of rip-rap;
- Crush/screen and load 75,000 m^3 of granular materials;
- Crush/screen and load 7,000 m^3 of rip-rap materials;
- Storm water management and erosion controls;
- Subgrade excavation, grading, and compaction; 20,000 m^3;
- Pad embankment base construction; haul, place, compact and grade 50,000 m^3 of rock base material, hauling less than 5 km in one direction;
- Pad embankment construction; haul, place, compact and grade 25,000 m^3 of Granular B material, hauling less than 5 km in one direction;
- Haul and place riprap along storm water ponds; and
- Concrete for foundations as required.

The location of the stockpile adjacent to the ore dock will reduce the length of the fixed conveyor system from the stockpile to the ship loader.

2.3.3 Milne Port Airstrip

The existing Milne Port airstrip will remain in service until construction of the ore stockpile pad begins (expected in Q1 2014). The runway will then be relocated as indicated on Figure 3-2.9.

2.3.4 Stockpile Reclaim at Milne Inlet Port

Front end loaders will be used to reclaim the iron ore from the stockpiles. The reclaim belt will be installed between and parallel to the two rows of longitudinal stock piles. Belt scales will be installed on the transfer conveyors and product samplers will be installed on each transfer conveyor for quality control purposes.

The dock complex will be equipped with truss supported belt conveyors, with catwalks on one side, mounted on the causeway leading to the dock and a ship loading assembly on the ore dock,

perpendicular to the shore. These conveyors will receive iron ore from the feed conveyors discharging at the land end of this dock facility. Full covers over the conveyors will minimize dusting.

2.3.5 Ore Dock

Two alternative designs have been considered for the ore dock:

- A fixed dock; and
- A floating dock.

Sheet pile construction has been selected as the basis for the dock design. The rationale for this decision is presented in Appendix 3D.

It is expected that all in-water work for this modest sized dock will be completed in a single season. The dock will accommodate Handymax, Panamax, and Post Panamax vessels, for which a minimum draft of 17 m is required. Several studies were undertaken to optimize the ore dock configuration. These studies and the ore dock configuration are presented in Appendix 3D.

Construction Schedule

The dock construction schedule requires mobilization of sheet piling material and working barge by August 2014. Quarrying and stockpiling of rock fill would take place during 2014. Assuming the amendment to the Project Certificate 005 is obtained by Q1 2014, the template placement and sheet piling activity could commence in late winter 2014 (working on ice). Backfilling and copewall construction will occur before freeze-up 2014 (Q3). The deck would then be completed and ship loader installed during winter 2014-2015. Partial commissioning could occur before Spring 2015 but final commissioning is planned for the first month of the three-month open water shipping season of 2015. The construction schedule will be verified when vendors and construction contractors are engaged.

Dredging Requirements

Geotechnical drilling carried out to date has indicated that the seafloor is amenable to the proposed construction methodology with no dredging requirement. However, if soft material is encountered unexpectedly, the contingency plan would involve a small amount of dredging with disposal of the dredged material on land within the Milne Port PDA (refer to Figure 3-2.9 for the location of the dredged material disposal site). More geotechnical drilling will be undertaken from the ice before the summer 2014 to confirm dredging requirements.

Construction Dock/Freight Dock

The ore dock will not be used as a construction or freight dock for the road haulage or Approved Project phases because it will be fully dedicated to shipment of ore.

2.3.6 Ship Loading

Two 3,500 t/h ship loaders will be provided. These loaders rotate 180° and shuttle in and out giving the full loading coverage of the holds without having to reposition the ship. A 9.1 m x 9.1 m footprint tower provided for the loaders will be anchored to the dock and will be tall enough to give 15.2 m of air draft. Air draft is the distance between high water and the lowest point on the ship loader boom. Stairs and/or ladders and catwalks will provide access to all operating and maintenance areas of the loaders. Each tower will have a set of stairs from the dock to the main deck of the ship loader. Each loader will have an adjustable deflector plate in the head box to deflect iron ore straight down and inward (toward shore) for trimming the shore side of the holds.

2.3.7 Dust and Noise Control at Milne Port

The coarseness of the ore (lump < 31.5 mm/>6.3 mm and fine <6.3 mm) will minimize dust during handling of the ore. This is confirmed by the experience acquired during the 2008 bulk sampling campaign. Dust suppressant will be used to limit dust generated by vehicle traffic.

Construction activities at Milne Port have the potential to generate audible construction noise that extends out to 1.5 km from the facility.

All internal combustion engines will be fitted with appropriate muffler systems.

The truck fleet used for transportation of ore will be equipped with roll-on tarps to minimize dusting.

2.3.8 Other Potential Use of Milne Port Facilities

Milne Port will be developed for the exclusive use of Baffinland. No other potential users of this facility have been identified.

2.4 Shipping of Ore

2.4.1 Shipping Season, Climate and Ice Conditions

The current shipping window in Milne Inlet is 90 days, July 15 to October 15. Despite this 90-day window, the shipping season should allow for time lost and a conservative 70 days is assumed to account for delays primarily due to ship travel time. Ice conditions during the shipping season are less severe (Zone 13) than in Foxe Basin; however, there are multi-year ice considerations along the shipping route through Lancaster Sound and Baffin Bay.

2.4.2 Shipping Route

All shipping traffic will enter Eclipse Sound via Baffin Bay and sail down Milne Inlet to Milne Port.

Bathymetric work completed by the Canadian Hydrographic Service (CHS) throughout Eclipse Sound and Milne Inlet is presented in CHS Chart 7212 Bylot Island and Adjacent Channels, produced in 1985 and corrected through Notices to Mariners 2006-03-31 (Canadian Hydrographic Service, 2006). The chart shows water depths in Milne Inlet ranging from 100 m to 400 m, with 50 m of water depth less than 50 m from shore at the head of the Inlet.

Milne Inlet has semi-diurnal tides. From August 2007 through to September 2007, the lowest tide ranged from 0.1 to 0.3 m. The highest tide for this period ranges from 2.2 to 2.4 m. The average maximum difference in tides during this period is 2.1 m (Department of Fisheries and Oceans, 2006). These tide height level fluctuations are low relative to some other parts of the Canadian coast, including the South Baffin Island, which experiences some of the highest tides in the world.

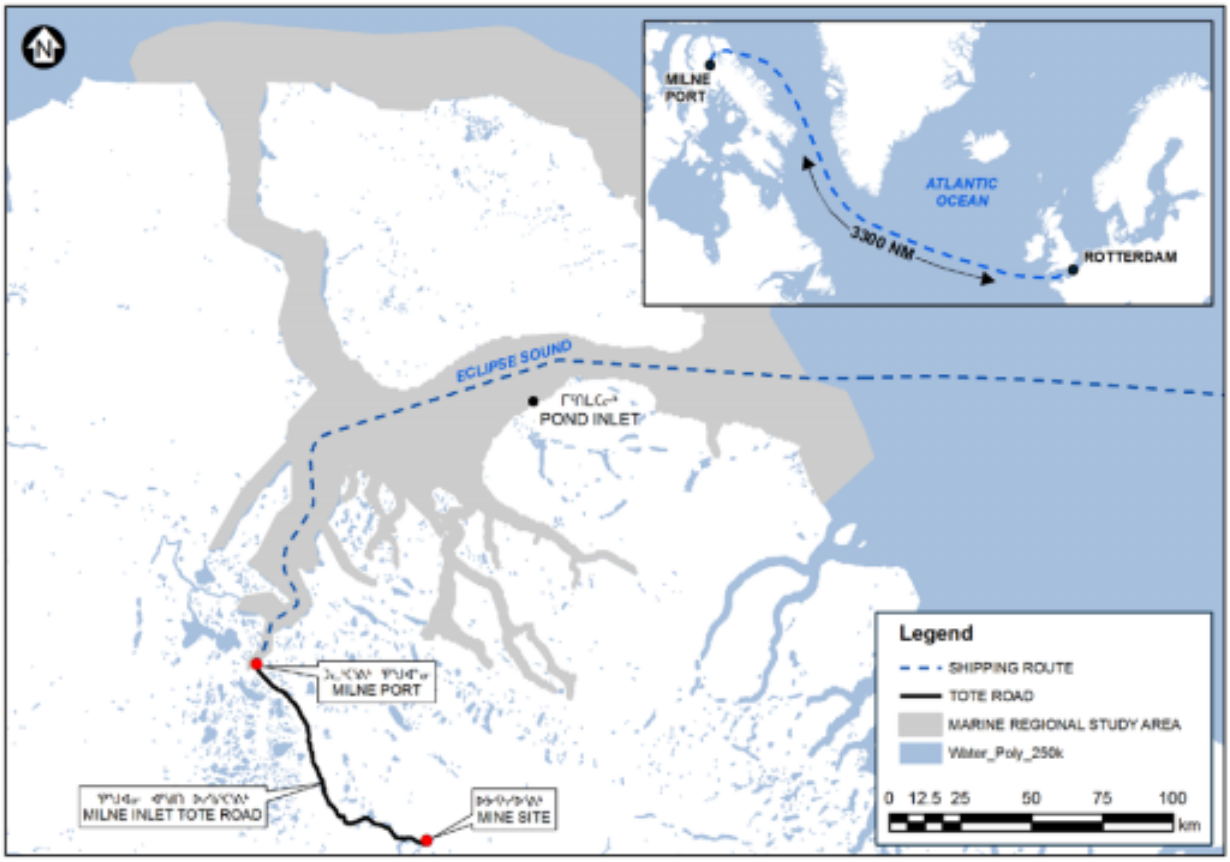


Figure 3-2.11 Shipping Route

2.4.3 Ore Shipment – Vessels Sourcing and Scheduling

The ore carrier fleet will have between 18 and 28 vessels. Three typical vessel sizes will be chartered – Supramax (Ice class 1C) vessels at approximately 55,000 DWT, Panamax at approximately 70,000 DWT, and Post Panamax at approximately 110,000 DWT. However, the actual fleet size will depend upon charter strategy and availability of vessels annually. Dependent upon the final chartering schedule, not all of the vessels will be able to make multiple trips but efforts will be made to have vessels making three and two round trips respectively at a transit time of 24-26 days. This yields 50-54 total trips over 90 day to transport 3,510,000 tonnes of ore – approximately two vessels passing a single location each 36 to 48 hours.

Scheduling will see return voyages by early ships to ensure maximum availability. It is assumed that a single ship may make a maximum three voyages, with two being the norm. The vessels will travel at a speed of 7 to 10 knots when transiting through Eclipse Sound and Milne Inlet.

A key component will be the terminal port of the customer to ensure efficient discharge of the cargo, but also to choose a port that has minimal berthing delays as well as storage capacity for 3 to 3.5 Mt of iron ore to ensure no loading delays are encountered.

A maximum of seven vessels will be used at Milne Port during ERP operations – two to three tugs, three ore carriers (one inbound or at anchorage, one loading, and one outbound) plus one re-supply vessel or fuel tanker.

2.4.4 Tugs, Navigation Aids

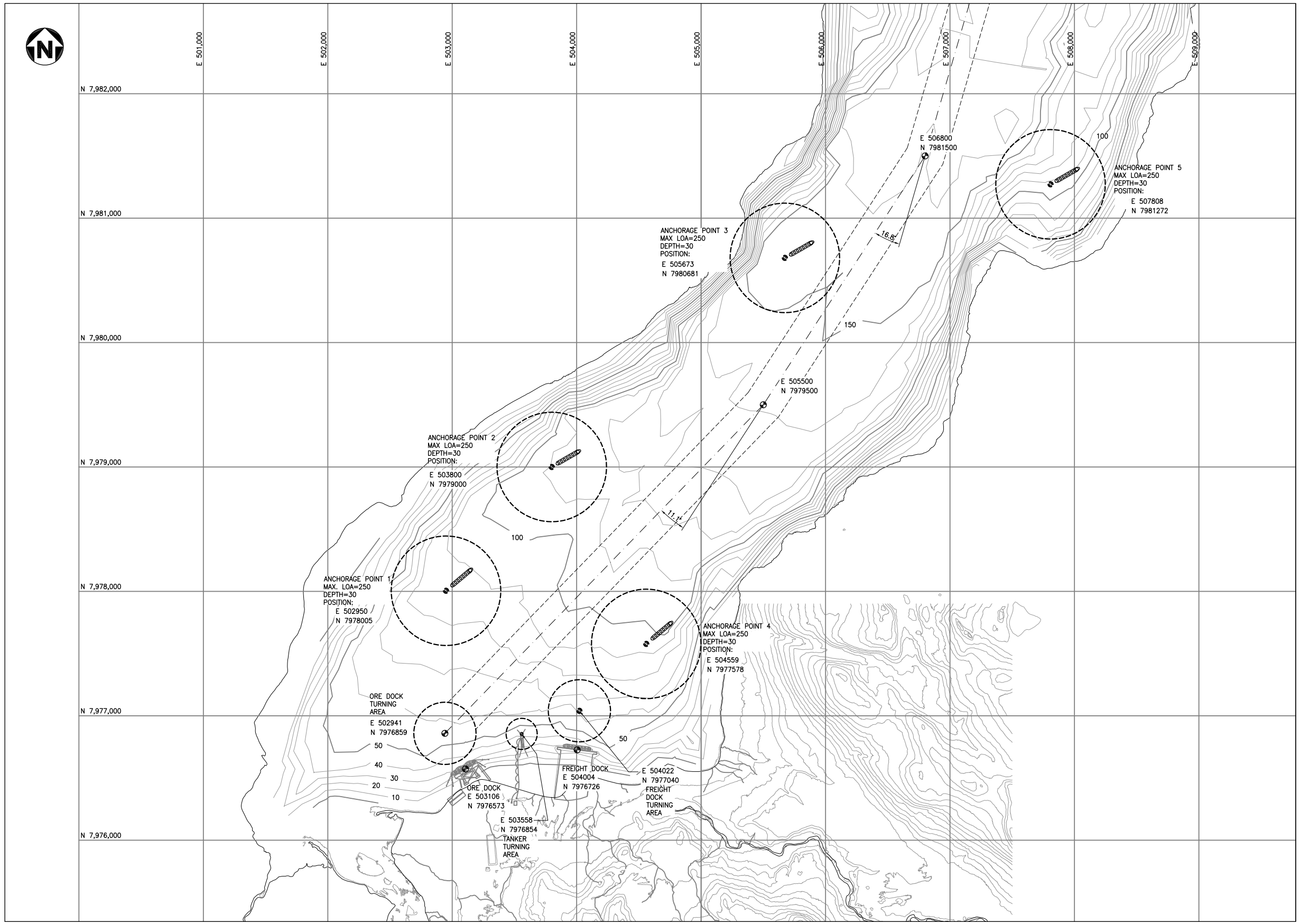
Tugs will be contracted though a Canadian source in advance of any ship arrival. The tugs will be ice class and will need to be contracted for 115-135 days, dependent upon the final shipping window. These vessels are available for charter from the St. Lawrence Seaway.

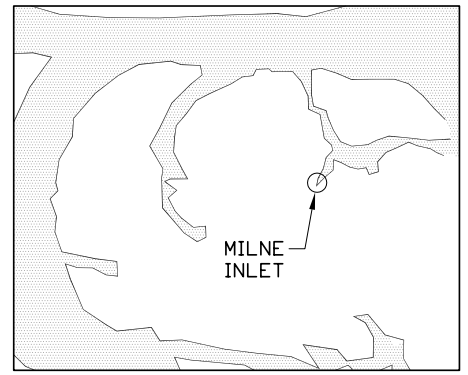
There are no pilotage requirements applicable to the Arctic. Nevertheless, as a prudent measure for safety and efficient operations, ore carriers arriving at Milne Port will be provided with ice pilots, and docking pilots will guide the ore vessels from anchorages onto and off the dock. Pilotage services could be relaxed once experience has been gained operating the port.

Requirements for navigational aids are determined by the Canadian Coast Guard (CCG). It is not expected that any additional navigational aids will be required for shipping into Milne Port, since this an existing shipping lane that operators have navigated safely.

Ore vessels arriving at Milne Port will proceed directly to an open loading dock or to one of the designated anchorages shown in Figure 3-2.12. A specialist contractor will be hired to provide marine services during the ice-free season. This contractor will act as harbour master and will be in charge of vessel traffic control, towage, line handling and berthing. A fleet of three tugs will arrive at the beginning of the season and return south at the end of the season. From an anchorage an ore carrier will be assisted by two tugs and a docking pilot to berth at the ore dock. The tugs will stand-by in rough weather and will assist vessel undocking. The third tug will serve as a line boat and back-up. While the loaded vessel is being assisted by the two tugs, the third one will bring the next vessel towards the ore loading dock to reduce wait time. The tug boats will be refuelled directly from the vessels delivering fuel to Milne Port (ship to ship fuel transfer) and from a fuel tank located on shore. The seasonal fuel requirement for the tugs is expected to be 200,000 L. At the end of the season, prior to departure south, the tugs will assist in dismantling of the floating cargo dock and positioning the components into their winter lay-by berths.

Shipping companies are responsible for compliance with Canadian regulations with respect to the type of fuel used by their vessels (Benzene in Gasoline Regulations, 1997; Contaminated Fuels Regulations, 1991; Gasoline Regulations, 1990; Fuel Information Regulations, No. 1, 1999; Sulphur in Diesel Fuel Regulations, 2002; Sulphur in Gasoline Regulations, 1999). The chartered vessels will comply with the requirements of the Arctic Shipping Pollution Prevention Regulation (ASPPR). Under the Canada Shipping Act, ships navigating in Canadian waters are also required to have a Ship Oil Pollution Emergency Plan (SOPEP) that must be reviewed / accepted by Transport Canada.





KEYPLAN

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

MILNE INLET NAVIGATION PLAN

Baffinland

REF NO. BL_Vol3_PDF_001

FIGURE 3-2.12

REV 0

2.4.5 Sealift Re-supply Operations

As per the Approved Project, equipment and supplies for a full year of Project construction, including fuel, ammonium nitrate to manufacture explosives, and other consumables and replacement equipment will be delivered during the open water season to Milne Port. Fuel to supply the ERP road operation will be delivered by tankers and estimated fuel volumes are provided in Table 3-2.2. Recyclable and hazardous wastes will also be hauled to approve disposal facilities in the south by conventional sealift vessels of 10,000 to 17,000 DWT capacity. Dry cargo ships will dock either at the ore dock or at the freight dock (construction authorized under Project Certificate No. 005) in a reliable, safe and efficient manner.

Goods will be stored in the Milne Port laydown areas for transfer to vehicles that will transport the goods to the Mine Site along the Tote Road. Most goods will be transported in containers that will limit spills and facilitate transfer from ship to shore and transport to the Mine Site.

Table 3-2.2 Diesel Fuel Consumption

Diesel Fuel Consumption (Millions of Litres)		Year 1	Year 2	Year 3	Year 4	Year 5
Milne Port	Construction	12.09	14.17	2.85		
	Tug boat fuel		0.2	0.2	0.2	0.2
	Production		1.90	18.32	18.32	18.32
Mary River	Construction – 3Mt	3.51	8.67			
	Production – 3Mt		0.65	14.65	14.65	14.65
MILNE PORT DELIVERY TOTAL		**31.4**	**37.7**	**35.82**	**32.97**	**32.97**
MARY RIVER TOTAL		**3.51**	**9.32**	**14.65**	**14.65**	**14.65**

2.4.6 Ship Waste Management

Discharge of waste and sewage from ships is strictly regulated. All vessels must comply with the requirements of the Canada Shipping Act and Arctic Shipping Pollution Prevention Regulation (ASPPR). There will be no solid waste or sewage discharge from the ships at Milne Port.

2.4.7 Ballast Water Management

Ballast is water taken on in chambers of vessels mainly to stabilize them by adding weight to the vessels and maintaining a certain draft (the depth a vessel sits in the water). Empty vessels take on much more ballast than a fully laden ship.

The Ballast Water Control and Management Regulations require that ships have a ballast water management plan, and either exchange or treat their ballast prior to discharge in waters under Canadian jurisdiction (Transport Canada, 2010). Ships calling on Milne Port will operate in compliance with the regulations. The majority of the ships are expected to use exchange as the preferred method of ballast water management.

Ballast water exchange involves discharge of ballast and taking on new ballast water in deep seas away from coastal zones, to limit the potential for foreign harmful aquatic organisms or pathogens to be

released in Canadian waters where they may colonize. Ballast water will be exchanged in the mid-north Atlantic Ocean, which is part of the same ocean regime as Milne Port. Vessels travelling to Milne Port during open water will contain approximately 25 % of each vessel's deadweight in ballast water, which means that on a vessel of 80,000 DWT the ballast quantity is approximately 20,000 tonnes. Upon approaching the port, the ore carriers will discharge the ballast water to allow for filling the ship with ore. A discussion on ballast water discharge modelling is presented in Volume 8.

2.5 Infrastructure – Mine Site & Milne Port

The development of the infrastructure at Milne Port and the upgrade of the Tote Road are essential components of the Approved Project since all equipment, materials and supplies required for the development of the Mine Site and the northern portion of the railway must be delivered via Milne Port. Some of the facilities constructed to support the ERP (e.g., camps, administration building, shops) will later be expanded, upgraded or replaced once financing for the larger Approved Project is secured. Therefore, most support infrastructure required to support the ERP has already been approved under the project Certificate and is well within the scope of Baffinland's pending Type A Water Licence.

The following descriptions focus on the additional facilities or changes to approved facilities required for the ERP.

2.5.1 Fuel Supply and Storage

There are no changes in the fuel supply and only minor changes to storage strategy from the information that was presented in the FEIS and approved under the Project Certificate. The following discussion is presented for information.

The fuel consumption will ramp up gradually from 15.6 ML in year 2013 to 35 ML during the mine operation starting in 2015.

Diesel Offloading from Ocean Tankers (no change from Approved Project)

Diesel will be shipped by ocean tankers annually during the summer sealift season between August and October. It is expected that the tanker capacity will be between 10,000 m^3 and 16,000 m^3 based on information provided by potential fuel suppliers.

In the proposed design the tankers will be moored off shore at a distance of 0.46 to 0.65 km. The fuel will be discharged through 2" x 6" floating hoses to an 8" permanent shore based manifold. The manifold will have valving at the tank farm in order to ensure uninterrupted fuel off loading and shortest possible turnaround time for the tankers. There is no plan to have shore based fuel offloading pumps. The system will be designed to operate within the tanker's pumping capacity. The shore based manifold will be optimally designed to reduce pressure drops and increase the flow rate. Custody metering will be located on board the tanker and also on the shore. Based on current design the fuel offloading rate is expected to be 295 m^3/hr, which will result in an offloading time between 37 and 53 hours as compared to the current 110 hours at present.

Spill response Capabilities and Oil Pollution Emergency Plan (OPEP)

The Milne Port OPEP for 2013 has been reviewed by Transport Canada. As required by regulations, this OPEP must be updated and resubmitted for review on an annual basis. The OPEP presents the contact information for the emergency response team (ERT) and outlines:

- The emergency response procedures to adopt in case of a fuel spill;
- The emergency response equipment available at the Port site;

- The training requirements for the ERT crews; and
- Reporting requirements.

Baffinland will be self-sufficient in terms of spill response capabilities for incidents occurring within the reach of Milne Port. Response equipment will include:

- Booms for containment;
- A boat for deployment of booms; and
- Skimmers and barge for recovery.

All Emergency Response Team members undergo formal safety and emergency training. Baffinland will maintain a well-trained, dedicated Emergency Response Team on site at all times. The Training provided to the ERT will be specific to accidents and emergency situations and will focus on identification of emergencies and acceptable/appropriate response actions and techniques. ERT training includes classroom and practical field exercises. The classroom training covers:

- The reviews of standard operating procedures;
- The use of personal protective equipment;
- Signalling an emergency;
- The identification of evacuation routes and muster locations;
- Reporting and notification protocols; and
- Other general safety procedures.

The Company will undertake a comprehensive annual spill exercise to test the readiness of management and responders, and to practice and validate the logistics of the deployment of spill gear. Baffinland will retain external expert organizations to assist in delivery of training.

External stakeholders and community representatives will be invited to participate in the training and field exercises.

Diesel Storage at Milne Port (minor changes from Approved Project)

The existing Milne Port tank farm contains one 5 ML steel tank for Arctic diesel. During 2013, one additional 5 ML and three 12 ML steel tanks will be constructed (four 10 ML steel tanks were approved under the Project Certificate). Three 0.75 ML steel tanks will be installed for the storage of Jet A fuel (the Project Certificate approved the construction of two 1.5 ML steel tanks). In addition, two 100,000 L steel tanks will be installed within this secondary containment for storage of tug boat fuel. Decommissioning of the 8.6 ML bladder storage tanks will continue.

Table 3-2.2 provides a summary of the estimated Diesel consumption for the first five years.

Additional Diesel Storage at Mary River for ERP

Mary River diesel storage will cater to the power generation plant, the mining fleet, and the needs of various ancillaries such as the emulsion plant, incinerator and miscellaneous users. The Project Certificate authorized the construction of three 5.2 ML steel tanks for the storage of Arctic diesel and two 1.5 ML steel tanks for the storage of Jet A fuel. For the ERP phase, the Mine Site will have a storage capacity for seven weeks, which dictates a storage capacity of 2.0 ML at the Mine Site. The interim fuel tank farm will consist of four 0.5 ML tanks for the storage of Arctic diesel. The ERP requires a minor variation in fuel storage strategy for the Mine Site as the larger bulk fuel storage will not be constructed until the larger Approved Project gets under way.

The four tanks of 0.5 ML capacity will be filled by regular fuel transport from Milne Port using fuel tanker trucks (one fuel tanker truck per day). It is expected that the upgraded Tote Road will be able to support this operation without adverse impact on the ore haul truck movements. Jet A fuel will also be transported by tanker trucks from Milne Port to the Mine Site.

The mine mobile equipment such as mine haul trucks, loaders and drills will be refueled by fuel trucks in the field or near the maintenance shop. In view of the long pipeline distances, it is felt that refueling by tanker trucks is the most flexible and practical approach.

Fuel Tank Farms Construction (no changes from Approved Project)

All fuel tank farms will be designed for secondary containment to comply with NFPA and the requirements of North West Territories (NWT) "Design rationale for Fuel Storage and Distribution Facilities". All the tank farms will be lined with a geosynthetic liner HAZGUARD 550 or equivalent. The secondary containment capacity of the tank farms will be 100 % of the largest tank volume and 10 % of the volume of all remaining tanks. Each tank farm will have a sump for spillage collection. In the event of a spill, the material collected in the sump will be pumped to an oil / water separation unit for eventual controlled discharge.

2.5.2 Sewage and Wastewater Management

Each camp will be equipped with a sewage treatment plant. Performance specification of the sewage treatment plants, as well as operation and maintenance manuals are contained within the "Fresh Water, Sewage and Wastewater Treatment Management Plan", which provides details on expected quantities of sewage that will be generated at each camp. This Management Plan was submitted to the NWB in support of the pending Type A Water Licence.

For the Approved Project, the workforce is expected to peak at 150 to 170 individual at Milne Port during the Construction Phase. Therefore, under the pending Type A Water Licence, Baffinland will obtain authorization for the corresponding fresh water supply and treated sewage effluent discharge volumes.

For the ERP, due to a much shorter construction time frame, peak construction work force is expected to be approximately 225 workers at Milne Port, reached during Q3 2013 and maintained through to Q3 2015.

At the Mine Site, the Exploration Camp sewage treatment plant (existing) will continue to operate and service the Exploration Camp. Treated sewage from this plant discharges to the existing PWSP pond. The effluent from the pond is pumped to Sheardown Lake during summer.

A 400 person construction camp will be installed at the Mine Site in Q3 2013 and will be expanded to house 1,200 workers once the Approved Project is approved. This camp will be serviced by a new sewage treatment plant. A new Process Sewage Water (PSW) pond will be constructed to hold the treated effluent over the winter months. During summer, treated effluent from this pond will be discharged to the Mary River.

The sludge generated by these sewage treatment plants will be incinerated.

2.5.3 Solid Waste Management

Solid waste disposal covers a number of aspects including treated sewage sludge, waste from the shops, kitchen and camp waste, construction waste, waste oil, coolants and used tires, damaged conveyor belts and other industrial wastes generated from mine operation.

Wastes remaining after application of the waste minimization techniques will be managed in a practical and environmentally responsible manner using methods appropriate for each waste type.

The following methods will be applied at the site:

- Waste sorting at all generation points;
- Incineration of non-hazardous combustible wastes;
- Open burning in a regulated burn pit of untreated wood and cardboard;
- Landfilling of inert non-combustible wastes;
- Temporary storage and off-site shipping of hazardous and recyclable waste materials; and
- On-site treatment in a landfarm for contaminated soil and oily water from hydrocarbon spills.

The Waste Management Plan provides details on expected quantities of waste that will be generated. This Management Plan was submitted to the NWB in support of the pending Type A Water Licence.

Incineration

The main disposal method for combustible non-hazardous wastes will be incinerated using an appropriately designed variable flow dual chamber incinerator, and ashes from the incineration process will be placed in closed drums and buried in a designated area of the landfill. Incineration diverts putrescible waste from the landfill and thus prevents problems associated with odours that attract wildlife. Only trained personnel will operate the incinerators in accordance with applicable emission requirements. Waste oil will be consumed within waste oil burners in the maintenance shops. Incinerators will be installed at each main camp location.

Landfill

The existing landfill at the Mine Site (an expansion of the existing approved landfill) will be used to dispose of only inert solid waste and ashes from the incinerator. An operation and maintenance plan for the landfill will guide operations. Regular cover will be applied, and a cap of native overburden will be placed on top of the landfill before decommissioning, so that the contents of the landfill will remain permanently frozen and isolated. Open-air controlled burning of inert combustible materials will be conducted as needed to eliminate large quantities of wood waste and cardboard that would otherwise use up landfill capacity.

The land size and footprint will be minimized through planned waste minimization and recycling practices, and volume reduction from the incineration of a portion of the waste stream. The landfill will be operated only by trained personnel who will carry out regular inspection and monitoring of the facility. Expected volumes of waste that will be directed to landfills are summarized in Table 3-1.1.

Hazardous and Recyclable Wastes

Hazardous and recyclable wastes will be temporarily stored in special containers and/or at designated locations on-site and will be shipped to registered hazardous waste disposal facilities or to recycling depots. Manifests will be prepared for all materials shipped off-site and the receivers will be required to maintain chain of custody records. Estimated volumes of hazardous and recyclable wastes will be developed during detailed engineering design.

Hydrocarbon Contaminated Materials

Soil, water, ice and snow contaminated by accidental oil spills will be collected and deposited landfarm treatment facilities for remediation. A landfarm facility will likely be constructed at each of the permanent project sites. The landfarms will be bermed and lined and consist of multiple cells to handle waste

generated from several events separately. Soil remediation will occur through volatilization and natural biological processes, and once hydrocarbon levels meet the applicable Nunavut remediation standards, the soil will be transferred to the landfill, likely to be used as cover material.

Hydrocarbon contaminated water, snow and ice will be treated within the oily water treatment systems within the truck maintenance shops at Milne Port and the Mine Site. Excessive volumes of contaminated snow and ice will be stored in a dedicated cell of the landfarm until the material has melted and can be transported by pump truck to an oily water treatment system in a maintenance shop.

Soil spoils may be generated during construction of the Milne Inlet Tote Road. This material will be re-used nearby as general fill if suitable, or will be stockpiled in roadside borrows. Borrows will be reclaimed to provide stable side slopes and restore natural drainage.

2.5.4 Buildings Design and Sizes

Most of the buildings will be designed and sized to accommodate the operating and infrastructure equipment, including that used for material handling (crushing, screening, conveyor transfer towers), the glycol boiler, water treatment, sewage treatment and incineration. The material handling buildings are structural steel custom-built to house the equipment, enclosed and heated for equipment functionality and maintenance in a harsh climate. The service buildings will be pre-engineered, while some will be of a fold-away type to be upgraded when construction on the Approved Project begins.

2.5.5 Maintenance Shops

Mine Site

At the Mine Site, a combined truck maintenance shop will service the ore haul trucks and the mining equipment fleet.

The mine haul truck maintenance shop will have a number of service bays, including a wash bay, and will service the mine haul trucks, excavators, loaders, graders and other heavy duty mining equipment. The ore haul truck maintenance shop will have service bays to service the ore haul trucks. Two bays in this shop will be used for servicing a wide range of transport and service vehicles that will be operating at Milne Port and Mary River. The shop will have adequate facilities for handling routine and major maintenance of the entire mining equipment and truck fleet.

In addition to the mobile equipment, there is a need for the mine maintenance shop to service / rebuild stationary equipment such as conveyors and pumps. This initial maintenance shop will be expanded once construction of the Approved Project begins.

Milne Port

At Milne Port a small maintenance shop will handle minor service issues with ore haul trucks and other mobile equipment such as loaders and dozers. The Mine Site maintenance facility will be the primary area for maintenance to the road haulage fleet.

2.6 Transportation of Workers

2.6.1 Air Traffic

During the construction period, manpower requirements are expected to peak at 550 workers. The rotation schedule will be typically four weeks at site with two weeks off site. For the operation, the site rotation will be 14 days of 12-hour shifts followed by 14 days off. Travel to work will occur on day 1 of the

14 days on-site with return travel to the pickup point occurring on day 1 of the 14 days off-site (i.e., day 15 of a 28-day work cycle).

Figure 3-2.13 presents the expected air traffic patterns during the ERP. The expected number of daily flights is presented in Appendix 3B.

2.6.2 Road Transportation of Workers to Milne Port

The Milne Port air strip will eventually be relocated to the location shown on Figure 3-2.9. It is expected that there will be a transition period where Baffinland's employees and construction workforce will be transported by bus from the Mine Site to Milne Port via the Tote Road. Transportation by road is expected to begin during or after Q1 2014. Two sizes of passenger bus will be used (40 and 24 passenger buses) and the frequency is expected to be one bus per week on average.

2.7 Air Quality

The major sources of emissions will be equipment used for mining, the truck fleet used for transportation of ore to Milne Port, and the ships while anchored at Milne Port and along the transit through Milne Inlet. Due to the coarseness of the ore, dust emissions from handling of the ore will be minimal. Dust suppressants (calcium chloride) will be used as required. The truck fleet will be equipped with nylon sealed tarp systems to minimize dusting from ore. The emission inventory for the ERP phase is presented in Volume 5.

2.8 Protection of the Freshwater Environment

As mentioned throughout the ERP Project Description, the work and activities undertaken for the construction of the ERP facilities consist mostly of establishing the basic infrastructure required for the construction of the larger Approved Project, which was approved under Project Certificate No. 005 and the pending Type A Water Licence for the Mary River Project.

The pending Type A Water Licence imposes terms and conditions on the Project construction, operation and closure that will ensure protection of the freshwater environment. This Licence as well as all supporting documentation and associated management plans are public documents and can be consulted on the NWB public registry website (http://www.nunavutwaterboard.org/en/public_registry).

As part of the water licensing process, Baffinland developed a comprehensive Aquatic Effects Monitoring Plan Framework (AEMP). The Aquatic Effects Management Program Framework (AEMP) aims to address issues identified during the final environmental assessment (FEIS) process of the larger Approved Project that could potentially impact the aquatic receiving environments surrounding the project development. Building from earlier baseline monitoring (FEIS 2012), the AEMP described the general monitoring strategy designed to detect effects to the freshwater aquatic environment.

The AEMP is designed to take an integrated, ecosystem-based approach that links mitigation and monitoring of physical/chemical effects to key ecological receptors in the receiving environment.

The AEMP addresses key issues identified in the FEIS that have the potential to affect the freshwater environment valued ecosystems components (VECs). The freshwater VECs are:

- Water quantity;
- Water and sediment quality; and
- Freshwater biota and fish habitat.

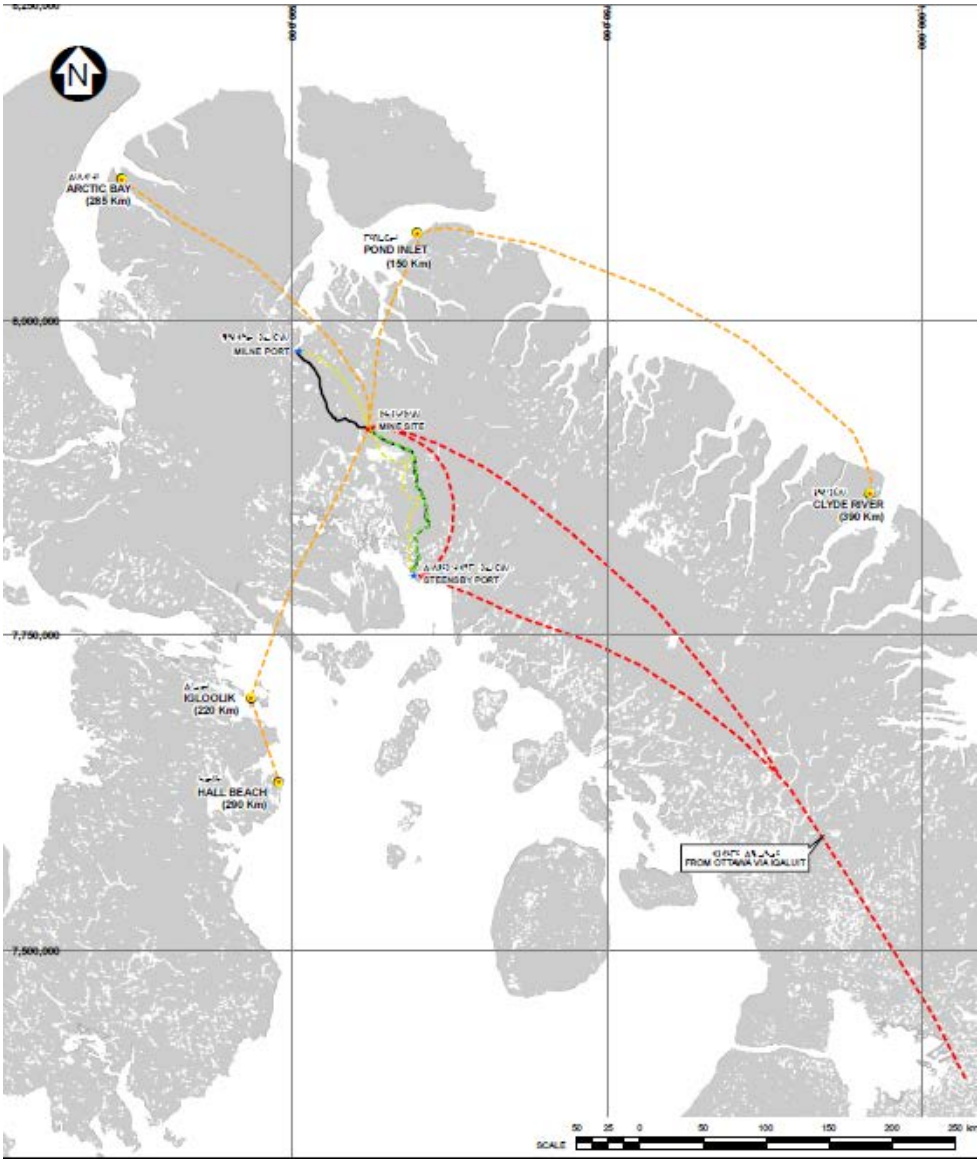


Figure 3-2.13 Project Air Traffic Patterns

Baffinland has implemented mitigation measures to minimize adverse effects. Several management and monitoring plans are intended to inform the "adaptive management" process, which relies on the early identification of potential problems and the development of additional mitigation options to address them.

The AEMP is designed to detect project-related impacts at temporal and spatial scales that are ecologically relevant (i.e., on a basin spatial scale). The program targets flows, general water and sediment quality, primary productivity (phytoplankton) and benthic community structure of the streams/lake impacted by project activities.

A number of the terms and conditions of the Project Certificate No. 005 deal with hydrology, hydrogeology, freshwater and freshwater biota (conditions 16 to 24 and 41 to 48). Compliance with the terms and conditions of the Project Certificate is discussed in Volume 10 of this submission, Environment Management.

2.9 Other Terms and Conditions of the Project Certificate

Baffinland recognizes that all the terms and conditions of the Project Certificate are applicable to the ERP. Compliance with the terms and conditions of the Project Certificate is discussed in Volume 1 of this submission, Appendix 1D.

SECTION 3.0 CLOSURE AND RECLAMATION

3.1 Overview

An Interim Mine Closure and Reclamation Plan has been prepared and is presented in Appendix 3D. The plan incorporates progressive rehabilitation during the course of the Project to limit the work required after cessation of operations and to limit the environmental effects during the Project life. It addresses temporary and long-term closure as well as final cessation of operations. Public health and safety will be considered throughout all stages of progressive rehabilitation, closure and post-closure.

For final closure, materials and equipment will either be removed from site or disposed of in on site landfills, and all hazardous materials and wastes will be removed from site to licensed disposal facilities. The open-pit and waste rock stockpiles will be inspected for physical and chemical stability. Roads (with the exception of the public Milne Inlet Tote Road), airstrips and development areas will be re-contoured as required to provide long-term stability and reduce the potential for erosion. The Closure Phase is expected to be three years, followed by a minimum of five years of post-closure safety and environmental monitoring and treatment, as and if required.

The Plan is a “living” document. It will be reviewed and regularly updated throughout the Operations Phase to reflect the progress of the Project as well as changes in technology and/or standards or legislation. The Plan is subject to review and approval by the Nunavut Water Board and the Qikiqtani Inuit Association (QIA) commercial lease (pending). Future revisions will also consider input from consultations with communities and other stakeholders on methods to be used, and potential uses for project infrastructure.

The main objectives of closure activities are to:

- Return the Project affected sites to “wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and human activities” (NRCan, 1994);
- Where practicable, undertake progressive reclamation to reduce the environmental risk once the mine ceases operation (INAC, 2002; INAC, 2002a; Northwest Territories Water Board, 1990; and QIA, 2009);
- Provide for the reclamation of affected sites and areas to a stable and safe condition. Where practical, affected areas will be returned to a state compatible with the original undisturbed area (Territorial Land Use Regulations);
- Reduce the need for long-term monitoring and maintenance by designing for closure and instituting progressive reclamation, as possible;
- Provide for mine closure using the current available proven technologies in a manner consistent with sustainable development; and
- Return altered water courses to their original alignment and cross-section (Territorial Land Use Regulations).

3.2 Progressive Rehabilitation

Reclamation will be accomplished using a progressive approach throughout the life of the mine. This allows for the development of solutions to problem areas, adjustments and modifications to reclamation

techniques, implementation of mitigation measures and assessment of reclamation performance. For the duration of the Project, progressive rehabilitation will be implemented as follows:

- Laydown areas - unused areas or areas no longer needed during operations will be regraded and contoured to prevent pooling of water and facilitate natural drainage;
- Camps - following the Construction Phase, construction camps will be removed and/or downsized. Associated structures and infrastructure not required for the on-going operation will be removed. The affected area will be regraded and contoured to facilitate natural drainage;
- Quarries and Borrow Pit - once exhausted or no longer required, sites will be graded to maintain safe side slopes and where practicable to maintain the natural drainage of the area. Closure and reclamation of these sites will be carried out in accordance with the Borrow Pit and Quarry Management Plan and site specific Quarry Development and Closure Plans;
- Landfills - landfills will be progressively covered with an interim cover consisting of overburden to allow the contents of the landfills to remain permanently frozen;
- Landfarms – hydrocarbon contaminated soils will be excavated and treated in the landfarms throughout the life of the Project;
- Facilities not in use during the Operations Phase will be demolished and removed from the site and disposed of in site landfills or off-site disposal facilities;
- Roads – roads no longer required during operations will be decommissioned. Stream crossings will be removed and drainage channels that are stable in the long term will be established;
- Mine Pit - a boulder fence or equivalent will progressively be placed around the open-pit perimeter as material becomes available; and
- Waste rock stockpile - management practice will ensure containment and coverage of PAG rock within the confines of the waste rock stockpile.

In addition to progressive closure activities, research studies will be undertaken during operations to examine the revegetation of disturbed areas using local vegetation trials. Pending the outcome of these studies, the findings from the vegetation trials may be incorporated into updates of the Mine Closure and Reclamation Plan.

3.3 Temporary Closure and Long Term Closure

Under the Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories (NWTWB, 1990) temporary closure is the planned shutdown of a Mine Site for a period of less than one year. In the event of temporary closure, the Project sites will be maintained in a secure condition through the implementation of a “care and maintenance plan”. As a result a number of operational maintenance staff and other support personnel will be onsite. Access to the Project sites, buildings and structures will be restricted to authorized persons only, as during operations. Buildings where potential hazards exist will be locked or otherwise secured. The schedule of activities to be undertaken for Temporary Closure is described in the Interim Mine Closure and Reclamation Plan (Appendix 3D).

The Guidelines for Abandonment and Restoration Planning for Mines in the Northwest Territories (NWTWB, 1990) define Long-Term Closure as the state of inactivity resulting from economic considerations or a reduction in ore reserves for a period greater than one year. During Long-Term Closure the Project sites will be maintained in a secure condition. Site personnel will conduct periodic

general inspections. Initial site inspections will be conducted once a month and may decrease in frequency if they indicate that the site infrastructure is stable. Site personnel will maintain a record of these inspections. The names of contact persons will be provided to the pertinent associations such as Aboriginal Affairs and Northern Development Canada (AANDC) and QIA for their information and to facilitate their access to the site if and when necessary. Although protective measures will be in place, the Project will no longer be monitored on a continuous 24 hour basis. The Project could reopen when the circumstances requiring the closure change, e.g., when economic considerations are no longer of concern. The schedule of activities to be undertaken for Long Term Closure is described in the Interim Mine Closure and Reclamation Plan (Appendix 3D).

3.3.1 Final Closure

Final closure occurs when the ore deposit is exhausted and requirements of the Mine Closure and Reclamation Plan have been completed. Within 60 days of completion of closing out the site, a Final Closure Plan will be issued to the Land Use Engineer of AANDC (Territorial Land Use Regulations; Sections 33 and 35). The schedule of activities to be undertaken for Final Closure is described in the Preliminary Mine Closure and Reclamation Plan and is summarized in the following paragraphs.

3.3.2 Mine Pit

Following completion of operations the pit walls will be inspected by a qualified professional to assess physical stability. The walls will be inspected for indicators of acid rock drainage (ARD) and/or metal leaching (ML).

Ongoing Waste Rock Characterization Program

As required by Project Certificate No. 005, Terms and Conditions #17 and #18, Baffinland will continue the ongoing waste rock characterization program. As part of this effort, updates will be made as required regarding the approximate fill time for the mine pit. This work will enable Baffinland to gain confidence in the prediction of end of mine life pit water quality.

The open-pit will be allowed to naturally flood to create a pit lake. This will take an estimated 85 to 150 years to fill with water from natural sources such as seepage into the pit, direct precipitation and surface runoff. Once the pit fills to the point of overflow, drainage will enter the natural environment from the southeast corner.

Other activities to close out the pit will include:

- Removal of any dewatering infrastructure (i.e., pumps, surge box and pipelines);
- Clean-up of any soil contamination (i.e., hydrocarbons);
- Barricading access ramps into the open-pit; and
- Placing of boulder fencing and signage as necessary.

At closure inert wastes may be disposed of in the pit, and will be covered with a minimum of 3 m of overburden or waste rock.

3.3.3 Removal of Buildings and Infrastructure

Water supply, sewage treatment plants, buildings and infrastructure will be removed and either:

- Transported to Milne Port for shipment to offsite disposal and/or salvage facilities;
- Disposed of in onsite landfills; or
- Disposed of in waste rock pile.

Ore stockpiled at the Mine Site and Milne Port will be shipped out and the ore stockpile pads will be recontoured following final shipment of ore.

3.3.4 Removal of Machinery, Equipment and Storage Tanks

Salvageable machinery, equipment and other materials will be dismantled and taken offsite for sale or reuse if economically feasible. Alternatively, these items will be cleaned of oil and grease, where appropriate, and deposited the landfill. Gearboxes or other equipment containing hydrocarbons that cannot readily be cleaned will be removed from the equipment and machinery and sent to Milne Port for sealift to an approved offsite disposal facility.

Empty fuel storage tanks, drums and other fuel storage containers will be drained and removed from the Mine Site and Milne Port for disposal at an approved facility. Secondary containment structures such as liners will also be removed, tested for hydrocarbon content and sent to an approved offsite facility for disposal, as required.

3.3.5 Transportation Corridors and Facilities

Bridges, culverts and other water crossings along the Milne Inlet Tote Road will remain in place. This road is part of the Inuit Owned Lands referenced in the Nunavut Land Claims Agreement (Section 21.4.1); it is designated for public use and will be left intact.

Airstrip lighting will be removed. The airstrips will be abandoned, but left in good working order unless otherwise directed by regulatory agencies or the Inuit landowner, to provide emergency/rescue landing spots for regional aircraft, when no other options are available.

3.3.6 Concrete Structures

Concrete foundations will be demolished and exposed rebar will be cut to prevent safety hazards. Concrete and rebar will be disposed of in the waste rock stockpile or landfill, and the concrete foundation areas infilled with non acid generating mine rock or overburden as needed. The area will be regraded to restore the natural drainage. Any remaining concrete piles will be cut to below grade and covered with overburden.

3.3.7 Removal of Chemicals

The stock of explosives will be depleted towards the end of the Operations Phase and any remaining explosives will be securely contained and shipped by a licensed contractor to an approved facility for disposal or reuse.

Oil, grease and chemicals will be transported offsite for disposal or reuse at an approved facility. Batteries and hazardous waste will be removed and disposed of or recycled at an approved facility.

3.3.8 Soils Testing

A site investigation will be conducted at the onset of closure to identify soils that may be contaminated with hydrocarbons or chemicals. Soils that exceed the appropriate cleanup criteria for hydrocarbons will be remediated onsite in the landfarm units; alternatively, contaminated soils will be removed offsite to a licensed waste management facility.

If there is reason to suspect an area has been contaminated by chemicals other than hydrocarbons (such as explosives), samples will be collected and the soil will be tested. If the applicable regulatory requirements are exceeded, an appropriate method of disposal will be sought in consultation with the appropriate authorities.

3.3.9 Waste Management

Combustible non-hazardous wastes will be incinerated on site. Once the incinerators are no longer required, they will be managed as described in the Waste Management Plan. The onsite landfills will be reclaimed by capping the landfill with 1.5 m of overburden or equivalent material.

Sewage treatment plants will also be managed as described in the Waste Management Plan. Liners will be removed from polishing ponds and SWM ponds and berms will be re-graded and levelled.

3.3.10 Stabilization of Stockpiles

At final closure, the waste rock stockpile is expected to have a total volume of about 640 Mt with average side slopes of 2H:1V. At closure the stockpile may undergo minor recontouring. The physical and chemical stability will be investigated at the onset of closure. Following recontouring and stabilization investigations, the stockpiles will be considered closed.

Borrow areas and quarries will be progressively reclaimed, maintaining stable side slopes. At the onset of closure the borrow areas will be investigated to assess potential thermal damage and instability due to thaw impacts. At closure minor recontouring and filling with overburden will be undertaken as needed to ensure slope stability and restore natural drainage.

3.3.11 Watercourses and Drainage Ways

The bridges, culverts and other water crossings will be decommissioned and the drainage channels restored to be stable in the long-term.

Disturbances to the surrounding areas of the Project may cause thermal disruptions to the permafrost zone resulting in ponding, settlement and/or subsidence due to changes in the active layer (approximately the upper 1 to 2 m of soil). These areas will be drained of excess water, filled with clean material to re-establish the active layer, and graded to restore the natural drainage of the area as necessary.

3.3.12 Reclamation Schedule for Final Closure

Once the decision has been made to permanently close the mine, and considering the progressive reclamation undertaken over the mine life, it is anticipated that final closure activities will be carried out over three years.

3.3.13 Closure and Post-Closure Monitoring

Monitoring and follow-up inspections of the Project areas will be conducted to assess the physical and chemical stability of various components after closure and reclamation.

Ongoing monitoring and management of ARD and ML (if any) is expected to be required until such time as it can be demonstrated that site drainage does not pose a threat to downstream receiving waters. This includes an assessment of long-term water quality of the future pit lake.

Monitoring of various site aspects, such as water quality, is expected to continue until the monitoring is no longer required.

A post-closure monitoring program compliant with the applicable guidelines and regulations will be implemented to ensure the reclamation measures remain effective and continue to provide a high level of protection for the public and the environment.

SECTION 4.0 EARLY REVENUE PHASE – CONSTRUCTION AND OPERATION PERIOD

4.1 Construction Labour

For the Construction Period, the work week will generally consist of 10- or 12-hour days, seven days per week. The scheduled work rotation for many contractors during the Construction Phase is expected to be four weeks on/two weeks off. Workers hired from North Baffin communities will have the option of working two weeks on/two weeks off during construction. Peak labour requirement is presented in Appendix 3B – ERP Key Facts Table.

4.2 Operation Labour

The site rotation will be 14 days of 12-hour shifts followed by 14 days off. Travel to work will occur on day 1 of the 14 days on-site with return travel to the pickup point occurring on day 1 of the 14 days off-site (i.e., day 15 of a 28-day work cycle).

4.2.1 Services & Contracts

It is expected that the following operational aspects may be accomplished through contracts with other companies.

- Air Services;
- Explosives and Blasting;
- Security Services;
- Housekeeping and Catering;
- Health and Medical Services; and
- Sea Freight Shipping.

4.3 Organization Structure and Manpower Estimate

The organization structure for the Operations Phase will consist of eight major categories:

1. Mining
2. Materials Handling/Transport
3. Site Services
4. Maintenance
5. Finance
6. Information Technology (IT)
7. Human Resources and Training
8. Health, Safety and the Environment

This section describes the proposed general format of the site organization structures and the scope of activities that these eight areas will be expected to cover. Figure 3-4.1 shows the general reporting and quantity of employees within each area.

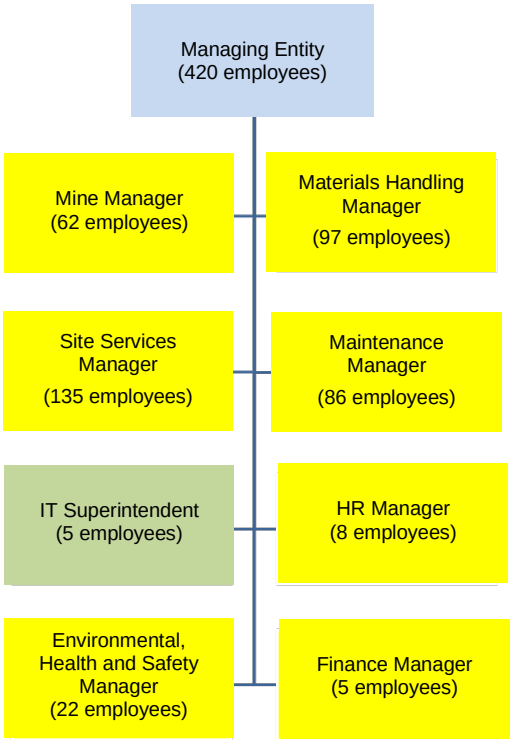


Figure 3-4.1 Proposed Organization Structure for Site Operations

4.3.1 Mining

The scope of the Mine department includes the following major activities:

- *Mine Planning*
- *Mine Geology*
- *Surveying*
- *Blast Design*
- *Sample Collection & Assaying*
- *Drilling*
- *Blasting*
- *Loading*
- *Hauling*
- *Dozing*
- *Mine Road Grading/Maintenance*
- *Waste Pile Development*
- *Mine Operator Training*
- *Mine Support Work*
- *Explosives Production & Delivery*

The Mine department will deliver broken ore material to a stockpile near the mobile crushers. This will be the handover point to the Materials Handling department.

The major mining fleet will consist of the following pieces of equipment.

- *Front end loader with 10m^3 bucket (2)*
- *90 tonne off-highway haul truck (4)*
- *500 HP Rubber tired dozer*
- *Off-highway water truck*
- *Track excavator (2)*
- *Stemming loader*
- *6" Diameter production drill (2)*
- *Secondary drill (1)*
- *800 HP Track dozer (2)*
- *16' Motor grader (1)*

Emulsion explosives will be produced at an on-site plant and will be delivered to the hole by the Explosives Contractor, who will be responsible for priming the hole, loading explosives, tying in the blast according to the blast design, and shooting the blast.

A combination of sampling and assaying of blast hole cuttings as well as down-the-hole XRF probe will be used to provide chemical analysis of the ore and waste material. Geologic technicians will collect blast hole cuttings where required and provide those to the laboratory contractor for sample preparation and analysis. Environmental samples can be analyzed by this contractor as well. It is expected that the laboratory contractors will send out samples as required to their main labs as required to ensure quality control.

On-site engineering and geology will be supported by contracted resources off-site. They will provide support for more specialized and infrequent activities such as:

- Long-term mine planning;
- Rock mechanics analysis;
- Geologic modeling;
- 5-year plans and annual reports; and
- Capital/project engineering, cost-justification analysis and costing of solutions.

On-site engineering and geology will provide direction and review of the off-site work and perform short to medium engineering duties such as:

- Dig plans for operations;
- Blast designs;
- Production reporting/analysis;
- Surveying;
- Sample collection; and
- Wall mapping.

The Mine department will consist of approximately 62 people. The superintendent of engineering/geology will work with the Mine Manager in order to provide consistent oversight and direction to the department.

Mine Operations crews will consist of approximately 11 people, including the supervisor. Within each crew, the supervisor will work to develop a relief supervisor who will be available and will serve as a lead hand to the supervisor and will provide continuous training/mentoring to operators on the team. This role provides an area for development of Inuit supervisory capacity and ensuring that information is conveyed properly and understood by individuals whose predominant or only language is Inuktitut.

4.3.2 Materials Handling/Transport

The scope of the Materials Handling/Transport department will include the following major activities:

- *Feeding & operating crushers*
- *Stockpile management (Mary River)*
- *Loading of road haulage trailers*
- *Road haulage of ore to Milne Inlet*
- *Maintenance of Haul Road*
- *Stockpile management (Milne Inlet)*
- *Feeding ship loading equipment*
- *Operation of ship loader*

The Materials Handling/Transport department will feed blasted ore to the mobile crushing and screening system at Mary River and then feed the screened product into mobile stackers to create the stockpile. This group will then load road haulage trucks from the stockpile and truck the ore from Mary River to Milne Inlet. At Milne Inlet, the material will be dumped on the ground. Front-end loaders will feed mobile

stackers to form the stockpile that is reclaimed and sent to the ship loader. The major equipment fleet for this group will consist of.

- *14' Motor grader (3)*
- *Tractors each with two 70 tonne trailers(20)*
- *400tph Mobile crushing/screening units (Mary River) (2)*
- *Mobile stackers (Mary River)*
- *500 HP front-end loaders (Mary River) (2)*
- *Mobile crushers for gravel (2)*
- *Mobile stackers (Milne Inlet)*
- *500 HP front-end loaders (Milne Inlet) (4)*
- *Reclaim conveyor*
- *Ship loader*

The Materials Handling/Transport department will consist of approximately 97 people. The department will split supervisory coverage geographically such that 49 employees start their shift at Mary River while the remaining 48 start their shift at Milne Inlet.

Materials Handling/Transport crews will consist of approximately 12 people including the supervisor. As with the Mine department, a relief supervisor/trainer will be developed to serve as a relief supervisor when required and to provide continuous training/mentoring to operators on the team.

4.3.3 Site Services

The scope of the Site Services department includes the following range of activities:

- *Management of air services contract*
- *Camp & travel logistics*
- *Procurement*
- *Catering & housekeeping*
- *Inventory control & warehousing*
- *Site security*
- *Sewage treatment*
- *Waste management*
- *Water treatment*
- *Landfill management*
- *Power generation & distribution*
- *Freight movement*

The Site Services department will ensure that the day-to-day operation and maintenance of the camp infrastructure and necessary support services are in place to support the production teams.

The major equipment fleet for this group will consist of.

- *Track dozer (2)*
- *14' Motor grader (2)*
- *48 Passenger bus (3)*
- *24 Passenger bus (2)*
- *Mobile crane (2)*
- *2.5MW Genset (11)*
- *Forklift (2)*
- *Cranes (2)*
- *Ambulance*
- *Fire Truck (2)*
- *Mid-sized excavator*
- *Backhoe excavator*
- *Mid-sized loader (3)*
- *Small loaders (4)*
- *Manlifts (3)*
- *Dewatering pumps (4)*
- *Tractors (5)*
- *Trailers (8)*
- *Plow/Sand truck (2)*
- *Boom Truck (2)*
- *Steam Truck*
- *Container handler (2)*
- *Forklift (2)*
- *Telehandler (2)*
- *Vacuum truck (2)*
- *Fuel Trucks (2)*

The Site Services department will consist of approximately 135 people. The department will be split with 73 at Mary River and 62 at Milne Inlet.

It is expected that the areas of security, catering and housekeeping will be contracted. These areas account for 82 of the 135 projected employees, with Site Services Operators as a potential 32 others.

4.3.4 Maintenance

The scope of the Maintenance department will include:

- *Maintenance of Mine equipment*
- *Maintenance of Materials Handling/Transport equipment*
- *Maintenance of Site Services equipment*
- *Maintenance of power generation & distribution infrastructure*
- *Building maintenance*
- *Maintenance planning*

The Maintenance department will ensure that all infrastructure and equipment is in safe and proper working order, and will work with the other departments to ensure that preventative and breakdown maintenance is scheduled to meet the overall priorities of the entire operation.

The Maintenance department will operate a combined Mine/Materials Handling/Site Services shop at Mary River and a smaller Materials Handling/Site Services shop at Milne Inlet.

The Maintenance department will consist of approximately 86 people, split between shops at Mary River and Milne Inlet, along with mobile field maintenance crews as required. The maintenance team required to service the requirements of the mobile equipment within the Mine has been benchmarked against other operations with similar fleets.

4.3.5 Finance

The finance department required to support the operations will consist of approximately five people covering the areas of financial reporting, accounts payable, accounts receivable, and operational accounting/budgeting.

4.3.6 Information Technology (IT)

The IT department required to support the operations will consist of approximately five people covering the areas of operational hardware and software support, network administration and site communications, including radios, satellite, internet, phone and television.

4.3.7 Human Resources and Training

The Human Resources and Training department required to support the operations will consist of approximately eight people covering the areas of training, recruitment, employee relations and Inuit Impacts and Benefits Agreement monitoring and reporting.

4.3.8 Health, Safety and the Environment

The Health, Safety and Environment department will consist of approximately 22 people covering the areas of medical care, safety, environment, community relations and document control.

SECTION 5.0 INFORMATION SYSTEMS AND INFORMATION TECHNOLOGY PLAN

5.1 Purpose

Information Systems and Information Technology (IS&IT) consists of the requirements definition, design, development, implementation, commissioning and handover of all on-site and head office systems and components. IS&IT will also support activities, such as training, required to successfully deliver the system components to support construction, operations and corporate activities for the Early Revenue Phase and the Approved Project.

To allow for the incremental definition and refinement associated with this staged approach, the detailed execution plan will reflect this phased translation from conceptual business requirements into actual systems, and will include parallel activities such as training and preparation for operation readiness.

A related key concept is the continuum of on-site IS&IT implementation from start of construction, through construction, to start of operations, with certain permanent installations occurring early to support construction.

This covers all production systems, IT and networking components to meet both construction and production requirements on-site, and in terms of physical location for Phase 1 include: Milne Inlet (MI), Tote Road (TR), Mine Site (MR), Corporate Office (TO) and for Phase 2 be expanded to also include all of the Approved Project (Rail Construction Camps, Rail and Steensby Port (SP) Site).

5.2 Objective

The specific IS&IT objectives are as follows:

- Advance permanent IT infrastructure wherever possible to support construction needs;
- Enable project wide use of a common toolset;
- Promote the use of common standards to drive consistency and compatibility between systems;
- Address site location challenges such as cold climate, and satellite communication limitations;
- Provide effective and proactive system and IT management and project support in all locations;
- Support the health and safety of on-site personnel;
- Support the business requirements of BIM;
- Be reliable, scalable, and grow with the needs of the Company, project delivery and operations;
- Minimize site labour requirements;
- Enable employee mobility between jobs at site;
- Provide systems that are simple to use, easily maintained and supported, and present a minimized learning curve; and,
- Information shall be communicated between operating centers within established performance benchmarks.

5.3 Scope of Work

The scope of IS&IT consists of the following:

- Corporate office and on-site communications and IT infrastructure for the construction project phase;
- Implementation of on-site communications and IT infrastructure for the permanent operations;

- Implementation of systems for the Corporate office – ERP, Environmental, Health & Safety Systems; and
- Implementation of systems for permanent operations – Production Systems.

The system layers will require a degree of interfacing.

5.4 Methodology/Approach

The design and implementation of the IS&IT systems and infrastructure face a number of challenges:

- Detailed requirement from the various stakeholders shall be developed, agreed and finalized as first step (i.e., construction/projects team, corporate team, others). These requirements will then appropriately drive the system design and implementation to meet their requirements;
- Satellite communications may be interrupted and there is an inherent response time limitation that will be allowed for in any application deployment design; and
- Cold weather operation of systems exposed to the environment may affect electronic function and battery systems.

5.5 Satellite Communications

The following principles are applicable to satellite communications at all sites and through all project phases:

- Baffinland is responsible for all satellite communications equipment and services procurement packages;
- The existing temporary satellite equipment and service contracts at Milne Inlet, Mary River and Steensby Port will be upgraded as requirements increase;
- All satellite communications will be optimized across all sites to provide effective bandwidth, rates, and flexibility at each site;
- The permanent satellite dish and equipment at Milne Inlet and Steensby Port will be installed early to support construction and long term operations requirements;
- Each site will have a single satellite equipment installation shared by all users. No additional satellite dishes by contractors, or others, will be allowed;
- Redundant satellite links are preferred to provide a mechanism to communicate off-site in the case of an interruption to service of one satellite link; and
- Satellite Phones: For the Construction and Permanent Project Phases, hand held Iridium satellite phones will be used for communications within and outside of the sites, by BIM and Contractor personnel, in the event of emergencies and failure of any other communication mechanism.

5.6 VHF Mobile Radio Communications

For on-site VHF Mobile Radio communications, the following principles apply, and are applicable to the MI, TR, and MR locations only:

- The existing temporary VHF Mobile Radio installations at MI, MR and SP, and along the TR, will be replaced to support increasing construction requirements;
- Early installation of the permanent VHF Mobile Radio infrastructure minimize installation and associated costs, of temporary installations;

- The VHF Mobile Radio system will comprise individual radios, vehicle radios, base stations, towers and repeater stations; and
- An on-site propagation survey will be performed by the supplier as a priority to finalize and optimize the design in terms of tower number, location and size. The primary goal is to ensure complete VHF radio coverage at the MI, MR and SP sites, as well as along the Tote Road.

5.7 IT Services

A Company wide Information Technology plan will be developed by the IS&IT discipline lead in conjunction with construction management. The mandate will be to provide:

- A Company management information system (ERP and EH&S integrated software systems) (MIS) to facilitate control, analysis, forecasting and reporting of Company-wide performance;
- Temporary construction site office computer and communication systems followed by permanent systems of adequate capacity and scope for the anticipated data and traffic volume for construction; and
- Systems to ensure subsequent operations have anytime, anywhere secure access to data.

SECTION 6.0 HUMAN RESOURCES

6.1 Organizational Design

The following organizational structure has been developed for the Early Revenue Phase. This structure is designed to operate the proposed mine, port and road haul requirements only. The ramp-up to the operation will require additional staff to support a range of tasks such as recruitment, training, and establishment of systems and procedures. These employees will be hired on fixed-term contracts.

Additional staff will also be required to continue work on the Approved Project.

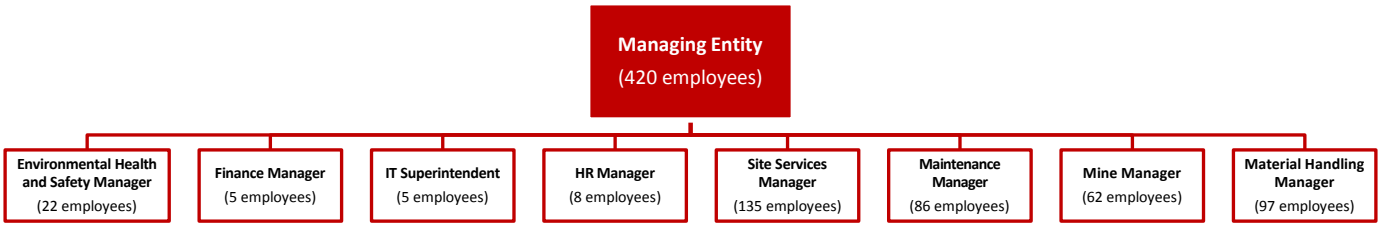


Figure 3-6.1 Organizational Design

6.2 Workforce numbers

An operational model has been developed for the early revenue generation phase. The numbers of employees during operations in 2015 is contained in Table 3-6.1 below. 420 employees in total are expected in 2015.

Table 3-6.1 Overall Employment Numbers 2015

Department	Grand Total
Finance/IT	10
Human Resources	8
Mining	62
Materials Handling/Transport	97
Site Services	135
Maintenance	86
Sustainable Development/HSE	22
Grand Total	**420**

Based on numbers of Inuit employees during the bulk sampling phase, at the time of full production in 2015 it is estimated that 20 % of the operational work force (contractors included) will be Inuit. This assumes that an 80 % turnover (in line with the bulk sample data) will be experienced and on average 200 Inuit employees from the North Baffin will be available for employment.

These employment numbers include positions that will be contracted out, e.g., some site services.

6.3 Compensation, Benefits and Mobility Strategy

The compensation, benefits and mobility strategy for the Project is to be able to attract, motivate, retain and reward employees in line with appropriate benchmarks and their contribution to the success of the Project.

The salaries for operational positions have been benchmarked using Hay methodology and Canadian mining salary data for 2012. In addition, Baffinland Iron Mines and Newmont partnered in a study of northern mining allowances.

Reviews were also conducted of Baffin Island Hamlet and Government of Nunavut salaries and allowances.

Despite a slowing global economy, the Canadian market for experienced mining operations team members remains tight.

Key aspects of the compensation and benefits package include:

- Northern Allowances will be paid to all employees residing on Baffin Island;
- A travel allowance will be paid to all employees on a permanent 2/2 rotation;
- Medical benefits and insurances will be available for employees and their dependants;
- Pension contributions of 5 % of base salary. Where employees contribute an additional 4 %, additional company matching will be available (based on a length of service and age calculation); and
- Employee and Family Assistance program will be available. For Inuit employees financial counselling will be made available as needed.

6.4 HR Context

6.4.1 Demographics, Health and Well-Being

The following demographic highlights are relevant in understanding the potential of the local Inuit labour force:

- The population of the North Baffin consists mostly of Inuit (94 %), with non-Inuit accounting for just 6 %. In Iqaluit the balance between Inuit (60 %) and non-Inuit (40 %) is more even; and
- Of a total North Baffin population of 5,400 residents, 2,055 are between the age of 15 and 65. Over half (58 %) of the population is under 25 years of age. The City of Iqaluit, with 6,200 residents, has 4,415 people between 15 and 65 years of age, roughly half of whom are non-Inuit who have moved to the territory for employment.

In addition, the key health statistics suggest that Nunavut residents face significant health and well-being issues:

- Life expectancy at birth in Nunavut is, at 70 years, nearly ten years less than that of Canadians generally;
- Birth rates in Nunavut are roughly twice that of Canada generally. Incidence of pre-term delivery and low birth weight are also high relative to the Canadian rates. Infant mortality rates in Nunavut are over three times higher than the Canadian rate;

- The major causes of death in Nunavut are cancer, suicide, heart disease, and accidents. Accidents were responsible for 12 % of all deaths in the territory. Suicide rates are much higher in Nunavut than in Canada generally (source: Statistics Canada. Catalogue No. 84FR0209: "Mortality, Summary List Of Causes 2004."); and
- Substance abuse, particularly abuse of alcohol, is an issue of concern to police and health officials in Nunavut. Tobacco smoking rates are high, at an estimated 70 % of the population. Marijuana is the drug of preference and its use is considered to be prevalent (source: Government of Nunavut, Department of Health and Social Services, 2004 and Canadian Centre On Substance Abuse, 2007).

6.5 Language, Literacy, and Education

Use of the Inuktitut language is widespread across the North Baffin population. As is the case across Nunavut, levels of education, literacy and numeracy remain low.

- Inuktitut is the language most commonly spoken at home for 90 % of North Baffin Inuit. A portion of the population—ranging from 6 % in Hall Beach to 24% in Igloolik—consists of unilingual Inuktitut speakers. Nearly two in three North Baffin Inuit workers are employed in settings where Inuktitut is the prevalent language;
- The largest group of adult learners in the territory are at the lowest two levels of the four-level scale used in the International Adult Literacy and Skills Survey (Government of Nunavut. 2006. "Nunavut Adult Learning Strategy.");
- Levels of education are lower across Nunavut than in Canada generally. Across the North Baffin, a majority (62 %) of the population 25 to 64 years of age has earned no formal educational credentials. However, of those who have, most have gone on to other programs. As a result, nearly one-third of the North Baffin Inuit population between 25 and 64 have attained some post-secondary training;
- School dropout rates are high. Between one-half and two-thirds of North Baffin students who enter high school (Grade 9) leave before they enter the final year of high school (Grade 12); and
- Many residents engage in training and upgrading through the local college system. Roughly one-fifth of the population aged 20 to 34 engage in adult education programs.

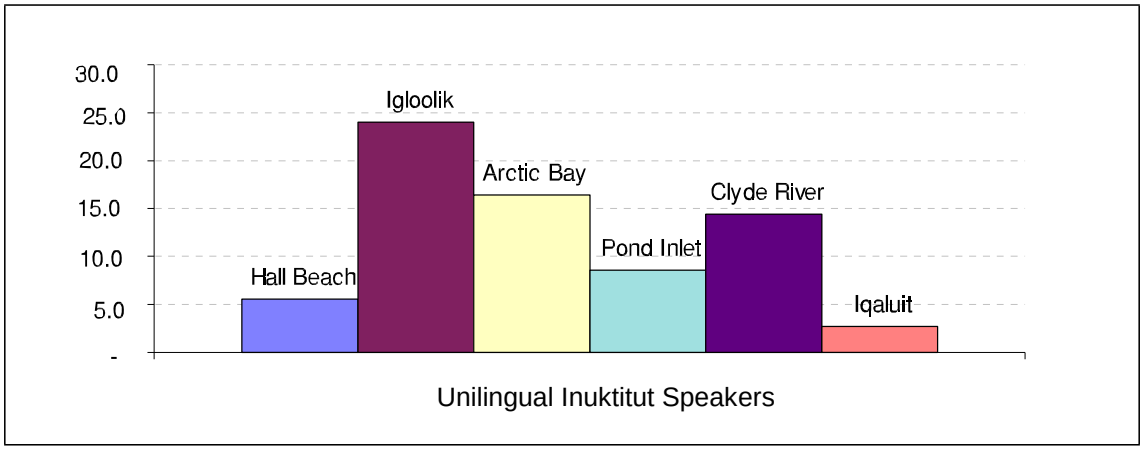


Figure 3-6.2 Unilingual Inuktitut

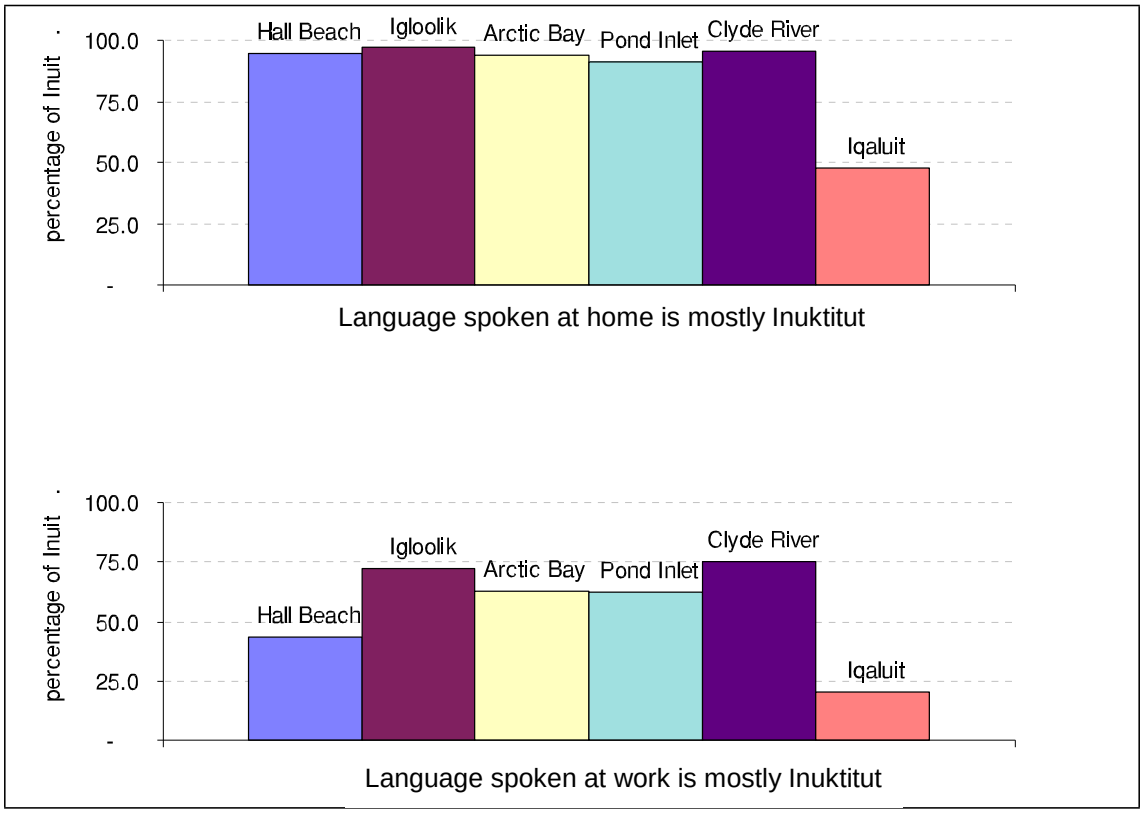


Figure 3-6.3 Use of Inuktitut at Home and Work

6.6 Labour Market Profile

The North Baffin and Iqaluit labour market is characterized by the following profile derived from census and tax-filer data combined with data collected during the Mary River bulk sample work:

- Inuit employment in the North Baffin is characterized by many individuals working part time and/or only part of the year, earning a median employment income of $9,000. Some 2,250 North Baffin residents are engaged in providing labour to fill an estimated 1,100 full-time equivalent jobs generated by the regional economy;
- The turnover rate for North Baffin employees during the bulk sample work is estimated at 80 % (1.8 hires per job filled) during the peak work activity in 2008; and
- The bulk sample experience can be used to estimate how many Inuit may be hired in the future. Based on this approach, it is estimated that a total of 340,000 hours of labour could be supplied to the Project from Iqaluit and the North Baffin communities. This is equivalent to filling 165 jobs, at 2,080 hours per job. Applying an 80 % turnover rate, it can be expected that some 300 residents would be involved in supplying this labour each year.

6.6.1 Experience from the Meadowbank Mine

Agnico-Eagle's (AEM) Meadowbank gold mine is the only mine currently operating in Nunavut. The mine received a Project Certificate in late 2006 and entered production in early 2010. As with the Baffinland Project, the AEM mine operates under an Inuit Impact and Benefits Agreement (IIBA) that addresses, among other things, Inuit employment and training.

The following information related to human resources (presented in November 2011) provides insight of relevance to the Mary River Project:

- The 2010 workforce of 1,435 included 637 individuals employed by AEM and 798 with contractors (including on-going construction activities). Inuit account for 38 % of AEM's labour force and 5 % of contract labour; and
- Turnover amongst employee Inuit employees was 40.2 % in 2011 (100/249 employees). In 2011 the absenteeism level amongst Inuit employees was 12.5 %, equivalent to 22 people not showing up for work each day of the year.

6.7 Resourcing Strategy

The resourcing strategy of the Project is to ensure that the right person is hired to the right position at the right time and right cost.

In line with the requirements of the IIBA, Baffinland Iron Mines is committed to the hiring and development of Inuit with a particular focus on Inuit from North Baffin Communities.

As noted above the Inuit labour market presents particular challenges:

- Low levels of prior employment history;
- Language barriers; and
- Lack of senior or technical skills and experience.

In light of this, the following will be put in place:

- An Inuit Employment and Training Coordinator will be hired to work in the five North Baffin communities to inform local communities of position vacancies, to support hiring managers in identifying candidates for vacancies, and to provide support and encouragement to employees;
- A candidate database identifying position interests, skills and education will be established (primarily maintained by the Employment and Training Coordinators) and will be accessible during the Construction Phase to internal hiring managers as well as contractors;
- All vacancies will be posted in North Baffin Communities for 28 days; only if there are no suitable applications (either from the advertisement or search of the database) will the vacancy be sourced in southern locations. This may be waived where it is agreed that no suitably qualified candidates are likely to be identified;
- Vacancies will be advertised in English and Inuktitut;
- Where safety is not compromised, Inuktitut speaking workgroups will be established. To support this, recruitment materials, company policies and, where practicable, training materials will be translated to Inuktitut;
- Inuit will be given preference over other applicants (provided skill requirements are met); and
- A job description will be established for each position detailing the skill and performance requirements.

In addition, summer employment opportunities for Inuit students will be made available.

6.8 Training Strategy

The purpose of the Baffinland Iron Mines training strategy (construction and operation) is to give employees the necessary skills, knowledge and attributes to meet the organization's needs.

However, it is the responsibility of each employee to pursue these development opportunities and support continuous improvement across Baffinland Iron Mines. The objectives of the training strategy are to:

- Support the achievement of the IIBA and Project Certificate with respect to people's capabilities (training and employment);
- Address challenges identified in the labour market with respect to language, skills and experience;
- Increase the overall technical and managerial skill level of employees to ensure that the business is, as much as possible, self-sufficient in terms of talent development, recruitment and training; and
- Support the achievement of the Minimum Inuit Employment Goal (MIEG) each year.

Baffinland is committed to developing a construction training program and an operations training program.

The construction training program will be based on the skill requirements, employment numbers and timing identified by the Company and relevant contractors.

It has been clearly identified during the bulk sample employment period that Inuit employees from North Baffin may require addition support to make a successful transition to fly in – fly out (FIFO) work. As evidence of Baffinland's commitment to training, the Work Ready Program was initiated in the fall of 2012 to help successful candidates understand and successfully manage FIFO work, basic financial management, time management and personal management. This program has already had great success, with over 200 beneficiaries successfully completing the program prior to the publication of this document. The location and dates of the program are described in the following table.

Community	Work Ready Session Date(s)
Arctic Bay	April 15-26, 2013
Clyde River	November 26 - December 7, 2012
	May 6-17, 2013
Hall Beach	March 11-22, 2013
Igloolik	March 11-22, 2013
	May 6-17, 2013
Pond Inlet	January 21 - February 1, 2013
	March 11-22, 2013
	April 15-26, 2013
	May 6-17, 2013

To assist the training process, Baffinland Iron Mines will provide targeted training and support including:

- Adult education refresher training: this will be open to all residents of North Baffin communities, with preference given to candidates who have the underlying willingness and capability to obtain employment with Baffinland Iron Mines;
- Elder support: an Elder will be available on-site to assist employees with personal/cultural challenges;
- Employee Assistance: it is the aim to have some employee and family assistance support (personal and financial) to be able to be provided in Inuktitut;

- English language and Inuktitut language training;
- Adult education, work-ready, induction training is planned for delivery in Inuktitut, where possible job specific training will also be provided in Inuktitut; and
- Infrastructure for adult education, work ready and other community based training remains a challenge; where possible Arctic College rooms will be utilized, and this is not possible hotel rooms, hamlet offices and community organizations will be used.

All employees will be offered a range of training opportunities, including:

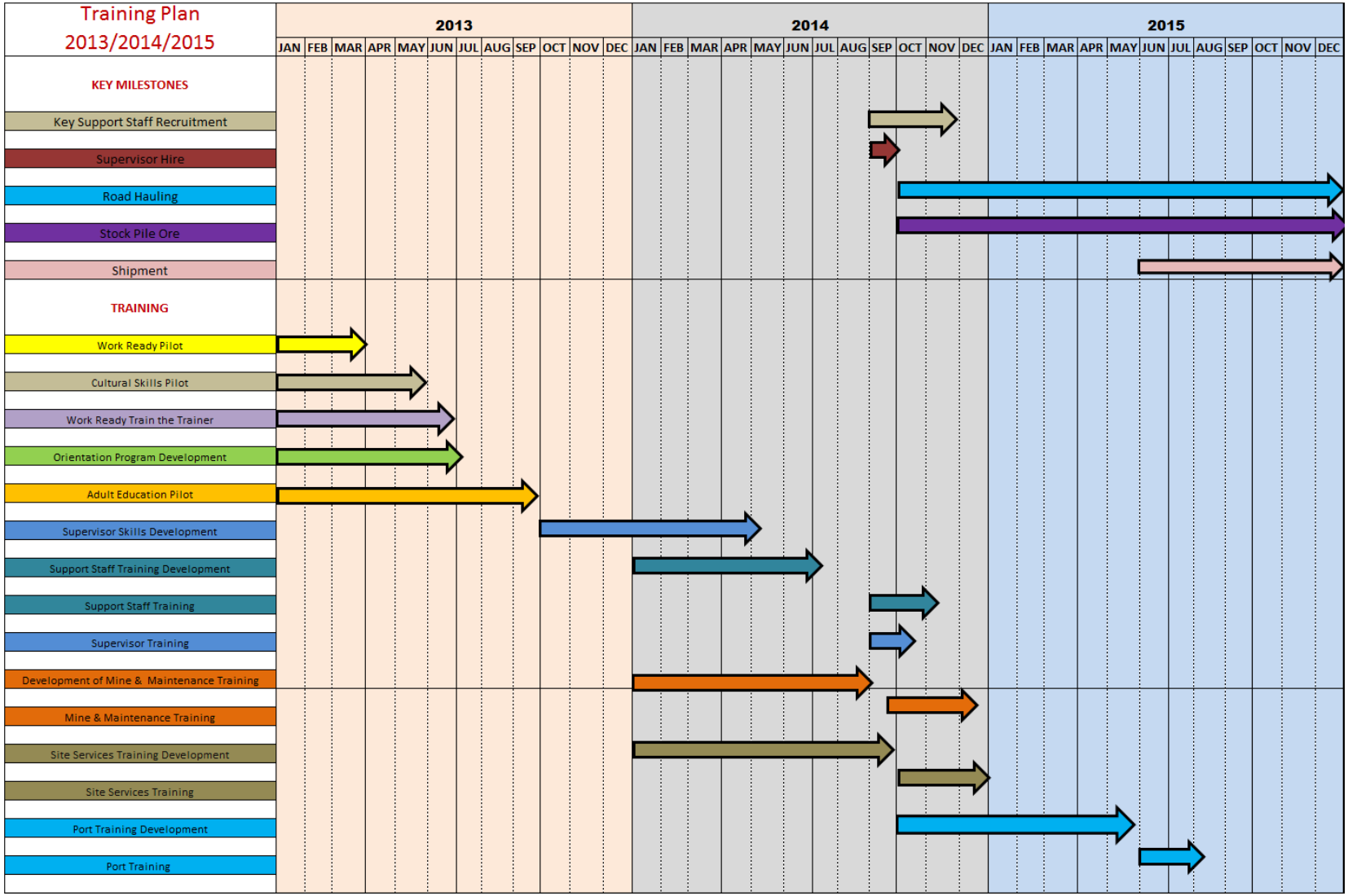
- Induction/orientation program;
- Cultural awareness training; and
- Employee and Family Assistance Program.

A range of training programs will be accessed through the ArcelorMittal University, these include:

- Function specific training;
- Core management and leadership skills training;
- E-learning;
- English language learning;
- Talent pipeline programs; and
- Executive training.

At the core of the training offering will be technical job-specific training for the operations (mine, road haul and port). Performance Associates International has provided an overview of job-specific training in terms of duration and equipment packages. The exact timing will be aligned to commissioning and operational requirements. This is listed in Table 3-6.2.

Table 3-6.2 Training Planning



6.9 Employee Relations

A properly managed and stable labour environment will be one of the critical success factors for implementation of the Mary River Project. This is separated into two requirements, one during construction and one during operations.

During operations the site will operate on the basis of 'direct engagement principles' where supervisors and managers will be expected to directly manage the relationship with their team members in a harmonious manner using the tools and strategies outlined in the prior sections.

The construction environment will be operated as a 'managed open site'. Contractors will be required to adhere to all IIBA and Project Certificate Terms as they relate to human resources matters. To support this, the following tools will be used:

- Construction ER Policy;
- Contractor assessment process;
- Key standard policies and procedures for the site; and
- On-going monitoring of all contractors.

The approach will incorporate the following principles:

- Compliance with all applicable legislation that governs employee relations in Canada;
- Compliance with the IIBA and Project Certificate Terms and Conditions in particular with respect to monitoring, training, resourcing and the yearly established minimum Inuit employment goal;
- Compliance with the Construction Training Strategy, designed to support skills development and transfer through training initiatives and services of training providers;
- Compliance with labour agreements that may be negotiated between any contractor employer associations, contractors and organized labour, in respect of the Project;
- Fair and equitable terms and conditions of employment that are, as far as possible and practicable, uniform and standardized across the project, through the mechanism of a Policy Guideline or a Site Specific Agreement (SSA);
- Compliance with all Project procedures, rules and regulations that are prescribed, introduced or implemented by Baffinland Iron Mines;
- Promotion of labour stability, harmony and productivity at every possible opportunity;
- Maximization of Inuit employment in construction, development, services, contracts and activities on the Project;
- Dedication and commitment to world-class performance and professionalism in the execution of any and all activities associated with the Project;
- Mutual respect between all parties and individuals engaged in any employment relationship; and
- Honesty, integrity and transparency in all aspects and activities related to the Project.

6.9.1 Employee Relations, Procedures, Practices and Standards

In order that harmonious relations are maintained on the Project and that differences in philosophy and approach do not occur on the Project, key consistent procedures and practices will be established.

Such procedures shall include but not be limited to:

- Resourcing (including Inuit specific requirements);
- Disciplinary code and procedures;
- Grievance procedures;
- Dispute resolution procedures;

- Absenteeism; and
- Demobilisation procedure.

Such practices shall include, for example:

- Construction-specific training and development (including Inuit-specific requirements);
- Standard and or Minimum Wage Rates aligned to job categories;
- Conduct of the parties in the event of industrial action; and
- Communication structures.

6.9.2 Project Employee Relations Steering Committee (PERSC)

The Project may establish a Project Employee Relations Steering Committee (PERSC) to provide for regular and effective communication between Baffinland Iron Mines and contractors on the Project.

The PERSC will determine policy issues, provide guidance and mandates relative to employee relations issues, and issue recommendations for implementation across the project. It will also gather information and data as required through the IIBA and Project Certificate terms.

6.10 Demobilization

The principles below are to provide for a smooth process of demobilization of the Contractor's employees from the Project:

- Inuit employees will be the last to be demobilized and first to be re-hired (skill levels being equal);
- Where possible, attempts will be made to move affected employees to other contractors on the Project;
- All payment due and all the required documentation will be provided on the day of demobilization; and
- All demobilized employees will return their security passes and sign an Acknowledgment of Receipt Form in respect of the above documentation and monies upon termination prior to any payment being made.

6.11 Monitoring

Monitoring of the social and economic benefits and impacts arising from Project implementation will be carried out using frameworks developed in the IIBA and in collaboration with regional and territorial socio-economic monitoring carried out through the Qikiqtaaluk Socio-Economic Monitoring Committee (QiSEMC), under conditions set out in the Project Certificate.

IIBA-mandated monitoring and reporting will encompass Inuit participation in the Project through employment, training and business relationships. In addition, Baffinland will be required to establish IIBA management and executive committees that include members of the QIA. These committees will oversee the production of a range of reports, quarterly and annually. Employment monitoring will include a description of Baffinland's success in achieving the annual MIEG and will encompass assessment of the relative proportion of Inuit employed in various employment categories. These categories will be broadly based on the National Occupational Classification System (NOCS) used by Human Resources and Skills Development Canada (HRSDC).

Baffinland's collaboration with regional and territorial monitoring involves participation in regular meetings of the QiSEMC and in a working group comprised of QiSEMC members (the QiSEMC Working Group). Whose purpose is to support the QiSEMC's regional monitoring initiatives through project-specific socio-economic monitoring. It is intended to provide a forum for Working Group members to engage in the

work of the QiSEMC through identification of areas of mutual interest and socio-economic monitoring priorities related to the Mary River Project, communities, and the North Baffin region as a whole. The Working Group aims to support the fulfillment of Terms & Conditions of the Project Certificate that relate to socio-economic monitoring.

Baffinland will generate an annual report for NIRB (for QiSEMC Working Group monitoring). The NIRB reports will be publicly available. These collaborative monitoring programs may also be expected to support Baffinland's human resources management decision-making.

SECTION 7.0 EARLY REVENUE PHASE - OPERATIONAL READINESS

7.1 Operational Philosophy

The operations philosophy for Baffinland includes commitments to health, safety, the environment, and communities through a balanced approach to economic, technical and social issues. The operations team will apply cost-effective best management practices that involve all employees, at all levels of the organization, in programs directed towards continuous improvement of the workplace.

Commitments made by the company to the two primary stakeholders, QIA and the Government of Nunavut, will be honoured throughout the Construction and Operations Phases. A strategy will be developed and a plan will be put in place to meet quantifiable objectives related to aboriginal employment, aboriginal business opportunities and gender equity.

Operations practices will focus on developing a well-managed and involved work force, working with reliable systems and equipment, to produce marketable iron ore at a profit for the company. Systems, equipment and facilities will be designed to minimize operational and maintenance work force requirements. To this end, control technology will be the best cost-effective systems available, and standardization of equipment, parts and components will be maximized to reduce warehouse inventory.

Personnel in each functional area will need a thorough understanding of the purpose of their individual jobs, how their actions affect other functions and how all functions are integrated within the overall operation to produce and ship iron ore product. Extensive and detailed planning will be undertaken to ensure that employees achieve this understanding through careful recruiting, intensive training, excellent front-line supervision and continuous open communications.

Operational efficiency will be achieved with minimal job classifications and simple job descriptions that lead to multi-skilling and multi-tasking. This will allow employees to best utilize their skills, knowledge and training without arbitrary limits. It will also foster cooperation, overlap and integration of the various functions, and will also support teamwork.

Managers will set a positive teamwork example for all employees by encouraging broad based cooperation between departments and individual work areas. They will be guided by a company vision statement and core values as shown in Figure 3-7.1.

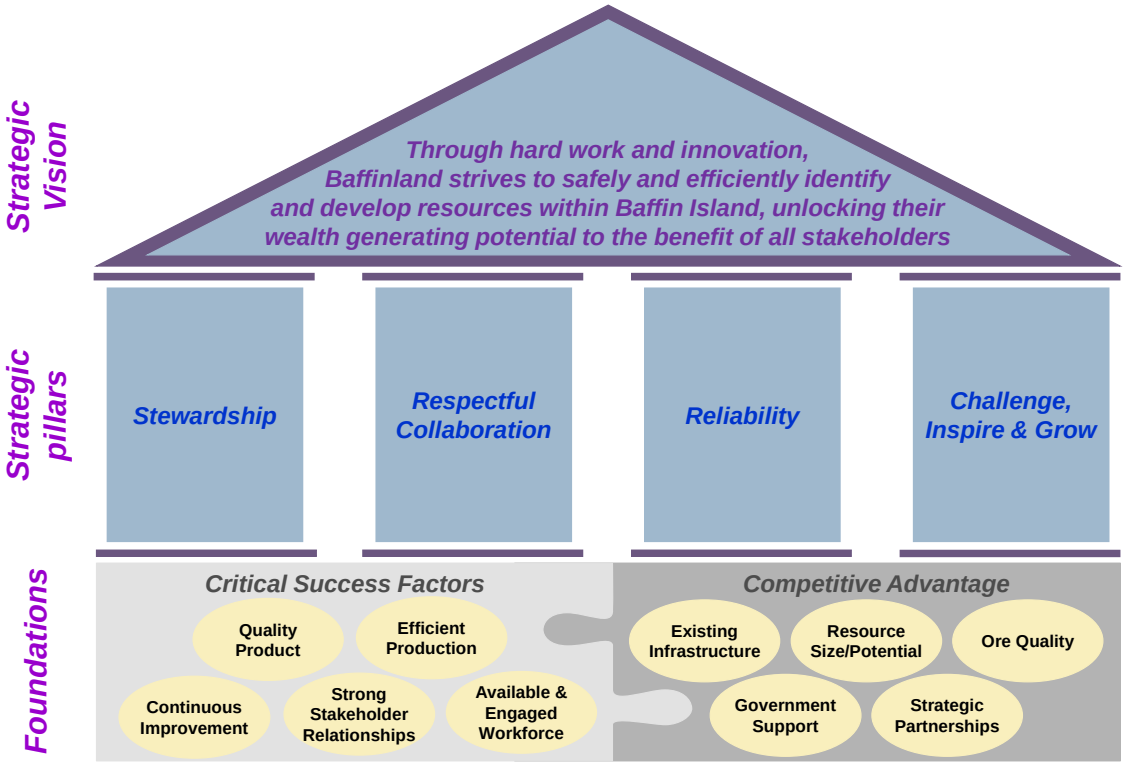


Figure 3-7.1 Company Vision and Values

Stewardship

"We will care for and protect things of value".

"Stewardship is responsibly overseeing and protecting something considered worth caring for and preserving".

Baffinland and its employees will act as stewards of the environment, the buildings we work in, the equipment we use, the product we produce and the safety, health and well-being of people. This core value is in line with ArcelorMittal`s core value of Sustainability while emphasizing caring and protection as integral components of its operating culture.

Respectful Collaboration

"We work as a team to achieve mutually beneficial solutions".

Baffinland believes that through teamwork and respectful communication, individual differences can be leveraged to create an optimal solution mutually beneficial to all stakeholders.

Respectful collaboration for Baffinland is an essential part of our ability to function and succeed in the north, both internally and externally, with employees, regulators, communities and shareholders.

Reliability

"We say what we'll do and will do what we say"

Reliability is "the ability of an apparatus, machine, team, individual or system to consistently perform its intended or required function or mission, on demand and without degradation or failure". Whether it be an individual's commitment to perform their work as expected or the team`s commitment to deliver on the plans that have been communicated to shareholders, Baffinland and its employees will reliably and repeatedly meet the expectations agreed to with others. Any shortfalls in those expectations will be analyzed, and mitigations or improvements made, such that reliability in performance will improve.

This core value is in line with ArcelorMittal's core value of Quality, which emphasizes a customer focus to ensure consistency in product quality, and the requirement to have quality people in order to produce quality outcomes.

Challenge, Inspire & Grow

"We work hard to identify and take advantage of opportunities"

Through hard work, Baffinland and its employees will identify and take advantage of opportunities to improve and grow. An atmosphere of continuous improvement will be encouraged through caring and engaged leadership.

Baffinland has made the bold decision to unlock the wealth generating potential of the Mary River deposit. To be successful on this project, our approach has to be characterized by hard work and innovation

This core value is in line with ArcelorMittal's core value of Leadership in that continuous improvement truly occurs through caring and respectful leadership, engaging with employees to obtain a mutual understanding of the business and potential opportunities for growth.

7.2 Operational Scope of Work

The operating sites are in a remote northern location, with challenging weather conditions and will be developed as fly-in/fly-out operations. All transportation to site will be by air or sea. The weather conditions are challenging, and operations will have to deal with extreme cold and darkness for portions of the year.

Most employees will work a 2-week-in/2-week-out rotation schedule, and 12-hour day and night shifts during their two weeks on-site. These working conditions can compound with continuous daylight or continuous darkness conditions to cause environmental stress and fatigue. Appropriate policies and procedures for this type of operation will be developed and communicated to potential employees during the interview and pre-employment training process. It is important to ensure that employees understand the nature of the work and how the schedule and working environment might affect their personal lives.

Baffinland will also work to develop a working environment conducive to a culturally and gender diversified work force. The work force will be culturally diversified resulting, in part, from the hiring policy and the need to bring people in from southern Canada. As well, the company is committed to actively encouraging the employment of women during construction, operations and closure.

Baffinland will strive in its recruiting process to hire employees who can work and live in an atmosphere of cultural diversification and gender equality. Policies and procedures will be developed to ensure that employees feel comfortable in the workplace and that they are being treated with dignity and respect. In

support of these principles, gender and cultural sensitivity training will be provided and a harassment policy will be developed and implemented.

7.2.1 Operations Preparedness

In order to be ready to commission equipment and move into operations by the fourth quarter of 2014 a number of items will be developed further during construction:

- Detailed mine plan for the early revenue phase including integration with the larger Approved Project;
- Implementation aspects of the Inuit Impacts and Benefits Agreement;
- Development of site governance strategy including:
    - Policies and procedures
    - Zero tolerance activities
    - Regulatory compliance
    - Risk registry development;
- Maintenance and Operators manuals for equipment will be supplied by vendors and will be used to develop training programs;
- Warranty management strategy to be implemented during first years of operation; and
- Capital spares and operational spares/consumables will be identified in consultation with vendors as well as consignment opportunities.

7.3 Health, Safety, Environmental

The Operational Health, Safety, Environment and Communities Management Plan (HSECMP) will be developed by Baffinland specifically for the Early Revenue Phase Operations. The HSECMP will be integrated, where it can, with the Project HSECMP and will be created prior to commencement of operations. It will recognize the responsibilities to meet the relevant statutory and corporate Baffinland Project management requirements, specifications and standards. Operation and Project HSECMPs will be aligned with the corporate Health, Safety, Environment and Communities Management System.

The purpose of the Operation's HSECMP is to:

- Outline the operations team responsibilities for management of health, safety and environment activities;
- Detail the Occupational Health, Safety and Environment policies and systems;
- Detail the requirements for hazard identification and risk management, and
- Provide the framework for the implementation of all health, safety and environment activities.

The HSECMP document will include the following sections:

1. Introduction
2. Roles and Responsibilities
3. Risk Management
4. Planning
5. Implementation – Construction
6. Monitoring, Measurement, Evaluation
7. Implementation – Pre Commissioning
8. Review and Improvement
9. Schedule of Delegated Authority

7.4 Maintenance Plans

Maintenance will operate as a centralized group so resources can be shared as required by the maintenance activity (welders, electricians, etc.). Maintenance will be responsible for working with other departments to let them know what equipment will be available for incorporation into the operating plans. Maintenance will determine priorities with respect to unplanned maintenance requests and work collaboratively with the operating departments to ensure that the overall company production objectives are met. This will drive care for equipment into the operating departments and facilitate making maintenance aware of issues quickly and assisting in their repair. Some smaller repairs may even be taken on by operating departments if they are within their capability (e.g., pickup tire changes, light bulb changes, broken hoses).

Baffinland

October 3, 2014

Mr. Martin Van Rooy
Mine Inspector
Worker's Safety and Compensation Commission
Nunavut
PO Box 669
Iqaluit, Nunavut
XOA 0H0

Dear Martin,

The attached document, **Addendum, Mines Operation Technical Summary** was developed by Mine Operations Superintendent Francisco Albor Consuegra. This document provides Baffinlands response to questions posed in the Martin Van Rooy email of August 30, 2014 on the subject of the **Notice of Intention to Start Work.**

Should you have any questions regarding this submission please contact Michael Anderson by phone at 416.814.3163 or email at Michael.Anderson@Baffinland.com.

Best Regards,

Erik Madsen
Vice President
Sustainable Development, Health, Safety and Environment

cc. Michael Anderson
Glen Hein

Attachments:
Addendum – Mine Operations Technical Survey

Baffinland Iron Mines Corporation

Addendum
Mine Operations Technical Summary

Prepared By: Francisco Albor Consuegra
Department: Mine Operations
Title: Superintendent of Engineering and Geology
Date: September 26, 2014

TABLE OF CONTENTS

1 Rock Mass Characteristics

The rock mass characteristics that are representative of the ore, footwall and hanging wall are provided within the document titled *"Mine Operations Technical Summary; Section 4.1"*. With regards to the geological feature called JSA, please refer to the explanation below.

1.1 Joint Set Family

The discontinuity orientation data and the rock mass characteristics are the result of a field geomechanical surface mapping program. The rock mass rating (RMR) was derived and its analysis revealed that the rock is of relatively high quality. Surface mapping and repeated visits to the mountain ridge where the Ore Body is exposed allowed a naming convention to be developed for the observed discontinuities. The joint-set family definitions are as follows:

- JSA - Generally parallel to the dip of the Ore Body and defined by the orientation of the observed gneissic banding in the footwall (FW), the fabric within much of the Ore Body and the schistosity in the highwall (HW) rocks and waste stringers. Locally this joint-set was observed to cross-cut the fabric of the rock.
- JSB - Steeply dipping joint-set that is locally prominent. It typically strikes at a high angle to JSA (or perpendicular to the slope of the mountain) and dips to the north.
- JSC - Shallow dipping joint-set that is locally prominent. It can be oriented over a wide range of strikes and can locally achieve dips that are difficult to distinguish from JSA and JSB.

All available discontinuity orientation data was eventually sub-divided into these joint-set families to ensure a physical meaning relative to the structure of the Ore Body.

2 Geotechnical Investigation Methods

The investigation methods consisted of geotechnical drilling, collection of representative samples for index testing and characterization, and the installation of thermistor strings in select drill holes for monitoring of the thermal regime. Local mapping of the ground surface was also completed to complement the subsurface investigations.

2.1 Drilling

A total of 44 drill holes were carried out at the site during 2006 and 2007, with 4 of those holes to evaluate pit overburden materials and other 4 to assess the proposed waste dump areas. The majority of the on-land drilling was completed by Boart Longyear using Longyear Fly 38, LM30 and occasionally LF70 drill rigs equipped with NQ and HQ diameter drill casing. Drill holes were advanced through overburden and into a minimum of 5 m of bedrock, when possible.

The logging criteria for recovered core samples consisted of general soil description, such as color and grain size, in addition to frozen soil characteristics such as bonding state and ice content/conditions. When possible, representative soil samples were collected from the recovered drill core. When these materials were unfrozen, judgment was used to estimate whether the material was representative of in-situ state (density and ice), gradation and moisture content.

2.2 Thermistors

Thermistor strings were installed in select drill holes to allow ongoing monitoring of the thermal regime and ground temperatures. During the investigation program, a total of six thermistor strings were installed in the mine site area.

2.3 Laboratory Testwork

As part of the Mary River site investigations, index laboratory testing was performed at site for general characterization and classification. Testwork completed on the various materials was limited to:

- moisture content determinations
- sieve gradation analyses
- hydrometer analyses
- specific gravity
- bulk unit weight estimates

3 Slope Stability Assessment

The slope stability assessment is based on the results of kinematic, Limit-Equilibrium (LE) and 2D numerical analyses.

3.1 Kinematic Results

3.1.1 General

After gathering all field data, joint sets or joint set combinations which were identified as being potentially risky, were analysed. This allowed the assessment of slope angles by comparing them against the kinematic design criteria. Minor changes are expected between the ultimate pit and pushbacks e.g. the early revenue phase (ERP) pit. Hence, the comments below apply to both cases alike.

3.1.2 West Walls

The West Wall of the pit will generally have the FW exposed along the upper slope and the Ore at the toe. Given the orientation of the discontinuities, the West Wall is generally susceptible to local planar and wedge failures. In all cases, the orientation and dip of the JSA family of discontinuities is the dominant factor controlling the spatial distribution of the expected failure modes. The results suggest that a bench face angle (BFA) of 60 degrees is achievable. The pit wall will be developed using 15 m high

benches; therefore, a minimum 8 m bench width is recommended. This bench geometry, if achieved, will result in an IRA of 42 degrees in these areas.

3.1.3 East Walls

The East Wall will generally have the HW exposed along the upper portion of the slope and the Ore at the toe. On the HW side of the main Ore Body, the waste stringers will give the exposed rock a striped appearance that will be particularly prominent at the southern end of the pit. The kinematic analyses suggest a major bench-scale toppling problem exist along the East Wall with only a moderate sensitivity to BFAs. As such, a slightly steeper BFA of 70 degrees is achievable. However, rock fall containment and back-break along the bench crest may become an issue. As such, the bench widths is increased to enhance rock fall containment capacity. This bench geometry will result in an IRA of 45 degrees in these areas.

3.1.4 North and South Walls

The relative stability of the FW and HW regions within these design sectors can be inferred from adjacent sectors. The wall heights in the North Wall are generally less than in the South Wall. Kinematic ground control problems are not expected to be a major issue. Therefore, steeper IRAs can be achieved by reducing bench widths to the 8 m minimum.

3.1.5 Fold Axis

Within the Fold Axis, variable rock mass qualities will influence the bench performance. It is expected that the rock mass quality will be comparatively homogenous and the orientation of the discontinuities will be similar to the adjacent Ore Body. Within low quality regions, benches can be expected to ravel and it is likely that steep BFAs will not be achievable for walls left stationary for extended periods. Within higher quality regions, steeper BFAs may be achievable. The bench geometry calls for 60-degree BFAs, with a wider bench which will result in a 40 degree IRA.

3.2 Limit – Equilibrium Analysis

The minimum allowable factor of safety (FOS) is 1.3 under static loading conditions. The critical slopes were tested for stability under seismic loads with a target FOS of 1.0. In order to evaluate the possibility of an overall slope failure, an L-E model was created for each design sector. The sections were generally chosen at locations that were typical of the entire sector. The results are discussed below and utilize the design rock mass values and a disturbance factor of 0.85.

The results of the L-E analysis indicate that the strength of the rock mass is not likely to control achievable overall slope angles (OSA). For this pit geometry the OSAs will be limited by the IRA imposed by the bench geometry recommendations. There is only one exception, where the L-E results indicate that the target FOS of 1.3 is achieved at an OSA of 40 degrees, which is equivalent to the IRA defined by the bench geometry. As such, this sector was tested for sensitivity to dynamic loads. The pseudo-static analyses reduced the FOS by approximately 0.25 units, but still resulted in a FOS greater than the target value of 1.0. To achieve the FOS of 1.3, the OSA was reduced to 38.

4 EXISTING EXCAVATIONS

During 2008 a bulk sample was gathered at deposit 1. The remaining excavation is shown in Figure 1 and Figure 2.

FIGURE 1 PLAN VIEW OF THE BULK SAMPLE PIT SHOWING THE TOE, CREST AND ACCESS ROAD.

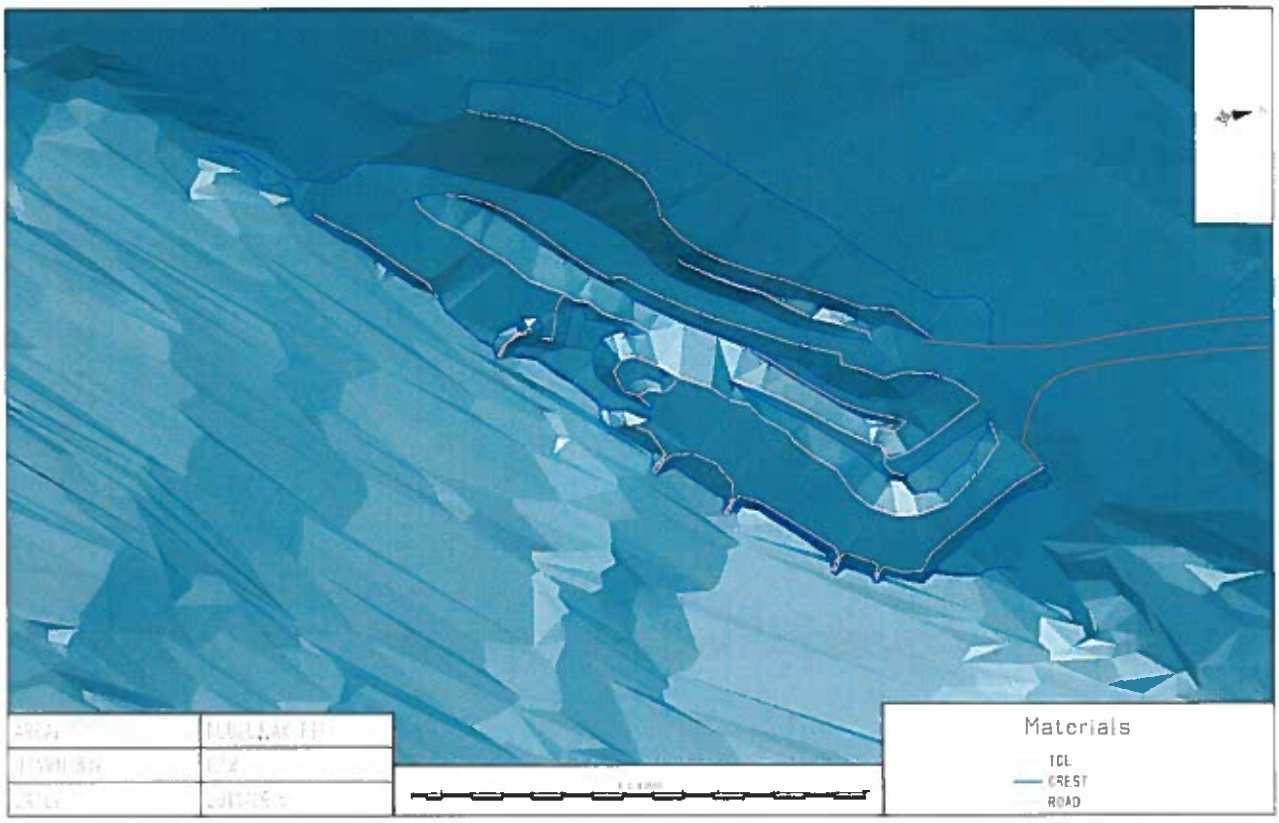


FIGURE 2 ISOMETRIC VIEW OF THE DTM OF THE BULK PIT SAMPLE.

5 PIT DESIGN

The pit design parameters are based on the results of the slope stability assessment as explained in Section 3 above. Figure 3 shows the pit design, plan view, with the geotechnical domains (black lines) within the pit which control the IRA, OSA, BFA and bench width. The geotechnical domains and the safety slope angles associated to each one of them are provided in the *"Mine Operations Technical Summary; Section 5.2"*. Two cross sections, with their location outlined in the plan view (green lines), are also provided in Figure 4 and Figure 5. The cross sections show the pit geometries based on the bench width and the width of the ramp at different areas of the pit.

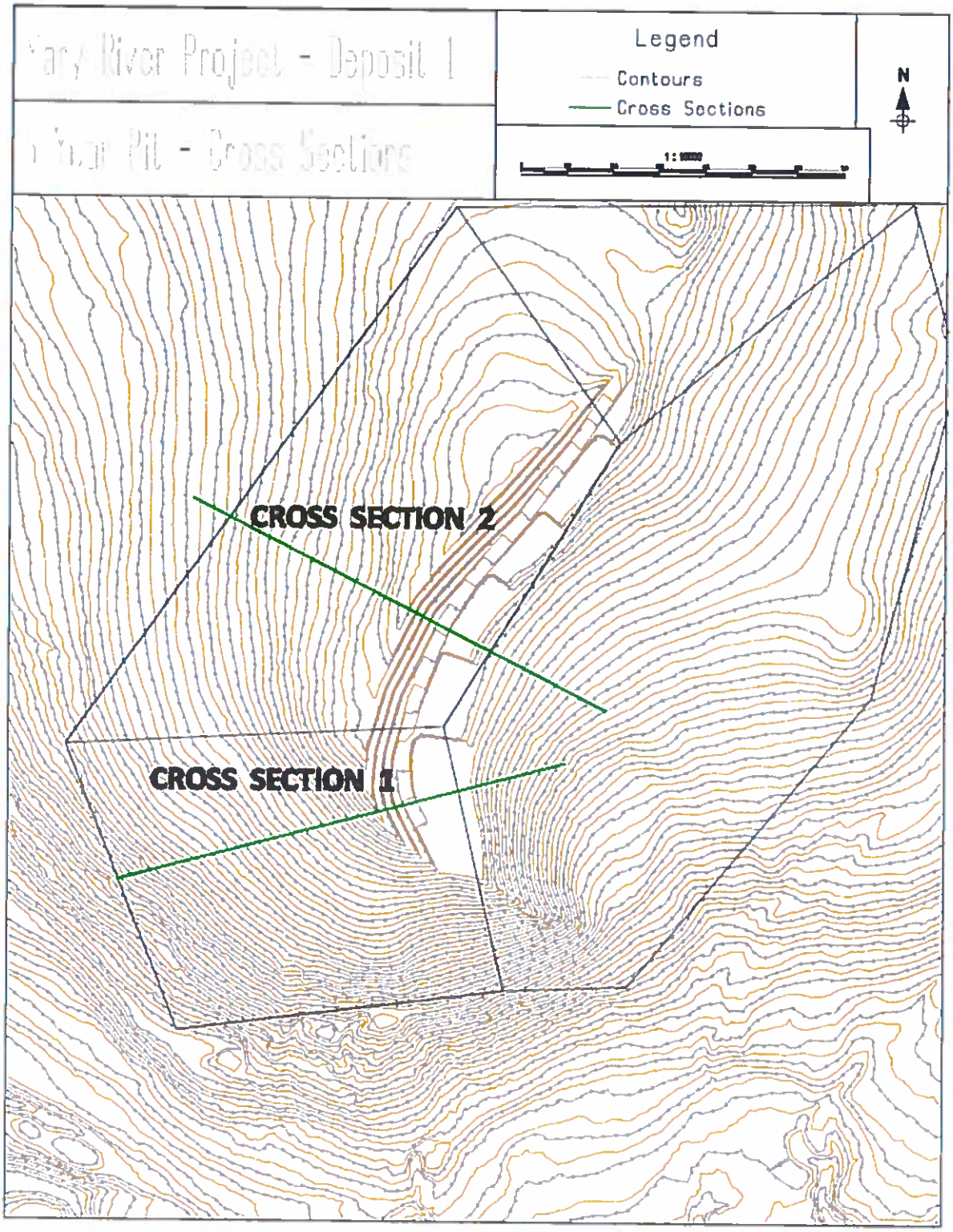


FIGURE 3 SHOWS A PLAN VIEW OF THE PIT WITH GEOTECHNICAL SECTORS.

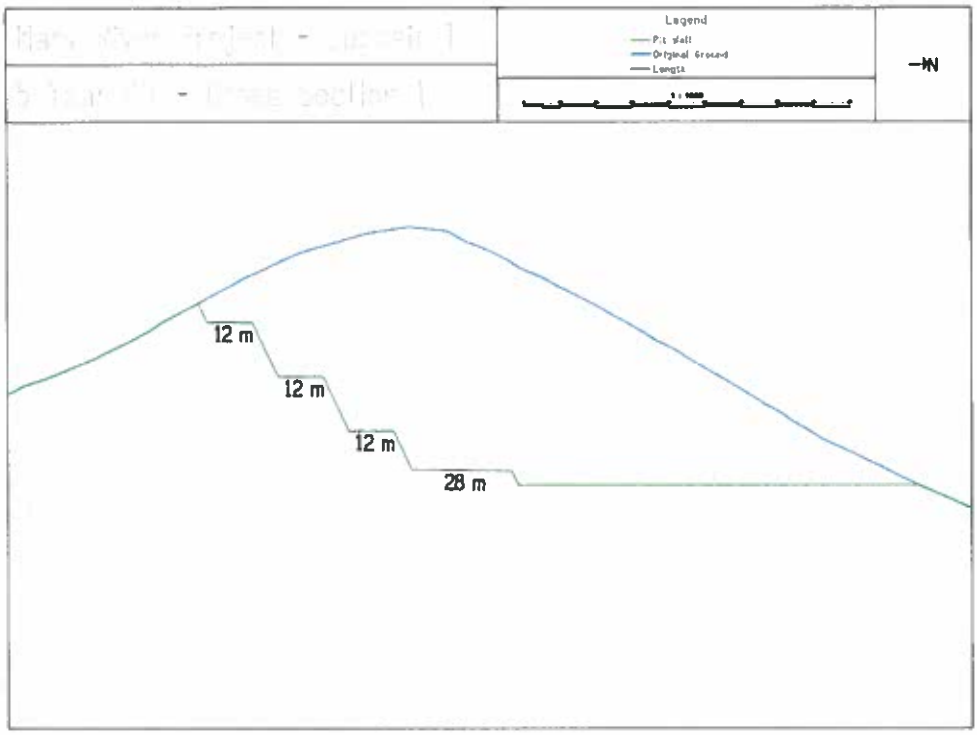


FIGURE 4 CROSS SECTION 1 ORTHOGONAL TO THE PIT WALL.

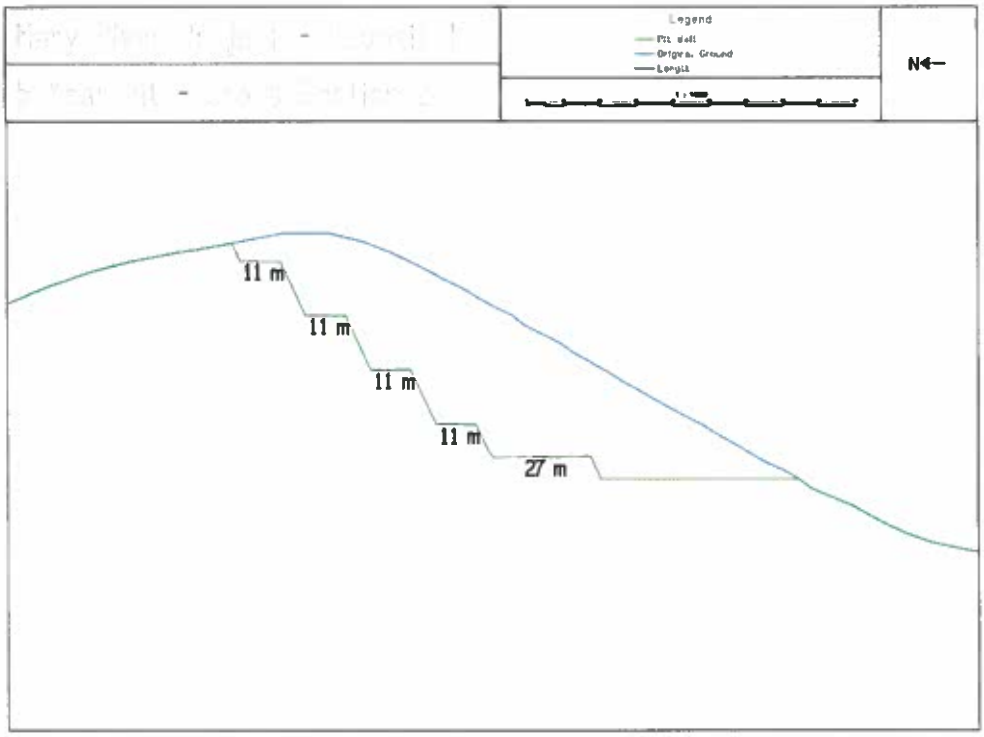


FIGURE 5 CROSS SECTION 2 ORTHOGONAL TO THE PIT WALL.

6 Ground Instability

There has been no previous occurrence of ground instability reported to date.

7 Mining Approach

The final pit walls will have a height of 15m; a double bench mining approach will be used based on 7.5m high benches. To safely implement the approach, the following is to be considered:

- Blasts will be designed such that
  - the pit wall is reached as per the mine design
  - geotechnical knowledge is accounted for
- Dig limits will be laid out to prevent over digging
- Use of large loading equipment to scale walls will be avoided to prevent damage of the face
- Wall scaling will be exercised in order to remove loose rock and slabs. This will minimize the risk of having rock falling from the face of the first bench when the second 7.5m bench is being mined and the design wall is being reached
- The debris accumulated at the toe of the first 7.5m bench after scaling should be removed before the access to the toe is lost. This is necessary to avoid loose material from falling onto the loading equipment when the second bench is being mined.
- A field monitoring program will be implemented to gather, process and analyse geomechanical data.

8 Waste Dump – ERP

The waste dump design parameters are provided within the document titled *"Mine Operations Technical Summary; Section 5.4"*. With regards to geotechnical investigations, plans and cross sections, please refer to the subsections below. The foot print of the waste dump is provided on Figure 6a. The height of the dump is shown in Figure 6b to be 22m.

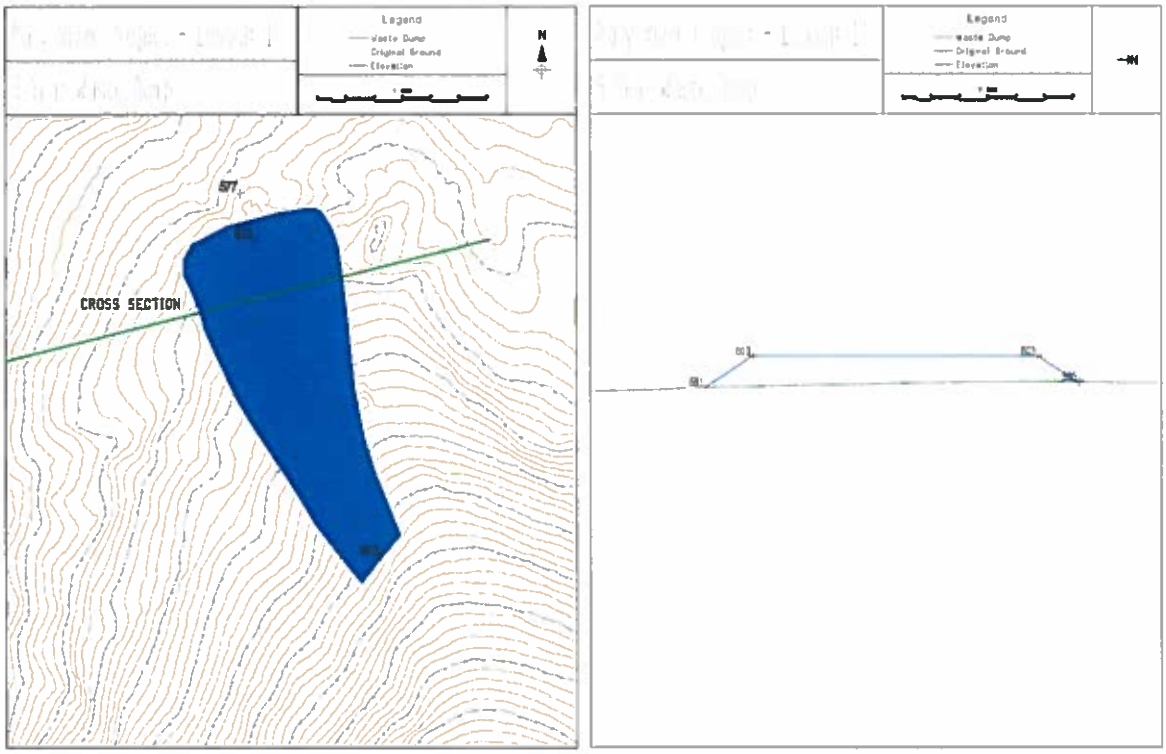


FIGURE 6 SHOWS A PLAN VIEW OF THE ERP WASTE DUMP (A); AND A CROSS SECTION (B).

8.1 GEOTECHNICAL INVESTIGATIONS

Field geotechnical investigations to assess the waste dump location were based mainly on drilling carried out on the south slope and the east northern portion of Deposit No. 1. Along the south slope, approximately 5m of highly-fractured gneiss underlain by more competent gneiss bedrock were encountered. Visual observations of the ground surface indicated that the area is dominated by highly-fractured bedrock outcrops with some shallow localized pockets of overburden covered with a thin layer of organics and mosses. With regards to the east of the northern portion of Deposit No. 1, overburden depths were greater in this area, with glacial till depths ranging from 6.5 to 13.5 m. The till was generally underlain by less than 9m of highly-fractured gneiss, followed by more competent gneissic bedrock. Based on visual observations, the area is best described as moderately sloping till blanket. A thin layer of organics generally covered the area.

Glen Hein

From: Glen Hein
Sent: Monday, October 6, 2014 4:07 PM
To: Martin van Rooy
Cc: Dwayne Chyz; Michael Anderson; Erik Madsen; Michael Peters
Subject: RE: Request for a Variance to Section 1.91 of the Regulations
Attachments: Attachment-1.jpeg

Good day Martin,

Baffinland would like to withdraw our request for variance from MHSR section 1.91 for the Western Star haul truck's front fender work platforms. Our Maintenance Department has investigated potential for handrails to be installed around the fender work platforms and subsequently contracted a company to design the equipment. A photo of a truck with such a handrail system is attached. We expect the handrails design will be provided later this week with site fabrication and installation to start thereafter. We anticipate fabrication and installation will take approximately 4 to 6 weeks to complete on the 20 truck fleet.

Should you have any questions regarding this email, please contact me at your convenience.

Best Regards,

Glen Hein

Glen Hein | Health & Safety Manager
2275 Upper Middle Road East, Suite 300, Oakville, ON, Canada, L6H 0C3
T: +1.416.364.8820 x5020
C: +1.416.571.3934
www.baffinland.com

From: Martin van Rooy [mailto:Martin.vanRooy@wscc.nu.ca]
Sent: August-28-14 9:51 AM
To: Michael Anderson; Erik Madsen
Cc: Glen Hein; Dwayne Chyz; Tony Woodfine
Subject: RE: Request for a Variance to Section 1.91 of the Regulations

Morning Michael – Further to Mary River inspection report 20140726 item 19, this will acknowledge receipt of the request for a variance from MHSR section 1.91 for the Western Star haul truck's front fender work platforms.

To assist in our review of this variance request, would you please

a) submit a detailed hazard analysis, of the routine inspections and services the operator of these haul trucks and mechanics must perform from this work platform before, during and after each shift in winter and summer conditions, to operate and maintain these units,
b) what safety guarding will be installed to minimize the risk of falling off this work platform especially during winter conditions,
c) check with Western Star to see if they have addressed the fall hazard from this service platform for others…
d) review the fall hazard with the OHS committee members to determine if they have a suggestion…

Thanks – Martin

Martin van Rooy
Engineer/Mine Inspector
Mine Safety – Prevention Services

Workers' Safety and Compensation Commission
Northwest Territories and Nunavut
Phone: (867) 979-8527
Fax: (867) 979-8501
Toll free: (877) 404-4407
Toll free fax: (866) 979-8501

The Workers' Safety and Compensation Commission is committed to service excellence.
Share your suggestions with our President on how to serve you better. Please call (867) 920-3888, toll free at (800) 661-0792, or email feedback@wscc.nt.ca.

Our Mission:
In partnership with stakeholders, we ensure workplace safety, and care for workers.

From: Erik Madsen [mailto:erik.madsen@baffinland.com]
Sent: August-26-14 8:41 PM
To: Martin van Rooy
Cc: Michael Anderson; Glen Hein; Dwayne Chyz; Tony Woodfine; Erik Madsen
Subject: Request for a Variance to Section 1.91 of the Regulations

Good evening Martin:

Please find attached a variance request to section 1.91 of the Regulations

Baffinland

Erik Madsen | Vice-President, Sustainable Development Health, Safety & Environment
2275 Upper Middle Road East, Suite 300, Oakville, ON, Canada, L6H 0C3
T: +1.416.364.8820 x5031
C: +1.416.996.5523
www.baffinland.com

20141031

email michael.anderson@baffinland.com

Michael Anderson
Vice President Operations
Baffinland Iron Mines Corporation
120 Adelaide Street West - Suite 1016
Toronto ON M5H 1T1

Dear Mr. Anderson:

Further to the **Mine Health and Safety Act article 26** attached is my 20140726 Mary River project inspection report.

As per **MHSA article**

28. please post a copy of this inspection report in a conspicuous location, and

29. advise the chief inspector within 30 days of the remedial measures taken and the remedial measures still to be taken in respect of the inspection report.

32.(1) A person who is adversely affected by a decision or order issued by an inspector may appeal the decision or order, in writing, to the chief inspector within 30 days after its issue.

The WSCC is committed to service excellence. If you have any questions or concerns about this inspection report, please feel free to contact my supervisor Peter Bengts or myself. His phone number is 867 669 4412 or email peter.bengts@wscc.nt.ca.

Sincerely
Workers' Safety and Compensation Commission of the NWT and NU Mine Safety

Martin van Rooy
Engineer/Mines Inspector

cc OHSC c/o glen.hein@baffinland.com

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

Mine:	Mary River project	Location:	~950 km NW of Iqaluit
Operator:	Baffinland Iron Mines Corp.	Lat. 71-19'N	Long. 79-24'W
Manager:	Michael Anderson	Inspection Date:	20141023 to 28
Address:	120 Adelaide Street West - Suite 1016 - Toronto ON		M5H 1T1

Mr. Martin van Rooy (engineer/mine inspector) performed a general site safety inspection from October 23 to 28, 2014 of Baffinland's Milne Inlet, Tote road and Mary River sites. At Milne Inlet, the wharf construction, maintenance shop, water treatment plant, incinerator building, cold warehouse, warehouse, ERT building, power plant's E-houses 1 and 2 and ATCO's welding shop were checked. The Milne Inlet's explosive storage and Tote Road were checked. At Mary River, the maintenance shop, emulsion plant, pit crushing plant installation, pit haul road, pit blast pattern, Nuna/Baffinland's maintenance garage, incinerator building, warehouse and the power plant's E-houses 1 and 2 were checked. The camp records from July 16, 2014 to October 25 2014 were reviewed.

Lorne Anderson, Cory Anthony, Mike Christie, Dwayne Chyz, Francisco Albor Consuegra, Darryl Finlay, Hal Finley, Guy Laliberte, Curt McLean, Anant Minhas, Charles Tidswell and Mario Vottero, accompanied Martin van Rooy for parts of this inspection.

Noticed Ruskin had used manlift JLG 003 and had not removed 25 pre-operating inspection pages from the logbook and manlift JLG 009 had no logbook. Further investigation revealed the safety devices for all the manlifts on site at Milne Inlet belonging Baffinland and its contractors were not maintained as per the manufacturer's instructions. Baffinland was instructed to shut down all manlift type equipment until all the safety devices on the unit were checked and found in compliance with the manufacturer's instructions. At Mary River, the same problem existed and all the manlifts (Baffinland and contractors) were shut down until the safety devices were checked and found in compliance with the manufacturer's instructions.

1 Please
a) remove the keys from all manlifts type equipment and implement a sign-out procedure to control the use of this type of equipment,
b) ensure after each shift the maintenance copy of the pre-operating inspection report is returned to

Date of Report 20141031 **Inspector**

REPORT OF AN INSPECTOR OF MINES

Issued pursuant to Section 26(2) of the *Mine Health and Safety Act*

the maintenance department, and
c) ensure all safety devices on the equipment are routinely maintained in compliance with the manufacturer's instructions.

MHSR sect 10.04.(1) *The manager shall ensure that a procedure is established for the safe operation, maintenance, inspection and testing of mechanical equipment and any system considered to be hazardous by the Committee.*

(2) *The manager shall send a copy of the procedure referred to in subsection (1) to the Committee and the Committee may advise and comment on it.*

(3) *The procedure referred to in subsection (1) shall be based on the manufacturer's recommendations and shall*
(a) specify the safety inspection and testing to be performed before the equipment or system is first used by any person on a shift to confirm the proper operation of the service brakes, emergency brakes, parking brakes, retardation system, steering systems, lights, fire extinguishers, tire pressures, accumulator pressures, fluid levels, communication systems, fall arrest systems and other safety devices and systems;
(b) schedule the equipment or system for routine inspection and maintenance;
(c) itemize the tests to be conducted before the equipment or system is first used or following maintenance work on the equipment or system;
(d) ensure that a written record of each test, inspection and maintenance work carried out on each unit of equipment or system is entered into a maintenance record specific to each unit of equipment or system and as required in the equipment's or system's log-book; and
(e) provide for the testing, inspection and maintenance work to be performed by qualified persons.

Noticed some cut-off/grinding discs left lying flat on horizontal surfaces. This is of concern as it exposes the disc to potential impact damage from a tool or objects falling on it. A damaged disc could explode during use.

2 Please advise all staff of the hazard of placing cut-of/grinding discs on a horizontal surface and ensure they are stored in a manner where they will not be damaged.

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MHSR sect 10.122.(3) *A grinding wheel shall be*
(b) stored where it will not be damaged by impact, moisture, extreme heat or cold; and

Noticed a 20 lb. and 100 lb. propane cylinder stored inside a building near a welder attaching a fender bracket for the rear wheels of a Western Star haul truck.

3 Please ensure a propane cylinder when not in use is stored outside in a well-ventilated area and not inside an enclosed structure where any the gas leakage could accumulate and create a potential explosion hazard.

MHSR sect 10.101.(1) *All gas fired appliances, equipment and pipelines shall be installed and maintained in accordance with the standard CAN/CGA-B149.1-M95, Natural Gas Installation Code and CAN/CGA-B149.2-M95, Propane Installation Code, and the system shall comply with the requirements of the Gas Protection Act and the regulations under that Act.*

Noticed Baffinland is hauling iron ore from Mary River to Milne Inlet with the Western Star haul trucks. However, there are a number of areas along the Tote Road that are potentially hazardous such as and without limiting the S-bend at km 82, the drop-off into the lake at km 34, missing road edge markers for winter, missing berms...

4 Please submit Baffinland's complete work program and construction schedule for up grading the Tote Road to minimize the potential hazards that exist in the present haul road.

MHSA art 10.(1) *The manager shall take every reasonable measure and precaution to protect the health and safety of employees and other persons at a mine.*

Noticed as a passenger in the cab of the Western Star haul truck travelling from Mary River to Milne Inlet, there are sections along the Tote Road (i.e. climbing up hill in low-low gear) where the noise level in the cab is high.

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5 Please check and record the noise levels a haul truck driver is exposed too during the shift. Check the noise level on a new and older haul truck for the complete work shift.

MHSR sect 9.20.(1) *The manager shall ensure that a noise level survey is conducted at all worksites.*

(2) *The results of every noise level survey shall be given to the Committee and made available to an inspector.*

(3) *Where the noise is constant and measurements show noise levels in excess of 85 dBA, the area shall be clearly marked by signs indicating that hearing protection is required.* (note this must be corrected for 12 hour work shift)

(4) *In any area where the noise level may exceed 85 dBA,* (less because of the 12 hour work shift) *the manager shall ensure that effective procedures are provided to protect employees from any harmful effects of the noise and copies of the procedures are sent to the chief inspector and given to the Committee.*

(5) *Where personal noise dosimeters are used they shall have the following measurement specifications:*
(a) a noise measurement exchange rate of 3dB;
(b) a threshold level of 75 dBA or lower; and
(c) if measurement is expressed as a percentage, a reading of 100% for an average exposure of noise equivalent to 85 dBA for eight hours (Lex).

Noticed at Milne Inlet after dumping the ore from the trailer, the operator checks for hang-ups in the box however, there are two blind spots in the trailer (back of the front wall and partition wall) where a frozen chunk of ore could come loose, roll down, and hit the operator.

6 Please review the haul truck's dump procedure and ensure the operator is protected from hung-up material(s).

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MHSR sect 8.18.(1) *Where a person may be endangered by the withdrawal, collapse, shifting or movement of bulk material such as rock, ore or other material in a stope, pass, chute or other storage area,*
(a) procedures shall be established respecting the precautions to be taken during and after removal of material therefrom; and

Noticed the lighting transformer installed in the emulsion plant and in the crushing plant's control room are open on the bottom.

7 Please check the floor covering below these transformers to ensure the material is non-flammable otherwise install a metal plate below the transformer for fire protection.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the bonding cable connected to the recycle kettle in the emulsion plant, is loose in its connection.

8 Please check all the bonding cable connections in the emulsion plant to ensure they are tightly clamped to form a good bond.

MHSR sect 13.01.(1) *The electrical system and electrical equipment at a mine shall be*
(a) designed in accordance with good engineering practice; and
(b) constructed in accordance with a design and plans that have been certified by a professional engineer.

Noticed the Hotsy pressure wash equipment in the emulsion plant's wash bay is blocking clear access to an electrical switch.

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9 Please review the Hotsy installation and ensure there is at least one-meter clear access for service of the electrical switch.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the crushing and screening plant is equipped with vertical ladders over 1.5 meters tall however, they have no fall protection.

10 Please ensure vertical ladders over 1.5 meters tall are equipped with fall protection, and that their side rails or equivalent, extend at least one meter above the deck it services.

MHSR sect 1.98. *Except in an underground mine, a ladderway at an angle steeper than 70 to the horizontal shall be fixed in place and be provided with*
(a) platforms at intervals not greater than 7 m;
(b) a safety cage; or
(c) a protective device that, when used, will prevent a worker from falling.

Noticed the emergency exit light above the crushing and screening plant's control room door is not working and it is missing at the other door.

11 Please ensure all the crushing and screening plant's emergency exit lights are installed and working.

MHSR sect 9.56.(1) *The manager shall ensure that there is a separate and independent emergency source of illumination at all places on the surface where a hazard could be caused by a failure of the normal lighting system.*

(2) *The emergency lighting system referred to in subsection (1) shall*
(a) turn on automatically when the normal lighting fails;
(b) provide illumination of at least 50 lux to allow employees to initiate emergency shutdown

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procedures and to leave their work areas safely; and
(c) be tested as frequently as necessary to ensure that it will function when required.

Noticed the bench grinder in Mary River's maintenance garage, has a large gap between the workrest and the grinding wheel.

12 Please ensure the space between the workrest and the grinding wheel is no greater than 3mm to prevent work from being dragged into the gap and jamming on the wheel.

MHSR sect 10.122.(1) *A grinder shall be assembled, adjusted and operated in accordance with the manufacturer's specifications.*

(4) *The workrest on a grinder shall be mounted above the centre line of the grinding wheel at a point where the edge of the workrest is not greater than 3 mm from the wheel unless the manufacturer specifies otherwise.*

Noticed in Mary River's maintenance garage, a long extension cord installed to supply power for lights in a seacan storage area.

13 Please remove this extension cord and install permanent wiring to power the lights.

MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed the hooks on a ¾-ton come-a-long stored in Mary River's maintenance garage, were stretched open preventing the safety latched from catching on the tip of the hook. The mechanic was advised to remove this come-a-long from service.

14 Please ensure

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a) people authorized to use miscellaneous hoisting, pulling and lifting devices such as tuggers, chainfalls, come-a-longs, turfers, slings, rigging, snatch blocks... are trained in their use to avoid overload damage, and
b) the equipment is routinely maintained and a record of its maintenance is recorded in the mine's maintenance records.

MHSR sect 10.126.(4) *A lifting device, pulling device, or utility hoist and its support or anchorage system shall be maintained by a qualified person so that it does not endanger the safety of workers.*

Noticed the driller preparing the blast pattern on top of deposit #1, was unable to contact security (simulating a Code 1) on his radio. He had no satellite phone as back up to contact security in case of an emergency.

15 This is the third incident where Baffinland has failed to provide effective communication between persons working in the pit area and the first aid facility, see inspection reports 28 May 2014 and 26 July 2014. The failure by Baffinland to provide direct communication between the pit area and the first aid facility is of great concern now it has started mining. Effective immediately Baffinland must provide a schedule to install a radio system, which will provide direct communication from any area of the pit, waste dump and haul road areas to the first aid facility. Please note a relay system from one person to the next... and on to the medic is not an effective communication system in an emergency.

MHSR sect 8.44. *There shall be an effective means of communication between the person in charge of the first aid facility and all worksites to be served.*

Noticed the electrical insulating gloves stored in Mary River power plant E-house #2, are out-of-date.

16 Please check all electrical insulating gloves and remove all out-of-date gloves from the E-houses to avoid mistaking them for in-service gloves.

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MHSR sect 13.01.(2) *Except where otherwise required by these regulations, the electrical system and electrical equipment shall meet or exceed the requirements of CSA Standard CAN/CSA-M421-93, Use of Electricity in Mines.*

Noticed from a review of Baffinland's camp records from July 16 to October 25, 2014 there were 44 persons that exceeded 42 days on site and two people, from the Milne camp records (Mary River not checked) who returned to site prior to completing their required minimum absence from site. These two men were sent off-site October 30, 2014.

17 Please ensure effective immediately no person exceeds 42 days on site and remains off-site until their minimum time away from site as per MHSR section 2.01.(6), is completed.

MHSR sect 2.01.(6) *A person who works for a period longer than eight hours a day shall take, away from the worksite, no less than*
(a) 14 days of rest after 42 days of work; or
(b) one day of rest for every three days of work after any period of work that is less than 42 days

Noticed the handrail on top of the fire truck is very low and is a potential a fall hazard.

18 Please review the handrail arrangement on top of the fire truck and increase the rail height to provide fall protection.

MHSR sect 1.91. *The manager shall provide every walkway and every working platform more than 1.5 m above the ground with*
(a) a handrail not less than 910 mm nor more than 1.07 m above the floor of the walkway or platform;
(b) a second rail placed at mid-point between the top rail and the floor of the walkway or platform, unless the space between the top rail and the floor is closed by a screen; and
(c) toeboards that extend from the floor to a height of not less than 100 mm.

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