Baffinland Iron Mines Corporation

BORROW PIT AND QUARRY MANAGEMENT PLAN

BAF-PH1-830-P16-0004

Rev 0

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DOCUMENT REVISION RECORD

Issue Date MM/DD/YY	Revision	Prepared By	Approved By	Issue Purpose
03/17/2014	0	TW	MA	Issued for Use
03/19/2014		TW	MA	

Revision History

Revision No.	Section	Revision Date	Changes	Approval
0	Document Wide	March 10, 2014	Document H349000-1000-07-126-0011 (previously H337697-7000-07-126-0006) has been superseded by BAF-PH1-830-P16-0004.) Revision succession has been kept for continuity.	T. Mackay
0	Document Wide	March 10, 2014	Quarry/Blasting activities will not occur within 31m of fish bearing streams, as opposed to 100m as previously stated. Due to requirements in Type A Water Licence, 2AM-MRY1325.	J. Millard
0	Document Wide	March 10, 2014	Updated to address work to be completed in 2014.	J. Millard
0	Section 4	March 10, 2014	Project organization chart and structure updated.	J. Millard
0	Section 8	March 10, 2014	Reference drawings updated (Appendix E).	J. Millard
0	Appendix's	March 10, 2014	Appendix ordering adjusted for relevance to viewers.	J. Millard
D	Appendix B	March 06, 2013	Protocol for the Assessment for the Potential for Acid Rock Drainage updated. (Appendix B)	J. Millard
D	Appendix C	March 06, 2013	Addition of Blasting Management Framework (Appendix C).	J. Millard
0	Appendix D	March 10, 2014	Addition of Borrow Source Approach (Appendix D). Previously Borrow Source Management Plan (H349000-1000-07-126-0015)	J. Millard
0	Appendix E	March 10, 2014	Concordance Table with Type A Water Licence and Project Certificate Conditions	J. Millard

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1 INTRODUCTION

1.1 PURPOSE AND APPROACH

The purpose of this, the overarching Borrow Pit and Quarry Management Plan, is to set out the objectives and measures to maintain and enhance environmental performance of the quarries while avoiding to the extent practical, remedying, and mitigating any potential adverse environmental effects associated with quarrying.

The goal of this Management Plan is to provide regulators with a selection of quarry operations necessary for the Mary River Project.

Although the terrain differs over the project study area, it should be noted that the actual quarry management strategy will remain relatively constant. All quarries will be blast/crush type of operations, with an attempt to minimize the creation of depressions that would permanently alter water regimes. All quarries will avoid, as much as is practical, sensitive areas and features. All quarries will be relatively free of soils piles, due to the limited soil overburden throughout the area. All borrow pits will be accessed by mechanical removal of material or, when the ground is frozen controlled blasting to loosen the unconsolidated material.

FIGURE E-1 and FIGURE E-2 in Appendix E shows the location of all quarries under consideration for the Mary River Project, and TABLE E-1, TABLE E-2 and TABLE E-3 in Appendix E summarizes the quarry yields (where available). Each quarry, under the Nunavut Impact Review Board (NIRB) Project Certificate #005, the Nunavut Water Board (NWB) Type A Water licence, 2AM-MRY1325, and the Qikiqtani Inuit Association (QIA) Commercial Lease, QC13C301, require their own individual quarry or borrow pit management plan. These individual plans will be the most up to date information on the quarry yields.

1.2 REGULATORY REQUIREMENTS

The guidelines provided by the Nunavut Impact Review Board (NIRB) and Indian and Northern Affairs Canada (INAC) with regards to a Quarrying Permit Application state:

A Quarry Operations Plan is required with (this) application and must be approved by a Land Use Inspector prior to approval and issuance of the quarry permits if:

1. The volume being applied for is greater than 1,000 m^3 and/or
2. The quarry site is being operated by multiple users

The proposed quarries for the Mary River Project are likely to exceed the volume threshold of 1,000 m^3, and a plan is required. This plan should be used in conjunction with this, the Borrow Pit and Quarry Management Plan, and other plans referred to in this document.

This Quarry Management Plan is required under Section 1 and 19 of Schedule B of the Commercial Lease, No. Q13C301, agreed between Baffinland Iron Mines Corporation and the Qikiqtani Inuit Association. It also is a requirement under the Type A Water Licence 2AM-MRY1325 (Part D item 6a) for the purposes of Construction activities. In the event the Project does not advance, the quarries will be subject to reclamation, as per relevant regulatory and permit obligations.

1.3 BAFFINLAND'S COMMITMENTS

Baffinland provides adequate resources to implement and maintain the Environmental, Health, and Safety (EHS) Management System including the necessary human, material and financial resources.

Baffinland's 2011 Sustainable Development Policy and Health and Safety Policy are included in Appendix A.

1.4 APPLICATION OF THIS MANAGEMENT PLAN

Aggregate requirements for the Mary River Project are described elsewhere in this document and will be supplied by the quarry and borrow sites located at Milne Inlet, along the Tote Road, Mary River, Steensby Inlet, and along the railway corridor. Volume 3, Section 2.1.6 of the FEIS describes the overall strategy for sourcing aggregate. The following summarizes the sources and applications.

Aggregate will be used during construction activities at the Mary River Mine Site, Milne Port Site, and the Steensby Port site as both general fill and structural fill for activities such as site grading for airstrips, laydown areas, backfill, foundations for fuel storage, camp expansion, local roads and administration and maintenance facilities, and heavy equipment storage. The aggregate will be obtained from borrow sources located within the PDA and pit overburden and rock quarries at various locations. Aggregate will also be required for ongoing maintenance of roads and the airstrip at Milne Port, the Mine Site and Steensby Port.

Development of a number of quarries along the railway corridor will be necessary for the construction of the rail bed, and the temporary access road. These quarries will be developed as the construction of the rail line progresses, and will be sequenced on an "as needed" basis.

Results of geochemical testing conducted to date for acid rock drainage and metal leaching indicate that quarry materials that have been targeted generally have low potential for acid generation (ARD) and metals leaching (See FEIS Volume 6, Appendix 6 B 2). Based on the results of studies to date, the individual quarry sites are being assessed for potential ARD/ML on a case by case basis.

This overarching Borrow Pit and Quarry Management Plan will be updated to reflect situations related to incident investigations, regulatory changes, or other Project-related changes. Specifics related to an individual quarry or borrow pit are found in the site specific quarry or borrow pit management plan.

1.5 RELATIONSHIP TO OTHER MANAGEMENT PLANS

This plan should be viewed in concert with the following additional management plans:

- Emergency Response and Spill Contingency Plans.
- Environmental Protection Plan.
- Surface Water and Aquatic Ecosystems Management Plan.
- Fresh Water Supply, Sewage and Wastewater Management Plan.
- Explosives Management Plan.
- Interim Mine Closure and Reclamation Plan.
- Site specific Quarry and Borrow Source Management Plans for individual quarries.

In addition, completed management plans as described in the FEIS should be consulted if other details are required.

2 TARGETED VALUED ECOSYSTEM COMPONENTS

Valued Ecosystem Components (VECs) were established in the studies and evaluations related to the FEIS. For the construction work, targeted VECs for the Borrow Pit and Quarry Management Plan are:

1. Health and safety (compliance with Baffinland's Health and Safety Management Plan).
2. Surface water quality.
3. Air quality, noise, and vibration.
4. Terrestrial wildlife.

3 MITIGATION MEASURES

3.1 PLANNING AND DESIGN

Potential borrow pit and quarry sites have been identified for each area of the construction works for the Project. These sites are located in the footprint of Project facilities.

Volume 10, Appendix 10-D-6 of the FEIS provides further location information and includes quarry boundaries, distances from fish bearing streams (31-m setback), presence of bird-nesting areas, and potential tonnage.

The Type A Water Licence (2AM-MRY1325) requirement for a 31 m setback from fish bearing streams will ensure minimal adverse impacts of the pit/quarry operation on surface water quality. Any permanent quarries with the potential for acid rock drainage or metal leaching require a minimum 100 m naturally vegetated buffer from fish bearing water bodies. (NIRB Project Certificate 005, Condition #41). A similar setback of 100m is required from known bird-nesting locations.

An important aspect of planning is to assess suitability of quarry material. Baffinland will avoid using quarry material that has the potential for generating Acid Rock Drainage (ARD). Geotechnical investigations have been carried out at the proposed sites, and ARD sources are being avoided. A Protocol for the Assessment for the Potential for Acid Rock Drainage is attached to this Plan (Appendix B).

3.2 ENVIRONMENTAL CONCERNS AND MITIGATION TECHNIQUES

Environmental concerns for all Project works, including the quarries and borrow areas, are presented in Volume 6 to 8 of the FEIS. TABLE 3-1 below presents a summary of environmental concerns and mitigation techniques associated with development of borrow pits and quarries.

TABLE 3-1: PIT AND QUARRY ENVIRONMENTAL CONCERNS AND MITIGATION TECHNIQUES

DEVELOPMENT PHASE	ACTIVITIES	ENVIRONMENTAL CONCERNS	POSSIBLE MITIGATION TECHNIQUES
Site design and development	• Timber and vegetation clearing • Overburden removal	• Habitat loss • Soil erosion • Sediment deposition	• Minimize project footprint • Identify and avoid environmentally sensitive areas • Locate the development in a well- drained area • Maintain natural drainage patterns • Retain vegetation buffer zones to maintain slope stability and protect water bodies • Construct ditches to direct runoff away from the site • Salvage and properly store organics, topsoil and overburden for use during reclamation
Operations and monitoring	• Blasting • Excavating • Crushing • Piling material • Access road maintenance	• Soil erosion • Sediment deposition	• Limit sediment movement using erosion controls (e.g. silt fence) • Use rip-rap to reinforce drainage channel corners and water discharge points • Use settling ponds before discharging water • Revegetate where required to stabilize slopes
		• Fuel spills • Blasting residue	• Use proper fuel containment and explosives-handling techniques
		• Permafrost degradation	• Limit pit or quarry depth to the active layer • Minimize in-pit water by directing surface water away from the site • Thaw ice-rich material at a location where meltwater will not re-enter the pit
		• Dust generation	• Use water and dust skirts on conveyors to minimize dust

Source: Northern Land Use Guidelines, Pits and Quarries, INAC 2010

3.3 DEVELOPMENT PLANS OF BORROW PIT AND QUARRY

A detailed development plan will be prepared before starting extraction of material from each borrow pit or quarry. Site development plans will augment this operations plan with specific details. These development plans will include:

- Site layout and boundaries with the following provisions:
  - Minimum setback of 31m from fish bearing streams.
  - Minimum setback of 31m to the ordinary High Water Mark (HWM) of any water body, unless otherwise approved by NWB in writing.
  - Adequate room for all activities.
  - Estimates of the resources to be extracted.
  - Refuelling station with appropriate containment (if required).

- Dust and noise consideration.
- Waste management.
- Water management structures.
- Sequence of operation.
- Site operating procedures.
- Spill response procedures.

- Monitoring:
  - Pit wall stability (for quarry).
  - Extent of permafrost or ground-ice.
  - Wildlife interactions or sightings.
  - Contingencies if changes to the original development scenario are required.

- Reclamation:
  - Overburden replacement for site grading and re-contouring.
  - Reclamation of natural drainage.
  - Slope reconstruction.
  - Removal of all garbage and debris.
  - Removal of all temporary storages/structures/equipment.
  - Reclamation of access road and block access (if required).
  - Replacement of all salvaged topsoil (if required).

3.4 WATER MANAGEMENT

Site development must ensure positive drainage to prevent water pooling or flooding of the pit. The following measures will be implemented to enhance re-establishment of equilibrium and minimization of erosion, water ponding and permafrost degradation:

- Where possible, excavations will be minimized by utilizing above grade sources for material (hills and swales), which will minimize water collection and drainage disruption.
- No excavations and/or removal of material from any Quarry or borrow source beyond a depth of one (1) meter above the ordinary High Water Mark or above the groundwater table, to prevent the potential contamination of groundwater, unless otherwise approved by the Nunavut Water Board in writing .
- Cut and fill areas will be stabilized by constructing gentle slopes less prone to erosion.
- The side slopes of the borrow pits will be 1H:1V to 2H:1V, slightly gentler than natural slopes to reduce erosion.

- In low-lying areas where roadbed fill is in the order of 1 m and permafrost can be expected to rise to a meaningful degree, swales or culverts will be installed as part of road maintenance to prevent water ponding.
- At closure, swales will be left in place, or alternatively, the road bed will be breached to allow drainage.
- Borrow areas will be designed to concentrate the area of disturbance.
- Thawed layers will be removed sequentially.
- Areas of unexpected settlement will be filled to re-establish natural contours and eliminate water ponding.
- Borrow locations will be regularly inspected and unstable slopes regraded to eliminate depressions and re-establish natural drainage patterns.

3.5 RESOURCE EXTRACTION

Extraction methods will depend on the nature of the material, equipment used, and extent and nature of the permafrost.

In general efforts will be made to minimize excavation of pits and quarries below the water table. If excavated material contains ground-ice, the material will be stored at a location in the pit where it can thaw and drain. Melt water from such stockpiles must be treated for sediment control (see Appendix 10D-2, Surface Water and Aquatic Ecosystems Management Plan).

Machinery and equipment used on the site will be serviced on a routine maintenance schedule to ensure proper operation and thus minimize emissions and noise.

If fuel storage is required, fuel tanks must be double-walled and placed within a containment berm. A well-stocked spill response kit must be placed in the refuelling area. Vehicles must be equipped with spill response kits and drip trays. Used oil and fuel must not be stored at the pit/quarry sites.

The spill contingency plan outlines the logical order of how operators should respond to spills, resources available onsite for spill response, and notification procedures.

3.6 CLOSURE

The abandonment of the Project works and site reclamation for the quarries and borrow pits will be undertaken at or before the close of the Project. The works will be integrated into the overall Project Abandonment and Reclamation Plan, although separate closure plans for each quarry and borrow pit will be required prior to closing each facility. Closure of the Project will involve removing construction materials, equipment and infrastructure and reclaiming the site to a self-sustaining productive ecosystem near its original condition.

In addition to the measures described in Section 3.1 to Section 3.5 above, the general abandonment and reclamation plans include the following:

- Dismantle and transport all fuel/chemical storage and handling infrastructure to an approved facility or for reuse where applicable.
- Dismantle and remove all buildings and related infrastructure.
  - Any remaining concrete piles will be cut to below grade and covered with overburden.
- Dismantle water and sewage treatment plants for re-use or disposal at an approved facility.
- Remove all hazardous waste and explosives.
- Regrade as necessary to establish safe slopes and restore the natural drainage to the area.
- Test soils and granular materials for hydrocarbon content; contaminated soils will be remediated.

4 ENVIRONMENTAL RESPONSIBILITIES

4.1 ROLES AND RESPONSIBILITIES

The Baffinland Environmental Team is organised into two parts, on site as well as off site. The organisational structure for the Mary River Project in relation to the environment discipline is shown in the TABLE 4-1 below. Communication channels are described as liaisons in the tables outlining the responsibilities and accountabilities in the following sections.

4.1.1 ENVIRONMENTAL PROJECT TEAM

4.1.1.1 THE BAFFINLAND ENVIRONMENTAL TEAM

The Baffinland Environmental Team will oversee all environmental and community works on and off site. The Baffinland Corporate Environmental Team responsibilities are summarized in TABLE 4-1.

TABLE 4-1: BAFFINLAND IRON MINES CORPORATION SENIOR MANAGEMENT

Baffinland Iron Mines Corporation Senior Management	
Position	**Responsibilities and Accountabilities**
VP Operations	- Reports to Baffinland's CEO - Overall accountability for the operation of the Project - Allocation of resources (human and financial) for the implementation of Baffinland's commitments and objectives related to health, safety and environment during operation - Accountable for on-site environmental, health and safety performance during operation.
VP Sustainable Development, Health, Safety and Environment	- Reports to Baffinland's CEO - Establish corporate environmental policies and objectives - Monitors and reports on Baffinland's performance related to environmental, health and safety policies and objectives - Liaise with regulatory authorities - Obtains necessary permits and authorizations - Monitors compliance with terms and conditions of permits and licences - Routine EHS audit of contractor performance while on site.
Manager Purchasing and Contract	- Reports to Baffinland's VP Operations - Accountable for procurement and purchasing - Ensure that environmental commitments, policies and objectives are included in all contract documents.
VP Corporate and Government Affairs	- Reports to Baffinland's CEO - Accountable for external communication (Governments, media, NGO, others) related to Baffinland's press release and overall communication of site incidents/events - Community liaisons report to position.

The Baffinland Environmental Team will oversee all environmental activities on site. These responsibilities on site are outlined in TABLE 4-2.

TABLE 4-2: BAFFINLAND IRON MINES CORPORATION ON-SITE MANAGEMENT TEAM

Baffinland Iron Mines Corporation On-Site Management Team	
Position	**Responsibilities and Accountabilities**
Environmental Manager	- Reports to VP Sustainable Development, Health, Safety and Environment - Liaises with the VP Operations, any Construction Managers and the Emergency Response Team - Monitors environmental performance of contractors on site - Monitors compliance with permits, licenses and authorizations - Regulatory environmental monitoring and reporting (monthly, annual) - Routine audit of contractor's environmental performance on-site - Initiate/supervise environmental studies - Investigate and reports on accidents and incidents when they occur - Liaises with regulatory inspectors - Review and update environmental management plans.
Environmental Superintendent	- Reports to Environmental Manager - Specific accountabilities for environmental monitoring and reporting - Assists in providing induction and environmental awareness information to trainers who conduct orientations to new employees and contract workers.
Environmental Coordinators and Technicians	- Reports to the Environmental Superintendent - Environmental database management - Various sampling, monitoring and reporting activities as required by permits, licenses and environmental management plans - Prepare updates to environmental protection plan and management plans.
Environmental Monitors	- Reports to the Environmental Superintendent - Conduct monitoring activities as per the Environmental Management Plans
QIA Monitors	- Various monitoring and follow up activities - Role defined in the IIBA agreement - Liaises with QIA and attends applicable meetings.

4.1.2 MARY RIVER PROJECT ORGANIZATIONAL CHARTS

For further information regarding the Mary River Projects organizational structure in relation to the environment discipline, please refer to the FIGURE 4-1 Organization Chart below:

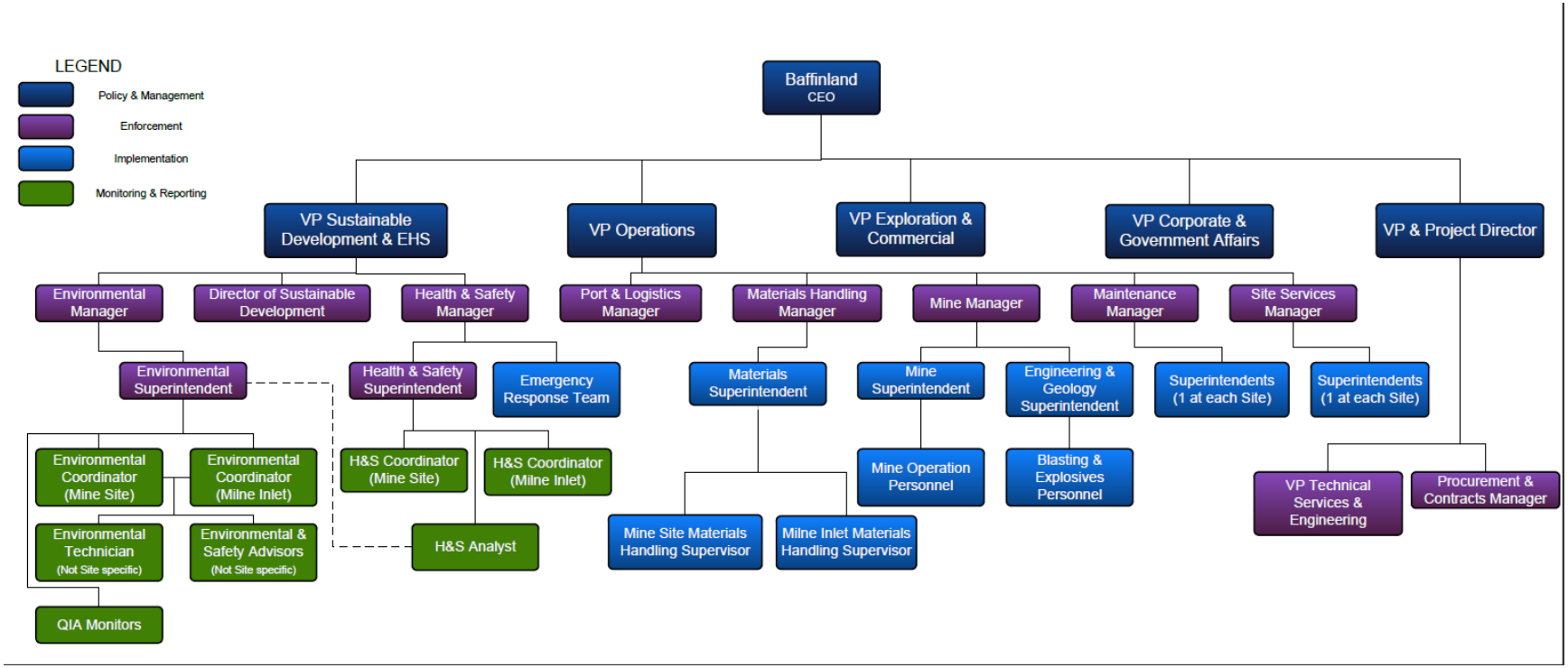

FIGURE 4-1: ORGANIZATIONAL CHART

4.2 TRAINING AND AWARENESS

Staff and sub-contractors working on site will receive environmental training as part of the Site Orientation, to achieve a basic level of environmental awareness understanding of their obligations regarding compliance with regulatory requirements, commitments and best practices.

Operations superintendents and contractor supervisors will be provided with this Management Plan, and will receive additional orientation with respect to the requirements outlined in this Plan. In addition, all supervising level staff and sub-contractors will be provided with the Operational Standards (found in the Environmental Protection Plan) as a written guidance for their work.

Targeted environmental awareness training will be provided to both individuals and groups of workers assuming a specific authority or responsibility for environmental management or those undertaking an activity with an elevated high risk of environmental impact. These will be delivered in the form of toolbox/tailgate meetings or other means as appropriate.

The content of the environmental component of the site induction will include at a minimum:

a. Location of environmental sensitivities.

b. Location of additional information on environmental matters.

c. Due diligence responsibilities.

d. Responsibilities related to waste management, minimizing noise as necessary, road traffic rules, etc.

e. Principles and necessary steps to avoid encounters with bears or other wildlife and what to do if one such encounter occurs.

4.3 COMMUNICATION

The types of communications for which members of the team will participate include the following:

a. Formal written correspondence and meetings with stakeholders.

b. Site visits by community representatives.

c. Design, construction and planning meetings.

d. Field inspections and monitoring reports disseminated by the Environmental Manager.

e. Electronic communications.

f. Tailgate/toolbox meetings.

g. Formal written correspondence and meetings with government regulatory bodies.

h. Formal environmental awareness training.

Communications will be appropriately recorded and filed for future reference. Where appropriate, the copies of communications will be forwarded to the Operations Manager(s), and Environmental Manager.

4.4 EXTERNAL COMMUNICATIONS

Effective forms of communication include the proactive notification to external stakeholders of Project activity. Project activity updates will be provided to the communities of North Baffin through various means including regular meetings, public notices and radio announcements as appropriate. Baffinland will maintain Community Liaison Offices to assist in this regard.

4.5 CONSTRUCTION

During the construction phase of the Project, the Baffinland Operations Manager will be responsible for implementing this Plan. This Management Plan will be updated when required, to take into account any significant information change during construction and operation of the quarries and borrow sources.

4.6 OPERATION AND CLOSURE

For the operations and closure phases, Baffinland will revise its organizational structure to reflect the realities of the operation. As appropriate, the Operational Manager will be responsible for subsequent updates and implementation of the Plan.

5 PERFORMANCE INDICATORS AND THRESHOLDS

The performance indicators for the borrow pit/quarry are visual and depend on regular inspection and maintenance of the borrow pit/quarry site. These indicators are:

- Site safety and security.
- General site condition and “housekeeping”.
- Positive drainage and absence of water pooling/ponding on the pit/quarry site.
- Ground/slope stability.
- Adherence to Blasting Management Framework (Appendix C) and Protocol for the Assessment for the Potential for Acid Rock Drainage (Appendix B).

6 MONITORING AND REPORTING REQUIREMENTS

Operation of the borrow pits and quarries must be monitored to ensure they are proceeding according to the Borrow Pit and Quarry Management Plan and remain in compliance with regulations and land-use permits. Monitoring focuses on:

- Regular inspection of site-preparation measures:
  - Site safety and security.
  - Site maintenance and general housekeeping conditions.
- Regular inspection of drainage and water management structures and assessment of their effectiveness.
- Determining if the granular resource material is still suitable for end-use.
- Establishing how much ground-ice is present in the material and behaviour and volume loss of the material as thawing occurs.
- Inspecting records of wildlife interactions and sightings.
- Reporting quantities of material extracted.

Site monitoring is required for several years after closure to assess whether reclamation objectives have been met. Post-closure monitoring requirements will be specified in the land-use permits.

Monitoring results will be summarized in annual reports for the Project.

6.1 WATER MONITORING

When a quarry is in operation and until reclamation objectives for water quality have been met, the following monitoring is required (as per NWB Type A Water Licence, 2AM-MRY1325):

- Where water flow may directly or indirectly enter into a water body, from Quarry activities for the Project, shall be sampled Weekly and not exceed the Effluent quality limits as per TABLE 6-1 below.
- The Licensee shall monitor runoff and/or discharge from borrow pits and rock Quarry sites, on a monthly basis, for the following parameters:
  - Total Suspend Solid (TSS)
  - Oil and Grease
  - Ammonia (total NH3-N)
  - Nitrate (total NO3-N)
  - pH
  - Conductivity; and
  - Demonstrate to be non-acutely toxic.

TABLE 6-1: EFFLUENT QUALITY LIMITS FOR SURFACE RUNOFF DURING CONSTRUCTION

Parameter	Maximum average concentration (mg/L)	Maximum concentration of any grab sample (mg/L)
Total Suspended Solids	50	100
Oil and Grease	No Visible Sheen	No Visible Sheen
pH	Between 6.0 and 9.5	Between 6.0 and 9.5

Source: NWB Type A Water Licence (2AM-MRY1325), Table 1

The monitoring protocols are further explained in the Surface Water and Aquatic Ecosystems Management Plan.

7 ADAPTIVE STRATEGIES

Baffinland is committed to continuous improvement in its work activities with the aim of reducing risks to the environment and improving operational effectiveness. All development activities will be subject to this approach. All works will need to fit seamlessly into the overall Project plans. The strategy at Baffinland is regular monitoring supported by operational change and adoption of other mitigation measures if warranted.

As per the requirements of Baffinland's EHS Management Framework, the company will conduct and document regular management reviews of its Borrow Pit and Quarry Management Plan. Such reviews will ensure monitoring results for the Borrow Pit and Quarry Management Plan are integrated with other aspects of the Project and that necessary adjustments are implemented as required. These reviews also provide a formal mechanism to assess effectiveness of management in achieving company objectives and maintaining ongoing compliance with Project permits and authorizations references.

8 REFERENCES

1. Northern Land Use Guidelines, Pits and Quarries, INAC 2010.
2. Nunavut Water Board, Type A Water Licence 2AM-MRY1325, June 10, 2013

Appendix A -
Baffinland's Sustainable Development Policy and Health, Safety and Environment Policy

A.1 SUSTAINABLE DEVELOPMENT POLICY

At Baffinland Iron Mines Corporation, we are committed to conducting all aspects of our business in accordance with the principles of sustainable corporate responsibility and always with the needs of future generations in mind. Everything we do is underpinned by our responsibility to protect the environment, to operate safely and fiscally responsibly and to create authentic relationships. We expect each and every employee, contractor, and visitor to demonstrate a personal commitment to this policy through their actions. We will communicate the Sustainable Corporate Policy to the public, all employees and contractors and it will be reviewed and revised as necessary on an annual basis. These four pillars form the foundation of our corporate responsibility strategy:

1.0 HEALTH AND SAFETY

- We strive to achieve the safest workplace for our employees and contractors; free from occupational injury and illness from the very earliest of planning stages. Why? Because our people are our greatest asset. Nothing is as important as their health and safety.
- We report, manage and learn from injuries, illnesses and high potential incidents to foster a workplace culture focused on safety and the prevention of incidents.
- We foster and maintain a positive culture of shared responsibility based on participation, behaviour and awareness. We allow our workers and contractors the right to stop any work if and when they see something that is not safe.

2.0 ENVIRONMENT

- We employ a balance of the best scientific and traditional Inuit knowledge to safeguard the environment.
- We apply the principles of pollution prevention and continuous improvement to minimize ecosystem impacts, and facilitate biodiversity conservation.
- We continuously seek to use energy, raw materials and natural resources more efficiently and effectively. We strive to develop pioneering new processes and more sustainable practices.
- We understand the importance of closure planning. We ensure that an effective closure strategy is in place at all stages of project development and that progressive reclamation is undertaken as early as possible to reduce potential long-term environmental and community impacts.

3.0 INVESTING IN OUR COMMUNITIES AND PEOPLE

- We respect human rights and the dignity of others. We honour and respect the unique culture, values and traditions of the Inuit people.
- We contribute to the social, cultural and economic development of sustainable communities adjacent to our operations.
- We honour our commitments by being sensitive to local needs and priorities through engagement with local communities, governments, employees and the public. We work in active partnership to create a shared understanding of relevant social, economic and environmental issues, and take their views into consideration when making decisions.

4.0 TRANSPARENT GOVERNANCE

- We will take steps to understand, evaluate and manage risks on a continuing basis, including those that impact the environment, employees, contractors, local communities, customers and shareholders.
- We ensure that adequate resources are available and that systems are in place to implement risk-based management systems, including defined standards and objectives for continuous improvement.
- We measure and review performance with respect to our environmental, safety, health, socio-economic commitments and set annual targets and objectives.
- We conduct all activities in compliance with the highest applicable legal requirements and internal standards
- We strive to employ our shareholder's capital effectively and efficiently. We demonstrate honesty and integrity by applying the highest standards of ethical conduct.

Tom Paddon
President and Chief Executive Officer
September 2011

A.2 Mary River Project Health, Safety and Environment Policy

Baffinland
Iron Mines Corporation

Mary River Project
Health, Safety and Environment Policy

The Baffinland Iron Mines Corporation (BIMC) Mary River Project Health, Safety and Environment Policy is a statement of our commitment to achieving a safe, healthy and environmentally responsible workplace. We will not compromise this policy for the achievement of any other organizational goal.

The Mary River Project implements this Policy through the following commitments:

- Continual improvement of safety, occupational health and environmental performance.
- Meeting or exceeding the requirements of regulations and company policies.
- Integrating sustainable development principles into our decision-making processes.
- Maintaining an effective Health, Safety and Environment Management System.
- Sharing and adopting improved technologies and best practices to prevent injuries, occupational illnesses and environmental impacts.
- Engaging stakeholders through open and transparent communication.
- Efficiently using resources, and practicing responsible minimization, reuse, recycling and disposal of waste.
- Rehabilitation of disturbed lands to a safe, acceptable, and localized state.

Our commitment to provide the leadership and action necessary to accomplish this policy is exemplified by the following principles:

- All injuries, occupational illnesses and environmental impacts can be prevented.
- Employee involvement and active contribution is essential and required.
- Management is responsible for preventing injuries, occupational illnesses and environmental impacts.
- Working in a manner that is healthy, safe and environmentally sound is a condition of employment.
- All operating exposures can be safeguarded.
- Training employees to work in a manner that is healthy, safe and environmentally sound is essential.
- Prevention of personal injuries, occupational illnesses and environmental impacts is good business.
- Respect for the communities in which we operate is the basis for productive relationships.

We have a responsibility to provide a safe workplace and utilize systems of work to meet this goal. All employees must be clear in understanding the personal responsibilities and accountabilities in relation to the tasks we undertake.

The Mary River Project has no higher priority than the health and safety of all people working on our behalf and the responsible management of the environment. In ensuring our overall profitability and business success every Baffinland and business partner employee working at one of our work sites is required to adhere to this policy.

Tom Paddon
President and Chief Executive Officer
March 2013

Appendix B -
Protocol for the Assessment for the Potential for Acid Rock Drainage

B.1 Introduction

During the life of the Project, quarries will be developed along the Milne Inlet Tote Road and Rail Alignment for the production of aggregate for applications such as the construction of laydown areas, embankments for roads and railway, surfacing materials, retention ponds, culvert installations, rip rap, and other uses. Rock materials everywhere have the potential for Acid Rock Drainage (ARD) and Metal Leaching (ML). However, screening level geochemical studies to date[1,2], indicate that there is a low potential of ARD/ML for rock materials located at prospective quarry sites along the Milne Inlet Tote Road and Rail Alignment.

To mitigate against risk, potential quarry sites have already been identified in excess of what is expected to be required to allow flexibility and choice as both geomaterial and geochemical characterization of quarry sites proceeds in advance of construction. Further, the following protocol has been developed to assess the potential for ARD/ML on a site specific basis to ensure that materials for construction aggregate meet acceptable geochemical requirements. In particular, the work will use industry standard methods and guidance[3] to confirm that aggregate materials used will have a low potential for ARD/ML. Professional engineers or geoscientists will be engaged to conduct the quarry geochemical assessments and will ensure that the evaluation reasonably represents the conditions within the currently proposed quarry development areas.

B.2 General Approach for ML/ARD Predictive Assessment at Quarry Sites

The following summarizes the general project approach for ML/ARD assessment at proposed quarry sites; the initial assessment of potential quarry sites will consist of the following steps:

- Review existing geological information and data (surface geological maps, borehole logs and any available test results) applicable to the site.
- Conduct site reconnaissance including further geological inspection and sampling of surface materials if appropriate.
- Conduct additional investigations (geologic mapping, sampling and geochemical testing) of priority sites as required.

After completion of the above initial assessment, decisions will be made regarding the development of quarry sites. Quarry sites that exhibit the potential for ML/ARD will either not be developed, or will be subject to further investigation to confirm ML/ARD characteristics.

[1] Interim ML/ARD Assessment of Railway Quarry Rock Samples. Baffinland Mary River Project, December 2010.
[2] Baffinland Mary River Project – Trucking Feasibility Study. Interim ML/ARD Assessment of Tote Road Quarry and Borrow Pit Samples, Rev1, December 2010..
[3] MEND 2009, Prediction Manual for Drainage Chemistry from Sulphidic Geologic Materials. Natural Resources Canada.

B.3 Sample Analyses

Representative test sample(s) of the quarries will be retrieved by means of surface grabs, test pits, or exploratory core drilling and analyzed for the potential to produce ARD/ML using standard analytical procedures that will include acid-base accounting tests for total sulphur and sulphide-sulphur, modified Sobek neutralization potential, carbonate content, pH, total metals and selected samples for shake flask extraction (SFE). Accepted test methods will be based on the methods outlined in MEND (2009)3. In addition to geochemical analyses, samples can also be sent for mineralogical and petrographic analyses, if necessary, so that the geochemical results can be understood in context with the occurrence, texture and relationships of the actual minerals present.

B.4 Quarry Development

The final recommendation for the development of a particular quarry will be based on the results of geochemical analyses, petrographic and mineralogical studies, and other geological information such as larger scale lithological and structural characteristics of the quarry and regional characteristics of the geological regime under consideration. This recommendation will be provided in the site specific quarry management plan.

B.5 Operational Testing

Once quarries are under development, confirmation geochemical and visual testing will be undertaken by means of collection of a set frequency of samples, based on quantity to be quarried and available site specific characterization information. Methods of sampling to be used could include systematic sampling of muck after blasts or sampling of blast hole cuttings. The analytical methods to be adopted will be as for the predictive sampling (MEND, 2009) or a defined alternative that has been shown to be predictive of ARD/ML. If operational testing indicates results vary significantly from original geochemical predictions, characterization, then the quarry activities for that quarry site will be suspended and regulators contacted. The geologist or engineer responsible for geochemical assessment for the quarry will be retained to conduct further studies as appropriate. Quarry operations would proceed again only under the recommendations of the geologist or engineer.

B.6 Reporting

Predictive testing results for each quarry will be provided in the site specific quarry management plan. Operational testing will be included in the annual reporting for the project.

Appendix C -
Blasting Management Framework

Blasting Management Framework

C.1 Background

Soluble inorganic nitrogen compounds such as ammonium nitrate (AN) are commonly used in explosives to support mining operations throughout the world. Large quantities of AN will be shipped and stored at the Mary River site and used in the manufacture and use of explosives used in blasting operations. The framework focuses on the control and mitigation of key potential risks arising from the management and use of AN explosives associated with quarrying and mining operations during the construction and operations phase of the Project. The potential risks arise from the aqueous dissolution of soluble nitrogen compounds and the potential pathways/impacts to surface water bodies which may support aquatic life.

C.1.1 Ammonium Nitrate Explosives - Potential Risks

The primary ecological concerns with ammonia are acute end-of-pipe toxicity and chronic toxicity in downstream lakes. Secondary issues relate to ammonia as a nutrient and the fact that ammonia nitrifies to nitrate in the environment. Some forms of nitrogen such as anionic ammonia or free ammonia and nitrite can be detrimental to fish at elevated concentrations. Nitrate, in the presence of phosphorus, can contribute to the process of freshwater eutrophication. The natural concentration of phosphorus in lakes in North Baffin region is low and measures will be implemented to limit phosphorous loading to both the aquatic receiving environment. This involves control of sediment loading to surface waters during construction and the minimization of phosphate in effluent discharge.

C.1.2 Potential Pathways

Ammonium nitrate is highly soluble and can readily leach into surface water by one or more of the following pathways:

- Spillage, which is the most common source of ammonium nitrate loss and the easiest to control.
- Improper selection of explosives medium, leading to losses of explosives through incomplete detonation.
- Site peculiarities such as geology and groundwater affecting the migration of explosives into permeable fractures or fault systems and causing incomplete detonation.

Due to potential environmental concerns related to the introduction of nitrogen compounds at the Mary River Project, operating procedures will implemented to limit, control and mitigate the release of undetonated explosives originating from blasting operations.

C.2 Blasting Management Framework

Baffinland is committed to implementing best management practices in its use of explosives. To this end a Blasting Management Framework has been developed based on a review of similar plans implemented at other northern mines.

Baffinland in concert with its Company Representative contractor will develop site specific operating procedures to limit, control and mitigate the release of undetonated explosives from blasting operations. A Blasting and Operations Plan will be developed for each quarry based on the site specific geologic and biophysical conditions encountered at each quarry location.

The specific objectives for the framework Plan are as follows:

- To identify and implement explosives management practices that will result in the lowest practical losses of undetonated explosives to the receiving environment, and,
- To ensure that explosives are used and site runoff water is managed in such a way that explosives losses do not result in a change in the trophic status of receiving water bodies.

C.2.1 Source Controls

Proactively controlling the source of AN explosives has a positive net environmental effect versus managing ammonia after dissolution in water which is much more difficult. The AN-based explosives handling procedures require that personnel who handle explosives take the necessary precautions to prevent spillage during blasting operations. When AN-based explosives come in contact with water, some dissolution of ammonium nitrate occurs. To limit explosives-water contact, areas that are subject to shallow groundwater flows are identified, and dewatered prior to blasting. Proper selection of explosives types can prevent dissolution and release to the receiving environment. For example, emulsion based ammonium nitrate-fuel oil (ANFO) mixture contains emulsifiers that can minimize AN dissolution in water and improve blast performance. The types of procedures to be developed and actions to be taken will include the following:

- Loading explosives in wet blast holes and limiting stand time for explosives in wet holes.
- Rigorous employee orientation and training procedures for managing, transporting and loading explosives into blast holes.
- Selecting, adopting, and manufacturing the optimum explosive mix types and loading procedures for site specific applications.
- Quarry and pit plans will incorporate a site specific drainage control plan.

C.3 Performance Monitoring

A performance monitoring program will be implemented to ensure that AN release to receiving waters from AN explosives is minimized Site specific performance targets will be developed and finalized in concert with the site contractors. The performance monitoring targets may include the following key elements:

- Blast performance monitoring to optimize blasting efficiency.
- Monitoring and auditing of field operations related to explosive selection, manufacturing, handling, blasting, and pit/quarry development to ensure acceptable field implementation of procedures and delivery of associated training.
- Based on the drainage plan and site conditions, there may be surface flow or runoff from the quarry to the downstream receiving environment. Discharge and runoff to the aquatic receiving environment (fish habitat), will meet water licence requirements for total suspended solids, and ammonia/nitrate will be at concentrations that are non-acutely toxic.

In the event that performance monitoring indicates that targets are not being met, corrective actions will be taken to improve performance and contingency measures will be taken to prevent acutely toxic discharges to the aquatic receiving environment.

Appendix D -
Borrow Source Approach

D.1 Introduction

This Appendix is a supplement to the Quarry and Borrow Pit Management Plan. The purpose of this addendum is to provide further detail regarding borrow source best management practices that will be applied on the Mary River Project.

Borrow material is an essential element for numerous construction activities including: grading, laydown areas, backfill, foundations for fuel storage, camp expansion, local roads and administration and maintenance facilities, and heavy equipment storage. The purpose of this addendum is to briefly outline Baffinland's borrow management strategy as well as key borrow source locations and quantities. All future updates to borrow source access methodology will be done in this appendix, and not in the Borrow Source Management Plan (document H349000-1000-07-126-0015). As part of the NIRB Project Certificate #005 and the QIA Commercial Lease (Q13C301), each borrow source requires its own Management Plan, these management plans will include drawings, site specific information and closure management, however the general guidelines set out below will be followed for each borrow source.

D.2 Operations at Borrow Sites

D.2.1 Mechanical Removal of Borrow

D.2.1.1 Procedures

In the summer months (July – October) borrow material will be removed via mechanical methods. This will consist of utilizing dozers with rippers, or excavators to remove loose borrow material including sand and gravel. Borrow material will then be pushed into a pile within the permitted boundaries of the borrow site and removed via haul truck to its designated location. Benching will be minimized where practical and the activities will work to "pushback" existing hills for borrow material. As a result there will be no "pits" created as a result of borrow development. Upon closure of the borrow source only a cliff face or the side of a hill will remain. This step is being taken to ensure that no "ponding" of water will occur and all borrow sources will have natural drainage upon closure. During borrow extraction care will be taken to ensure that all activity remains within the permitted borrow site boundaries.

D.2.1.2 Environmental Challenges

Mechanical removal of borrow material will pose few environmental challenges. Where necessary borrow areas will be drilled prior to extracting material in order to acquire geochemical and geotechnical test samples. The samples will be tested to ensure that material is not considered acid generating and that the area is considered stable and secure. Baffinland will not utilize any borrow sources that contain acid generating material. As no chemicals or explosives are required for mechanical removal both spills and runoff contamination are expected to pose little risk. Noise and dust will exist but are not expected to pose any problems given the method of extraction and the remote location of the site.

D.2.1.3 Best Practices and Mitigation Measures

Borrow source best management practices will be implemented and followed by all personnel on site. Site personnel will undergo extensive training in operating a borrow source safely and efficiently. To ensure limited environmental impact the following best practice guidelines will be followed at all times:

- All activities will be confined to the agreed upon site layout and boundaries.
- All borrow sources will have a minimum setback of 31m from fish bearing streams.
- Adequate space will be provided for all borrowing activities.
- Dust and noise will be minimized to the extent that is reasonably practicable.
- Waste on site will be managed adequately and disposed of in an appropriate manner (see: Waste Management Plan for Construction, Operation, and Closure and Hazardous Material and Hazardous Waste Management Plan).
- Operations will be sequenced in such a way as to minimize unnecessary disturbances to the local environment.
- Proper spill response procedures will be followed with adequate spill response equipment available on site at all times (Please see: Emergency Response and Spill Contingency Plan).
- No fuel storage will occur at borrow or quarry sites.
- Activities will be undertaken in such a way as to minimize any effects on or damage to permafrost or ground-ice. Thawed layers will be removed sequentially.
- Interaction with local wildlife will be handled in an appropriate manner (Please see: Terrestrial Environmental Management and Monitoring Plan).
- The borrow face will be “pushed back” in a calculated and designed matter to ensure geological stability. Excavations will be minimized by utilizing above grade sources for material (hills and swales), which will minimize water collection and drainage disruption.
- Borrow locations will be regularly inspected and unstable slopes re-graded to eliminate depressions and re-establish natural drainage patterns.
- Proper site drainage plan will be implemented. The drainage plan will ensure positive drainage to prevent water pooling or flooding.
- Areas of unexpected settlement will be filled to re-establish natural contours and eliminate water ponding.

D.2.2 Blasting at Borrow Locations

D.2.2.1 Procedures

As a result of the extreme temperatures encountered on Baffin Island and the existence of extensive permafrost the removal of material from borrow sources will at times require the use of blasting. This requirement will be particularly critical during winter months, when the ground will be fully frozen. These frozen conditions will create borrowed material that is too hard for mechanical removal.

Proper blasting procedures, as laid out in site specific borrow source management plans, will be followed to ensure that all blasting activities are conducted in a safe and efficient manner avoiding an unnecessary impact to the surrounding environment. The nature of the material will be taken into account and best blasting management practices will be employed. This will include: appropriate grid size and powder factor, the use of hydrophobic high quality emulsion explosives, and a highly trained competent staff.

Potential borrow source areas will be drilled and sampled prior to borrowing when necessary, geochemical and geotechnical tests will be conducted to ensure that no acid generating material is present in the area and that the area is geotechnically stable and secure. Baffinland will not utilize borrow sources containing acid generating material.

D.2.2.2 Environmental Challenges

The primary challenge related to the removal of material from borrow sources via blasting is the management of explosives, specifically ammonia nitrate (AN). The primary ecological concerns with ammonia are acute end-of-pipe toxicity and chronic toxicity in downstream lakes. Secondary issues relate to ammonia as a nutrient and the fact that ammonia nitrifies to nitrate in the environment. Some forms of nitrogen such as anionic ammonia or free ammonia and nitrite can be detrimental to fish at elevated concentrations.

The risk of ammonia entering the environment is low given the fact that all blasting will be completed using hydrophobic emulsion explosives that has an extremely low solubility in water. In addition to this all blasting of borrow material will be completed in frozen ground. This will ensure that potential "pathways" for AN will be frozen substantially limiting the ability of AN to enter the surrounding environment.

D.2.2.3 Best Practices and Mitigation Measures

Borrow Source and blasting best management practices will be implemented and followed by all personnel on site. The blasting activities at burrow sites will be completed by trained and qualified personnel. Baffinland is committed to implementing best management practices in its use of explosives. To ensure limited environmental impact the following best practice guidelines will be followed at all times:

- All activities will be confined to the permitted site layout and boundaries.
- All borrow sources will have a minimum setback of 31m from fish bearing streams.
- Adequate space will be provided for all borrowing activities.
- Dust and noise will be minimized to the extent that is reasonably practicable.
- Waste on site will be managed adequately and disposed of in an appropriate manner (see: Waste Management Plan for Construction, Operation, and Closure and Hazardous Material and Hazardous Waste Management Plan).
- Operations will be sequenced in such a way as to minimizing unnecessary disturbances to the local environment.
- Proper spill response procedures will be followed with adequate spill response equipment available on site at all times (Please see: Emergency Response and Spill Contingency Plans).
- No fuel will be stored at borrow or quarry sites.
- Activities will be undertaken in such a way as to minimize any effects on or damage to permafrost or ground-ice. Thawed layers will be removed sequentially.
- Interaction with local wildlife will be handled in an appropriate manner (Please see: Terrestrial Environmental Management and Monitoring Plan).
- Whenever possible “benching” will be avoided. Instead hills will be “pushed back” in a calculated and designed matter to ensure geological stability. Where possible, excavations will be minimized by utilizing above grade sources for material (hills and swales), which will minimize water collection and drainage disruption
- Borrow locations will be regularly inspected and unstable slopes re-graded to eliminate depressions and re-establish natural drainage patterns.
- When possible blasting will be conducted in frozen conditions when contamination of water will not be a problem.
- Blasting will be conducted utilizing emulsion explosives.
- Best blasting practices will be utilized to ensure that all explosives are fully detonated.
- Areas of unexpected settlement will be filled to re-establish natural contours and eliminate water ponding.
- Borrow locations will be regularly inspected and unstable slopes re-graded to eliminate depressions and re-establish natural drainage patterns.

- A performance monitoring program will be implemented to ensure that AN release to receiving waters from explosives is minimized to an acceptable level. Site specific performance targets will be developed and finalized in concert with the site contractors:
  - Blast performance monitoring to optimize blasting efficiency.
  - Monitoring and auditing of field operations to ensure acceptable field implementation of procedures and delivery of associated training.
  - Based on drainage plan and site conditions, there may be surface flow or runoff from the borrow source to the downstream receiving environment. Discharge and runoff to the aquatic receiving environment (fish habitat), will meet water licence requirements for total suspended solids, and ammonia/nitrate will be at concentrations that are non-acutely toxic.

D.2.3 Borrow Site Development

Development of each the Borrow Sites are expected to progress as detailed in the following steps:

D.2.3.1 Crusher Pad

Construct a crusher pad at a suitable distance from blasting areas using locally available fill material. The crusher pad will be sized for crushing and screening operations, stockpiles of finished product, and loading operations to deliver produced borrow materials. If required, storm water drainage will be managed with perimeter ditching and/or berms to divert rainfall or snow melt to natural drainage channels. Rip-Rap rock will be placed at strategic locations along the drainage channel to minimize erosion and to enhance settlement of sediments.

D.2.3.2 Access Road

This borrow site is adjacent to the Tote Road; therefore access to the area where material is extracted will be via a simple graded surface at existing ground elevation. A dedicated embankment is not necessary since the existing soils will support the expected truck and equipment loads. There are no streams at this site, therefore culverts or water crossings are not expected. This access road is used to transport the borrow materials from the material source to the crusher pad for processing and loading the finished product.

D.2.3.3 Summer Extraction Operations at Borrow Site

Summer extraction of borrow can be achieved by simple excavation of thawed gravels at the surface, dozing the thawed materials into a stockpile, loading, and hauling to the crusher or to the construction site for placement.

D.2.3.4 Winter Extraction Operations at Borrow Site

With the use of a track drill, a bench is drilled and blasted at some designated elevation to begin bench development. Bench development can proceed from a higher elevation to a lower elevation or vice versa, depending on the topography of the site. Blasted borrow material is ready for loading into haul

trucks and hauled to the crusher pad as crusher feed material to produce finished products or hauled to construction sites if crushing is not required.

D.2.3.5 Bench Drilling

As each drill round is blasted out, the drill either stays at this elevation to expand the bench in a longitudinal direction along the face, or the drill climbs to a higher or lower elevation to drill and blast subsequent benches. These benches are expanded in length as required for subsequent blasting of borrow at that elevation. Benches are created for safety and for efficient drill/blast operations.

D.2.3.6 Subsequent Bench Development

Each bench proceeds toward the main body of borrow rock at that elevation. Lower benches follow behind upper benches and drilled and blasted to move toward the main body of rock. Ramps may be constructed to the upper benches for truck loading near the blasted rock. Whenever practical benching will be minimized during borrow operations, instead utilizing the pushback of hills. When benches are deemed necessary to operate the borrow source safely and effectively, the will be properly regarded upon closure of the borrow source to ensure natural drainage and avoid the pooling of water.

D.2.3.7 Drilling Frozen Gravels

Drilling frozen gravels is completed with the use of one or two drill rigs using small diameter boreholes less than 165 mm. The boreholes are laid out by a surveyor to the engineered spacing and burden for each particular rock type and geologic conditions. The drill is removed from the area for loading explosives and blasting. The drill can proceed along the bench to continue drilling or proceed to a new bench.

D.2.3.8 Blasting Operations

Blasting frozen gravels is completed by installing high explosive detonating boosters at the bottom of each hole with initiation wires extending to the surface for connection to the blasting circuit, followed by dropping in pre-packaged sticks of explosives and pouring from pre-packaged emulsion bags. Detonation and initiation is carried out with the use of delays to time the detonators in a fast millisecond sequence of smaller blasts for efficient rock breakage. Blasting lags behind the drill as more drilling is completed. As each new drill round is completed, the drill moves on and the drilled round is loaded with explosives and blasted.

D.2.3.9 Hauling Borrow Gravels

The blasted material is loaded onto trucks for delivery to the crusher, temporary stockpiles or to construction sites.

D.2.3.10 Crushing Operations

Borrow material is fed to the crusher and/or screening equipment to size and produce the desired rock product, stored in stockpiles and loaded into trucks for delivery to construction sites.

D.3 Borrow Source Closure

The abandonment of the Project works and site reclamation for the borrow sources will be undertaken at or before the close of the Project. Separate closure plans for each borrow source will be required prior to closing each facility, for more information on site closure please refer to the Project Interim Abandonment and Reclamation Plan. Closure of the Project will involve removing construction materials, equipment and infrastructure and reclaiming the site to self-sustaining productive ecosystem near its original condition.

The general abandonment and reclamation plans include the following:

- Dismantle and transport all fuel/chemical storage and handling infrastructure to an approved facility or for reuse where applicable.
- Dismantle and remove all buildings and related infrastructure.
- Remove all hazardous waste and explosives.
- Re-grade as necessary to establish safe slopes and restore the natural drainage to the area.
- If overburden topsoil has been removed and stockpiled, it will be used to re-grade the land.
- Test soils and granular materials for hydrocarbon content; contaminated soils will be remediated.

Appendix E -
General Quarry Site Information

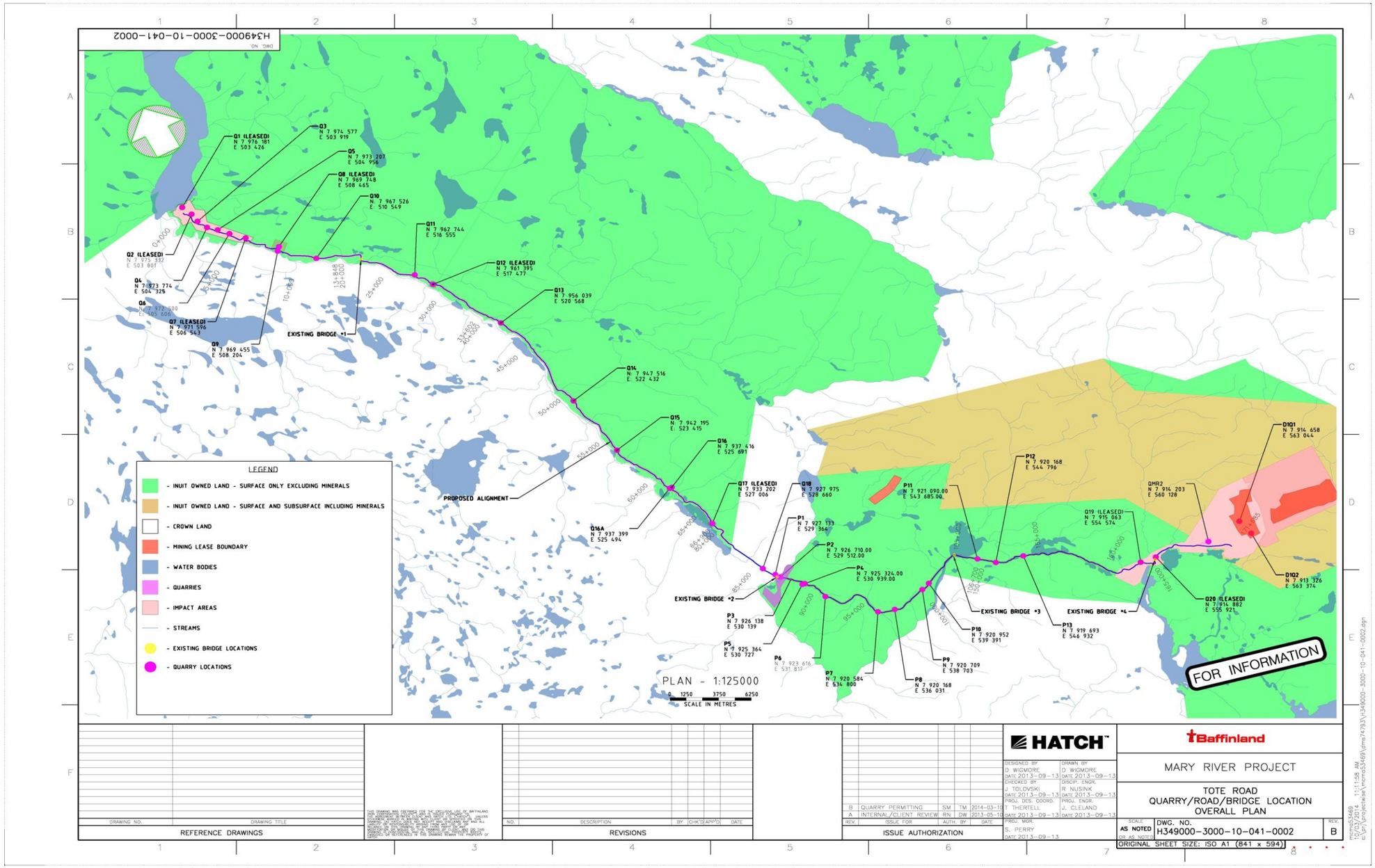

FIGURE E-1: QUARRY LOCATIONS ALONG THE TOTE ROAD

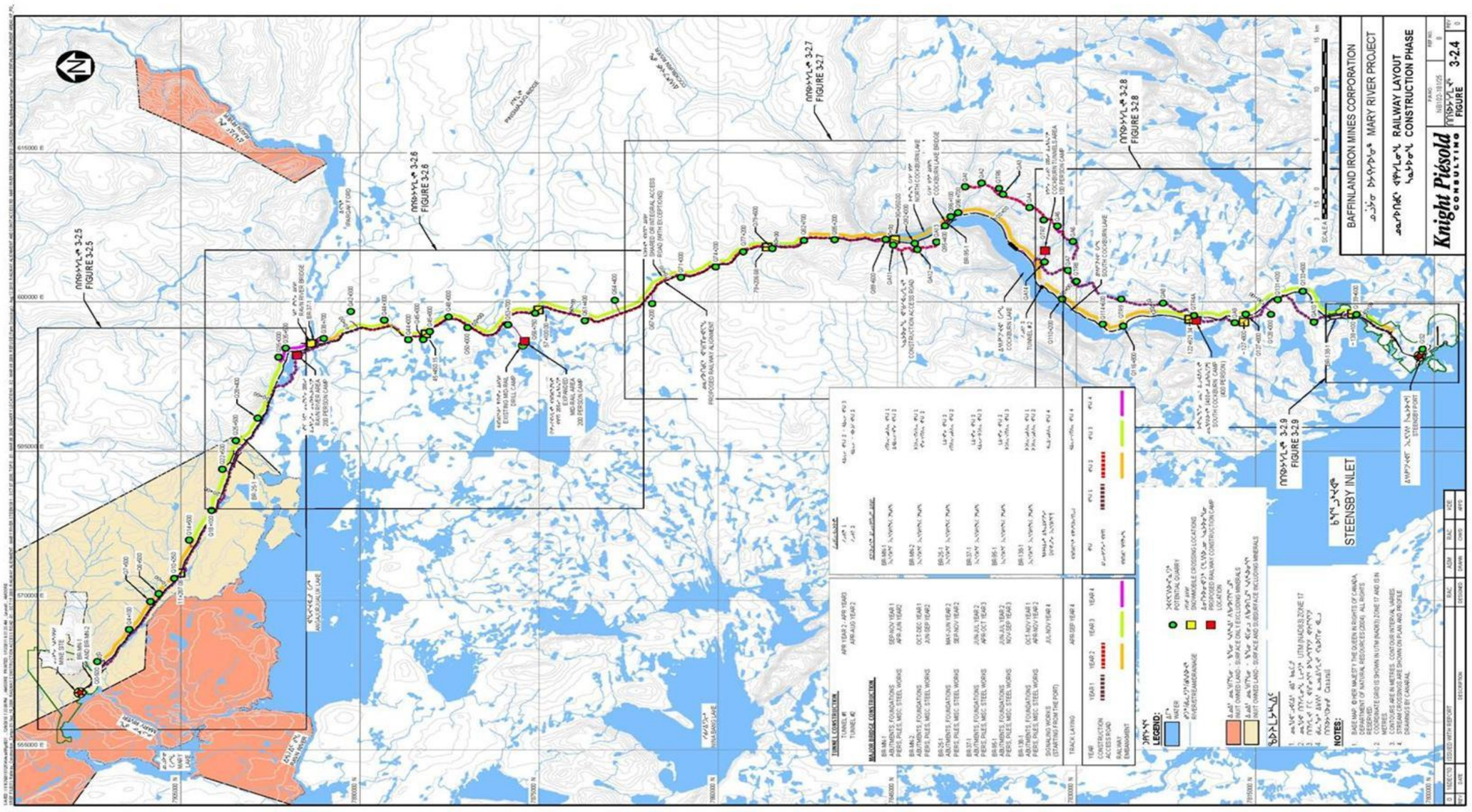

FIGURE E-2: QUARRY LOCATIONS ALONG RAIL ALIGNMENT (FROM BAFFINLAND IRON MINES FEIS; VOLUME 3, FIGURE 3-2.4)

TABLE E-1: YIELDS FOR QUARRIES FOR MARY RIVER PROJECT AT MINE SITE

Quarry Name	Approximate Station[1]	Northing Coordinates	Easting Coordinates	Estimated size, Volume with Contingency (m^3)[2]	Drilled
QMR2	Mary River	7,914,203	560,128	538,130	Yes
D1 Q1	6+500 along Haul Road	7 914 658	563 044	6.7 ha, 275,000 m^3	Yes
D1Q2	2+000 along Haul Road	7 913 326	563 374	11 ha, 700,000m^3	

TABLE E-2: EXPECTED YIELDS FOR QUARRIES AND BORROW SOURCES FOR MARY RIVER PROJECT ALONG TOTE ROAD

Name	Kilometre (km)	Coordinates		Haul distance to road (m)	Direction from Alignment	Estimated Size (m)
		Northing (m)	Easting (m)			
Q1	1+000	7,976,181	503,426	<25	E	~1000x200x30
km 1 & 2 Borrow	1+000			@ road	N & S	100,000 m^3
Q2	2+000	7,975,332	503,801	<25	E	~1000x100x30
Q3	3+250	7,974,577	503,919	<50	E	~1000x100x40
Q4	4+125	7,973,774	504,325	<50	E	~1000x200x40
Q5	5+000	7,973,207	504,956	<50	E	~1000x200x40
Q6	5+900	7,972,500	505,606	<50	E	~1000x200x40
Q7	7+000	7,971,596	506,543	<150	E	5.3ha (75,000 m^3 in 2014)
Q8	10+300	7,969,748	508,465	<500	E	500x200x40
Q9	10+500	7,969,455	508,204	<10	W	500x75x20
Q10	13+500	7,967,526	510,549	<10m	W	10x20
Q11	11+000	7,962,744	516,585	@ road	E	5 ha (175,000 m^3 in 2014)
Q12	23+900	7,961,395	577,477	@ road	W	250x100
Q13	30+800	7,956,039	520,568	~200	W	>500 in length
Q14	38+600	7,947,516	522,432	<500	E	n/a
Q15	45+050	7,942,195	523,415	<500	E	continuous N-S bedrock ridge
Q16	49+900	7,937,416	525,691	<200	E	continuous N-S bedrock ridge
Q16A	50+000	7,937,399	525,494	<50	E	continuous N-S bedrock ridge
Q17	54+600	7,933,202	527,006	~200	E	continuous N-S bedrock ridge
Q18	61+500	7,927,975 (7,928,029)	526,660 (529,029)	~200	E	continuous N-S bedrock ridge
Q19	93+500	7,915,063	554,574	@ road	N	Several ridges/hills, 1.9 ha (175,000 m^3 in 2014)
Q20	97+500	7,914,882	555,921	100 – 200	N	bedrock knoll, ~200x100x15
P1	62+500	7,927,133	529,364	@ road	E	previously opened, 7.6 ha, (275,000 m^3 in 2014)
P2	63+000	7,926,710	529,512	@ road	W	previously opened
P3	63+900	7,926,138	530,139	@ road	W	previously opened
P4	65+100	7,925,324	530,939	@ road	W	previously opened; 30x100x1
P5	65+100	7,925,364	530,727	<100	W	150x50x5
P6	67+100	7,923,616	531,817	@ road	W	previously opened; 20x40x0.5
P7	71+700	7,920,584	534,800	@ road	W	previously opened
P8	73+800	7,920,168	536,031	@ road	W	previously opened
P9	75+700	7,920,709	538,703	@ road	E	previously opened
P10	75+900	7,920,952	539,391	@ road	W	previously opened; 30x100x1.5m
P11	80+400	7,921,090	543,685	@ road	S	previously opened; 30x100x1.5m
P12	83+100	7,920,168	544,796	@ road	S	several ridges and hills; ~100x100x10m

Name	Kilometre (km)	Coordinates		Haul distance to road (m)	Direction from Alignment	Estimated Size (m)
		Northing (m)	Easting (m)			
P13	85+500	7,919,693	546,932	@ road	S & N	on N side 200x150x4m
P14	90+000	7,917,805	550,574	@ road	S & N	S side of road previously opened
P15	91+100	7916,730	551,384	@ road	N	~500x250x10m
P16/ Km 97	97+400	7914,882	555,921	@ road	N & S	previously opened source ~7,5 ha (150,000 m^3)
Km103/104	104+500			@ road	N	Previously opened source 50,000 m^3

TABLE E-3: YIELDS FOR QUARRIES FOR MARY RIVER PROJECT ALONG RAIL CORRIDOR

Quarry Name	Approximate Station[1]	Northing Coordinates	Easting Coordinates	Volume with Contingency (m^3)[2]			Drilled in 2011
				Railway	Road	Total	
QMR2	Mary River	7,914,203	560,128	491,079	47,052	538,130	Yes
Q-0+500	- 0+500	7,911,899	563,668	826,508	196,174	1,022,683	Yes
Q4+100	4+100	7,909,418	566,698	570,968	199,833	770,801	Yes
Q7+500	7+500	7,907,667	569,432	619,585	174,374	793,959	Yes
Q10+250	10+250	7,905,378	572,883	1,007,536	206,620	1,214,157	Yes
Q14+500	14+200	7,904,382	575,868	1,232,091	240,446	1,472,537	Yes
Q18+100	18+100	7,902,853	578,804	1,463,455	263,943	1,727,398	Yes
Q22+500	22+500	7,901,663	583,415	1,484,696	230,582	1,715,278	Yes
Q25+500	25+500	7,900,221	586,954	755,019	124,801	879,820	Yes
Q28+400	28+400N	7,898,617	588,240	158,886	104,426	263,312	Yes
Q31+500	31+500N	7,897,863	590,944	53,356	128,885	182,242	Yes
Q35+000	35+000N	7,896,866	594,445	77,971		77,971	
Q35+500	35+500N	7,896,244	595,477	248,555	118,172	366,726	Yes
Q38+700	38+700N	7,893,140	596,368	342,908	116,780	459,687	Yes
Q40+600	40+600N	7,889,375	596,009	812,884	153,489	966,373	
Q42+000	42+000N	7,890,881	598,151	305,177	96,131	401,308	Yes
Q44+300	44+300N	7,888,054	598,208	302,919	62,185	365,104	Yes
Q44+000	44+000	7,885,927	596,138	178,149	38,931	217,080	Yes
Q45+000	45+000	7,884,724	596,201	54,862	29,020	83,882	Yes
Q45+800	45+800	7,884,147	596,990	34,368	42,430	76,798	
Q48+000	48+000	7,882,597	598,495	28,241	58,397	86,637	
Q50+000	50+000	7,881,100	597,357	134,915	70,757	205,672	Yes
Q53+700	53+700	7,877,567	597,616	339,267	78,350	417,616	Yes
Q56+750	56+750	7,875,280	598,852	426,916	87,668	514,583	Yes
Q60+000	60+000	7,871,954	599,087	327,131	102,084	429,214	
Q64+400	64+400	7,868,565	600,221	203,898	94,957	298,854	
Q67+200	67+200	7,865,619	600,161	156,728	79,560	236,288	
Q71+000	71+000	7,863,169	602,398	161,614	71,915	233,530	
Q74+200	74+200	7,860,226	603,469	109,863	63,161	173,024	
Q77+200	77+200	7,857,588	604,840	86,660	65,983	152,642	
Q79+600	79+600	7,855,411	605,366	145,051	77,616	222,666	
Q82+700	82+700	7,852,449	605,710	166,692	90,198	256,890	Yes
Q85+200	85+200	7,850,087	606,073	227,871	89,196	317,067	Yes
Q88+800	88+800	7,846,674	605,956	238,151	63,999	302,150	Yes
QTR21	90+400	7,845,379	605,707		51,239	51,239	
Q92+000	92+000	7,843,535	605,816	98,287		98,287	
QTR22	92+000	7,843,330	605,243		47,682	47,682	

Quarry Name	Approximate Station[1]	Northing Coordinates	Easting Coordinates	Volume with Contingency (m^3)[2]			Drilled in 2011
				Railway	Road	Total	
QTR23	93+600	7,841,721	606,018		33,456	33,456	
Q95+400	95+150	7,840,905	607,500	16,898	56,143	73,041	
Q96+100	96+100	7,840,533	608,580	17,031	149,531	166,562	
Q96+700	96+700	7,839,908	608,976	6,493		6,493	
QTR10	97+300	7,839,328	611,431		203,081	203,081	
QTR11	98+700	7,838,013	611,995		134,433	134,433	
QTR6	98+900	7,836,409	611,377		101,012	101,012	
QTR13	100+700	7,833,967	609,448		165,509	165,509	Yes
QTR12	101+100	7,836,190	610,857		162,040	162,040	Yes
NTUN-DH01	102+540	7,835,656	605,976				Yes
NTUN-DH03	102+930	7,835,382	605,698				Yes
NTUN-DH05	103+140	7,835,245	605,535				Yes
STUN-DH03	108+180	7,832,812	601,490				Yes
QTR7	108+300	7,832,685	608,302		132,606	132,606	
QTR17	105+700	7,832,984	603,944		948,392	948,392	
QTR14	104+300	7,831,608	607,681		171,297	171,297	
QTR15	105+200	7,830,326	606,224		227,039	227,039	
QTR16	106+200	7,830,731	603,228		905,620	905,620	
Q110+200	110+200	7,831,193	600,359	253,809		253,809	
QTR8	112+000	7,830,182	602,012		603,136	603,136	
Q114+600	114+600	7,827,828	597,850	382,501		382,501	Yes
QTR9	116+500	7,826,260	600,261		361,991	361,991	Yes
Q116+800	116+800	7,826,194	597,422	764,455		764,455	Yes
QTR18	120+600	7,822,808	599,870		536,571	536,571	
QTR4A	123+000	7,820,410	598,555	958,066	636,598	1,594,664	Yes
QTR19	126+900	7,816,806	597,863		451,609	451,609	
Q127+800	127+800	7,815,755	598,770	545,218		545,218	
Q128+000	128+000	7,813,922	598,828		222,278	222,278	
Q131+100	131+100	7,813,509	600,177	112,666	191,240	303,906	Yes
Q133+500	133+500	7,811,052	601,482				
QTR20	134+100	7,810,467	598,087		169,565	169,565	
Q138+100	138+100	7,807,612	598,865		104,996	104,996	Yes
Q139+600	139+600	7,806,105	598,727		119,999	119,999	Yes
QS3A	Steensby	7,800,000	595,698				Yes
QS3	Steensby	7,799,349	597,500				
QS2	Steensby	7,801,066	595,200		300,000	300,000	Yes
QS1	Steensby	7,803,054	593,500				Yes
SI-OLD-004	Steensby	7,798,314	592,879				Yes
SI-OLD-005	Steensby	7,798,331	592,860				Yes
SI-OLD-006	Steensby	7,798,409	592,876				Yes
SI-OLD-007	Steensby	7,798,424	592,840				Yes
SI-OLD-008	Steensby	7,798,489	592,891				Yes

Notes:

[1] Two sets of stationing are used along the rail alignment. Following the Ravn River realignment, which extends from approximately station 26+100 to station 46+582.93, the stationing resets to 43+830 to be consistent with the stationing used prior to the Ravn River realignment. To avoid confusion, stationing along the Ravn River realignment has an "N" suffix.

[2] Volumes obtained from the DEIS.

Appendix F - Concordance Table

TABLE F- 1: CONCORDANCE WITH NWB TYPE A WATER LICENCE, 2AM-MRY1325

<table>
<tr><th>No.</th><th>Term and Condition</th><th>Comments</th></tr>
<tr><td>Part D #4</td><td>Quarrying activities shall be conducted in accordance with all applicable legislation, guidelines and industry standards including the Northern Land Use Guidelines, Pits and Quarries (INAC, 2009).</td><td>Refer to Section 3. Updates have been done in accordance with 2010 edition</td></tr>
<tr><td>Part D #7</td><td>The License shall submit to the Board for review, an addendum to the Plan referred to in Part D, Item 6a for any quarry site selected for future development that the plan does not adequately address. If the content of the existing quarry plan referred to under Part D, Item 6a, does not adequately address the proposed activities for the management requirements of the selected Quarry site, the Licensee shall submit to the Board for approval, a site-specific Quarry management plan.</td><td>Refer to Section 1.1. This management plan provides the overarching plan for Quarry and Borrow Source development. Respective Quarry and Borrow Source Management Plans have site specifics (e.g. drainage plans).</td></tr>
<tr><td>Part D #14</td><td>The Licensee shall maintain a minimum of thirty-one (31) metre undisturbed buffer zone between the periphery of Quarry sites and the ordinary High Water Mark of any water body unless otherwise approved by the Board in writing. The Licensee shall not excavate and/or remove material from any Quarry beyond a depth of one (1) meter above the ordinary High Water Mark or above the groundwater table, to prevent the potential contamination of groundwater unless otherwise approved by the Board in writing. The Licensee shall construct and operate the Mine Site and associated infrastructure and facilities in accordance with all applicable legislation and industry standards.</td><td>Refer to Sections 3.3 and 3.4.</td></tr>
<tr><td>Part D #15</td><td>All surface runoff from Quarry activities for the Project, where flow may directly or indirectly enter a Water body, shall be sampled Weekly and not exceed the Effluent quality limits under Part D, Item 16.</td><td>Refer to Section 6.1</td></tr>
<tr><td>Part D #16</td><td>All surface runoff during the Construction Phase of the Project, where flow may directly or indirectly enter a Water body, shall be sampled Weekly and not exceed the following Effluent quality limits:

Table 1: Effluent quality limits for surface runoff during construction
<table>
<tr><th>Parameter</th><th>Maximum Average Concentration (mg/L)</th><th>Maximum Concentration of Any Grab Sample (mg/L)</th></tr>
<tr><td>Total Suspended Solids</td><td>50</td><td>100</td></tr>
<tr><td>Oil and Grease</td><td>No Visible Sheen</td><td>No Visible Sheen</td></tr>
<tr><td>pH</td><td>Between 6.0 and 9.5</td><td>Between 6.0 and 9.5</td></tr>
</table></td><td>Refer to Section 6.1</td></tr>
<tr><td>Part F #28</td><td>The Licensee shall incorporate best management practices including ditches, diversions, sumps and berms where necessary to minimize or prevent surface runoff from entering nearby water bodies from Quarry and borrow pit sites.</td><td>Refer to Section 3.4</td></tr>
<tr><td>Part I #23</td><td>The Licensee shall monitor runoff and/or discharge from borrow pits and rock Quarry sites, on a monthly basis, for the following parameters:
Total Suspend Solid (TSS)
Oil and Grease
Ammonia (total NH_3-N)
Nitrate (total NO_3-N)
pH
Conductivity; and
Demonstrate to be non-acutely toxic.</td><td>Refer to Section 6.1</td></tr>
</table>

TABLE F- 2: CONCORDANCE WITH NIRB PROJECT CERTIFICATE NO. 005

No.	Term and Condition		Comments
30	**Category:**	Landforms, Geology and Geomorphology – Quarries	Refer to Section 1.1 and respective Quarry and Borrow Source Management Plans.
	Responsible Parties:	The Proponent	
	Project Phase:	Construction, Operations, Temporary Closure/Care and Maintenance, Closure and Post-Closure Monitoring	
	Objective:	To provide oversight on quarry design and management.	
	Term or Condition:	The Proponent shall develop site-specific quarry operation and management plans in advance of the development of any potential quarry site or borrow pit.	
	Reporting Requirements:	Plans to be provided to the NIRB for review and comment at least 30 days prior to commencement of construction activities.	