Hope Bay Project

Boston Camp Revised Interim Closure Plan

Report Prepared for

Hope Bay Mining Ltd.

Report Prepared by

srk consulting

SRK Consulting (Canada) Inc.
1CH008.065
June 2012

Hope Bay Project

Boston Camp Revised Interim Closure Plan

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Table of Contents

List of Tables

List of Figures

List of Appendices

1 Introduction

The Boston Advanced Exploration Camp (hereafter Boston Camp) was part of the Hope Bay Regional Exploration Project. Boston Camp is located on Inuit Owned Land in the West Kitikmeot region of Nunavut (Figure 1), the camp is authorized under Nunavut Water Board (NWB) Type B Water Licence 2BB-BOS0712. The Hope Bay Regional Exploration Project was operated by Hope Bay Mining Limited (HBML) a wholly owned subsidiary of Newmont Mining Corporation (NMC).

This document presents the closure obligations, the plan for closing the camp and demonstrates how the closure obligations will be met. This closure plan serves as an update to the 2007 Closure Plan that was developed by Miramar Hope Bay Ltd. (Appendix A) according to the provisions set forth in the NWB Water License. The water and ore/waste rock management plan developed for the Boston Site (SRK 2009) is incorporated into this plan.

1.1 Background

Boston Camp is located approximately 170 km southwest of Cambridge Bay, above the high water mark on a peninsula in Aimaokatalok Lake. The camp provides support services for exploration activities in and around the Boston mineral resource located at the south end of the Hope Bay Greenstone Belt (Figure 1). The Boston Camp is currently under care and maintenance. It is considered critical infrastructure for restarting exploration in the Hope Bay Greenstone Belt in the future.

Boston Camp was not modified from its original form until June 2010 when a new sewage treatment plant and a new core processing facility were installed. In 2010 the tents were rearranged and attached to a central corridor leading to the main camp building. This closure plan is consistent with the objectives set forth in the 2007 Closure Plan because site modifications have been limited.

1.2 Closure Objective

The overall closure objective for the Boston Camp is to establish chemical and physical stability to protect human health and the environment. Post closure care and maintenance, including environmental monitoring will be undertaken to ensure that these conditions are met.

1.3 Permits and Leases

Activities at the Boston Camp are completed in accordance with NWB Licence No. 2BB-BOS0712, and a Land Use Licence with the KIA. Final closure of the site will be completed to satisfy the objectives specified in the Water Licence. Land use requirements in the KIA Land Use Licence have been reviewed and taken into account in preparing this plan. Table 1 provides a Table of Concordance indicating how the conditions specified in the licence are satisfied by this closure plan.

Table 1 Table of Concordance

License Reference	License Condition (2BB-BOS0712)	Closure Plan Reference	Closure Plan Response/Specification
Part I. 1	Submit revised Abandonment and Reclamation Plan consistent with Mine Site Reclamation Guidelines for the Northwest Territories (INAC) 2006, and consistent with the INAC Mine Site Reclamation Policy for Nunavut, 2002.	N/A	Requirements satisfied by submission of this updated Final Closure Plan
Part I. 2	Revise Plan if not approved by the NWB	N/A	Pending receipt of review comments from NWB once the Closure Plan has been submitted.
Part I. 3	Implement Plan when approved by NWB	5.2	Closure work can proceed after the plan is approved by NWB.
Part I. 4	Review and revise plan as required by operational/technology changes. Revisions to be submitted in the form of an Addendum, to be included with the Annual Report.	N/A	Requirement satisfied by submission of this Revised Interim Closure Plan. However, if technology changes, this plan can be revised accordingly.
Part I. 5	Licensee shall complete all restoration work prior to the expiry of this License (July 21, 2012).	5.2	The works will not be completed by this date. HBML will be applying for a license extension. Infrastructure at Boston is critical to future exploration when the Hope Bay Greenstone Belt is brought out of care and maintenance.
Part I. 6	Complete progressive reclamation of components no longer in use.	3	Entire site will be reclaimed.
Part I. 7	Back fill and restore all sumps to the pre-existing natural contours to the satisfaction of an Inspector.	3.4 -3.7, 3.10 – 3.12	Areas of site disturbance will be filled and recontoured to be consistent with natural contours, provide geotechnical stability, and minimize erosion and sedimentation.
Part I. 8	Remove site infrastructure and materials prior to expiry of License.	3.4, 3.5, 3.8	All facilities and materials will be removed. The rock fill pad and airstrip will be left in place.
Part I. 9	Regrade all roads and airstrip to match natural contours and reduce erosion	3.2, 3.4, 3.7, 3.9 - 3.11	Airstrip, roads, and rock pads will be left in place and regraded to prevent ponding.
Part I. 10	Remove culverts and re-establish drainage path of natural channel. Measures to minimize erosion and sedimentation shall be implemented	3.7	Culvert from the Core Storage road will be removed and the natural flow path restored.
Part I. 11	All disturbed areas will be ripped, graded or scarified to conform to natural topography and promote growth of vegetation	3.7, 3.9 - 3.11	Areas of disturbance will be ripped where necessary and regraded to ensure positive drainage, conform with natural topography and to encourage revegetation.
Part I. 12	Remediation of hydrocarbon contaminated soils to the satisfaction of an Inspector	3.10	Hydrocarbon contaminated soils will either be remediated by landfarming to achieve specified remediation criteria or removed from the site to a licensed disposal facility.
Part I. 13	Restore drill holes and disturbed areas to natural conditions upon completion of drilling, must include removal of drill casing materials and the permanent capping of holes	3.12	All drill steel will be cut at grade, holes will be capped, thermokarst areas backfilled, and soils around the drill sites scarified and revegetated.
Part I. 14	Store drill cores at least thirty (30) metres above ordinary high water mark of any adjacent water body, where any direct flow into a water body is not possible, and no additional impacts are created.	3.3	All drill core boxes will be consolidated in one area on the existing Boston Camp pad
Part I. 15	Contour and stabilize all disturbed areas upon completion of work and restore to a pre-disturbed state	3.11	Areas of disturbance will be regraded to ensure positive drainage, and to be consistent with natural topography.

2 Closure Scope of Work

The layout of the Boston Camp is shown on Figures 2 and 3. Closure and reclamation activities for Boston Camp include

- Demolishing and removing remaining site structures,
- Decommissioning and demolition of containment structures,
- Decommissioning the existing portal to underground workings,
- Consolidating and covering ore piles,
- Reclaiming drill sites,
- Collecting and disposing of hazardous wastes,
- Collecting and disposing of non-hazardous wastes,
- Stabilizing permafrost degradation areas,
- Remediating hydrocarbon contaminated soils, and
- Drainage control and revegetation, where appropriate.

Post closure environmental monitoring will be implemented to confirm conformance with the closure objectives.

3 Closure Activities

3.1 Decommissioning of Camp Structures and Ancillary Facilities

All utilities to structures and facilities will be dismantled and the structures emptied prior to demolition. Non-hazardous and hazardous waste will be segregated as discussed in Section 3.8. Tanks used for heating fuel storage will be drained, removed, and temporarily placed within the lined area of the primary tank farm. If possible and/or if a need is demonstrated, furniture, utilities or structures, will be salvaged. Where possible salvageable structures will be moved intact, or alternatively they will be carefully dismantled and catalogued to facilitate efficient reassembly. Unusable or unwanted buildings will be demolished and the waste material segregated into burnable and non-burnable waste and disposed of as described in Section 3.8.1. Salvage value is not included in the cost estimate. The following structures and facilities will be demolished

- Accommodation and Office Complex,
- Core Processing Facility,
- Maintenance Shop,
- Power Generator Complex,
- Crusher Enclosure,
- Water Supply Structure,
- Sewage Treatment Plant,
- Helipads and Docks,
- Incinerator,
- Stickleback Outflow Weir,
- Communications Tower, and
- Small Sheds.

3.2 Airstrip Decommissioning

Following removal of all buildings and structures the airstrip will be decommissioned. Crushed ore used for surfacing material and for repairing the airstrip will be removed and consolidated into the ore stockpile. The main airstrip rockfill will be left in place, and the airstrip will be regraded to ensure positive drainage. Large white X’s will be painted on the ends of the airstrip.

Adjacent to the airstrip are two areas where drill cuttings have been stored. A geotextile underlies the drill cuttings. Drill cuttings will be removed and stockpiled for backfilling depressions during reclamation. The geotextile will be removed, cut into manageable pieces, and disposed of as described in Section 3.8.1. The area will be regraded to ensure positive drainage and prevent ponding. Areas of permafrost degradation will be covered with a 1 m thick thermal blanket of waste rock and graded to promote positive drainage.

3.3 Drill Core Storage

Drill core will be consolidated on the Boston Camp pad. Drill core boxes will be placed on pallets and strapped, inventoried and labelled. This area is outside of the 31 m-wide fish habitat buffer zone from the shoreline of Aimaokatalok Lake.

3.4 Decommissioning and Demolition of Containment Structures

3.4.1 Tank Farms

Tank Farms at Boston Camp include the primary bulk fuel storage to the north of the airstrip, the power plant fuel containment system and the jet fuel containment system all contained within secondary containment structures. There are also Tidy Tanks for heating fuel located within small secondary containment berms. The bedding, containment berm, and protective granular cover for the liners, of all containment structures on this site were constructed using crushed ore.

All tanks will be decommissioned, drained, and transported to the Doris North Waste Management Yard. Any remaining fuel will be consolidated and hauled to a designated fuel storage area at Doris Camp. At Doris Camp empty drums will be cleaned, crushed and disposed of as non-hazardous waste (see Section 3.8.1). Rinse water from the washing process will be routed through an oil/water separator and not discharged to the environment until treated water meets water quality standards specified in the Water Licence. Tanks will shipped off-site for resale or disposal.

The granular cover layer above the liner will be tested for petroleum hydrocarbons and other contaminants. Depending on the test results, the material will either be consolidated within the ore pile or handled as contaminated soil and treated as described in Section 3.10. Once exposed, the tank farm liner will be cleaned to remove any hydrocarbon contamination, and then cut into manageable pieces for disposal. The underlying bedding soil and containment berm will be tested for the presence of petroleum hydrocarbons. If contaminated, the ore will be remediated as described in Section 3.10, while the uncontaminated ore will be consolidated within the ore stockpile.

The portable pollution control berms situated in the jet fuel containment system will be cleaned, dismantled, and loaded into containers for offsite disposal as non-hazardous waste.

All areas will be regraded for positive drainage after the containment structures are removed. The area will not be revegetated because it was built on a rock pad or bedrock.

3.4.2 Sedimentation Ponds

Two sedimentation ponds were constructed at the Boston Camp (Figures 2 and 3). A high density polyethylene (HDPE) lined pond (Sedimentation Pond 1) and an unlined pond (Sedimentation Pond 2) are located on the east edge of the camp.

Sedimentation Pond 1 was used to settle drilling mud from regional exploration drilling. Water contained in the pond will be tested and discharged to the tundra or treated to meet the site specific discharge criteria. Settled sediments will be allowed to dry, then excavated and temporarily stockpiled to allow for the removal of the liner. Liner will be cleaned, cut into manageable pieces, and disposed of as non-hazardous waste. The pond sediments will be tested for contaminants, and depending on the results will be shipped to a licensed offsite disposal facility or covered in place by pushing the containment berm inwards. The area will be subsequently regraded to ensure positive drainage.

Sedimentation Pond 2 was initially used to settle drilling fluids during underground development. Since Newmont began exploration at the Boston deposit, the pond has not been used. The pond is unlined and the east wall has been breached. Sediment in the pond will be tested for contaminants, and depending on the test results will be either shipped offsite for disposal in a licensed facility or covered in place with by pushing the containment berm inward. The area will be regraded to ensure positive drainage. All solid waste other than fine sediments will be collected and disposed of as described in Section 3.8.1.

For cost estimating purposes, it was assumed the sediments within the sedimentation ponds can be disposed of on site without special treatment.

3.4.3 Land Farm

The soils within the Land Farm will be tested for petroleum hydrocarbons. Soil hydrocarbon concentrations will be compared to the Nunavut Tier 1 Environmental Guidelines for Contaminated Site Remediation for industrial land use and coarse grained soils (EBA 2012a, EBA 2012b). Soils that meet these remediation criteria may be used for reclamation. Soils not meeting these criteria will continue to be remediated in the Land Farm. Drums containing hydrocarbon impacted soil will be emptied onto the Land Farm pad as space becomes available or will be shipped offsite for disposal. Land farming will continue until soils meet remediation objectives or an alternate remediation method is employed.

When remediation is complete, the liner will be cut into manageable pieces for disposal. The containment area will be regraded to ensure positive drainage. These materials will be processed as non-hazardous waste.

3.5 Decommission Mine Workings

3.5.1 Underground Portal

The underground portal will be closed in accordance with regulations. A 15 m thick rockfill plug will be installed in the underground portal. The portal opening will be backfilled with waste rock and contoured to prevent surface water ponding. The entire area will be regraded to promote positive drainage and to conform to the site topography.

3.5.2 Vent Raise

The wooden headframe raise and the ventilation fan will be removed and disposed of as non-hazardous waste. The raise will be capped with reinforced concrete with gas vent in accordance with the appropriate mining regulations.

3.6 Ore Stockpile Closure

The ore stockpile will be consolidated and managed to reduce metal loading to the receiving environment. Ore which has been used as surface dressing, repairs, or for construction of the various containment facilities around site will be collected and consolidated within the existing ore stockpile

The ore piles will be consolidated in an area approximately two-thirds of the original footprint, regraded to prevent ponding, and covered with an HDPE liner. A protective cover of 0.3 m of waste rock would be placed over the geomembrane.

3.7 Decommission Camp Rock Fill Pad

All rock pads on site were built using rock from underground development. The waste rock is non-acid generating and has a significant acid neutralisation potential (SRK 2009). Some of the waste rock from the camp pad may be excavated and used as backfill material where required, but the pad will always have a minimum thickness of 1 m. The rock fill pad will be left in place, regraded to promote positive drainage and prevent the ponding of surface water. The culvert from the Core Storage Road will be removed and a swale created to restore the natural flow path.

3.8 Collection and Disposal of Waste

3.8.1 Non-Hazardous Waste

The demolition debris from camp structures and other facilities will be collected and segregated as burnable waste or non-burnable waste as appropriate. Burnable waste will be disposed of by open burning at a designated location. Prior to on site burning appropriate approvals and permissions will be attained.

Following dismantling, demolition, and removal of all structures, a general site wide cleanup will be conducted to gather all waste on site.

Non-burnable non-hazardous waste will be loaded into containers, hauled to Roberts Bay, and transported for offsite disposal. All materials shipped off site will be disposed of in a licensed facility at Hay River, NT, (or another designated location) in accordance with appropriate Federal, Provincial, Territorial or Municipal non-hazardous waste regulations.

Ashes from the incinerator will be managed according to existing management plans.

Prior to demolition, all water supply and sewage pipelines are to be flushed and the sludge and waste water will be collected and loaded into 55 gallon drums. The drums will be transported to the Doris North camp treatment facility for processing.

3.8.2 Hazardous Waste

Hazardous wastes and chemicals will be collected and stored in appropriately sealed and labelled containers and/or empty drums. This includes any remaining fuel, hydraulic oil, antifreeze, lubricants, paint, paint thinners, cleaning supplies, degreasing agents and any other chemicals that cannot be used for their intended purpose. The containers will be hauled to Doris North and consolidated with other hazardous waste for transport and disposal offsite. Materials shipped off site will be disposed of in a licensed facility in accordance with appropriate Federal, Territorial, Provincial or Municipal hazardous waste regulations.

3.9 Stabilization of Permafrost Degradation

A few areas were previously identified as permafrost degradation areas which require stabilization. These areas of permafrost degradation are as follows:

- Airstrip (permafrost degradation ponds were found at different locations along the east and west shoulders of the airstrip due to historic drilling activities) (SRK 2011),
- Drill Road,
- Drill sites,
- Core Storage Road,
- Diamond Drill Cuttings and Sedimentation Pond,
- Road to Dock (possible small pockets of permafrost degradation) (SRK 2011),
- Road to airstrip (SRK 2011), and
- Sewage Treatment Plant discharge.

Areas of depression should be filled in with and/or covered with a 1 m thick thermal blanket consisting of rock, overburden, drill cuttings, wood chips or a mixture of these during the winter season. The surface of the areas will be regraded to ensure positive drainage.

3.10 Remediation of Hydrocarbon Impacted Soils

A field investigation will be completed after demolition and debris removal to define the nature and extent of hydrocarbon contamination. A Phase 3 Environmental Site Assessment will be conducted in the summer of 2012. Soil hydrocarbon concentrations will be compared to the Nunavut Tier 1 Environmental Guidelines for Contaminated Site Remediation for industrial land use and Coarse grained soils (EBA 2012a, EBA 2012b). Soils that meet these remediation criteria may be used for reclamation. Soils not meeting these criteria will be remediated. Remediation options will be assessed after the field investigation. Selection of the type of remediation used to address each of these areas is dependent on the following site specific factors:

- Size of the impacted area and volume of impacted soils,
- Type of hydrocarbons present, and
- Ground conditions of the impacted area (i.e. solifluction and/or potential for permafrost degradation).

Remediation alternatives will be the same as proposed for Windy Camp and the Patch Lake Facility (SRK 2012). Excavation and disposal offsite and in situ bioremediation are the preferred alternatives.

Impacted soils will be excavated and either relocated to the existing Land Farm for treatment or placed in megabags and hauled to Roberts Bay for disposal at a licensed facility near Hay River (or other location). Excavated soils or soils previously land farmed which meet the remediation criteria will be used for reclamation or stockpiled.

Excavations will be backfilled with suitable backfill to prevent surface water ponding and permafrost degradation. Backfilled excavations will be covered with a minimum 1 m thick layer of waste rock to prevent permafrost degradation and erosion.

Smaller isolated areas of hydrocarbon impact will be remediated in situ using bioremediation.

The option to encapsulate impacted soils in place is also preserved should it be demonstrated that hydrocarbon risk is minimal and/or other remediation methods are ineffective or inappropriate for a given area.

3.11 Drainage Control and Revegetation

Once all surface infrastructure has been removed and the area has been cleared of debris, the areas will be regraded to ensure no ponding of water. In the summer prior to regrading, the areas should be staked in the field to be easily identified during the winter reclamation work.

Additional areas will not be disturbed during regrading. Any remaining depressions which cannot be regraded will be backfilled with suitable backfill to prevent surface water ponding and permafrost degradation. All roads and trails associated with the existing Boston Camp will be ripped and scarified to promote natural revegetation, reduce erosion potential, and ensure the restoration of natural drainage pathways in a low maintenance fashion. Where there is sufficient soil substrate to support vegetation, appropriate revegetation technology will be implemented.

Vegetation has been damaged in the following areas:

- Sewage Treatment Plant Discharge,
- Drill sites, where appropriate,
- Area South of the Core Storage Road, and
- Area between the Drill Road and the Airstrip.

Areas with only minor vegetation damage and no evidence of ponding will be appropriately revegetated. Areas of complete vegetation dieback and ponding will be backfilled with suitable backfill to prevent surface water ponding and permafrost degradation. The areas will be regraded to ensure positive drainage and revegetation where appropriate.

3.12 Drill Site Reclamation

A total of 545 drill holes are within an area of 0.81 km^2 in the vicinity of Boston Camp. Drill holes will be inventoried and the extent of remediation work required for each location will be assessed during a 2012 summer program. For drill hole reclamation, above ground casing will be cut at grade, and a cap will be hammered in place to seal the hole. The steel casing will not be backfilled. Areas of permafrost degradation around boreholes, if present, will be covered with a 1 m thick thermal blanket and graded to ensure positive ponding. Erosion control measures will be installed where required and vegetation growth will be encouraged where possible by scarifying the soils and seeding. Cost estimates assume that an average area of 10 m^2 will be covered, and that backfilling will be done in the winter using low ground pressure vehicles. Scarifying and seeding will be done in the summer.

An adaptive management approach will be used to reclaim areas where saline drilling fluid spills have affected vegetation. This first phase of this adaptive management approach will be to revegetate these areas with salt tolerant species. The success of these efforts will be monitored by an Arctic vegetation specialist. Based on the results, management alternatives will be developed and implemented.

Core remaining at the drill sites will be relocated to the core storage area on the Boston Camp pad.

4 Post–Closure Monitoring

Monitoring to confirm that the closure plan and associated remediation techniques have achieved the stated closure objectives will be carried out as follows:

- Once closure activities have been completed, the site should be visually inspected by a qualified Professional Geotechnical Engineer annually for three consecutive years to ensure that permafrost degradation areas have stabilized and that remediation objectives for hydrocarbon contaminated soils have been achieved.
- The site should be inspected by an Arctic vegetation specialist to confirm suitability of the revegetation efforts. Inspections should be completed at the following intervals, unless otherwise recommended by the vegetation expert: Year 1, Year 3, Year 7 and Year 10 post closure.
- The annual seep sampling program should be continued to detect any changes in the waste rock or ore stockpile leachate chemistry during post-closure monitoring.
- Soil quality in the Land Farm and/or the hydrocarbon impacted areas where in situ bioremediation has been implemented will be monitored every two years until site soil remediation objectives have been met.

5 Cost Estimate and Scheduling

5.1 Closure Cost Estimate

Appendix B provides details of the estimated closure costs for the Boston Camp site. The estimated closure cost for Boston Camp site is $4,700,000 in undiscounted 2012 Canadian dollars. These costs assume that in addition to remediation of hydrocarbon contaminated soils that all salvageable equipment and infrastructure will be relocated to the Doris Camp site.

A contingency of 20% of the direct costs is also included. The purpose of the contingency is to account for costs that uncertain given the current level of information. These items include hydrocarbon impacted soil remediation, drill hole reclamation and material quantity estimates.

5.2 Scheduling

Inventory of drill sites and determination of required remediation work will commence in 2012. Closure of the Boston Camp will occur during the care and maintenance period or upon closure of the entire Hope Bay Project. Removal of waste from site, and equipment demobilization will be completed after decommissioning. In situ bioremediation and/or land farming of hydrocarbon impacted soil may take several years.

This report, "**Hope Bay Project, Boston Camp Revised Interim Closure Plan**," was prepared by SRK Consulting (Canada) Inc.

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Senior Consultant

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

Disclaimer

"This report and the opinions and conclusions contained herein ("Report") contains the expression of the professional opinion of SRK Consulting (Canada) Inc. ("SRK") as to the matters set out herein, subject to the terms and conditions of the agreement dated [HBML.BOC-CM.PSA.003] (the "Agreement") between Consultant and Hope Bay Mining Ltd. ("Hope Bay Mining"), the methodology, procedures and sampling techniques used, SRK's assumptions, and the circumstances and constraints under which Services under the Agreement were performed by SRK. This Report is written solely for the purpose stated in the Agreement, and for the sole and exclusive benefit of Hope Bay Mining, whose remedies are limited to those set out in the Agreement. This Report is meant to be read as a whole, and sections or parts thereof should thus not be read or relied upon out of context. In addition, this report is based in part on information not within the control of SRK. Accordingly, use of such report shall be at the user's sole risk. Such use by users other than Hope Bay Mining and its corporate affiliates shall constitute a release and agreement to defend and indemnify SRK from and against any liability (including but not limited to liability for special, indirect or consequential damages) in connection with such use. Such release from and indemnification against liability shall apply in contract, tort (including negligence of SRK whether active, passive, joint or concurrent), strict liability, or other theory of legal liability, provided, however, such release, limitation and indemnity provisions shall be effective to, and only to, the maximum extent, scope or amount allowable by law."

6 References

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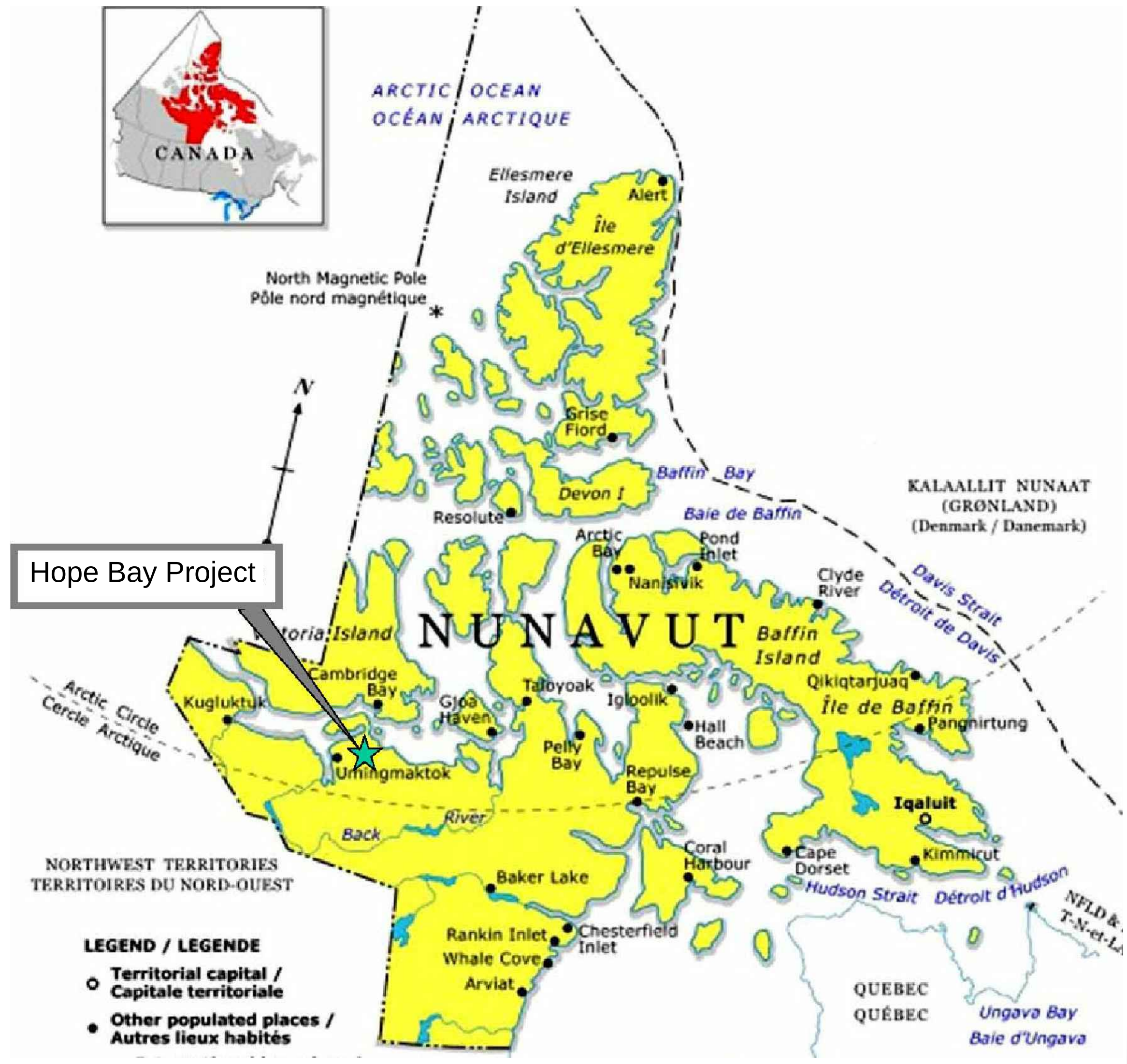
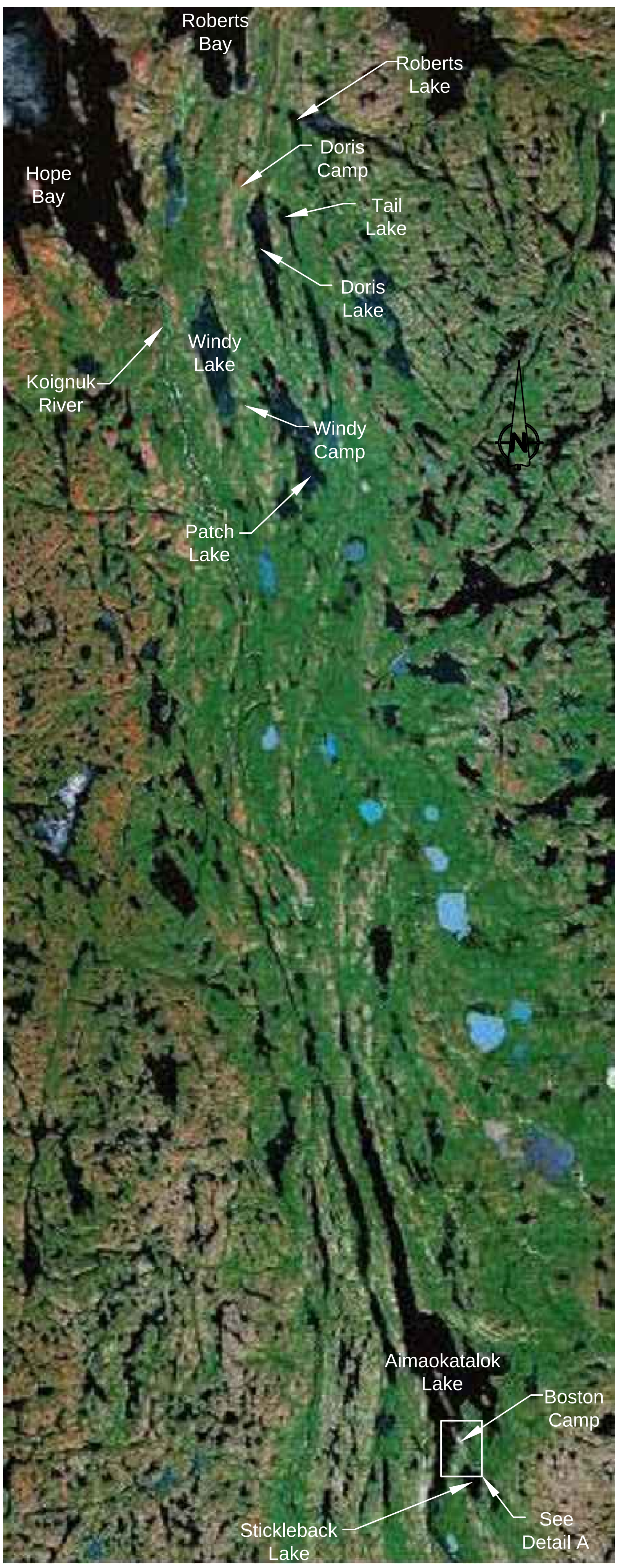
Figures



LOCATION MAP

Not To Scale



REGIONAL SATELLITE PHOTOGRAPH

0 5000 15000 25000

Scale in Metres

DETAIL A

Not To Scale

srk consulting	NEWMONT	Boston Camp Closure Plan
		Location Map
SRK JOB NO.: 1CH008.065_500	HOPE BAY MINING LTD.	DATE: June 2012
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		FIGURE: 1

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Photo Taken July 2011

srk consulting	NEWMONT	Boston Camp Closure Plan
SRK JOB NO.: 1CH008.065.Task 500	HOPE BAY MINING LTD.	Boston Site Layout Looking South-West
FILE NAME: BOSTON_SitePlan_1CH008.065_Rev02_SA.dwg		DATE: June 2012 / APPROVED: IM / FIGURE: 2

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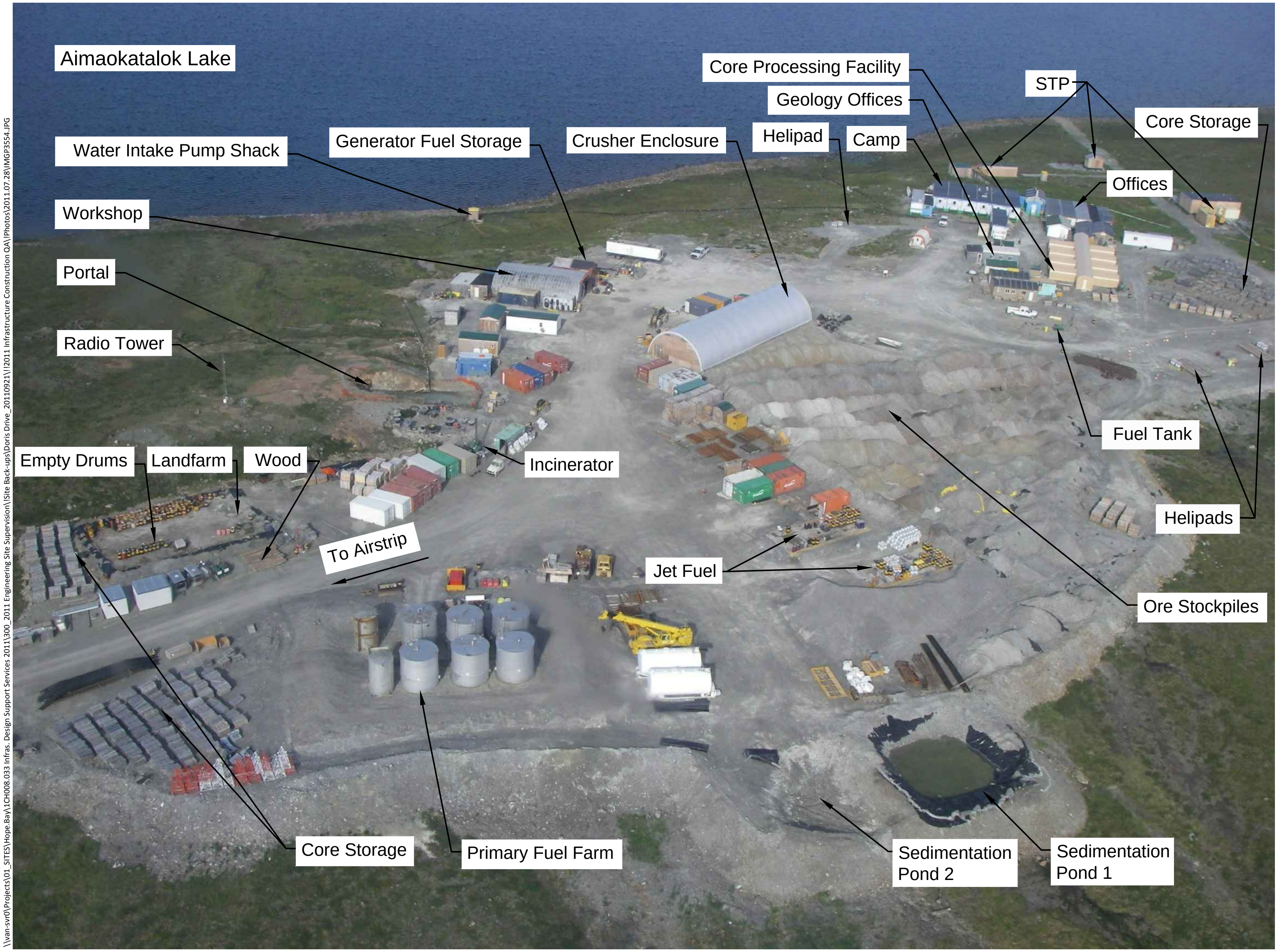

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HOPE BAY MINING LTD.

Boston Camp Closure Plan

Boston Site Layout Looking West

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June 2012	IM	3

Appendices

Appendix A
2007 Boston Camp Closure Plan

CLOSURE AND RECLAMATION PLAN

For the
BOSTON ADVANCED EXPLORATION PROJECT
NUNAVUT

BOSTON CAMP
BOSTON DECLINE
BOSTON EXPLORATION DRILLING

NWB WATER LICENSE 2BB-BOS0712

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September 2007

TABLE OF CONTENTS

Page

LIST OF FIGURES

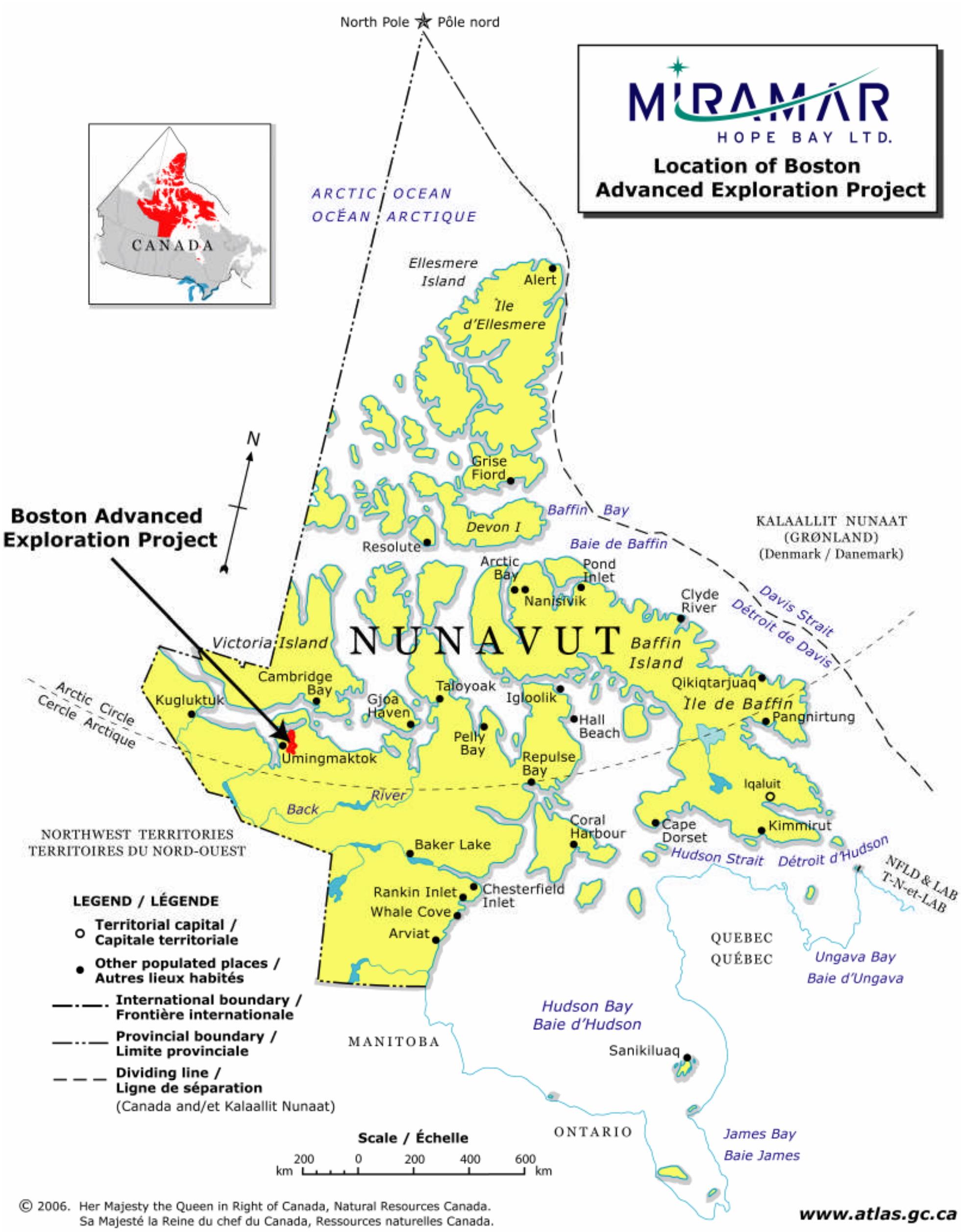
LIST OF TABLES

1.0 BACKGROUND

1.1 Scope

Miramar Hope Bay Ltd. (MHBL), owner and operator of the Boston Advanced Exploration Project, is conducting mineral exploration at the Boston resource area on the Hope Bay greenstone belt from a base at Spyder Lake known as Boston Camp. The Boston Camp (Boston) is located within the Kitikmeot Region of Nunavut, approximately 170 km southwest of Cambridge Bay and approximately 60 km south of the Arctic Ocean, at latitude 67^{o} 39' N and longitude 106^{o} 22' W, (see Figure 1.1).

Figure 1-1: Location of Boston Advanced Exploration Project



Boston Camp is located above the high water mark on the southeast shore of Spyder Lake. The camp provides support services directed towards the MHBL exploration activity in and around the Boston mineral resource area, in particular servicing of exploration drills operating within and around the Boston resource area (south end of the Hope Bay Greenstone Belt).

Boston Camp is located on a peninsula with Spyder Lake to the north and west of the camp and Stickleback Lake to the east and south. The camp sits on an esker that is slightly higher than the surrounding water bodies. There is an elevation drop of less than 6° slope gradient towards the west into Spyder Lake and a slope gradient of slightly greater than 6° to the east extending into Stickleback Lake.

The camp is serviced by a short all weather airstrip (~500 meters in length), located immediately to the south of the camp. The airstrip is too short for large aircraft and is limited to Twin Otters and Dornier type aircraft. In a situation where a larger aircraft is required, an ice strip has previously been constructed on Spyder Lake. The Boston Camp is located on Inuit Owned Land (administered by the KIA).

MHBL has prepared this Closure and Reclamation Plan (Closure Plan) in accordance with Part I of Water License No. 2BB-BOS0712 for submission to the Nunavut Water Board (NWB). This Closure Plan is intended to outline how the Boston Advanced Exploration Project will be closed and reclaimed once there will be no further planned use of the site. The Plan also includes reclamation of the underground exploration decline (currently flooded and frozen) and reclamation of the regional drilling sites disturbed as part of the Boston regional exploration activity.

The objective of this Plan is to ensure that issues associated with the effective closure and reclamation of all of these sites are considered in sufficient detail at the earliest possible stage. The Closure Plan is considered to be a “living” document and as such, is anticipated to undergo annual review and further revision as needed to address any changes in the site conditions. The level of detail of closure and reclamation planning contained within the Plan will continue to increase with subsequent revisions. Those revisions will incorporate the lessons learned from ongoing operation and progressive reclamation completed at this site. Moreover, the revisions will also reflect the input from the Kitikmeot Inuit Association (KIA) as representative of the land owner (the Inuit), local communities, the Nunavut Water Board (NWB) and other stakeholders who have an interest in how the Boston Advanced Exploration Project facilities are ultimately reclaimed. This document provides a basis for continuing discussions with stakeholders regarding closure and reclamation at this site.

1.2 Objectives

The Mine Reclamation Policy for Nunavut was developed by DIAND in 2002 for the protection of the environment and the disposition of liability relating to mine closures. The policy states that all mines in Nunavut should be planned, operated, closed and decommissioned in an environmentally sound manner in accordance with current mine closure and reclamation practices.

These practices include:

- Submission of a mine reclamation plan to regulators and landowners, approval of the plan before the commencement of mine production, regular plan updates, and annual progress reclamation reports;
- Progressive mine reclamation, consistent with the approved plans and current mine reclamation practices;
- Financial assurance that fully covers the outstanding liabilities at any period of the mine operations; and
- Sites are reclaimed and monitored at the financial expense of the mining company.

Mining and mineral exploration is considered to be a temporary use of the land. At closure, the mine site, mineral exploration camp and the land affected by the mining or exploration activities are to be reclaimed to achieve the following objectives (listed in order of priority):

- Protection of public health and safety through the use of safe and responsible reclamation practices;
- Reduction or elimination of environmental effects once the mine ceases operation;
- Re-establish conditions that permit the land to return to a similar pre-mining land use; and
- Reduce the need for long-term monitoring and maintenance by establishing physical and chemical stability of disturbed areas.

These broad reclamation objectives are drawn from the Mine Site Reclamation Guidelines for the NWT that were issued by Indian and Northern Affairs Canada (INAC) in January 2006 to assist proponents of mining and mineral exploration projects in understanding the expectations of DIAND for closure and reclamation planning in the Northwest Territories and Nunavut. MHBL has adopted these objectives as the basis for establishing site specific reclamation objectives for the Boston Advanced Exploration Project.

The goal of reclamation is to prevent progressive degradation of a closed mining and/or mineral exploration site, and to enhance natural recovery of areas affected by mining or mineral exploration. Landscape reclamation is driven by the following specific objectives:

- To establish stable landforms;
- To protect the water resources in the local area;
- To facilitate natural recovery of areas affected by mining, mineral exploration and related activities at the Project site; and

- To re-establish productive use of the land and water in the vicinity of the Boston Advance Exploration Project site for future generations in a manner that is consistent with the pre-development use of the land and water. In this case, productive use refers to use of the area by wildlife and for traditional activities as practised by the local communities and First Nations prior to exploration activities.

This does not mean that the exploration and mining related activity will not result in a permanent change to the landscape. Certain features, such as the underground decline, will become permanent changes to the current landscape. Other features, such as roads, airstrips and building pads, will alter the landscape for many years (perhaps centuries) until natural forces obliterate or disguise their presence even after they are reclaimed. In other words, reclamation cannot totally remove the entire disturbance caused by the mineral exploration activity associated with the Boston Advanced Exploration Project.

Reclamation cannot return the disturbed sites to a pristine condition. Reclamation can however ensure that these disturbances are not causing degradation of the surrounding water, air and land after the mineral exploration activity no longer continues.

The establishment of stable landforms (primarily establishment of stable slopes and drainage pathways) through proper engineering practises will reduce the requirements for prolonged maintenance of the disturbed sites after reclamation is complete. It is MHBL's objective that reclamation be completed at the Boston Advanced Exploration Project in a manner where future maintenance requirements are minimal, limited to periodic site visits, inspections and periodic maintenance of erosion damage and cleaning of drainage pathways. The objective is to get as close as possible to a "maintenance free" site through proper reclamation techniques, in other words to strive for a "walk away" reclaimed site. This means that drainage pathways, such as drainage swales and ditches, will be designed wherever possible and practical to be self-cleaning or immune to erosion problems that could otherwise require an ongoing maintenance requirement.

The targeted post-closure land use for the Boston Advanced Exploration Project is wildlife habitat. This end land use is a reflection of the current use of the tundra area surrounding the Project site by wildlife (both resident and migratory). It is acknowledged that local communities and First Nations have made use of the surrounding area for traditional activities and reclamation of the Boston Advanced Exploration Project will target leaving a reclaimed site that is protective of the surrounding water, air and land to enable such traditional activities to continue.

It is also recognized that aesthetics (how a reclaimed site looks) is of concern to the Inuit, local communities, and other stakeholders. This concern is acknowledged by MHBL and aesthetics have been considered in the design of the specific reclamation activities to be applied at the Boston Advanced Exploration Project site. The first and foremost approach in this respect is to leave a "clean" site. In other words, all remaining potentially hazardous materials (chemicals, reagents, hydrocarbons, explosives, etc.) will be removed from the site after exploration activity ceases. These products will be transported south for use elsewhere (recycling) or for appropriate disposal in a licensed disposal facility. All non-hazardous materials such as buildings, demolition debris, steel, vehicles, general garbage and debris will be removed from the surface and disposed of in the appropriate non-hazardous landfill site to be constructed at the Doris North Mine within Quarry 2. This landfill will then be closed out and covered with a layer of quarried rock. It is expected that permafrost will become established within the closed out landfill in a short time frame after closure. Precipitation runoff will be directed away from the reclaimed landfill by a series of upslope berms. There will be visual changes to the pre-development landscape primarily associated with the remaining remnants of the site roads, airstrip and building and laydown pads. Roads will be reclaimed to allow restoration of natural drainage pathways in a low maintenance fashion (i.e., no culverts, bridges or berms) but the disturbed ground will be evident for many years before natural processes obliterate or disguise their presence.

1.2 Rationale and Approach

MHBL has incorporated, where applicable, the guiding principles, objectives and standards set out in the INAC guiding documents discussed in Section 1.2 in the preparation of the Closure and Reclamation Plan for the Boston Advanced Exploration Project.

The Closure and Reclamation Plan will comply with the conditions of all permits, regulations, and industry standards that are applicable to this Project, such as the land use license issued by the Kitikmeot Inuit Association and the water license issued by the Nunavut Water Board. The following principles have been established to guide the development of the overall closure plan:

- Plan and implement in accordance with all applicable regulations;
- Apply cost effective and appropriate closure and reclamation practices to reduce environmental risks and allow traditional use of the land;
- Conduct studies to predict post-closure environmental effects;
- Maintain a program of progressive closure and reclamation as an integral part of project operations; and
- Incorporate new reclamation methods and procedures where practical under northern specific conditions.

MHBL is committed to reducing the residual environmental effects at the site upon closure. Consequently, exploration activity is planned in conjunction with reclamation planning. Reclamation work forms an integral part of the exploration plan, for example the closeout and reclamation of all drill sites is included as an integral part of the exploration budget, schedule and plan. Furthermore, reclamation will be carried out progressively during the life of the Project where practical.

Project decommissioning and reclamation will be carried out using conventional state-of-the-art, northern mine construction and reclamation techniques where practical. MHBL plans to select closure technologies and design elements that not only comply with accepted protocols and standards, but will also use best available technologies that are practical for use at this site.

This Plan provides a description of the anticipated decommissioning and reclamation activities for all of the sites disturbed through mineral exploration at the Boston Project. This Closure and Reclamation Plan describes the areas of disturbance that require reclamation, summarizes the proposed strategy and schedule for decommissioning and reclamation of each area, and outlines the work to be carried out. The specific details of the reclamation plan are likely to evolve as exploration activity progresses. Consequently, this plan will be updated during the Project life.

Key closure and reclamation issues for this Project are summarized as follows:

1. All buildings and equipment will be demolished and/or removed from the site as part of final reclamation. Demolition debris with no salvage value will be buried in the Doris North Mine non-hazardous waste landfill. All buildings and equipment will be cleaned of potentially hazardous materials prior to demolition. All remaining inventory of petroleum products, reagents, chemicals, etc. will be removed from the site as part of final reclamation. Consequently, no buildings, equipment, hydrocarbons or chemicals will remain at the site once reclamation has been completed; and

2. All exploration drill sites will be cleaned up as soon as practical following completion of the drilling activity. This will involve removal of all equipment, potentially hazardous materials and drill cuttings. The drill casing protruding from the drill hole will be cut flush with the natural ground and capped. The disturbed area will be backfilled with drill cutting where necessary and then hand contoured using shovels and rakes to prevent ponding of water and remove all potential drainage barriers.

1.3 Land Use Objectives and Alternatives

The key objectives of the reclamation plan are to:

- Protect public health and safety through the use of safe and responsible reclamation practices;

- Reduce or eliminate environmental effects once the mineral exploration activity ceases;

- Re-establish conditions that permit the land to return to a similar pre-exploration land use; and

- Reduce the need for long-term monitoring and maintenance by establishing physical and chemical stability of disturbed areas.

The Boston Advanced Exploration Project is a remote site in an Arctic setting. Pre-development land use can be classified as wildlife habitat with occasional use by Inuit people for subsistence hunting and fishing. MHBL's closure objectives are to return the land after mineral exploration and reclamation have been completed to healthy, self-sustaining wildlife habitat suitable for use by Inuit people for subsistence hunting and fishing.

Alternative land use objectives considered include:

- Use of the site as a continued base for mineral exploration in the region. This may be viable in the short term but not sustainable over the long term. The viability of a local exploration base will diminish as the area is explored and the distance between prospective properties and the base camp becomes greater.

This closure and reclamation plan is predicated upon the objective of removing all facilities from the Boston Advanced Exploration Project sites and leaving the sites in a chemically and physically stable condition so that wildlife and fish can safely reside in and use this area as habitat without adverse health impacts to themselves or to the Inuit people who may use this wildlife for subsistence purposes.

The present reclamation guidelines for Nunavut (Mine Site Reclamation Guidelines for the NWT, INAC 2006) provide direction on methodologies and reclamation procedures and provide broad reclamation objectives and criteria but there is still a need to establish site specific reclamation criteria for each mineral exploration site against which reclamation progress can be measured. In other words, there is need to develop site specific criteria that can be used by the mineral exploration company, the land owner (Kitikmeot Inuit Association), regulatory agencies, the Inuit of the West Kitikmeot, local communities, and other stakeholders to know when each disturbed area has been successfully reclaimed to an acceptable standard (i.e., to provide a benchmark to allow all parties to know when reclamation has been successfully completed). To date, these site specific criteria have not been developed by the regulatory agencies.

MHBL acknowledges that such site specific reclamation criteria need to be developed in consultation with the Kitikmeot Inuit Association, local communities, and other stakeholders including the regulatory agencies. This section is intended to provide a starting point for the development of these site specific reclamation criteria for the Boston Advanced Exploration Project. For this phase, MHBL has put forward suggested site specific reclamation criteria for use at the Boston Advanced Exploration Project that can act as a basis for future dialogue and consultation.

Reclamation criteria will be used to assess the final reclamation obligations for closure of the Boston Advanced Exploration Project. These criteria will establish benchmarks that will be used to determine when decommissioning, reclamation and monitoring programs have been completed and remaining liability has been removed. The objective is to reach a “maintenance free” reclaimed site where minimal active management or maintenance is required.

Completion of reclamation is the time at which all reclamation criteria have been met. To facilitate this process, MHBL have adopted an approach similar to that used at EKATI$_{TM}$ that looks at three stages of reclamation:

- **Stage 1: Decommissioning Stage** – removal of contaminants, removal of buildings and structures, creation of a stable water management or drainage system across the reclaimed site and the creation of geotechnically safe landforms;

- **Stage 2: Reclamation Stage** – the return of the disturbed site to a form and productivity level that conforms to the defined end land use for each component of the mine site. Enhancement of natural revegetation and post-closure environmental monitoring programs are in place, as and where required; and

- **Stage 3: Completion Criteria Conformance** – reclamation is complete and environmental monitoring is in place to measure for reclamation success and to demonstrate that the site specific reclamation criteria have and will continue to be achieved in a sustainable fashion. At this phase the land owner (the KIA) and other regulatory agencies will be asked to confirm that the reclamation criteria have been met.

The proposed site specific reclamation criteria for the Boston Advanced Exploration Project are set to ensure that closure and reclamation of the site meets the overall objectives for mine site reclamation in Nunavut as established in the Mine Site Reclamation Guidelines for the NWT. The objectives of the site specific reclamation criteria can be considered under the following four categories:

- Physical stability;

- Chemical stability;

- Ecological sustainability; and

- Climate and geographic stability.

1.3.1 Physical Stability

Physical stability is ensured by protecting the surface against wind and water erosion, providing for surface drainage, minimizing hazardous conditions, and contouring the surface to meet land capability objectives. Physical structures such as laydown areas, roadways, the airstrip, rock excavations, sedimentation ponds, drainage ditches, and rock pads will meet the following requirements:

- Be physically stable and designed in accordance with acceptable design criteria;

- Pose minimal hazard to the public and wildlife health and safety as a result of failure or physical deterioration;

- Continue to perform the function for which they were designed; and

- Have stable land surfaces with minimal surface erosion.

1.3.2 Chemical Stability

The reclaimed mine site at the Boston Advanced Exploration Project site will be chemically stable. This means surface waters will be protected against significant adverse environmental effects resulting from discharges. In addition, discharges will not endanger public and wildlife health and safety, nor result in unacceptable deterioration of environmental resources.

Aspects to be monitored closely will include short-term and long-term changes in the geochemistry of any soil materials used in the construction of roads and building pads, seepage and runoff from these facilities, and the chemistry of surface water draining from the site. Potential effects due to any acid rock drainage, metal leaching and flushing of other chemicals via surface runoff will be mitigated. Control and mitigation measures will be specific to the source and contaminant types. The success of physical reclamation at the Boston Advanced Exploration Project site will influence chemical and physical stability.

1.3.3 Ecological Sustainability

The ecological sustainability of the reclaimed site and potential effects on the surrounding environment are closely related to methods of reclamation, the end land use, and the physical and chemical characteristics of the site. Ecological sustainability at Boston Advanced Exploration Project is reached when mineral exploration related physical or chemical impediments to the establishment of natural ecological processes are removed thereby allowing the establishment of self-sustaining and productive ecosystem (including progressive natural changes in habitats) vegetation, aquatic and wildlife habitats to establish. Vegetation, aquatic and wildlife habitats would be stable, self-sustaining, and productive, and meet the agreed stakeholder requirements.

1.3.4 Climate and Geographic Stability

Regional and local climatic information will be used to resolve questions concerning aspects such as hydrology and permafrost growth. The effects of climate on reclamation measures include: precipitation and extreme events such as floods, freeze-thawing and aggradation of permafrost into mineral exploration infrastructure. Precipitation affects the overall water balance of the site and hence influences the chemical and physical stability of the site together with its contaminant transport parameters. Extreme events influence erosion and subsequently the physical stability of the site.

The effects of geography on reclamation include proximity of local populations and resource users downstream of the Project sites, the proximity of surface water which will influence their susceptibility to contaminants of concern released from the reclaimed Project components and the geographic location of reclaimed Project components in relation to watersheds.

1.4 Land Reclamation Units and Proposed Site Specific Reclamation Criteria

It is convenient to separate facilities into components (land reclamation units) to design and plan reclamation work. For the Boston Advanced Exploration Project, facilities have been divided into the following four land reclamation units:

- Boston Camp;

- Boston underground decline;
- Boston airstrip; and
- Exploration drill sites.

Proposed site specific reclamation criteria for each of the four land reclamation units at the Boston Advanced Exploration Project are presented in Table 1.1.

Table 1.1: Proposed Site Specific Reclamation Criteria for the Boston Advanced Exploration Project

Land Reclamation Unit	Proposed Site Specific Reclamation Criteria			
	Physical Stability Requirements	**Chemical Stability Requirements**	**Ecological Sustainability Requirements**	**Climatic and Geographic Stability Requirements**
Boston Exploration Camp	1) All potentially hazardous materials removed from the site and shipped south for recycling or proper disposal. 2) Buildings and equipment cleaned prior to demolition and all hazardous materials recovered, packaged and removed prior to demolition. 3) All equipment and buildings demolished and the demolition debris encapsulated within an appropriate landfill within the Doris North landfill. 4) Site cleaned of all equipment, steel, containers and debris. All removed and buried within the Doris North landfill. 5) All fuel storage facilities cleaned of hydrocarbons then demolished and removed for encapsulation within the Doris North landfill. 6) No significant erosion of roadways, laydown areas and building pads after removal of buildings.	1) All hazardous materials removed. 2) All chemical/hydrocarbon spills remediated in-situ or removed. 3) No significant adverse water quality in drainage across former building pads and areas. 4) All liners and berms from within fuel tank farms removed and buried within the Doris North landfill. 5) All identified contaminated soils will be excavated and dependent on their level of contamination they will be either remediated on site, removed from site for off-site disposal in a licensed facility or landfill so that no significant contaminant release occurs with future site drainage from these sources.	1) No contact of wildlife or humans with contaminated soils due to removal and/or placement of separation barriers. 2) No significant health risks to wildlife or humans from the reclaimed roadways, laydown and building areas.	1) Site drainage restored across the remaining roadways, laydown and building pads through creation of permanent no maintenance swales or drainage channels to meet all precipitation events including extreme events without causing ponding or significant erosion in these areas.

Table 1.1: Continued

	Proposed Site Specific Reclamation Criteria			
Land Reclamation Unit	**Physical Stability Requirements**	**Chemical Stability Requirements**	**Ecological Sustainability Requirements**	**Climatic and Geographic Stability Requirements**
Boston Underground Decline and Workings	1) Salvageable equipment removed. All other equipment cleaned of hydrocarbons and other hazardous contaminants. 2) All mine entries sealed to prevent any future inadvertent access by humans or large wildlife using a combination of engineered concrete caps and/or backfill for raises and a backfilled rock plug in the adit portal.	1) All potentially hazardous materials removed from the UG mine. 2) All chemical/hydrocarbon spills and contaminants remediated in-situ or removed. 3) All potentially acid generating ore and waste rock stored on surface removed for processing at the Doris North Mill or for placement UG as backfill within the Doris North mine. 4) Should future global warming trends cause permanent thawing of the permafrost, allow subsequent natural flooding of the closed mine workings to minimize ARD generation.	1) Wildlife unable to enter or come into contact with UG mine workings to protect wildlife health and safety.	1) Permafrost is not required to be sustained within the closed out underground mine workings. 2) Dry underground mine conditions are not required in the event of global warming.

Table 1.1: Continued

	Proposed Site Specific Reclamation Criteria			
Land Reclamation Unit	**Physical Stability Requirements**	**Chemical Stability Requirements**	**Ecological Sustainability Requirements**	**Climatic and Geographic Stability Requirements**
Boston Airstrip	1) All potentially hazardous materials removed from the site and shipped south for recycling or proper disposal. 2) Equipment cleaned prior to demolition and all hazardous materials recovered, packaged and removed prior to demolition. 3) All salvageable equipment shipped off-site. Non salvageable equipment removed with the demolition debris encapsulated within an appropriate landfill at Doris North. 4) Site cleaned of all equipment, steel, containers and debris. All removed and buried within the landfill at Doris North. 5) No significant erosion of airstrip after removal of equipment.	1) All hazardous materials removed. 2) All chemical/hydrocarbon spills remediated in-situ or removed. 3) No significant adverse water quality in drainage across former airstrip. 4) All identified contaminated soils will be excavated and removed from site for off-site disposal in a licensed facility so that no significant contaminant release occurs with future site drainage from these sources.	1) No contact of wildlife or humans with contaminated soils due to removal and/or placement of separation barriers. 2) No significant health risks to wildlife or humans from the reclaimed area.	1) Site drainage restored across the remaining area through creation of permanent no maintenance swales or drainage channels to meet all precipitation events including extreme events without causing ponding or significant erosion in these areas.

Table 1.1: Continued

	Proposed Site Specific Reclamation Criteria			
Land Reclamation Unit	**Physical Stability Requirements**	**Chemical Stability Requirements**	**Ecological Sustainability Requirements**	**Climatic and Geographic Stability Requirements**
Exploration Drill Sites	1) All material, piping and equipment removed. 2) All drill cuttings removed. 3) All other hazardous materials packaged and removed from site for appropriate disposal. 4) Hand contouring of each drill site using shovels and rakes to prevent ponding of water and to remove potential drainage barriers. 5) Cut all protruding drill casing flush with ground and cap drill holes.	1) No adverse drainage from the drill site area into the surrounding water courses. 2) All chemical spills and contaminants remediated in-situ or removed.	1) No contact of wildlife or humans with contaminated soils due to removal and/or placement of separation barriers. 2) No significant health risks to wildlife or humans from the reclaimed drill sites.	1) Site drainage restored across the drill sites through creation of permanent no maintenance swales or drainage channels to meet all precipitation events including extreme events without causing ponding or significant erosion in these areas.

1.5 Proponent Information

The Boston Advanced Exploration Project, a resource component of the Hope Bay Belt, is owned by Miramar Hope Bay Ltd., a wholly owned subsidiary of Miramar Mining Corporation (MAE-TSX).

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2.0 PRE-DEVELOPMENT ENVIRONMENTAL BASELINE

The following section provides a short summary description of the pre-development environmental condition and land use of the Boston Advanced Exploration Project area[1]. It is intended to provide the reader with an understanding or "snap shot" of:

(i) the physical conditions at the Project site;

(ii) of the aquatic, terrestrial and wildlife resource condition, use and habitat in the Project area;

(iii) a description of how the land and its resources are currently being used prior to project development.

2.1 Physical Environment

Environmental baseline studies in the Hope Bay Belt were carried out from 1995 to 1998 by the Project's previous owner, BHP and from 2000 to present by MHBL.

2.1.1 Climate and Air Quality

MHBL, and others, have been collecting climate data at Doris North and Boston Camp since 1993. This site-specific climate data has been combined with data from three longer-term regional weather stations operated by Environment Canada (Lupin, Cambridge Bay, and Kugluktuk) to develop annual climate profiles for the Project planning process.

The Hope Bay Belt has a low arctic ecoclimate with a mean annual temperature or –12.1°C with winter (October to May) and summer (June to September) mean daily temperature ranges of -50°C to +11°C and -14°C to +30°C, respectively; and mean annual precipitation ranges from 94 mm to 207.3 mm. Annual lake evaporation (typically occurring between June and September) is estimated to be 220 mm. A precipitation and temperature profile for the area is taken from the baseline meteorology data compiled for the Doris North Project[2]. The average monthly air temperature is typically above 0°C between June and September with the peak in July, and below freezing between October and May with the coldest temperatures usually occurring in February. The mean annual precipitation adjusted for under-catch is approximately 207 mm with 41% occurring as rain between May and October and 59% as snow through the remainder of the year.

Air quality monitoring was initiated in May 2003. Total suspended particulate (TSP) measured in August 2003 indicated that ambient TSP concentrations were consistently low, ranging from 3.9 to 5.5 µg/m³, which is less than 5% of the federal objective (120 µg/m³) for TSP. These results are consistent with other particulate monitoring data gathered at remote sites in northern Canada. Concentrations of sulphur dioxide, oxides of nitrogen and fine particulates are also expected to be low in the Project Area.

[1] For additional information on the pre-development environmental conditions at the Boston Advanced Exploration Project site, the reader is referred to the Final Environmental Impact Statement for the Doris North Project (located 50 km to the north) that was submitted to the Nunavut Impact Review Board in October of 2005 and available on the NIRB ftp site. http://ftp.nunavut.ca/nirb/NIRB_REVIEWS/PREVIOUS_REVIEWS/02MN134-DORIS_NORTH_2004/118%20Final%20EIS/

[2] AMEC, 2003. Meteorology And Hydrology Baseline, Doris North Project, Nunavut, Canada, prepared for Miramar Hope Bay Ltd. November 2003, p.D-iii.

2.1.2 Climate Change

The Department of Indian and Northern Affairs Canada (INAC) commissioned a technical report on the "*Implication of Global Warming and the Precautionary Principle in Northern Mine Design and Closure*" (BGC 2003). The Intergovernmental Panel on Climate Change (IPCC) concluded that the temperature trends indicate that some global climate change has already occurred (IPPC 1995). Their predictions for the year 2100 estimate a global mean temperature increase between 1.5^{0}C and 4.5^{0}C, with a "best estimate" of 2.5^{0}C. This translates into a predicted increase of up to 6^{0}C in the winter, 4.2^{0}C in the spring and about 1^{0}C in the summer and fall. These increases would raise the mean ambient temperature by 3.1^{0}C. The predictions advanced by IPCC show that climate change would eventually modify the thermal regime that currently exists in the Project area. Continuous permafrost in the Project area will remain, but the surface "active" layer (the surficial layer that thaws annually) may deepen in response to the milder mean annual temperature predicted. Inuit elders report longer summers and milder winters in recent years.

2.1.3 Surficial Geology, Permafrost Conditions and Seismic Risk

Bedrock ridges, oriented north-south parallel with the dominant strike of bedrock units, show the erosive effects of the northward flowing Pleistocene (Keewatin Lobe) continental glacier ice over 10,000 years ago.

Continuous permafrost extends to -560 m. (Heginbottom *et. al.*, 1995). Ground temperature measurements in the Project area indicate an active zone thickness ranging between 1.5 to 2.6 m and the depth of zero annual amplitude varying between 11 and 17 m (Golder 2001; EBA 1996). The geothermal gradient measured at the Boston Camp is approximately 18^{o}C km$_{-1}$, which also indicates a depth of continuous permafrost of approximately –560 m.

The Project area occurs in the seismically "Stable" zone of Canada. This region has too few earthquakes to define reliable seismic source zones.

2.1.4 Bedrock Geology

The Hope Bay Belt occurs in the Slave Structural Province, a geological sub-province of the Canadian Shield. The region is underlain by the late Archean Hope Bay Greenstone Belt. This geological formation ranges from 7 - 20 km in width and over 80 km in length. It is oriented in a north-south direction. The late Archean Hope Bay Greenstone Belt lies entirely within the faulted Bathurst Block forming the northeast portion of the Slave Structural Province. The belt is mainly comprised of mafic metavolcanic (mainly meta-basalts) and meta-sedimentary rocks that are bound by Archean granite intrusives and gneisses. Archean volcanic greenstone hosts many of Canada's precious and base metal mines (*e.g.*, Yellowknife, Timmons, Rouyn-Noranda).

2.1.5 Groundwater Conditions

The permafrost underlying the area is generally impervious to groundwater movements. Groundwater movement will only occur in the shallow active layer (to a depth of between 1.5 to 2.6 m) during its seasonal thaw period.

2.1.6 Hydrology

The Project area drains to the North into the Arctic Ocean at Roberts Bay. Peak flows typically occur in June during snowmelt. A second smaller peak may occur from rainfall in late August or early September. The streams in the study area are usually frozen with negligible flow from November until May.

2.1.7 Water Quality

Water quality samples were collected from Project area lakes, streams, and the nearby marine environment between 1995 and 2006. The lakes in the area are soft water lakes with neutral to slightly acid pH and low to moderate acid sensitivity. Total phosphorous levels were low, indicating oligotrophic to mesotrophic conditions. Chloride, sodium, and potassium concentrations were elevated compared to typical lakes in the Slave Structural Province. Some metal levels (*i.e.*, total aluminum, iron, copper, cadmium, chromium, lead and manganese) in certain lakes exceed Canadian Water Quality Guidelines (CWQG) on a seasonal basis. Metal concentrations were generally representative of lakes in undisturbed northern regions. In summer, the lakes were generally well mixed. Wind likely played an important role in maintaining well-mixed conditions. In shallow lakes, wind appeared to cause complete lake turnover. Winter data generally indicated a shallow upper layer of water at or near 0°C, with constant temperatures, not exceeding 2 to 3°C, throughout the remaining water column. The lakes were typically well aerated during the summer; depressed dissolved oxygen (DO) concentrations were recorded near-bottom in winter. With the exception of Ogama Lake, this DO depression occurred in lakes with relatively high total organic carbon (TOC) levels in sediments. This suggested that sediment oxygen demand (SOD) was the underlying cause.

Sediment samples were collected in the lakes in the Project area. Metal concentrations in sediments were compared with the Canadian Interim Sediment Quality Guidelines (CISQG) for the Protection of Aquatic Life (CCME 1999). The CISQG recommends using two guidelines in assessing sediment quality: the Threshold Effect Level (TEL) – the concentration below which adverse effects are rare; and the Probable Effect Level (PEL) - the concentration above which adverse effects are likely. Most lake sediment metal levels fell below the CISQG. The exceptions were total chromium, total copper, total arsenic and total cadmium. Of these, total chromium values exceeding the guidelines were the most widespread geographically and temporally, with concentrations exceeding the CISQG PEL in three of the eight lakes (Doris, Tail and Patch). Overall sediment metal concentrations remained within the range of natural variability for the Slave Structural Province. Sediment TOC levels varied between lakes. For lake sediments with relatively elevated TOC (Doris and Tail Lakes), colour and mineralogy indicated that reducing conditions were predominant in the surface layer as well as underlying sediments. For lake sediments with relatively low to moderate TOC concentrations, colour and mineralogy indicated a strong redox gradient between an oxic surface layer and reducing underlying upper layer.

2.2 Biological Environment

2.2.1 Freshwater Biota and Habitat

Seven fish species occur in the Project area: Arctic Char, broad whitefish, cisco, lake trout, lake whitefish, least cisco, and ninespine stickleback. Lake whitefish and cisco accounted for approximately 90% of the fish sampled in Doris, Ogama and Pelvic Lakes. Lake trout were more dominant in Patch and Windy Lakes. Only lake trout and ninespine stickleback inhabit Tail Lake. Fish populations in Little Roberts Lake included Arctic char, broad whitefish, least cisco, cisco, lake trout, lake whitefish, and ninespine stickleback. A waterfall (approximately 4.3 m in height) between Doris and Little Roberts lakes prevents passage of diadromous fish species such as Arctic char and broad whitefish into the Doris Lake drainage. Little Roberts Lake is used by Arctic char during their movements between Roberts Lake and the ocean.

Fish assemblages in streams in the Project area were dominated by Arctic char, ninespine stickleback and lake trout. Arctic char were the most common (61% of total catch); most of these fish were captured at a fish fence installed in Roberts Outflow during 2002 and 2003 to monitor the number of migratory Arctic char from Roberts Bay to Roberts Lake. Ninespine stickleback was second in abundance (23%) and was the most widely distributed species and encountered in each of the 14 streams sampled. Lake trout was third in abundance (13% of the total catch) and second in distribution (encountered in 10 of 14 streams). Juveniles and adults were present in the catch, suggesting that the larger streams provide both rearing and feeding habitat.

None of the fish species that occur in the Project area are designated as endangered or threatened by COSEWIC (2004).

2.2.2 Vegetation

Vegetation in the Project area is characteristic of sub-arctic tundra vegetation. Plant species identified include 19 shrubs, 92 herbs, 18 grasses, 32 sedges and rushes, 21 mosses and 8 species and/or genera of lichen. Inuit traditionally use many local plant species and understand the relationship between plants and caribou habitat requirements including the early showing of plants in snow free areas and the importance of such areas to caribou calving locations in the region. None of the local plants identified during the course of baseline studies are designated as endangered or threatened (COSEWIC, 2004).

2.2.3 Wildlife

The Project area provides habitat for a variety of mammals including: shrews, voles and lemmings, hares, ground squirrels, weasels, wolves and foxes, grizzly bears, caribou, and muskox. Many are year-round residents, while others such as caribou and musk-ox, are nomadic or migratory. Some large predators/scavengers such as grizzly bear, wolverine and wolf may have large ranges that extend across or beyond the Project area. The small mammal species present, including ground squirrels and Arctic hare, spend their entire life in a small area. Vole and lemming populations are cyclic affecting the abundance and productivity of both bird and mammal predators. Weasel populations will cycle in synchrony with vole and lemming populations. The dominant wildlife species in the Project area is caribou. Three herds occur in the region that could possibly interact with the Project activities. They include the Dolphin-Union herd, the Ahiak herd and the Bathurst herd. The Dolphin-Union herd is a herd that has special interests from a resource management and conservation perspective. The Project is generally situated on the fringes of all three herds.

The Project area also provides breeding habitat for a wide range of resident and migratory birds including songbirds, upland birds, shorebirds, waterfowl, seabirds and raptors. There is an abundance of raptors in the area including peregrine falcon, gyrfalcon and golden eagle. The Project area provides foraging and nesting habitat for a wide range of cliff nesting and ground nesting raptors. Some birds such as peregrine falcon have been the focus of special conservation and management efforts since the 1970s.

2.3 Land/Water Use

The Boston Advanced Exploration Project is situated entirely on Inuit Owned Lands administered by the KIA with minerals development authority vested with Nunavut Tunngavik Inc. (NTI). Mineral rights are also held by Crown on select areas of the Hope Bay Belt, which include Boston, part of Windy camp, the Madrid exploration area and the drill shop.

2.4 Protected Areas

There are no protected areas in, or adjacent to the Project area. The closest designated land use restriction is the Queen Maud Gulf Bird Sanctuary located approximately 40 km east of the Hope Bay Belt.

2.5 Archaeology

The West Kitikmeot has a diversity of archaeological and historic resources, and such resources comprise an important aspect of Inuit culture, spirituality and perspectives with respect to relationships with the land. MHBL has completed comprehensive baseline surveys for historic and cultural resources in the Project area and has identified over 100 sites with some being in close proximity to Project features.

3.0 PROJECT DESCRIPTION

3.1 Project Summary

Mineral exploration on the Hope Bay greenstone belt has been ongoing since the early 1990's. MHBL has been exploring for commercial mineral deposits in the area since 2000 when it acquired the right to conduct such exploration from BHP Minerals Ltd. MHBL acquired complete control in 2002, prior to that it was a joint venture (Hope Bay Joint Venture) between Miramar Mining Corporation and Hope Bay Gold (previously known as Cambiex). Since then a number of prospective gold deposits have been found, from which three significant mineralized areas have been identified: the Boston area, the Doris North area (includes Doris North, Doris Connector and Doris Central) and the Madrid area (includes the Naartok and Suluk mineralized resource areas) (Figure 3.1). The Boston Advanced Exploration Project and all of its components are on Inuit owned land. The Hope Bay property comprises an area of 1,078 km^2 and forms one large contiguous block that is approximately 80 km long by up to 20 km wide. The entire land package at Hope Bay has been maintained in good standing.

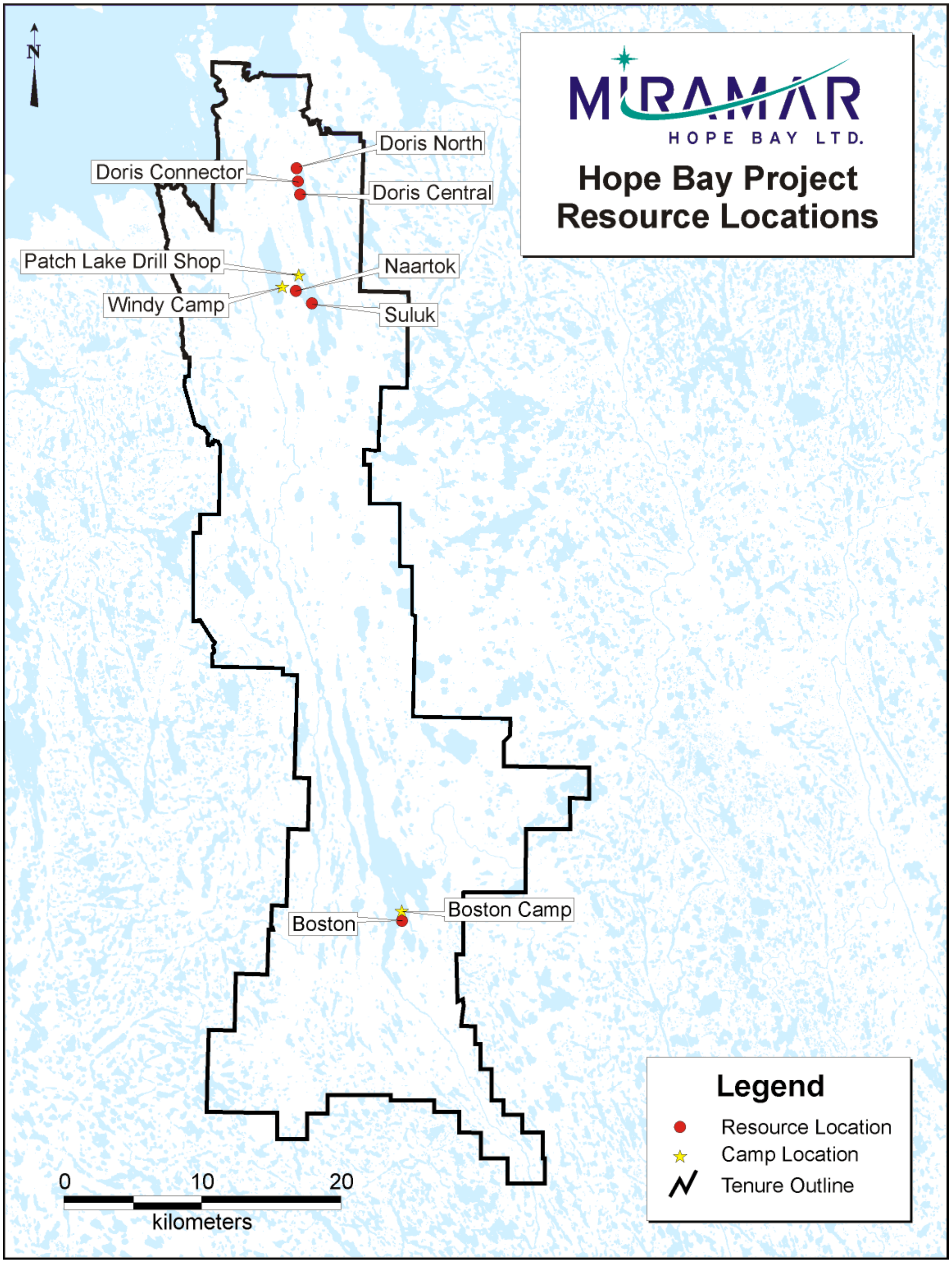


Figure 3-1: Hope Bay Greenstone Belt Resource Location Map

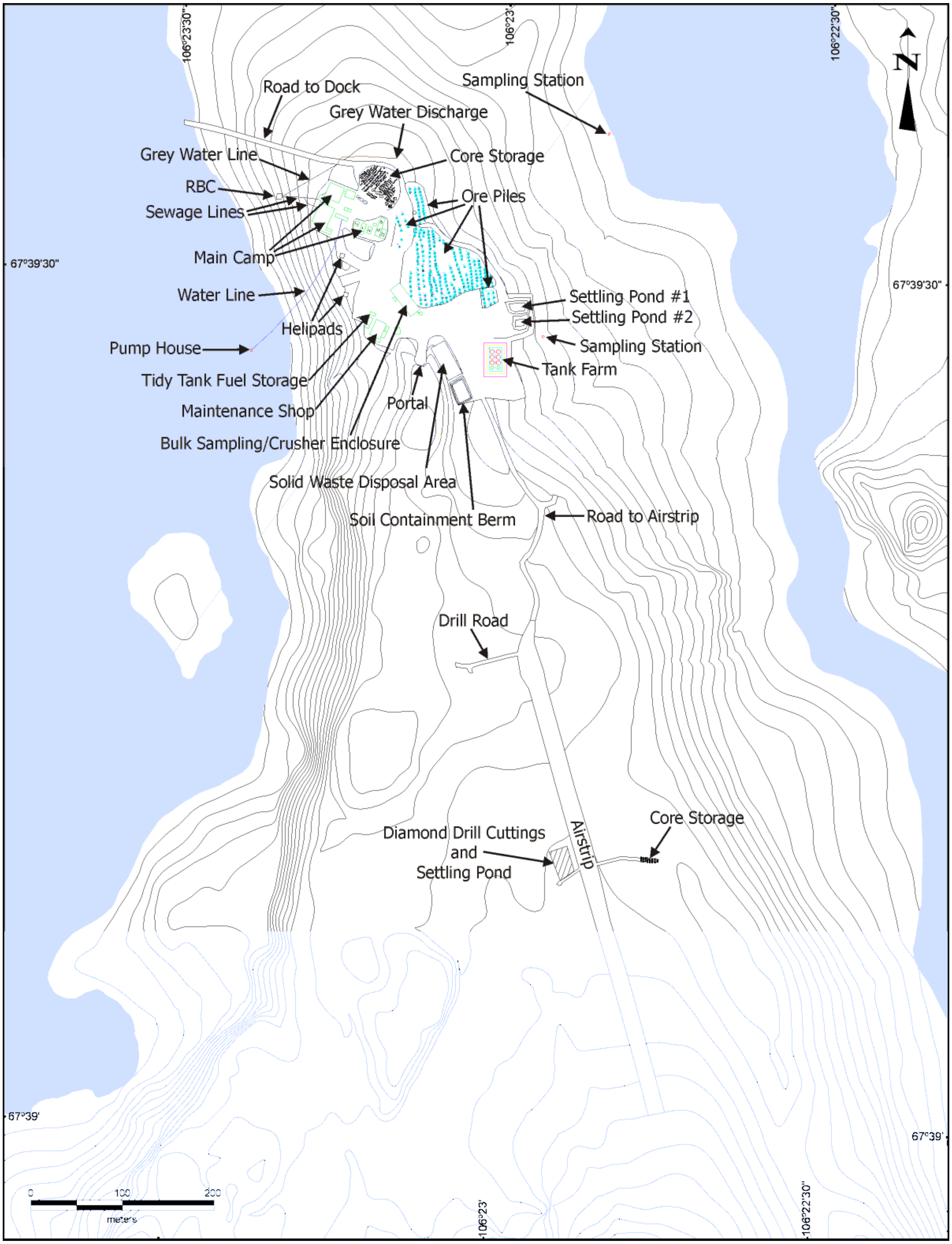
Miramar Hope Bay Ltd. is conducting ongoing mineral exploration on the Hope Bay Belt. This activity consists of basic grassroots exploration, exploration drilling, chip sampling, geophysics, outcrop mapping, etc. and is supported from two exploration camps, one (Windy Camp) on the east shore of Windy Lake at the north end of the Hope Bay Belt and the other (Boston Camp) located on a peninsula at the south end of Spyder Lake at the south end of the Hope Bay Belt. This closure plan addresses the Boston Camp and its associated facilities. Windy Camp is covered by a separate Closure and Reclamation Plan.

Specifically this Plan covers the closure and reclamation of:

- The Boston exploration camp;
- The Boston airstrip;
- The underground decline and exploration drifts at Boston and the ore and waste rock materials stored on surface at the Boston Camp; and
- Exploration drill sites located throughout the regional exploration area.

The location of the fixed facilities (the first three bullet items above) covered by this Plan are shown in Figure 3.2.

Figure 3-2: Boston Advanced Exploration Project – Facility Location Map



3.2 Boston Camp

Boston Camp is located above the high water mark on the south east shore of Spyder Lake on a peninsula with Spyder Lake to the north and west of the camp and Stickleback Lake to the east and south. The camp sits on an esker that is slightly higher than the surrounding water bodies. There is an elevation drop of less than 6° slope gradient towards the west into Spyder Lake and a slope gradient of slightly greater than 6° to the east extending into Stickleback Lake.

The camp is serviced by a short all weather airstrip (~500 m in length), located immediately to the south of the camp. The airstrip is too short for large aircraft and is limited to Twin Otters and Dornier type aircraft. The camp has a capacity for approximately 40 persons.

The camp is a typical advanced exploration camp constructed from pre-fabricated trailer units (brought in by sealift and winter road) combined with tents and small wood buildings constructed from materials brought to site by small plane. Access to the camp is by air.

Bulk supplies are transported to Roberts Bay by annual sea lift using NTCL (Northern Transportation Company Limited) barges that come from Hay River. Up until 2007, the barges were beached and then off-loaded using a ramp. The supplies were placed in a laydown area built directly on the tundra at a location along the west shore of Roberts Bay and left in storage until the following winter. From 2007 forward, the barges are being off-loaded at the new Doris North Project jetty at the south end of Roberts Bay. In winter, once the Bay has frozen over, a winter road is constructed between the Roberts Bay laydown area, Windy Camp (~15 km) and Boston Camp (approximately 60 km). Supplies are then transported to the Windy and Boston exploration camps using this winter road.

Outside of the camp and airstrip, there are no all–weather roads at this Project site. All regional exploration transport is by tracked vehicle in winter and by helicopter in summer months. Within the camp area there is a road of approximately 200 m in length to Spyder Lake to a float plane dock and a road of approximately 250 m in length to the airstrip (see Figure 3.2).

The following is a listing of the main components of infrastructure and facilities currently at the Boston Camp site that must be reclaimed once all exploration activity has been completed:

- 2 x Maintenance shops;
- 2 x Generator sheds with generator units;
- 2 x Helipad areas (constructed on esker material);
- 2 x Lay down areas designated for temporary storage of non-hazardous solid waste (non-putresicble waste) pending off-site shipment;
- 1 x Incinerator unit for burning of putresicble waste and clean combustible waste;
- 6 x 80,000 litre capacity upright above ground fuel storage tanks;
- 2 x 50,000 litre capacity upright above ground fuel storage tanks;
- 4 x Self contained horizontal fuel storage tanks (Envirotanks) (1,045 L capacity each);
- 1 x HDPE lined secondary containment berm for the fuel tank farm;
- 1 x 500 m long airstrip constructed of esker material and mine waste rock;
- An all weather road from the camp to the airstrip (~250 m long) constructed of esker material and mine waste rock;

- An all weather road from the camp to the float plane dock (~200 m long) constructed of esker material and mine waste rock;
- Fresh water pump house;
- Potable water pipeline;
- Accommodation facilities (prefabricated trailer units and tents);
- Kitchen, recreational, office complex (prefabricated trailer units);
- 1 x RBC packaged sewage treatment plant;
- Grey water and potable water lines;
- An underground decline;
- A ventilation raise (1.5 m x 2.1 m);
- Waste rock and ore stock piles;
- Diamond drill core storage area;
- Emergency response equipment;
- Core logging / splitting shacks (wood frame and tents);
- Bulk sampling and crusher building (tent);
- Float plane dock (floating wood platform); and
- HDPE hydrocarbon landfarm treatment area.

It should be noted that there is no landfill at this site. All waste is either incinerated or transported off-site for disposal at other licensed disposal or recycling facilities.

Figures 3.3 through 3.5 provide a series of aerial photographs of the Boston Camp and airstrip taken in July of 2007.

Figure 3-3: Aerial Photo of the Boston Exploration Camp Looking West to East

Figure 3-4: Aerial Photo of the Boston Exploration Camp Looking Southeast

Figure 3-5: Aerial Photo of the Boston Camp Airstrip Looking West to East

3.3 Drill Sites

Exploration drilling has taken place along the Hope Bay Belt with the majority of holes clustered at the Doris North, Madrid/Naartok and Boston mineralized zones. Each drill hole site is reclaimed as soon as practical following the completion of drilling activity at each site.

3.4 Current Waste Management Practices

MHBL currently applies the following operating procedures at the Boston Advanced Exploration Project to manage waste materials generated by its ongoing exploration activities.

3.4.1 Recycling of Contaminated Diesel Fuel

All contaminated diesel fuel generated on-site is currently used as an accelerant in the on-site garbage incinerator. Contaminated Jet A and Jet B fuel is recycled into the incinerators of heating fuel tanks. To date, the full inventory of contaminated fuel has been consumed by this means. Should the amount of contaminated fuel increase, other options include use of this contaminated fuel oil to generate heat for the maintenance shops at Boston Camp or removal from site for reuse or recycling elsewhere.

3.4.2 Contaminated Soil

All hydrocarbon contaminated soils generated by accidents/incidents associated with the exploration activity at the Boston Advanced Exploration Project are currently excavated and then transported to the Landfarm Treatment Area (LTA) on-site. In areas where it is difficult to remove the contaminated soil or where removing the contaminated soil will pose other environmental hazards, a pre-packaged organic fuel absorbent product (made of ground corncobs) is spread over the area that is contaminated, either directly or indirectly by the spilled fuel. The objective is to utilize a proven environmentally safe product to adsorb the spilled hydrocarbon material that remains trapped in the soil particles. The ground corncobs are used after standard adsorbent pads have been applied and are no longer effective. Once the individual pieces of the ground corncobs are saturated, then new corncobs are spread over the same impacted area until the corncobs are no longer visibly saturated with hydrocarbons. Where practical, the saturated corncobs are then collected and disposed of in the approved incinerator installed at the Boston Camp. Alternatively, the corncobs can be placed inside the LTA at Boston Camp until they decompose.

3.4.3 Non Combustible – Non Hazardous Solid Waste

Non-combustible, non-hazardous solid wastes generated from ongoing exploration activity are collected, segregated and packaged for shipment off-site during winter months when larger aircraft are available to backhaul this material to Yellowknife. In the future (starting in the winter of 2008/2009), non-hazardous waste generated at Boston Camp will be hauled during the winter to the Doris North Mine and disposed of in the non-hazardous landfill to be constructed within the footprint of Quarry 2 at the Doris North project site.

3.4.4 Hazardous Waste

Hazardous waste such as waste antifreeze, batteries and waste solvent are collected and packaged in appropriate labelled containers pending removal from site. These wastes are either shipped south for disposal or recycled at licensed disposal facilities for the specific waste types.

3.4.5 Drill Cuttings

Drill cuttings are used to backfill depressions around each drill hole collar area that are caused by drilling and/or deposited in natural depressions or in fractures in the outcrop whenever possible. When drilling in winter, or when a suitable natural sump is not available, all drill cuttings are collected by the Polydrill system and transferred to an approved sump site. The water from the drill sumps is recycled back to the diamond drills.

4.0 INTERIM RECLAMATION MEASURES

Interim reclamation planning has been developed for two scenarios:

(i) temporary shutdown; and
(ii) indefinite shutdown.

Both scenarios are based on the full intention of resuming operations once the source or reason for the shutdown has been rectified.

4.1 Temporary Shutdown

For the purposes of reclamation planning, a temporary shutdown is defined as a cessation of mineral exploration for a finite period, generally two to twelve months, with the intention of resuming operations as soon as possible after the reason for the shutdown has been resolved. Exploration is typically suspended at the end of each summer period between late October and mid January when weather and short daylight conditions make helicopter supported exploration activity difficult and ice forming on Spyder Lake makes it unsafe to transport personnel to and from camp using a float plane. During this period, no care and maintenance team remains on site. However, periodic visits are scheduled to check on the status of the camp and facilities. Other possible causes for a temporary shutdown could be a major mechanical equipment failure, late delivery of critical equipment or supplies, or labour conflict.

During a temporary shutdown, such as the annual winter shutdown, the following actions are taken to secure the Boston Camp facilities and to hold them under care and maintenance pending resumption of exploration activity.

4.1.1 Site Buildings and Content

The camp facilities are secured and prepared for the winter. All computers, key electronic equipment and files are shipped off-site for maintenance and backup. All water and sewer lines are drained and then winterized. All fresh food materials are removed and either incinerated or shipped off-site. Dry and canned food goods are packaged and then secured. Shop equipment and other mobile heavy equipment is winterized and left secured at site.

4.1.2 Portable Water Pumps

Portable water pumps, water lines and any other equipment associated with the water pumping system are drained, winterized, and secured.

4.1.3 Combustible Waste Incinerator

The fuel remaining in the incinerator fuel tank is reduced through consumption thereby minimizing the amount of fuel left in the tank. The power source is disconnected and the cord is stored in the workshop. The incinerator is secured by removing all the ash, which is then packed in drums.

4.1.4 Electrical System

All electrical equipment is de-energized. The generator shed and the surrounding area is inspected for signs of hazardous spills and remaining wastes such as oil and grease. All such waste is removed. Each generator unit is shut down and the fuel filter valve at the return fuel line to the tank is turned off, the engine is winterized and then secured. Electrical wires, plugs and sockets remain in their installed locations. All electrical cords temporarily connected to a building or machinery during summer work program are unplugged and stored.

4.1.5 Camp and Workshop Heating Systems

The fuel tanks connected to the tent, office, camp and workshop heating units are secured as follows:

- The fuel remaining in the small 200 litre drum style fuel tanks is reduced through consumption thereby minimizing the amount of fuel left in these tanks. The tanks are then left within their secondary containment systems (generally drip trays);
- The fuel remaining in the small (< 1,000 litres) double walled, self-contained fuel tanks connected to heating units and small generators is similarly reduced through consumption and then left inside their integral containment systems; and
- The larger fuel tanks (with capacity >1,000 litres) are secured by locking both the drain valves and fill hatches.

4.1.6 Petroleum Products and Storage Facilities

Each year the exploration team will plan accordingly to have the onsite fuel inventory reduced to a minimal level by the end of each exploration season. The MHBL Exploration Manager will determine the minimum level of Jet B and diesel fuel required for emergencies and the coming year's start up.

All fuel will be placed within the secondary containment facilities at the Boston Camp. The inventory of all hydrocarbon products to be left on-site during this temporary shutdown will be recorded. All AST tanks (Envirotanks and Tidy Tanks) will be dipped and the respective inventories recorded on a tank by tank basis. All Envirotanks and Tidy Tanks containing fuel will be secured by locking all drain valves and filling hatches.

All fuel containers (both full and empty) at remote drill sites are returned back to Boston Camp for storage with the other petroleum products within secondary containment. Empty drums are counted and secured for shipment to Yellowknife to be recycled.

The lined fuel tank farm secondary containment area will be cleared of any debris. All standing water will be transferred by pump into the lined landfarm treatment area and subsequently treated through an oil water adsorption system. The treated water will then be co-disposed with the treated greywater through land application. The treated water will be sampled and analyzed for Total Oil and Grease and for benzene, toluene, ethyl benzene, and lead to confirm that the water quality meets the limits as set out in Part D, Item 21 of Water License No. 2BB-BOS0712.

During the temporary shutdown the actual fuel inventory will be checked against the recorded fuel inventory at monthly intervals to confirm that no fuel has been lost.

All full propane cylinders are counted and secured with a chain. Empty propane cylinders are stacked and prepared for off site shipment for re-filling.

4.1.7 Chemicals

All chemicals stored at the Boston Camp (including drill additives, oil, grease, drill salt (sodium chloride and calcium chloride) and household biodegradable cleaners) will be returned to the respective secure storage area for each item and then inventoried. Drill additives and remaining salt are stored in impermeable bags and stored on pallets in a designated storage area. All other chemicals are stored inside seacan containers or within secure areas within the shop facilities. These facilities will be locked up during the temporary shutdown period.

4.1.8 Spill Response Kits

An inventory list of all the emergency spill kits and their contents will be completed and the kits relocated into the workshop for storage over the winter months.

4.1.9 Drilling Equipment

All diamond drills will be dismantled and secured along with ancillary equipment and rods. The drills are transported by helicopter and left at a designated area until the next drilling season (typically the Boston Camp drill maintenance shop). Catalogued drill cores and core boxes are stored at a designated area on property.

4.2 Indefinite Shutdown

For the purposes of reclamation planning, an indefinite shutdown is defined as a cessation of exploration activity for an indefinite period with the intention of resuming operations in the future. In this scenario, the site must be placed into a mode of minimal operating expense while maintaining safety and environmental stability. Possible causes for such a shutdown could be prolonged adverse economic conditions or extended labour disputes. Procedures during indefinite shutdown will be as follows:

4.2.1 Site Buildings and Content

The camp facilities will be secured. All electronic equipment (computers, etc.) will be packed up and shipped off-site. All key files will be similarly removed. Tents and cabins will be cleared and all material stored in the main section of the camp (within the trailer units). All fuel tanks feeding the camp, tent and office heating furnaces will be drained and the fuel placed in labelled containers and then placed with all other petroleum products within an area of secondary containment. Shop equipment and other mobile heavy equipment will be winterized and left secured at site.

4.2.2 Portable Water Pumps

Portable water pumps, water lines and any other equipment associated with the water pumping system will be removed from the lake, drained, winterized, and placed in secure storage in the camp buildings.

4.2.3 Combustible Waste Incinerator

The incinerator fuel tank will be drained. Any remaining fuel will be stored in an approved container, labelled with an appropriate WHMIS label and stored together with all other petroleum products for future use within an area of secondary containment. The power source will be disconnected. All ash will be removed from the incinerator and packed in labelled drums pending off-site disposal.

4.2.4 Electrical Systems

The generator shed and the surrounding area will be secured. The generator and its day fuel tanks will be drained, winterized with any remaining fuel, oil and grease being stored in labelled containers and stored with all other petroleum products for future use within an area of secondary containment. The generator shed will then be secured for winter. Permanent electrical wiring will remain in their installed locations. All electrical cords temporarily connected to a building or machinery during summer work program will be unplugged, removed and stored.

4.2.5 Workshop Heating System

The Tidy tank connected to the workshop heating system will be drained and secured. All remaining fuel will be placed in labelled containers and then placed with all other petroleum products for future use within an area of secondary containment. The remaining fuel in the fuel lines will be drained into the burner unit and combusted.

4.2.6 Petroleum Products and Storage Facilities

All fuel tanks (other than the main self-contained aboveground storage tanks located in the Boston Camp fuel containment areas) will be drained and left empty. All remaining diesel fuel will be consolidated within the self-contained storage tanks located within the secondary containment liner at Boston Camp. The inventory of these tanks will be recorded and periodically checked during site inspections. These fuel tanks will then be secured using locks to prevent the drain valves or supply hatches being opened without proper authorization.

An inventory list of the remaining fuel will be compiled and secured off-site. Periodic monthly visits will check actual fuel inventory against this initial inventory to verify that no fuel is lost.

All full and empty fuel containers at remote drill sites will be returned to Boston Camp. Full drums will be placed inside secondary containment and included in the inventory list. Empty drums will be secured for shipment off-site.

The lined fuel tank farm secondary containment area at Boston Camp will be cleared of any debris. All standing water will be treated through an oil water adsorption system. The treated water will then be co-disposed with the treated greywater through land application. The treated water will be sampled and analyzed for Total Oil and Grease, benzene, toluene, ethyl benzene, and lead to confirm that the water quality meets the limits as set out in Part D, Item 21 of Water License No. 2BB-BOS0712.

All full propane cylinders will be counted and removed from site. Empty propane cylinders will similarly be removed from site.

4.2.7 Chemicals

All chemicals remaining at Boston Camp such as drill additives, oil, grease, drill salt (sodium chloride and calcium chloride) and household biodegradable cleaners will be transferred into areas of secondary containment in the shop facilities or into seacan containers that will then be locked. All of these materials will be inventoried. Periodic checks will be conducted to compare actual inventory against this original inventory to ensure that these materials are not lost.

4.2.8 Spill Response Kits

An inventory list of all the spill kits and their contents will be completed. All of these kits will be relocated into the workshop.

4.2.9 Drill Sites

All drills, along with ancillary equipment and rods, will be dismantled as per the drilling contractor procedure and then packaged and secured. The drills will be transported by helicopter and secured at the Boston Camp site.

5.0 FINAL RECLAMATION MEASURES

The following sections present a summary of the final reclamation measures that will be implemented once all exploration activity on the Boston Advanced Exploration Project has been completed and no further exploration activity is planned.

5.1 Non-Hazardous Solid Materials

All Inert solid waste and non-hazardous demolition debris will be disposed of in the landfill at the Doris North project site. Materials destined for burial in the landfill will be dismantled as safely and efficiently as possible and stacked in a stockpile within the exploration camp site area. The materials will then be cut by flame, hydraulic shears or saw, into manageable sizes for safe transport during the following winter season and to facilitate placement in the landfill.

5.2 Hazardous and Salvageable Materials

All potentially hazardous materials will be removed from equipment and all buildings prior to disposal. This will typically involve draining and removal of all remaining fuels, hydraulic fluid, engine oil, antifreeze, batteries and other lubricating fluids (transmission fluid, grease, etc.). Hazardous materials will be transferred into and stored in sealed containers and drums and loaded into shipping containers pending removal from site on the next sealift and/or by air. These materials will be packaged and shipped off-site for disposal at an appropriate licensed disposal site. The only potential exception to off-site disposal will be the use of recovered fuel in other mobile equipment used for reclamation related activities and the use of waste oil to generate heat during the reclamation period.

Given the remote location of Boston Camp, the salvage value of most pieces of equipment and buildings materials is likely to be insufficient to cover the cost of removal and transport. Consequently, for the purposes of this Plan it has been assumed that no salvage credits will be obtained and that most equipment and building materials will be disposed of at the Doris North non-hazardous material landfill However, some of the larger pieces of equipment may have economic salvage value, such as the pre-fabricated trailers and the generator. This Plan includes an allowance for one shipment south during the post-closure period to facilitate the removal of hazardous materials for off-site disposal. Removal of the higher value pieces of equipment from site will be done at the same time, dependent on longer term plans for mineral activities on the Hope Bay Belt.

5.3 Underground Decline

The Boston underground exploration decline and associated workings were cleared of all equipment and hazardous materials over five years ago. The workings subsequently flooded and the water in the decline has frozen solid due to the presence of permafrost in the area.

Prior to flooding, all potentially hazardous materials were removed from the underground workings and brought to surface for disposal. These included all hydrocarbon products such as fuel, hydraulic fluid and other lubricants, explosives, vehicle batteries, glycol, transformer fluids, antifreeze, other chemicals, etc. All of the underground mobile equipment was brought to surface and cleaned of any potentially hazardous materials such as fuel, hydraulic fluids, glycol, batteries, etc. These materials were placed in appropriate containers and shipped off-site for disposal.

The decline access to the underground (the portal) will be permanently closed by the placement of a 15 m thick rock fill plug.

There is a single ventilation raise that comes to surface to the west of the north end of the airstrip. The raise is 1.5 m by 2.1 m and is founded in bedrock with a concrete collar at surface. There is a wood structure over the opening which houses the ventilation fan. This raise will be either capped with a reinforced concrete cap or backfilled. The Plan assumes that this vertical mine opening will be closed off and permanently sealed by the placement of a concrete cap. The fans, fan housings and associated ducting will be removed from the surface over top of the raise and disposed of at the Doris North landfill. The collars for the raise will be capped with a reinforced concrete cap founded on solid rock. The concrete cap will be designed and constructed for a uniformly distributed load of 12 kPa and a concentrated load ranging from 24 to 54 kN as suggested in the Mine Site Reclamation Guidelines for the NWT. Provision for the venting of gas accumulation under the concrete cap will be provided as part of the cap design.

Following installation of the concrete cap, low-profile warning signs will be installed at each location.

The concrete raise cap will be designed and constructed in accordance with the regulations established in Ontario for that purpose (with the exception that the uniform and point load specifications contained in the Mine Site Reclamation Guidelines for the NWT will be substituted). Schedule 1, Part 1 of Ontario Regulation 240/00 under the Ontario Mining Act provides a standard for the installation of a reinforced concrete cap to seal mine openings, specifically:

Concrete Cap:

1) *Before installation of a concrete cap to stop shafts, raises and stopes,*
    a) *A qualified professional engineer shall examine the competency of the rock at the supports and no construction shall be undertaken unless the engineer approves the rock as competent;*
    b) *All loose rock shall be removed from the rock anchorages leaving only competent rock;*
    c) *All concrete work shall meet or exceed the minimum standards set out in the CAN/CSA-A23.1-M90 or latest revision;*
    d) *The formwork for the concrete, shoring and temporary support shall be designed by a qualified professional engineer.*

2) *The concrete cap may be left exposed to the elements or may be buried.*

3) *Where the cap is to be left exposed, consideration shall be given to providing a slope to the surface of the cap to prevent the collection of water on the surface.*

4) *All reinforced concrete caps shall meet or exceed the following specifications:*

The reinforced concrete cap shall be designed for the following minimum design live loads:

- *1.4 metres cover of saturated soil uniformly distributed with a unit weight of 19 kN/cubic metre, and*
- the greater effect of either,
  - *an 18 kPa uniformly distributed load, or*
  - *an 81 kN concentrated load applied over an area 300 mm by 300 mm anywhere on the cap, and*
- *the weight of the cap as the dead load.*

5) *The 28-day concrete strength shall be a minimum of 30 Mpa.*

6) *The reinforcing bars yield strength shall be a minimum of 400 Mpa.*

7) *The concrete cap minimum thickness shall be,*
   - *450 mm as per MNDM Drawing No. 94103-M1: "Monolithic Concrete Cap Typical Plan and Section" and Drawing No. 94103-M2: "Typical Monolithic Concrete Cap Reinforcement Schedule", or*
   - *300 mm if an alternate design with all calculations is provided.*

8) *All supports shall be founded on sound rock having a minimum bearing capacity of 600 Kpa.*

9) *All concrete design shall be as per CAN3-A23.3-M84 or it most recent revision.*

10) *The reinforced concrete cap shall be vented with a stainless steel pipe that is at least 75 mm in diameter and extends above the cap or soil cover to permit airflow.*

11) *The reinforced concrete cap shall be securely attached to the bedrock or to the concrete collar if one exists.*

12) *Appropriate reinforcing steel bars and concrete shall be used in areas where corrosive conditions may exist.*

Reinforced Concrete

1) *The concrete design shall meet the following specifications:*
   - *The minimum 28-day concrete strength shall not be less than 30 MPa.*
   - *The maximum slump shall not be greater than 75 mm +/- 25 mm.*
   - *The maximum aggregate size shall not be greater than 20 mm.*
   - *The air entrainment content shall be 6 percent +/- 1 percent.*
   - *The maximum water/cement ratio by weight shall not be greater than 0.50.*
   - *The aggregates used in the concrete mix shall be non-alkali-silica reactive type.*

2) The concrete cover shall be as follows:

- *75 mm thick on the top of reinforcing bars.*
- *50 mm thick on the bottom of reinforcing bars.*
- *40 mm thick on the stirrups.*

2) *The concrete shall be cured as per CSA-A23.1-M90 or its latest revision. Curing compounds shall be clear liquid conforming to Canadian General Standards Board (CGSB) Standard 90-GP-1a, Type 1 or latest revision and applied as directed by the manufacturer.*

Inspection and Testing

1. *Before the placement of concrete, a qualified professional engineer shall inspect and approve any reinforcing steel bars that have been installed.*
2. *The concrete shall be tested for air content and slump in the field.*
3. *A minimum of one set of four cylinders shall be cast and tested for compressive strength.*
4. *The cylinders shall be cured under the same field conditions as the shaft cap and seat support (if applicable).*
5. *The testing shall be done in accordance with CAN/CSA-A23.2-M90 or its latest revision*.

A qualified professional engineer shall certify all test results obtained and the certified results submitted to the Director no later than 30 days after testing.

Since the ground in the mine will remain frozen, there will be no anticipated movement of groundwater into or out of the mine and therefore no water treatment of minewater will be required. The frozen ground combined with the lack of groundwater movement will retard any sulphide mineral oxidation and prevent the transport of any contaminants away from the mine workings.

5.4 Ore and Waste Rock Stockpiles

The majority of the underground rock material stored on surface at the Boston Camp is ore grade material taken from the exploration decline. All of the stockpiled ore at Boston Camp will be transported over the winter road to the Doris North Project site and milled through the Doris North mill to recover the contained gold.

There is also a small amount of waste rock from the exploration decline stockpiled on surface. This waste rock has been previously characterized by Rescan Environmental Services for BHP and reported to the NWB. The waste rock was found to be non-acid generating and will be used to backfill the underground decline.

5.5 Underground Settling Ponds #1 and #2

There are two HDPE lined water settling ponds that were used during the underground exploration decline development for settling suspended solids from water pumped from the decline and from drainage from the ore stockpiles. Settling Pond #1 was used to settle drilling mud from regional diamond drilling. At final closure, the pond will be decanted and the solids allowed to dry out. The residual mud is rock flour from drilling and will be extracted and buried within the two settling pond areas once the HDPE liners have been removed. Settling Pond #2 is currently being used to temporarily hold non-putresicble non-hazardous solid waste materials pending packaging for off site disposal. At final closure all of these materials will be transferred to the non-hazardous landfill at the Doris North site for permanent disposal. The settling pond HDPE geomembrane liners will be hand cleaned (using brooms and shovels), cut up into manageable pieces and disposed of in the non-hazardous landfill at the Doris North mine site. The excavations will then be backfilled by grading the side slope of the camp berm at this location ensuring that the dried drilling solids are fully buried.

5.6 Site Infrastructure and Buildings

Specific materials will be dealt with as follows:

- Each building will be inspected and a list of potentially hazardous material prepared. These hazardous materials will then be removed, packaged in appropriate labelled containers and shipped off-site via the next season's sealift. The hazardous material will be shipped to Hay River and then transported by truck under appropriate waste manifests to licensed waste recycling and/or disposal facilities in the south;

- Each building will be inspected and material/equipment with proven salvage value will be inventoried. This equipment/material will then be removed and packaged for shipment off-site either for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (this could be a northern community that has made an arrangement with MHBL to take over ownership of this equipment/material);

- Non-hazardous equipment and debris from the demolition of the site buildings/tents will be transferred in winter to the non-hazardous landfill site at the Doris North site for permanent disposal. The volume of non-hazardous waste to be transferred in this manner has been estimated to be 5,000 m^3 when cut up and compressed (estimated to be 50 truckloads);

- All piping will be flushed to remove the contents, then cut up and removed with the resultant non-hazardous demolition debris buried in the Doris North solid waste landfill; and

- All above ground electrical cables will be removed and buried in the Doris North solid waste disposal facility (there are no buried cables at the Boston Camp);

The potential for soil contamination at facility sites will be assessed. This will include fuel storage pads, fuel storage tank areas, the generator shed, accommodations tents and cabins, service shops and drill core cutting shop, waste management facilities and storage facilities. Soils in these areas will be sampled during decommissioning and analyzed for contaminants such as hydrocarbons and metals. A soil remediation plan will be developed to address such contamination assuming that some contamination is discovered. Best available practice and research studies for contaminant remediation in Arctic soil will be assessed and used in the design and development of the soil remediation plan. Typically remediation plans will involve either:

- The in-situ treatment of some soils, such as lightly hydrocarbon contaminated soils;

- The excavation and treatment of some soils using conventional land farming techniques using biologically enhanced treatment techniques, such as more heavily hydrocarbon contaminated soils. This land farming would be done at the Doris North landfarm facility; and

- The excavation and placement of some soils in drums and sent offsite to a licensed disposal facility.

Risk Assessment techniques will be applied in determining which, and to what degree, soils will to be remediated. Regulatory agencies and representatives of the KIA will be involved in this process. Regulatory limits such as those contained in Part D, Item 18 of Water License No. 2BE-HOP0712 and regulatory guidelines such as such as the CCME's Canada-wide Standards for Petroleum Hydrocarbons in Soil, and soil quality guidelines for the protection of environmental and human health; as well as Nunavut standards for industrial soils in place at the time of final closure will be consulted on an individual chemical basis.

5.7 Mobile and Stationary Equipment and Buildings

Unless useable at other project sites on the Hope Bay Belt, all surface mobile equipment and stationary equipment (generators etc.) are assumed to have no off-site salvage value. Consequently, the equipment will be cleaned, decontaminated to remove all potentially hazardous materials such as batteries, process residues, hydrocarbons, glycol, fuel, etc. and then be disposed of in the Doris North landfill.

The main camp at Boston consists of pre-fabricated trailer units mounted on skids. These are in good condition and consequently will be disconnected into their separate trailer components and then removed over the winter road to the Doris North Project site for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (this could be a northern community that has made an arrangement with MHBL to take over ownership of this equipment/material).

For the purposes of reclamation planning, all of the other site buildings are assumed to have no-off site salvage value. Consequently, all of these buildings will be checked to identify and create a listing of all potentially hazardous materials that need to be removed. The buildings will then be cleaned to remove all potentially hazardous materials such as chemicals, reagents, hydrocarbons and then dismantled and/or demolished with the debris being disposed of in the landfill at Doris North. The buildings to be removed in this manner include:

- The bulk sampling/crusher enclosure (a large tent unit);
- The maintenance shop;
- The remaining tent units used as offices, core logging and storage units; and
- Seacan storage units (5 units in total).

5.8 Portable Water Supply System

The water pumps, filtering systems, water lines and any other equipment associated with the water supply system will be removed and disposed of in the Doris North landfill.

5.9 Waste Incinerator

Once the camp is entirely dismantled, all remaining combustible waste stored will either be burned in the incinerator or transported to the Doris North landfill. The camp incinerator will then be cleaned and demolished with the debris place in the Doris North landfill. The incinerator ash will be placed in drums and placed underground at the Doris North Mine with the backfill.

5.10 Maintenance Shop Heating System

The drill maintenance shop heating system will be removed as follows:

- The fuel tank (Tidy Tank) attached to the workshop will be drained. The tank will then be removed (portable tanks) over the winter road to the Doris North Project site for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (could be a northern community who have made an arrangement with MHBL to take over ownership of this equipment/material).

- The area around the tank will be inspected for visual contamination and sampled where staining is evident to determine the extent and depth of contaminated soil. If a spill or contamination is evident, the area will be reclaimed as discussed previously in Section 5.6.

- All propane cylinders will be removed from site to be recycled.

5.11 Petroleum Products and Storage Facilities

All remaining hydrocarbon fuels and lubricants will be consumed on site during the reclamation period. Any remaining inventory not used during this period will be removed from site.

5.11.1 Empty 45 Gallons drums

All empty 45 gallon drums will be drained, cleaned and then crushed and buried in the Doris North landfill. The drums will be drained by allowing them to fully drain into a containment tank set up for that purpose within a section of the fuel storage tank containment liner. The residual drained fuel will be drummed and sent off-site for appropriate recycling at a re-refining facility or used to generate heat through the waste oil burner at the Doris North Project site. The empty drums will then be power washed using a recycled wash water system set up for this specific purpose. The clean drums will then be crushed using a drum crusher with the crushed drums then transferred to the Doris North landfill for final disposal.

5.11.2 Tidy Tanks

All tidy tanks from the workshop and other facilities will be drained, cleaned as above and shipped off-site for use elsewhere.

5.11.3 Above Ground Storage Tanks (AST)

All of the AST at the Boston camp (8 tanks) will be drained and then removed. The tanks will be shipped over the winter road to the Doris North Project site for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (this could be a northern community that has made an arrangement with MHBL to take over ownership of this equipment/material).

If the six vertical storage tanks cannot be used elsewhere, then these tanks will be steam cleaned and the residual oil recovered through an oil-water separator unit either brought to site for that purpose or constructed out of one of the Envirotank units already on-site. The wash water will be recycled until all the tanks are cleaned. The tanks will then be dismantled with the non-salvageable material to be transported to the Doris North non-hazardous landfill site.

5.11.4 Fuel Tank Farm Containment

The fuel tank farm containment area will be permanently decommissioned once Boston Camp is taken out of service. Once the tanks have been removed, the HDPE geomembrane will be hand cleaned (using brooms and shovels), cut up into manageable pieces and disposed of in the non-hazardous landfill at the Doris North mine site. Bedding soil and the containment berm soil (below the geomembrane) will be tested for presence of petroleum hydrocarbons. If contaminated (based on the GN Soil Remediation Guidelines – Industrial Standard) these soils will be treated in-situ or excavated and moved to the landfarm facility at the Doris North Mine. The site will then be levelled consistent with the drainage plan for the site. The containment berms will be pushed inward and levelled. The excavation will be backfilled by grading the underlying esker material. The area will then be contoured to match the surrounding landscape and to shed snowmelt and precipitation runoff.

5.12 Solid Waste Disposal Area

There is no permanent landfill at Boston Camp. All non-putresicble non-hazardous solid waste is held in temporary storage either within the defined solid waste disposal area or within the old Settling Pond #2 pending packaging and shipment off-site. Starting in the winter of 2008/2009, this waste will be transferred annually over the winter road to the non-hazardous landfill at the Doris North Project site. Consequently, at final closure there should be no stockpile of material to be removed from either of these sites.

5.13 Land Treatment Area (LTA)

The landfarm will be permanently decommissioned once Boston Camp is taken out of service. Remediated soils that test clean (based on the Nunavut Environmental Guideline for Site Remediation - Industrial guideline) will be used for reclamation. Soils that remain contaminated will be relocated to the landfarm facility at the Doris North Mine site for further remediation. The HDPE geomembrane will be hand cleaned (using brooms and shovels), cut up into manageable pieces and disposed of in the non-hazardous landfill at the Doris North mine site. Bedding soil (below the geomembrane) will be tested for presence of petroleum hydrocarbons. If contaminated (regulatory limits such as those contained in Part D, Item 18 of Water License No. 2BB-BOS0712 and regulatory guidelines such as such as the CCME's Canada-wide Standards for Petroleum Hydrocarbons in Soil, and soil quality guidelines for the protection of environmental and human health; as well as Nunavut standards for industrial soils in place at the time of final closure will be applied) these soils will be treated in-situ or excavated and moved to the landfarm facility at the Doris North Mine. The site will then be levelled consistent with the drainage plan for the site. The containment berms will be pushed inward and levelled. The area will then be contoured to match the surrounding landscape and to shed snowmelt and precipitation runoff.

5.14 Chemicals

At final closure all unused chemicals and additives will be removed from the Boston Camp site.

5.15 Helipads

The helipads will be dismantled and the area graded to match the surrounding landscape and to shed snowmelt and precipitation runoff.

5.16 Floatplane Dock

The Spyder Lake floatplane dock is a floating wood structure that is anchored in place each exploration season. Once no longer needed to support the ongoing reclamation activity, the floatplane dock will be removed from the lake, disassembled with the demolition debris transferred to the Doris North landfill site for final disposal. The anchors are removal anchors and will be removed off in the same manner.

5.17 Sewage Treatment Plant (WWTF or RBC)

The sewage treatment plant (wastewater treatment facility or Rotary Biological Contactor) consists of a pre-packaged, skid mounted treatment plant. At final closure, the RBC unit will be washed down using high pressure water with the sludge from the plant placed in drums and transferred to the Doris North sewage treatment plant for filtration and bagging. The bagged sludge will then be placed underground at Doris North with the backfill. The RBC unit will then be shipped over the winter road to the Doris North Project site for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (this could be a northern community that has made an arrangement with MHBL to take over ownership of this equipment/material).

The sewage collection piping, discharge piping and lift station will be flushed with water during the final decommissioning phase. The pipes, pump box and pumps will then be removed and disposed of in the Doris North landfill.

5.18 Communications Equipment

When no longer needed, the satellite dishes and communications equipment will be dismantled and packaged for shipment to the Doris North Project site for use elsewhere on the Hope Bay Belt by MHBL or shipped off-site to a third party who has made arrangements to purchase this equipment/material for other use (this could be a northern community that has made an arrangement with MHBL to take over ownership of this equipment/material).

5.19 Final Grading of the Boston Camp Site

Once all equipment, buildings and materials have been removed the Boston Camp area will graded to match the surrounding landscape and to shed snowmelt and precipitation runoff. The camp is constructed on an esker and thus can be readily regarded to prevent ponding. The surface area will be scarified to loosen up the surface area to promote in-growth of natural vegetation. The road to the airstrip and floatplane dock will be similarly reclaimed. There are no bridges or culverts to be removed at this site.

5.20 Boston Airstrip

At final closure, all material and equipment will be removed from the airstrip area and either removed from site for recycle or disposed of in the Doris North landfill. There are no fuel tanks or de-icing systems at this airstrip. No chemical de-icing fluids were used at this site. All lighting systems and wind socks will be removed. The airstrip will then be marked as an unserviceable airstrip by placing large white X's across the strip at each end. A notice that the airstrip has been taken out of service will be placed in the appropriate local newspapers and communicated to the regional airstrips including Yellowknife. The airstrip will then be left so that it can be used in the event of an emergency.

5.21 Airstrip Drill Cuttings and Settling Pond

There is an HDPE lined settling pond to the west of the airstrip that is used to settle out the drill cuttings from regional diamond drilling. These drill cuttings are placed into one tonne capacity maxi-bags (jute bags with lifting straps) at each drill site and the water recycled through the drill sump. Once full the bags of wet drill cuttings are lifted by helicopter and transferred to the airstrip settling pond. The bags are emptied into the settling pond where the solids are allowed to settle. The water is released through evaporation. At final closure the pond will be decanted and the solids allowed to dry out. The residual mud is rock flour from drilling and will be extracted and buried within the Settling Ponds #1 and 2 areas once the HDPE liners have been removed. The airstrip settling pond HDPE geomembrane liner will be hand cleaned (using brooms and shovels), cut up into manageable pieces and disposed of in the non-hazardous landfill at the Doris North mine site. The excavation will then be backfilled by grading the side slope of the berm into the excavation at this location. The dried drilling solids will be fully buried under the backfilled Settling Ponds #1 and #2 at Boston Camp.

5.22 Airstrip and Drill Core Storage

Drill core is stored at two locations at the Boston Camp site:

- At the northwest corner of the Boston Camp area; and
- At a core storage area to the east of the Boston all-weather airstrip.

At final closure, drill core at both sites will be sorted and core deemed worthy of storage will be relocated and stored in a secure fashion at the core storage area at the Boston Camp site. All other core will be dumped out of the wood storage boxes and buried in a trench dug within the Boston Camp site. The wood boxes will be transferred to the non-hazardous landfill at the Doris North mine site. The core boxes to be left will be stacked on timbers at cross angles and then strapped together to keep them secured. An inventory of the stored core will be prepared and retained for future reference.

5.23 Exploration Drill Sites

Exploration drill sites are inspected and closed out on an ongoing basis as part of progressive reclamation. The majority of drill holes will be reclaimed before the camp is decommissioned.

5.23.1 Drill Site Reclamation

All drilling equipment will be removed from site by the drilling contractor. Each drill site will be visually inspected for general housekeeping, erosion damage and hydrocarbon contamination. Peat moss or ground corncobs will be applied to areas contaminated with petroleum products to adsorb residual hydrocarbon from the contaminated soil. All other garbage and wastes will be removed from the drill sites for appropriate disposal either within the Doris North landfill (non-hazardous) or transported off-site (hazardous) for disposal at an appropriate disposal facility. Depressions around the drill hole collar caused by thawing of the permafrost during drilling will be backfilled using drill cutting. The drill sites will then be hand graded and levelled to repair ground damage and to conform to the surrounding landscape profile to shed precipitation runoff and snowmelt. The drill sites will then be seeded (with native plant species where practical).

5.23.2 Drill Casing Removal

All drill casings protruding above ground will be cut to a level that will not pose a hazard. The cut portion will be disposed off in the Doris North landfill. Drill holes that encounter artesian water flow or those drilled under the lake will be plugged with cement. GPS positions for all drill holes will be recorded.

5.23.3 Drill Core

All drill core is removed to the Boston Camp during drilling and will be dealt with as addressed in Section 5.22 above.

6.0 ENVIRONMENTAL EFFECTS ASSESSMENT

6.1 Assumptions

This section provides an assessment of the predicted environmental conditions in the area surrounding the Project in the post-closure time period. The assessment assumes that the following physical reclamation activities have been completed:

- All major equipment and hazardous materials have been removed from the underground decline; the openings into the underground decline have been physically sealed;
- All equipment and hazardous materials have been removed from the Project site. All facilities have been cleaned out; the equipment and structures have been demolished; non-salvageable material disposed of in the Doris North solid waste disposal facility;
- All remaining hazardous materials, chemicals, reagents, hydrocarbons, etc., have been removed or disposed of in a manner approved by the appropriate regulatory agencies; and the facilities used to store these materials have been decontaminated, demolished and disposed of in the Doris North solid waste disposal facility;
- The site roads and the laydown areas have been decommissioned; all associated signs and drainage culverts have been removed; natural drainage across the roads and laydown areas has been restored, with adequate erosion protection provided; and the roads and laydown areas have been graded to shed surface runoff and scarified to promote in-growth of natural vegetation; and
- All other surface infrastructure including above-ground piping and power distribution lines has been demolished and disposed of; all building pads, parking areas, laydown areas, etc., have been re-graded and scarified; and all contaminated soils have been removed and treated.

6.2 Underground Decline

It is expected that the underground decline and associated workings will remain frozen due to the presence of permafrost throughout this region. In the highly unlikely event that global warming causes a loss of this permafrost, it is likely that water will infiltrate from the nearby Spyder Lake causing the mine workings to naturally flood. The rate of flooding will be determined by the amount of water that can enter the underground workings through the natural fractures in the rock and the relative difference in hydraulic head between Spyder Lake and the underground workings. Ultimately, the water level within the decline would be expected to reach equilibrium with the water level in Spyder Lake (which appears to be the current condition).

All sources of hazardous materials (hydrocarbons, chemical, and reagents) were removed from the underground workings as part of the previously completed reclamation activity. The decline opening will have been sealed. Potentially acid generating rock contained in the walls will remain frozen reducing the relative rates of future sulphide mineral oxidation. Thus there will no groundwater flow that could mobilize or transport acidity and/or metal contaminants away from the underground workings.

In the unlikely event that at some future point permafrost is lost, then natural future flooding of the underground workings would significantly reduce any oxidation of sulphide minerals exposed in the wall rock by eliminating contact with the air (limiting the availability of oxygen to oxidize the sulphide mineralization). In this unlikely event, the material would probably be flooded before thawing thus minimizing the potential for release of any surface oxidation products into the ground water.

6.3 Boston Camp and Airstrip

The proposed removal and reclamation of the site infrastructure facilities will eliminate any requirement for long-term maintenance, and no substantive adverse effects are expected in the post-closure period. The infrastructure in this category includes Boston Camp and the Boston airstrip area.

The Boston Advanced Exploration Project will not result in the creation of any surface overburden or waste rock piles that will remain at the end of the mine life. No overburden will be stockpiled.

The reclamation plan will encourage a natural succession of indigenous plant species within disturbed areas, but re-establishment of vegetation can be expected to take several decades. The resultant effect on terrestrial wildlife and bird habitat associated with the reclaimed Boston Advanced Exploration Project will be relatively minor in a regional context, given the vast surrounding area of land and water providing suitable alternatives for wildlife species.

6.4 Biophysical Environment

6.4.1 Air Quality

All stationary and vehicle exhaust emissions (sulphur dioxide, oxides of nitrogen, greenhouse gases) associated with the Project will cease following the closure and reclamation of the site facilities. The only emissions in the post-closure period will be those associated with periodic trips into the site for the purpose of environmental monitoring and maintenance. These will be minimal and should have no adverse effect.

Dust emissions associated with the Project will also decrease substantially after closure and reclamation. Cessation of road and air traffic, removal of all site buildings and facilities will eliminate or substantially reduce potential dust sources. Because it will take several decades for natural in-growth of indigenous vegetation after reclamation, some dusting could occur in areas of exposed ground on the laydown and building pads during periods of strong winds. The only other dust emissions in the post-closure period will be those associated with periodic trips into the site for environmental monitoring. These dust sources are expected to be minimal and have little to no adverse effect.

6.4.2 Noise and Light

Noise and light effects associated with the Project will cease with the completion of closure and reclamation. No operating equipment or power sources will be left on site in the post-closure period. Some minor noise will be associated with post-closure environmental monitoring trips to the site, but this is expected to be minimal and have no adverse effect.

6.4.3 Terrain

Because of the extremely harsh growing conditions and lack of soil, re-establishment of natural vegetation will take many years, probably decades. At closure, natural re-vegetation of surfaces used for project facilities at site will be encouraged through scouring of surfaces and seeding where possible. Arctic environment re-vegetation research will be reviewed and implemented where practical to ensure that best available mitigation and management re-vegetation practices are implemented during reclamation.

6.4.4 Wildlife

The potential for human-wildlife interactions will greatly diminish in the post-closure period, and the risks of contact with equipment, vehicles and aircraft will cease once closure and reclamation activities are complete. Areas used for project facilities will essentially be lost to wildlife for the duration of the Project life and for several decades after closure while natural vegetation becomes re-established. Little to no effect on wildlife abundance and use is expected in the post-closure period.

6.4.5 Water Quality and Aquatic Resources

It is projected that the reclaimed Boston Advanced Exploration Project site will not significantly add any additional contaminant loadings into the surface water bodies of the Project area. Sediment loading from post-closure runoff is not expected to differ from existing natural concentrations. Water quality will not be adversely affected by the Project in the post-closure time period. Consequently, no adverse effect to the overall aquatic community in the receiving waters is anticipated.

In summary, the immediate area of Boston Camp will be physically altered due to project development, and changes will remain evident in the site roads and laydown areas after closure. However, the reclamation work will help blend these sites into the surrounding landforms over the long term. The re-establishment of natural vegetation will be slow. The reclaimed project will have minimal effect on the biodiversity and sustainability of the natural renewable resources of the region and have no lasting effect on traditional and non-traditional land use activities in the area.

7.0 POST - CLOSURE MONITORING

MHBL is committed to minimizing the residual environmental effects associated with project development. The closure and reclamation phase of the Project will commence once the Boston Camp is no longer required. Based on current planning, this date is unknown. It is anticipated that this site will ultimately become a working mine. If this does not occur, then reclamation is expected to take place in the first winter season following final closure of the Project. The post-closure period would then commence immediately afterwards and continue until it can be demonstrated that reclamation objectives have been achieved and no further environmental degradation is occurring.

Monitoring and maintenance programs will be implemented during the closure and post-closure phases of the project to prevent environmental degradation and measure the performance of the closure and reclamation procedures. The data collected through post-closure monitoring will allow the planned procedures and activities to be adjusted and/or modified as necessary to ensure optimal environmental protection. The monitoring and maintenance programs discussed in this section are inherently generic at this stage of planning and will be developed in more detail in consultation with communities and regulators as the project approaches final closure.

7.1 Short-Term Monitoring

It is anticipated that during the reclamation period programs to monitor soil contamination will be required as previously discussed under Section 5.6. In addition, environmental monitoring of the following streams will continue under the same frequency and conditions as outlined in Water License No. 2BB-BOS0712:

- Monitoring of all discharges from the decline, waste rock and ore stockpiles as collected through the containment pond;
- Monitoring of all discharges from the WWTF (sewage treatment plant);
- Monitoring of all discharges from the oil water separator unit used to treat standing precipitation runoff collected in the fuel containment area sumps at Boston camp and in the LTA at Boston Camp; and
- Monitoring of soil within the LTA at Boston Camp.

7.2 Long-term Monitoring

Once reclamation is fully complete, it is anticipated that extensive post-closure monitoring will not be required for the Boston Camp site. This is because the nature of the exploration and associated activities at the site do not have a long term environmental impact and do not leave a source of contaminant such as tailings or waste rock behind that could contribute contaminants in the future.

However, it will be necessary to carry out visual inspections to ensure that reclaimed sites are managing runoff water as intended and not creating erosion sources. It will also be necessary to conduct periodic inspections to monitor re-establishment of native vegetation in the reclaimed areas.

7.3 Documentation and Final Inspection

Photographs of the Boston Camp, airstrip and drill sites will be taken at every stage of the decommissioning and reclamation process. MHBL will document what the reclamation objectives were, what is being done, what is the outcome, and develop objectives for the next phase.

7.4 Land Relinquishment

Once the reclamation process is complete and has been approved by the KIA and NWB water license inspector, MHBL will invite and organize a final site inspection visit with community representatives, Land Inspectors, the Nunavut Water Board and the Kitikmeot Inuit Association. Visits by Environment Canada and the Department of Fisheries and Oceans personnel are welcome. A written submission will be send to the regulatory authorities requesting close out and termination of the land leases.

7.5 Post-Closure Revegetation Considerations

The pre-development terrain is covered with characteristic sub-arctic tundra vegetation. It is unlikely that this type of vegetation can be restored in the short term using conventional revegetation techniques. There are no stockpiles or areas at the Project site where growth media can be obtained in sufficient quantity to realistically provide a suitable growth media to be placed over the building pads, roadways, etc. to allow for revegetation using conventional seeding techniques. There are no readily available sources for seed stock for the native plant species common to this area. It may be possible to plant commercially available grass mixes that use native northern plant species (use of native plants in revegetation is now required in Nunavut). One potential source is Arctic Alpine Seed Ltd. Of Whitehorse, Yukon (website: http://www.aaseed.com/). It may be possible to use grasses indigenous to the north to get a quick vegetative cover start on the building pads and roadways. However, without a good organic substrate, establishing vegetation of the reclaimed site will be difficult. MHBL does not have the technology to assure successful revegetation of the site.

However, MHBL will take action during reclamation designed to encourage a natural succession of indigenous plant species within disturbed site areas. Where appropriate, re-grading, contouring and scarification of surfaces will be done to loosen up the surface on building pads and roadways to provide for moisture retention and to promote natural revegetation and to increase the chance of success using the seed mixes applied during reclamation. MHBL will continue to monitor revegetation work at other sites in the Northwest Territories and Nunavut with the intent of applying successful revegetation techniques as they may become available.

8.0 IMPLEMENTATION SCHEDULE AND RECLAMATION COST ESTIMATE

8.1 Introduction

In accordance with DIAND's *Mine Site Reclamation Policy for Nunavut* (Reclamation Policy), the reclamation implementation schedule and liability cost estimates described in this section were developed based on the worst case scenario of third-party management and execution of all closure and reclamation activities, for the purpose of establishing reclamation security. Reclamation liability estimates are presented both exclusive of progressive reclamation and potential salvage credits.

8.2 Implementation Schedule

As indicated in Section 7.1, the closure and reclamation phase of the Project will commence once Boston Camp is no longer required. Based on current planning, this date is unknown. It is anticipated that this site will ultimately become a working mine. If this does not occur then reclamation is expected to take place in the first winter season following final closure of the Project. The post-closure period would then commence immediately afterwards and continue until it can be demonstrated that reclamation objectives have been achieved and no further environmental degradation is occurring.

8.3 Cost Estimate

MHBL retained Nuna Logistics in 2002 to estimate the reclamation liability to reclaim the Boston exploration camp. Nuna provided an estimated cost of $1.4 million to complete the reclamation activity as outlined in this C&R Plan. MHBL has not updated the Nuna Logistics estimate. MHBL believes that this remains a valid estimate of the reclamation liability at this site at the current time; given that there have been no significant changes in the infrastructure or facilities at this site.

9.0 POST – CLOSURE ENVIRONMENT AND LAND USE

The key objectives of the reclamation plan are to:

- Protect public health and safety through the use of safe and responsible reclamation practices;
- Reduce or eliminate environmental effects once the mineral exploration activity ceases;
- Re-establish conditions, where practical, to pre-mineral exploration land use; and
- Reduce the need for long-term monitoring and maintenance by establishing physical and chemical stability of disturbed areas.

The following provides a brief description of the post-closure environment and land use potential.

9.1 Traditional Land Use

The Project is located within a region that was used in the past by Inuit people for hunting and fishing and as a travel route. Once the Project is reclaimed, there should be no effects on traditional land use patterns.

9.2 Non-Traditional Land Use

Potential non-traditional land uses within the area affected by the Project include extraction of subsurface minerals, domestic hunting and trapping, recreational fishing and tourism. However the area immediately surrounding the Project is currently not subject to these land uses. Few human activities are common at present because of the isolation of the area.

9.3 Aesthetic Quality

After closure, the only visible reminders of the site’s presence will be the airstrip, the regarded camp site are and the backfilled decline. All other surface infrastructure will be removed. Site roads and the outlines of laydown areas will remain readily apparent for several decades until native vegetation becomes re-established.

9.4 Biophysical Environment

Emissions of gases from the combustion of fossil fuels, dust and noise from project facilities will cease after the reclamation period. Noise from air and road traffic will be substantially eliminated.

At closure, the surface disturbed by project facilities will remain visible for several decades until native revegetation becomes fully re-established.

The Project area currently provides habitat for a variety of terrestrial wildlife and birds. None of these species, including caribou, is heavily dependent on resources within the Project footprint and similar habitat is prevalent throughout a wide region surrounding the Project site. The loss of habitat during Project operations and after closure (while vegetation becomes re-established) is expected to have a relatively minor impact on wildlife in a regional context.

In summary, although the Project will induce lasting physical changes to the local topography, the proposed reclamation plan will minimize these effects and assure the biodiversity and sustainability of the natural renewable resources of the region.

10.0 GLOSSARY

ARD	Acid rock drainage
CCME	Canadian Council of Ministers of the Environment
˚C	degrees Celsius
DIAND	Department of Indian and Northern Affairs Canada
EA	Environmental Assessment
EMS	Environmental Management System
ha	hectare
ISO	International Standards Organization
kg	kilogram
KIA	Kitikmeot Inuit Association
km	kilometre
km^2	Square kilometres
L	litre
LSA	Local study area (project footprint, surrounded by 500 m buffer)
m	metre
m/s	metres per second
m^2	square metre
m^3	cubic metre
masl	metres above sea level
ML	million litres
Mt	million tonnes
MTVC	Metavolcanic
NIRB	Nunavut Impact Review Board
NLCA	Nunavut Land Claims Agreement
NWB	Nunavut Water Board
PAG	Potentially acid generating
ppm	parts per million
RSA	Regional study area (31 km radius from project site)
SHE	Safety, health and environmental
t	tonne (1,000 kg)
t/d	tonnes per day
TDS	Total dissolved solids
t/m^3	tonnes per cubic metre
TSS	Total suspended solids
TSP	Total suspended particulates
$\mu g/m^3$	micrograms per cubic metre

This report, “Closure and Reclamation Plan, Boston Advanced Exploration Project, Nunavut, September 2007”, has been prepared by Miramar Hope Bay Ltd.

Prepared By

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Appendix B
Boston Camp Closure Cost Estimate

Table 1: Summary of Costs

Direct Costs	Cost (rounded to the nearest thousand)	
Camp Structures	$	239,000
Containment Structures	$	59,000
Site Regrading	$	34,000
Mine Openings	$	19,000
Ore Stockpiles	$	375,000
Contaminated Soils	$	41,000
Other Areas	$	258,000
Waste Shipping Off-Site	$	385,000
Waste Disposal	$	16,000
Subtotal Direct Costs	**$**	**1,427,000**
Indirect Costs		
Contingency	$	205,000
Mob-Demob	$	338,000
Winter Road Construction/Maintenance	$	1,968,000
Administration Costs	$	317,000
Field Support	$	380,000
Other	$	66,000
Subtotal Indirect Costs	**$**	**3,272,000**
CLOSURE COSTS - TOTAL	**$**	**4,700,000**

Table 2. Cost Itemized by Task

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DIRECT COSTS												
Camp Structures												
Accommodation Complex/Buildings											$ 89,416	
B01	1	1	1	Portable Trailers	Decommission (electrical, mechanical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	1	1	2		Prep Trailers for movement (remove boards/piping, etc.).	12	ea	C.1.08	$ 743.07	$ 8,917		
B01	1	1	3		Haul trailers to Doris North for re-use.	12	ea	C.4.06	$ 3,342.69	$ 40,112		
B01	1	2	1	Recreation Tent	Remove heating stove	1	ea	C.1.01	$ 47.68	$ 48		
B01	1	2	2		Demolish	9	m^3	C.3.05	$ 10.61	$ 94		
B01	1	2	3		Collect Debris	23	m^2	C.3.10	$ 0.13	$ 3		
B01	1	2	4		Load debris into containers for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 94		
B01	1	2	5		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 876		
B01	1	3	1	Site Office	Demolish	50	m^3	C.3.05	$ 10.61	$ 534		
B01	1	3	2		Collect Debris	62	m^2	C.3.10	$ 0.13	$ 8		
B01	1	3	3		Load debris into containers for transport (to Roberts Bay)	101	m^3	C.4.01	$ 8.16	$ 821		
B01	1	3	4		Haul debris to Roberts Bay	101	m^3	C.4.04	$ 75.78	$ 7,625		
B01	1	4	1	Geotech Tent	Remove heating stove	1	ls	C.1.01	$ 47.68	$ 48		
B01	1	4	2		Demolish	13	m^3	C.3.05	$ 10.61	$ 135		
B01	1	4	3		Collect Debris	33	m^2	C.3.10	$ 0.13	$ 4		
B01	1	4	4		Load debris into containers for transport (to Roberts Bay)	17	m^3	C.4.01	$ 8.16	$ 135		
B01	1	4	5		Haul debris to Roberts Bay	17	m^3	C.4.04	$ 75.78	$ 1,256		
B01	1	5	1	Core Shack and Core Splitter	Remove heating stoves	2	ls	C.1.01	$ 47.68	$ 95		
B01	1	5	2		Demolish	102	m^3	C.3.05	$ 10.61	$ 1,078		
B01	1	5	3		Collect Debris	115	m^2	C.3.10	$ 0.13	$ 15		
B01	1	5	4		Load debris into containers for transport (to Roberts Bay)	198	m^3	C.4.01	$ 8.16	$ 1,612		
B01	1	5	5		Haul debris to Roberts Bay	198	m^3	C.4.04	$ 75.78	$ 14,983		
B01	1	6	1	Muster Station	Remove heating stoves	1	ls	C.1.01	$ 47.68	$ 48		
B01	1	6	3		Demolish	44	m^3	C.3.05	$ 10.61	$ 470		
B01	1	6	4		Collect Debris	49	m^2	C.3.10	$ 0.13	$ 6		
B01	1	6	5		Load debris into containers for transport (to Roberts Bay)	66	m^3	C.4.01	$ 8.16	$ 542		
B01	1	6	6		Haul debris to Roberts Bay	66	m^3	C.4.04	$ 75.78	$ 5,034		
B01	1	7	1	Communication Equipment	Dismantle and package Satellite Dish and communication equipment	1	ls	C.1.07	$ 313.10	$ 313		
B01	1	8	1	Generators	Decommission generator	1	ls	C.1.06	$ 599.98	$ 600		
B01	1	8	2		Transport Trailer to Doris Camp for re-use/salvage	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B01	1	9	1	Hazardous Waste	Collect and place in suitable containers	0.48	m^3	C.2.01	$ 1,947.00	$ 925		
B01	1	9	2		Haul to Doris North	0	m^3	C.4.03	$ 71.92	$ 34		
Maintenance Shop Complex											$ 23,906	
B01	2	1	1	Heating System	Relocate tanks to tank farm for draining/cleaning	2	ea	C.1.01	$ 47.68	$ 95		
B01	2	2	1	Maintenance Shop	Decommission electrical, mechanical (including connections to generator house & transformer)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	2	3		Demolish (steel modular structure)	17	m^3	C.3.05	$ 10.61	$ 183		
B01	2	2	4		Demolish wood structures (survival, electrical and compressor sheds)	48	m^3	C.3.05	$ 10.61	$ 508		
B01	2	2	5		Collect Debris	306	m^3	C.3.10	$ 0.13	$ 39		
B01	2	2	6		Load debris into containers for transport (to Roberts Bay)	98	m^3	C.4.01	$ 8.16	$ 797		
B01	2	2	7		Haul debris to Roberts Bay	98	m^3	C.4.04	$ 75.78	$ 7,403		
B01	2	3	1	Powerhouse	Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	3	2		Demolish	49	m^3	C.3.05	$ 10.61	$ 518		
B01	2	3	3		Collect Debris	61	m^2	C.3.10	$ 0.13	$ 8		
B01	2	3	4		Load debris into containers for transport (to Roberts Bay)	98	m^3	C.4.01	$ 8.16	$ 797		
B01	2	3	5		Haul debris to Roberts Bay	98	m^3	C.4.04	$ 75.78	$ 7,405		
B01	2	4	1	Transformer building	Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	4	2		Demolish (hazardous material removed above)	33	m^3	C.3.05	$ 10.61	$ 345		
B01	2	4	3		Collect Debris	41	m^2	C.3.10	$ 0.13	$ 5		
B01	2	4	4		Load debris into containers for transport (to Roberts Bay)	49	m^3	C.4.01	$ 8.16	$ 398		
B01	2	4	5		Haul debris to Roberts Bay	49	m^3	C.4.04	$ 75.78	$ 3,698		
Crusher Enclosure											$ 5,583	
B01	3	1	1	Equipment	Dismantle hopper/crusher parts for transport	1	ls	C.3.08	$ 352.28	$ 352		
B01	3	1	2		Load equipment into containers for transport (to Roberts Bay)	20	m^3	C.4.01	$ 8.16	$ 161		
B01	3	2	1	Crusher building	Demolish (tent/steel enclosure)	37	m^3	C.3.05	$ 10.61	$ 389		
B01	3	2	2		Collect Debris	467	m^2	C.3.10	$ 0.13	$ 60		
B01	3	2	3		Load debris into containers for transport (to Roberts Bay)	55	m^3	C.4.01	$ 8.16	$ 449		
B01	3	2	4		Haul debris to Roberts Bay	55	m^3	C.4.04	$ 75.78	$ 4,171		
Water Treatment Facilities											$ 56,693	
B01	4	1	1	Water Supply Pipelines	Cut pipelines into manageable pieces	607	m	C.3.03	$ 1.96	$ 1,190		
B01	4	1	2		Load debris into containers for transport (to Roberts Bay)	182	m^3	C.4.01	$ 8.16	$ 1,486		
B01	4	1	3		Haul debris to Roberts Bay	182	m^3	C.4.04	$ 75.78	$ 13,808		
B01	4	2	1	Sewage water pipelines	Flush sewage water pipelines	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	2	2		Cut pipelines into manageable pieces	489	m	C.3.03	$ 1.96	$ 958		
B01	4	2	3		Load debris into containers for transport (to Roberts Bay)	147	m^3	C.4.01	$ 8.16	$ 1,196		
B01	4	2	4		Haul debris to Roberts Bay	147	m^3	C.4.04	$ 75.78	$ 11,118		
B01	4	3	1	Camp Water Intake	Collect and dismantle intake system	1	ls	C.1.03	$ 1,063.54	$ 1,064		
B01	4	4	1	Old Sewage Treatment (RBC)	Flush and remove sewage plumbing	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	4	2		Load sewage sludge/waste water in 55 gallon drums	1	m^3	C.2.06	$ 504.33	$ 504		
B01	4	4	3		Demolish buildings	37	m^3	C.3.05	$ 10.61	$ 392		
B01	4	4	4		Collect Debris	35	m^2	C.3.10	$ 0.13	$ 4		
B01	4	4	5		Load debris into containers for transport (to Roberts Bay)	55	m^3	C.4.01	$ 8.16	$ 452		
B01	4	4	6		Haul debris to Roberts Bay	55	m^3	C.4.04	$ 75.78	$ 4,198		
B01	4	4	7		Regrade treatment foundation pad to ensure positive drainage	460	m^2	C.5.05	$ 2.38	$ 1,094		
B01	4	5	1	New Sewage Treatment System	Flush and remove sewage plumbing	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	5	2		Load sewage sludge/waste water in 55 gallon drums	1	m^3	C.2.06	$ 504.33	$ 504		
B01	4	5	3		Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	4	5	4		Demolish buildings/tanks	122	m^3	C.3.05	$ 10.61	$ 1,293		
B01	4	5	5		Collect Debris	30	m^2	C.3.10	$ 0.13	$ 4		
B01	4	5	6		Load debris into containers for transport (to Roberts Bay)	183	m^3	C.4.01	$ 8.16	$ 1,491		
B01	4	5	7		Haul debris to Roberts Bay	183	m^3	C.4.04	$ 75.78	$ 13,854		
Helipads											$ 4,692	
B01	5	1	1	Demolish	Demolish pads	32	m^3	C.3.05	$ 10.61	$ 337		
B01	5	1	2		Collect debris	21	m^2	C.3.10	$ 0.13	$ 3		
B01	5	1	3		Load debris into containers for transport (to Roberts Bay)	48	m^3	C.4.01	$ 8.16	$ 388		
B01	5	1	4		Haul debris to Roberts Bay	48	m^3	C.4.04	$ 75.78	$ 3,608		
B01	5	2	1	Regrade	Regrade area to ensure positive drainage	150	m^2	C.5.05	$ 2.38	$ 357		
Aimaokatalok Lake Dock											$ 1,041	
B01	6	1	1	Remove dock	Dismantle, remove anchors	12	m^2	C.3.06	$ 2.81	$ 34		
B01	6	1	2		Crush, load into containers for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 98		
B01	6	1	3		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 909		
Stickleback Lake Dock											$ 15,305	
B01	7	1	1	Remove Dock	Dismantle, remove anchors	12	m^2	C.3.06	$ 2.81	$ 34		
B01	7	1	2		Load into containers for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 98		
B01	7	1	3		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 909		
B01	7	2	1	Boardwalk	Demolish boardwalk	67	m^3	C.3.05	$ 10.61	$ 706		
B02	7	2	2		Collect debris	333	m^2	C.3.10	$ 0.13	$ 43		
B01	7	2	3		Load into containers for transport (to Roberts Bay)	133	m^3	C.3.10	$ 0.13	$ 17		
B01	7	2	4		Haul debris to Roberts Bay	133	m^3	C.4.04	$ 75.78	$ 10,079		
B01	7	3	1	Wooden bridge (E of Stickleback)	Demolish	25	m^3	C.3.05	$ 10.61	$ 265		
B01	7	3	2		Collect debris	50	m^2	C.3.10	$ 0.13	$ 6		
B01	7	3	3		Load debris into containers for transport (to Roberts Bay)	38	m^3	C.4.01	$ 8.16	$ 306		
					Haul debris to Roberts Bay	38	m^3	C.4.04	$ 75.78	$ 2,842		
Incinerator											$ 1,486	
B01	8	1	1	Disassemble	Collect ashes and place in containers	0.01	m^3	C.2.07	$ 535.08	$ 5		
B01	8	1	2		Dismantle (welding crew)	1	ls	C.1.04	$ 913.95	$ 914		
B01	8	1	3		Load into containers for transport (to Roberts Bay)	7	m^3	C.4.01	$ 8.16	$ 55		
B01	8	1	4		Haul debris to Roberts Bay	7	m^3	C.4.04	$ 75.78	$ 512		
Mobile Equipment											$ 6,583	
B01	9	1	1	Decontaminate	Wash/decontaminate misc. equipment in lined facility	5	ea	C.3.08	$ 352.28	$ 1,761		
B01	9	1	2		Operate oil/water separator (qnty = # of tanks/equip. treated)	5	ea	C.2.08	$ 45.47	$ 227		
B01	9	2	1	Disassemble	Dismantle (welding crew)	5	ea	C.3.08	$ 352.28	$ 1,761		
B01	9	2	2		Load into containers for transport (to Roberts Bay)	34	m^3	C.4.01	$ 8.16	$ 275		
B01	9	2	3		Haul debris to Roberts Bay	34	m^3	C.4.04	$ 75.78	$ 2,558		
Other Structures											$ 34,121	
B01	10	1	1	Demolish	Demolish buildings and other structures	44	m^3	C.3.05	$ 10.61	$ 467		
B01	10	1	2		Dismantle radio towers	2	each	C.3.11	$ 14,052.00	$ 28,104		
B01	10	1	3		Collect debris	80	m^2	C.3.10	$ 0.13	$ 10		
B01	10	1	4		Load debris into containers for transport (to Roberts Bay)	66	m^3	C.4.01	$ 8.16	$ 538		
B01	10	1	5		Haul debris to Roberts Bay	66	m^3	C.4.04	$ 75.78	$ 5,002		
Subtotal Direct Costs - Camp Structures											**$ 238,827**	

Table 2. Cost Itemized by Task (Continued)

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
Containment Structures												
Primary Tank Farm											$ 27,636	
B02	1	1	1	Above ground storage tanks	Drain fuel and consolidate in one tank	8	ea	C.2.03	$ 227.84	$ 1,823		
B02	1	1	2		Decommission fuel tanks	8	ea	C.1.02	$ 398.36	$ 3,187		
B02	1	1	3		Pressure wash tanks	8	ea	C.2.04	$ 249.84	$ 1,999		
B02	1	1	4		Operate oil/water separator	8	ea	C.2.08	$ 45.47	$ 364		
B02	1	1	5		Demolish and cut tanks into manageable pieces	25	m^3	C.3.07	$ 86.49	$ 2,141		
B02	1	1	6		Haul residual fuel on skid to Doris Camp	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B02	1	1	7		Load into containers for transport (to Roberts Bay)	25	m^3	C.4.01	$ 8.16	$ 202		
B02	1	1	8		Haul debris to Roberts Bay	25	m^3	C.4.04	$ 75.78	$ 1,876		
B02	1	2	1	Heating Systems Tanks	Drain of fuel (consolidate in one tank) and pressure wash tank	7	ea	C.2.02	$ 18.99	$ 133		
B02	1	2	2		Operate oil/water separator (qnty = # of tanks/equip. treated)	7	ea	C.2.08	$ 45.47	$ 318		
B02	1	2	3		Load into containers for transport (to Roberts Bay)	5	m^3	C.4.01	$ 8.16	$ 43		
B02	1	2	4		Haul debris to Roberts Bay	5	m^3	C.4.04	$ 75.78	$ 398		
B02	1	3	1	Secondary containment system	Excavate liner cover material and consolidate on ore pile	406	m^3	C.5.02	$ 17.47	$ 7,084		
B02	1	3	2		Load HC contaminated bedding in containers for transport	-	m^3	C.4.01	$ 8.16	$ -		
B02	1	3	3		Cut liner into manageable pieces and clean	825	m^2	C.3.02	$ 2.14	$ 1,762		
B02	1	3	4		Load liner into container for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 101		
B02	1	3	5		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 938		
B02	1	3	6		Regrade area to ensure positive drainage	810	m^2	C.5.05	$ 2.38	$ 1,926		
Power Plant Fuel Containment											$ 2,831	
B02	2	1	1	Green Storage tanks (2)	Drain of fuel and consolidate in one tank	2	ea	C.2.03	$ 227.84	$ 456		
B02	2	1	2		Pressure wash tanks	2	ea	C.2.04	$ 249.84	$ 500		
B02	2	1	3		Operate oil/water separator	2	ea	C.2.08	$ 45.47	$ 91		
B02	2	1	4		Load into containers for transport (to Roberts Bay)	2	ea	C.4.07	$ 123.41	$ 247		
B02	2	1	5		Haul debris to Roberts Bay	2	ea	C.4.04	$ 75.78	$ 152		
B02	2	2	1	Secondary containment system	Excavate liner cover material and consolidate on ore pile	60	m^3	C.5.02	$ 17.47	$ 1,048		
B02	2	2	2		Load HC contaminated bedding in containers for transport	-	m^3	C.4.01	$ 8.16	$ -		
B02	2	2	3		Cut liner into manageable pieces and clean	12	m^2	C.3.02	$ 2.14	$ 26		
B02	2	2	4		Load liner into container for transport (to Roberts Bay)	0.2	m^3	C.4.01	$ 8.16	$ 1		
B02	2	2	5		Haul debris to Roberts Bay	0	m^3	C.4.04	$ 75.78	$ 14		
B02	2	2	6		Regrade area to ensure positive drainage	125	m^2	C.5.05	$ 2.38	$ 297		
Jet Fuel Containment System											$ 3,571	
B02	3	1	1	Tidy Tanks/Jet fuel Drums	Remove to Doris Camp for reuse	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B02	3	2	1	Portable Pollution Control Berm	Dismantle and prep for shipping	1	ls	C.3.04	$ 227.84	$ 228		
B02	3	2	2		Haul to Doris Camp for reuse (include in jet fuel trip)	1	ls	-	$ -	$ -		
B02	3	2	3		Haul debris to Roberts Bay	1	ls	C.4.04	$ 75.78	$ 76		
Settling Pond #1											$ 3,548	
B02	4	1	1	Remove liner	Excavate settled material, temp. stockpile	79	m^3	C.5.04	$ 2.56	$ 203		
B02	4	1	2		Remove liner and cut into manageable pieces	400	m^2	C.3.02	$ 2.14	$ 854		
B02	4	1	3		Load liner into container for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 49		
B02	4	1	4		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 455		
B02	4	2	1	Backfill pond	Backfill pond with settled solids and drill cuttings	79	m^3	C.5.04	$ 2.56	$ 203		Cutting placement included elsewhere
B02	4	2	2		Regrade over pond with pad/berm materials	750	m^2	C.5.05	$ 2.38	$ 1,784		
Settling Pond #2 (incl. Burn Pit)											$ 1,793	
B02	5	1	1	Remove Solid Waste	Load into containers for transport (to Roberts Bay)	-	m^3	C.4.01	$ 8.16	$ -		
B02	5	2	1	Backfill pond	Backfill pond with settled solids and drill cuttings	59	m^3	C.5.04	$ 2.56	$ 152		
B02	5	2	2		Regrade over pond with pad/berm materials	690	m^2	C.5.05	$ 2.38	$ 1,641		
Soil Treatment Facility											$ 16,745	
B02	7	1	1	Current landfarmed soils	Test existing soils in landfarm	10	ea	C.6.01	$ 93.48	$ 935		
B02	7	1	2		Use passing soils for reclamation	90	m^3	-	$ -	$ -		Costed where used
B02	7	1	3		Load failing soils into containers for transport	90	m^3	C.4.01	$ 8.16	$ 734		
B02	7	2	1	Soil in drums	Empty Drums	100	ea	C.2.09	$ 92.56	$ 9,256		
B02	7	2	2		Wash drums (in tank farm)	100	ea	C.2.05	$ 16.35	$ 1,635		
B02	7	2	3		Crush drums	100	ea	C.3.01	$ 13.56	$ 1,356		
B02	7	2	4		Load into containers for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 52		
B02	7	2	5		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 482		
B02	7	3	1	Remove liner	Remove liner and cut into manageable pieces	368	m^2	C.3.02	$ 2.14	$ 786		
B02	7	3	2		Load liner into container for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 45		
B02	7	3	3		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 418		
B02	7	4	1	Regrade	Regrade area to ensure positive drainage	440	m^2	C.5.05	$ 2.38	$ 1,046		
Diamond Drill Cuttings Settling Pond											$ 3,110	
B02	8	1	1	Excavate cuttings	Stockpile cuttings on-site	336	m^3	C.5.04	$ 2.56	$ 861		
B02	8	2	1	Remove pond	Excavate textile and place in container for transport	5	m^3	C.4.01	$ 8.16	$ 37		
B02	8	2	2		Regrade area to ensure positive drainage	930	m^2	C.5.05	$ 2.38	$ 2,212		
Subtotal Direct Costs - Containment Structures											**$ 59,233**	
Site Regrading												
Camp Complex Foundation Pad											$ 13,667	
B03	1	1	1	Regrade	Stake-out low-lying areas in summer to place fill	1	days	C.5.14	$ 6,543.52	$ 6,544		
B03	1	1	2		Regrade to fill in any low lying areas	2,995	m^2	C.5.05	$ 2.38	$ 7,123		
Road to Aimaokatalok Lake											$ 1,838	
B03	2	1	1	Regrade	Regrade (crown)	773	m^2	C.5.05	$ 2.38	$ 1,838		
Road to Airstrip											$ 4,193	
B03	3	1	1	Regrade	Regrade to fill in any low lying areas and crown road	1,763	m^2	C.5.05	$ 2.38	$ 4,193		
Airstrip											$ 12,697	
B03	4	1	1	Regrade	Regrade to fill in any low lying areas	5,222	m^2	C.5.05	$ 2.38	$ 12,419		
B03	4	2	1	Decommission	Place large white X's at each end of strip	1	ls	C.1.09	$ 277.84	$ 278		
Core Storage Road											$ 1,316	
B03	5	1	1	Remove Wind Sock & Culvert	Excavate culvert	7	m^3	C.5.15	$ 87.05	$ 603		
B03	5	1	2		Dismantle windsock	1	ls	C.3.08	$ 352.28	$ 352		
B03	5	1	3		Load culvert/sock/pole/drum into container for transport (to Roberts Bay	0.3	m^3	C.4.01	$ 8.16	$ 2		
B03	5	1	4		Haul debris to Roberts Bay	0	m^3	C.4.04	$ 75.78	$ 20		
B03	5	2	1	Regrade	Regrade to fill in any low lying areas and crown road	142	m^2	C.5.05	$ 2.38	$ 338		
Drill Road											$ 728	
B03	1	1	1	Regrade	Regrade to fill in any low lying areas and crown road	306	m^2	C.5.05	$ 2.38	$ 728		
Subtotal Direct Costs - Camp Surface Infrastructure											**$ 34,438**	
Mine Openings												
Portal/Decline											$ 7,047	
B04	1	1	1	Remove fencing	Collect Debris (ski fence and supports)	-	m^3	C.3.05	$ 10.61	$ -		
B04	1	1	2		Load debris into container for transport (to Roberts Bay)	-	m^3	C.4.01	$ 8.16	$ -		
B04	1	1	3		Haul debris to Roberts Bay	-	m^3	C.4.04	$ 75.78	$ -		
B04	1	2	1	Scaling	Use excavator to knock down debris	1	hrs	C.5.11	$ 256.32	$ 256		Est. 1 hr. Excavator time
B04	1	3	1	Backfill decline	Load, haul, dump waste ore to plug incline	389	m3	C.5.02	$ 17.47	$ 6,791		
Vent Raise											$ 12,065	
B04	2	1	1	Demolish	Demolish garden shed and wood support structures	-	m^3	C.3.05	$ 10.61	$ -		
B04	2	1	2		Load debris into container for transport (to Roberts Bay)	-	m^3	C.4.01	$ 8.16	$ -		
B04	2	1	3		Haul debris to Roberts Bay	-	m^3	C.4.04	$ 75.78	$ -		
B04	2	2	1	Construct Cap	1.5mx2.1m concrete cap with gas vent	1	LS	C.6.03	$ 12,064.56	$ 12,065		
Subtotal Direct Costs - Mine Openings											**$ 19,112**	
Ore Stockpiles												
Consolidate, Reslope, Encapsulate, and Cover (0.3 m)											$ 375,307	
B05	6	1	1	Consolidate stockpiles and dispersed ore	Scrape up and dump ore within consolidated pile	3,803	m^3	C.5.03	$ 23.29	$ 88,564		
B05	6	1	2		Consolidate ore into large pile	8,265	m^3	C.5.03	$ 23.29	$ 192,472		
B05	6	2	1	Reslope stockpile	Dozer - D7	2,026	m^2	C.5.06	$ 3.17	$ 6,423		
B05	6	3	1	Place Synthetic cover	Supply and place HDPE liner	2,330	m^3	C.5.01	$ 31.70	$ 73,838		
B05	6	3	2	Cover stockpile	Load, haul, place cover material (assumed sourced within 0.5km)	802	m^3	C.5.02	$ 17.47	$ 14,011		
Subtotal Direct Costs - Ore Stockpiles											**$ 375,307**	
Contaminated Soils												
Contaminated Soil Implementation Plan											$ 41,333	
B06	1	1	1	Develop Implementation Plan	Includes field investigation, laboratory costs, and reporting	1	ls	-	$ 41,333.33	$ 41,333		
Subtotal Direct Costs - Contaminated Soils											**$ 41,333**	

Table 2. Cost Itemized by Task (Continued)

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
Other Areas												
Drill Sites											$ 189,490	
B07	1	1	1	Drill piping	Cut of top of drill pipes and cap.	545	ea	C.3.09	$ 31.11	$ 16,954		
B07	1	1	2		Load top debris into containers for transport to Roberts Bay	9	m^3	C.4.01	$ 8.16	$ 74		
B07	1	1	3		Haul debris to Roberts Bay	9	m^3	C.4.04	$ 75.78	$ 692		
B07	1	2	1	Core	Remove any core to the core storage area	130	each	C.5.07	$ 35.10	$ 4,563		
B07	1	3	1	Regrade	Fill in low-lying areas (assumed sourced within 0.5km)	9,000	m^3	C.5.02	$ 17.47	$ 157,196		
B07	1	4	1	Revegetate	Revegetate: Supply and place cocoa matting	450	m^2	C.5.08	$ 8.87	$ 3,990		
B07	1	4	2		Revegetate: Seed/Fertilize, by hand, high application rate	9,000	m^2	C.5.13	$ 0.67	$ 6,020		
Vegetation Die-Back and Permafrost remediation Areas											$ 38,498	
B07	2	1	1	Areas by the Airstrip (excluding drill sites)	Fill in low-lying areas (assumed sourced within 0.5km)	168	m^3	C.5.02	$ 17.47	$ 2,930		
B07	2	1	1	Area by Drill Road	Fill in low-lying areas (assumed sourced within 0.5km)	267	m^3	C.5.02	$ 17.47	$ 4,662		
B07	2	1	2		Revegetate: Supply and place cocoa matting	890	m2	C.5.08	$ 8.87	$ 7,889		
B07	2	1	3		Revegetate: Seed/Fertilize, by hand, high application rate	17,795	m2	C.5.13	$ 0.67	$ 11,903		
B07	2	2	1	Area by Core Storage Road	Fill in low-lying areas (assumed sourced within 0.5km)	149	m^3	C.5.02	$ 17.47	$ 2,594		
B07	2	2	2		Revegetate: Supply and place cocoa matting	50	m^2	C.5.08	$ 8.87	$ 439		
B07	2	2	3		Revegetate: Seed/Fertilize, by hand, high application rate	990	m^2	C.5.13	$ 0.67	$ 662		
B07	2	3	1	Area by Grey Water Discharge	Fill in low-lying areas (assumed sourced within 0.5km)	81	m^3	C.5.02	$ 17.47	$ 1,414		
B07	2	3	2		Revegetate: Supply and place cocoa matting	270	m^2	C.5.08	$ 8.87	$ 2,393		
B07	2	3	3		Revegetate: Seed/Fertilize, by hand, high application rate	5,398	m^2	C.5.13	$ 0.67	$ 3,611		
Core Boxes											$ 29,895	
B07	3	1	1	Inventory	Complete inventory of core	84	hrs	L.08	$ 130.00	$ 10,920		Est. one week geologist's time
B07	3	2	1	Secure boxes	Band together boxes on pallets	520	ea	C.6.02	$ 9.49	$ 4,937		
B07	3	2	2		Relocate boxes on tundra to bedrock of pad areas	400	ea	C.5.07	$ 35.10	$ 14,039		
Subtotal Direct Costs - Other Areas											**$ 257,883**	
Waste Shipping Off-site												
B08	1	1	1	Non-Hazardous Waste	Ship by barge to Hay River	1,927	m^3	S.03	$ 200.00	$ 385,397		
B08	1	2	1	HC Contaminated Soils	Ship by barge to Hay River	-	m^3	S.01	$ 989.00	$ -		
B08	1	3	1	Hazardous Waste	Ship by barge to Hay River	0.48	m^3	S.02	$ 200.00	$ 95		
Subtotal Direct Costs - Waste Shipping											**$ 385,492**	
Waste Disposal												
B09	1	1	1	Non-hazardous waste	Disposal fee at Hay River	1,927	m^3	M.10	$ 5.51	$ 10,614		
B09	1	2	1	Sewage sludge	RBC + New Treatment system sludge/solid waste	2	m^3	C.4.04	$ 75.78	$ 152		
B09	1	3	1	HC Contaminated Soils	Dump fee at Hay River	0	m^3	H.05	$ 100.00	$ -		
B09	1	4	1	Hazardous Waste	Dump fee at Hay River	0.48	m^3	M.09	$ 10,000.00	$ 4,750		
Subtotal Direct Costs - Waste Disposal											**$ 15,516**	
TOTAL DIRECT COSTS					TOTAL DIRECT COSTS						**$ 1,427,141**	
INDIRECT CLOSURE COSTS												
Contingency											$ 205,227	
-	1	1	-	Contingency	20% of direct costs	20	%	x	$ 1,026,133.46	$ 205,227		
Mobilization & Demobilization											$ 337,504	
-	2	1	-	Winter Closure activities	Equipment Mobilization/Demobilization	1	ls	x	$ 337,503.53	$ 337,504		
-	2	2	-	Summer Closure activities	Equipment Mob/Demob	1	ls	x		$ -		
Winter Road Construction/Maintenance											$ 1,967,650	
-	3	1	1	Construct and maintain Winter Road	Required during closure	59	km	M.08	$ 33,350.00	$ 1,967,650		Assumed open for 4 months
General and Administration costs											$ 316,800	
-	4	1	-	Travel allowance		9	ls	x	$ 5,000.00	$ 45,000		
-	4	2	-	Communications		4.5	months	x	$ 5,000.00	$ 22,500		
-	4	3	-	Misc. Supplies		4.5	months	x	$ 1,500.00	$ 6,750		
-	4	4	-	Camp Cost		37	Man-month	x	$ 6,600.00	$ 242,550		
Field support and QA/QC											$ 379,537	
-	5	1	-	Supervision		133	days		$ 1,172.40	$ 155,929		
-	5	2	-	Equipment maintenance support - Mechanic	10% of project duration	13	days	x	$ 1,023.12	$ 13,607		
-	5	3	1	Helicopter Support	Winter 2012 activities	10	days	x	$ 8,400.00	$ 84,000		4 trips, 6 hrs/day;
-	5	3	2		Summer 2012 revegetation activities	15	days	x	$ 8,400.00	$ 126,000		
Other											$ 65,653	
-	5	1	-	Contractor profit	% of direct and other indirect costs (excluding contingency)	-	%	of	$4,428,631.21	$ -		
-	5	2	-	Bonding	% of direct cost	2.5	%	of	$1,026,133.46	$ 25,653		
	5	3		Engineering Design		1	ls		$ 40,000.00	$ 40,000		
-	5	4	-	Freight costs (included in material costs)		15	%		-	$ -		
Subtotal Indirect Costs				Subtotal Indirect Costs							**$ 3,272,370**	
CLOSURE COSTS - TOTAL				Subtotal Indirect Costs							**$ 4,699,511**	

Table 3. Mobilization/ Demobilization costs

Indirect Unit Rates

Cost Code	Item	Unit rate	Unit	Source/comment
I.01	Communications	$ 5,000	month	SRK-Estimate
I.02	Bonding	2.5%	% of direct costs	SRK-Estimate
I.03	Miscellaneous Supplies	$ 1,500.00	month	SRK-Estimate
I.04	Camp Cost	$ 6,600.00	person-month	Newmont
I.05	Travel Allowance		LS per person	
I.06	Engineering Design	$ 15,000.00	LS	SRK-Estimate
I.07	Laboratory/Material Testing	$ 1,000.00	month	SRK-Estimate
I.08	Contractor Profit	10%	%	Of Direct and Indirect costs

Mob/Demob Costs

Crew mobilization costs included in loaded labour rate

The barging fee for equipment is calculated on a square foot bas

No. of units	Description	Units	Quantity	Unit cost	2012 Task cost	Notes
	Crew					
	Note: Labour costs included in loaded Labour Unit Rates found on the Unit Rates and Task Unit Rates workshe					
	Construction equipmen	Footprint				
1	Bobcat	m^3	11.0	$ 332.96	$ 3,658	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 332.96	$ 3,400	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 332.96	$ 12,688	From Hay River to Roberts Bay
1	Small equipment	m^3	24.1	$ 332.96	$ 8,025	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 13,860	From Hay River to Roberts Bay
0	Tractor trailer	m^3	86.8	$ 332.96	$ -	From Hay River to Roberts Bay
1	Crew cab pickup (Ford F350)	m^3	33.8	$ 332.96	$ 11,254	From Hay River to Roberts Bay
	Truck equipment to Hay River (6 trucks	each	7	$15,000.00	$ 105,000	= hauling 8 trailers from Edmonton / source: Doris cost estima
				Subtotal Mobilisation	**$ 164,636**	
				Subtotal Demobilisation	**$ 172,868**	Assumes same cost as mobilisation, updated by 5'
				Total	***$ 337,504***	

Camp costs

Work Period - Description	Project Duration (weeks)	Crew Size	Person-Months	Camp Cost ($/month/ person)	Cost	Notes
Winter 2011 - Site Remediatior	18	8	36	$ 6,600	$ 237,600	
Summer 2011 - Site Revegetatior	1	3	0.75	$ 6,600	$ 4,950	
Total	**19**		**36.75**		**$ 242,550**	

Table 4. Unit Rates

Cost Code	Item	Unit rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 166.50	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.02	Dozer (CAT D4)	$ 86.60	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.03	Dozer (CAT D4) w/ Tiller	$ 99.59	hr.	15% added for tiller attachment	Nuna 2012 equipment rates
E.04	Truck (CAT 730)	$ 138.70	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.05	Excavator (CAT 330 CL)	$ 185.00	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.06	Loader (CAT IT38/930)	$ 82.30	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.07	Skidder (CAT Bobcat)	$ 80.10	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.08	Helicopter	$ 2,100.00	hr.	fuel surcharge applies	IMiskolczi (from Angela Holtzapfel@HBML ESR)
E.09	Welding Equipment	$ 52.58	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance, 10% fuel factor
E.10	Power washer	$ 110.00	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/equipment.asp?action=category&category=190&key=190%2D0079
E.11	Drum crusher	$ 35.60	hr.	30 tones, mobile	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.12	Oil-water separator	$ 1,388.35	LS	10 GPM, underground	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.13	Air Track Drill	$ 203.84	hr.		2009 BC Blue Book + 10% Northern Allowance + 15% rate increase to 2012, 10% fuel factor
Materials					
M.01	Liner - HDPE	$ 28.93	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.02	Liner - geotextile	$ 26.62	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Fuel (Diesel)	$ 1.17	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.04	Explosives	$ 21.38	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
M.05	Silt Fencing	$ 1.52	m	15% freight cost added	Material Quote: Layfield, Jan. 2008
M.06	Coco-matting	$ 6.61	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI
M.07	Seed/Fertilizer	$ 8.99	kg	15% freight cost added	John Brodie, 2006
M.08	Winter road	$ 16,675.00	km	open and maintain for 2 months	NUNA Logistics (from Court Smith) + 15% cost increase to 2012
M.09	Hazardous Waste Disposal fee	$ 10,000.00	m^3	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay River)	$ 5.51	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.12	Bentonite chips	$ 570.96	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
Labour					
L.01	Labour general	$ 56.96	hr.		Nuna Blended 2012 rate POH in
L.02	Labour - Trades	$ 85.26	hr.	Electrician, Welder, plumber etc.	Nuna Blended 2012 rate POH in
L.05	Supervision	$ 97.70	hr.		Nuna Blended 2012 rate POH in
L.06	Truck Drivers	$ 65.81	hr.	Heavy Equipment	Nuna Blended 2012 rate POH in
L.07	Heavy Equipment Operator	$ 71.32	hr.	Light equipment	Nuna Blended 2012 rate POH in
L.08	Technician (Consultant)	$ 130.00	hr.	Staff Consultant	SRK-Estimate (all inclusive)
L.09	Note: Loading Rate includes allowances for (EI, CPP, MSP/Benefits/Travel/OT)				
Shipping					
S.01	Outbound Shipping - Soils	$ 989.00	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs. limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 200.00	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs. limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 13
S.03	Outbound Shipping - Demolition	$ 200.00	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
Hydrocarbon Soils and Haz Waste					
H.01	Excavate impacted soil	$ 19.18	m^3		WESA estimate
H.02	Low temperature thermal desorption	$ 100.00	m^3		WESA estimate
H.03	Rehydrate and backfill	$ 10.69	m^3		WESA estimate
H.04	Regrade and reshape	$ 2.38	m^2		WESA estimate
H.05	Tipping Fee for HC Soils at Hay River	$ 100.00	tonne		Communication with Hay River Landfill Tharp 18APR12

Table 5. Task Unit Rates

Cost Code	Item	Unit	Productivity (Unit/hr.)	Unit Rates				Labour						Equipment										Note / Source
								$ 56.96	$ 85.26	$ 85.26	$ 130.00	$ 65.81	$ 71.32	$ 166.50	$ 185.00	$ 82.30	$ 80	$138.70	$2,100.00	$ 203.84	$ 3.56	$ 11.00	$ 5.26	
				Total Unit Cost	Material Unit Rate	Labour Unit Rate	Equipment Unit Rate	General Labour	Tradesman - Electrical	Tradesman - Plumber	Engineer/ Technician	Truck Drivers	Heavy Equipment Operator	Dozer - CAT D7	Excavator - Cat 330	Loader - CAT 966	Skidder CAT 242	Truck - CAT 735	Helicopter	Drill	Drum crusher	Power washer	Welding Equipment	
Decommissioning																								
C.1.01	Decommission and remove all heating fuel tanks and place into lined facility	each	4	$ 47.68	$ -	$ 37.40	$ 10.29	2					0.5			0.5								Disconnect and remove all fuel drums and disconnect all Tidy Tanks from all structures
C.1.02	Decommission above ground storage tanks	each	0.5	$ 398.36	$ -	$ 398.36	$ -	2	1															Disconnect all fuel lines and electrical parts
C.1.03	Decommission potable water supply	each	0.25	$ 1,063.54	$ -	$ 981.24	$ 82.30	1	1	1			0.25			0.25								Disconnect all electrical and plumbing (intake and distribution)
C.1.04	Decommission waste incinerator	each	0.167	$ 913.95	$ -	$ 790.50	$ 123.45	2					0.25			0.25								Disconnect and remove fuel storage
C.1.05	Decommission Main Camp Facility electricity	each	0.25	$ 568.88	$ -	$ 568.88	$ -	1	1															De-energise main electrical board, disconnect auxiliary power (if exists)
C.1.06	Decommission electrical generators	each	0.46	$ 599.98	$ -	$ 510.52	$ 89.46	2	1				0.5			0.5								De-energise main breaker board, disconnect external fuel tanks (if needed) / loader used for lifting; source - RSMeans (260505252100)
C.1.07	Dismantle Satellite/Communication Equipment	each	0.5	$ 313.10	$ -	$ 313.10	$ -	2	0.5															source - SRK estimate
C.1.08	Prep portable trailers for moving (remove cladding, etc.)	each	0.3	$ 743.07	$ -	$ 619.62	$ 123.45	3					0.5			0.5								
C.1.09	Decommission Airstrip - Place large X's at each end of strip	each	0.5	$ 277.84	$ 50.00	$ 227.84	$ -	2																Assumed material cost for a high density plastic, nails and sandbags.
Decontamination																								
C.2.01	Collect hazardous chemical waste and place in suitable containers	m^3	0.17	$ 1,947.00	$ -	$ 1,453.20	$ 493.80	3					1			1								Includes all chemicals on site / jm_Estimate
C.2.02	Drain and power-wash heating fuel tanks (Tidy Tanks)	each	6	$ 18.99	$ -	$ 18.99	$ -	2																Drain fuel from tanks and wash exterior with hot water (collect water for treatment)
C.2.03	Drain above ground fuel storage tank	each	0.5	$ 227.84	$ -	$ 227.84	$ -	2																Drain fuel /source - SRK estimate
C.2.04	Pressure wash above ground fuel tank	each	0.5	$ 249.84	$ -	$ 227.84	$ 22.00	2														1		
C.2.05	Drain and power-wash empty fuel drums	each	12	$ 16.35	$ -	$ 15.44	$ 0.92	2					1									1		Drain fuel and triple-rinse drum (collect water for treatment)
C.2.06	Flush sewage treatment unit and collect sewage sludge	each	0.4	$ 504.33	$ -	$ 373.95	$ 130.38	2					0.5			0.5						1		Flush treatment unit with water (collect water for treatment)/source - SRK estimate
C.2.07	Empty incinerator and collect ashes	m^3	0.25	$ 535.08	$ -	$ 370.48	$ 164.60	1					0.5			0.5								Place ashes and unburned contents into containers / see C.6.04
C.2.08	Operate oil/water separator	each	4	$ 45.47	$ -	$ 42.72	$ 2.75	3														1		Siphon the water than drain the oil - 15 minutes per 55 gal. drum
C.2.09	Empty soil from 45 gallon drums	each	4	$ 92.56	$ -	$ 46.31	$ 46.25	2					1		1									
Demolition																								
C.3.01	Crush empty fuel drums	each	20	$ 13.56	$ -	$ 9.26	$ 4.29	2					1			1					1			Same as C.4.01
C.3.02	Cut Tank Farm geomembrane to manageable size	sq. m	80	$ 2.14	$ -	$ 2.14	$ -	3																source - SRK estimate
C.3.03	Remove intake hoses and cut to manageable size	Lm	100	$ 1.96	$ -	$ 1.50	$ 0.46	2					0.5			0.5							1	source - SRK estimate
C.3.04	Dismantle pollution control berm	each	0.50	$ 227.84	$ -	$ 227.84	$ -	2																
C.3.05	Demolish office buildings/ shop structures/ living quarters	m^3	53	$ 10.61	$ -	$ 5.92	$ 4.69	3					2	1		1								Demolish empty wood structures (offices, shacks, etc.)/ source - RSMeans
C.3.06	Demolish helipads/ float plane dock	m^3	75	$ 2.81	$ -	$ 1.71	$ 1.10	1					1			1								Demolish wood structure / source - SRK estimate
C.3.07	Demolish Above ground storage tanks	m^3	5	$ 86.49	$ -	$ 48.44	$ 38.05	3					1		1								1	
C.3.08	Dismantle Old Equipment (torch)	each	0.5	$ 352.28	$ -	$ 341.76	$ 10.52	3															1	
C.3.09	Cut of tops of drill casings	each	2	$ 31.11	$ -	$ 28.48	$ 2.63	1															1	
C.3.10	Clean up debris from site	m^2	2529	$ 0.13	$ -	$ 0.10	$ 0.03	3					1			1								source - SRK estimate
C.3.11	Dismantle radio tower	each	0.04	$ 14,052.00	$ -	$ 9,612.00	$ 4,440.00	2	1		1		1		1									source - SRK estimate
Material Relocations																								
C.4.01	Load demolition debris/solid waste in containers	m^3	48	$ 8.16	$ -	$ 2.97	$ 5.18						2	1		1								source - SRK calculated from first principles
C.4.02	Empty Seacan of debris at the landfill	each	5.7	$ 86.55	$ -	$ 24.98	$ 61.57						2	1	1									
C.4.03	Haul materials to Doris Camp in 20 ft. container (33.2 m^3/container)	m^3	3.31	$ 71.92	$ -	$ 21.57	$ 50.35						1	1										source - calculated from first principles
C.4.04	Haul waste to Roberts Bay jetty in 20 ft. container (33.2 m^3/container)	m^3	3.14	$ 75.78	$ -	$ 22.73	$ 53.06						1	1										source - calculated from first principles
C.4.05	Ship demolition waste from Roberts Bay to Hay River	m^3	1	#REF!									0											
C.4.06	Haul one skid to Doris Camp	each	0.07	$ 3,342.69	$ -	$ 1,002.44	$ 2,340.25						1	1										
C.4.07	Load reusable items on skids	each	3	$ 123.41	$ -	$ 61.75	$ 61.67	2					1		1									
Earth works																								
C.5.01	Install HDPE Liner	m^2	175	$ 31.70	$ 28.93	$ 1.71	$ 1.06	4					1		1									
C.5.02	Load, haul, dump, place: 1 truck with <0.5 km haul distance	m^3	40	$ 17.47	$ -	$ 5.21	$ 12.26					1	2	1	1			1						
C.5.03	Load, haul, dump, place: 1 truck with <1.0 km haul distance	m^3	30	$ 23.29	$ -	$ 6.95	$ 16.34					1	2	1	1			1						
C.5.04	Excavate: Spoil locally, no trucks	m^3	100	$ 2.56	$ -	$ 0.71	$ 1.85						1		1									
C.5.05	Regrade surface - rough grading, D7	m^2	100	$ 2.38	$ -	$ 0.71	$ 1.67						1	1										source - RSMeans
C.5.06	Reslope Stockpiles - D7	m^3	75	$ 3.17	$ -	$ 0.95	$ 2.22						1	1										
C.5.07	Relocate core box pallet (<0.5 km)	ea.	6	$ 35.10	$ -	$ 21.38	$ 13.72	1					1			1								
C.5.08	Install soil stabilization measures (straw/coconut matting)	m^2	269	$ 8.87	$ 6.61	$ 1.27	$ 0.99	3.5					2		1		1							source - RSMeans
C.5.09	Drill, blast Quarry	m^3	100	$ 26.35	$ 21.38	$ 2.93	$ 2.04	1.5			0.5		2							1				
C.5.10	Track pack using loaded rock truck	m^2	100	$ 2.05		$ 0.66	$ 1.39					1						1						source - SRKjm estimate
C.5.11	Scaling (loose rock)	hr.	1	$ 256.32	$ -	$ 71.32	$ 185.00						1		1									
C.5.12	Load, haul, dump place: 2 trucks with <1.0km haul distance	m^3	75	$ 12.04	$ -	$ 3.66	$ 8.39					2	2	1	1			2						
C.5.13	Seeding/Fertilizing: By hand, high application rate	m^2	320	$ 0.67	$ 0.13	$ 0.53	$ -	3					0											
C.5.14	Summer identification of low-lying areas	day	0.08	$ 6,543.52	$ 100.00	$ 2,243.52	$ 4,200.00	1			1								0.17					
C.5.15	Remove culvert and create swale	lm	5	$ 87.05	$ -	$ 50.05	$ 37.00	2			0.5		1		1									
Other																								
C.6.01	Sample HC contaminated soils / confirmatory samples	each	2	$ 93.48	$ -	$ 93.48	$ -	1			1													Surface grab sample/ hand auger / Source - SRK estimate
C.6.02	Band together core pallets	each	12	$ 9.49	$ -	$ 9.49	$ -	2			0		0			0								
C.6.03	Construction of Vent Raise Seal	LS	0.042	$ 12,064.56	$ 3,000.00	$ 8,076.96	$ 987.60	3			1		0.5			0.5								$14,000 LS based on project experience; material cost estimated to bring total to $14k; estimated 2 day task duration

Table 6. Relocation Unit Rates

Hauling Distances			
Boston to Doris	61	km	One Way
Boston to Roberts Bay	64.4	km	One-Way

C.4.03 - Productivity of hauling bulk materials from Boston on winter road to Doris			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr.	Includes fuel
Labour Cost	$ 71.32	per hr.	
Average speed	9	km/hr.	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft. container
Space utilization ratio	0.7		
Load	46.48	m^3	Cargo Capacity x # of Containers x Space Utilization Ratio
Distance:	61	km	
Time Required 1 round trip:	**14.06**	**hrs.**	**Includes 0.5hr unloading time**
Productivity:	**3.31**	**m^3/ hr.**	

C.4.04 - Productivity of hauling bulk materials from Boston on winter road to Roberts Bay			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr.	Includes fuel
Labour Cost	$ 71.32	per hr.	
Average speed	9	km/hr.	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft. container
Space utilization ratio	0.7		
Load	46.48	m^3	Cargo capacity x # of Containers x Space Utilization Ratio
Distance:	64.4	km	
Time Required 1 round trip:	**14.81**	**hrs.**	**Includes 0.5hr unloading time**
Productivity:	**3.14**	**m^3/ hr.**	

Table 7. Structures

Demolition Bulking Factors	
Tents - Empty	1.3
Wood Structures - Empty	1.5
Wood Structures - w/ Interior Wall Allowance	2
Steel Structures - Empty	1.5
Steel Structures - w/ Interior Wall Allowance	2
Mechanical Equipment	1.1
Liners	3
Pipelines	3

Structure Volumes

Area	Structure	Quantity	Length (m)	Width/Dia. (m)	Footprint Area (m)	Avg Height (m)	Wall thickness (m)	Floor Thickness (m)	Roof Length (m)	Roof Thickness (m)	Wall Volume (m^3)	Floor Volume (m^3)	Roof Volume (m^3)	Total Volume (m^3)	Loose Volume (m^3)	Source
Accommodation Complex	Recreation Tent	1	5.1	4.5	23.0	2.5	0.01	0.3	6	0.05	0.48	6.9	1.5	9	**11.56**	Foot Print AutoCAD, height thickness est. from photo
	Site Office	1	12.2	5.1	62.2	2.5	0.15	0.3	5.1	0.3	13.0	18.7	18.7	50	**100.61**	Foot Print AutoCAD, height thickness est. from photo
	Geotech Tent	1	7.5	4.4	33.0	2.5	0.01	0.3	6	0.05	0.6	9.9	2.3	13	**16.57**	Foot Print AutoCAD, height thickness est. from photo
	Core Processing Facility	1	30	7.85	235.5	2.75	0.15	0.3	7.5	0.3	31.2	70.7	67.5	169	**220.19**	Foot Print AutoCAD, height thickness est. from photo
	Core Shack	1	21	5	105.0	2.75	0.15	0.3	6	0.3	21.5	31.5	37.8	91	**181.50**	Foot Print AutoCAD, height thickness est. from photo
	Core Splitter	1	2.6	3.75	9.8	2.5	0.15	0.3	4	0.3	4.8	2.9	3.1	11	**16.21**	Foot Print AutoCAD, height thickness est. from photo
	Muster Station	1	10.4	4.7	48.9	2.75	0.15	0.3	5.5	0.3	12.5	14.7	17.2	44	**66.42**	Foot Print AutoCAD, height thickness est. from photo
	Heating systems liner	2	4	4	16.0			0.05			0.0	0.8	0.0	2	**4.80**	
Maintenance Shop Complex	Maintenance Shop	1	18	12.2	219.6	0	0.05	0	19.2	0.05	0.0	0.0	17.2	17	**25.87**	Foot Print AutoCAD, height thickness est. from photo
	Shop Sheds (survival, elec. Etc.)	1	23	3.75	86.3	2.5	0.1	0.3	3.75	0.1	13.4	25.9	8.6	48	**71.81**	Foot Print AutoCAD, height thickness est. from photo
	Powerhouse	1	12.2	5	61.0	2.5	0.1	0.3	6	0.3	8.6	18.3	22.0	49	**97.72**	Foot Print AutoCAD, height thickness est. from photo
	Transformer Building	1	9	4.54	40.9	2.5	0.1	0.3	5	0.3	6.8	12.3	13.5	33	**48.79**	Foot Print AutoCAD, height thickness est. from photo
Crusher	Crusher Enclosure	1	36.5	12.8	467.2	0	0.01	0	20.1	0.05	0.0	0.0	36.7	37	**55.04**	Foot Print AutoCAD, height thickness est. from photo
	Hopper/Crusher Parts	1	4	2	8.0	1.5	1				18.0	0.0	0.0	18	**19.80**	Estimated
Water Treatment	Water Intake to Portal & Camp	1	607	0.05	30.4	0.05	1				60.7	0.0	0.0	61	**182.21**	Lengths from ACAD
	Sewage Supply Pipelines	1	489	0.05	24.5	0.05	1				48.9	0.0	0.0	49	**146.72**	Lengths from ACAD
	Old Sewage Treatment Bldg.	1	5.5	6.3	34.7	4	0.15	0.3	7.5	0.3	14.2	10.4	12.4	37	**55.40**	Foot Print AutoCAD, height thickness est. from photo
	New Treatment System (5)	5	12	2.5	30.0	2.5	0.15	0.3	2.5	0.15	10.9	9.0	4.5	122	**182.81**	Footprint: ACAD
Helipads	Helipads (3)	3	4.6	4.6	21.2	0	0	0.5	0	0	0.0	10.6	0.0	32	**47.61**	Foot Print AutoCAD, height thickness est. from photo
Docks	Spyder Lake	1	4	3	12.0			0.5			0.0	6.0	0.0	6	**12.00**	Footprint: ACAD
	Stickleback Lake Dock	1	4	3	12.0			0.5			0.0	6.0	0.0	6	**12.00**	Footprint: ACAD
	Stickleback boardwalk	1	133	2.5	332.5	0	0	0.2	0	0	0.0	66.5	0.0	67	**133.00**	Foot Print AutoCAD, height thickness est. from photo
	Bridge E of Stickleback	1	10	5	50.0	0	0	0.5	0	0	0.0	25.0	0.0	25	**37.50**	Made up; have no info
Incinerator	Incinerator	1	1.5	2	3.0	0	0	1.5	0.0	0	0.0	4.5	0.0	5	**6.75**	Foot Print AutoCAD, height thickness est. from photo
Mobile Equipment	Miscellaneous Eq.	5	1.5	2	3.0	0	0	1.5	0.0	0	0.0	4.5	0.0	23	**33.75**	
Primary Tank Farm	Large Above Ground Tanks	6		4.5	0.0	5	0.05	0.05		0.05	2.3	0.0	0.0	14	**20.25**	Foot Print AutoCAD, height thickness est. from photo
	Medium Above Ground Tanks	2		3	0.0	5	0.05	0.05		0.05	1.5	0.0	0.0	3	**4.50**	Foot Print AutoCAD, height thickness est. from photo
	Heating System Tanks	7		1	0.0	5	0.05	0.05		0.05	0.5	0.0	0.0	4	**5.25**	Quantity breakdown shown below, size estimated
	Containment Liner	1	33	25	825.0			0.005			0.0	4.1	0.0	4	**12.38**	ACAD
Power Plant Containment	Green Storage Tank	2	2.5	1.5	3.8	1.5					0.0	0.0	0.0	0	**0.00**	
	Containment Liner	1	4	3	12.0			0.005			0.0	0.1	0.0	0	**0.18**	Estimated
Settling Pond #1	Containment Liner	1	20	20	400.0			0.005			0.0	2.0	0.0	2	**6.00**	Footprint: ACAD
Settling Pond #2	Solid Waste				0.0						0.0	0.0	0.0	0	**0.00**	Estimated from photo
Soil Treatment Facility	45 gallon drums	100		0.6		0.15					0.042	0.0	0.0	4	**6.36**	Estimated from photo
	Containment Liner	1	16	23	368.0			0.005			0.0	1.8	0.0	2	**5.52**	
Drill Cutting Settling Pond	Geotextile or liner	1	30	20	600.0			0.005			0.0	3.0	0.0	3	**4.50**	
Drill Sites	Top of Casing	545	0.9	0.09	0.1						0.01	0.0	0.0	3	**9.13**	
Core Storage Road	Culvert	1	6	0.3	1.8			0.15			0.0	0.3	0.0	0	**0.27**	Assumed crushed to 1/2 its volume
Mine Openings	Portal Fence		61.5	0	0.0	1.2	0.01				1.5	0.0	0.0	0	**0.00**	Estimated from photo
	Vent Raise enclosure		5	5	25.0	2.5	0.1	0.15	5	0.15	5.0	3.8	3.8	0	**0.00**	Estimated from photo
Other structures	Other (V-notch weir, sampling points, thermistor housing boxes, other sheds)	1	20	4	80.0	2.5	0.1	0.3	4	0.1	12.0	24.0	8.0	44	**66.00**	Based on site photos, assumed areas
TOTAL:															**1,927.0**	

Demolition Preparation

Area	Structure	# of Units	Decommission			Heating Tanks	Hazardous Material Vol Estimate (L)	Special Item	Special Item Description	Source
			Electrical	Heating System	Plumbing System					
Accommodation Complex	Recreation Tent	1				1	0			Estimated from aerial photo
	Site Office	1				0	1			Estimated from aerial photo
	Geotech Tent	1				1	10			Estimated from aerial photo
	Core Shack/Splitter	1				2	10			Estimated from aerial photo
	Muster Station	1				1	4			Estimated from aerial photo
	Portable Trailers	12	1	1	1	0	25			Estimated from aerial photo
Maintenance Shop Compl.	Maintenance Shop	1	0	0	0	0	60			Estimated from aerial photo
	Shop sheds	4	1			1	25			Estimated from aerial photo
	Powerhouse	1	1			0	50			
	Transformer Building	1	1			0	100			
Crusher	Crusher Enclosure	1	0	0	0	1	20			
Water Treatment	New Facility	5	1	0	0	0	25	1	Sludge/Solid Waste	Estimated
	RBC	1					25	1	Sludge/Solid Waste	Estimated
Incinerator	Incinerator	1	0	0	0	0	0	10	Ashes	Ashes in Liters, estimates
Mobile Equipment	Misc. Equipment on site	5	0	0	0	0	60	10	Residual Fuel (in each)	Estimated from aerial photo
Primary Tank Farm	Above Ground Tanks	8					25	40	Residual Fuel (in each)	Fuel in Liters, estimated
	Heating System Tanks	7					25	10	Residual Fuel (in each)	Fuel in Liters, estimated
Power Plant Containment	Green Storage Tanks	2					10	5	Residual Fuel (in each)	Fuel in Liters, estimated
Soil Treatment Facility	Empty 45 gal drums	100						0.5	Residual Fuel (in each)	Fuel in Liters, estimated
Core Boxes	Total box pallets	520								AutoCAD
	Box pallets located on tundra	400								Estimated based on photos + contingency
TOTAL:						**7**	**475**			

Table 8. Reclamation Areas

Reclamation Areas

Work Area	Location	Total Area (m^2)	Area Sacrificed (m^2)	Area Regraded (m^2)	Area Requiring Fill (m^2)	Cocoa-matting Area (m^2)	Total Area (m^2)	Source/Comment
Camp Structures	Old Water Treatment Foundation Pad	460		460				ACAD/aerial site photo
	Helipads	150		150				ACAD/aerial site photo
Camp Surface Infrastructure	Camp Complex Foundation Pad	29,953	29,953	2,995			29,953	Excludes landfarm/core storage areas; assumed 10% requires regrading
	Road to Spyder Lake	773	773	773		0	0	ACAD
	Road to Airstrip	1,763	1,763	1,763				ACAD
	Airstrip	10,444	10,444	5,222				ACAD; assumed 50% required regrading
	Core Storage Road	142	142	142				ACAD
	Drill Road	306	306	306				ACAD; assumed 50% required regrading
Other Areas	Permafrost Remediation Areas	11,184			559	559	11,184	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Drill Road	17,795			890	890	17,795	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Core Storage Road	990			495	50	990	ACAD, assumed 50% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Grey Water Dis	5,398			270	270	5,398	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Drill Sites	9,000			9,000	450	9,000	9 site included each 1000sq.m.
	Boston Ore Stockpiles	6,077	6,077	3,039			6,077	ACAD; assumed 50% required regrading

Earthwork Volumes/Quantities

Bulking Factors	
Soil/Rock Pad	1.2
Cover shrinkage factor	1.1

Work Area	Item	Qnty	Length (m)	Width (m)	Height (m)	Side Slope (x:1)	Area (m^2)	In-situ Volume (m^3)	Loose Volume (m^3)	Source / Comments
Core Storage Road	Excavate Culvert	1	5.5	0.5	0.9	1	1.26	7		
Mine Openings	Backfill Decline	1	18	12	3			324	**389**	ACAD estimated
Primary Tank Farm	Excavate Bedding Material				0.5		676	338	**406**	
	Regrade area						810			ACAD estimated
Power Plant Fuel Containment	Excavate Bedding Material				0.5		100	50	**60**	Estimated
	Regrade area						125			Estimated
Settlement Pond #1	Excavate Settled Material		16	9	0.5		144	72	**79**	ACAD estimated
	Regrade area						750			ACAD estimated
Settlement Pond #2	Excavate Settled Material		12	9	0.5		108	54	**59**	ACAD estimated
	Regrade area						690			ACAD estimated
Soil Treatment Facility	Soils				0.5		300	150	**180**	ACAD estimated; assumed 1/2 passing
	Regrade area						440			ACAD estimated
Drill Cutting Settling Pond	Cutting volume				0.5		560	280	**336**	ACAD/aerial site photo
	Regrade area						930			ACAD estimated
Ore Stockpiles	Original stockpile footprint				1.7		6077	10331	**12397**	ACAD estimated. Volume of ore material from SRK 2008 Boston annual inspection (27,000 tonnes) and assuming a bulk density of 2 tonnes/m^3
	Consolidated Stockpile foot print				6.7		2026	13500	**16200**	Entire volume (13500 m3) consolidated to 1/3 of existing footprint.
	Relocated Volume (used for construction)							3169	**3803**	scraped up from pads and airstrip (estimate by SRK
	Relocated volume (consolidation of piles							6887	**8265**	pushed into the large pile
	Cover Volume				0.3		2228	668	**802**	
	Liner Area						2330			Liner area increased by 15% to account for wastage and conversion between 3D and 2D projection.
Landfill Closure	Bedding (crushed rock) (0.3m on each side of liner)				0.6		700	420	**504**	
	Liner						805			
	Run-of-quarry cover				0.5		700	350	**420**	