BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

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0	Issued in Final	October 25, 2007	KDE
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REVISIONS TABLE FOR THE SITE WATER MANAGEMENT PLAN

REVISIONS MADE

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Updated to 2009 project exploration plan.	1.1	1
Updated to 2009 project plan including exploration drilling details.	2.1	5
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SECTION 1.0 - INTRODUCTION

1.1 PROJECT

The Mary River Project (the Project) is an iron ore advanced exploration project in the North Baffin region of Nunavut. The Project is located about 160 km south of Mittimatalik (Pond Inlet) and 270 km southeast of Ikpiarjuk (Arctic Bay) as shown on Figure 1.1.

Baffinland commenced exploration at Mary River in 2004 and has since completed a number of field investigations in the region. Camp accommodations have been established at Mary River, Milne Inlet, Nivek Lake, and Steensby Inlet to support ongoing field investigations including exploration drilling and resource delineation, geotechnical drilling and engineering planning, and environmental and social data collection. A bulk sampling program has been undertaken with a resultant 113,000 tonnes of iron ore shipped to the European market during the summer of 2008.

Field programs and activities are ongoing in support of continued advancement of the Mary River Project. The 2009 field program currently focuses on infill exploration drilling on Deposit Nos. 2 and/or 3 to collect additional information on resources and will be staged from the Mary River site. Depending on available financing, Baffinland may increase field activities accordingly. Equipment, infrastructure, consumables and regulatory permits are currently in place to support a substantially larger exploration drilling program, additional geotechnical drilling to support engineering planning and to undertake further environmental baseline work. This Site Water Management Plan is commensurate with the full scope of activities for which appropriate regulatory permits and authorizations are in place.

The Mary River Project includes the following components which define the aerial extent of the project area as shown on Figure 1.2:

- Mary River Project site (Including Deposit Nos. 1, 2, 3, 3B and 4)
- Milne Inlet Tote Road
- Milne Inlet port site and adjacent marine areas
- Potential future railway heading south from Mary River to Steensby Inlet
- Potential future port site at Steensby Inlet and adjacent marine areas
- Potential future hydro-electric generating station location

1.2 WATER LICENCE REQUIREMENTS

This document was originally updated in 2008 to fulfill the requirements of the Nunavut Water Board (NWB) water license 2BB-MRY0710 to resubmit the Site Water Management Plan (as stated on the license in Part B, Item 5(x)) and to provide an Environmental Monitoring Plan.

A summary of the specific requirements of the water licence as it relates to site water management is as follows:

- The volume of water extracted for the project for the purposes of this licence shall not exceed 515 cubic metres per day (approximately 60 cubic metres for potable water and the remainder for drilling purposes)
- GPS coordinates (in degrees, minutes, seconds) of all locations where water is used will be recorded and reported to the Inspector prior to use
- Daily quantities of water use will be measured and recorded, in cubic metres, for camp, drilling and other purposes
- Surface water samples will be collected throughout the Mary River Exploration Property, including Deposit No. 4, and at sites near Milne Inlet and Steensby Inlet. Subsequent laboratory analytical results are used to identify water quality trends and potential impacts to surface water.
- Quantities of domestic waste, sewage and hazardous waste hauled off-site for disposal will be measured and recorded, in cubic metres. The location and name of the disposal facility(s) and the date that waste was hauled off-site will be recorded.
- All water for domestic purposes shall be obtained from the following sources; Camp Lake (Monitoring Station MRY-1), Phillips Creek (Monitoring Station MRY-2), km 32 Lake (Monitoring Station MRY-3), an unnamed lake at km 32 along the Milne Inlet Tote Road, Deposit No. 4 Camp (location to be identified prior to use), an unnamed lake adjacent to Rail Camp, an unnamed lake near Steensby Inlet Camp, the alternate source for freshwater identified in the Application or at an alternate location approved by the Nunavut Water Board (NWB)
- All water intake hoses shall be equipped with a screen of an appropriate mesh size to ensure fish are not entrained and shall withdraw water at a rate such that fish do not become impinged on the screen
- Camps will not be located, nor material stored, on the frozen surface of a stream or lake, except where for immediate use
- Water Supply Facilities shall be maintained to the satisfaction of the inspector
- Streams will not be used as a water source unless authorized and approved by the NWB
- Water use for drilling will be taken from sources adjacent to drill locations or as otherwise approved by the NWB
- No land based drilling shall be conducted within 30 m of the ordinary high water mark of any water body, unless a request has been submitted and received by the NWB, ten (10) days in advance of drilling. The request must include a thorough description of the proposed activities and the following:

  - An appropriately scaled site map, complete with approximate GPS coordinates of planned drilling locations and the associated water bodies
  - Locations of waste deposition, that are consistent with Part F, Item 4
  - Mitigation measures that are planned to be in place, prior to, during drilling and following if required to protect waters
- Drill waste, including water, chips, muds and salts, in any quantity or concentration, from land-based drilling, will be disposed of in a properly constructed sump or an appropriate natural depression located at least 30 m from the ordinary high water mark of any adjacent water body, where direct flow into a water body is not possible and no additional impacts will be created
- If artesian flow is encountered, drillholes will be immediately sealed and permanently capped. If encountered, artesian flow will be reported to the NWB
- If the bottom of permafrost is broken through by the drill, the depth and location will be recorded and reported to the NWB
- If water is required in sufficient volume as to cause drawdown of the water body, approval by the NWB will be obtained 30 days prior to use. Details to be submitted include: volume required, hydrological overview of water body, details of impacts and proposed mitigation measures.
- Stream banks will not be cut and material shall not be removed from below the ordinary high water mark of any water body unless authorized
- The licensee will not cause erosion to the banks of any body of water and shall provide necessary controls to prevent such erosion
- With respect to access roads, pad construction, and other earthworks, debris and sediment will not be deposited into or on any water body. The materials will be deposited at least 30 m from the ordinary high water mark in such a fashion that they do not enter the water. Chemicals, fuels or wastes associated with this will not be allowed to enter any water body.
- Stream crossings will be located so as to minimize approach grades. Approaches will be stabilized during construction and upon completion in order to control runoff, erosion and subsequent siltation to any water body.
- Machinery will not travel up the streambed of a water body. Fording will be kept to a minimum and limited to one area and a one-time event for each piece of equipment, where possible. Equipment will be well cleaned and free of oil and grease and fluid leaks.
- Pollutants from machinery fording water crossings will not enter the water
- Activities will be conducted so as to minimize impacts on surface drainage, and will undertake corrective measures if surface drainage is impacted
- Sites will be prepared in such a manner as to prevent surface rutting
- Fill material used during construction will be from an approved source and free of contaminants
- Sediment and erosion control measures shall be implemented prior to and maintained during the operation to prevent entry of sediment into water
- Equipment storage holding areas will be located on gravel, sand or other durable land, at least 30 m from the ordinary high water mark of any water body to minimize impacts on surface drainage and water quality

- Equipment and vehicles will not be used unless the ground surface is in a state capable of fully supporting the equipment or vehicles without rutting or gouging. Overland travel of vehicles will cease if rutting occurs.
- An area will be designated for deposition of excavated and stockpiled material that is at least 30 m from the ordinary high water mark of any water body
- In-stream activity will be limited to low water periods, and will not be undertaken during fish migration, unless approved
- Except where approved, winter lake and stream crossings will be constructed entirely of water, ice, or snow, with disturbance minimized by situating ice bridges in areas with minimal approach grading and short crossing routes. Stream crossings will be removed or the ice notched prior to spring break-up.
- GPS coordinates (in degrees, minutes, seconds) will be determined for all locations of temporary and permanent storage areas where wastes associated with camp, drilling and infrastructure operation are deposited. These locations will be reported to the Inspector prior to depositing wastes.
- All waste disposal areas shall be located a minimum of 30 m from the ordinary high water mark of any water body, such that the quality, quantity, or flow of water is not impaired, unless otherwise approved
- All Polishing / Waste Stabilization Pond (PWSP) discharges will be released in a manner that minimizes surface erosion
- PWSP's will be bermed to ensure there is no seepage
- All greywater not directed to the Waste Water Treatment Facility (WWTF) will be contained in a sump located at least 30 m from the ordinary high water mark of any water body, at a site where direct flow into the water body is not possible and additional impacts are not created, unless otherwise approved
- Latrines will be located at least 30 m from the ordinary high water mark of any water body
- The Inspector will be notified of any discharge from waste facilities at least 10 days prior to the discharge

SECTION 2.0 - DRILLING PROGRAMS

2.1 EXPLORATION DRILLING

The exploration drilling program is carried out to identify the quality and quantity of the ore located at Mary River Deposit Nos. 1, 2, 3, 3B and 4, as well as providing information on geomechanical and geochemical aspects necessary for the mine design. In total, up to ten (10) diamond core drills may be used and shared between the exploration and geomechanical/geotechnical drilling programs.

Calcium chloride brine is used as the drilling fluid during the exploration drilling due to the cold temperatures at the site and the presence of permafrost. This prevents the drill rods from freezing in the deep exploration holes. During periods of drilling, the maximum water (brine) use rate is approximately 45 litres per minute (12 US gallons per minute) or 7.5×10^{-4} cubic metres per second per drill rig based on the capacity of the pumps serving the drills. Drilling additives are also used to increase operational efficiencies. Drilling additives include polymers such as DR-133 and W-OB.

A mixing station which produces the calcium chloride brine is a steel tank equipped with hydraulic mixers. Water is added to the tank from a water pumping station. Salt is transported to the mixing station in bags and is added to the tank to be mixed with the water. The entire station will be located more than 33 m from any water body. Special care is taken to ensure housekeeping measures are completed at all times at the salt mixing station. The quantity of salt added is kept to a minimum.

The water pumping stations will draw water from bodies of water of sufficient quantity (i.e. Mary River) so as not to cause drawdown of the water level in the water body. Screens will be placed over the intake hoses to ensure that fish are not entrained. The pumping rate will also kept at a rate to ensure that fish do not become impinged on the screens, and minimize water use.

In 2008, the pumping system and salt mixing station used during previous programs was replaced by an enhanced system that was redesigned to decrease water demand, salt use, minimize the potential for spillage, and improve safety and drilling productivity.

2.2 GEOTECHNICAL DRILLING

The geotechnical program is conducted to identify and qualify the types and depth of soils at the project sites. Information from the geotechnical drilling is used to assist in foundation design for project infrastructure.

The geotechnical drilling program consists of overburden drilling and limited coring of bedrock to confirm bedrock contact. The holes drilled for the geotechnical program are generally shallow; most are less than 30 m deep. In total, up to ten (10) diamond core drills may be used and shared between the exploration and geomechanical/geotechnical drilling programs.

Calcium chloride brine will not been used for the geotechnical drilling. Less water is generally required for geotechnical drilling as opposed to exploration drilling. During periods of drilling, the maximum water use rate is approximately 38 litres per minute (10 US gallons per minute) or 6.3×10^{-4} cubic metres per second based on the capacity of the pumps servicing the drills.

The water pumping stations draw water from bodies of water of sufficient quantity so as not to cause drawdown of the water level in the water body. Screens have been placed over the intake hoses to ensure that fish are not entrained. The pumping rate is kept at a rate to ensure that fish do not become impinged on the screens, and to minimize water use.

SECTION 3.0 - GENERAL MITIGATION MEASURES

The following measures are used to mitigate potential environmental impacts due to issues from discharge of water from the water management areas. If a need is identified, additional measures will be implemented.

3.1 SILT FENCE

3.1.1 Description

Silt fences are a geotextile or fabric barrier that impedes the flow of surface water which potentially may cause suspended sediment to be deposited. Silt fences are typically supported using wooden stakes (usually attached to the fabric by the manufacturer) and may be placed using a variety of methods such as digging a trench and backfilling material to ensure stability. Attempts are made to install silt fence in lines of equal elevation (along contour lines) to prevent channelling or focusing of the runoff.

Standards for installation including trench excavation, insertion of fabric, and backfilling and compacting can be found on the Ontario Provincial Standard Drawing (OPSD) 219.110 - Light Duty Silt Fence Barrier and 219.130 - Heavy Duty Silt Fence Barrier.

3.1.2 Typical Locations of Use

Silt fences are used in areas where surface water could potentially come into contact with disturbed sites causing elevated suspended solids. Typical installation locations are:

- Downstream of drill rigs
- Along roads where surface runoff is expected
- Surrounding stockpiles of material or drill cuttings

3.1.3 Substitutes

Free standing silt fences are considered for use in areas where a typical silt fence is impractical for example on rock or impenetrable surfaces. Diversion/collection channels or berms are used in certain locations.

3.2 DIVERSION/COLLECTION CHANNEL OR BERM

3.2.1 Description

Diversion/collection channels or berms are used to locally direct surface water runoff.

When required, the structures are constructed using suitable materials to divert the surface water without causing erosion or suspension of additional sediment. Excavation of

channels may be an option; however, construction of berms using soil or man-made structures such as sand bags/tubes are also evaluated.

3.2.2 Typical Locations of Use

Channels or berms are used in locations where it is required to divert or collect surface water. Diversion structures are installed to prevent runoff from entering a site where the surface soil has been disturbed and would cause suspension of sediment. Additionally collection channels or berms may be constructed to collect runoff emerging from an area of soil disturbance.

One possible use of a diversion/collection channel or berm is to ensure runoff is directed to a constructed mitigation measure such as an in-ground sump.

3.2.3 Substitutes

Silt fences can be used as an alternative to constructing a channel or berm.

3.3 CONTAINMENT BERM

3.3.1 Description

A containment berm can be constructed to establish a sump, basin or pond to contain or collect water. The sump could be used to contain discharge water to allow suspension of sediment prior to discharge or to temporarily contain the water for re-circulation. The berm is constructed using native soils or other suitable man-made products.

Care is taken when constructing berms to ensure the base is on a solid foundation. Soil placed to construct the berms is nominally compacted to provide strength for the structure. Berm heights are minimized (<1 m).

3.3.2 Typical Locations of Use

Containment berms are constructed across small valleys or around natural depressions to augment the capacity of the berms.

3.3.3 Substitutes

In-ground sumps or portable containment sumps or tanks can be used in place of a containment berm.

3.4 ARMOURING

3.4.1 Description

Armouring is used as a barrier between water flow and materials susceptible to erosion. Quarry rock and/or naturally occurring granular borrow material to protect underlying fined grained materials from scour and erosion.

3.4.2 Typical Locations of Use

Armouring may be used in areas of cuts/excavations and in the installation of culverts.

3.4.3 Substitutes

Water diversion, berms, sumps and/or silt fencing may be used where armouring is impracticable due to the lack of aggregate availability or unnecessary based on the level of risk/significance for significant erosion and associated potential for down gradient impacts.

3.5 IN-GROUND SUMP

3.5.1 Description

An in-ground sump can be constructed to establish a sump, basin or pond to contain or collect water, similar to the containment berm. An in-ground sump is constructed by excavating a depression into soil to provide water containment. Excavated material from the sump can be used to construct a containment berm surrounding the sump to augment the capacity of the sump.

3.5.2 Typical Locations of Use

In-ground sumps are used in some areas where excavation of soil is possible.

3.5.3 Substitutes

Containment berms, or portable containment sumps or tanks can be used in place of an in-ground sump.

3.6 PORTABLE CONTAINMENT SUMP

3.6.1 Description

Portable containment sumps are used to establish a sump to contain water from a source such as a drill rig. The portable sump requires only minimal excavation or construction to provide a level base for the sump.

A series of portable containment sumps can be connected together to provide additional containment or settling capacity if required.

Collected sediment or drill cuttings from the portable containment sumps are removed from the sumps as necessary and disposed of in pit locations approved by Baffinland management and located at distances of at least 30 m from water bodies.

3.6.2 Typical Locations of Use

Portable containment sumps are used in areas where containment berms or in-ground sumps are impractical such as steep topography or in areas where overburden is not readily available.

3.6.3 Substitutes

Containment berms or in-ground sumps are used in place of a portable containment sump.

3.7 FLOCCULENTS (CO-POLYMER BLENDED BLOCKS)

3.7.1 Description

Co-polymer blended flocculent blocks are an environmentally friendly means of controlling siltation in ditches and streams, commonly used on construction sites throughout North America. Placing co-polymer blocks in a runoff stream causes sediment particles to settle by flocculation. Once introduced into the runoff stream, polymers transform elevated levels of fine suspended particles, including colloidal clays, phosphorus, and nutrients into masses easily removed from moving water. Therefore, construction site storm water can be clarified prior to discharge into receiving waters. Adequate mixing and settling times for the flow rate, temperature, and sediment load must be achieved for optimum polymer performance. Baffinland has completed some laboratory test work and have preselected several products for testing during 2009.

3.7.2 Typical Locations of Use

This product will be used in non-fish habitat runoff streams, particularly in areas of rugged relief where other methods of sediment/siltation control are not effective (e.g., access road to Deposit No. 1). Flocculent blocks could potentially substitute for other methods of sediment/siltation control where those methods are ineffective due to factors such as stream velocity, equipment access, rugged topography, and frozen ground conditions. The use of flocculent blocks, if effective, could reduce the degree of disturbance caused by other more intrusive sediment control measures.

SECTION 4.0 - HYDROLOGY AND PREDICTED SURFACE WATER RUNOFF RATES

The following sections present the information required by Part B (6) of the Nunavut Water Board (NWB) license 2BB-MRY0710 for the Mary River Project.

4.1 SURFACE WATER RUNOFF EVALUATION

The data presented in this report are based on evaluations based on field data collected during the 2006 and 2007 field seasons. As additional stream gauging data are collected for the Mary River Project area surface water runoff estimations will also improve.

A summary of the unit surface water runoff rates for the Mary River Project area is presented on Table 4.1. The locations of the stream gauging stations are shown on Figures 4.1 and 4.2. The runoff values indicate that from October to May there should be no runoff and that approximately half of the flows occur in July.

4.2 WATER USAGE FOR DRILLING

Based on the flow evaluation discussed in the previous section, special consideration for drill water requirements will be made when creating seasonal drilling schedules. Drilling in locations not adjacent to larger water bodies will be scheduled during periods of high flow to ensure drawdown will not occur. Drillholes located adjacent to larger bodies of water are not water dependent and are completed at times convenient to the drilling schedule.

Drilling programs are undertaken such that any consumption of water from ponds, lakes and rivers will not result in measurable drawdown of the water bodies. A maximum drawdown threshold of 5% has been set for all water bodies, assuming no recharge of the water body. No water is used from streams where there is a potential for drawdown effect without first obtaining regulatory approval as required.

SECTION 5.0 - WATER MANAGEMENT AREAS

The following sections provide a site description, details of surface water quantity and direction and mitigation procedures for the water management areas.

5.1 MARY RIVER CAMP SITE

The location of the site is provided on Figures 1.1 and 1.2.

5.1.1 Description

- A personnel camp and associated support facilities to service approximately 200 people during peak periods
- Domestic water supply from adjacent Camp Lake
- Sewage treatment using pre-engineered facilities discharging to either storage pond or Sheardown Lake
- Gravel airstrip
- Helicopter landing pad
- Bulk and barrel fuel storage and handling areas

5.1.2 Surface Water Direction and Quantity

The catchment areas for the Mary River Camp Site are shown on Figures 5.1 and 5.2. Ultimately the surface water at the site is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

5.1.3 Mitigation Procedures

The Mary River Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site will be regularly monitored (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they will be selected and installed as previously discussed in the section General Mitigation Measures.

5.2 MARY RIVER DRILLING AREA

The location of the site is provided on Figure 1.2.

5.2.1 Description

- No permanent structures or buildings
- A historic camp from the exploration work undertaken in the 1960's located on the way to the Deposit No. 1 has been partially remediated

- No new camps
- Exploration drilling focused on Deposits No 1, 2, 3 and 3B
- Geotechnical and exploration drilling, and possible surface trenching
- Water pumping stations where water will be pumped from either Mary River or Sheardown Lake to the salt mixing stations
- Salt mixing stations where salt is mixed with the water to create a brine solution. This solution is pumped from the salt mixing stations to drill rigs used for exploration drilling. The brine may be heated in colder temperatures. Drill additives, as discussed earlier, will be added as required.
- Drill water discharge (using mitigation measures previously discussed)
- Fuel is stored at the Mary River Camp Site within the storage facility and transported to the drill sites and to the pumping stations as required
- Geophysical survey using ground penetrating radar (GPR) and resistivity methods at mine infrastructure area

5.2.2 Surface Water Direction and Quantity

The catchment areas for the Mary River Drilling Area are shown on Figure 5.2. Ultimately the surface water at the site is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

During the field work seasons there is additional surface water discharge from the drill rigs. This flow is estimated to be a maximum of 12 gallons per minute per drill during periods of drilling.

5.2.3 Mitigation Procedures

Sediment and erosion control measures are periodically required and are installed as per the previous section: General Mitigation Measures. The site is regularly monitored (as discussed in the Monitoring section of this report).

Fuel required for drilling will be transported in fuel drums or double walled day tanks. Drip pans are used under the tanks to prevent fuel contamination.

5.3 MILNE INLET CAMP SITE

The location of the site is provided on Figures 1.1 and 1.2.

5.3.1 Site Description

- A personnel camp and associated support facilities to service approximately 60 people during peak periods of use

- Domestic water supply from Phillips Creek (Monitoring Location MRY-2) during the summer months and an unnamed lake along the Milne Inlet Tote Road at km 32 during the winter season
- Sewage treatment using pre-engineered facilities discharging to either storage pond or to Milne Inlet via a local drainage ditch
- Gravel airstrip
- Seasonal sea-lift of materials and supplies, as required
- Fuel storage areas for bulk fuel and barrel fuel, as well as waste storage areas. Each consists of a lined containment area.

5.3.2 Surface Water Direction and Quantity

The catchment areas for the Milne Inlet Camp Site are shown on Figure 5.3. The surface water at the site is ultimately directed to Milne Inlet. The estimated surface water runoff quantities for each catchment area are shown on Table 5.2.

5.3.3 Mitigation Procedures

The Milne Inlet Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. It can be reasonably expected that there will be some surface soil disturbance in association with seasonal sea-lift activity. The site is regularly monitored (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they will be selected and installed as previously discussed in the General Mitigation Measures section.

5.4 MILNE INLET TOTE ROAD REFUGE STATIONS

The location of the sites is provided on Figure 1.2.

5.4.1 Description

- Small half size trailers located at km 33 and 68 of the Milne Inlet Tote Road
- Fuel storage area for 4 fuel drums per camp; no berms or liners
- Bottled water stored in trailers

5.4.2 Surface Water Direction and Quantity

The surface water at the km 33 refuge station ultimately reports to an unnamed lake and Philips creek, and the water at the km 68 refuge station ultimately reports to an unnamed creek.

5.4.3 Mitigation Procedures

The refuge station sites are not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site is regularly monitored when in use (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they are selected and installed as previously discussed in the section General Mitigation Measures.

5.5 STEENSBY INLET CAMP SITE

The location of the site is provided on Figures 1.1 and 1.2.

5.5.1 Description

- Seasonal drill camp with water flown or pumped (using collapsible water line) from an unnamed lake located approximately 3 kilometres east of camp and toilet wastes incinerated on site
- Grey water sump used for kitchen and wash tent
- Airstrip - there is no fixed runway at the Steensby Inlet Camp Site. A seasonal on-ice runway is used during the winter near the site.
- Seasonal sea-lift supply of consumables, as required
- Fuel storage area will consist of lined containment berm(s) with a capacity for approximately 7,500 drums
- Geotechnical drilling
- Water for drilling will be obtained from Steensby Inlet and other sources adjacent to the drilling locations
- Drill water discharge (using mitigation measures previously discussed)
- Geophysical survey using ground penetrating radar (GPR) at nearby lakes for water source bathymetry

5.5.2 Surface Water Direction and Quantity

The catchment areas for the Steensby Inlet Camp Site are shown on Figure 5.4. The surface water at the site ultimately reports to Steensby Inlet. The estimated surface water runoff quantities are shown on Table 5.3.

5.5.3 Mitigation Procedures

The Steensby Inlet Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. It can be reasonably expected that there will be some surface soil disturbance in association with seasonal sea-lift activity. The site is regularly monitored when in use (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they are selected and installed as previously discussed in the section General Mitigation Measures.

5.6 STEENSBY INLET ON-ICE DRILLING AREA

The location of the site is provided on Figure 1.2.

5.6.1 Description

- No permanent structures or buildings
- No camps
- No fuel storage
- On-ice geotechnical drilling
- Water for drilling is taken from the ocean
- Drill water discharge
- On-ice probing (no water taking or discharge)

5.6.2 Mitigation Procedures

Only geotechnical drilling is completed on the ice, and no drill water is discharged on the ice. For drilling operations on ocean ice in unconsolidated sediments, there was no return water collected and therefore no opportunity for recycling of drill water or capture of drill waste. .All return water escapes from the hole at the casing/ocean bottom interface. If drilling continues into bedrock the drill water is discharged into a portable containment sump and removed from the ice. The water and cuttings contained in the portable containment sump are disposed of in a pit location at least 30 m from water to be determined by Baffinland and Knight Piésold.

No fuel is stored on the ice. Fuel required for drilling will be transported in fuel drums or double walled day tanks. Drip pans are used under the tanks to prevent fuel contamination.

5.7 MID-RAIL CAMP (NIVEK LAKE)

The location of the site is provided on Figures 1.1 and 1.2.

5.7.1 Description

- Seasonal drill camp with water from adjacent unnamed lake and toilet wastes incinerated on site
- Grey water sump used for kitchen and wash tent
- Airstrip - there is no fixed runway at the Rail Camp Site. A seasonal on ice runway will be used during the winter near the site.
- Fuel storage area will consist of two lined containment berms with a capacity for approximately 2000 drums
- Geotechnical drilling

- Water for drilling will be obtained from lakes adjacent to the drilling locations
- Drill water discharge (using mitigation measures previously discussed)
- Geophysical survey using ground penetrating radar (GPR) at nearby lakes for water source bathymetry

5.7.2 Surface Water Direction and Quantity

The surface water at the site ultimately reports to an unnamed lake adjacent to the site.

5.7.3 Mitigation Procedures

The Rail Camp Site is not expected to have significant areas of disturbed soils and as such should not have sediment and erosion issues. The site is to be regularly monitored when in use (as discussed in the Monitoring section of this report). If mitigation measures are required to control sediment and erosion they are selected and installed as previously discussed in the section General Mitigation Measures.

5.8 PROPOSED RAIL ALIGNMENT

The alignment is shown on Figures 1.1 and 1.2.

5.8.1 Description

- Seasonal drill camp as detailed in the Rail Camp section
- No permanent structures or buildings
- Small temporary fuel caches as required
- Geotechnical drilling
- Water for drilling is obtained from sources adjacent to the drilling locations
- Drill water discharge (using mitigation measures previously discussed)
- Geophysical survey using ground penetrating radar (GPR) and resistivity methods

5.8.2 Surface Water Direction and Quantity

The catchment areas for the Proposed Rail Alignment are shown on Figure 5.5. The surface water along the corridor is ultimately directed to Cockburn River, Cockburn Lake, Ravn River and Angajurjualuk Lake. Specific surface water runoff quantities were not calculated for the transportation corridor due to the large catchment area and the minimal quantity of water required for the drilling.

5.8.3 Mitigation Procedures

Sediment and erosion control measures may be required and are installed as per the previous section General Mitigation Measures. The site is regularly monitored as discussed in the Monitoring section of this report.

Fuel required for drilling will be transported in fuel drums or double walled day tanks. Drip pans are used under the tanks to prevent fuel contamination.

5.9 STEENSBY INLET RAIL ALIGNMENT ON-ICE DRILLING

The alignment is shown on Figures 1.1 and 1.2.

5.9.1 Description

- No permanent structures or buildings
- No camps
- No fuel storage
- On-ice geotechnical drilling
- Water for drilling is taken from lakes and sources close to the drill sites
- Drill water discharge
- On-ice probing (no water taking or discharge)
- Geophysical survey using ground penetrating radar (GPR) at proposed bridge locations

5.9.2 Mitigation Procedures

Portable containment sumps will be employed for drilling on ice. A “T” connection will be installed through the drill casing to allow the collection of drill water return during operations. The drill casing will be allowed to freeze into the ground to maximize the effectiveness of the annular seal between the casing and the formation. During drilling operations, the drill water will be pumped into a collection bin located adjacent to the drill. The collection bin is periodically emptied by means of pumping or air-lifting to a sediment disposal location established at each drill site at a distance greater than 30 metres from any water body.

No fuel is stored on the ice. Fuel required for drilling will be transported in fuel drums or double walled day tanks. Drip pans are used under the tanks to prevent fuel contamination.

5.10 PROPOSED HYDRO-ELECTRIC SITE

The location of the site is shown on Figure 1.2

5.10.1 Description

- No permanent structures or buildings
- No camps
- Fuel is stored at either the Milne Inlet or Steensby Inlet Camps within the storage facilities and flown to the drill sites as required

- Geotechnical drilling
- Water for drilling is taken from lakes adjacent to the drill sites
- Drill water discharge (using mitigation measures previously discussed)

5.10.2 Surface Water Direction and Quantity

Specific surface water runoff quantities were not calculated for the proposed hydro-electric site due to the large catchment area and the minimal quantity of water required for the drilling.

5.10.3 Mitigation Procedures

Sediment and erosion control measures may be required and are installed as per the previous section General Mitigation Measures. The site will be regularly monitored as discussed in the Monitoring section of this report.

5.11 BULK SAMPLE OPEN PIT OPERATIONS

Predictions with regard to ARD/ML of residual waste rock and ore produced during the bulk sampling program were made prior to the initiation of the Bulk Sampling Program. Based on the results of that work, the risk of acid-rock drainage (ARD) and metal leaching (ML) was considered to be very unlikely for the Bulk Sampling Program. To help validate these results, an additional environmental geochemical testing program was conducted in 2008 to assess the potential for excavated materials (i.e. waste ore and surplus ore) and exposed excavation faces to leach metals and/or acidity that could degrade the quality of receiving surface waters. Based upon the test results, it is concluded that the excavation surfaces and ore form the bulk sample program have essentially no potential to produce acid rock drainage. The detailed results and discussion of this work are presented in the 2008 Annual Water License Report.

The locations of the bulk sample pit and residual waste rock and ore stockpiles (at Deposit No. 1, the crusher, and Milne Inlet) are shown in Figures 5.2 and 5.3.

5.11.1 Description

- A single mining pit established at the top of Deposit No. 1. Approximately 225,000 tones of weathered surface rock and ore was removed in 2007 and 2008 by drill and blast techniques
- Mining pit has been confirmed to be free draining
- ARD and ML tests have been conducted with results indicating that, due to the physical environment and the geochemistry of the ore, ARD and ML are very unlikely to occur
- No camps
- No fuel storage

5.11.2 Surface Water Direction and Quantity

The catchment areas for the bulk sample open pit operations are shown on Figures 5.1 and 5.2. Ultimately the surface water at the site is directed towards Mary River Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

5.11.3 Mitigation Procedures

Sediment and erosion control measures are not expected to be required with the completed pit. Mitigating measures are not expected to be required to address potential for ARD or ML. The site will be regularly monitored as discussed in the Monitoring section of this report.,

5.12 WEATHERED ORE / WASTE ROCK STOCKPILE

5.12.1 Description

- A stockpile containing approximately 28,000 tonnes of surficial weathered ore excavated from the surface of Deposit No. 1 remains on the deposit. The roadbed between the stockpile and the pit was also constructed from weathered ore. Approximately 6,000 tonnes of representative (i.e. ore grade) material was left in the bulk sample pit
- ARD and ML tests have been conducted with results indicating that, due to the physical environment and the geochemistry of the ore, ARD and ML are very unlikely to occur

5.12.2 Surface Water Direction and Quantity

The catchment areas for the bulk sample open pit operations are shown on Figure 5.2. Ultimately the surface water in the area is directed towards Camp, Sheardown and Mary Lakes. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

5.12.3 Mitigation Procedures

Sediment and erosion control measures are not expected to be required in association with the weathered ore stockpile. Mitigating measures are not expected to be required to address potential for ARD or ML. The site will be regularly monitored as discussed in the Monitoring section of this report.,

5.13 CRUSHING OPERATIONS AT MARY RIVER

Crusher locations are provided on Figure 5.2.

5.13.1 Description

- A temporary crusher station was established north-east of Sheardown Lake at Mary River
- Approximately 190,000 tonnes of ore was hauled from the bulk sample pit to the crusher station and crushed into lump and fine fractions
- Stockpiles containing approximately 25,000 tonnes of non-representative ore (i.e. separate lump and fine high manganese 'waste' ore) remain at the Mary River crusher site.
- ARD and ML tests have been conducted on the fresh ore, with results indicating that, due to the physical environment and the geochemistry of the ore, ARD and ML are very unlikely to occur

5.13.2 Surface Water Direction and Quantity

The catchment areas for the stockpiles and crusher operations in the vicinity of the Mary River Camp are shown on Figure 5.2. Surface water in this area is directed towards Sheardown Lake. The estimated surface water runoff quantities for each catchment area are shown on Table 5.1.

5.13.3 Mitigation Procedures

Sediment and erosion control measures may be required and will be installed as per the previous section General Mitigation Measures. The site will be regularly monitored as discussed in the Monitoring section of this report.

5.14 TEMPORARY ORE STORAGE AT MILNE INLET

5.14.1 Description

- A total of approximately 152,000 tonnes of crushed ore was transported to Milne Inlet from the Mary River Area using the Milne Inlet Tote Road
- An ore stockpile pad containing approximately 24,000 tonnes of non-representative ore (i.e. high manganese 'waste' ore) remains at Milne Inlet. Approximately 6,000 tonnes of representative (i.e. ore grade) material is stockpiled on this pad at Milne Inlet adjacent to the beach loading area
- ARD and ML tests have been conducted on the fresh ore, with results indicating that, due to the physical environment and the geochemistry of the ore, ARD and ML are very unlikely to occur

5.14.2 Surface Water Direction and Quantity

The catchment areas for the stockpiles at Milne Inlet are shown on Figure 5.3. Surface water in this area is directed towards Milne Inlet. The estimated surface water runoff quantities for each catchment area are shown on Table 5.2.

5.14.3 Mitigation Procedures

Sediment and erosion control measures may be required and will be installed as per the previous section General Mitigation Measures. The site will be regularly monitored as discussed in the Monitoring section of this report. The ore pad and stockpile is located in excess of 30 m from the normal high water mark of Milne Inlet and other water bodies.

5.15 BULK FUEL STORAGE AREAS

Described in sections detailing camp and refuge station descriptions.

5.16 MILNE INLET TOTE ROAD

5.16.1 Description

- Historic dirt road constructed in the mid 1960's (Tote Road / bulk sampling road)
- The existing 105 km Tote Road running between Milne Inlet and the Mary River camp was upgraded to support transport of the bulk sample from Deposit No. 1
- Upgrades were made to the tote road by adding fill to the roadbed, cutting and filling on hills, and installing crossing structures (mainly culverts) at watercourse crossings and drainages
- A haul road from the top of Deposit No. 1 to the crusher location was completed by adding fill to the roadbed, cutting and filling on hills, and installing culverts at drainage crossings
- Fill materials needed for the upgrade of the tote road and the mine haul road was obtained from designated large borrow sources and from areas within the road alignment. Approximately 1.1 million m^3 of borrow material was excavated through the course of the bulk sample program. A portion of this material was required for civil works associated with infrastructure improvements at Mary River and Milne Inlet camps.
- Two temporary refuge stations, one at km 33 and one at km 68 consisting each of a half size trailer and 4 drum fuel storage area
- No permanent structures or buildings
- The Milne Inlet Tote Road is shown on Figures 1.1 and 1.2

5.16.2 Surface Water Direction and Quantity

The catchment areas for the Milne Inlet Tote Road are shown on Figure 5.6. Ultimately the surface water north of Katiktok Lake discharges in Milne Inlet via Phillips Creek and surface water south of Katiktok Lake eventually flows into Mary River via Camp, Sheardown and Mary Lakes. Specific surface water runoff quantities were not calculated for the transportation corridor due to the large catchment area and the minimal quantity of water required for road construction and maintenance. Culvert crossings were designed based on estimated water flow and in consideration of the use and temporary nature of the tote road.

5.16.3 Mitigation Procedures

The Milne Inlet Tote Road was upgraded to a year-round all-weather road to support the heavier traffic volume during the bulk sample program. Most of the water crossings along the tote road were installed during the winter of 2008 when water was not present. Construction procedures including the use of water diversion structures, the use of silt fencing, and limiting in-water work minimized the amount and duration of sediment release during installation of water crossings during non-freezing conditions. Visual observations and turbidity measurements before, during and after construction confirmed the short duration and limited extent of sediment release. There were localized areas of sediment release during the spring and summer of 2008 due to contact of run-off with disturbed areas associated with road construction and due to overtopping of the road at spillway locations and isolated areas of embankment failure.

Road operations and maintenance is expected to continue through the proposed future construction of a full-scale mine. The tote road will continue to be inspected on a regular basis to confirm adequate physical stability with erosion and control measures installed when required as per the previous section General Mitigation Measures.

5.17 ASSOCIATED CONSTRUCTION MATERIAL AND QUARRY OPERATIONS

5.17.1 Description

- Granular material borrow pits (sand and gravel up to cobble sized material) were advanced to support road upgrades for the bulk sampling road and camp infrastructure
- Three primary borrow areas were advanced: Borrow Area 1 near Milne Inlet, Borrow Area 2 near km 63 of the Milne Inlet Tote Road, Borrow Area 3 near Mary River camp. In addition to these three primary areas, suitable borrow material was used in areas directly adjacent to the Tote Road, within the right-of-way.
- Borrow materials are expected to be required to support ongoing operations and maintenance of the landforms (roads and camp sites)
- Surficial borrow materials will be obtained by stripping and excavation of the active layer

- Excavation will not occur within 30 m of a watercourse, and seasonal drainage ways will be re-established during pit development
- Rock quarries may be developed for various construction purposes
- Potential rock quarry locations are near Milne Inlet and Mary River
- Rock will be obtained through drilling and blasting
- Quarrying will not occur within 30 m of a watercourse, and drainage will be re-established during quarry development
- Acid rock drainage (ARD) and metal leaching (ML) tests have been conducted on rock samples, with results indicating that, due to the physical environment and the geochemistry of the rock, ARD and ML are very unlikely to occur from quarry materials
- No camps
- No fuel storage
- Locations of the primary borrow sites and rock quarries are shown on Figure 5.6

5.17.2 Surface Water Direction and Quantity

The catchment areas for the borrow and quarry operations are shown on Figure 5.6. Specific surface water runoff quantities were not calculated due to the number of large catchment areas that would be involved.

5.17.3 Mitigation Procedures

In 2008, some borrow areas experienced minor settlement and water release due to thawing of ice-rich soils. In most instances borrow areas were constructed with a control berm to allow for the gradual seepage of released ground meltwater or surface run-off from the borrow area through the permeable control berm. Some regarding will be required and inspections will continue to be undertaken to confirm physical stability and continue to implement sediment and erosion control measures as required and as per the previous section General Mitigation Measures. Berms and other drainage measures will be established as needed to limit erosion and maintain positive drainage to minimize water ponding. Contouring, berming and silt fences will be applied as necessary for sediment and erosion control. The site will be regularly monitored as discussed in the Monitoring section of this report.

SECTION 6.0 - MONITORING

In addition to specific monitoring and reporting requirements under the regulatory approvals such as the water license, QIA land lease, land use permits and fisheries authorization,, routine inspections of various aspects of the operations will be undertaken. Routine water management related inspections will be conducted at drill sites, camp sites and related infrastructure, roadways, and landforms generated in association with the shipment of a bulk sample in 2008 (borrow areas, mining pit, residual ore stockpiles).

Routine inspections and water license monitoring is outlined below.

6.1 ROUTINE INSPECTIONS

6.1.1 Drill Sites

Pre-drilling inspection of the immediate area surrounding the drill site will be completed as part of the safety/environmental inspection prior to the setup of the drill by drilling and other site personnel.

Particular items for review are:

- Drillhole coordinates
- Water source coordinates
- Site photo
- Water source photo
- Distance to nearest water source
- Archaeological approval
- Completed wildlife survey

Routine daily inspections of the immediate area surrounding the drills will be completed as part of the safety/environmental inspection on a daily basis by drilling or other site personnel.

Particular items for review are:

- Fuel leaks
- Drip Pans
- Equipment condition
- Sediment and erosion control measures
- Water intakes
- Water management systems
- Flow meter readings

Post-drilling inspection of the immediate area surrounding the drill site will be completed as part of the safety/environmental inspection after the drill has been removed from site by drilling and other site personnel.

Particular items for review are:

- All materials and debris removed from site
- Quantity of equipment, rods or casing left in the hole
- Site photo
- Water source photo
- Water use assessment
- Environmental concerns
- Wildlife concerns

Pre and Post-Drilling water sampling will be completed for each on-ice drillhole.

The methodology for the water sampling is:

- Select a location a maximum of 30 m from the proposed drillhole location
- Auger a hole through the ice and clear the hole of ice cuttings
- Use a bailer to obtain a water sample from below the bottom of the ice
- Transfer the water sample to the sample bottles
- Repeat the steps to collect a second sample following completion of the drillhole

6.1.2 Camp Sites and Temporary Refuge Stations

Routine camp and temporary refuge station inspections will be completed.

Particular items for review are:

- Fuel leaks
- Sediment and erosion control structures

6.1.3 Roadways

It is intended that the Milne Inlet Tote Road will continue to provide all-season access to the Mary River Site until after proposed construction of the full-scale Mary River Project. Prior to mine construction, the road will be used to facilitate transport of fuel and consumables. The road is expected to require regular maintenance, from snow-ploughing during winter months (when used) to culvert and crossing maintenance in the summer.

The design of the watercourse crossings is such that, during summer, heavy flows may overtop some of the culvert crossings equipped with overflow swales. The road may be

unavailable to haul traffic during a brief period in the summer, and minor repairs to the crossings may be required.
Routine inspections will continue to be undertaken to monitor physical stability and any environmental concerns related to the road and associated water crossings and borrow areas.

6.1.4 Borrow Areas

Fill materials needed for upgrade of the Milne Inlet Tote Road, the mine haul road, and other civil works have been obtained from designated large borrow areas and from within the road alignment.

Re-contouring of the borrow areas has commenced, with further work required to confirm that as-built conditions are suitable for eventual decommissioning. Borrow areas will be contoured and drainage control measures will be established as necessary to reduce the risk of substantial erosion and sediment release that may have an effect on receiving waters. Monitoring will continue to be undertaken to confirm stability of the borrow areas.

6.1.5 Bulk Sample Pit

The bulk sample pit was constructed as a side-hill cut and was confirmed by land survey at its completion in 2008 to be free-draining. The bulk sample pit was designed to be free-draining so as to reduce any risk for poor water quality run-off. The pit will continue to be inspected on an annual basis to ensure the pit slopes will be stable in the long term.

6.1.6 Stockpiles

The bulk sample program generated stockpiles of ore adjacent to the pit at Deposit No.1, at the crusher site at the base of Deposit No.1, and at Milne Inlet where the ore was loaded for shipment in 2008. These stockpiles are expected to be stable in the long term. Monitoring of run-off water quality is discussed in Section 6.2.

6.1.7 Bulk Fuel Storage Areas

Routine inspections will be completed at the bulk fuel storage areas.

Particular items for review are:

- Evidence of hydrocarbon staining or leaks from containment devices
- Full-time supervision of fuel transfer operations
- Full-time supervision of treatment and release of accumulated water from within the containment areas
- Sediment and erosion control structures

6.2 WATER QUALITY MONITORING

The water quality monitoring program consists of several elements as follows:

a) Measurement, recording and reporting of water volumes extracted, as prescribed by the water license
b) Sampling, analysis and reporting of water quality, as prescribed by the water license
c) Weekly monitoring downstream of exploration drilling activities during periods of open water

Table 6.1 summarizes the water quality and quantity monitoring program.

An exploration drill water quality monitoring program has been undertaken since 2005 at selected locations upstream (reference), downstream along the Mary River (potentially affected), and along steep seasonal flow channels that drain the rugged topographic terrain that characterizes the land surface in the vicinity of Deposits 1,2 and 3. The main objective of the monitoring program is to identify and measure Contaminants of Potential Concern (COPCs) in Mary River, both upstream at locations unaffected by drilling activities, and downstream at locations that may be potentially affected by drilling activities. Each year, the water quality monitoring program is dependent and specific to the planned scope of the drill program. The Environmental Superintendent will, in consultation with Operations personnel the annual exploration drill water quality monitoring program and ensure that it is implemented. The results of the monitoring program will be used to guide adaptive management measures, as appropriate.

6.3 WASTE DISPOSAL MONITORING

6.3.1 Monitoring Stations

Signs will be posted in appropriate areas at Monitoring Stations, and will be located and maintained to the satisfaction of the Inspector. Monitoring Stations will be maintained at the following locations:

Monitoring Station Number	Description
MRY-1	Water supply for the Mary River Camp at Camp Lake
MRY-2	Summer water supply for the Milne Inlet Camp at Phillips Creek
MRY-3	Winter water supply for Milne Inlet Camp at the Km 99 lake (See Note 1)
MRY-4	Mary River Camp sewage discharge at the WWTF
MRY-4a	Mary River Camp sewage discharge from the PWSP
MRY-5	Milne Inlet Camp sewage discharge at the WWTF
MRY-5a	Milne Inlet Camp sewage discharge from the PWSP
MRY-6	Water collected within the Bulk Fuel Storage Facility at Mary River prior to release

Monitoring Station Number	Description
MRY-7	Water collected within the Bulk Fuel Storage Facility at Milne Inlet prior to release
MRY-8	Minewater and surface drainage either pumped or released from the Hematite Open Pit
MRY-9	Minewater and surface drainage either pumped or released from the mixed ore (Hematite and Magnetite) Open Pit
MRY-10	Surface discharge from the weathered ore stockpile
MRY-11	Surface discharge from the lump ore and fine ore stockpiles at the processing area
MRY-12	Surface discharge from the lump ore and fine ore stockpiles at the processing area

Notes:

1. The winter water supply for the Milne Inlet Camp is at km 32 not km 99.
2. Monitoring Station MRY-8 is no longer required as there is only one open pit which will be monitored by MRY-9.

The monitoring locations are shown on Figure 6.1.

6.3.2 Bulk Sample Open Pit

All discharge from the bulk sample open pit will be analyzed and discharge at Monitoring Station MRY-9 will not exceed the following limits:

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration of Any Grab Sample (mg/L)
Total Arsenic	0.5	1.00
Total Copper	0.30	0.60
Total Lead	0.20	0.40
Total Nickel	0.50	1.00
Total Zinc	0.5	1.00
Total Suspended Solids	15.0	50.0
Oil and Grease	No visible sheen	N/A
Waste discharged will have a pH between 6.0 - 9.5		

6.3.3 Waste Water Treatment Facility (WWTF)

All sewage will be discharged to a Waste Water Treatment Facility at Mary River and Milne Inlet unless otherwise approved.

All sewage discharged from the Waste Water Treatment Facility at Monitoring Stations MRY-4 and MRY-4a, at Mary River, will not exceed the following quality standards:

Parameter	Maximum Average Concentration
BOD_5	30 mg/L
Total Suspended Solids	35 mg/L
Fecal Coliform	1000 CFU/100 mL
Oil and Grease	No visible sheen
pH	between 6.0 - 9.5

All sewage discharged from the Waste Water Treatment Facility at Monitoring Stations MRY-5 and MRY-5a, at Milne Inlet, will not exceed the following quality standards:

Parameter	Maximum Average Concentration
BOD_5	100 mg/L
Total Suspended Solids	120 mg/L
Fecal Coliform	10,000 CFU/100 mL
Oil and Grease	No visible sheen
pH	between 6.0 - 9.5

6.3.4 Monitoring Station Discharge

Effluent discharged from Monitoring Stations MRY-4 and MRY-4a, and MRY-5 and MRY-5a will be demonstrated to be acutely non-toxic in accordance with test procedures measuring acute lethality to Rainbow trout, Oncorhynchus mykiss (Environment Canada's Environmental Protection Series Biological test Method EPS/1/RM/13) and Daphnia magna (Environment Canada's Environmental Protection Series Biological Test Method EPS/1/RM/14). Testing will occur once annually during open water season.

Samples will be collected at Monitoring Stations MRY-4 and MRY-5 every four weeks during discharge and at Monitoring Stations MRY-4a and MRY-5a once prior to discharge and every 4 weeks thereafter. Samples will be analyzed for: Biochemical Oxygen Demand (BOD), total suspended solids (TSS), pH, fecal coliforms, oil and grease (visual).

6.3.5 Bulk Fuel Storage Facilities

Effluent discharged from the Bulk Fuel Storage Facilities at Monitoring Stations MRY-6 and MRY-7 will meet the following effluent quality standards:

Parameter	Maximum Average Concentration (µg/L)
Benzene	370
Toluene	2
Ethyl benzene	90
Lead	1
Oil and Grease	15,000 and no visible sheen

6.4 ADAPTIVE MANAGEMENT STRATEGIES

Housekeeping and operational measures have been instituted at the salt mixing stations and increased use of sumps and silt curtains at the exploration drill sites have been put in place to further reduce the potential risks for salt related impacts. Work procedures will continuously be adapted with the goal to reduce salt use, reduce water use and reduce the potential effects related to water management on the environment.

Baffinland is committed to continual improvement in its work activities in the aim of reducing risks to the environment and improving operational effectiveness. The strategy employed at Baffinland is regular monitoring supported by operational change and adoption of other mitigating measures if warranted.

SECTION 7.0 - QA/QC PLAN

The Surface Water Sampling Program - Quality Assurance & Quality Control Plan (QA/QC Plan Ref. No. NB102-00181/10-7, Rev. 1) is included in Appendix A of this report. The QA/QC Plan has been prepared to fulfil the requirement of Part I, Item 9 of the License No. 2BB-MRY0710 issued by the NWB to Baffinland on July 27, 2007.

The QA/QC best practices that are outlined are designed to provide guidance to field staff and analytical laboratories in order to maintain a high level of confidence in the water quality data generated from the Mary River Project. The plan addresses best practice methods for water samples collected from lakes, streams and rivers, treated wastewater effluent, drinking water and site drainage.

For a more detailed and comprehensive outline, please refer to the appended report.

TABLES

Baffinland Iron Mines Corporation

TABLE 4.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

MONTHLY UNIT RUNOFF SUMMARY

Gauging Station	Drainage Area (km^2)	2006				2007				Average (2006 and 2007)			
		Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep	Jun	Jul	Aug	Sep
H1	**248.7**	0.0209	0.0582	0.0214	0.0139	0.0147	0.0262	0.0153	0.0042	0.0178	0.0422	0.0184	0.0090
H2	**217.5**	0.0231	0.0883	0.0247	0.0141	0.0203	0.0358	0.0186	0.0052	0.0217	0.0620	0.0216	0.0097
H3	**30.4**	0.0337	0.1096	0.0227	0.0134	0.0097	0.0280	0.0147	0.0035	0.0217	0.0688	0.0187	0.0084
H4	**9.4**	0.0524	0.0923	0.0295	0.0165	0.0172	0.0237	0.0150	0.0050	0.0348	0.0580	0.0222	0.0107
H5	**5.4**	0.0556	0.1067	0.0252	0.0137	0.0207	0.0189	0.0183	0.0048	0.0381	0.0628	0.0218	0.0093
H6	**240.0**	0.0127	0.0753	0.0217	0.0137	0.0201	0.0426	0.0191	0.0026	0.0164	0.0589	0.0204	0.0082
H7	**14.7**	0.0086	0.0784	0.0176	0.0095	0.0238	0.0329	0.0170	0.0039	0.0162	0.0556	0.0173	0.0067
H8	**208.4**	0.0108	0.0584	0.0118	0.0098	0.0183	0.0340	0.0166	0.0039	0.0146	0.0462	0.0142	0.0068
H9	**157.6**	0.0134	0.0410	0.0129	0.0129	0.0130	0.0092	0.0062	0.0038	0.0132	0.0251	0.0096	0.0084
Average		0.0257	0.0787	0.0208	0.0131	0.0175	0.0279	0.0157	0.0041	0.0216	0.0533	0.0182	0.0086
5th Percentile		0.0095	0.0479	0.0123	0.0096	0.0110	0.0131	0.0096	0.0029	0.0137	0.0319	0.0114	0.0068
Minimum		0.0086	0.0410	0.0118	0.0095	0.0097	0.0092	0.0062	0.0026	**0.0132**	**0.0251**	**0.0096**	**0.0067**

Notes:

1. The flows for October to May were assumed to be zero based on field observations in 2007.
2. Table has been developed from field data collection.
3. All units are $m^3/s/km^2$ unless otherwise stated.

Rev. 1 - Updated for 2008 Field Season Only

TABLE 5.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

MARY RIVER AREA - ESTIMATED CATCHMENT RUNOFF RATES

Catchment No.		MR-01	MR-02	MR-03	MR-04	MR-05	MR-06	MR-07	MR-08	MR-09	MR-10	MR-11	MR-12	MR-13	MR-14	MR-15	MR-16	MR-17	MR-18	MR-19	MR-20
	Unit Runoff Rate	Runoff Rate																			
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)
Catchment Area (sq.km)		874.50	248.70	6,311.00	217.50	7,663.40	122.97	30.40	9.39	10.45	3.58	5.41	14.70	85.43	114.20	18.02	8.61	1.48	21.75	15.66	73.02
January	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
February	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
March	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
April	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
May	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
June	0.0132	11.53	3.28	83.21	2.87	101.04	1.62	0.40	0.12	0.14	0.05	0.07	0.19	1.13	1.51	0.24	0.11	0.02	0.29	0.21	0.96
July	0.0251	21.94	6.24	158.34	5.46	192.27	3.09	0.76	0.24	0.26	0.09	0.14	0.37	2.14	2.87	0.45	0.22	0.04	0.55	0.39	1.83
August	0.0096	8.38	2.38	60.45	2.08	73.40	1.18	0.29	0.09	0.10	0.03	0.05	0.14	0.82	1.09	0.17	0.08	0.01	0.21	0.15	0.70
September	0.0067	5.86	1.67	42.29	1.46	51.35	0.82	0.20	0.06	0.07	0.02	0.04	0.10	0.57	0.77	0.12	0.06	0.01	0.15	0.10	0.49
October	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
November	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
December	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes:
1. The Unit Runoff Rate is obtained from Table 4.1 and is the minimum average monthly unit runoff rate for the catchment areas listed.
2. The maximum drill water consumption rate for the exploration/geomechanical and geotechnical drilling are 7.5×10^{-4} m^3/s and 6.3×10^{-4} m^3/s respectively.

Rev. 1 - Updated for 2008 Field Season Only

Baffinland Iron Mines Corporation

TABLE 5.2

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

MILNE INLET AREA - ESTIMATED CATCHMENT RUNOFF RATES

Catchment No.		MI-01	MI-02	MI-03	MI-04	MI-05	MI-06
	Unit Runoff Rate	Runoff Rate					
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)	(cu.m/s)
Catchment Area (sq.km)		5.27	3.59	4.11	62.32	5.61	7.96
January	0	0.00	0.00	0.00	0.00	0.00	0.00
February	0	0.00	0.00	0.00	0.00	0.00	0.00
March	0	0.00	0.00	0.00	0.00	0.00	0.00
April	0	0.00	0.00	0.00	0.00	0.00	0.00
May	0	0.00	0.00	0.00	0.00	0.00	0.00
June	0.0132	0.07	0.05	0.05	0.82	0.07	0.10
July	0.0251	0.13	0.09	0.10	1.56	0.14	0.20
August	0.0096	0.05	0.03	0.04	0.60	0.05	0.08
September	0.0067	0.04	0.02	0.03	0.42	0.04	0.05
October	0	0.00	0.00	0.00	0.00	0.00	0.00
November	0	0.00	0.00	0.00	0.00	0.00	0.00
December	0	0.00	0.00	0.00	0.00	0.00	0.00

Notes:

1. The Unit Runoff Rate is obtained from Table 4.1 and is the minimum average monthly unit runoff rate for the catchment areas listed.
2. The maximum drill water consumption rate for the exploration/geomechanical and geotechnical drilling are 7.5×10^{-4} m^3/s and 6.3×10^{-4} m^3/s respectively.

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Baffinland Iron Mines Corporation

TABLE 5.3

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

STEENSBY INLET AREA - ESTIMATED CATCHMENT RUNOFF RATES

Catchment No.		SI-01	SI-02	SI-03
	Unit Runoff Rate	Runoff Rate		
	(cu.m/s/sq.km)	(cu.m/s)	(cu.m/s)	(cu.m/s)
Catchment Area (sq.km)		13.68	21.77	1.99
January	0	0.00	0.00	0.00
February	0	0.00	0.00	0.00
March	0	0.00	0.00	0.00
April	0	0.00	0.00	0.00
May	0	0.00	0.00	0.00
June	0.0132	0.18	0.29	0.03
July	0.0251	0.34	0.55	0.05
August	0.0096	0.13	0.21	0.02
September	0.0067	0.09	0.15	0.01
October	0	0.00	0.00	0.00
November	0	0.00	0.00	0.00
December	0	0.00	0.00	0.00

Notes:

1. The Unit Runoff Rate is obtained from Table 4.1 and is the minimum average monthly unit runoff rate for the catchment areas listed.
2. The maximum drill water consumption rate for the exploration/geomechanical and geotechnical drilling are 7.5×10^{-4} m^3/s and 6.3×10^{-4} m^3/s respectively.

Rev. 1 - Updated for 2008 Field Season Only

Baffinland Iron Mines Corporation

TABLE 6.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

WATER QUALITY AND QUANTIY MONITORING LOCATIONS

Monitoring Location ID	Description	UTM Coordinates (NAD83) Easting (m)	UTM Coordinates (NAD83) Northing (m)	Parameters	Maximum Amount/ Average Concentration	Maximum Grab Concentration	Sampling Frequency	Monitoring and Reporting Requirement	Reporting Frequency
MRY-1	Water Supply for the Mary River Camp at Camp Lake	557,682	7,914,693	Daily Volume	< 60 m^3/d (combined total for all camp usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
MRY-2	Summer Water Supply for the Milne Inlet Camp at Phillips Creek	514,503	7,964,579	Daily Volume	< 60 m^3/d (combined total for all camp usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
MRY-3	Winter Water Supply for the Milne Inlet Camp at km 32 Lake[1]	521,714	7,951,862	Daily Volume	< 60 m^3/d (combined total for all camp usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
Unnamed	Water Supply for the Rail Camp at Unnamed Lake Adjacent to Camp	595,547	7,876,328	Daily Volume	< 60 m^3/d (combined total for all camp usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
Unnamed	Water Supply for the Steensby Inlet Camp at 3km Lake, 10 km Lake or Ocean	596,585	7,800,231	Daily Volume	< 60 m^3/d (combined total for all camp usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
Various	Water Supply for Exploration and Geotechnical Drilling at Various Named and Unnamed Sources Throughout the Project Area	Mary River will be source for exploration drill program in 2009. No planned geotechnical drilling in 2009 at present time.		Daily Volume	< 455 m^3/d (combined total for all drilling usage)	N/A	Daily	Water License Part B, Item 5 Part I, Items 7, 19 and 20	Daily Volume Requirement for monthly reporting
MILNE-INF	Sewage Influent - WWTF at Milne Inlet Camp	Primary Chamber		BOD5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
MILNE-RC1	Receiving waters of Milne Inlet, adjacent drainage ditch	TBD	TBD	BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
MRY-INF	Sewage Influent - WWTF at Mary River Camp	Primary Chamber		BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
Shear-RC1	Sheardown Lake in the vicinity of the sewage outfall	TBD	TBD	BOD_5 Total suspended solids (TSS) Faecal coliforms pH Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus Dissolved oxygen	N/A	N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
MRY-4	Mary River Camp sewage discharge at the WWTF	557,920	7,914,372	BOD_5 TSS pH Faecel Coliforms Oil and Grease Volume	30 mg/L 35 mg/L 6.0 to 9.5 1,000 CFU/100 mL No visible sheen	N/A	Every 4 weeks during discharge; daily for volumes	Water License Part B, Item 5 Part D, Item 10 Part I, Items 3, 19 and 20	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part B, Item 5 Part D, Item 12 Part I, Items 4, 19 and 20	Monthly report following testing; annual report
MRY-4a	Mary River Camp sewage discharge from the PWSPs	558,706	7,913,930	BOD_5 TSS pH Faecel Coliforms Oil and Grease Volume	30 mg/L 35 mg/L 6.0 to 9.5 1,000 CFU/100 mL No visible sheen	N/A	Once prior to discharge and every 4 weeks thereafter; daily for volumes	Water License Part B, Item 5 Part D, Item 10 Part I, Items 3, 19 and 20	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 & EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part B, Item 5 Part D, Item 12 Part I, Items 4, 19 and 20	Monthly report following testing; annual report

Baffinland Iron Mines Corporation

TABLE 6.1

BAFFINLAND IRON MINES CORPORATION
MARY RIVER PROJECT

SITE WATER MANAGEMENT PLAN

WATER QUALITY AND QUANTIY MONITORING LOCATIONS

Monitoring Location ID	Description	UTM Coordinates (NAD83) Easting (m)	UTM Coordinates (NAD83) Northing (m)	Parameters	Maximum Amount/ Average Concentration	Maximum Grab Concentration	Sampling Frequency	Monitoring and Reporting Requirement	Reporting Frequency
MRY-5	Milne Inlet Camp sewage discharge at the WWTF	503,462	7,975,764	BOD_5 TSS pH Faecel Coliforms Oil and Grease Volume	100 mg/L 120 mg/L 6.0 to 9.5 10,000 CFU/100 mL No visible sheen	N/A	Every 4 weeks during discharge; daily for volumes	Water License Part B, Item 5 Part D, Item 11 Part I, Items 3, 19 and 20	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part B, Item 5 Part D, Item 12 Part I, Items 4, 19 and 20	Monthly report following testing; annual report
MRY-5a	Milne Inlet Camp sewage discharge from the PWSP	503,344	7,976,118	BOD_5 TSS pH Faecel Coliforms Oil and Grease Volume	100 mg/L 120 mg/L 6.0 to 9.5 10,000 CFU/100 mL No visible sheen	N/A	Once prior to discharge and every 4 weeks thereafter; daily for volumes	Water License Part B, Item 5 Part D, Item 11 Part I, Items 3, 19 and 20	Daily Volume Requirement for monthly reporting
				Total Kjeldahl Nitrogen (TKN) Ammonia-nitrogen Total phosphorus		N/A	Every 4 weeks during discharge	Baffinland Requirement	For information only; not reported
				Acute lethality to Rainbow Trout and Daphnia magna (Biological Test Methods EPS/1/RM/13 and EPS/1/RM/14)	Non-toxic	N/A	Once annually during open water	Water License Part B, Item 5 Part D, Item 12 Part I, Items 4, 19 and 20	Monthly report following testing; annual report
MRY-6	Water collected within the Bulk Fuel Storage Facility at Mary River prior to release	558,186	7,914,780	Benzene Toluene Ethylbenzene Lead Oil and Grease	370 µg/L 2 µg/L 90 µg/L 1 µg/L 15,000 µg/L and no visible sheen	N/A	Monthly during removal of water	Water License Part B, Item 5 Part D, Item 17 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
MRY-7	Water collected within the Bulk Fuel Storage Facility at Milne Inlet prior to release	503,309	7,976,097	Benzene Toluene Ethylbenzene Lead Oil and Grease	370 µg/L 2 µg/L 90 µg/L 1 µg/L 15,000 µg/L and no visible sheen	N/A	Monthly during removal of water	Water License Part B, Item 5 Part D, Item 17 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
MRY-8	Minewater and surface drainage either pumped or released from the Hematite Open Pit	NO LONGER REQUIRED[2]							
MRY-9	Minewater and surface drainage either pumped or released from the Magnetite Open Pit[2]	563,239	7,914,596	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH (of waste discharged)	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and 9.5	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	Monthly during periods of flow	Water License Part B, Item 5 Part D, Item 9 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
MRY-10	Surface discharge from the weathered ore stockpile	563,349	7,915,262	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH (of waste discharged)	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and 9.5	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	Seepage / surface run off - monthly during periods of flow	Water License Part B, Item 5 Part D, Item 9 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
MRY-11	Surface discharge from the lump ore and fine ore stockpiles at the processing area	560,987	7,913,364	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH (of waste discharged)	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and 9.5	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	Seepage / surface run off - monthly during periods of flow	Water License Part B, Item 5 Part D, Item 9 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
MRY-12	Surface discharge from the lump ore and fine ore stockpiles at Milne Inlet	12a - 503,356	7,976,452	Total Arsenic Total Copper Total Lead Total Nickel Total Zinc TSS Oil and Grease pH (of waste discharged)	As 0.5 mg/L Cu 0.30 mg/L Pb 0.20 mg/L Ni 0.50 mg/L Zn 0.50 mg/L TSS 15 mg/L O&G No visible sheen pH Between 6.0 and 9.5	As 1.00 mg/L Cu 0.60 mg/L Pb 0.40 mg/L Ni 1.00 mg/L Zn 1.00 mg/L TSS 50.0 mg/L	Seepage / surface run off - monthly during periods of flow	Water License Part B, Item 5 Part D, Item 9 Part I, Items 5, 19 and 20	Monthly report following testing; annual report
		12b - 503,522	7,976,399						
Exploration Drill Monitoring	Monitoring of surface water runoff from areas where thre is exploration drilling (Deposit No. 1, 2, 3)	Various locations upstream, downstream, and near-field.		Major ions, total metals, general parameters, flow.	N/A	N/A	Weekly during drilling.	Annual NIRB Report	Once per year.

Notes:
Shaded monitoring location ID cells denote Water Licence Monitoring Locations
Shaded parameters cells denote required parameters to be reported under the Water Licence.
1. This location is referenced as Km 99 Lake in the Water Licence. This is in error.
2. There is actually only one bulk sample pit now.
More frequent sampling of MRY-4, 4a, 5, 5a, Milne-INFL, and MRY-INFL may be undertaken for the purpose of internal process management and early detection of potential upset conditions.

FIGURES

Baffinland
Iron Mines Corporation

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PROJECT LOCATION MAP

REV. 1

ᑎᑎᕋᐅᓯᖏᓐᓇᖅ FIGURE **1.1**

XREF FILE(S): Base Map 2; Existing Roadway July 2007; Inuit Owned Lands Surface-Subsurface_REV1; Railway_Alignment-Mary_River-Steensby-04-Oct_07_2008; Lakes hatched IMAGE FILE(S): 037G05_1079982884802 logo corp logo-big corp Native Land Use

500000 E
550000 E
600000 E
650000 E
8000000 N
7950000 N
7900000 N
7850000 N
7800000 N
7750000 N

MILNE INLET
MILNE INLET CAMP AND PORT
ROCK QUARRY NO. 1
BORROW SOURCE NO. 1
PHILLIPS CREEK
PI-19
PI-20
PI-14
PI-12
PI-13
PI-15
PI-17
PI-16
DEPOSIT NO. 4 MINING LEASE 2483
DEPOSIT NO. 4 CAMP LEASE AREA
MILNE INLET TOTE ROAD
KATIKTOK LAKE
BORROW SOURCE NO. 2
DEPOSIT NO. 1 MINING LEASE 2484
BORROW SOURCE NO. 3
MARY RIVER CAMP
MARY RIVER SITE
MINE AREA IOL COMMERCIAL LEASE BOUNDARY
DEPOSIT NOS. 2, 3 AND 3B MINING LEASE 2485
ROCK QUARRY NO. 2
RAVN RIVER
SOUTHERN BOUNDARY OF NORTH BAFFIN PLANNING REGION
ANGAJURJUALUK LAKE
MID RAIL DRILL CAMP
QUARTZ LAKE
PROPOSED RAIL ALIGNMENT
COCKBURN RIVER
NINA BANG LAKE
ROWLEY RIVER
ERICHSEN LAKE
RAVN RIVER
TARIUJAQ ARM
STEENSBY INLET
STEENSBY INLET CAMP AND PROPOSED PORT

LEGEND:

- WATER
- INUIT OWNED LAND - SURFACE ONLY EXCLUDING MINERALS
- INUIT OWNED LAND - SURFACE AND SUBSURFACE INCLUDING MINERALS
- MINERAL LEASE BOUNDARY
- CROWN LAND
- EXISTING BORROW AREA (IOL COMMERCIAL LEASE)
- EXISTING ROCK QUARRY (IOL COMMERCIAL LEASE)
- RIVER/STREAM/DRAINAGE
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- CONTOUR

NOTE(S):

1. BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES (2004). ALL RIGHTS RESERVED.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOURS ARE IN METRES. CONTOUR INTERVAL VARIES.
4. PROPOSED RAIL ALIGNMENT PROVIDED BY CANARAIL CONSULTANTS INC.

SCALE 10 5 0 10 20 30 40 km

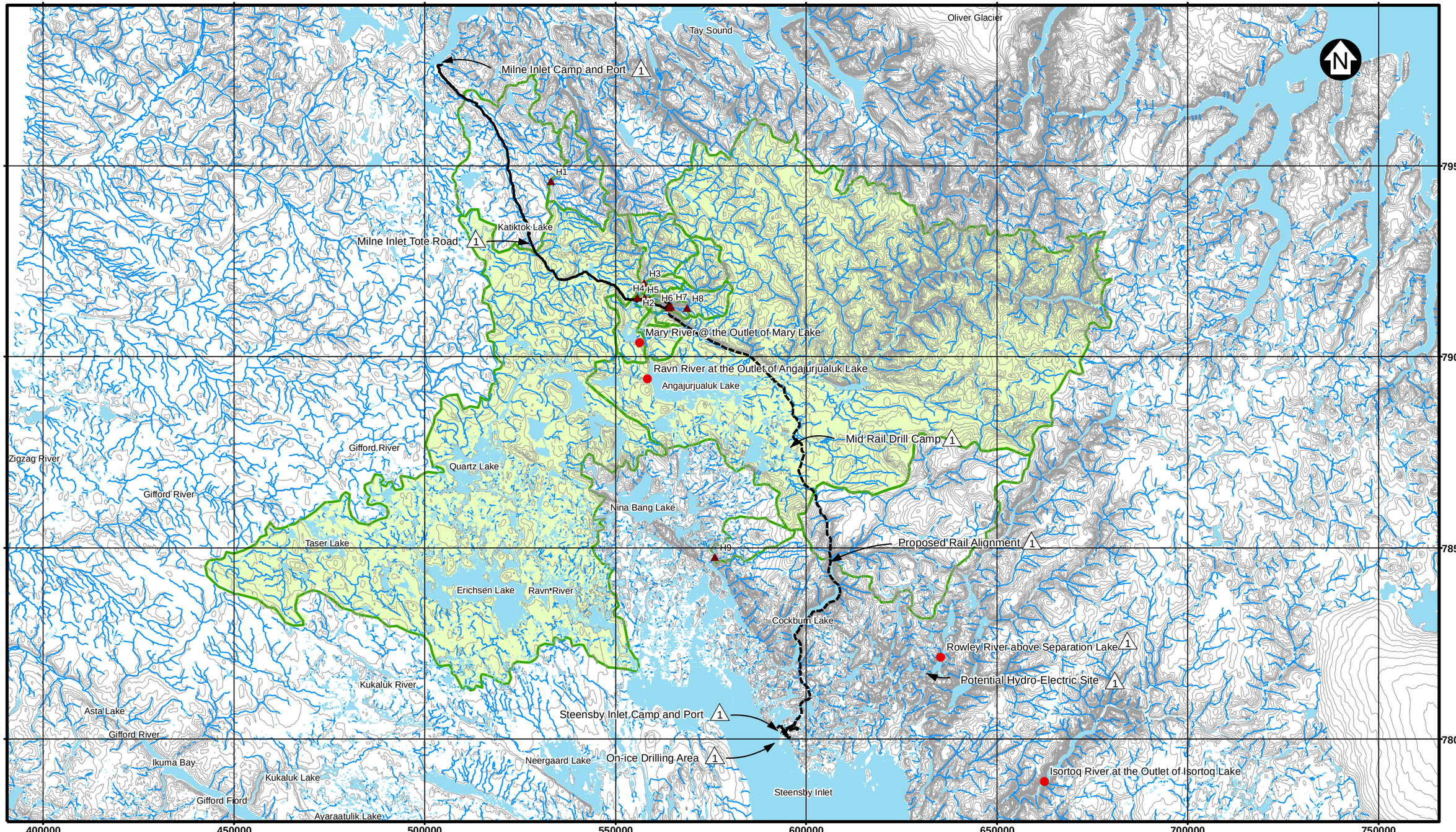
Baffinland Iron Mines Corporation

MARY RIVER PROJECT

LOCATION OF PROJECT ACTIVITIES

REV. 1

FIGURE 1.2



NORTH BAY ON CREATED BY rjohnson SAVED I:\102-00181-15\ASSIGNMENT\GIS\ArcView\Fig\B25.MXD

LEGEND:

- Water
- Ravn River Catchment
- River/Stream/Drainage
- Milne Inlet Tote Road 1
- Proposed Rail Alignment 1
- Catchment Boundary
- Streamflow Gauging Station
- WSC Station

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources (2004). All rights reserved.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. Contours are in metres. Contour interval varies. 1
4. Proposed rail Alignment provided by Canarail Consultants Inc. in late 2007. 1

Scale 10 5 0 10 20 30 40 50 Km

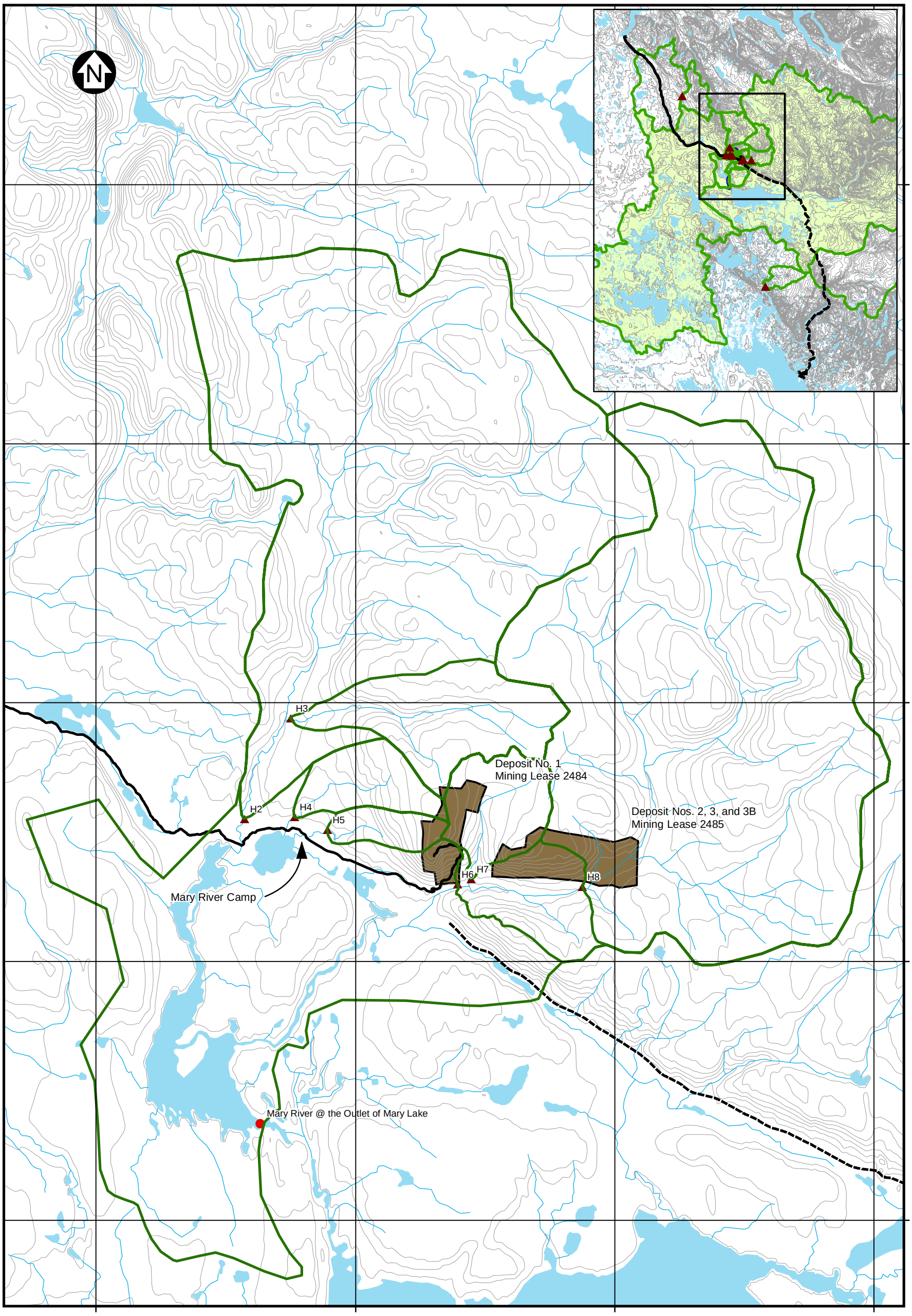
Baffinland
IRON MINE CORPORATION

MARY RIVER PROJECT

STREAMFLOW GAUGING STATIONS MARY RIVER PROJECT SITE AND SURROUNDING AREA

REV. 1

FIGURE 4.1



LEGEND:

- Water (1)
- Mineral Lease Boundary
- River/Stream/Drainage
- Milne Inlet Tote Road (1)
- Proposed Rail Alignment (1)
- Estimated Catchment Boundary (1)
- Streamflow Gauging Station
- WSC Station

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources, (2004). All rights reserved.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. Contours are in metres. Contour interval varies. (1)
4. Proposed Rail Alignment provided by Canarail Consultants Inc. in late 2007. (1)

Scale 2 1 0 2 4 6 8 10 Km (1)

Baffinland Iron Mines Corporation

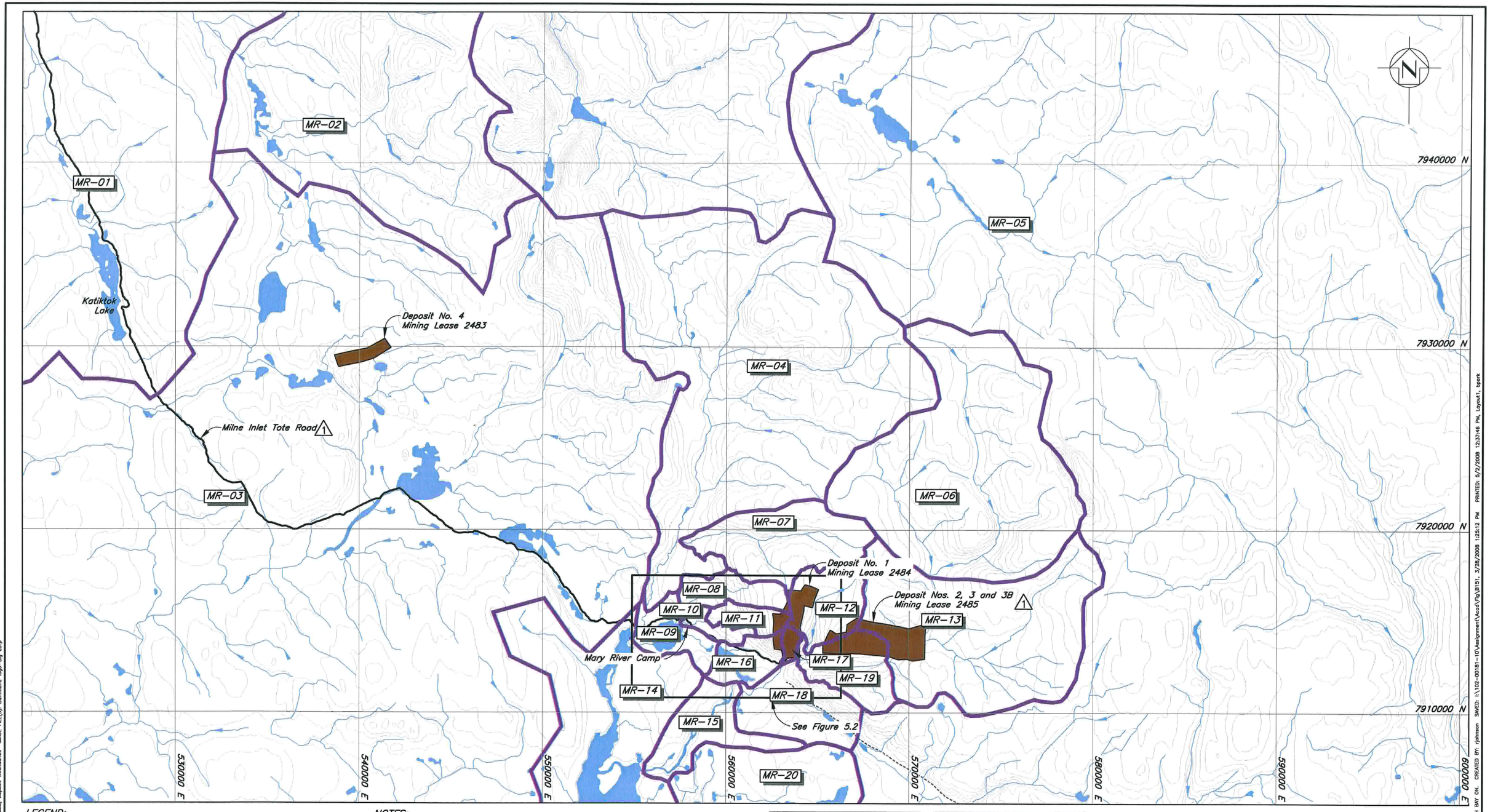
MARY RIVER PROJECT

STREAMFLOW GAUGING STATIONS MARY RIVER WATERSHED

REV. 1

FIGURE 4.2

NORTH BAY, ON. CREATED BY: rjohnson SAVED I:\102-00181-15\ASSIGNMENTGIS\ArcView\Figure\B26.MXD



LEGEND:

- Water
- Mineral Lease Boundary
- River/Stream/Drainage
- Direction of surface water runoff
- Milne Inlet Tote Road (1)
- Proposed Rail Alignment (1)
- Estimated Catchment Boundary
- MR-03 Catchment Area Name

NOTES:

1. Base Map © Her Majesty the Queen in Rights of Canada, Department of Natural Resources (2004). All rights reserved.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. Contours are in metres. Contour interval varies.
4. Catchment areas calculated using Mapinfo.
5. Proposed Rail Alignment provided by Canarail Consultants Inc. in late 2007.

Scale 2 1 0 2 4 6 8 10 Kilometres

CATCHMENT	AREA (km^2)
MR-01	874.5
MR-02	248.7
MR-03	6311
MR-04	217.5
MR-05	7663.4
MR-06	122.97
MR-07	30.40
MR-08	9.385
MR-09	10.45
MR-10	3.58

CATCHMENT	AREA (km^2)
MR-11	5.412
MR-12	14.70
MR-13	85.43
MR-14	114.2
MR-15	18.02
MR-16	8.61
MR-17	1.48
MR-18	21.75
MR-19	15.66
MR-20	73.02

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MARY RIVER AREA CATCHMENT AREAS

REV. 1

FIGURE 5.1

XREF FILE(S): Base Map_Overall_RC; CATCHMENTS nad83; Deposit Boundaries IMAGE FILE(S): Baffinland logo-big corp

NORTH BAY ON. CREATED BY: rjohnson SAVED: I:\102-00181-10\Realignment\Acad\Fig\8151, 3/28/2008 1:25:12 PM PRINTED: 5/2/2008 12:37:46 PM, Layout1, bpark

MR-03
MR-04
MR-07
MR-08
MR-09
MR-10
MR-11
MR-12
MR-14
MR-15
MR-16
MR-17
MR-18
MR-19

7917000 N
7916000 N
7915000 N
7914000 N
7913000 N
7912000 N

555000 E
556000 E
557000 E
558000 E
559000 E
560000 E
561000 E
562000 E
563000 E
564000 E
565000 E
566000 E

Mary River Camp
Airstrip
Camp Lake
Milne Inlet Tote Road
Weathered Ore and Waste Rock Stockpile
Bulk Sample Pit
Deposit No. 1
Mining Lease 2484
Mineral Lease Boundaries
Deposit Nos. 2, 3, and 3B
Mining Lease 2485
Rock Quarry No. 2
Approximate Location of Crusher and Stockpile
Sheardown Lake
Proposed Landfill Site
Explosives Magazine Storage
Mary River
Pump Station 2
Pump Station 3
Sheardown Lake
Proposed Rail Alignment

LEGEND:

- Water
- Rock Quarry Location
- River/Stream/Drainage
- Milne Inlet Tote Road
- Drill Road
- Proposed Rail Alignment

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 10 metres.
4. Some infrastructure not shown for clarity.

Scale 300 150 0 300 600 900 1200 1500 Metres

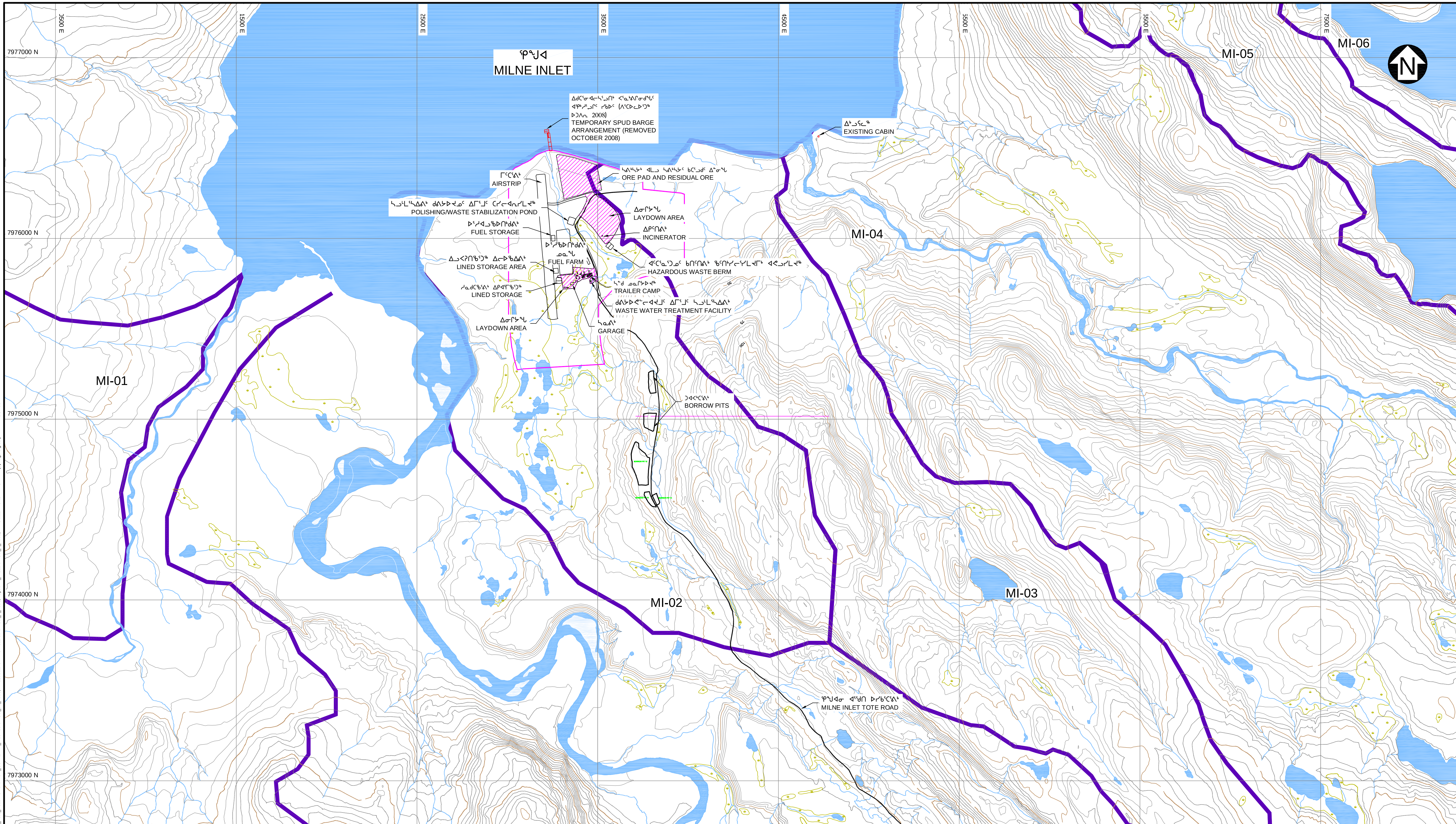
Baffinland Iron Mines Corporation

MARY RIVER PROJECT

MARY RIVER DRILLING AREA
CATCHEMENT AREAS

REV. 1

FIGURE 5.2



LEGEND:

- WATER
- WETLAND
- LAYDOWN AREA
- BAFFINLAND'S COMMERCIAL LEASE ON INUIT OWNED LAND
- RIVER/STREAM/DRAINAGE
- DIRECTION OF SURFACE WATER RUNOFF
- MILNE INLET TOTE ROAD
- ROAD
- ESTIMATED CATCHMENT AREA

CATCHMENT	AREA (km^2)
MI-01	5.27
MI-02	3.59
MI-03	4.11
MI-04	62.32
MI-05	5.61
MI-06	7.96

NOTE(S):

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 5 METRES.
4. CATCHMENT AEAS CALCULATED USING MAPINFO.

SCALE 100 50 0 100 200 300 400 500 m

Baffinland Iron Mines Corporation

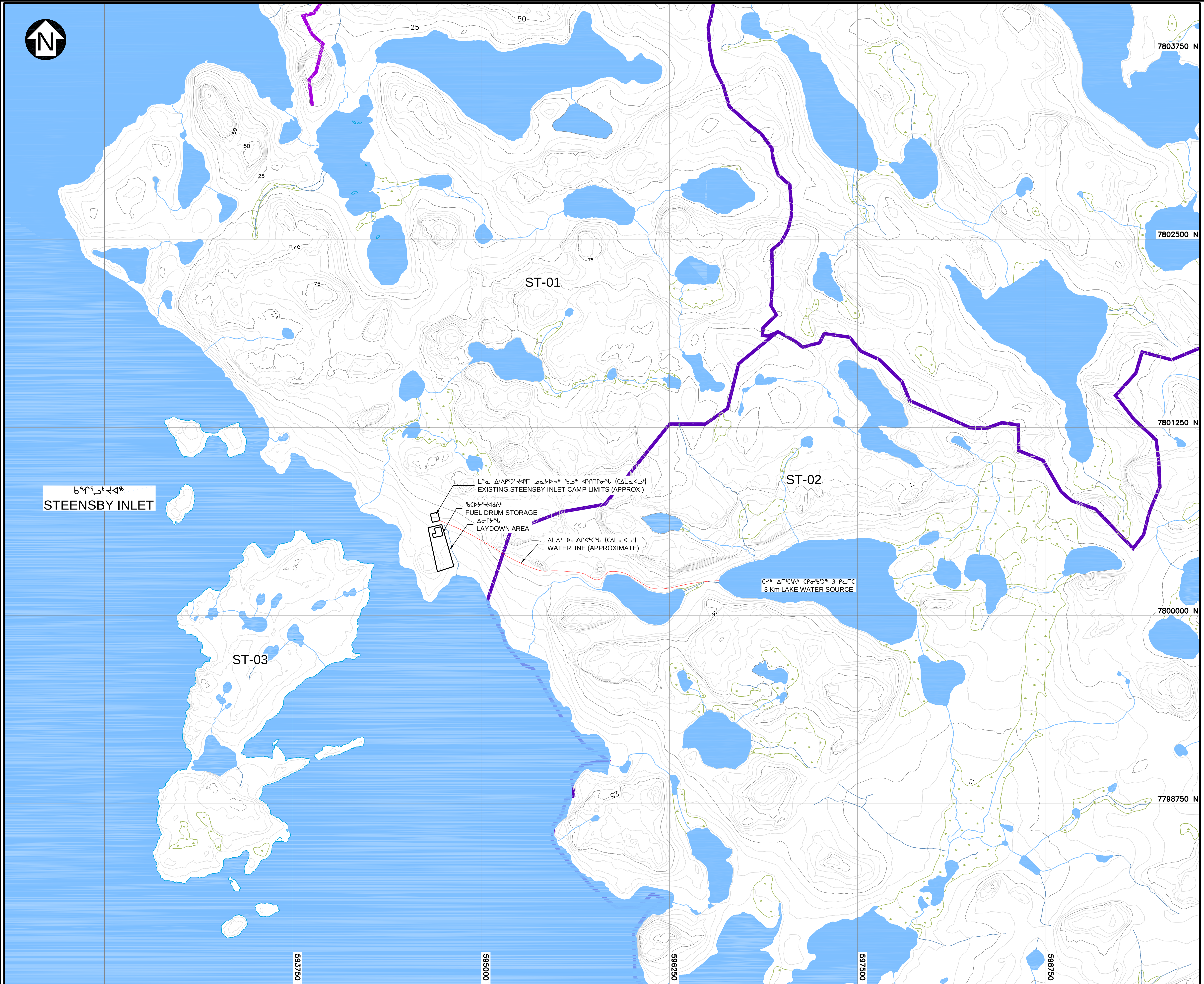
MARY RIVER PROJECT

MILNE INLET AREA
CATCHMENT AREAS

REV. 1

FIGURE 5.3

XREF FILE(S): Contours-5m_Interval-01-Sep_18_2008; Milne_Inlet_Tote_Road-As-Built-From_Genivar-KP_Modified-02-Oct_06_2008; Infrastructure-Milne-Detailed-01-Oct_7_2008; Laydown_Areas-01-Oct_7_2008; milne catchments IMAGE FILE(S): logo-big corp MILNE - OCT 08



LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- WETLAND
- ESTIMATED CATCHMENT AREA
- ST-01 CATCHMENT AREA NAME

CATCHMENT	AREA (km^2)
ST-01	13.68
ST-02	21.77
ST-03	1.99

NOTE(S):

1. COORDINATE GRID IS UTM (NAD83) ZONE 17 AND IS IN METRES.
2. CONTOUR INTERVAL IS 5 METRES.
3. TOPOGRAPHY PROVIDED BY EAGLE MAPPING (2005).
4. CATCHMENT AREAS CALCULATED WITH MAPINFO.

1. UTM (NAD83) Zone 17
2. 5 ᒥᑦ
3. Eagle Mapping (2005)
4. Canarail Consultants Inc
5. Genivar

SCALE 250 12.5 0 250 500 750 1000 1250 m

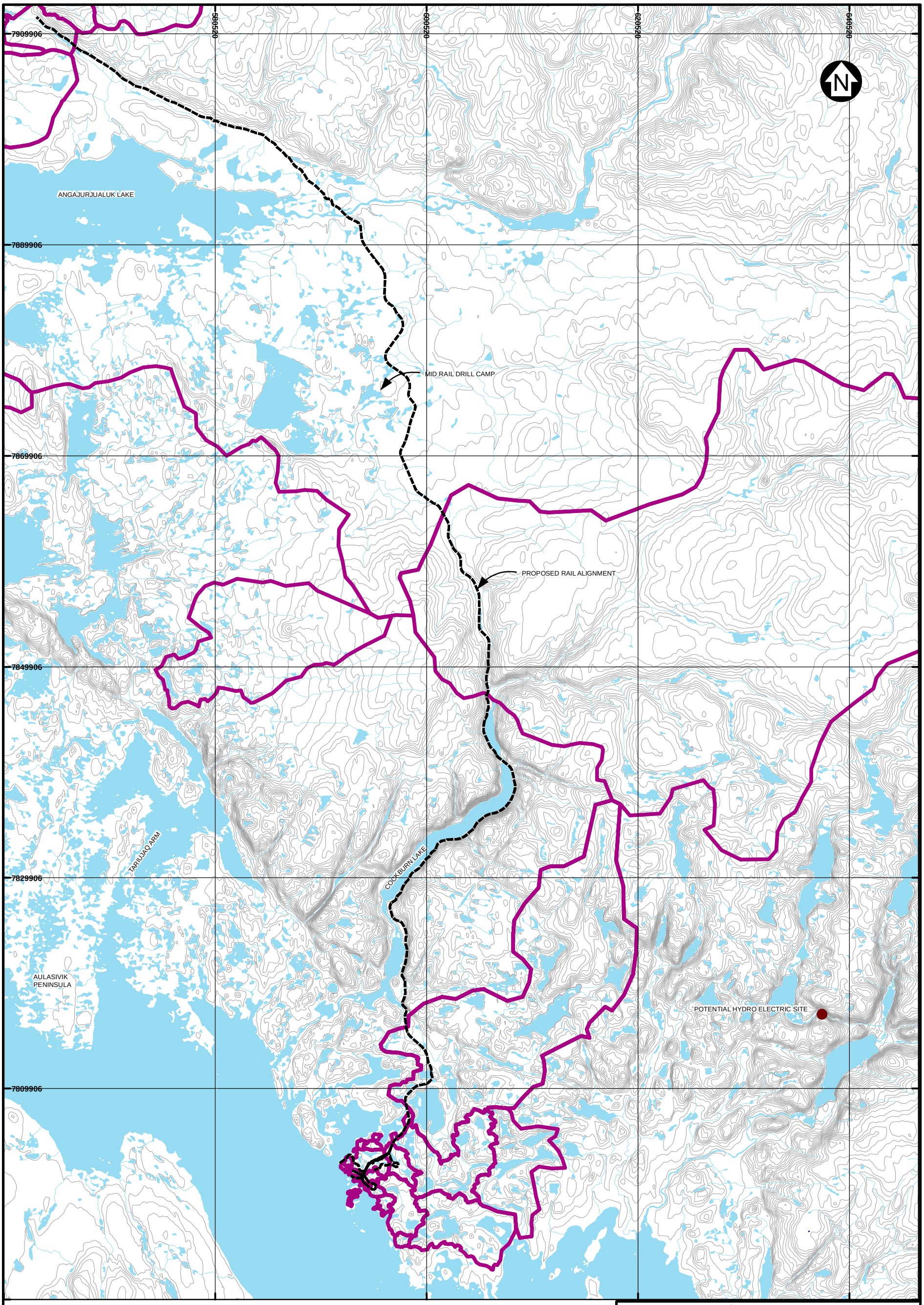
Baffinland Iron Mines Corporation

MARY RIVER PROJECT

STEENSBY INLET AREA CATCHMENT AREAS

REV. 1

FIGURE: 5.4



LEGEND:

- WATER
- RIVER/STREAM/DRAINAGE
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT

NOTES:

1. BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES (2004). ALL RIGHTS RESERVED.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. CONTOUR INVTERVAL IS IN METRES. CONTOUR INTERVAL VARIES.
4. PROPOSED RAIL ALIGNMENT PROVIDED BY CANARAIL JANUARY 2008.

SCALE 2 1 0 2 4 6 8 10 km

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

PROPOSED RAIL ALIGNMENT CATCHMENT AREAS

Knight Piésold CONSULTING

FIGURE 5.5 REV 1

NORTH BAY, ON SAVED: I:\102-00181-15\Assignment\GIS\ArcView\figuresIB28.mxd , PRINTED: 01/04/2009 4:11:59 PM , rjohnson

Milne Inlet
Rock Quarry No. 1
Borrow Source No. 1
0 Km
5 Km
Milne Inlet Camp and Port
1
10 Km
15 Km
20 Km
25 Km
30 Km
35 Km
40 Km
45 Km
50 Km
55 Km
60 Km
Borrow Source No. 2
65 Km
70 Km
75 Km
80 Km
85 Km
90 Km
95 Km
Borrow Source No. 3
100 Km
Mary River Camp
105
109 Km
Rock Quarry No. 2
480000 E
490000 E
500000 E
510000 E
520000 E
530000 E
540000 E
550000 E
560000 E
570000 E
580000 E
7990000 N
7980000 N
7970000 N
7960000 N
7950000 N
7940000 N
7930000 N
7920000 N
7910000 N
7900000 N

LEGEND:

- Water
- Small Catchment
- Medium Catchment
- Large Catchment
- Extra-Large Catchment
- River/Stream/Drainage
- Milne Inlet Tote Road
- Borrow Sources and Rock Quarries

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources (2004). All rights reserved. (Government of Canada, 2006)
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. Contours are in metres. Contour interval varies.
4. Milne Inlet Tote Road surveyed by Knight Piesold (2006).
5. Catchments based on July 2006 inspections.

Scale 0 5 10 Km

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

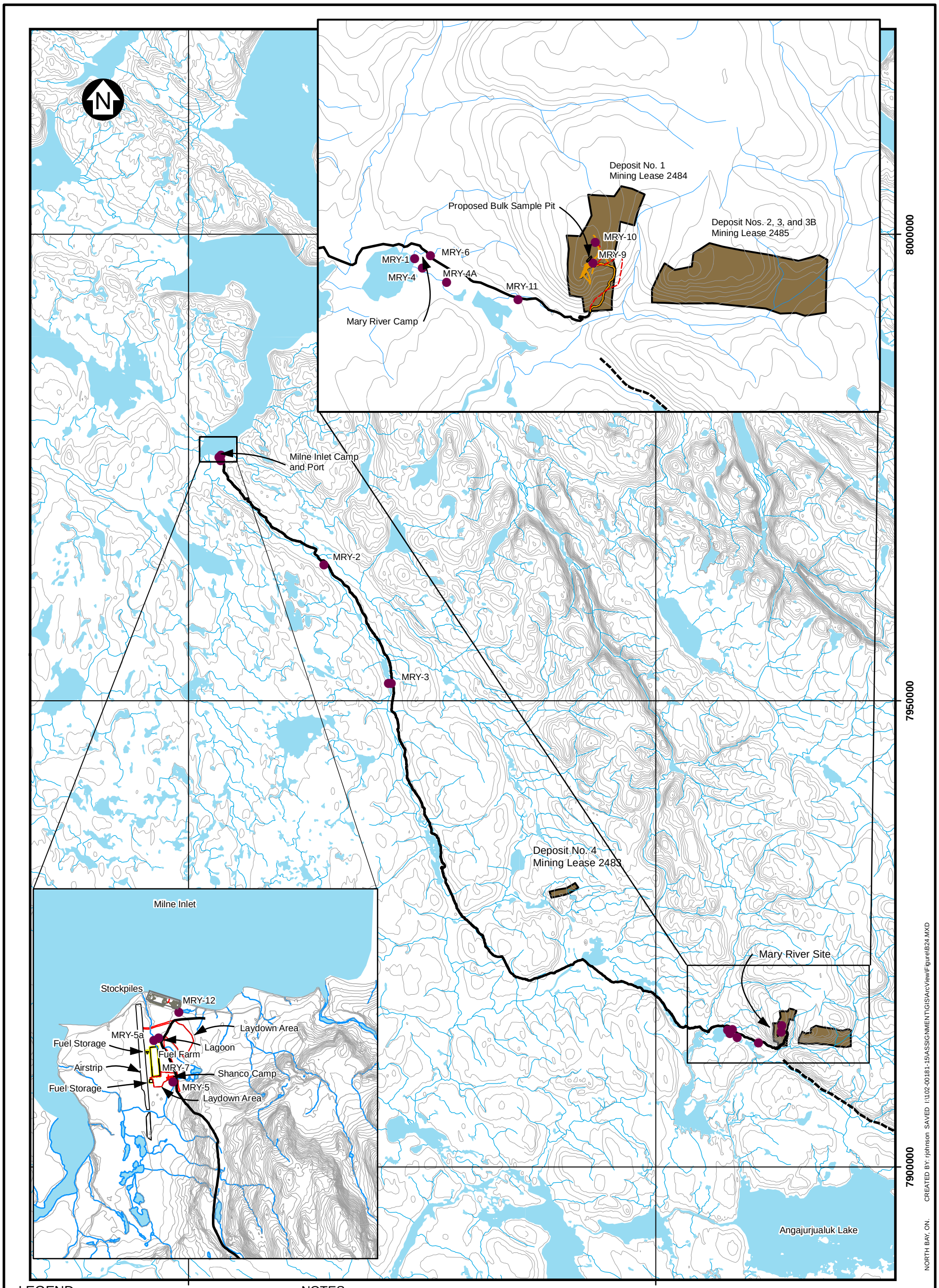
MILNE INLET TOTE ROAD CATCHMENT AREAS

REV. 1

FIGURE 5.6

CREATED BY: rjohnson SAVED: I:\102-00181-15\ASSIGNMENT\GIS\MAP\NFO\FIG\B01.wor8/06 9:32 AM PRINTED: 10/05/06 9:40 AM, rjohnson

NORTH BAY, ON.



LEGEND:

- Water
- Mineral Lease Boundary
- River/Stream/Drainage
- Milne Inlet Tote Road
- Proposed Rail Alignment
- Existing Trails for Drills
- Proposed Pit/Stockpile Road
- Water Licence Monitoring Location

NOTES:

1. Base Map: © Her Majesty the Queen in Rights of Canada, Department of Natural Resources, (2004). All rights reserved.
2. Coordinate grid is shown in UTM (NAD83) Zone 17 and is in metres.
3. Contours are in metres. Contour interval varies.
4. Proposed Rail Alignment provided by Canarail Consultants Inc.
5. Infrastructure, and water licence, monitoring locations provided by Baffinland.
6. Infrastructure at Milne Inlet and mary River not shown for clarity.

Baffinland Iron Mines Corporation

MARY RIVER PROJECT

SURFACE WATER SAMPLING LOCATIONS

Knight Piésold CONSULTING

REV. 1

FIGURE 6.1

NORTH BAY, ON. CREATED BY: rjohnson SAVED I:\102-00181-15\ASSIGNMENT\GIS\ArcView\Figure\B24.MXD