AGNICO-EAGLE

AGNICO-EAGLE MEADOWBANK
555 Burrard Street, Suite 375
Box 209, Two Bentall Centre
Vancouver, British Columbia V7X 1M8
Tel. 604.608.2557 Fax. 604.608.2559

agnico-eagle.com

September 04, 2008

Via email and Xpresspost

Mr. Richard Dwyer
Licensing Administrator
Nunavut Water Board
PO Box 119
Gjoa Haven, NU X0B 1J0
Phone: (867) 360-6338

Dear Mr. Dwyer,

Re: Meadowbank Water Licenses 8BC-TEH0809 and 2AM-MEA0815: Document Submission

As required by Water licenses 8BC-TEH0809, Part H Item 1, and 2AM-MEA0815 Part B, Item 1, please find enclosed with this letter the document entitled '*Closure and Reclamation Plan: Development Phase, September 2008'*.

Should you have any questions regarding this submission, please contact me directly at 604-622-6527 or via email at rgould@agnico-eagle.com.

Regards,

RL Gould

Rachel Lee Gould, M.Sc.
Project Manager, Environmental Permitting and Compliance Monitoring
Encl (1)

MEADOWBANK GOLD PROJECT

Closure and Reclamation Plan
Development Phase

In Accordance with Water License 2AM-MEA0815 and 8BC-TEH0809

Prepared by:
Agnico-Eagle Mines Limited – Meadowbank Division

Version 1
September 2008

EXECUTIVE SUMMARY

The Nunavut Water Board (NWB) has issued Type A Water License 2AM-MEA0815 to Agnico-Eagle Mines Limited (AEM) for the Meadowbank Gold Project site authorizing the use of water and the disposal of waste required by mining and milling and associated uses.

This report documents the stand alone Closure and Reclamation Plan for the Development Phase of the Meadowbank Gold Project, as specified under Water License 8BC-TEH0809 (Part H, Item 1); this requirement was carried over to Water License 2AM-MEA0815 in Part B, Item 1.

The purpose of this Closure and Reclamation Plan is to address how development activities at the Meadowbank Gold Project site and the resultant environmental disturbances would be reclaimed if, for some unforeseen reason, the project was halted prior to the start of mine operations.

Not covered specifically in this closure and reclamation plan is:

- The Baker Lake fuel storage facilities and marshalling area constructed within the Hamlet of Baker Lake on Commissioner's lands;
- The all weather access road between Baker Lake and the Meadowbank Project site; and
- Closure and reclamation activities associated with the operations phase of the mine.

These phases of the project are covered under separate, previously submitted, closure and reclamation plans. However, these previously submitted plans are appended to this document in order to amalgamate all of the closure and reclamation plans for the Meadowbank project into one document. An 'Interim Closure and Reclamation Plan', prepared in accordance with the Mine Site Reclamation Guidelines for the Northwest Territories (2007) and consistent with the INAC Mine Site Reclamation Policy for Nunavut (2002), shall be completed within 6 months of the start of mining operations, as required under Water License 2AM-MEA0815, Part J, Item 1. The interim closure and reclamation plan will be a comprehensive plan for the project, and will supersede all previously submitted closure and reclamation plans for the various phases of the project.

IMPLEMENTATION SCHEDULE

As required by Water License 2AM-MEA0815, Part B, Item 16, the proposed implementation schedule for this Plan is outlined below.

This Plan will be immediately implemented (September 2008) subject to any modifications proposed by the NWB as a result of the review and approval process.

DISTRIBUTION LIST

General Mine Manager

Senior Environmental Coordinator

Chief Engineer

Mine Superintendent

Controller

DOCUMENT CONTROL

Version	Date (YMD)	Section	Page	Revision
1	08/08/28			Update of Pre-Development Closure and Reclamation Plan (Revision A, March 5, 2008) submitted under license 8BC-TEH0708 to incorporate comments from GN and INAC and revise sections due to project progression

Prepared By: ____________________________
Rachel Lee Gould, M.Sc.
Project Manager: Environmental Permitting and Compliance Monitoring

Approved by: ____________________________
Lawrence J. Connell, P.Eng.
Regional Manager: Environment, Social and Government Affairs

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SECTION 1 • INTRODUCTION

The Meadowbank Gold Project, operated by Agnico-Eagle Mines Ltd. (AEM), is located approximately 70 kilometres north of the Hamlet of Baker Lake, Nunavut; the center of operations is situated at 65^{o} 01' 9.12''N latitude and 96^{o} 04' 1.91''W longitude on NTS map sheet 66H/1.

The purpose of this Closure and Reclamation Plan is to address how development activities at the Meadowbank Gold Project site and the resultant environmental disturbances would be reclaimed if, for some unforeseen reason, the project was halted prior to the start of mine operations.

The development facilities and disturbances covered under this closure and reclamation plan are summarized below. Figure 1 provides a schematic overview of the site.

- The existing mine accommodation camp (including the north and south camps) and related support facilities at the Meadowbank Project site;
- The permanent 340 person accommodation camp currently under construction at the Meadowbank site;
- The airstrip at the Meadowbank site;
- The airstrip quarries on site;
- The existing and proposed site access roads;
- The overburden stockpiles developed through the stripping of the North and South Portage starter pits;
- The North and South Portage starter pits (first cut to stockpile construction rock material for the East Dike);
- The East Dike in Second Portage Lake and Western Channel Dike;
- The sewage treatment plant at the Meadowbank site;
- Reclamation of the Stormwater management pond and Lake #2;
- The 5.6 million litre fuel tank and containment area to be constructed on site in 2008;
- Removal of all existing fuel storage facilities (Enviro-tanks) from the Meadowbank site;
- Removal of all hazardous materials currently on site;
- Removal of equipment;
- Removal of the batch concrete plant and associated facilities at the Meadowbank site;
- Final re-grading of the Meadowbank site;
- Drill Core; and
- Trenches, sumps and drill holes.

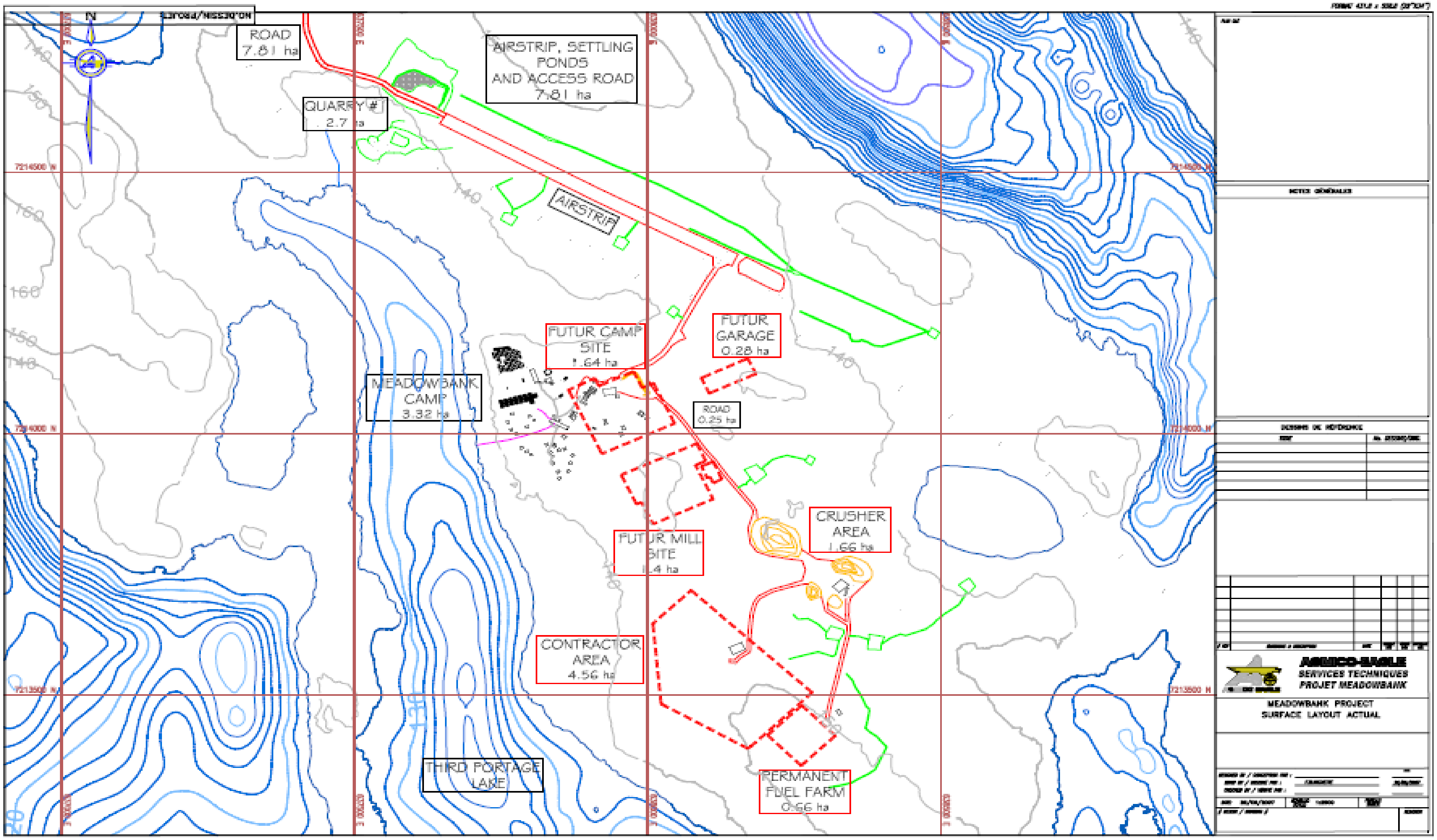


Figure 1: Meadowbank Site Plan

AEM has currently posted security of $26 million with Indian and Northern Affairs Canada and $14.9 million with the Kivalliq Inuit Association to cover reclamation security under both the land use lease (Production Lease) and the Water License (2AM-MEA0815). This reflects full water and land related security for the Project through the first years of operation and was derived through work done by AEM, INAC, the KIA and their respective consultants. Consequently the estimated cost of implementing the reclamation measures proposed under this Plan have been previously addressed and reviewed by the NWB and the other interveners.

The reclamation liability covered under this Plan will inherently be less than that set under the Water License and Production Lease as this Plan represents a state of Project development that is less than covered by the security requirements under the land use lease and water license. Consequently no breakdown of the projected costs to complete the work is provided within this Plan. For this information the reader is referred to the cost estimates put forward by INAC during the Water License final hearing (attached as Appendix A).

Not covered specifically in this closure and reclamation plan is:

- The Baker Lake fuel storage facilities and marshalling area constructed within the Hamlet of Baker Lake on Commissioner's lands;
- The all weather access road between Baker Lake and the Meadowbank Project site; and
- Closure and reclamation activities associated with the operations phase of the mine.

These phases of the project are covered under separate, previously submitted, closure and reclamation plans. However, these previously submitted plans are appended to this document in order to amalgamate all of the closure and reclamation plans for the Meadowbank project into one document. An 'Interim Closure and Reclamation Plan', prepared in accordance with the Mine Site Reclamation Guidelines for the Northwest Territories (2007) and consistent with the INAC Mine Site Reclamation Policy for Nunavut (2002), shall be completed within 6 months of the start of mining operations, as required under NWB Water License 2AM-MEA0815, Part J, Item 1. The interim closure and reclamation plan will be a comprehensive plan for the project, and will supersede all previously submitted closure and reclamation plans for the various phases of the project. This allows the Interim Plan to better reflect the as-built mine facilities and to ensure that all modifications or changes are captured as construction is completed in late 2010.

The previously submitted closure and reclamation plans are appended to this document as follows:

- Appendix B – Abandonment and Restoration Plan, Agnico-Eagle Meadowbank Project, Baker Lake Facilities, License 8BC-MEA0709, October 24, 2007;
- Appendix C – INAC Lease 66A/8-71-2 & 66A/8-72-2, Updated Closure and Reclamation Plan for the Tehek Lake All Weather Private Access Road, Baker Lake – Meadowbank, December 17, 2007; and
- Appendix D – Meadowbank Gold Project, Preliminary Closure and Reclamation Plan, August 2007.

SECTION 2 • DESCRIPTION OF THE SITE ACTIVITIES DURING THE DEVELOPMENT PERIOD

During the past twelve years of exploration at the Meadowbank camp, significant improvements have been made to the original exploration camp facilities. The original Cumberland camp, now referred to as the South Camp, was erected in 1995 on an Island in Third Portage Lake in close proximity to the Third Portage and Goose Island Deposits. As the project advanced more space was required, hence new kitchen and dry facilities were constructed on the mainland, approximately one kilometre north of the original campsite (the current mine camp). This new site was referred to as the North Camp. It was selected on the basis of its proximity to the proposed mill complex should the project proceed to development. The new kitchen and dry facilities were completed in the summer of 2002, and the North Camp was occupied in August of that year. In the spring of 2003 new office and core processing facilities were constructed at the North Camp. Decommissioning and progressive reclamation of the South Camp was also initiated in 2003. Due to the increase in camp activity in 2007, the capacity of the north camp was increased by 25 persons by the addition of more tent accommodation. In early 2008 the trailer units for the permanent 340 man camp were transported to site from Baker Lake, and construction and installation of the camp began shortly thereafter.

The construction of a 900 m long airstrip, located immediately northeast of the camp, was begun at the Meadowbank site during the summers of 2005 and 2006. Completion of the air strip is planned for 2008. The current airstrip length is suitable to accommodate landing of small aircrafts in support of mining and exploration activities.

Approval was received from the NWB and the KIA in 2006 for the construction of a single 5 million litres fuel tank at the Meadowbank site, which will provide increased diesel storage capacity and allow for consolidation of the multiple fuel storage tanks currently in use. Construction of the pad and containment structures for the tank was partially completed during the summer of 2006. Construction of the earthworks and the erection of the tank will be completed at the site in the fall of 2008.

Ground work was initiated during the fall of 2007, and continues to date, for the preparation of the site for the permanent camp, mill foundations and mine roads. The on-site quarries are providing the rockfill for this work.

Due to the remote location and short summer ice free construction season, AEM projects that it will take one full summer ice-free season to construct the first dewatering dike (the East Dike) required for the development of the Portage Pit. Consequently, two on-land starter pits on the Portage deposit are to be developed in 2008 to stockpile a sufficient quantity of broken rockfill material for the summer construction of the East Dike. As of September only development of the South Portage starter pit has commenced. The North starter pit will start development in late 2008 under winter conditions.

A batch concrete plant was constructed late in the first quarter of 2008 at the Meadowbank site. It was installed on a rock fill pad in an area immediately to the northeast of the 5 million fuel storage tank inside a bermed area inside a Coverall tent-style building. The batch plant is a relatively small mobile plant used to mix cement, aggregate and water in appropriate proportions to produce concrete for footings, foundations and floors during construction of the permanent camp, mill and other plant site facilities. Aggregate is being produced on site by crushing and screening of quarried rock. All of the cement was shipped to site in supersacs during the 2007 summer sea lift. Wash water is recycled through the batch plant whenever possible, with excess water sent to Attenuation Pond #1. The plant generates no other waste materials. It is anticipated that the water consumption for this batch plant will average 15 m^3 per day.

SECTION 3 • TEMPORARY CLOSURE – CARE & MAINTENANCE

If, for some unforeseen reason, the project was temporarily placed on hold, all construction and development activity at the Meadowbank project site would cease (regional exploration may continue). The Meadowbank project site would be winterized where necessary, equipment, fuel facilities and buildings would be secured, and the site would be placed on a care and maintenance program until the project was able to resume.

SECTION 4 • PERMANENT CLOSURE AND RECLAMATION

In the unlikely event the project was permanently cancelled during the development phase, all facilities and disturbances would have to be reclaimed and the site remediated. All equipment, structures and fuel storage tanks will be cleaned and removed from the area of the lease prior to lease termination. In general, all non-hazardous buildings, materials and equipment would be removed by the Tenant (AEM) and transported to Baker Lake. All materials and equipment would be offered for purchase by local interests. Any items which were not sold would be shipped to points south from Baker Lake on barges. Local persons and businesses would be given the opportunity to salvage buildings, materials and equipment that would otherwise be destroyed prior to the Tenant undertaking final land reclamation procedures. The only materials and structures remaining after demobilization will be drill core stored in racks at the site. The following sections provide more details on how the site would be reclaimed on a facility by facility basis in such a circumstance.

4.1 EXISTING EXPLORATION CAMP (NORTH AND SOUTH CAMPS) AND PERMANENT ACCOMMODATION CAMP

Once these camp facilities are no longer required to support the ongoing reclamation activity, all equipment will be removed by AEM. Local persons and businesses will be given the opportunity to salvage camp equipment that would otherwise be destroyed prior to removal by AEM. Cleanup would consist of first going through the camp and removing all potentially hazardous materials. These materials will be appropriately packaged and shipped south for disposal under the GN Waste Generator manifesting procedure. All salvageable material, equipment and structures will then be removed and offered for sale locally. Materials not sold locally will be sent south for disposal at an appropriate landfill facility or placed in a permanent demolition landfill to be constructed on the Meadowbank site. Regulatory approval for such a demolition site would be required from the land owner and from the NWB before this could happen.

The Meadowbank Project has historically utilized two camp sites: the south camp located on an island in Third Portage Lake and the north camp located on the mainland, approximately one kilometre north. The north camp began operation in the summer of 2002 and reclamation of the south camp site has been ongoing since that time. As of the spring of 2006, all the structures have been moved from the south camp to the north camp, with the exception of the core shack which remains intact at the site.

Structures presently in use at the north camp include:

- a stick built kitchen/dry structure;
- 4: 14’x16’ Weatherhaven sleeper tents;
- 19: 14’x16’ wooden framed canvas sleeper tents;
- 13: 12’x12’ Weatherhaven sleeper tents;
- a 16’x55’ Weatherhaven shower/toilet;
- a 24’x 84’ Weatherhaven core shack;
- a 24’ x 32’ Weatherhaven office tent;
- a plywood generator shed and driller’s shop; and

- a 42' x 70' temporary Cover-all fabric building.

All Weatherhaven units and canvas tents will be removed by AEM. All remaining structures and building materials will be demolished and the demolition material offered to local residents. Unwanted material will be shipped south for appropriate disposal in a landfill or placed in a site demolition landfill (subject to approval) or with the Hamlet's authorization disposed of at the municipal land fill at Baker Lake. The rigid structures and Weatherhaven units will be offered to local interests.

The permanent accommodation camp consists of assembled trailer units connected by arctic corridors to create living accommodations and kitchen facilities for a nominal camp capacity of 340 persons (340 rooms). At closure these trailer units will be disassembled and removed from site. The units will be offered for sale to local businesses, the KIA and the GN from Baker Lake. If not sold then the units will be shipped south by barge for sale. The arctic corridors will be similarly disassembled and removed from site. Any remaining debris (piping, blocking, etc.) will be removed and disposed off either in a site demolition landfill (subject to approval) or in the landfill at Barker Lake (only with authorization from the Hamlet of Baker Lake) or shipped south by barge for disposal in the south.

4.2 AIRSTRIP

All of the airstrip lighting, windsock and associated facilities will be removed and shipped off site. The area of the airstrip will then be re-contoured using a small dozer to ensure that all natural precipitation is shed onto the surrounding tundra. The airstrip surface will then be roughed up and furrowed using a grader and dozer equipped with a ripper attachment. The objective is to create a rough surface where moisture can be trapped to encourage over time the natural invasion of vegetation.

It should be noted that the airstrip will be one of the last facilities reclaimed so that it can continue to be used during the reclamation period. The airstrip will be reclaimed just before the final removal of equipment from the site.

4.3 AIRSTRIP QUARRIES

The quarry walls will be laid back to a maximum angle of 45 degrees to provide long term stability and to prevent risk of harm from falls over a high wall. The highest wall height is expected to be in the order of 10 meters. The floors of the quarries will be graded to shed natural precipitation runoff onto the surrounding tundra. Any equipment will have been removed prior to the start of reclamation. The quarries were previously characterized for their geochemical characteristics and are not expected to be a long term potential source of poor quality drainage (non acid generating and low metal leaching potential).

4.4 ON SITE ROADS AND ROCKFILL PADS

All of the on-site roads which have been constructed during the development phase will be decommissioned and returned as close as possible to the original ground profile. This will involve grading off any roadside berms and recontouring the road surface so that it drains naturally onto the surrounding tundra, typically in a direction that has the water away from the nearest natural water body or drainage pathway to make for the longest possible travel route over the surrounding tundra.

This is to allow the tundra to attenuate the flow to the greatest extent possible mimicking the pre-development conditions. All of the pre-existing drainage courses will be re-established and all culverts removed. The sides of the road where the culverts are removed will be laid back to a minimum 3:1 slope angle and armoured with coarse rock to prevent erosion from high runoff events. The disturbed road surfaces will then be scarified and fertilized to promote the regrowth of a natural vegetative cover over time.

Quarried rock has been placed at the site to establish a level supporting surface under the fuel tanks, the permanent camp facilities, the sewage treatment plant and as lay down areas for storage of equipment and materials. As for the site roads these surfaces will be decommissioned and returned as close as possible to the original ground profile. This will involve grading off any berms and recontouring the surface so that it drains naturally onto the surrounding tundra, typically in a direction that has the water away from the nearest natural water body or drainage pathway to make for the longest possible travel route over the surrounding tundra. This is to allow the tundra to attenuate the flow to the greatest extent possible mimicking the pre-development conditions. All of the pre-existing drainage courses will be re-established and all culverts removed. The sides of the pads where culverts are removed will be laid back to a minimum 3:1 slope angle and armoured with coarse rock to prevent erosion from high runoff events. The disturbed rock fill (gravel) surfaces will then be scarified and fertilized to promote the regrowth of a natural vegetative cover over time.

These pad areas are bordered by natural vegetation. Overburden and till from the stripping of the north and south starter pits will be placed over these regarded areas where appropriate and then fertilized and allowed to re-vegetate naturally over time.

4.5 NORTH AND SOUTH PORTAGE OVERBURDEN STOCKPILES

AEM began preparing the South Portage starter pit in June of 2008 to allow dike construction to start as soon as the Type A water license and DFO authorization was granted (July 2008). In order to prepare the ground for rock excavation, it is initially necessary to excavate the overburden.

Excavation of the south Portage starter pit, shown on Figure 2, began in June 2008. In total, approximately 0.9 million tonnes of overburden will be removed from that zone. This overburden will be placed in two stock piles, one west of the south starter pit and one located east of the starter pit.

The same type of excavation work will take place in the north Portage starter pit. Approximately 1.9 million tonnes of overburden will be excavated from the north zone and will be placed in a stockpile located in close proximity to the north starter pit, as shown on Figure 2.

In the event the Meadowbank Project is to be halted, AEM will be responsible for the reclamation of all development activity. These three overburden stockpiles will be picked up and placed over top of the North and South Portage starter pits. Some of the overburden will be used to provide a growth substrate over top of the rockfill building and lay down pads on site. Due to swell factor the replaced overburden is expected to create a small mounded area over top of the North and South starter pit areas. It has been assumed that only 75% of the three stockpiles will be recovered with the remaining 25% being left on the stockpile footprint to protect further disturbance of the underlying permafrost. The material would be moved using two CAT 777 mine haul trucks. With overburden the capacity of each truck per trip will be 75 tonnes, with a cycle time of 7 minutes between the overburden stockpile and the starter pit area. Once the reclaimed overburden has been placed, the resulting mounded areas will be covered by an organic coconut matting; this matting will be placed over the full areal extent of the disturbed area. The coconut matting will be staked in place to hold it to the ground. The purpose of this matting is to minimize erosion until an early vegetative cover can be established. The area will then be fertilized to promote the establishment of native plants over time.

The three areas used to stockpile the overburden from these two starter pits will be carefully cleaned. The objective would be to recover as much stockpiled material as possible without removing the underlying ground surface (estimated at 75% recovery). This will result in leaving approximately 0.5 to 1.0 meter of stripped overburden in place at each site. These three areas will be treated in a similar fashion as the mounded areas of overburden placed back over the two starter pits: placement of coconut matting followed by fertilizer to encourage natural vegetation to re-establish.

4.6 NORTH AND SOUTH PORTAGE STARTER PITS

Once overburden excavation is completed, the next stage at the two Portage starter pits is to prepare the rock within the exposed open pit zones for use at the East dike or Western Channel dike. The exposed surface waste rock will be drilled and blasted. Estimated quantities of drilled and blasted material in the south and north Portage starter pits (see Figure 2) are summarised in the following tables.

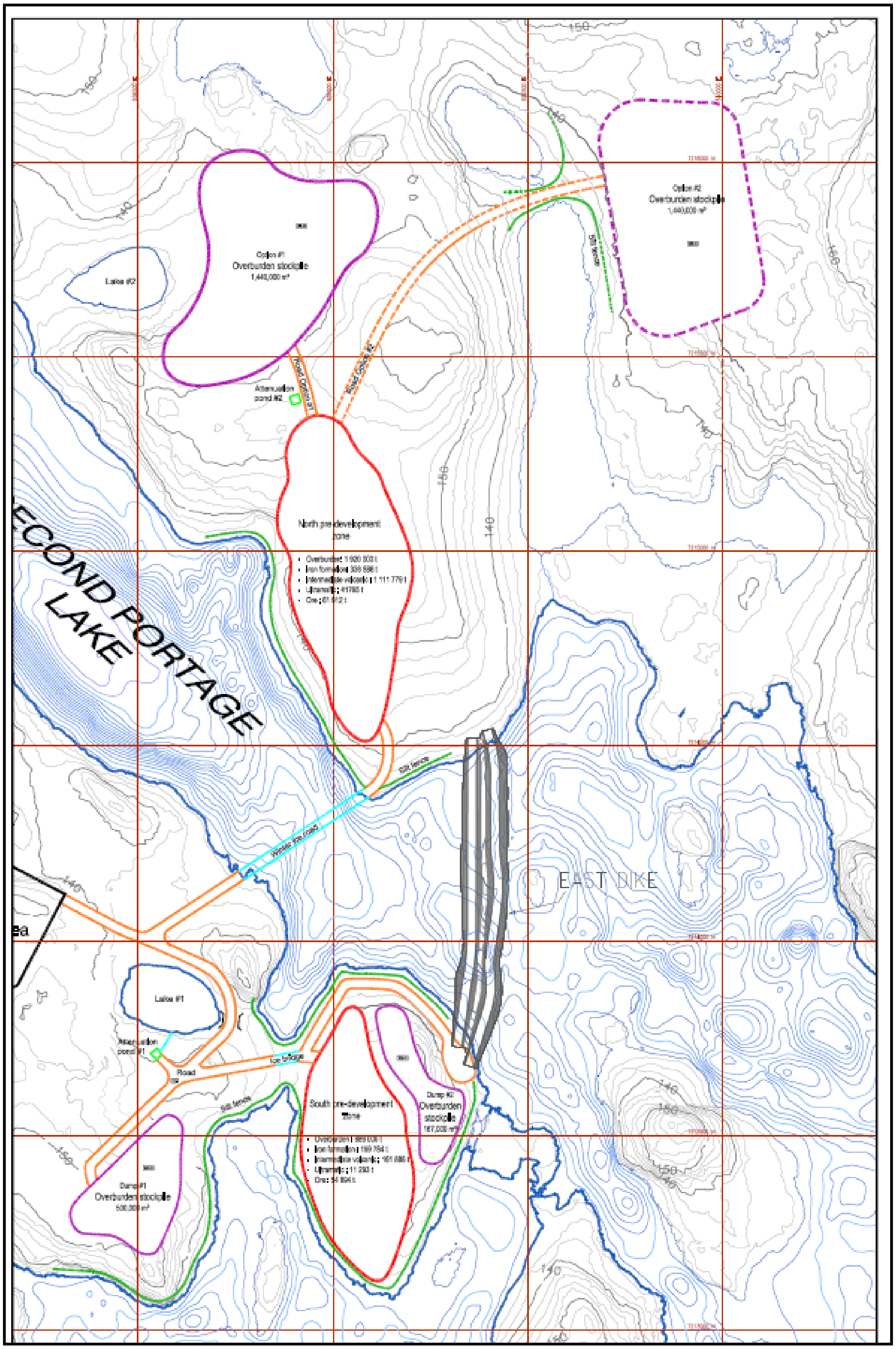


Figure 2: Development Site Plan

Table 1: Estimated quantities of blasted rock left in place

Zone	Rock Type*	Vol. in-place (m³)	Vol. blasted (m³)	Tonnes
South	Ore	17 594	26 391	54 894
	UM	4 019	6 028	11 293
	IV	58 868	88 301	161 886
	IF	51 213	76 819	159 784
	QZ	-	-	-
	Total	131 694	197 540	387 857
North	Ore	19 773	29 660	61 693
	UM	14 863	22 294	41 765
	IV	404 283	606 425	1 111 779
	IF	107 976	161 964	336 886
	QZ	2 469	3 703	6 542
	Total	549 365	824 047	1 558 665

*Ore = Mineralized material UM = Ultramafic IV = Intermediate volcanic
IF = Iron formation QZ = Quartzite

Table 2: South zone blasted rock quantities left in place, by bench

	Tonnes					
	Ore	UM	IV	IF	QZ	Total
Bench 136	39 887	11 293	111 860	143 164	-	306 204
Bench 142	15 007	-	50 026	16 620	-	81 653
Total	54 894	11 293	161 886	159 784	-	387 857

As indicated in the previous section, in the event the Meadowbank Project is to be halted, AEM will be responsible for the reclamation of these two starter pits. Any rock that has been broken yet remains in the pit will be left in-situ. Should a sufficient volume of rock have been removed from the pits that a large hole has been created in the ground, the sides of the blasted area will be contoured to a maximum angle of 45 degrees (similar to the quarries) to provide long term stability and to prevent risk of harm from falls over a high wall. The ground will then be covered by the replacement of the removed overburden as described in the previous section.

4.7 EAST DIKE AND WESTERN CHANNEL DIKE

Construction of the East dike began in July 2008, as soon as the NWB and DFO licenses were received. The East dike crosses Second Portage Lake, isolating the northwest arm. The Western Channel dike was constructed in August of 2008, closing off this connecting channel from Third Portage Lake to Second Portage Lake.

In the event that either of these dikes is built, or partially built, and then the Meadowbank project is halted, these dikes will be breached to allow the water in the lake or channel to return to its natural flow pattern. As this construction involves in-water rock placement, fisheries resources are impacted. Consequently, no-net-loss habitat compensation features will need to be constructed to off-set the impact from the constructed dikes, regardless if the project is halted or not. These compensation features are discussed further in the following documents:

- No-Net-Loss Plan (Cumberland Resources, November 2006);
- Habitat Compensation Addendum (Azimuth Consulting Group, February 7, 2007); and
- Fish Habitat Compensation Structures (Golder Associates, February 2008).

Separate security of $6.75 million for the construction of habitat compensation features is held by the Department of Fisheries and Oceans Canada, in accordance with DFO Authorization NU-03-0191.

4.8 SEWAGE TREATMENT PLANT (STP)

The sewage treatment facilities are modular facilities that once decommissioned can be removed intact. At final closure and after the camps have been decommissioned, the STP would be washed out with all sludges pumped through the filter press and the filtrate sent to the Stormwater management pond (Tear Drop Lake). The sludges will be incinerated. The plant will then be removed and shipped to Baker Lake where it would be offered for sale. If unsold then the STP will be shipped south by barge. Any remaining debris (piping, blocking, etc.) will be removed and disposed off either in a site demolition landfill (subject to approval) or in the landfill at Barker Lake (only with authorization from the Hamlet of Baker Lake) or shipped south by barge for disposal in the south.

4.9 STORMWATER MANAGEMENT POND AND LAKE #2

Surface water around the site will be directed to the stormwater management pond (referred to as Tear Drop Lake or Lake #1) adjacent to the Meadowbank camp. Any water that may potentially come into contact with acid generating rock will be directed to an attenuation pond for water quality treatment, if necessary, prior to being directed to this stormwater management pond or a polishing pond referred to as Lake #2 (see Figure 2). In should be noted that AEM has taken measures to prevent any potentially acid generating rock from leaving the south and north starter pits during this development phase until the Portage waste rock storage facility is constructed. Consequently it is highly unlikely for any potentially acid generating rock to be left exposed outside of these two starter pits during this phase of development.

The stormwater management pond is a non-fish bearing pond that currently freezes all the way to the bottom each winter. AEM plans to increase the retention capacity in this pond by building up a series of impervious roads around the pond and by cutting off the natural outlet to the eastern channel between Second and Third Portage Lakes. Prior to the dewatering program in northwest arm of Second Portage Lake, any water discharged from Tear Drop Lake into Second Portage Lake will meet MMER standards. AEM is confident that the water quality will meet CCME freshwater aquatic life guidelines within a short distance from the discharge point.

At the end of mine life, after the Meadowbank site has been reclaimed, Tear Drop Lake will be returned to its pre-development water level by restoring outflow through its original discharge channel. The outflow will not be restored until the water quality in the pond meets standards protective of the environment; these standards will be developed through a risk based assessment.

If deemed necessary by the environmental assessment, a number of alternatives will be investigated:

- Treating the water;
- Transferring the water in the lake to the tailings pond; and/or
- Removing or capping the sediments in the lake.

Earlier studies conducted at Lake #2 have concluded that this lake is non-fish bearing. Lake #2 will not be used as a storm water management pond; consequently, no impervious walls or other man made structures will be installed or constructed. This pond will be used as a secondary polishing pond for overflow from the attenuation pond, if necessary.

Similar to Tear Drop Lake, prior to the dewatering program in northwest arm of Second Portage Lake, any water discharged from Lake #2 into Second Portage Lake will meet MMER standards. AEM is confident that the water quality will meet CCME freshwater aquatic life guidelines within a short distance from the discharge point.

Lake #2 will ultimately be covered by the Portage Rock Storage Facility. Consequently, this pond will not be restored upon closure. However, should the project not proceed, this pond will be returned to its pre-development water level and water quality can meet standards protective of the environment; these standards would be developed through a risk based assessment.

4.10 FUEL AND FUEL STORAGE FACILITIES

4.10.1 Removal of Remaining Fuel

All remaining bulk fuel on site that is not required for the reclamation activities will be transported back to Baker Lake and sold. The fuel will be transported by fuel tanker over the all weather access road.

4.10.2 Removal of Fuel Storage Facilities

The empty portable bulk fuel storage tanks (50,000 and 75,000 litre capacity Enviro-tanks) will be hauled back to Baker Lake over the all weather road and either sold locally or shipped south on a barge. The larger 5.6 million litres tank will be emptied of fuel, cleaned, dismantled and transported to Baker Lake for barge shipment south or placed in a site demolition landfill (subject to approval). The larger fuel tank will be offered to local interests prior to shipment from Baker Lake.

After the removal of the tank farm, the underlying HDPE liner will be removed and cut up into manageable pieces for transport off site to be disposed off either in a site demolition landfill (subject to approval) or in the landfill at Baker Lake (only if allowed by the Hamlet) or shipped south for disposal.

The soil and gravel under the liner will be tested for hydrocarbon contamination. Any contaminated soils related to the fuel storage area will be removed and placed into drums and either landfarmed on site (subject to approval) or shipped south for disposal in an appropriate hazardous waste facility. This will be done in compliance with the guidelines of the Environmental Protection Services of the

Government of Nunavut. This includes registration as a generator with the EPS and complying with all other regulatory requirements for hazardous waste management, including transportation, occupational health and public health.

4.10.3 Removal of Fuel Drums

All empty fuel drums will be drained of their contents and then crushed for transport off site. The residual fuel drained from the drums will be placed into a collection drum for shipment to a recycling facility in the south. The crushed empty fuel barrels will be removed to Baker Lake and shipped south on a barge.

4.11 HAZARDOUS MATERIAL REMOVAL

All hazardous materials will be collected and appropriately packaged and labelled for transport south by barge to be disposed or recycled at the appropriate licensed waste handling facilities. The materials will be shipped under the GN waste generator manifesting protocols and in accordance with the Transportation of Dangerous Goods Act. No hazardous waste material will be left on the Meadowbank site.

4.12 REMOVAL OF EXPLORATION AND DEVELOPMENT EQUIPMENT

All of the site mobile equipment will be moved over the all weather access road to Baker Lake. Equipment will be offered to sale to local and regional interests. Equipment not sold will be shipped south by barge.

The exploration diamond drill equipment will also be relocated to Baker Lake for shipment south to the place of business of the drilling contractor. All materials consumed by drilling such as salt, drilling compounds, etc. will be relocated to Baker Lake for shipment south to the place of business of the drilling contractor.

No equipment will be left at the Meadowbank Project site.

4.13 BATCH CONCRETE PLANT AND AGGREGATE STOCKPILE

The batch concrete plant and the entire associated infrastructure will be removed over the all weather access road and transported south. This plant is the property of the concrete contractor and thus will be returned to the contractor.

Any remaining aggregate (expected to be less than 500 m^3) will be used to fill indentations as part of the final site grading.

4.14 FINAL SITE GRADING

After reclamation the site will be regraded as described previously in Section 3.4. Wherever practical the original drainage patterns will be established to mimic the pre-development drainage patterns.

4.15 DRILL CORE

There is approximately 70,000 metres of drill core in storage at the south camp site. Drill core is consolidated at the south camp near the old core shack in a compact area. The integrity of this core is best preserved with minimal handling; therefore, pending permission from the Kivalliq Inuit Association (the landowner), AEM does not intend or recommend that this core be moved. It is most useful in its current storage mode and provides a valuable geologic reference for these deposits. Drill core is also stored at the north camp in the same manner. At present the core storage facilities located in the north camp contain an additional 51,000 metres of core. It is also intended that this drill core will remain at the site after camp demobilization.

4.16 TRENCHES, SUMPS AND DRILL HOLES

Trenches, sumps and drill-holes will be backfilled with inert material such as the drill cuttings that were previously removed and stockpiled beside the excavated or drilled areas. The area of impact will then be hand graded using rakes, re-contoured and fertilized to enhance the establishment of native plants from the surrounding area.

SECTION 5 • SITE MONITORING & REVEGETATION

AEM has a responsibility to the landowner to continue environmental monitoring and maintenance at the site until it can be demonstrated that the reclaimed site is both chemically and physically stable. In other words AEM will continue environmental monitoring until water quality demonstrates that the reclaimed site is not causing adverse environmental impact. It is expected that this will take many years; however, it is expected that the frequency of monitoring will diminish with time assuming the site is chemically and physically stable.

AEM assumes that annual environmental monitoring of the site will take place in the spring at freshet and again in late summer prior to freeze-up. The monitoring will consist of water quality monitoring of both surface runoff and local lakes, measuring and documenting plant re-growth, ensuring that the reclaimed site and the remaining core racks and boxes are physically stable and inspecting potential problem areas for erosion and run-off into the Lake. Reports, including photographs, will be submitted to the land owner (KIA) and to the NWB.

Nunavut currently requires that only native plants be used for revegetation in the territory. This limits the ability to revegetate on a large scale as there currently is no readily available source for native plant seed material in Nunavut or elsewhere. There is also a lack of available organic soils in the Project area and tough climatic conditions (short cold and dry growing seasons) that make it difficult to establish vegetation over large surface areas such as Meadowbank. Consequently the establishment of vegetation will rely primarily on providing conditions conducive to natural recolonization of the site by the surrounding native vegetation.

APPENDIX A

Meadowbank Gold Project, Reclamation Cost Estimate, Prepared by Brodie Consulting Ltd., March 2008

MEADOWBANK GOLD PROJECT

RECLAMATION COST ESTIMATE

Prepared for:

WATER RESOURCES DIVISION
INDIAN & NORTHERN AFFAIRS CANADA
P.O. BOX 2200
IQALUIT, NUNAVUT X0A 0H0

Prepared by:

Brodie Consulting Ltd.
572 St. Andrews Place
West Vancouver, B.C. V7S 1V8
604-922-2034 fax: 604-922-9520

March 2008

1 INTRODUCTION

Meadowbank Mining Corporation (MMC) has proposed to develop the Meadowbank Mine, located in Nunavut about 70 kilometers north of Baker Lake. This report presents an estimate of the government's cost to carry out the anticipated scope of reclamation activities at the mine, if it becomes necessary to do so. It is expected that this cost estimate will be considered in the security requirements for the project. Separate totals for the land and water-related elements of the estimated reclamation liability are presented.

2 INFORMATION SOURCES

The information sources for this review include the following:

- Water License Application and supporting documents, and
- Comments from other reviewers on geotechnical issues.

A site inspection has not been conducted.

In addition to the review presented here, Brodie Consulting Ltd. has prepared 2 previous reports relating to the Meadowbank project. These were for the Baker Lake laydown and fuel storage area, and for the access road to the proposed mine.

3 RECLAMATION ISSUES

There are several outstanding reclamation issues associated with Meadowbank project. These are described as follow.

<u>Freezing of Tailings</u>

Section 4.2 of the Mine Waste & Water Management Plan does not fully address how freezing of the tailings pile will occur. It is likely that the downward advancing freeze front will result in discharge of cyro-concentrated pore water and swelling/deformation of the tailings deposit and cover. These processes are similar to the natural phenomenon which results in pingo formation. This process could go on for many decades as the underlying talik freezes.

It is understood that the majority of the tailings will freeze during operations. Not all of the water which freezes will result in discharge of cryo-concentrated fluid, as some of the water expansion will result in uplifting of the tailings surface. None-the-less, the proponent should make an estimate of the quantity and concentration of expelled water and provide a contingency plan should it be necessary to collect and treat the water.

Cover thickness – Tailings & Waste Rock

This is the most significant reclamation issue. There are several aspects of the cover concept which are cause for concern.

It is suggested in Section 5.3 of the Mine Waste & Water Management Plan that a rock cover of 2 m of NPAG material will contain the active layer above the PAG material. It is reported that this is based upon site thermistor data which shows a 1.5 m depth of thaw. The type of material where this was observed is not reported. Table 6.1 and 6.3 of the 2005 Baseline Physical Ecosystem Report lists the current active layer (i.e. before climate change considerations) as measured in drillholes. The average of these values is 2.14 m, which is greater than referred to in Section 5.3 of the Mine Waste and Water Management Plan, and is greater than the proposed cover thickness. There is no mention as to how this depth of thaw may be influenced by climate change.

Further insight can be gained from other northern mines. At the Ekati mine, the active layer in Panda rock pile is 4.5 – 5 m deep (BHPB, ICRP 2007 – an extract of that report is included here as Appendix A). The Ekati site is slightly warmer than Meadowbank, with a mean annual air temperature of – 9.2 versus –11.3 for Meadowbank. Rock covers for control of ARD at the Misery rock pile are planned to be 5 m thick.

At the Diavik Diamond Project, covers over PAG waste rock are planned to be 3 m of rock overtop of 1.5 of till, a total of 4.5 m, which includes the layer of till that will have relatively high moisture content compared to rock. That design is predicted to maintain the zero degree iso-therm above the PAG rock.

Modeling of the tailings cover is presented in Appendix III of the Central Dike Design Report. There does not appear to be any modeling of the covers over waste rock in the Project Description. The proponent seems to have assumed identical cover performance over tailings and rock.

A number of concerns with the modeling are identified as follow.

Table III-5 lists the material properties for the thermal models. The SG of cover rock is 3.44. However, Table 5.3 of the Mine Waste & Water Management Plan lists the SG of ultra-mafic rock as 2.91 (the iron formation rock which is PAG has an SG of 3.44). The lower density rock is likely to exhibit greater thermal fluctuations.

The proposed cover rock, ultra-mafic, is reported to range from weak to strong (Table 5.3 of the Mine Waste & Water Management Plan). At the Ekati mine the finer waste rock, such as the biotite schist at Misery, shows less convective cooling than the coarser granite rock at Panda and a much wider range of depth to the zero degree iso-therm.

It is suggested in Section 6.2; 3rd bullet, that the cover on the tailings will contribute to shedding of water from the surface of the tailings. It is not clear how a waste rock cover could do this. A cover of only 2 m of rock will not have a compacted surface like a rock pile as there will have been much less traffic than would occur on a rock pile. There may be very low runoff from the cover, with all water traveling laterally over the tailings through the lower portion of the cover. Lateral water movement within the cover will complicate thermal modeling. A conservative approach to modeling is recommended.

In summary, considering the above issues with the modeling, the observed thermal regime in rock piles at Ekati, and the covers proposed for Ekati and Diavik, covers for control of ARD at the Meadowbank site should be thicker than the proposed 2m. The issue is determining what thickness is appropriate.

The Meadowbank site is colder than the Lac de Gras region, as summarized in the following table. Consequently, the depth of thawing in a rock cover may be less than has been observed at Ekati. Climate warming effects will offset this, causing an increase in the depth of annual thawing.

Comparison of Thermal Regime at Meadowbank & Ekati

Site	Mean Annual Temperature	Freezing Index (degree-days)*	Depth of Permafrost
Ekati	- 9.2º C.	4750	240 m
Meadowbank	- 11.3º C.	5500	450 – 550 m (est.)

* Freezing index is the annual sum of mean daily temperature for days with sub-zero temperature, source: Canadian Foundation Engineering Manual, Canadian Geotechnical Society, 1985

Based on the Ekati observations of the zero degree iso-therm at about 5 m depth, without any adjustment for climate warming, and recognition that the Meadowbank site is colder than Ekati, this estimate of the security requirements for Meadowbank is based upon a minimum cover thickness of 4 m.

MMC should re-assess the thermal modeling of the covers for tailings and waste rock. Ideally, this would include some sort of calibration considering the thermal records obtained at Ekati.

Post-closure Water Treatment

There are 3 minor potential sources of unacceptable water quality after closure:

1. Some of the rock exposed in the pit walls at closure may leach slightly elevated levels of metals (MMC, Static Test Report, 2005). Dilution during flooding of the pits appears likely to mitigate this issue.
2. In the closure plan, Section 7.1.4, page 7-3, it is noted that some rock may remain exposed above the ultimate flood elevation in the Portage Pit. It is not clear if there will be any PAG rock exposed in this area, although the potential exposure area is likely to be small.
3. As noted above, poor quality water could be expelled from the tailings area.

It has been assumed in preparing this report that all of these issues will not lead to a requirement for post-closure water treatment. However, it is recommended that MMC provide a prediction of the potential contaminant concentrations from each of these 3 sources after closure, and provide an operational monitoring and adaptive management strategy to ensure that there will not be post-closure impacts to receiving waters.

Revegetation

Vegetation in the Meadowbank area is described as typical of upland tundra. Mining plans call for removal of about 9M tonnes of till and lake-bottom sediments. Both of these soils could support vegetation, possibly with some amendments. There is a generic description of revegetation in Section 5.2.2. However, the only specifics in the closure plan are for encouraging natural revegetation in the building and roadway/airstrip areas. There does not appear to be any consideration to attempting re-vegetation in the pit perimeter areas or on the rock storage areas. The addition of seed and soil amendments could accelerate the restoration of the land at a very minor additional cost to the overall reclamation work. Cost provisions for revegetation have not been included in this report.

4 APPROACH TO COST ESTIMATION

The primary purpose of this report is to present an estimate of the reclamation liability. This estimate is to form the basis of financial security so that in the event that the company does not fulfill its obligations then the Government is able to do so without any burden to residents of Nunavut and, if necessary, Canadian citizens.

This estimate is based on the following general assumptions:

- the company goes bankrupt or abandons the property before starting reclamation work,
- no progressive reclamation is conducted, including interim covers on PAG rock or pumped flooding of the pits,
- all work is based on independent contractor rates,
- all costs are 2008 Canadian dollars,
- the cost estimate does not include any revenue from recovery of assets,
- the mine is developed substantially as planned,
- this estimate does not include costs for catastrophic events such as failure of dams, dikes or dump slopes.

This estimate assumes that the mine construction proceeds as proposed. It does not assume departures from plan such as dump construction without set-back on terraces for overall slope stability, expansion of the dumps beyond the indicated limits or significant departures from the current understanding on geochemical issues and quantities of PAG/NPAG rock. Any such departure from the mine plan may increase the reclamation liability.

The estimate has been developed using the RECLAIM model, a spreadsheet developed specifically for estimation of mine reclamation costs. The model is based as much as possible upon costs from the reclamation of other mines. It includes means to calculate a segregation of the total liability estimate into land-related and water-related components. RECLAIM has been used since the mid 1990's for estimation of mine reclamation liability at the majority of the mines in northern Canada.

Some detailed comments regarding the quantities of work and specific reclamation measures for each component and the detailed reclamation cost estimate are presented in Appendix B. All of the quantities of work and cost basis for each task are presented in the RECLAIM output, which is presented in Appendix C.

An estimate of the closure liability has been made for three points in the mine life; end of year 1, end of year 5 and end of mine. End of year 1 of operations (3 years after the start of mine construction) represents the liability after the start of mining and milling operations. End of year 5 represents the potential liability at the expiration of the original licence (assumed to be 5 years of operation). The end of mine life estimate presents the maximum potential liability associated with the mine development.

In keeping with conventional engineering practice, and considering the stage of mine development, this estimate includes a contingency. At this stage of mine development a contingency of 20 – 25% is commonly used. However, the reclamation plan for the Meadowbank Project is relatively simple, and this estimate includes an adjustment of the cover thickness for tailings and PAG rock. Therefore, a relatively low contingency of 15% is used. An even lower contingency would be indicative of a plan based on a comprehensive database of site specific parameters, detailed engineering, and proven reclamation measures, none of which exist at this stage of mine development.

5 CLOSURE COST ESTIMATE

The estimated total reclamation liability for the Meadowbank Mine is listed by mine component in the tables of Appendix C.

A summary is presented in Table 1. The estimated reclamation liability has been segregated into land and water components based on apparent mitigation of impacts to land or water resources.

Table 1

Summary of Estimate Reclamation Liability for the Meadowbank Mine

Exact Amounts & Break-down provided in Appendix C

Period	Total Reclamation Liability	Land-Related Reclamation Liability	Water Related Reclamation Liability
End of Year 1	$16,218,000	$8,593,000	$7,625,000
End of Year 5	$26,105,000	$10,264,000	$15,841,000
End of mine life	$43,875,000	$14,790,000	$29,084,000

The reclamation estimates presented in Table 1 do not include:

- Construction of fish habitat compensation features, (finger dikes and mounts). It is assumed that these costs will be addressed by DFO in habitat compensation agreement.
- Consideration for progressive reclamation which may be conducted.
- Any efforts for revegetation.
- Post-closure water treatment. There is a very small possibility that this could be required. MMC should develop a monitoring and adaptive management strategy to minimize the likelihood of post-closure water treatment.

It should be noted that the costs for monitoring and maintenance, and mobilization/demobilization have been split based upon the ratio of land and water-related costs for the primary reclamation activities. This approach assumes that the land

and water securities are pooled in the common interest of reclaiming the site. In the event that the securities are not pooled, then the parties holding the security should be aware that there may be a short-fall in funds if only the land or only the water-related portion of the work were to be conducted.

6 COMPARISION WITH MMC COST ESTIMATE

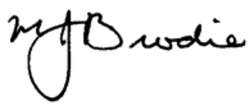
The following table lists key differences between this cost estimate and that prepared by MMC. Note that MMC has not provided estimates for years 1 or 5. The differences below apply only to year 8.

Component	Comment	BCL	MMC
Pits	• MMC volumes for dike breach are low • BCL pit flooding based on adaptation of Ekati pit flooding at $0.02/m3 for pumping	$2.44 M	$1.77 M
Tailings	• BCL estimate based upon 4 m thick cover versus 2 m in MMC report (MMC used 2.5 m thick cover in their cost estimate) • MMC has assumed progressive reclamation south of Stormwater dike is completed during operations • BCL estimate assumes rock cover is required in 50% of ultimate reclaim pond	$20.57 M	$5.49 M
Rock Piles	• BCL estimate based upon 4 m thick cover versus 2 m in MMC report (MMC used 2.5 m thick cover in their cost estimate)	$4.17 M	$2.47 M
Buildings	• BCL estimate includes adjustment for height of buildings • MMC estimate based upon LOW unit costs for all demolition	$6.06 M	$1.52 M
Chemicals	• Differences are minor	$0.54 M	$0.46 M
Mob/Demob	• BCL estimate assumes major reclamation equipment is not available in Baker Lake, it must be brought in by barge	$0.82 M	$0.22 M
Monitoring	• MMC estimate assumes up to 20 years of monitoring	$0.84 M	$1.72 M
Proj. Mgmt.	• BCL estimate is based upon 5% • MMC estimate is based upon 3%	$1.69 M	$0.43 M
Engineering	• BCL estimate is based upon 5% • MMC estimate is based upon 3%	$1.69 M	$0.43 M
Contingency	• BCL estimate is based upon 15% • MMC estimate is based upon 10%	$5.07 M	$1.42 M
	Totals	$43.88 M	$18.44 M
	Total Difference	$25.44 M	

Should there be any questions regarding the approach or conclusion of the report, please contact the undersigned.

Yours truly,

Brodie Consulting Ltd.



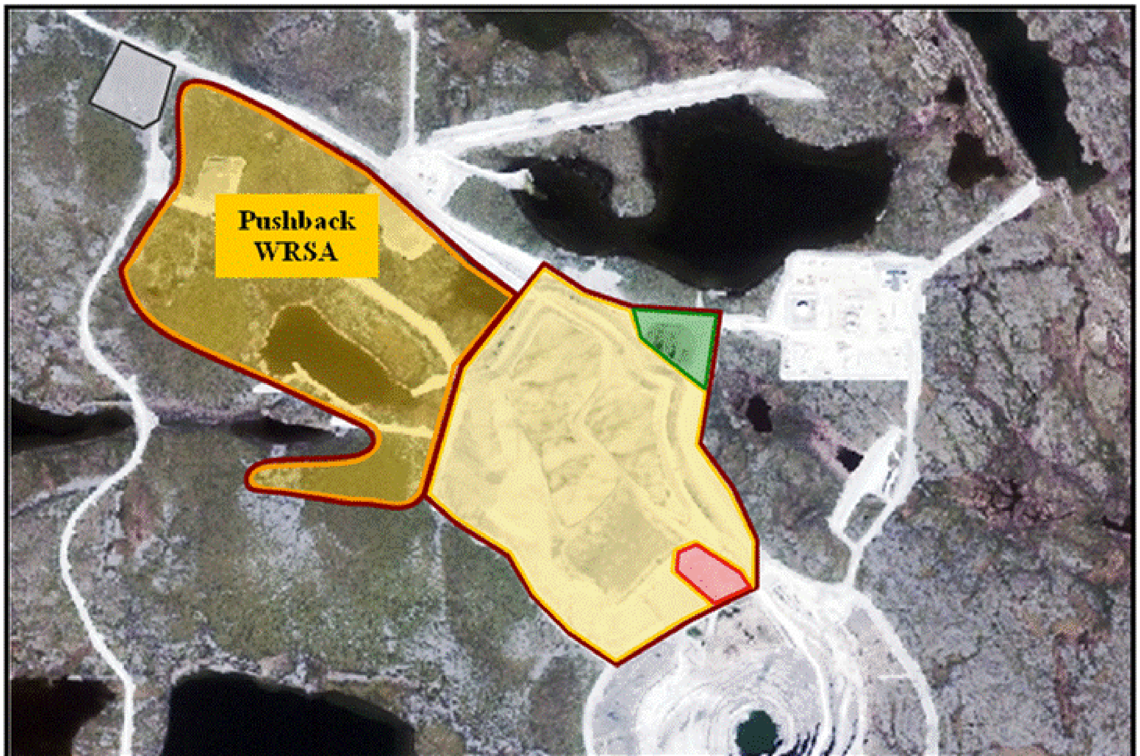
M. J. Brodie, P. Eng.

REFERENCES

- BHP Billiton Diamonds Inc. 2007, Ekati Diamond Mine, Interim Closure & Reclamation Plan, Volume 1 – Draft – January 2007

APPENDIX A
EXTRACT FROM
BHPB INTERIM CLOSURE & RECLAMATION PLAN
BHPB 2007

FIGURE 50. MISERY WRSA AND ORE PADS – MATERIAL LOCATIONS AT END OF MINE LIFE



Key:
Red – Landfill site,
Yellow – Mixed Rock Types,
Grey – Kimberlite Stockpile Management Area,
Dark Green – Topsoil,
Clear – Granite with minimal other rock types

6.3.3.4. WRSA Temperature Trends

Monitoring of the internal temperatures and build up of ice in the Panda/Koala/Beartooth and Misery WRSA has been undertaken by the installation of thermistors and piezometers since 2000. Measurements have been taken and plotted on a regular basis to allow comparison of the behaviour of the WRSA temperature trends compared with expected trends.

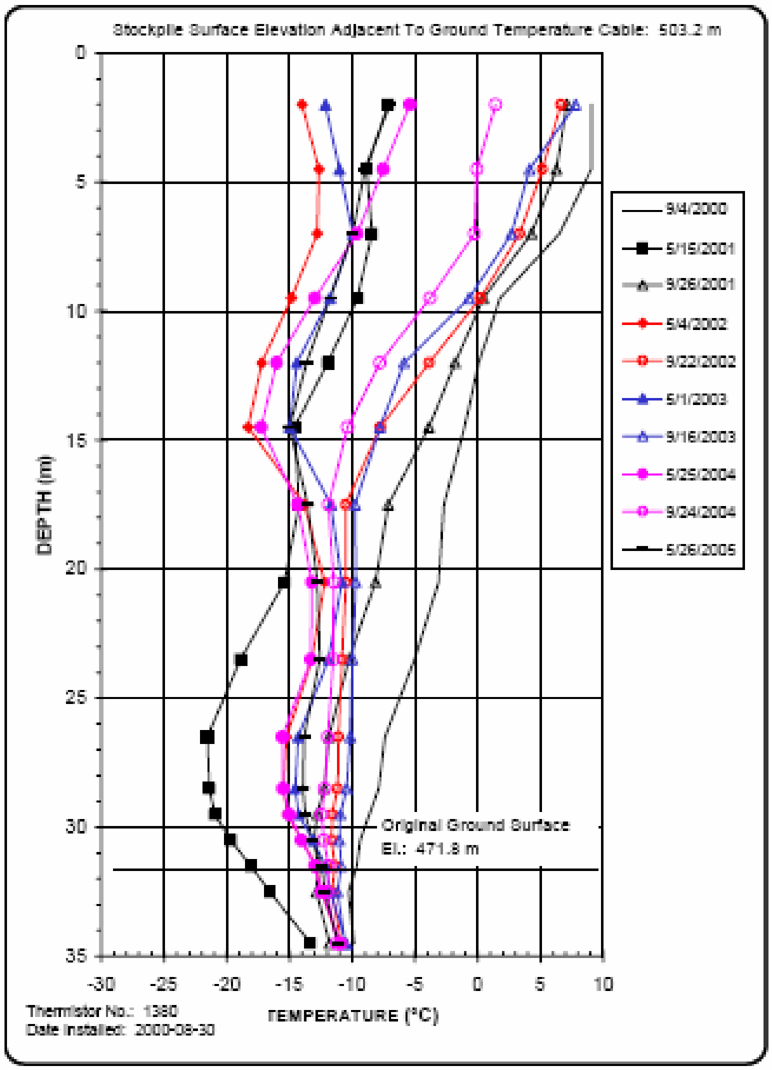
In summary, the results of the monitoring indicate that the temperatures in the WRSA are colder than the local permafrost and colder than originally predicted. The perimeter is significantly colder than the core temperature due to convection cooling cells which have become active around the perimeter. The design and construction of the WRSA has provided a setting which encourages permafrost growth, maintains temperatures below local ground values and therefore provide good chemical and increased physical stability.

6.3.3.4.1. Panda/Koala/Beartooth WRSA

The temperature of the Panda/Koala/Beartooth WRSA has been monitored since the thermistor cables were first installed in 2000, with later additions in 2002 and 2004. A total of ten cables are now installed in the rock pile and these are checked, monitored and recorded annually. A summary of measurements and results is provided in the following section.

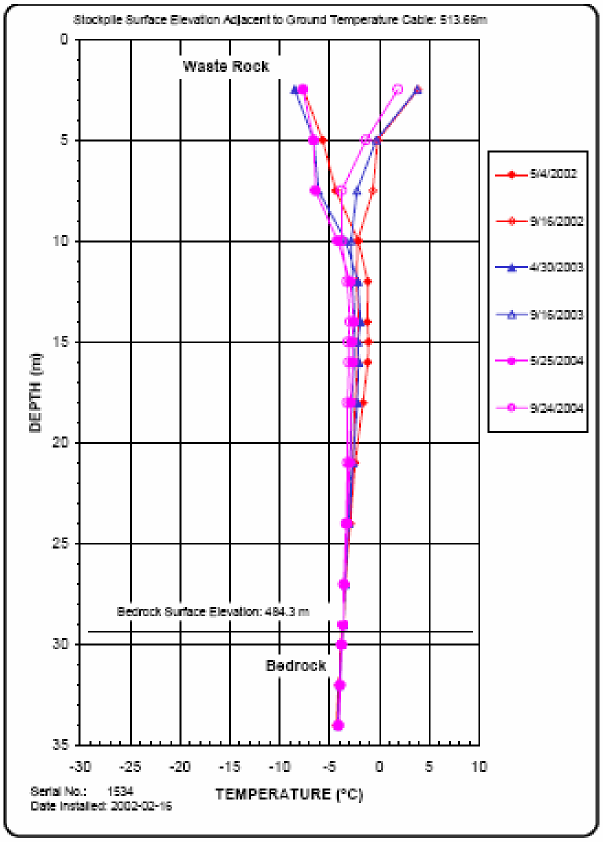
An example Ground Temperature profile from the margin of the Panda/Koala/Beartooth WRSA is shown in Figure 51. An example from the centre of the WRSA is shown in Figure 52.

FIGURE 51. GROUND TEMPERATURE PROFILE FOR SITE 4 (30M BENCH) PANDA/KOALA/BEARTOOTH WRSA : AN EXAMPLE OF A SITE AT THE MARGIN OF THE WRSA



Note: Surface covered with overburden Sept 2003

FIGURE 52. GROUND TEMPERATURE PROFILE FOR SITE 5 (CENTRE OF TOP BENCH) PANDA WRSA
AN EXAMPLE OF A SITE TOWARDS THE CENTRE OF THE WRSA



Examinations of the **ground temperature profiles** from the ground temperature cables installed in the Panda/Koala/Beartooth WRSA show the following:

- The entire WRSA is in a permafrost condition with the exception of the surface "active layer" that thaws to a depth of 4 to 6 m each summer.
- The temperatures around the perimeter of the WRSA (typically within 200 m of the toe of the pile) are significantly colder than near the centre of the pile. This is the result of convection cooling cells that have become active around the perimeter of the WRSA.
- The temperature profile at the centre of the WRSA is similar to those measured in similar natural permafrost soils/rock in undisturbed terrain around the EKATI site. Ground temperatures in the centre are controlled by heat conduction alone.
- The ground temperatures are continuing to get colder with time.
- There are two convective cooling cells occurring in the 30 m bench as evidenced by the bimodal temperature profiles that shows warmer ground temperatures at the boundary between the first and second lifts of waste rock (approximately at a depth of 15m). This should be expected because the first lift of waste rock was capped with a finer grained much less air permeable surfacing material, to permit easier haul truck and equipment travel on the surface of the first lift. Rather than a single large convection cell occurring, the less permeable layer leads to the formation of the two cells separated by the less permeable zone. The temperatures in each of the two cells are getting colder with time.

FIGURE 53. GROUND TEMPERATURE HISTORY SITE 4 (30M BENCH) AN EXAMPLE OF A SITE AT THE MARGIN OF THE WRSA

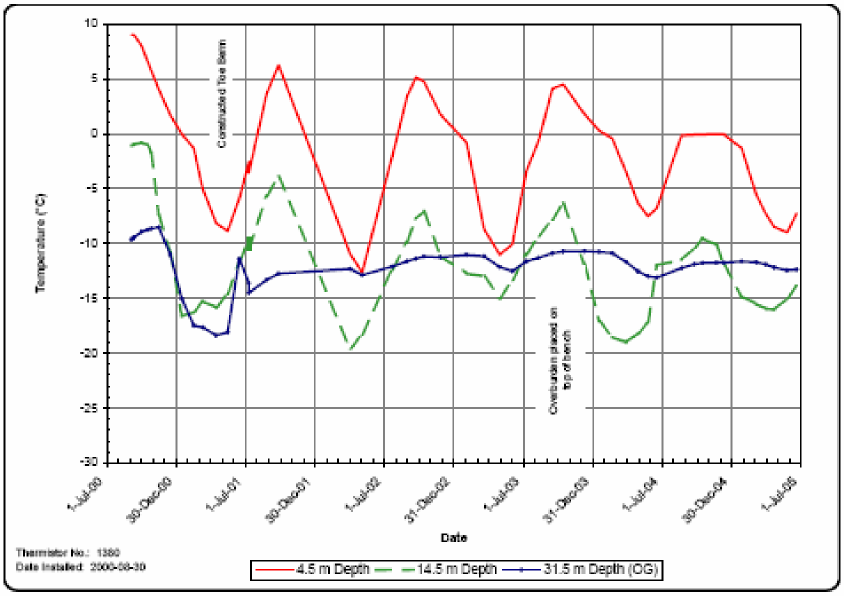
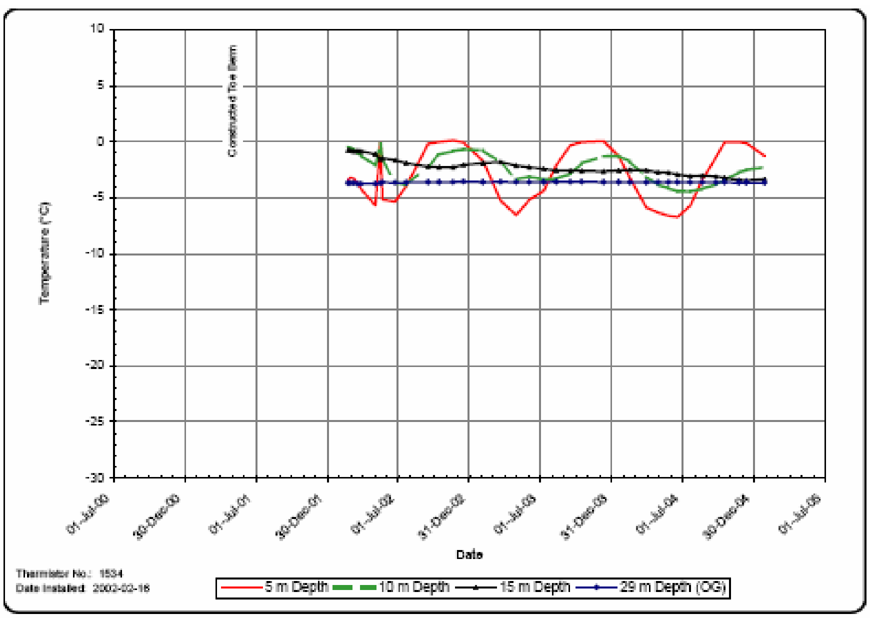


FIGURE 54. GROUND TEMPERATURE HISTORY SITE 5 (CENTRE OF TOP BENCH) AN EXAMPLE OF A SITE TOWARDS THE CENTRE OF THE WRSA



Examinations of the **ground temperature histories** from the ground temperature cables installed in the Panda/Koala/Beartooth WRSA indicate the following:

- The amplitude of temperature fluctuations at a specific depth is decreasing with time.

- The magnitude of the effectiveness of convective cooling has been related to a parameter termed the "thermal offset" by Goering, (2003). The thermal offset is the difference in winter temperature at the top of the embankment and that at some depth within the embankment. A negative thermal offset indicates that the temperatures at depth in winter are actually colder than those near the surface, which can only be attributed to convective cooling. Sites 2, 4 and 5 show thermal offsets in the order of -5°C over a 10 m depth from 4 m to 14 m. This large offset, where the winter temperatures at 14 m below the surface are 5°C colder than those at 4 m depth, is unprecedented in terms of ground temperature profiles and clearly indicative of formation of strong convection cells.
- The temperatures nearer the surface of the WRSA (depths of approximately 4 m) are getting colder with time and this is an indication that the depth of seasonal thaw is also decreasing with time.
- The construction of the toe berm on the eastern side of the WRSA in the late winter of 2001 reduced the temperature fluctuations during the year at each of the plotted depths and lead to colder temperatures at depth. The decrease in temperature fluctuations may be a result of a "choking off" of some of the convective cooling because of the impermeability of the toe berm. Alternatively, as the pile cools with time, the thermal gradient decreases in winter moderating the cooling effect.
- It was initially estimated that the width of the unfrozen fringe (fringe active layer) could be on the order of 150m in late summer. Examination of the results show that the unfrozen fringe is considerably less than 150 m wide. It is believed that the unfrozen fringe is less than 10 m wide.

6.3.3.4.2. Toe Berm Results

Examinations of the **ground temperature profiles** from the ground temperature cables installed in the Panda and Bearclaw toe berms show the following:

- The toe berms are in a permafrost state at temperatures below regional ground temperature.
- The depth of seasonal thawing (thickness of the active layer) has reduced with time and is now in the order of 3 m.

Examinations of the **ground temperature histories** from the ground temperature cables installed in the Panda and Bearclaw toe berms indicate the following:

- The amplitude of seasonal temperature fluctuations has decreased slightly with time.
- The temperatures in the core and base of the toe berms are below normal permafrost ground temperatures, confirming that the fine-grained fill inside the toe berm is benefiting from convective cooling cells that form each winter in the rock above the fill. There is insufficient thermistor data to evaluate the magnitude of the convective cooling effects. The temperatures at the base of the fill are continuing to decrease with time.

In summary, overall the Panda / Koala / Beartooth WRSA is cooling to temperatures below those of the ground permafrost. This effect is most significant around the sides of the WRSA where the convection currents impact on the temperature. Permafrost is developing as expected through the rock pile.

APPENDIX B
RECLAMATION COST DETAILS

This appendix presents notes, assumptions and supporting calculations for the reclamation activities which are shown in the RECLAIM output in Appendix C.

End of Year 1

Open Pits

- Remove infrastructure (electrical, dewatering) from Portage Pit only
- Construct berms along exposed pit crest east side of Portage pit, 600 m x 4 m3/m = 2400 m3, assume rock comes from dike breaches – cost is only for dozing
- Assisted flooding by pumping, assumes seepage for 2 years & pit is 42% excavated
    - Total volume to be pumped into Portage, 15,640,000 m3, over 4.0 years
- Breach dike between Portage and Goose pits,
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Breach dike between Goose pit & Third Portage Lake
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Fish habitat compensation (finger dikes and mounts) are assumed to have been constructed during operations.

Tailings

- Place rock cover, total area is 400 x 200 m = 80,000 m2 assuming exposed beach and portion of sub-aqueous tailings are to be covered, assuming cover thickness is 4 m then volume is 320,000 m3

Waste Rock

Portage rock pile is composed of surplus IV + IF PAG rock plus NPAG rock. Volume of surplus IV + IF is 8,076,983 m3. Assume pile is 45 m high, area of PAG rock is 264,196 m2. Assume PAG rock is piled against 2 of 4 sides; net uncovered area of PAG rock is 204,072 m2.

- Dose down slope slopes to 2:1 over 668 m crest length, reslope volume is 169,088 m3
- Excavate UM rock and place cover over 264,196 m2, assuming cover thickness is 4 m, volume is 816,288 m3

Buildings & Equipment

- Tabulation of building footprint areas for cover of foundations and volume (for demolition effort and landfill volume) is presented in RECLAIM output – Buildings page

Mobilization

- Crews mobilized from Baker lake
- Assume use of existing camp
- Equipment mobilized by barge

Monitoring & Maintenance

- Monitoring is provided for 8 years after closure, assumed to be conducted simultaneously with pit flooding and all structures frozen by this time – no further monitoring required.

Long-term Water Management & Site Maintenance

- Not required

End of Year 5

Open Pits

- Remove infrastructure (electrical, dewatering)
- Construct berms along exposed pit crest east side of Portage pit, 600 m x 4 m3/m = 2400 m3, assume rock comes from dike breaches – cost is only for dozing
- Assisted flooding by pumping, assumes seepage into Goose and Portage pits up to year 8, but no assisted flooding
    - Total volume to be pumped into Portage, 33,040,000 m3, over 8.4 years
    - Total volume to be pumped into Goose, 13,212,000 m3, over 6.4 years
    - Total volume to be pumped into Vault, 13,705,000 m3, over 3.5 years
- Breach dike between Goose pit & Third Portage Lake
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Breach Vault pit dike
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Fish habitat compensation (finger dikes and mounts) are assumed to have been constructed during operations.

Tailings

- Place rock cover, total area is 900 x 500 m = 450,000 m2 assuming exposed beach and portion of sub-aqueous tailings are to be covered, assuming cover thickness is 4 m then volume is 1,800,000 m3

Waste Rock

Portage rock pile has reached 96% of maximum volume, assume reclamation effort is same as at 100% capacity. Portage rock pile is composed of surplus IV + IF PAG rock plus NPAG rock. Volume of surplus IV + IF is 13,256,206 m3. Assume pile is 60 m high, area of PAG rock is 349,062 m2. Assume PAG rock is piled against 2 of 4 sides; net uncovered area of PAG rock is 264,822 m2.

- Dose down slope slopes to 2:1 over 668 m crest length, reslope volume is 315,900 m3
- Excavate UM rock and place cover over 264,196 m2, assuming cover thickness is 4 m, volume is 1,059,288 m3

Buildings & Equipment

- Tabulation of building footprint areas for cover of foundations and volume (for demolition effort and landfill volume) is presented in RECLAIM output – Buildings page

Mobilization

- Crews mobilized from Baker lake
- Assume use of existing camp
- Equipment mobilized by barge

Monitoring & Maintenance

- Monitoring is provided for 8 years after closure, assumed to be conducted simultaneously with pit flooding and all structures frozen by this time – no further monitoring required.

Long-term Water Management & Site Maintenance

- Not required

End of Mine Life

Open Pits

- Remove infrastructure (electrical, dewatering)
- Construct berms along exposed pit crest east side of Portage pit, 600 m x 4 m3/m = 2400 m3, assume rock comes from dike breaches – cost is only for dozing
- Assisted flooding by pumping, assumes seepage into Goose and Portage pits up to year 8, but no assisted flooding
    - Total volume to be pumped into Portage, 31,580,000 m3, over 8.0 years
    - Total volume to be pumped into Goose, 11,808,000 m3, over 5.7 years
    - Total volume to be pumped into Vault, 28,572,000 m3, over 7.2 years
- Breach dike between Goose pit & Third Portage Lake
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Breach Vault pit dike
    - Excavate till 6 m deep (2m freeboard, 3 m depth, 1 m over excavate for rock cover) 200 m x 180 m3/m = 36,000 m3
    - Excavate rock, 5 m deep (2 m freeboard, 3 m depth) – U/S & D/S rockfill, 282 m3/m x 200 m = 56,400 m3
- Fish habitat compensation (finger dikes and mounts) are assumed to have been constructed during operations.

Tailings

- Place rock cover, total area is 1,400,000 m2, assuming cover thickness is 4 m then volume is 7,978,142 m3

Waste Rock

Portage rock pile is composed of surplus IV + IF PAG rock plus NPAG rock. Volume of surplus IV + IF is 13,256,206 m3. Assume pile is 60 m high, area of PAG rock is 349,062 m2. Assume PAG rock is piled against 2 of 4 sides; net uncovered area of PAG rock is 264,822 m2.

- Dose down slope slopes to 2:1 over 668 m crest length, reslope volume is 315,900 m3
- Excavate UM rock and place cover over 264,196 m2, assuming cover thickness is 4 m, volume is 1,059,288 m3

Buildings & Equipment

- Tabulation of building footprint areas for cover of foundations and volume (for demolition effort and landfill volume) is presented in RECLAIM output – Buildings page

Mobilization

- Crews mobilized from Baker lake
- Assume use of existing camp
- Equipment mobilized by barge

Monitoring & Maintenance

- Monitoring is provided for 8 years after closure, assumed to be conducted simultaneously with pit flooding and all structures frozen by this time – no further monitoring required.

Long-term Water Management & Site Maintenance

- Not required

Portage								
						Tonnes	SG	Volume
orig lake volume	4,500,000	m3			Int Volc	15936	2.89	5,514,187
					U Mafic	24141	2.91	8,295,876
					Iron F	30168	3.44	8,769,767
vol of rock removed	30,000,421	m3			Quartz	934	2.7	345,926
total volume to fill	34,500,421	m3			Till	6119	1.9	3,220,526
					Ore	11177	2.9	3,854,138
runoff & seepage	730,000	m3/y						30,000,421
annual pumping rate	3,224,000	m3/y						
	3,954,000	total inflow rate						
	8.7	years to flood						
assume no pumping years 5, 6, 7 & 8,			seepage	2	yrs			
			volume	1,460,000	m3			
	end of operations unflooded volume			33,040,421	m3			
			years to flood	8.4				

Goose Island								
orig lake volume	1,467,000	m3				Tonnes	SG	Volume
rock removed		tonnes			Int Volc	9490	2.89	3,283,737
ave. SG					U Mafic	17769	2.91	6,106,186
vol of rock removed	13,851,826	m3			Iron F	3956	3.44	1,150,000
total volume to fill	15,318,826	m3			Quartz	2523	2.7	934,444
					Till	3045	1.9	1,602,632
runoff & seepage	702,000	m3/y			Ore	2247	2.9	774,828
annual pumping rate	1,356,000	m3/y						13,851,826
	2,058,000	total inflow rate						
	7.4	years to flood						
assume no pumping years 4, 5, 6, 7 & 8,			seepage	3	yrs			
			volume	2,106,000	m3			
	end of operations unflooded volume			13,212,826	m3			
			years to flood	6.4				

Vault Pit								
orig lake volume	4,500,000	m3				Tonnes	SG	Volume
rock removed		tonnes			Int Volc	68206	2.75	24,802,182
ave. SG					U Mafic		2.91	-
vol of rock removed	10,664,938	m3			Iron F		3.44	-
total volume to fill	15,164,938	m3			Quartz		2.7	-
					Till		1.9	-
runoff & seepage	730,000	m3/y			Ore		2.9	-
annual pumping rate	3,224,000	m3/y						24,802,182
	3,954,000	total inflow rate						
	3.8	years to flood						
						% of ult. Vol excavated		43%
assume no pumping years 8,			seepage	2	yrs			
			volume	1,460,000	m3			
	end of operations unflooded volume			13,704,938	m3			
			years to flood	3.5				

APPENDIX C

RECLAMATION COST ESTIMATE

SUMMARY OF COSTS

COMPONENT TYPE	COMPONENT NAME	TOTAL COST	YEAR 1 Land Liability	Water Liability
OPEN PIT	0	$1,265,095	$2,081	$1,263,014
UNDERGROUND MINE	0	$0.00	$0	$0
TAILINGS	0	$1,175,645.36	$293,911	$881,734
ROCK PILE	0	$3,145,553.04	$0	$3,145,553
BUILDINGS AND EQUIPMENT	0	$6,057,561.54	$5,937,562	$120,000
CHEMICALS AND SOIL MANAGEMENT	0	$337,682.00	$114,620	$223,062
WATER MANAGEMENT	0	$0.00	$0	$0
POST-CLOSURE SITE MAINTENANCE		$0.00	$0	$0
SUBTOTAL		**$11,981,537**	**$6,348,174**	**$5,633,363**
		Percentages	53.0	47.0
MOBILIZATION/DEMOBILIZATION	0	$400,980	$212,451	$188,529
MONITORING AND MAINTENANCE	0	$840,000	$445,057	$394,943
Market Factor Price Adjustment	0 %	$0	$0	$0
PROJECT MANAGEMENT	5 %	$599,077	$317,409	$281,668
ENGINEERING	5 %	$599,077	$317,409	$281,668
CONTINGENCY	15 %	$1,797,231	$952,226	$845,004
GRAND TOTAL - CAPITAL COSTS		**$16,217,901**	**$8,592,725**	**$7,625,176**

1 Open Pit Name: ____ Pit # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm at Portage east side	m3	2400	drl	0.867	$2,081	100%	$2,081	$0
B	Block roads	m3		#N/A					
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE SLOPES			#N/A	0	$0		$0	$0
	excavate 2 breaches in dike	m3		#N/A	0	$0		$0	$0
	break concrete guides & wall	m3		#N/A	0	$0		$0	$0
.	construct fish habitat	m3		#N/A	0	$0		$0	$0
.		m3		#N/A	0	$0		$0	$0
C	breach Portage dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Portage dike,rock excavation	m3	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	breach Goose dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Goose dike, rock excavation	m	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	breach Vault dike, till excavation	m3		SB2L	4.0596	$0	0%	$0	$0
	breach Vault dike, rock excavation	m3		SB2L	4.0596	$0	0%	$0	$0
.	construct fish habitat	m3		SB2L	4.0596	$0		$0	$0
		kWh		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A					
.	OBJECTIVE: COVER/CONTOUR SLOPES			#N/A	0	$0		$0	$0
.	Fill, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
E	Other			#N/A	0				
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	0	$0		$0	$0
	, mat'l B	m3		#N/A	0			$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
F				#N/A					
.	OBJECTIVE: FLOOD PIT			#N/A	0	$0		$0	$0
.	pump water into Portage pit	m3	15640000	#N/A	0.02	$312,800	0%	$0	$312,800
	pump water into Goose pit	m3	0	#N/A	0.02	$0	0%	$0	$0
.	pump water into Vault pit	m3	0	#N/A	0.02	$0	0%	$0	$0
H	annual mob/demob to site, only for year after main reclamation complete	yrs	4	#N/A	50000	$200,000	0%	$0	$200,000
	siphon installation/operation	each		#N/A	0	$0		$0	$0
	remove pipes,wires etc	each		#N/A	0			$0	$0
	make milk of lime, meter into pit	tonne		#N/A	0	$0		$0	$0

1 **Open Pit Name:** ____ **Pit #** ***1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	tonne		ilmh	504.9	$0		$0	$0
	km		mherh	8.5884	$0		$0	$0
OBJECTIVE: BACKFILL PIT			#N/A	0	$0		$0	$0
Fill, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Vegetate	ha		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$1,265,095	0%	$2,081	$1,263,014
					Total Pits	Percent Land	Total Land	Total Water

1 Underground Mine Name ____ UG Mine # 1

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block adits	m3		#N/A	0	$0		$0	$0
.	Cap shaft	m3		#N/A	0	$0		$0	$0
.	Cap raises at A154/A418	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap	m3		#N/A	0	$0		$0	$0
.	Cap raises at A 21	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap			#N/A	0	$0		$0	$0
.	Backfill adit A154	m3		#N/A	0	$0		$0	$0
	Contour portal area, A154	m3		#N/A	0	$0		$0	$0
.	Backfill adit, A21	m3		#N/A	0	$0		$0	$0
	Contour portal area, A21			#N/A	0	$0		$0	$0
.	concrete bulkhead, pit portal, A154	allow		#N/A	75000	$0		$0	$0
.	concrete bulkhead, pit portal, A21	allow		#N/A	75000	$0		$0	$0
.	Backfill open stopes	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: STABILIZE GROUND SURFACE			#N/A					
.	Backfill mine	m3		#N/A	0	$0		$0	$0
.	Collapse crown pillar	m3		#N/A	0	$0		$0	$0
.	Contour, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Maintain dewatering (see "MONITORING/MAINTENANCE" c			#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: FLOOD MINE			#N/A					
.	Plug adits	m3		#N/A	0	$0		$0	$0
.	Plug drillholes to surface	each		#N/A	0	$0		$0	$0
.	Grouting	m3		#N/A	0	$0		$0	$0
.	LIme addition, kg/m3 of water	tonne		#N/A	0	$0		$0	$0
.	Lime, purchase and shipping	tonne		#N/A	0	$0		$0	$0
D	OBJECTIVE: HAZARDOUS MATERIALS			#N/A					
.	remove hazardous materials, LABOUR	each		#N/A	0	$0		$0	$0
.	remove/decontam. Equipment, electrical	each		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
E	SPECIALIZED ITEMS			#N/A					
.				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total U/G	Percent Land	Total Land	Total Water

1 lings Impoundment Name: ____ Impoundment # ___1___

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block roads	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE EMBANKMENT			#N/A	0	$0		$0	$0
.	breach east dam	m3		#N/A	0	$0		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
.	Raise crest	m3		#N/A	0	$0		$0	$0
.	Flatten slopes	m3		#N/A	0	$0		$0	$0
C	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: COVER TAILINGS			#N/A	0	$0		$0	$0
	cover material A	m3	320000	#N/A	3.67	$1,175,645	25%	$293,911	$881,734
.	cover material B	m3		#N/A	0.5	$0		$0	$0
.	cover material C	m3		#N/A	3.6	$0		$0	$0
D		m3		#N/A					
.		m3		#N/A	8.25	$0		$0	$0
.	Soil cover, till	m3		#N/A	4.46	$0		$0	$0
.	Cover rock from dump	m3		#N/A	3.6	$0		$0	$0
.	Cover rock from roads	m3		#N/A		$0		$0	$0
E	Cover rock from new quarry	m3		#N/A					
.	Remove & treat supernatant	m3		#N/A	0.25	$0		$0	$0
.	OBJECTIVE: FLOOD TAILINGS			#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
F	Raise crest	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
.	Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
G	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: UPGRADE SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	10.6	$0		$0	$0
H	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	5.65	$0		$0	$0
.	geotextile over ice rich soil	m2		#N/A	10	$0		$0	$0
I				#N/A	0	$0		$0	$0

1 lings Impoundment Name: ____ Impoundment # *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: STABILIZE DECANT SYSTEM			#N/A	0	$0		$0	$0
Remove	m3		#N/A	0	$0		$0	$0
Plug/backfill	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: REMOVE TAILINGS DISCHARGE			#N/A	0	$0		$0	$0
Cyclones	m3		#N/A	0	$0		$0	$0
Pipe	m		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$1,175,645	0.25	$293,911	$881,734
					Total Tailings	Percent Land	Total Land	Total Water

1 Rock Pile Name: ______ Rock Pile #: *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE SLOPES								
	Flatten slopes with dozer, Portage	m3	169088	drl	0.867	$146,599	0%	$0	$146,599
.	Flatten slopes with dozer, Vault	m3	0	drl	0.867	$0	100%	$0	$0
.	Flatten slopes with dozer,	m3		#N/A	0	$0.00		$0	$0
.	Toe buttress, drain mat'l	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0.00		$0	$0
.	Other			#N/A	0	$0.00		$0	$0
B									
.	OBJECTIVE: COVER DUMP			#N/A	0	$0.00		$0	$0
.	till	m3		#N/A	0	$0.00		$0	$0
.	UM rock over dump	m3	816288	#N/A	3.67	$2,998,954	0%	$0	$2,998,954
.	till on caribou ramps	m3		#N/A	0	$0.00		$0	$0
.	rock cover from roads, etc.	m3		#N/A	0	$0.00		$0	$0
C	rock cover from new quarry	m3							
.	rock cover on 2.5:1 slopes, incr. cost	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg.	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg., south dump	m3		#N/A	0	$0.00		$0	$0
.	OBJECTIVE: UNDERWATER DISPOSAL			#N/A	0	$0.00		$0	$0
D	Move material	m3		#N/A	0				
	excavate LGO-OF								
.	Add lime	m3		#N/A	0	$0.00		$0	$0
E	Add crushed limestone	m3		#N/A	0				
.	Other			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
.	OBJECTIVE: COLLECT AND TREAT			#N/A	0	$0.00		$0	$0
.	See "ONGOING TREATMENT" costing component			#N/A	0	$0.00		$0	$0
F									
	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0.00		$0	$0
	Earthworks, mat'l A	m3		#N/A	0	$0.00		$0	$0
	, mat'l B	m3		#N/A	0	$0.00		$0	$0
	Vegetate, till pile	ha		#N/A	0	$0.00		$0	$0
	Other			#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	SPECIALIZED ITEMS			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	Subtotal					$3,145,553	0.0%	$0	$3,145,553
						Total for Rock Pile	Percent Land	Total Land	Total Water

1 Building / Equip Name: ____ Bldg / Equip #: *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: DISPOSE MOBILE EQUIPMENT								
	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each	20	#N/A	1000.00	$20,000	0%	$0	$20,000
.	Other	each		#N/A	0.00	$0		$0	$0
B	OBJECTIVE: DISPOSE STATIONARY EQUIPMENT			#N/A					
.	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each		#N/A	0.00	$0		$0	$0
.	Other	each		#N/A	0.00	$0		$0	$0
C	OBJECTIVE: DISPOSE ORE CONCENTRATION EQUIPME			#N/A					
.	Decontaminate crushing plant	each		#N/A	0.00	$0		$0	$0
.	Decontaminate tanks & plumb.	each		#N/A	0.00	$0		$0	$0
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
D	OBJECTIVE: DISPOSE WATER TREATMENT EQUIPMENT			#N/A					
.	Decontaminate tanks & plumb.	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
E	OBJECTIVE: DECONTAMINATE BUILDINGS & TANKS			#N/A					
.	site wide allowance	each		#N/A	0.00	$0		$0	$0
.	clean explosives facility	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
				#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
F	OBJECTIVE: MOTHBALL BUILDINGS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other	m2		#N/A	0.00	$0		$0	
G	OBJECTIVE: REMOVE BUILDINGS								
.									
	guard house	m3	225	BRS1L	35.90	$8,078	100%	$8,078	$0
	mill building	m3	64,400	BRS1H	53.86	$3,468,326	100%	$3,468,326	$0
	primary crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	pebble crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	conveyors	m3	1,920	BRS1L	35.90	$68,936	100%	$68,936	$0
	powerhouse	m3	5,460	BRS1L	35.90	$196,036	100%	$196,036	$0
	camp	m3	6,050	BRS1L	35.90	$217,219	100%	$217,219	$0
	kitchen	m3	1,200	BRS1L	35.90	$43,085	100%	$43,085	$0
.	reception	m3	400	BRS1L	35.90	$14,362	100%	$14,362	$0
.	service shop	m3	13,200	BRS1L	35.90	$473,933	100%	$473,933	$0
.	utilidor/walkways	m3	1,643	BRS1L	35.90	$58,972	100%	$58,972	$0
.	assay lab	m3	968	BRS1L	35.90	$34,755	100%	$34,755	$0
.	cold storage	m3	3,888	BRS1L	35.90	$139,595	100%	$139,595	$0
.		m3	10,800	BRS1L	35.90	$387,763	100%	$387,763	$0
.	batch plant	m3	3,150	BRS1L	35.90	$113,098	100%	$113,098	$0

1 Building / Equip Name: ____ Bldg / Equip #: *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
.	fuel tank	m3	10,598	BRS1L	35.90	$380,493	100%	$380,493	$0
H	OBJECTIVE: BREAK BASEMENT SLABS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
I	OBJECTIVE: REMOVE BURIED TANKS			#N/A					
.	Tank 1, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Tank 2, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
J	OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A					
.	Place rock cover	m3	6327	sb1l	3.26	$20,651	100%	$20,651	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Landfill disposal fee	tonne		#N/A	0.00	$0		$0	$0
K	OBJECTIVE: GRADE AND CONTOUR			#N/A					
.	Grade mill area	m2		#N/A	0.00	$0		$0	$0
.	Place soil/rock cover over building footpr	m3	39550	sb1l	3.26	$129,091	100%	$129,091	$0
.	Rip rap on ditches	m3		#N/A	0.00	$0		$0	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
L	OBJECTIVE: RECLAIM ROADS			#N/A					
		ha		#N/A	0.00	$0		$0	$0
		ha		#N/A	0.00	$0		$0	$0
	Haul roads	km	10	scfyl	3595.50	$35,955	100%	$35,955	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, PKC & dumps lease	ha		#N/A	0.00	$0		$0	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
	Service roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
.	Haul roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.	Service roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.				#N/A	0.00	$0		$0	$0
K	SPECIALIZED ITEMS			#N/A					
	RECLAIM AIRSTRIP	km	1.4	scfyl	3595.50	$5,034	100%	$5,034	$0
	YELLOWKNIFE LANDFILL DISPOSAL FEE			#N/A	0.00	$0		$0	$0
				#N/A	0.00				
				#N/A	0.00				
.				#N/A	0.00	$0		$0	$0
	Subtotal					$6,057,562	98.0%	$5,937,562	$120,000
						Total Buildings	Percent Land	Total Land	Total Water

1	Building / Equip Name:		Bldg / Equip #:	1					
	ACTIVITY/MATERIAL	**Units**	**Quantity**	**Cost Code**	**Unit Cost**	**Cost**	**% Land**	**Land Cost**	**Water Cost**

	# units	width	length	# floors	footprint area		volume	
building volumes for demolition								
guard house	1	15	15	1	225		225	m3
mill building	1	112	115	5	12880		64,400	m3
primary crusher	1	12	22	5	264		1,320	m3
pebble crusher	1	12	22	5	264		1,320	m3
conveyors	1	4	480	1	1920		1,920	m3
powerhouse	1	35	52	3	1820		5,460	
camp	11	10	55	1	6050		6,050	m3
kitchen	1	20	60	1	1200		1,200	m3
reception	1	20	20	1	400		400	m3
service shop	1	33	100	4	3300		13,200	m3
utilidor/walkways	1	4.5	365	1	1642.5		1,643	m3
assay lab	1	22	22	2	484		968	m3
cold storage	3	18	36	2	1944		3,888	m3
	4	30	45	2	5400		10,800	m3
batch plant	1	21	50	3	1050		3,150	m3
fuel tank	1	30	dia.	15	707		10,598	m3
				area	39550	volume	126,541	
	demolished volume at 25%						31635	
	cover area at 10 m ave depth						3164	
	cover volume at 2 m cover						6327	m3

1 **Chemicals and Soil Contamination:** ____ *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.								
A	LABORATORY CHEMICALS	km		mherh				$0	
.	allowance	pallet	5	LCRH	2366.4	$11,832	0%	$0	$11,832
B	PCB, hauling	litre		#N/A	0	$0		$0	$0
.	PCB, disposal	litre		#N/A	0	$0		$0	$0
C	FUEL			#N/A	0	$0		$0	$0
.	Type 1, 200 tonnes	km		#N/A	0	$0		$0	$0
.	Type 2	kg		#N/A	0	$0		$0	$0
.	Type 3	kg		#N/A	0	$0		$0	$0
D	WASTE OIL			#N/A	0				
.	Oils/lubricants - burn on-site	litre	10000	OBH	0.561	$5,610	0%	$0	$5,610
.	Oils/lubricants - ship off-site	litre		#N/A	0	$0		$0	$0
.	removal glycol	litre	1,000	#N/A	0	$0		$0	$0
E	remove batteries	kg		#N/A	0	$0		$0	$0
.	remove paints	litre		#N/A	0	$0		$0	$0
.	remove solvents	litre		#N/A	0	$0		$0	$0
.	Oils/lubricants - disposal fee	litre		#N/A	0	$0		$0	$0
.	PROCESS OR TREATMENT CHEMICALS			#N/A	0				
F	Removal of other chemicals	allow	0.5	#N/A	150000	$75,000	0%	$0	$75,000
	Type 2	kg		#N/A	0	$0		$0	$0
	Type 3	kg		#N/A	0	$0		$0	$0
	Type 4	kg		#N/A	0	$0		$0	$0
	EXPLOSIVES	kg	10000	ERH	2.244	$22,440	50%	$11,220	$11,220
		allow		#N/A	0	$0		$0	$0
	CONTAMINATED SOILS			#N/A	0				
.	Type 1, light fuel	m3	250	csrh	122.4	$30,600	50%	$15,300	$15,300
G	Type 2, heavy fuel and oil	m3	500	csrh	122.4	$61,200	50%	$30,600	$30,600
.	Type 3, metals	m3		#N/A	100	$0		$0	$0
.	Haz. Mat. testing & assessment			#N/A					
.	Technician and analyses	each	1	#N/A	20000	$20,000	50%	$10,000	$10,000
H	Drilling	each	1	#N/A	75000	$75,000	50%	$37,500	$37,500
.	Reporting		1	#N/A	20000	$20,000	50%	$10,000	$10,000
.	Other			#N/A	0	$0		$0	$0
.	OTHER			#N/A					
.	remove nuclear densometers from mill	each	4	#N/A	4000	$16,000		$0	$16,000
	Subtotal					$337,682	33.9%	$114,620	$223,062
						Total Chemical	Percent Land	Total Land	Total Water

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE EMBANKMENT								
	Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0
	, fill mat'l A	m3		#N/A	0	$0		$0	$0
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Rip rap	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	$0
	Raise crest	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: UPGRADE SPILLWAY			#N/A					
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: STABILIZE SEDIMENT CONTAINMENT PONI			#N/A					
	Place soil cover	m3		#N/A	0	$0		$0	$0
	Place geotextile	m2		#N/A	0	$0		$0	$0
	Vegetate	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	OBJECTIVE: BREACH EMBANKMENT			#N/A					
	Remove Fill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
E	OBJECTIVE: COLLECTION PONDS			#N/A					
	Breach dams	m3		#N/A	2.83	$0		$0	$0
	place geotextile,	m2		#N/A	10	$0		$0	$0
	place rock over geotextile	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
F	OBJECTIVE: BREACH DITCHES			#N/A					
	Excavate	m3		#N/A	0	$0		$0	$0
	Backfill/recontour	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	
	Other			#N/A	0	$0		$0	$0
G	OBJECTIVE: REMOVE PIPELINES			#N/A					
	Remove pipes	m		#N/A	0	$0		$0	$0
	Concrete plug deep pipes	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
H	OBJECTIVE:			#N/A					
	Excavate/construct spillway	m3		#N/A	4.83	$0		$0	$0
	Excavate & backfill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
I	OBJECTIVE: COLLECT DRAINAGE FOR TREATMENT			#N/A					
	Excavate collection ditches	m3		#N/A	0	$0		$0	$0
	Rip rap ditches	m3		#N/A	0	$0		$0	$0
	Pipes	m		#N/A	0	$0		$0	$0
	Pumps	each		#N/A	0	$0		$0	$0
	Collect'n pond, exc. mat'l A	m3		#N/A	0	$0		$0	$0
	, exc. mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, fill mat'l A	m3		#N/A	0	$0		$0	$0

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, liner	m2		#N/A	0	$0		$0	$0
J	OBJECTIVE: TREAT DRAINAGE (see "ONGOINC			#N/A					
	Build treatment plant	lump sum		#N/A	0	$0		$0	$0
				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total Water	Percent Land	Total Land	Total Water

1 **Mobilization Name:** ____ **Mob # *1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A MOBILIZE HEAVY EQUIPMENT					
Equipment to regional centre					
. allowance, 2 barge trips (in and out) to Baker La		2	#N/A	100000	$200,000
. allowance, mob from Baker Lake to mine	km	2	#N/A	25000	$50,000
. Dozers	km		#N/A	0	$0
. Demolition shears	km		#N/A	0	$0
Equipment, regional centre to site			#N/A		
. Excavators - 2	km		#N/A	0.00	$0
. Dump trucks - 15	km		#N/A	0.00	$0
. Dozers - 4	km		#N/A	0.00	$0
Demolition shears - 2			#N/A	0.00	$0
Front end loader 2			#N/A	0.00	$0
cranes - 2			#N/A	0.00	$0
service vehicles -10			#N/A	0.00	$0
.	km		#N/A		
B MOBILIZE CAMP			#N/A		
.	allowance		#N/A		$0
C MOBILIZE WORKERS			#N/A		
. air charters			#N/A	45	$0
D MOBILIZE MISC. SUPPLIES			#N/A		
. Fuel	litre		#N/A	0.78	$0
. Minor tools and equipment	owance	1	#N/A	50000	$50,000
. Truck tires	owance		#N/A	0	$0
E MOBILIZE & HOUSE WORKERS	person days		#N/A		
. 11200 man-days	month	75	accml	1346.4	$100,980
. WINTER ROAD			#N/A		
. Full winter use	km		#N/A	0	$0
. Limited winter use	km		#N/A	0	$0
.			#N/A	0	$0
F BONDING lump sum			#N/A		
.			#N/A		$0
G TAXES lump sum					
.			#N/A		$0
H INSURANCE lump sum					
.			#N/A		$0
Subtotal					$400,980
					Total Mob.

Equipment Mobilization	# of machines	loads/machine	round trip km	total road mileage
excavator	2	3	800	4800
dump trucks	15	10	800	120000
dozers	4	5	800	16000
demolition shears	2	6	800	9600
front end loader	2	3	800	4800
cranes	2	1	800	1600
service vehicles	10	2	800	16000

1 Monitoring & Maintenance   Mon / Mtce # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A	OBJECTIVE: POST-CLOSURE INSPECTIONS					
	Annual geotechnical insp.	each	8	#N/A	$10,000	$80,000
.	Survey inspection	each		#N/A	$0	$0
.	Water sampling	yrs	8	#N/A	$75,000	$600,000
.	Reporting	yrs	8	#N/A	$20,000	$160,000
.	Other			#N/A	$0	$0
B	OBJECTIVE: INTERIM CARE & MAINTENANCE			#N/A		
.	annual C&M	yrs		#N/A	$0	$0
.		month		#N/A		$0
.		month		#N/A	$0	$0
.		each		#N/A	$0	$0
.		allowance		#N/A		
				#N/A		$0
	Subtotal					$840,000
						Total Mon./Maint.

1 Post-Closure Site Maintenance

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	WATER TREATMENT								
	Total annual cost, unit cost from Ongoing Water Treatment				0	$0		$0	$0
B	Cover Maintenance								
	Repair erosion, remove trees	ha		#N/A	0	$0		$0	$0
C	Spillway Maintenance			#N/A					
	Repair erosion	m3		#N/A	0	$0		$0	$0
	Clear spillway	each		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	Other			#N/A					
								$0	$0
								$0	
	Subtotal, Annual post-closure costs					$0		$0	$0
	Discount rate for calculation of net present value of post-closu			3.00%				$0	
	Number of years of post-closure activity			0	years			$0	
	Present Value of payment stream					$0	#DIV/0!	$0	$0
						Total Post closure	Percent Land	Total Land	Total Water

SUMMARY OF COSTS

			YEAR	5
COMPONENT TYPE	**COMPONENT NAME**	**TOTAL COST**	**Land Liability**	**Water Liability**
OPEN PIT	0	$2,351,435	$2,081	$2,349,354
UNDERGROUND MINE	0	$0.00	$0	$0
TAILINGS	0	$6,613,005.14	$1,653,251	$4,959,754
ROCK PILE	0	$4,169,929.74	$4,335	$4,165,595
BUILDINGS AND EQUIPMENT	0	$6,057,561.54	$5,937,562	$120,000
CHEMICALS AND SOIL MANAGEMENT	0	$538,754.00	$160,520	$378,234
WATER MANAGEMENT	0	$0.00	$0	$0
POST-CLOSURE SITE MAINTENANCE		$0.00	$0	$0
SUBTOTAL		**$19,730,685**	**$7,757,749**	**$11,972,937**
		Percentages	39.3	60.7
MOBILIZATION/DEMOBILIZATION	0	$601,594	$236,536	$365,058
MONITORING AND MAINTENANCE	0	$840,000	$330,273	$509,727
Market Factor Price Adjustment	0 %	$0	$0	$0
PROJECT MANAGEMENT	5 %	$986,534	$387,887	$598,647
ENGINEERING	5 %	$986,534	$387,887	$598,647
CONTINGENCY	15 %	$2,959,603	$1,163,662	$1,795,941
GRAND TOTAL - CAPITAL COSTS		**$26,104,950**	**$10,263,994**	**$15,840,956**

1 **Open Pit Name:** ____ **Pit #** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm at Portage east side	m3	2400	drl	0.867	$2,081	100%	$2,081	$0
B	Block roads	m3		#N/A					
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE SLOPES			#N/A	0	$0		$0	$0
	excavate 2 breaches in dike	m3		#N/A	0	$0		$0	$0
	break concrete guides & wall	m3		#N/A	0	$0		$0	$0
.	construct fish habitat	m3		#N/A	0	$0		$0	$0
.		m3		#N/A	0	$0		$0	$0
C	breach Portage dike, till excavation	m3		SB2L	4.0596	$0	0%	$0	$0
	breach Portage dike,rock excavation	m3		SB2L	4.0596	$0	0%	$0	$0
.	breach Goose dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Goose dike, rock excavation	m	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	breach Vault dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Vault dike, rock excavation	m3	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	construct fish habitat	m3		SB2L	4.0596	$0		$0	$0
		kWh		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A					
.	OBJECTIVE: COVER/CONTOUR SLOPES			#N/A	0	$0		$0	$0
.	Fill, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
E	Other			#N/A	0				
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	0	$0		$0	$0
	, mat'l B	m3		#N/A	0			$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
F				#N/A					
.	OBJECTIVE: FLOOD PIT			#N/A	0	$0		$0	$0
.	pump water into Portage pit	m3	33040000	#N/A	0.02	$660,800	0%	$0	$660,800
	pump water into Goose pit	m3	13212000	#N/A	0.02	$264,240	0%	$0	$264,240
.	pump water into Vault pit	m3	13705000	#N/A	0.02	$274,100	0%	$0	$274,100
H	annual mob/demob to site, only for years after main reclamation complete	yrs	8	#N/A	50000	$400,000	0%	$0	$400,000
	siphon installation/operation	each		#N/A	0	$0		$0	$0
	remove pipes,wires etc	each		#N/A	0			$0	$0
	make milk of lime, meter into pit	tonne		#N/A	0	$0		$0	$0

1 **Open Pit Name:** ____ **Pit #** ***1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	tonne		ilmh	504.9	$0		$0	$0
	km		mherh	8.5884	$0		$0	$0
OBJECTIVE: BACKFILL PIT			#N/A	0	$0		$0	$0
Fill, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Vegetate	ha		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$2,351,435 Total Pits	0% Percent Land	$2,081 Total Land	$2,349,354 Total Water

1 Underground Mine Name ____ UG Mine # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block adits	m3		#N/A	0	$0		$0	$0
.	Cap shaft	m3		#N/A	0	$0		$0	$0
.	Cap raises at A154/A418	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap	m3		#N/A	0	$0		$0	$0
.	Cap raises at A 21	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap			#N/A	0	$0		$0	$0
.	Backfill adit A154	m3		#N/A	0	$0		$0	$0
	Contour portal area, A154	m3		#N/A	0	$0		$0	$0
.	Backfill adit, A21	m3		#N/A	0	$0		$0	$0
	Contour portal area, A21			#N/A	0	$0		$0	$0
.	concrete bulkhead, pit portal, A154	allow		#N/A	75000	$0		$0	$0
.	concrete bulkhead, pit portal, A21	allow		#N/A	75000	$0		$0	$0
.	Backfill open stopes	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: STABILIZE GROUND SURFACE			#N/A					
.	Backfill mine	m3		#N/A	0	$0		$0	$0
.	Collapse crown pillar	m3		#N/A	0	$0		$0	$0
.	Contour, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Maintain dewatering (see "MONITORING/MAINTENANCE" c			#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: FLOOD MINE			#N/A					
.	Plug adits	m3		#N/A	0	$0		$0	$0
.	Plug drillholes to surface	each		#N/A	0	$0		$0	$0
.	Grouting	m3		#N/A	0	$0		$0	$0
.	LIme addition, kg/m3 of water	tonne		#N/A	0	$0		$0	$0
.	Lime, purchase and shipping	tonne		#N/A	0	$0		$0	$0
D	OBJECTIVE: HAZARDOUS MATERIALS			#N/A					
.	remove hazardous materials, LABOUR	each		#N/A	0	$0		$0	$0
.	remove/decontam. Equipment, electrical	each		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
E	SPECIALIZED ITEMS			#N/A					
.				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total U/G	Percent Land	Total Land	Total Water

1 ings Impoundment Name: ____ **Impoundment #** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block roads	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE EMBANKMENT			#N/A	0	$0		$0	$0
.	breach east dam	m3		#N/A	0	$0		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
.	Raise crest	m3		#N/A	0	$0		$0	$0
.	Flatten slopes	m3		#N/A	0	$0		$0	$0
C	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: COVER TAILINGS			#N/A	0	$0		$0	$0
	cover material A	m3	1800000	#N/A	3.67	$6,613,005	25%	$1,653,251	$4,959,754
.	cover material B	m3		#N/A	0.5	$0		$0	$0
.	cover material C	m3		#N/A	3.6	$0		$0	$0
D		m3		#N/A					
.		m3		#N/A	8.25	$0		$0	$0
.	Soil cover, till	m3		#N/A	4.46	$0		$0	$0
.	Cover rock from dump	m3		#N/A	3.6	$0		$0	$0
.	Cover rock from roads	m3		#N/A		$0		$0	$0
E	Cover rock from new quarry	m3		#N/A					
.	Remove & treat supernatant	m3		#N/A	0.25	$0		$0	$0
.	OBJECTIVE: FLOOD TAILINGS			#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
F	Raise crest	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
.	Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
G	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: UPGRADE SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	10.6	$0		$0	$0
H	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	5.65	$0		$0	$0
.	geotextile over ice rich soil	m2		#N/A	10	$0		$0	$0
I				#N/A	0	$0		$0	$0

1 ings Impoundment Name: ____ Impoundment # *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: STABILIZE DECANT SYSTEM			#N/A	0	$0		$0	$0
Remove	m3		#N/A	0	$0		$0	$0
Plug/backfill	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: REMOVE TAILINGS DISCHARGE			#N/A	0	$0		$0	$0
Cyclones	m3		#N/A	0	$0		$0	$0
Pipe	m		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$6,613,005	0.25	$1,653,251	$4,959,754
					Total Tailings	Percent Land	Total Land	Total Water

1 **Rock Pile Name:** ______ **Rock Pile #:** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE SLOPES								
	Flatten slopes with dozer, Portage	m3	315900	drl	0.867	$273,885	0%	$0	$273,885
.	Flatten slopes with dozer, Vault	m3	5000	drl	0.867	$4,335	100%	$4,335	$0
.	Flatten slopes with dozer,	m3		#N/A	0	$0.00		$0	$0
.	Toe buttress, drain mat'l	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0.00		$0	$0
.	Other			#N/A	0	$0.00		$0	$0
B									
.	OBJECTIVE: COVER DUMP			#N/A	0	$0.00		$0	$0
.	till	m3		#N/A	0	$0.00		$0	$0
.	UM rock over dump	m3	1059288	#N/A	3.67	$3,891,709	0%	$0	$3,891,709
.	till on caribou ramps	m3		#N/A	0	$0.00		$0	$0
.	rock cover from roads, etc.	m3		#N/A	0	$0.00		$0	$0
C	rock cover from new quarry	m3							
.	rock cover on 2.5:1 slopes, incr. cost	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg.	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg., south dump	m3		#N/A	0	$0.00		$0	$0
.	OBJECTIVE: UNDERWATER DISPOSAL			#N/A	0	$0.00		$0	$0
D	Move material	m3		#N/A	0				
	excavate LGO-OF								
.	Add lime	m3		#N/A	0	$0.00		$0	$0
E	Add crushed limestone	m3		#N/A	0				
.	Other			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
.	OBJECTIVE: COLLECT AND TREAT			#N/A	0	$0.00		$0	$0
.	See "ONGOING TREATMENT" costing component			#N/A	0	$0.00		$0	$0
F									
	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0.00		$0	$0
	Earthworks, mat'l A	m3		#N/A	0	$0.00		$0	$0
	, mat'l B	m3		#N/A	0	$0.00		$0	$0
	Vegetate, till pile	ha		#N/A	0	$0.00		$0	$0
	Other			#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	SPECIALIZED ITEMS			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	Subtotal					$4,169,930	0.1%	$4,335	$4,165,595
						Total for Rock Pile	Percent Land	Total Land	Total Water

1 **Building / Equip Name:** ____ **Bldg / Equip #:** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: DISPOSE MOBILE EQUIPMENT								
	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each	20	#N/A	1000.00	$20,000	0%	$0	$20,000
.	Other	each		#N/A	0.00	$0		$0	$0
B	OBJECTIVE: DISPOSE STATIONARY EQUIPMENT			#N/A					
.	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each		#N/A	0.00	$0		$0	$0
.	Other	each		#N/A	0.00	$0		$0	$0
C	OBJECTIVE: DISPOSE ORE CONCENTRATION EQUIPMEI			#N/A					
.	Decontaminate crushing plant	each		#N/A	0.00	$0		$0	$0
.	Decontaminate tanks & plumb.	each		#N/A	0.00	$0		$0	$0
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
D	OBJECTIVE: DISPOSE WATER TREATMENT EQUIPMENT			#N/A					
.	Decontaminate tanks & plumb.	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
E	OBJECTIVE: DECONTAMINATE BUILDINGS & TANKS			#N/A					
.	site wide allowance	each		#N/A	0.00	$0		$0	$0
.	clean explosives facility	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
				#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
F	OBJECTIVE: MOTHBALL BUILDINGS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other	m2		#N/A	0.00	$0		$0	
G	OBJECTIVE: REMOVE BUILDINGS								
.									
	guard house	m3	225	BRS1L	35.90	$8,078	100%	$8,078	$0
	mill building	m3	64,400	BRS1H	53.86	$3,468,326	100%	$3,468,326	$0
	primary crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	pebble crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	conveyors	m3	1,920	BRS1L	35.90	$68,936	100%	$68,936	$0
	powerhouse	m3	5,460	BRS1L	35.90	$196,036	100%	$196,036	$0
	camp	m3	6,050	BRS1L	35.90	$217,219	100%	$217,219	$0
	kitchen	m3	1,200	BRS1L	35.90	$43,085	100%	$43,085	$0
.	reception	m3	400	BRS1L	35.90	$14,362	100%	$14,362	$0
.	service shop	m3	13,200	BRS1L	35.90	$473,933	100%	$473,933	$0
.	utilidor/walkways	m3	1,643	BRS1L	35.90	$58,972	100%	$58,972	$0
.	assay lab	m3	968	BRS1L	35.90	$34,755	100%	$34,755	$0
.	cold storage	m3	3,888	BRS1L	35.90	$139,595	100%	$139,595	$0
.		m3	10,800	BRS1L	35.90	$387,763	100%	$387,763	$0
.	batch plant	m3	3,150	BRS1L	35.90	$113,098	100%	$113,098	$0

1 **Building / Equip Name:** ____ **Bldg / Equip #:** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
.	fuel tank	m3	10,598	BRS1L	35.90	$380,493	100%	$380,493	$0
H	OBJECTIVE: BREAK BASEMENT SLABS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
I	OBJECTIVE: REMOVE BURIED TANKS			#N/A					
.	Tank 1, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Tank 2, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
J	OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A					
.	Place rock cover	m3	6327	sb1l	3.26	$20,651	100%	$20,651	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Landfill disposal fee	tonne		#N/A	0.00	$0		$0	$0
K	OBJECTIVE: GRADE AND CONTOUR			#N/A					
.	Grade mill area	m2		#N/A	0.00	$0		$0	$0
.	Place soil/rock cover over building footpr	m3	39550	sb1l	3.26	$129,091	100%	$129,091	$0
.	Rip rap on ditches	m3		#N/A	0.00	$0		$0	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
L	OBJECTIVE: RECLAIM ROADS			#N/A					
		ha		#N/A	0.00	$0		$0	$0
		ha		#N/A	0.00	$0		$0	$0
	Haul roads	km	10	scfyl	3595.50	$35,955	100%	$35,955	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, PKC & dumps lease	ha		#N/A	0.00	$0		$0	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
	Service roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
.	Haul roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.	Service roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.				#N/A	0.00	$0		$0	$0
K	SPECIALIZED ITEMS			#N/A					
	RECLAIM AIRSTRIP	km	1.4	scfyl	3595.50	$5,034	100%	$5,034	$0
	YELLOWKNIFE LANDFILL DISPOSAL FEE			#N/A	0.00	$0		$0	$0
				#N/A	0.00				
				#N/A	0.00				
.				#N/A	0.00	$0		$0	$0
	Subtotal					$6,057,562	98.0%	$5,937,562	$120,000
						Total Buildings	Percent Land	Total Land	Total Water

1 Building / Equip Name: ____ Bldg / Equip #: *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost

	# units	width	length	# floors	footprint area		volume	
building volumes for demolition								
guard house	1	15	15	1	225		225	m3
mill building	1	112	115	5	12880		64,400	m3
primary crusher	1	12	22	5	264		1,320	m3
pebble crusher	1	12	22	5	264		1,320	m3
conveyors	1	4	480	1	1920		1,920	m3
powerhouse	1	35	52	3	1820		5,460	
camp	11	10	55	1	6050		6,050	m3
kitchen	1	20	60	1	1200		1,200	m3
reception	1	20	20	1	400		400	m3
service shop	1	33	100	4	3300		13,200	m3
utilidor/walkways	1	4.5	365	1	1642.5		1,643	m3
assay lab	1	22	22	2	484		968	m3
cold storage	3	18	36	2	1944		3,888	m3
	4	30	45	2	5400		10,800	m3
batch plant	1	21	50	3	1050		3,150	m3
fuel tank	1	30	dia.	15	707		10,598	m3
				area	39550	volume	126,541	
	demolished volume at 25%						31635	
	cover area at 10 m ave depth						3164	
	cover volume at 2 m cover						6327	m3

1 **Chemicals and Soil Contamination:** 1

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	Note: The procedures, equipment and packaging for clean up anc removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have								
.	been conducted.								
A	LABORATORY CHEMICALS	km		mherh				$0	
.	allowance	pallet	10	LCRH	2366.4	$23,664	0%	$0	$23,664
B	PCB, hauling	litre		#N/A	0	$0		$0	$0
.	PCB, disposal	litre		#N/A	0	$0		$0	$0
C	FUEL			#N/A	0	$0		$0	$0
.	Type 1, 200 tonnes	km		#N/A	0	$0		$0	$0
.	Type 2	kg		#N/A	0	$0		$0	$0
.	Type 3	kg		#N/A	0	$0		$0	$0
D	WASTE OIL			#N/A	0				
.	Oils/lubricants - burn on-site	litre	50000	OBH	0.561	$28,050	0%	$0	$28,050
.	Oils/lubricants - ship off-site	litre		#N/A	0	$0		$0	$0
.	removal glycol	litre	1,000	#N/A	0	$0		$0	$0
E	remove batteries	kg		#N/A	0	$0		$0	$0
.	remove paints	litre		#N/A	0	$0		$0	$0
.	remove solvents	litre		#N/A	0	$0		$0	$0
.	Oils/lubricants - disposal fee	litre		#N/A	0	$0		$0	$0
.	PROCESS OR TREATMENT CHEMICALS			#N/A	0				
F	Removal of other chemicals	allow	1	#N/A	150000	$150,000	0%	$0	$150,000
	Type 2	kg		#N/A	0	$0		$0	$0
	Type 3	kg		#N/A	0	$0		$0	$0
	Type 4	kg		#N/A	0	$0		$0	$0
	EXPLOSIVES	kg	10000	ERH	2.244	$22,440	50%	$11,220	$11,220
		allow		#N/A	0	$0		$0	$0
	CONTAMINATED SOILS			#N/A	0				
.	Type 1, light fuel	m3	500	csrh	122.4	$61,200	50%	$30,600	$30,600
G	Type 2, heavy fuel and oil	m3	1000	csrh	122.4	$122,400	50%	$61,200	$61,200
.	Type 3, metals	m3		#N/A	100	$0		$0	$0
.	Haz. Mat. testing & assessment			#N/A					
.	Technician and analyses	each	1	#N/A	20000	$20,000	50%	$10,000	$10,000
H	Drilling	each	1	#N/A	75000	$75,000	50%	$37,500	$37,500
.	Reporting		1	#N/A	20000	$20,000	50%	$10,000	$10,000
.	Other			#N/A	0	$0		$0	$0
.	OTHER			#N/A					
.	remove nuclear densometers from mill	each	4	#N/A	4000	$16,000		$0	$16,000
	Subtotal					$538,754	29.8%	$160,520	$378,234
						Total Chemical	Percent Land	Total Land	Total Water

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE EMBANKMENT								
	Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0
	, fill mat'l A	m3		#N/A	0	$0		$0	$0
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Rip rap	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	$0
	Raise crest	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: UPGRADE SPILLWAY			#N/A					
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: STABILIZE SEDIMENT CONTAINMENT PONI			#N/A					
	Place soil cover	m3		#N/A	0	$0		$0	$0
	Place geotextile	m2		#N/A	0	$0		$0	$0
	Vegetate	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	OBJECTIVE: BREACH EMBANKMENT			#N/A					
	Remove Fill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
E	OBJECTIVE: COLLECTION PONDS			#N/A					
	Breach dams	m3		#N/A	2.83	$0		$0	$0
	place geotextile,	m2		#N/A	10	$0		$0	$0
	place rock over geotextile	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
F	OBJECTIVE: BREACH DITCHES			#N/A					
	Excavate	m3		#N/A	0	$0		$0	$0
	Backfill/recontour	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	
	Other			#N/A	0	$0		$0	$0
G	OBJECTIVE: REMOVE PIPELINES			#N/A					
	Remove pipes	m		#N/A	0	$0		$0	$0
	Concrete plug deep pipes	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
H	OBJECTIVE:			#N/A					
	Excavate/construct spillway	m3		#N/A	4.83	$0		$0	$0
	Excavate & backfill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
I	OBJECTIVE: COLLECT DRAINAGE FOR TREATMENT			#N/A					
	Excavate collection ditches	m3		#N/A	0	$0		$0	$0
	Rip rap ditches	m3		#N/A	0	$0		$0	$0
	Pipes	m		#N/A	0	$0		$0	$0
	Pumps	each		#N/A	0	$0		$0	$0
	Collect'n pond, exc. mat'l A	m3		#N/A	0	$0		$0	$0
	, exc. mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, fill mat'l A	m3		#N/A	0	$0		$0	$0

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, liner	m2		#N/A	0	$0		$0	$0
J	OBJECTIVE: TREAT DRAINAGE (see "ONGOINC			#N/A					
	Build treatment plant	lump sum		#N/A	0	$0		$0	$0
				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total Water	Percent Land	Total Land	Total Water

1 Mobilization Name: ____ Mob # *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A MOBILIZE HEAVY EQUIPMENT					
Equipment to regional centre					
. allowance, 2 barge trips (in and out) to Baker La		2	#N/A	100000	$200,000
. allowance, mob from Baker Lake to mine	km	2	#N/A	25000	$50,000
. Dozers	km		#N/A	0	$0
. Demolition shears	km		#N/A	0	$0
Equipment, regional centre to site			#N/A		
. Excavators - 2	km		#N/A	0.00	$0
. Dump trucks - 15	km		#N/A	0.00	$0
. Dozers - 4	km		#N/A	0.00	$0
Demolition shears - 2			#N/A	0.00	$0
Front end loader 2			#N/A	0.00	$0
cranes - 2			#N/A	0.00	$0
service vehicles -10			#N/A	0.00	$0
.	km		#N/A		
B MOBILIZE CAMP			#N/A		
.	allowance		#N/A		$0
C MOBILIZE WORKERS			#N/A		
. air charters			#N/A	45	$0
D MOBILIZE MISC. SUPPLIES			#N/A		
. Fuel	litre		#N/A	0.78	$0
. Minor tools and equipment	owance	1	#N/A	50000	$50,000
. Truck tires	owance		#N/A	0	$0
E MOBILIZE & HOUSE WORKERS	person days		#N/A		
. 11200 man-days	month	224	accml	1346.4	$301,594
. WINTER ROAD			#N/A		
. Full winter use	km		#N/A	0	$0
. Limited winter use	km		#N/A	0	$0
.			#N/A	0	$0
F BONDING	lump sum		#N/A		
.			#N/A		$0
G TAXES	lump sum				
.			#N/A		$0
H INSURANCE	lump sum				
.			#N/A		$0
Subtotal					$601,594
					Total Mob.

Equipment Mobilization	# of machines	loads/machine	round trip km	total road mileage
excavator	2	3	800	4800
dump trucks	15	10	800	120000
dozers	4	5	800	16000
demolition shears	2	6	800	9600
front end loader	2	3	800	4800
cranes	2	1	800	1600
service vehicles	10	2	800	16000

1 Monitoring & Maintenance Mon / Mtce # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A	OBJECTIVE: POST-CLOSURE INSPECTIONS					
	Annual geotechnical insp.	each	8	#N/A	$10,000	$80,000
.	Survey inspection	each		#N/A	$0	$0
.	Water sampling	yrs	8	#N/A	$75,000	$600,000
.	Reporting	yrs	8	#N/A	$20,000	$160,000
.	Other			#N/A	$0	$0
B	OBJECTIVE: INTERIM CARE & MAINTENANCE			#N/A		
.	annual C&M	yrs		#N/A	$0	$0
.		month		#N/A		$0
.		month		#N/A	$0	$0
.		each		#N/A	$0	$0
.		allowance		#N/A		
				#N/A		$0
	Subtotal					$840,000

Total Mon./Maint.

1 Post-Closure Site Maintenance

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	WATER TREATMENT								
	Total annual cost, unit cost from Ongoing Water Treatment				0	$0		$0	$0
B	Cover Maintenance								
	Repair erosion, remove trees	ha		#N/A	0	$0		$0	$0
C	Spillway Maintenance			#N/A					
	Repair erosion	m3		#N/A	0	$0		$0	$0
	Clear spillway	each		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	Other			#N/A					
								$0	$0
								$0	
	Subtotal, Annual post-closure costs					$0		$0	$0
	Discount rate for calculation of net present value of post-closu			3.00%				$0	
	Number of years of post-closure activity			0	years			$0	
	Present Value of payment stream					$0	#DIV/0!	$0	$0
						Total Post closure	Percent Land	Total Land	Total Water

SUMMARY OF COSTS

			YEAR 8	
COMPONENT TYPE	**COMPONENT NAME**	**TOTAL COST**	**Land Liability**	**Water Liability**
OPEN PIT	0	$2,441,495	$2,081	$2,439,414
UNDERGROUND MINE	0	$0.00	$0	$0
TAILINGS	0	$20,573,793.76	$5,143,448	$15,430,345
ROCK PILE	0	$4,174,264.74	$145,613	$4,028,652
BUILDINGS AND EQUIPMENT	0	$6,057,561.54	$5,937,562	$120,000
CHEMICALS AND SOIL MANAGEMENT	0	$538,754.00	$160,520	$378,234
WATER MANAGEMENT	0	$0.00	$0	$0
POST-CLOSURE SITE MAINTENANCE		$0.00	$0	$0
SUBTOTAL		**$33,785,869**	**$11,389,223**	**$22,396,645**
		Percentages	33.7	66.3
MOBILIZATION/DEMOBILIZATION	0	$802,207	$270,424	$531,783
MONITORING AND MAINTENANCE	0	$840,000	$283,164	$556,836
Market Factor Price Adjustment	0 %	$0	$0	$0
PROJECT MANAGEMENT	5 %	$1,689,293	$569,461	$1,119,832
ENGINEERING	5 %	$1,689,293	$569,461	$1,119,832
CONTINGENCY	15 %	$5,067,880	$1,708,384	$3,359,497
GRAND TOTAL - CAPITAL COSTS		**$43,874,543**	**$14,790,118**	**$29,084,426**

1	Open Pit Name:			Pit # 1					
	ACTIVITY/MATERIAL	**Units**	**Quantity**	**Cost Code**	**Unit Cost**	**Cost**	**% Land**	**Land Cost**	**Water Cost**
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm at Portage east side	m3	2400	drl	0.867	$2,081	100%	$2,081	$0
B	Block roads	m3		#N/A					
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE SLOPES			#N/A	0	$0		$0	$0
	excavate 2 breaches in dike	m3		#N/A	0	$0		$0	$0
	break concrete guides & wall	m3		#N/A	0	$0		$0	$0
.	construct fish habitat	m3		#N/A	0	$0		$0	$0
.		m3		#N/A	0	$0		$0	$0
C	breach Portage dike, till excavation	m3		SB2L	4.0596	$0	0%	$0	$0
	breach Portage dike,rock excavation	m3		SB2L	4.0596	$0	0%	$0	$0
.	breach Goose dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Goose dike, rock excavation	m	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	breach Vault dike, till excavation	m3	36000	SB2L	4.0596	$146,146	0%	$0	$146,146
	breach Vault dike, rock excavation	m3	56400	SB2L	4.0596	$228,961	0%	$0	$228,961
.	construct fish habitat	m3		SB2L	4.0596	$0		$0	$0
		kWh		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A					
.	OBJECTIVE: COVER/CONTOUR SLOPES			#N/A	0	$0		$0	$0
.	Fill, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
E	Other			#N/A	0				
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	0	$0		$0	$0
	, mat'l B	m3		#N/A	0			$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
F				#N/A					
.	OBJECTIVE: FLOOD PIT			#N/A	0	$0		$0	$0
.	pump water into Portage pit	m3	31580000	#N/A	0.02	$631,600	0%	$0	$631,600
	pump water into Goose pit	m3	11808000	#N/A	0.02	$236,160	0%	$0	$236,160
.	pump water into Vault pit	m3	28572000	#N/A	0.02	$571,440	0%	$0	$571,440
H	annual mob/demob to site, only for years after main reclamation complete	yrs	5	#N/A	50000	$250,000	0%	$0	$250,000
	siphon installation/operation	each		#N/A	0	$0		$0	$0
	remove pipes,wires etc	each		#N/A	0			$0	$0
	make milk of lime, meter into pit	tonne		#N/A	0	$0		$0	$0

1 **Open Pit Name:** ____ **Pit # *1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	tonne		ilmh	504.9	$0		$0	$0
	km		mherh	8.5884	$0		$0	$0
OBJECTIVE: BACKFILL PIT			#N/A	0	$0		$0	$0
Fill, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
, mat'l B	m3		#N/A	0	$0		$0	$0
Vegetate	ha		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$2,441,495	0%	$2,081	$2,439,414
					Total Pits	Percent Land	Total Land	Total Water

1 Underground Mine Name ____ UG Mine # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block adits	m3		#N/A	0	$0		$0	$0
.	Cap shaft	m3		#N/A	0	$0		$0	$0
.	Cap raises at A154/A418	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap	m3		#N/A	0	$0		$0	$0
.	Cap raises at A 21	m3		#N/A	0	$0		$0	$0
	soil cover on raise cap			#N/A	0	$0		$0	$0
.	Backfill adit A154	m3		#N/A	0	$0		$0	$0
	Contour portal area, A154	m3		#N/A	0	$0		$0	$0
.	Backfill adit, A21	m3		#N/A	0	$0		$0	$0
	Contour portal area, A21			#N/A	0	$0		$0	$0
.	concrete bulkhead, pit portal, A154	allow		#N/A	75000	$0		$0	$0
.	concrete bulkhead, pit portal, A21	allow		#N/A	75000	$0		$0	$0
.	Backfill open stopes	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: STABILIZE GROUND SURFACE			#N/A					
.	Backfill mine	m3		#N/A	0	$0		$0	$0
.	Collapse crown pillar	m3		#N/A	0	$0		$0	$0
.	Contour, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Maintain dewatering (see "MONITORING/MAINTENANCE" c			#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: FLOOD MINE			#N/A					
.	Plug adits	m3		#N/A	0	$0		$0	$0
.	Plug drillholes to surface	each		#N/A	0	$0		$0	$0
.	Grouting	m3		#N/A	0	$0		$0	$0
.	LIme addition, kg/m3 of water	tonne		#N/A	0	$0		$0	$0
.	Lime, purchase and shipping	tonne		#N/A	0	$0		$0	$0
D	OBJECTIVE: HAZARDOUS MATERIALS			#N/A					
.	remove hazardous materials, LABOUR	each		#N/A	0	$0		$0	$0
.	remove/decontam. Equipment, electrical	each		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
E	SPECIALIZED ITEMS			#N/A					
.				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total U/G	Percent Land	Total Land	Total Water

1 ings Impoundment Name: ____ Impoundment # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: CONTROL ACCESS								
	Fence	m		#N/A	0	$0		$0	$0
.	Signs	each		#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Berm	m3		#N/A	0	$0		$0	$0
.	Block roads	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
B				#N/A	0	$0		$0	$0
.	OBJECTIVE: STABILIZE EMBANKMENT			#N/A	0	$0		$0	$0
.	breach east dam	m3		#N/A	0	$0		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
.	Raise crest	m3		#N/A	0	$0		$0	$0
.	Flatten slopes	m3		#N/A	0	$0		$0	$0
C	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: COVER TAILINGS			#N/A	0	$0		$0	$0
	1,400,000 m2 x 4 m thick	m3	5600000	#N/A	3.67	$20,573,794	25%	$5,143,448	$15,430,345
.	cover material B	m3		#N/A	0.5	$0		$0	$0
.	cover material C	m3		#N/A	3.6	$0		$0	$0
D		m3		#N/A					
.		m3		#N/A	8.25	$0		$0	$0
.	Soil cover, till	m3		#N/A	4.46	$0		$0	$0
.	Cover rock from dump	m3		#N/A	3.6	$0		$0	$0
.	Cover rock from roads	m3		#N/A		$0		$0	$0
E	Cover rock from new quarry	m3		#N/A					
.	Remove & treat supernatant	m3		#N/A	0.25	$0		$0	$0
.	OBJECTIVE: FLOOD TAILINGS			#N/A	0	$0		$0	$0
.	Ditch, mat'l A	m3		#N/A	0	$0		$0	$0
.	, mat'l B	m3		#N/A	0	$0		$0	$0
F	Raise crest	m3		#N/A	0	$0		$0	$0
.	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0		$0	$0
.	Earthworks, mat'l A	m3		#N/A	0	$0		$0	$0
.	Vegetate	ha		#N/A	0	$0		$0	$0
G	Other			#N/A	0	$0		$0	$0
.				#N/A	0	$0		$0	$0
.	OBJECTIVE: UPGRADE SPILLWAY			#N/A	0	$0		$0	$0
.	Excavate channel, mat'l A	m3		#N/A	10.6	$0		$0	$0
H	, mat'l B	m3		#N/A	0	$0		$0	$0
.	Concrete	m3		#N/A	0	$0		$0	$0
.	Rip rap	m3		#N/A	5.65	$0		$0	$0
.	geotextile over ice rich soil	m2		#N/A	10	$0		$0	$0
I				#N/A	0	$0		$0	$0

1 ings Impoundment Name: ____ Impoundment # *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
OBJECTIVE: STABILIZE DECANT SYSTEM			#N/A	0	$0		$0	$0
Remove	m3		#N/A	0	$0		$0	$0
Plug/backfill	m3		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
OBJECTIVE: REMOVE TAILINGS DISCHARGE			#N/A	0	$0		$0	$0
Cyclones	m3		#N/A	0	$0		$0	$0
Pipe	m		#N/A	0	$0		$0	$0
Other			#N/A	0	$0		$0	$0
			#N/A	0	$0		$0	$0
SPECIALIZED ITEMS			#N/A	0	$0		$0	$0
.			#N/A	0	$0		$0	$0
Subtotal					$20,573,794	0.25	$5,143,448	$15,430,345
					Total Tailings	Percent Land	Total Land	Total Water

1 Rock Pile Name: ______ Rock Pile #: *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE SLOPES								
	Flatten slopes with dozer, Portage	m3	315900	drl	0.867	$273,885	50%	$136,943	$136,943
.	Flatten slopes with dozer, Vault	m3	10000	drl	0.867	$8,670	100%	$8,670	$0
.	Flatten slopes with dozer,	m3		#N/A	0	$0.00		$0	$0
.	Toe buttress, drain mat'l	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l A	m3		#N/A	0	$0.00		$0	$0
.	, fill mat'l B	m3		#N/A	0	$0.00		$0	$0
.	Other			#N/A	0	$0.00		$0	$0
B									
.	OBJECTIVE: COVER DUMP			#N/A	0	$0.00		$0	$0
.	till	m3		#N/A	0	$0.00		$0	$0
.	UM rock over dump	m3	1059288	#N/A	3.67	$3,891,709	0%	$0	$3,891,709
.	till on caribou ramps	m3		#N/A	0	$0.00		$0	$0
.	rock cover from roads, etc.	m3		#N/A	0	$0.00		$0	$0
C	rock cover from new quarry	m3							
.	rock cover on 2.5:1 slopes, incr. cost	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg.	m3		#N/A	0	$0.00		$0	$0
.	till islands for reveg., south dump	m3		#N/A	0	$0.00		$0	$0
.	OBJECTIVE: UNDERWATER DISPOSAL			#N/A	0	$0.00		$0	$0
D	Move material	m3		#N/A	0				
	excavate LGO-OF								
.	Add lime	m3		#N/A	0	$0.00		$0	$0
E	Add crushed limestone	m3		#N/A	0				
.	Other			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
.	OBJECTIVE: COLLECT AND TREAT			#N/A	0	$0.00		$0	$0
.	See "ONGOING TREATMENT" costing component			#N/A	0	$0.00		$0	$0
F									
	OBJECTIVE: DEVELOP WETLAND			#N/A	0	$0.00		$0	$0
	Earthworks, mat'l A	m3		#N/A	0	$0.00		$0	$0
	, mat'l B	m3		#N/A	0	$0.00		$0	$0
	Vegetate, till pile	ha		#N/A	0	$0.00		$0	$0
	Other			#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	SPECIALIZED ITEMS			#N/A	0	$0.00		$0	$0
.				#N/A	0	$0.00		$0	$0
				#N/A	0	$0.00		$0	$0
	Subtotal					$4,174,265	3.5%	$145,613	$4,028,652
						Total for Rock Pile	Percent Land	Total Land	Total Water

1 **Building / Equip Name:** ____ **Bldg / Equip #:** ***1***

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: DISPOSE MOBILE EQUIPMENT								
	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each	20	#N/A	1000.00	$20,000	0%	$0	$20,000
.	Other	each		#N/A	0.00	$0		$0	$0
B	OBJECTIVE: DISPOSE STATIONARY EQUIPMENT			#N/A					
.	Decontaminate and ship off-site	km		#N/A	0.00	$0		$0	$0
.	Decontaminate, dispose on-site	each		#N/A	0.00	$0		$0	$0
.	Other	each		#N/A	0.00	$0		$0	$0
C	OBJECTIVE: DISPOSE ORE CONCENTRATION EQUIPMEI			#N/A					
.	Decontaminate crushing plant	each		#N/A	0.00	$0		$0	$0
.	Decontaminate tanks & plumb.	each		#N/A	0.00	$0		$0	$0
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
D	OBJECTIVE: DISPOSE WATER TREATMENT EQUIPMENT			#N/A					
.	Decontaminate tanks & plumb.	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.	Remove tanks & plumbing	each		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
E	OBJECTIVE: DECONTAMINATE BUILDINGS & TANKS			#N/A					
.	site wide allowance	each		#N/A	0.00	$0		$0	$0
.	clean explosives facility	each	1	#N/A	#######	$50,000	0%	$0	$50,000
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
				#N/A	0.00	$0		$0	$0
.		each		#N/A	0.00	$0		$0	$0
F	OBJECTIVE: MOTHBALL BUILDINGS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other	m2		#N/A	0.00	$0		$0	
G	OBJECTIVE: REMOVE BUILDINGS								
.									
	guard house	m3	225	BRS1L	35.90	$8,078	100%	$8,078	$0
	mill building	m3	64,400	BRS1H	53.86	$3,468,326	100%	$3,468,326	$0
	primary crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	pebble crusher	m3	1,320	BRS1H	53.86	$71,090	100%	$71,090	$0
	conveyors	m3	1,920	BRS1L	35.90	$68,936	100%	$68,936	$0
	powerhouse	m3	5,460	BRS1L	35.90	$196,036	100%	$196,036	$0
	camp	m3	6,050	BRS1L	35.90	$217,219	100%	$217,219	$0
	kitchen	m3	1,200	BRS1L	35.90	$43,085	100%	$43,085	$0
.	reception	m3	400	BRS1L	35.90	$14,362	100%	$14,362	$0
.	service shop	m3	13,200	BRS1L	35.90	$473,933	100%	$473,933	$0
.	utilidor/walkways	m3	1,643	BRS1L	35.90	$58,972	100%	$58,972	$0
.	assay lab	m3	968	BRS1L	35.90	$34,755	100%	$34,755	$0
.	cold storage	m3	3,888	BRS1L	35.90	$139,595	100%	$139,595	$0
.		m3	10,800	BRS1L	35.90	$387,763	100%	$387,763	$0
.	batch plant	m3	3,150	BRS1L	35.90	$113,098	100%	$113,098	$0

1 Building / Equip Name: ____ Bldg / Equip #: *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
.	fuel tank	m3	10,598	BRS1L	35.90	$380,493	100%	$380,493	$0
H	OBJECTIVE: BREAK BASEMENT SLABS			#N/A					
.	Building 1	m2		#N/A	0.00	$0		$0	$0
.	Building 2	m2		#N/A	0.00	$0		$0	$0
.	Building 3	m2		#N/A	0.00	$0		$0	$0
.	Building 4	m2		#N/A	0.00	$0		$0	$0
.	Building 5	m2		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
I	OBJECTIVE: REMOVE BURIED TANKS			#N/A					
.	Tank 1, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Tank 2, decontaminate	m3		#N/A	0.00	$0		$0	$0
.	, excavate & dispose	m3		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
J	OBJECTIVE: LANDFILL FOR DEMOLITION WASTE			#N/A					
.	Place rock cover	m3	6327	sb1l	3.26	$20,651	100%	$20,651	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Landfill disposal fee	tonne		#N/A	0.00	$0		$0	$0
K	OBJECTIVE: GRADE AND CONTOUR			#N/A					
.	Grade mill area	m2		#N/A	0.00	$0		$0	$0
.	Place soil/rock cover over building footpr	m3	39550	sb1l	3.26	$129,091	100%	$129,091	$0
.	Rip rap on ditches	m3		#N/A	0.00	$0		$0	$0
.	Vegetate	ha		#N/A	0.00	$0		$0	$0
.	Other			#N/A	0.00	$0		$0	$0
L	OBJECTIVE: RECLAIM ROADS			#N/A					
		ha		#N/A	0.00	$0		$0	$0
		ha		#N/A	0.00	$0		$0	$0
	Haul roads	km	10	scfyl	3595.50	$35,955	100%	$35,955	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, PKC & dumps lease	ha		#N/A	0.00	$0		$0	$0
	Service roads,	ha		#N/A	0.00	$0		$0	$0
	Haul roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
	Service roads, infrastructure lease	ha		#N/A	0.00	$0		$0	$0
.	Haul roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.	Service roads, airstrip lease	ha		#N/A	0.00	$0		$0	$0
.				#N/A	0.00	$0		$0	$0
K	SPECIALIZED ITEMS			#N/A					
	RECLAIM AIRSTRIP	km	1.4	scfyl	3595.50	$5,034	100%	$5,034	$0
	YELLOWKNIFE LANDFILL DISPOSAL FEE			#N/A	0.00	$0		$0	$0
				#N/A	0.00				
				#N/A	0.00				
.				#N/A	0.00	$0		$0	$0
	Subtotal					$6,057,562	98.0%	$5,937,562	$120,000
						Total Buildings	Percent Land	Total Land	Total Water

1 **Building / Equip Name:** ____ **Bldg / Equip #:** ***1***

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost

	# units	width	length	# floors	footprint area		volume	
building volumes for demolition								
guard house	1	15	15	1	225		225	m3
mill building	1	112	115	5	12880		64,400	m3
primary crusher	1	12	22	5	264		1,320	m3
pebble crusher	1	12	22	5	264		1,320	m3
conveyors	1	4	480	1	1920		1,920	m3
powerhouse	1	35	52	3	1820		5,460	
camp	11	10	55	1	6050		6,050	m3
kitchen	1	20	60	1	1200		1,200	m3
reception	1	20	20	1	400		400	m3
service shop	1	33	100	4	3300		13,200	m3
utilidor/walkways	1	4.5	365	1	1642.5		1,643	m3
assay lab	1	22	22	2	484		968	m3
cold storage	3	18	36	2	1944		3,888	m3
	4	30	45	2	5400		10,800	m3
batch plant	1	21	50	3	1050		3,150	m3
fuel tank	1	30	dia.	15	707		10,598	m3
				area	39550	volume	126,541	
	demolished volume at 25%						31635	
	cover area at 10 m ave depth						3164	
	cover volume at 2 m cover						6327	m3

1 **Chemicals and Soil Contamination:** ____ *1*

Note: The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	LABORATORY CHEMICALS	km		mherh				$0	
.	allowance	pallet	10	LCRH	2366.4	$23,664	0%	$0	$23,664
B	PCB, hauling	litre		#N/A	0	$0		$0	$0
.	PCB, disposal	litre		#N/A	0	$0		$0	$0
C	FUEL			#N/A	0	$0		$0	$0
.	Type 1, 200 tonnes	km		#N/A	0	$0		$0	$0
.	Type 2	kg		#N/A	0	$0		$0	$0
.	Type 3	kg		#N/A	0	$0		$0	$0
D	WASTE OIL			#N/A	0				
.	Oils/lubricants - burn on-site	litre	50000	OBH	0.561	$28,050	0%	$0	$28,050
.	Oils/lubricants - ship off-site	litre		#N/A	0	$0		$0	$0
.	removal glycol	litre	1,000	#N/A	0	$0		$0	$0
E	remove batteries	kg		#N/A	0	$0		$0	$0
.	remove paints	litre		#N/A	0	$0		$0	$0
.	remove solvents	litre		#N/A	0	$0		$0	$0
.	Oils/lubricants - disposal fee	litre		#N/A	0	$0		$0	$0
.	PROCESS OR TREATMENT CHEMICALS			#N/A	0				
F	Removal of other chemicals	allow	1	#N/A	150000	$150,000	0%	$0	$150,000
	Type 2	kg		#N/A	0	$0		$0	$0
	Type 3	kg		#N/A	0	$0		$0	$0
	Type 4	kg		#N/A	0	$0		$0	$0
	EXPLOSIVES	kg	10000	ERH	2.244	$22,440	50%	$11,220	$11,220
		allow		#N/A	0	$0		$0	$0
	CONTAMINATED SOILS			#N/A	0				
.	Type 1, light fuel	m3	500	csrh	122.4	$61,200	50%	$30,600	$30,600
G	Type 2, heavy fuel and oil	m3	1000	csrh	122.4	$122,400	50%	$61,200	$61,200
.	Type 3, metals	m3		#N/A	100	$0		$0	$0
.	Haz. Mat. testing & assessment			#N/A					
.	Technician and analyses	each	1	#N/A	20000	$20,000	50%	$10,000	$10,000
H	Drilling	each	1	#N/A	75000	$75,000	50%	$37,500	$37,500
.	Reporting		1	#N/A	20000	$20,000	50%	$10,000	$10,000
.	Other			#N/A	0	$0		$0	$0
.	OTHER			#N/A					
.	remove nuclear densometers from mill	each	4	#N/A	4000	$16,000		$0	$16,000
	Subtotal					$538,754	29.8%	$160,520	$378,234
						Total Chemical	Percent Land	Total Land	Total Water

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	OBJECTIVE: STABILIZE EMBANKMENT								
	Toe buttress, drain mat'l	m3		#N/A	0	$0		$0	$0
	, fill mat'l A	m3		#N/A	0	$0		$0	$0
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Rip rap	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	$0
	Raise crest	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
B	OBJECTIVE: UPGRADE SPILLWAY			#N/A					
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Excavate channel	m3		#N/A	2.83	$0		$0	$0
	Place rip rap	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
C	OBJECTIVE: STABILIZE SEDIMENT CONTAINMENT PONI			#N/A					
	Place soil cover	m3		#N/A	0	$0		$0	$0
	Place geotextile	m2		#N/A	0	$0		$0	$0
	Vegetate	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	OBJECTIVE: BREACH EMBANKMENT			#N/A					
	Remove Fill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
E	OBJECTIVE: COLLECTION PONDS			#N/A					
	Breach dams	m3		#N/A	2.83	$0		$0	$0
	place geotextile,	m2		#N/A	10	$0		$0	$0
	place rock over geotextile	m3		#N/A	5.65	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
F	OBJECTIVE: BREACH DITCHES			#N/A					
	Excavate	m3		#N/A	0	$0		$0	$0
	Backfill/recontour	m3		#N/A	0	$0		$0	$0
	Vegetate	ha		#N/A	0	$0		$0	
	Other			#N/A	0	$0		$0	$0
G	OBJECTIVE: REMOVE PIPELINES			#N/A					
	Remove pipes	m		#N/A	0	$0		$0	$0
	Concrete plug deep pipes	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
H	OBJECTIVE:			#N/A					
	Excavate/construct spillway	m3		#N/A	4.83	$0		$0	$0
	Excavate & backfill	m3		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
I	OBJECTIVE: COLLECT DRAINAGE FOR TREATMENT			#N/A					
	Excavate collection ditches	m3		#N/A	0	$0		$0	$0
	Rip rap ditches	m3		#N/A	0	$0		$0	$0
	Pipes	m		#N/A	0	$0		$0	$0
	Pumps	each		#N/A	0	$0		$0	$0
	Collect'n pond, exc. mat'l A	m3		#N/A	0	$0		$0	$0
	, exc. mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, fill mat'l A	m3		#N/A	0	$0		$0	$0

1 /ater Management Project: ____ Project # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
	, fill mat'l B	m3		#N/A	0	$0		$0	$0
	Collect'n pond, liner	m2		#N/A	0	$0		$0	$0
J	OBJECTIVE: TREAT DRAINAGE (see "ONGOINC			#N/A					
	Build treatment plant lump sum			#N/A	0	$0		$0	$0
				#N/A	0	$0		$0	$0
	Subtotal					$0	#DIV/0!	$0	$0
						Total Water	Percent Land	Total Land	Total Water

1 Mobilization Name: ____ Mob # *1*

ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A MOBILIZE HEAVY EQUIPMENT					
Equipment to regional centre					
. allowance, 2 barge trips (in and out) to Baker La		2	#N/A	100000	$200,000
. allowance, mob from Baker Lake to mine	km	2	#N/A	25000	$50,000
. Dozers	km		#N/A	0	$0
. Demolition shears	km		#N/A	0	$0
Equipment, regional centre to site			#N/A		
. Excavators - 2	km		#N/A	0.00	$0
. Dump trucks - 15	km		#N/A	0.00	$0
. Dozers - 4	km		#N/A	0.00	$0
Demolition shears - 2			#N/A	0.00	$0
Front end loader 2			#N/A	0.00	$0
cranes - 2			#N/A	0.00	$0
service vehicles -10			#N/A	0.00	$0
.	km		#N/A		
B MOBILIZE CAMP			#N/A		
.	allowance		#N/A		$0
C MOBILIZE WORKERS			#N/A		
. air charters			#N/A	45	$0
D MOBILIZE MISC. SUPPLIES			#N/A		
. Fuel	litre		#N/A	0.78	$0
. Minor tools and equipment	owance	1	#N/A	50000	$50,000
. Truck tires	owance		#N/A	0	$0
E MOBILIZE & HOUSE WORKERS	person days		#N/A		
. 11200 man-days	month	373	accml	1346.4	$502,207
. WINTER ROAD			#N/A		
. Full winter use	km		#N/A	0	$0
. Limited winter use	km		#N/A	0	$0
.			#N/A	0	$0
F BONDING lump sum			#N/A		
.			#N/A		$0
G TAXES lump sum					
.			#N/A		$0
H INSURANCE lump sum					
.			#N/A		$0
Subtotal					$802,207
					Total Mob.

Equipment Mobilization	# of machines	loads/machine	round trip km	total road mileage
excavator	2	3	800	4800
dump trucks	15	10	800	120000
dozers	4	5	800	16000
demolition shears	2	6	800	9600
front end loader	2	3	800	4800
cranes	2	1	800	1600
service vehicles	10	2	800	16000

1 Monitoring & Maintenance Mon / Mtce # *1*

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost
A	OBJECTIVE: POST-CLOSURE INSPECTIONS					
	Annual geotechnical insp.	each	8	#N/A	$10,000	$80,000
.	Survey inspection	each		#N/A	$0	$0
.	Water sampling	yrs	8	#N/A	$75,000	$600,000
.	Reporting	yrs	8	#N/A	$20,000	$160,000
.	Other			#N/A	$0	$0
B	OBJECTIVE: INTERIM CARE & MAINTENANCE			#N/A		
.	annual C&M	yrs		#N/A	$0	$0
.		month		#N/A		$0
.		month		#N/A	$0	$0
.		each		#N/A	$0	$0
.		allowance		#N/A		
				#N/A		$0
	Subtotal					$840,000
						Total Mon./Maint.

1 Post-Closure Site Maintenance

	ACTIVITY/MATERIAL	Units	Quantity	Cost Code	Unit Cost	Cost	% Land	Land Cost	Water Cost
A	WATER TREATMENT								
	Total annual cost, unit cost from Ongoing Water Treatment				0	$0		$0	$0
B	Cover Maintenance								
	Repair erosion, remove trees	ha		#N/A	0	$0		$0	$0
C	Spillway Maintenance			#N/A					
	Repair erosion	m3		#N/A	0	$0		$0	$0
	Clear spillway	each		#N/A	0	$0		$0	$0
	Other			#N/A	0	$0		$0	$0
D	Other			#N/A					
								$0	$0
								$0	
	Subtotal, Annual post-closure costs					$0		$0	$0
	Discount rate for calculation of net present value of post-closu			3.00%				$0	
	Number of years of post-closure activity			0	years			$0	
	Present Value of payment stream					$0	#DIV/0!	$0	$0
						Total Post closure	Percent Land	Total Land	Total Water

WATER TREATMENT COSTS

ANNUAL VOLUME OF WATER (m3)

Reagent addition rates

Reagent	kg reagent/m3 water		cost in $/kg, FOB site	Annual reagent cost
H2O2	0.1	kg/m3	1.5	$0
lime		kg/m3	0.45	$0
ferric sulphate		kg/m3		$0
ferrous sulphate		kg/m3		$0
flocculents		kg/m3		$0
			TOTAL	$0

Supplies and Labour

power, kW-hr	0	rate, $/kW-h	0.08	$0
misc. supplies, hoses, tools				$0
sampling equip.				$0
equip. maintenance and parts				$0
water analysis				$0
reporting				$0
truck rental				$0
annual mileage				$0
road maintenace & snow plowing				$0
electrician/mechanic for treatment plant & power supply				$0
		Annual cost		$0
labor, hourly rate	35			
	men per day for water treatment work			1
	on site, days per year			0
	spring/fall maintenance, extra work			0
	hours worked per year			0
	annual labor cost			$0
		Total, labour and suppli		$0
TOTAL ANNUAL COSTS, reagents plus labour and supplies				$0
Average treatment cost, $/m3				$0.00

Water analyses	
samples per month	10
analysis cost/sample	100
shipping	200
Total Water Sampling	1200

Site Access	
annual site access cost	
road	$0
air	$0
winter road	$0

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	COMMENTS
1	**excavate Rock, Bulk**						
	drill, blast, load short haul (<500m) Dump	RB1	m3	9.54	14.28	#N/A	quarry operations for bulk fill
	RB1 + long haul, up to 1500 m	RB2	m3	10.10	14.89	#N/A	
	RB1 + spread and compact	RB3	m3	10.10	14.89	#N/A	
	RB1 + long haul + spread and compact	RB4	m3	10.66	25.76	#N/A	
	RB1 + Specified activity	RBS	m3	#N/A	#N/A	#N/A	
2	**excavate Rock, Controlled**			0.00	0.00	0.00	
	drill, blast, load short haul (<500m) Dump	RC1	m3	22.44	33.66	#N/A	spillway excavation
	RC1 + long haul, up to 1500 m	RC2	m3	10.66	15.40	#N/A	
	RC1 + spread and compact	RC3	m3	10.10	14.89	#N/A	
	RC1 + long haul + spread and compact	RC4	m3	11.32	16.04	#N/A	
	RC1 + Specified activity	RCS	m3	#N/A	#N/A	147.90	$145/M3-drift excavation
3	**excavate Soil, Bulk**			0.00	0.00	0.00	
	excavate, load short haul (<500m) dump	SB1	m3	3.26	4.95	#N/A	LOW cost: excavation of loose soil, high volume
	SB1 + long haul, up to 1500 m	SB2	m3	4.06	6.09	#N/A	LOW cost: excavation of loose soil, 1.5 km haul, high volume
	SB1 + spread and compact	SB3	m3	3.77	5.42	#N/A	
	SB1 + long haul + spread and compact	SB4	m3	4.59	9.13	#N/A	LOW cost: excavation of loose soil, 1.5 km haul, high volume, const. of simple soil cover
				0.00	0.00	0.00	
	SB1 + Specified activity	SBS	m3	2.36	6.51	11.17	LOW cost: rehandle waste rock dump into pit, >500,000 m3, 2 km haul
				0.00	0.00	0.00	SPECIFIED cost: rehandle waste rock, haul 3 km, place & compact on dam
				0.00	0.00	0.00	
	Soil, tailings	SBT	m3	3.09	7.29	0.00	LOW cost: doze tailings, HIGH cost: excavate & short haul
4	**excavate Soil, Controlled**			0.00	0.00	0.00	
	excavate, load short haul (<500 m), dump	SC1	m3	5.72	7.80	#N/A	
	SC1 + long haul, up to 1500 m	SC2	m3	7.09	9.83	#N/A	
	SC1 + spread and compact	SC3	m3	5.72	11.89	#N/A	HIGH cost: for simple soil covers
	SC1 + long haul + spread and compact	SC4	m3	6.43	19.43	#N/A	HIGH cost: for complex covers & dam construction, spillway repair, LOW volume
	SC1 + Specified activity	SCS	m3	#N/A	#N/A	16.07	SPECIFIED cost: backfill adit with waste rock
	Geo-synthetics			0.00	0.00	0.00	
	geotextile, filter cloth	GST	M2	1.01	2.02	#N/A	FOB Edmonton, add shipping & installation
	geogrid	GSG	M2	4.82	0.00	#N/A	

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	
	liner, HDPE	GSHDPE	M2	6.01	0.00	#N/A	
	liner, PVC	GSPVC	M2	0.00	0.00	#N/A	
	geosynthetic installation	GSI	m2	0.85	1.02	#N/A	
	bentonite soil ammendment	GSBA	tonne	258.06	291.72	#N/A	FOB Edmonton, add shipping & mixing
	Shaft, Raise & Portal Closures			0.00	0.00	0.00	
	Shaft & Raises	SR	m2	540.60	1785.00	#N/A	LOW cost: pre-cast concrete slabs, little site prep. HIGH cost: for hand construction, remote site
	Portals	POR	m3	0.00	209.10	1020.00	HIGH cost: for excavate & backfill collapsed portal SPECIFIED cost: installed pressure plug
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
				0.00	0.00	0.00	
5	**Concrete work**			0.00	0.00	0.00	
	Small pour, no forms	CS	m3	302.94	606.90	#N/A	
	Large pour, no forms	CL	m3	239.70	357.00	#N/A	
	Small pour, Formed	CSF	m3	357.00	1785.00	#N/A	
	Large pour, Formed	CLF	m3	295.80	418.20	#N/A	
6	**Vegetation**			0.00	0.00	0.00	
	Hydroseed, Flat	VHF	ha	1626.90	5049.00	#N/A	
	Hydroseed, Sloped	VHS	ha	1884.96	5666.10	#N/A	
	veg. Blanket/erosion mat	VB	ha	11220.00	13464.00	#N/A	
	Tree planting	VT	ha	11220.00	13464.00	#N/A	
	Wetland species	VW	ha	56100.00	84150.00	#N/A	
7	**Pumps**			0.00	0.00	0.00	
	Small, <	PS	each	3060.00	6120.00	#N/A	
	Large, >	PL	each	5100.00	########	#N/A	large - 250 hp Gould w/diesel motor
8	**PiPes**			0.00	0.00	0.00	
	Small, < 6 inch diameter	PPS	m	0.51	5.10	#N/A	LOW cost: pipe removal, HIGH cost: supply new pipe SPECIFIED: small, heat traced & insulated pipe
	Large, > 6 inch diameter	PPL	m	1.02	183.60	#N/A	LOW cost: pipe removal, HIGH cost: supply 24" 100 psi HDPE pipe, FOB Edm.
				0.00	0.00	0.00	add shipping & installation

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	
9	**pump sand BackFill**	BF	m3	5.61	16.83	#N/A	
10	**Fence**	F	m	11.22	168.30	#N/A	
11	**Signs**	S	each	11.22	33.66	#N/A	
12	**rock, Drill and Blast only**	DB	m3	11.22	22.44	#N/A	
	(flatten slope, collapse drift)			0.00	0.00	0.00	
13	**excavate Rip Rap**			0.00	0.00	0.00	
	drill, blast, load short haul (<500 m) dump and spread	RR1	m3	11.17	16.68	#N/A	
	RR1 + long haul	RR2	m3	11.32	17.29	#N/A	HIGH cost: quarry & place rip rap in channel
	excavate rock from waste dump, short haul, spread	RR3	m3	4.28	5.90	#N/A	LOW cost: removal of 18 in minus from dump, long haul and spread HIGH cost: removal of coarse rock from
				0.00	0.00	0.00	dump, long haul, armour spillway
	RR3 + long haul	RR4	m3	4.77	6.38	#N/A	
	specified rip rap source	RR5	m3	#N/A	#N/A	#N/A	
14	**Import LimeStone**	ILS	tonne	8.98	13.46	#N/A	
15	**Import LiMe**	ILM	tonne	168.30	504.90	#N/A	LOW cost: bulk shipping, high volume, FOB Vancouver/Edmonton
				0.00	0.00	0.00	HIGH cost: bags delivered to central Yukon, small volume
16	**Grouting**	G	m3	201.96	244.80	#N/A	HIGH cost: cement, FOB Yellowknife
17	**Dozing**			0.00	0.00	0.00	
	doze Rock piles	DR	m3	0.87	1.99	#N/A	LOW cost: doze crest off dump
	doze overburden/Soil piles	DS	m3	0.80	3.17	#N/A	HIGH cost: push up to 300 m
18				0.00	0.00	0.00	
				0.00	0.00	#N/A	
				0.00	0.00	#N/A	
19				0.00	0.00	0.00	
				0.00	0.00	#N/A	
				0.00	0.00	#N/A	
20				0.00	0.00	0.00	
			each	0.00	0.00	#N/A	
			each	0.00	0.00	#N/A	
21	**Buildings - Decontaminate**			0.00	0.00	0.00	

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	
	Chemicals	BDC	m3	#N/A	#N/A	#N/A	
	Asbestos	BDA	m2	21.42	42.84	#N/A	LOW cost: removal of asbestos siding & flooring HIGH cost: removal of insulated pipes, friable asbestos
				0.00	0.00	0.00	
22	**Buildings - Remove**			0.00	0.00	0.00	
	areas are per floor on 3 m average height			0.00	0.00	0.00	LOW cost: removal and on-site disposal - small wooden structures
	Wood - teardown	BRW1	m2	21.93	33.66	#N/A	
	Wood - burn	BRW2	m2	5.61	11.22	#N/A	
	Masonry	BRM	m2	24.12	33.66	#N/A	
	Concrete	BRC	m	33.66	50.49	6.12	LOW cost: removal of building perimeter walls, HIGH cost: per m3 for bulk concrete SPECIFIED cost: $/m2 to break floor slab
	Steel - teardown	BRS1	m2	35.90	53.86	244.80	SPECIFIED cost: demolition shear $/hour operating
	Steel - salvage	BRS2	m2	56.10	84.15	#N/A	
23	**Power & Pipe Lines**			0.00	0.00	0.00	
	Power lines, remove	POWR	each	21.32	4712.40	#N/A	
	Small, < 6 inch diameter	PPS	m	0.51	5.10	#N/A	LOW cost: pipe removal, HIGH cost: supply new pipe
	Large, > 6 inch diameter	PPL	m	1.02	183.60	#N/A	LOW cost: pipe removal, HIGH cost: supply 24" 100 psi HDPE pipe, FOB. Add shipping
24	**Laboratory Chemicals**			0.00	0.00	0.00	
	Remove from site	LCR	pallet	1785.00	2366.40	#N/A	
	Dispose on site	LCD	each	#N/A	#N/A	#N/A	
25	**PCB - Remove from site**	PCBR	litre	33.66	39.27	#N/A	LOW cost: shipping, handling & disposal from Yellowknife
				0.00	0.00	0.00	
26	**Fuel**			0.00	0.00	0.00	
	Remove from site	FR	kg	0.00	1.04	#N/A	
	Burn on site	FB	kg	#N/A	#N/A	#N/A	
27	**Oil**			0.00	0.00	0.00	
	Remove from site	OR	litre	0.36	1.04	#N/A	
	Burn on site	OB	litre	0.36	0.56	#N/A	
28	**Process Chemicals**			0.00	0.00	0.00	
	Remove from site	PCR	kg	0.36	2.09	#N/A	
	Dispose on site	PCD	kg	#N/A	#N/A	#N/A	
29	**Explosives**			0.00	0.00	0.00	
	Remove from site	ER	kg	0.00	2.24	#N/A	

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $	
	Dispose on site	ED	kg	#N/A	#N/A	#N/A	
30	**Contaminated Soils**			0.00	0.00	0.00	
	Remediate on site	CSR	m3	39.27	122.40	#N/A	LOW cost: bio-remediate on-site. HIGH cost: ship off-site to landfil as haz. waste
	consolidate & cover	Use cost code iter		0.00	0.00	0.00	
	cover in place	Use cost code iter		0.00	0.00	0.00	
31	**Mobilize Heavy Equipment**			0.00	0.00	0.00	
	Road access	MHER	$/km	2.87	8.59	2.09	SPECIFIED cost: $/tonne/km in cargo plane
	Air access	MHEA	each	#N/A	#N/A	1402.50	SPECIFIED cost: helicopter cost, $/hr of operation
32	**Mobilize Camp**			0.00	0.00	0.00	
	<20 persons Road access	MC<R	each	#N/A	#N/A	#N/A	
	<20 persons Air access	MC<A	each	#N/A	#N/A	#N/A	
33	**Mobilize Workers**			0.00	0.00	0.00	
	mobilize	MM<	person	196.86	1009.80	#N/A	LOW cost: road access. HIGH cost: transport by Twin Otter aircraft
	>20 persons	MM>	person	1009.80	1346.40	#N/A	
34	**ACCoModation**	ACCM	month	1346.40	2019.60	#N/A	LOW cost, accom in existing camp, per man, HIGH cost: - supply new camp
35	**Mobilize Misc. Supplies**	MMS	each	#N/A	#N/A	#N/A	LOW cost: winter road - limited use, LOW snowfall
36	**Winter Road**	WR	km	1346.40	2672.40	#N/A	
37	**Visual site Inspection**	VI	each	3590.40	7242.00	10200.00	
38	**Survey site Inspection**	SI	each	#N/A	#N/A	#N/A	
39	**Water Sampling**	WS	each	5610.00	9180.00	#N/A	
40	**site inspection RePorT**	RPT	each	#N/A	11220.00	#N/A	
41	**Security Guard**	SG	pers/mc	5610.00	7854.00	#N/A	
42	**Maintain Pumping**	MP	month	3366.00	#N/A	#N/A	
43	**Clear SpillWay**	CSW	each	1907.40	5385.60	#N/A	
44	**Build Treatment Plant**			0.00	0.00	0.00	
	Small (< 1000 m3/d)	BTPS	lump su	########	########	#N/A	
	Large (> 1000 m3/d)	BTPL	lump su	########	########	#N/A	
45	**Operate Treatment Plant**	OTP	m3	0.30	1.68	#N/A	
46	**SCariFY road and**	SCFY	km	3595.50	5049.00	#N/A	
	install water breaks			0.00	0.00	0.00	

Unit Cost Table

ITEM	Detail	COST CODE	UNITS	LOW $	HIGH $	SPECIFIED $
				0.00	0.00	0.00
water treatment chemicals				0.00	0.00	0.00
ferric sulphate		ferric	kg	0.68	0.00	0.00
ferrous sulphate		ferrous	kg	0.45	0.00	0.00
lime		lime	kg	0.31	#VALUE!	0.00
hydrogen peroxide, 50%		hperox	kg	1.46	0.00	0.00
Sodium Metabisulfate		Nametab	kg	1.01	0.00	0.00
Caustic soda, 50%		caustic	kg	0.63	0.00	0.00
Sulfuric acid, 93%		sulfuric	kg	0.27	0.00	0.00
flocculant		flocc	kg	5.50	0.00	0.00
copper sulphate		copper	kg	0.00	0.00	0.00
typical shipping, to Whitehorse or Yellowknife			kg	0.07	0.00	0.00
				0.00	0.00	0.00
Typical Labour & Equipment Rates				0.00	0.00	0.00
	Site manager		$/hr	71.40	81.60	0.00
	Mine superintendent		$/hr	0.00	61.20	0.00
	Environmental coordinator		$/hr	0.00	61.20	0.00
	Journeyman (mech, elec, weld)	LUGE	$/hr	51.00	61.20	0.00
	Equipment operator		$/hr	45.90	56.10	0.00
	labour - skilled	LLUGG	$/hr	35.70	38.76	0.00
	labour - unskilled		$/hr	32.64	35.70	0.00
	Security / first aid		$/hr	38.76	48.96	0.00
	Admin.		$/hr	42.84	49.98	0.00
				0.00	0.00	0.00
	average			45.46	0.00	0.00
				0.00	0.00	0.00
				0.00	0.00	0.00
				0.00	0.00	0.00
	Front end loader, ?, Cat992		$/hr	0.00	336.60	0.00
	excavator, Cat235		$/hr	0.00	178.50	0.00
	dump truck - tandem		$/hr	0.00	0.00	0.00
	dump truck off road, Cat 777		$/hr	270.30	0.00	0.00
	dozer, D8, D10		$/hr	173.40	306.00	0.00
				0.00	0.00	0.00
				0.00	0.00	0.00
				0.00	0.00	0.00
				0.00	0.00	0.00

APPENDIX B

Abandonment and Restoration Plan, Agnico-Eagle Meadowbank Project, Baker Lake Facilities, License 8BC-MEA0709, October 24, 2007

AEM

ABANDONMENT AND RESTORATION PLAN

AGNICO-EAGLE MEADOWBANK PROJECT

BAKER LAKE FACILITIES

LICENSE 8BC-MEA0709

Prepared by: Stéphane Robert
Environmental Project Coordinator

Approved by: Louise Grondin, P.Eng.
Vice-pres.Environment
Agnico-Eagle Mines Ltd

Revision 0
October 24, 2007

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1. INTRODUCTION

The Meadowbank Gold Project is located on Inuit-owned land in the Kivalliq Region of Nunavut, approximately 70 km north of Baker Lake (see Figure 1). The gold will be extracted during the roughly eight- to ten-year operational lifespan of the mine. All construction and operating supplies for the project will be transported on ocean freight systems to facilities constructed in the Hamlet of Baker Lake, which will include barge unloading facilities, lay down area, and fuel tank storage area. The present Abandonment and Restoration Plan pertains to the Meadowbank Baker Lake facilities.

1.1 CORPORATE STRUCTURE

In early July 2007, Cumberland Resources became a 100% wholly-owned subsidiary of Agnico-Eagle Mines Limited (AEM). Through a series of steps, AEM amalgamated with Cumberland and Meadowbank Mining Corporation (a wholly-owned subsidiary of Cumberland) on August 1, 2007. As a result of this amalgamation, all of the rights, titles, interests, liabilities and obligations of Cumberland and Meadowbank Mining Corporation are automatically, by law, transferred to and assumed by AEM. Therefore in all the Water License documents, the terms 'Cumberland', 'Meadowbank', 'MMC' and 'AEM' are to mean the same entity: 'Agnico-Eagle Mines Limited.

Agnico-Eagle Mines (AEM) Limited has its head office in Toronto at the following address:

Agnico-Eagle Mines Limited
145 King Street East, Suite 400
Toronto, Ontario,
M5C 2Y7
Tel: 416-947-1212
Website: www.agnico-eagle.com

The Meadowbank project is managed out of the Vancouver office at the following address:

Agnico-Eagle Mines Limited
Suite 375, 555 Burrard Street, Box 209
Two Bentall Centre
Vancouver, British Columbia, V7X 1M8
Tel: 604-608-2557

FIGURE 1

Map of Nunavut showing the location of Baker Lake and of the Meadowbank Project

The Baker Lake Facilities are managed out of the Baker Lake office at the following address:

Agnico-Eagle Mines Limited
Baker Lake, Nunavut,
X0C 0A0
Tel: 867-793-4610

1.2 ENVIRONMENTAL POLICY

The present reclamation and abandonment plan has been prepared in accordance with the commitments made in Agnico-Eagle's environmental policy, which are to:

- Assess the potential environmental impacts of any new undertaking with an objective to minimise them.

- Design and operate our facilities to ensure that effective controls are in place to minimise risks to health, safety and the environment.

- Implement an emergency response plan to minimise the impacts of unforeseen events.

- Provide a professional environmental staff to plan and direct environmental compliance programs and to assist in training and education activities.

- Provide training and resources to develop environmentally responsible employees.

- Ensure that environmental factors are included in the purchase of equipment and materials.

- Ensure that contractors operate according to our environmental policy and procedures.

- Comply with all applicable environmental laws and regulations.

- Communicate with employees, the public, government agencies and other stakeholders on activities involving health, safety and the environment.

- Regularly verify environmental performance and implement any required corrective action.

- Minimise the generation of hazardous and non-hazardous waste and ensure proper disposal of all wastes.

- Implement measures to conserve natural resources such as energy and water.

- Rehabilitate sites in accordance with regulatory criteria and within the established time-frame.

2. RECLAMATION AND ABANDONMENT PLAN PURPOSE AND OBJECTIVES

The purpose of this Plan is to:

- Comply with the Indian and Northern Affairs Canada (INAC) 2006 policy requirement for full cost of restoration (clean-up, modification, decommissioning, abandonment);

- Promote environmental stability of facilities and infrastructure and minimize maintenance and monitoring requirements at abandonment;

- Minimize potential impacts from contaminants

- Ensure removal of all hazardous materials and waste.

Three general post-closure objectives have been set in INAC's Mine Site Reclamation Guidelines for the NWT (2006):

1. Physical Stability: The reclaimed site should not pose a threat to humans, wildlife, or environment health and safety;

2. Chemical Stability: The reclaimed site should be chemically stable, such that it does not endanger humans, wildlife or environment health and safety; and,

3. Future Use and Aesthetics: The reclaimed site should be compatible with the surrounding lands at the completion of the reclamation activities.

3. REGULATORY REQUIREMENTS

3.1. WATER LICENSE REQUIREMENTS

Section 173(1) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (Department of Justice Canada, 2002, c-10) states that the regulations made pursuant to the Northwest Territories Waters Act will continue to apply in Nunavut until they are replaced or repealed under the Act. Therefore, the Northwest Territories Waters Regulations (SOR/93-303) continue to apply in Nunavut, with some exceptions.

In December 2006, the Nunavut Impact Review Board (NIRB) granted Cumberland a project certificate, under the document *Meadowbank Gold Mine Project Certificate; Nunavut Land Claims Agreement Article 12.5.12.* The commitments pertaining to the Closure and Reclamation Plan are addressed in this document.

3.2. NUNAVUT GUIDELINES AND REGULATIONS

AEM has complied with all governmental policies and regulations pertaining to environmental and socioeconomic issues in developing the Meadowbank Gold Project, including the Baker Lake facilities.

This C&R plan was prepared in accordance with the following guidelines and regulations:

- Mine Site Reclamation Guidelines for Nunavut, Indian and Northern Affairs Canada, 2002;

- Mine Site Reclamation Guidelines for the Northwest Territories, Indian and Northern Affairs Canada, Yellowknife, NWT. January 2006 Version;

- The Metal Mining Effluent Regulations (MMER);

- Canadian Environmental Quality Guidelines, Canadian Council for Ministers of the Environment (CCME)..

4. <u>CURRENT SITE CONDITIONS</u>

The site is located within the Hamlet of Baker Lake, about 2 km from the village and is accessible from one of the Hamlet roads. There is no habitation or other infrastructure in the vicinity of the site.

4.1. TOPOGRAPHY AND LAKE BATHYMETRY

The proposed marshalling area is located on a low terrace, parallel to the shoreline of Baker Lake. The topography at the marshalling area and the surrounding area generally has low relief with elevations ranging from 0 to 60 metres above the shoreline (Figure 2). The area of the dry freight storage is located on the upslope terrain, on a gradual slope (2 to 4% towards Baker Lake). The ground rises from the shoreline at slopes between 5 to

20%. Gently sloping, well-drained, generally uniform blankets of marine gravels and sands (beach deposits) are present along the shore of Baker Lake under most of the site.

The bathymetry of Baker Lake at the marshalling area was previously presented in a Golder report, dated August 15, 2005 (Golder, 2005b). Water depths offshore reach approximately 5 to 10 m within a distance of 100 to 180 m from the shore. The bathymetry indicates that the lake adjacent to the proposed marshalling area slopes gently (at about 3%) away from the shore for the first 50 to 70 m, and then at about 7% grade to a depth of 15 m.

4.2. GEOLOGY

The regional surficial geology is characterized by sandy till, bedrock outcrops, felsemeer (ice-shattered bedrock), and shallow lakes; the topography is generally dependent on the bedrock structure. Glacial till is the predominant soil type, although a zone of marine reworking could be present up to an elevation of approximately 100 to 200 masl. Marine beach deposits are commonly found on the north shore of Baker Lake. These deposits manifest themselves as beaches, bars, spits, and ice-pushed ridges.

The marshalling area location is underlain by mineral soil comprising various proportions of silts, sands and gravels and frost-susceptible glacial till overlying weathered bedrock. The mineral soil thickness ranges from less than 1.4 m thick in the fuel tank farm area to more than 2 m in the dry freight storage area. The glacial till comprises a matrix of fine grained soil with coarse angular gravel, cobble and boulder particles.

The ground is generally frozen at shallow depth (less than 2 m) and the bedrock is also generally encountered at shallow depth (less than 2 m).

The area is characterized by the following key features (Golder, 2004; Golder 2005a):

- Frozen ground is expected at shallow depths (less than 2 m) over the east part of the site, in the area of the proposed fuel tank farm.
- Bedrock is expected at shallow depths (less than 2 m) over the west part of the site, in the area of the proposed dry freight storage, and also to the north, in the area of the proposed explosives storage.
- Approximately 5% of the surface area of the dry freight storage is bedrock outcrop.
- Approximately 60% of the surface area of the proposed fuel tank farm comprises bedrock outcrop.
- A top layer of organic material (primarily green moss), and organic soil covers the site. This top layer is approximately 150 mm thick.
- A layer of grey to black, medium sand has been observed below the organic layer, over most of the site, but not in the area of the push tug barge landing or explosives storage.
- Neither frozen ground nor bedrock was encountered in a test pit excavated in the area of the push tug barge landing.

4.3. FLORA AND FAUNA

The site is covered by low-lying tundra vegetation, primarily a spongy, green moss and organic material. There are no trees or shrubs at the site.

Fish found in Baker Lake include cisco, lake trout, lake whitefish and round whitefish. Lake cisco is thought to be the most abundant species in Baker Lake (Cumberland, 2005).

4.4. CLIMATE

There is a long-term Environment Canada climate station at Baker Lake, referred to as Baker Lake A. Climate normals for this station indicate that the daily mean temperature, on an annual basis, varies between -32.2 and 11.4 degrees Celsius. A maximum daily temperature of 16.7 degrees has been recorded in the month of July and a minimum daily temperature of -35.8 degrees has been recorded in the month of January. Average annual precipitation is 268.7 mm. Annual total rainfall is 156.7 mm and annual snowfall is 130.7 cm.

Using hourly precipitation data obtained from the Baker Lake A station for the period from 1963 to 2006, the extreme daily rain and snowfall data were estimated to be 38.7 mm and 17.6 cm respectively for the 10-year return period and 58.4 mm and 31.3 cm respectively for the 100-year return period.

Using hourly wind data also obtained for the Baker Lake A station for the period from 1963 to 2006, the 10, 100 and 100-year return period hourly wind speed were estimated for each major direction. Table 1 presents the hourly wind speed estimates.

Table 1
Hourly wind speed estimates for Baker Lake A (1963-2006)

Wind Direction	10-year return period (km/hr)	100-year return period (km/hr)	1000-year return period (km/hr)
N	72	82	91
NE	54	61	67
E	62	71	77
SE	63	72	83
S	52	65	77
SW	49	64	80
W	68	101	149
NW	77	98	120

Snowmelt is a significant component of the climate. Snowmelt occurs primarily during the spring freshet, extending approximately from mid-May through June. During the period, the most rapid melt is from mid-May to mid-June, with an average weekly snowmelt at the Baker Lake station of 20.8 mm water.

4.5. PERMAFROST

The Baker Lake marshalling area lies within the zone of continuous permafrost. Thermistors installed at the Meadowbank mine site indicate that the permafrost is on the order of 400 to 500 m in thickness. It is expected that the permafrost thickness at the Baker Lake site would be similar to that at the Meadowbank mine site. However, permafrost might not be encountered in some sections of the proposed marshalling area owing to its proximity to the lake, as it is likely that the permafrost table will be depressed to some degree beneath and adjacent to Baker Lake.

4.6. SUBSURFACE CONDITIONS

The site is underlain by at least 1.5 m of wet, fine grained soils, typically well above optimum water content conditions, which is consistent with frost-susceptible, ice-rich soils. However, there are isolated areas of non frost-susceptible granular soils and weathered bedrock outcrops within the marshalling area.

Tests pits were excavated in the area of the proposed marshalling area (Golder, 2005a). Results indicated that the soil topography is generally composed of :

- a saturated, organic layer up to 0.2 m thick;
- up to 0.7 m thickness of brown sandy gravel; and
- saturated grey brown sand and silt layer to 1.5 m thick.

Bedrock was encountered in these test pits at a maximum depth of 2 m. Frozen ground was also encountered to a maximum depth of 1.2 m. Seepage was observed in the test pits at the west side of the dry freight storage area. Higher flows were observed in the lower elevations, near the lake shore.

Test pits were also excavated in the area of the proposed fuel tank farm (Golder, 2005a). Results indicated that the soil topography is generally composed of:

- a saturated, organic layer of up to 0.2 m thick;
- up to 0.7 m thickness of brown gravely sand; and
- saturated, grey brown, sand and silt layer up to 0.7 m thick.

The site was underlain by bedrock at shallow depths in areas where topsoil and/or overburden soils were encountered. Bedrock was encountered in these test pits to a maximum depth of 1.4 m. No standing water was observed in the test pits, however, seepage flows occurred in some areas.

4.7. BASELINE WATER QUALITY

Information on the water quality of Baker Lake can be found in the baseline aquatic ecosystem report (Cumberland, 2005). The water quality in Baker Lake closely resembles distilled water, with many conventional water chemistry parameters at or below detection limits. Water chemistry is generally homogeneous. The water column is generally well mixed and notable differences in water quality parameters with variance in depth or geographic location were not expected and were not detected. In the summer, some vertical stratification in temperature can be observed because of the important depth of the lake (up to 15 m) and the higher salinity in the bottom water. A maximum surface temperature of 15.5^{o}C and high dissolved oxygen concentrations have been recorded in mid-August.

5. FACILITIES DESCRIPTION

The proposed facilities at Baker Lake are located about 2 km east of the community and have the following coordinates (see Figure 1 and 2):

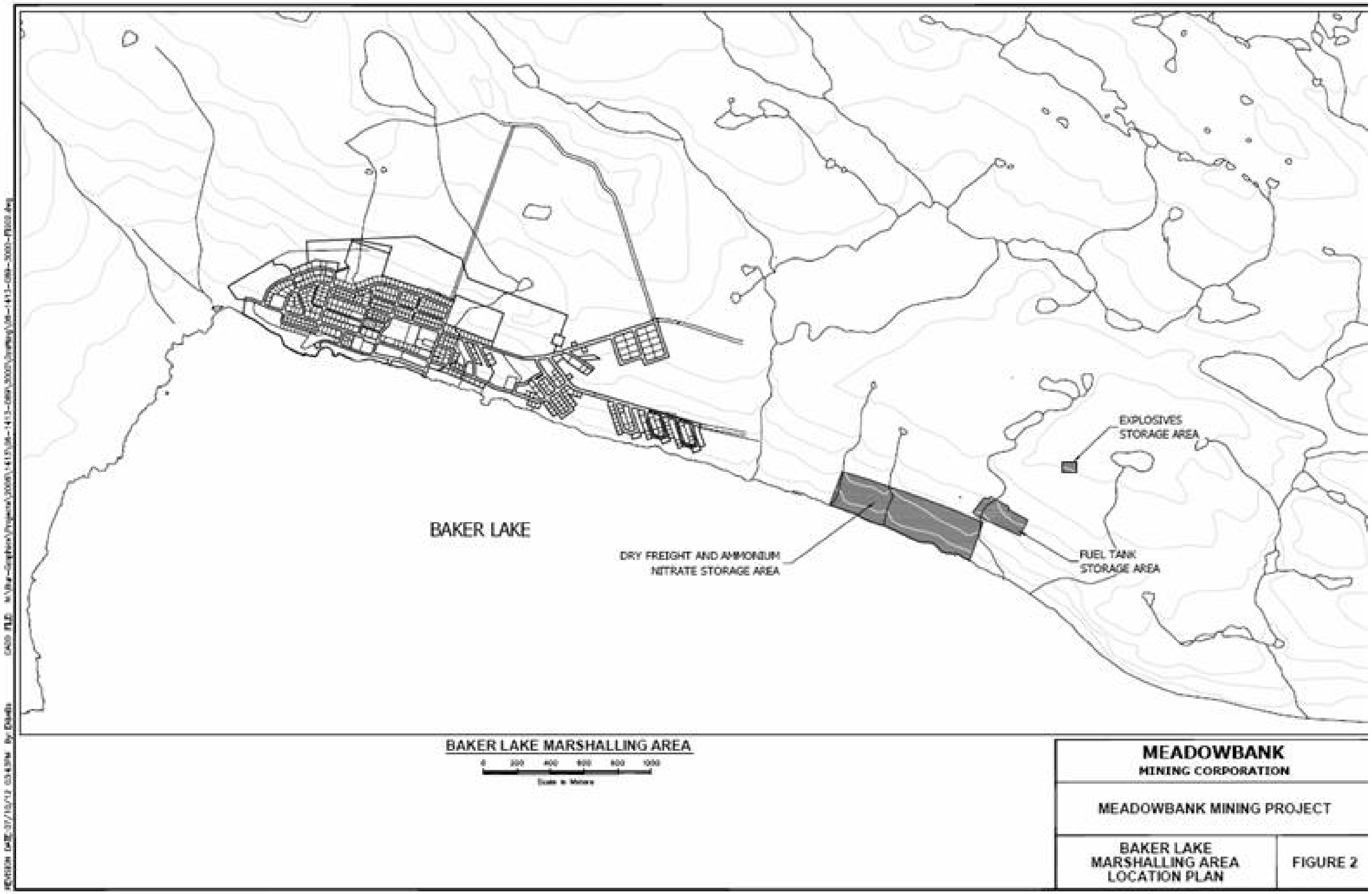
- Latitude: 64°19'2.42"N Longitude: 96° 1'13.37"O
- UTM coordinates 644 025 E, 7 135 770 N

The facility will consist of a barge unloading ramp with an adjacent storage and marshalling area, a fuel storage facility, a storage compound for explosives (all explosives will be stored in approved magazines) and interconnecting roads. A total storage area of approximately 104,000 m^2 will be provided by this facility, near the community of Baker Lake. The entire facility will be fenced and include an office trailer. Power for the facility will be supplied by portable generators and yard lighting will be provided by portable, diesel powered light towers.

Drawings of the Meadowbank Baker Lake facilities are included in Appendix A.

Marshalling Area

The marshalling area will be used for interim storage of supplies for construction and operations of the Meadowbank Project. The marshalling facility will receive supplies during the shipping season from late July until early October. The supplies will then be consolidated, sorted and transported to the site. The site for the laydown area slopes up at about a 10% grade and is located at least 200 metres from the lake shore. It will be a terraced gravel based storage area for stacking sea containers and other equipment. The containers will be stacked two high. An appropriate container handler will be utilized to handle containers from the barge landing site and for transportation related loading. A separate area will be lined with an HDPE liner for the storage of Ammonium Nitrate


BAKER LAKE
DRY FREIGHT AND AMMONIUM
NITRATE STORAGE AREA
EXPLOSIVES
STORAGE AREA
FUEL TANK
STORAGE AREA
BAKER LAKE MARSHALLING AREA
MEADOWBANK
MINING CORPORATION
MEADOWBANK MINING PROJECT
BAKER LAKE
MARSHALLING AREA
LOCATION PLAN
FIGURE 2

(AN). This storage area will encompass approximately 6,600 m^2, and will be located on the northwest side of the laydown area. The general laydown area will cover approximately 65,000 m^2.

<u>Tank Farm</u>

The fuel tank farm will consist of four 10 ML diesel fuel storage tanks, two of which to be installed in 2007. The fuel tank farm will be located adjacent to the marshalling area, approximately 300 metres from the shore of Baker Lake. These tanks will be field-erected steel tanks built to API-650 standards and located within a lined and bermed containment area, capable of containing 110% of the total volume of the tanks.

The barges transporting diesel fuel to Baker Lake will be equipped with onboard transfer pumps to transfer fuel through a 200 mm hose connection to the storage tanks. A fuel pump module will be installed adjacent to the fuel storage tanks. The module will have high and low volume dispensing pumps to allow re-fuelling of highway vehicles, and the filling tanker trucks which will be used to haul fuel to site. The module will be housed in an arctic container installed on a lined and compacted gravel pad. The pump module will be provided with a spill collection sump and pump out facilities.

The fuel storage facility will be contained within a lined and bermed area complete with the following:

- A granular base for the tank complete with a 60 mil HDPE liner system and granular dikes to suit the 4 - 10ML tanks (Two to be installed in 2007)
- Four 10ML tanks complete with the required appurtenances such as stairs, base manholes, water draw offs, re-supply nozzle, suction nozzle, tank lighting, tank level monitoring, roof manhole, manual gauge hatch, tank temperature and P/V Vent (Two to be installed in 2007)
- Piping for unloading and loading
- Site lighting via fixtures mounted from the dispensing building
- One Re-supply/Dispenser Building for loading the fuel Trailer / Truck and other vehicles.

A fuel dispensing pad area complete with a dispensing unit will be in a lined facility with a provision to capture any and all spills at the fuelling area and direct it to the main containment area provided for the 4 - 10ML tanks (two to be installed in 2007)

The facility is designed to meet the following standards:

- As a general guideline the fuel facility will meet the GN standard "Design Rationale for Fuel Storage & Distribution Facilities 1998".
- National Fire Code 1995
- Proposed Federal Petroleum Products and Allied Petroleum Products Storage Tank System Regulations – 2003
- Canadian Council of Ministers of the Environment "Environmental Code of Practice of Aboveground Storage Tank Systems Containing Petroleum Products – 1994"

<u>Explosive Storage Compound</u>

The explosives storage compound is located still farther up the slope, at a distance as required by explosive storage regulations.

<u>Roads</u>

The roads will have an 8% gradient and will be covered with compacted granular fill.

6. DEMOBILISATION AT THE END OF ACTIVITIES

At the end of the activities, the plan assumes that the facility would be offered for sale to the Hamlet of Baker Lake, but that the Hamlet would not purchase the facility, so that AEM would decommission all of the facilities, clean and remove the tanks and any other material. It is also assumed that the tanks would have 'no salvage value' and would therefore be demolished or disassembled and either shipped to another community in the area or the steel and other material would be trucked to the Meadowbank mine site to be placed in the closure landfill in the waste rock storage area north of the tailings disposal area at the mine site. This is the assumption that was used for bond calculation.

6.1. FUEL REMOVAL

All remaining bulk fuel on site will be removed and sold to local interests.

6.2. FUEL TANKS REMOVAL

The tanks will be emptied of fuel, cleaned, dismantled and transported to the Meadowbank mine site landfill. The fuel tanks or the steel will be offered to local interests prior to shipment from Baker Lake.

After the removal of the tank farm, any contaminated soils from the fuel storage area will be removed and placed in a lined disposal facility (to prevent contaminated run off waters from entering the environment). This material will be transported to the Meadowbank mine site land farm to be treated with biological remediation agents. Local in-situ treatment could also be considered.

6.3. REMOVAL OF STRUCTURES

Any building or structure on the site will be emptied and offered for relocation or demolished.

7. RECLAMATION

The natural re-vegetation of the site generally will be slow due to the dry conditions that exist. Some disturbed areas will be allowed to recover naturally while vegetation will be established in others. The use of fertilizers is most effective in moist sites and while it helps on drier sites, the response by the tundra plant community on the higher ground will be significantly slower.

Native-grass cultivars and forbs (e.g. nitrogen-fixing legumes) will be used. Seeds, sprigs, cuttings and transplanted shrubs or indigenous species will also be used, but likely to a lesser extent due to their slower propagation rates observed in experiments at northern mines (BHP 2000).

Terrestrial riparian vegetation may re-establish in shoreline areas.

There will be three particular surface conditions that require reclamation on termination of activities at the Baker Lake Facilities, as described below.

7.1. GRAVEL PADS

Gravel has been placed in some areas to establish a level supporting surface under fuel tanks and on the laydown area. The natural surface remains stable and is bordered by natural vegetation. The gravel will be mixed with peat and fertilizer and be dispersed; the original ground surface will be fertilized and allowed to re-vegetate naturally.

7.2. PIPELINE BASE

Gravel has been placed under the pipeline areas to establish a level supporting surface. The natural surface remains stable and is bordered by natural vegetation. The gravel will be mixed with peat and fertilizer and be dispersed; the original ground surface will be fertilized and allowed to re-vegetate naturally.

7.3. ROADWAYS

All access roads which were constructed will be decommissioned and returned to the original ground profile (unless the Hamlet wants to keep the roads). The pre-existing drainage courses will be re-established and all culverts removed. Disturbed surfaces will be scarified and fertilized to promote natural vegetative cover.

8. SITE MONITORING

After the completion of reclamation, two years of annual monitoring of the site will take place in the late summer. The monitoring will consist of measuring and documenting plant re-growth, and inspecting potential problem areas for erosion and run-off into the Lake. Reports, including photographs, will be submitted to the land owner (KIA) and to the NWB.

9. MANAGEMENT AND CONTINGENCY FACTOR

Cost estimates for the above activities are based on unit costs and unit project management costs are estimated at 70 days at $500/day or $35,000. Table 2 is attached to this document, which includes detailed cost estimates for each activity. No contingency factor has been added to the amounts presented in table 2.

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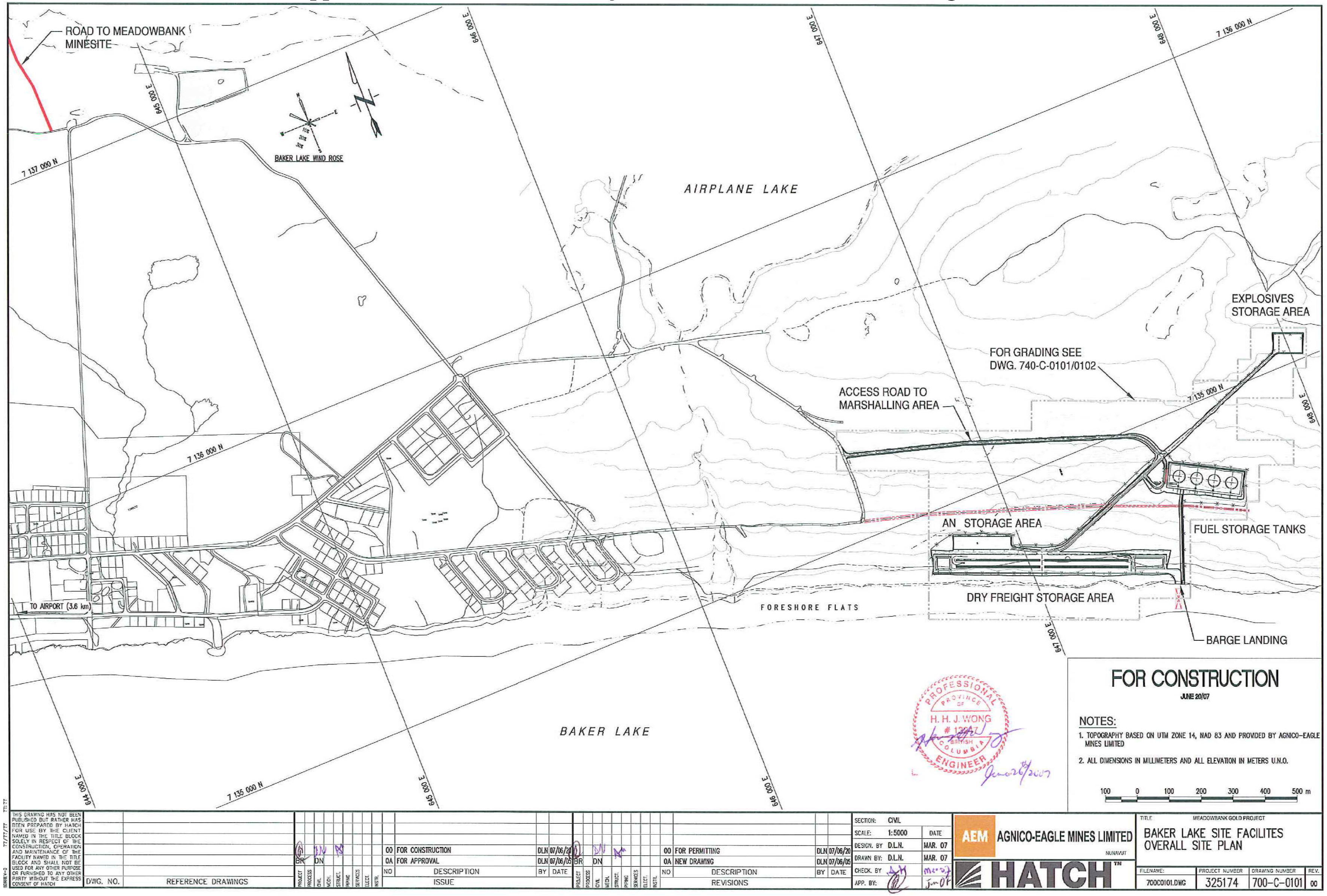
Nunavut Impact Review Board (NIRB), 2006. Meadowbank Gold Mine Project Certificate; Nunavut Land Claims Agreement Article 12.5.12. December 30, 2006.

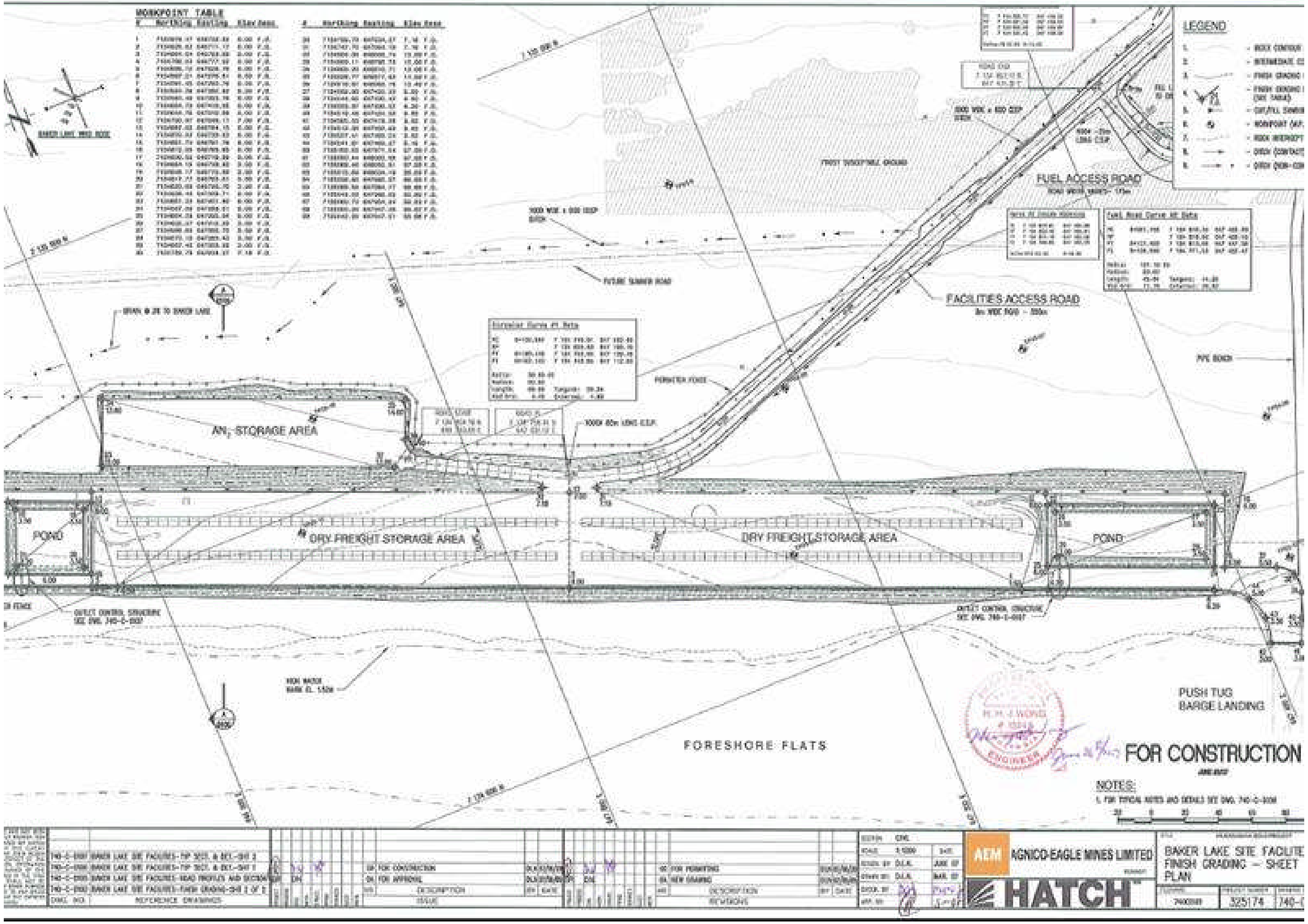
Table 2: Meadowbank Project Baker Lake Facilities Reclamation Cost Estimate

(October 2007)

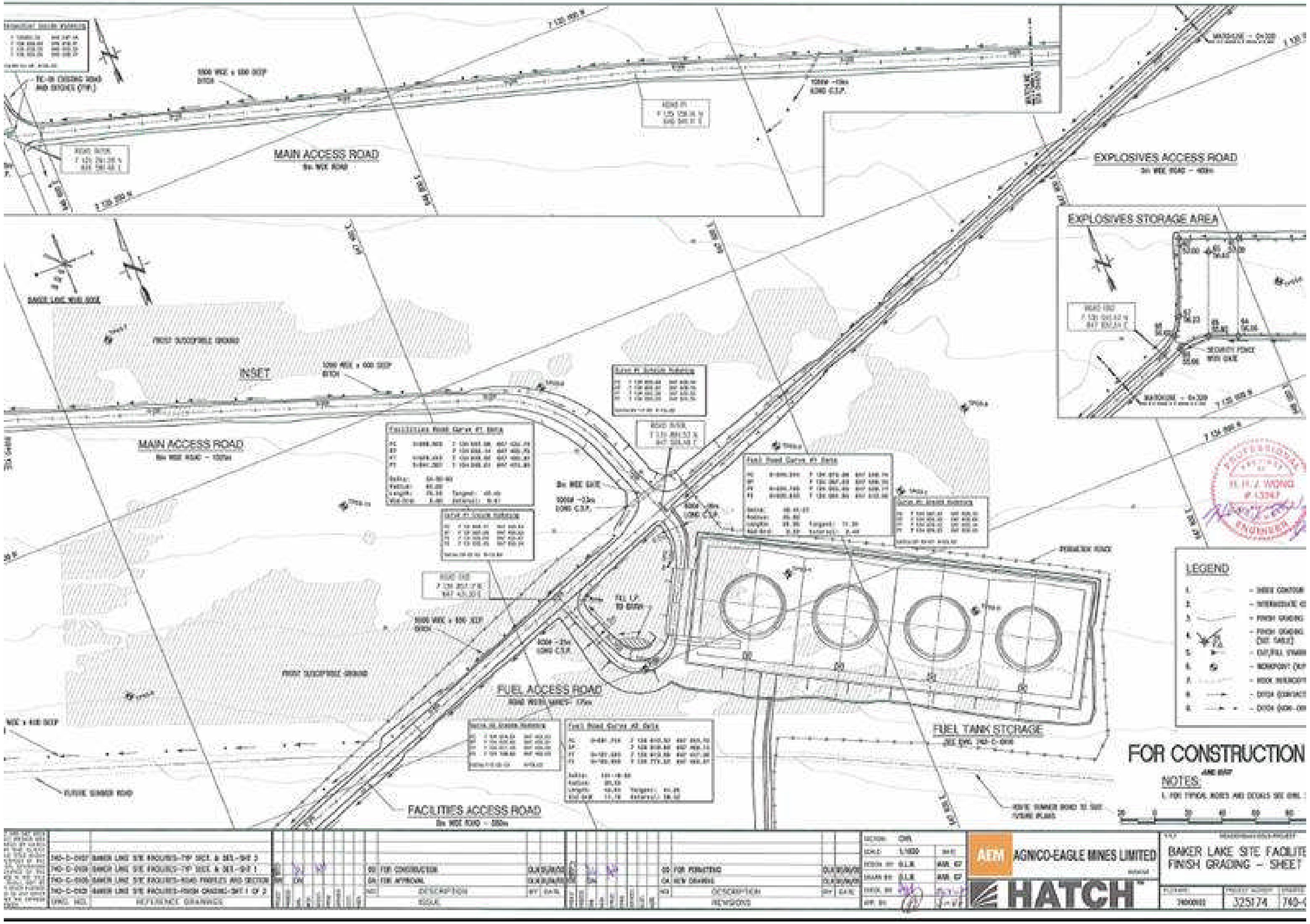
Activity	Sub-activity	Item	Unit	# Units	Cost/Unit	Cost by activity	# man days	allocation of Labour 200$	Allocation of hotels	Allocation for Helicopter	Total for Activity
1.0 Remove structures											
1.1 Fuels/tanks	Remove Fuel	Bulk	litres	2000	0,59 $	1 178,00 $					1 178,00 $
	Remove 5 Tanks and buildings	Clean-up					10	2 000,00 $	2 000,00 $		4 000,00 $
		Dismantle					75	15 000,00 $	15 000,00 $		30 000,00 $
		Baker to mine	tonne	900	46,28 $	41 652,00 $					41 652,00 $
Subtotal - Remove Structures							**12**	**2 400,00 $**	**1 200,00 $**	**3 429,00 $**	**76 830,00 $**
2.0 Reclamation											
2.1 Equipment work	D7H flatten slopes, fill sumps, roads, air strip and tank		op hrs	40	120,00 $	4 800,00 $	5	1 000,00 $	500,00 $	1 429,00 $	7 729,00 $
	Backfill trenches with Cat 307 Hoe		op hrs	120	100,00 $	12 000,00 $	6	1 200,00 $	600,00 $	1 714,00 $	15 514,00 $
2.2 Supplies/clean up and labour	Fertilizer		bulk	2	6 000,00 $	12 000,00 $	5	1 000,00 $	500,00 $	1 429,00 $	14 929,00 $
	Peat		bulk	2	6 000,00 $	12 000,00 $	5	1 000,00 $	500,00 $	1 429,00 $	14 929,00 $
	Scarify						3	600,00 $	300,00 $	857,00 $	1 757,00 $
	Site clean up						2	400,00 $	200,00 $	571,00 $	1 171,00 $
2. Contaminated soil	send to land farm					50 000,00 $					50 000,00 $
2.4 Site monitoring	Contract	Year 1	flat rate	1	10 000,00 $	10 000,00 $					10 000,00 $
		Year 2	flat rate	1	6 000,00 $	6 000,00 $					6 000,00 $
Subtotal - Reclamation						**106 800,00 $**		**5 200,00 $**	**2 600,00 $**	**7 429,00 $**	**122 029,00 $**
Project Management			**man days**	**30**	**500,00 $**	**15 000,00 $**			**7 000,00 $**		**22 000,00 $**
Total cost - no contingency											**220 859,00 $**

Appendix A : Meadowbank Project Baker Lake Facilities Drawings

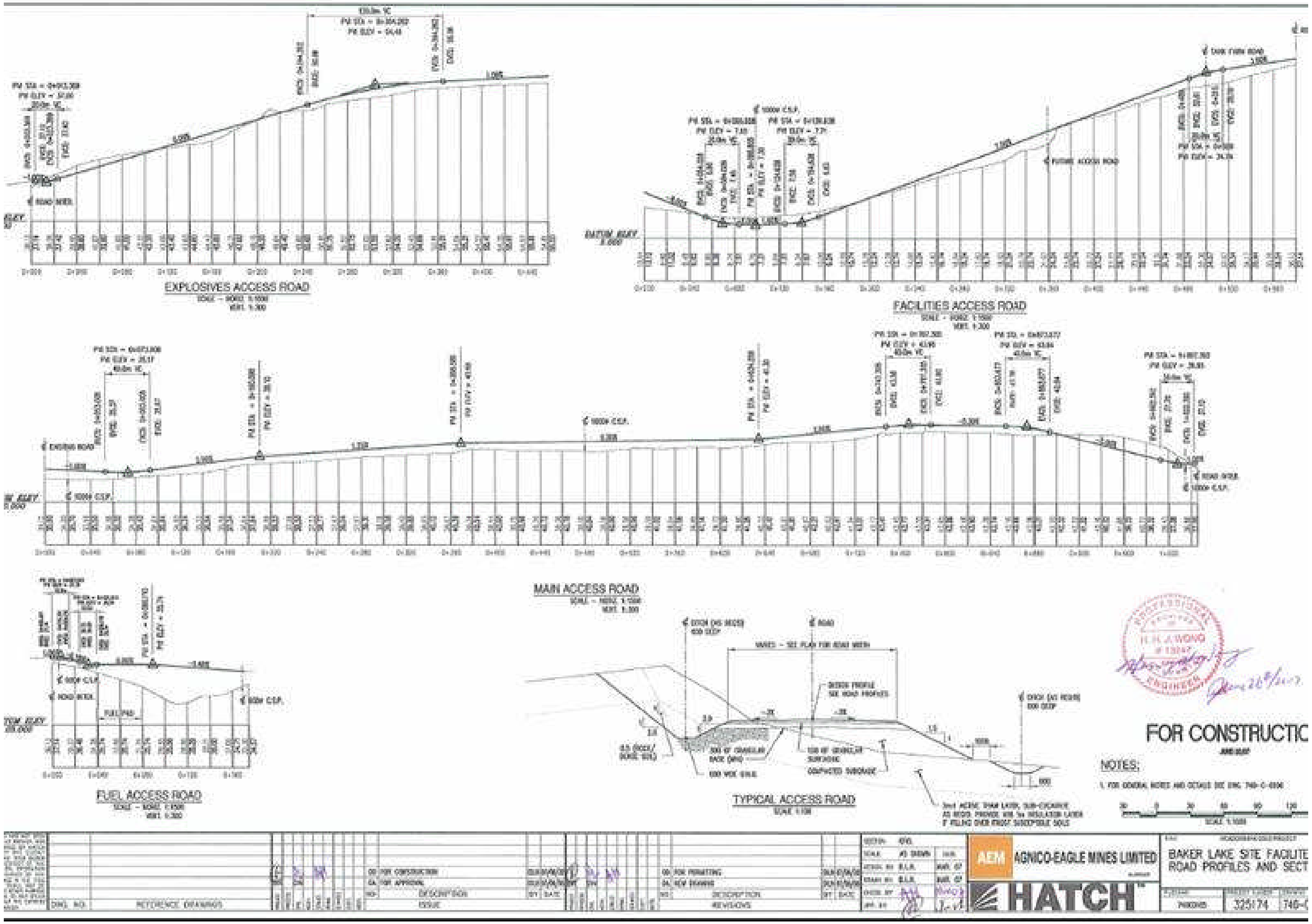




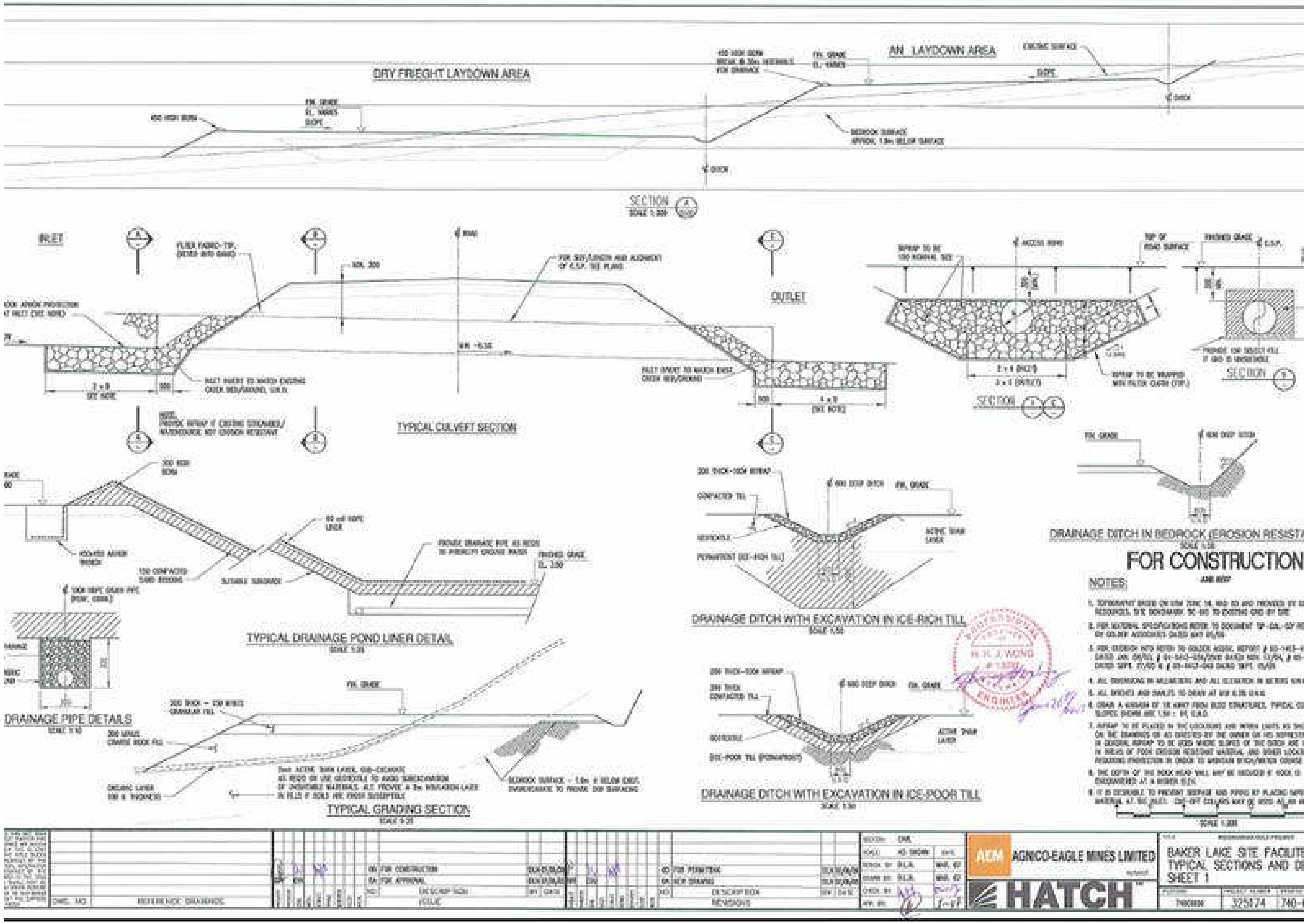
LEGEND
FUEL ACCESS ROAD
FACILITIES ACCESS ROAD
AN3 STORAGE AREA
DRY FREIGHT STORAGE AREA
DRY FREIGHT STORAGE AREA
POND
POND
FORESHORE FLATS
PUSH TUG
BARGE LANDING
FOR CONSTRUCTION
NOTES:
AGNICO-EAGLE MINES LIMITED
HATCH
BAKER LAKE SITE FACILITE
FINISH GRADING – SHEET
PLAN
325174



MAIN ACCESS ROAD
EXPLOSIVES ACCESS ROAD
EXPLOSIVES STORAGE AREA
INSET
MAIN ACCESS ROAD
FUEL ACCESS ROAD
FUEL TANK STORAGE
FACILITIES ACCESS ROAD
LEGEND
FOR CONSTRUCTION
NOTES:
AEM AGNICO-EAGLE MINES LIMITED
HATCH
BAKER LAKE SITE FACILITE
FINISH GRADING – SHEET
325174



EXPLOSIVES ACCESS ROAD
FACILITIES ACCESS ROAD
MAIN ACCESS ROAD
FUEL ACCESS ROAD
TYPICAL ACCESS ROAD
FOR CONSTRUCTIC
NOTES:
AEM
AGNICO-EAGLE MINES LIMITED
HATCH
BAKER LAKE SITE FACILITE
ROAD PROFILES AND SECT
325174


DRY FRIEGHT LAYDOWN AREA
AN LAYDOWN AREA
SECTION A
INLET
OUTLET
TYPICAL CULVERT SECTION
SECTION
TYPICAL DRAINAGE POND LINER DETAIL
DRAINAGE PIPE DETAILS
TYPICAL GRADING SECTION
DRAINAGE DITCH WITH EXCAVATION IN ICE-RICH TILL
DRAINAGE DITCH WITH EXCAVATION IN ICE-POOR TILL
DRAINAGE DITCH IN BEDROCK (EROSION RESIST
FOR CONSTRUCTION
NOTES:
AEM
AGNICO-EAGLE MINES LIMITED
HATCH
BAKER LAKE SITE FACILIT
TYPICAL SECTIONS AND D
SHEET 1

APPENDIX C

INAC Lease 66A/8-71-2 & 66A/8-72-2, Updated Closure and Reclamation Plan for the Tehek Lake All Weather Private Access Road, Baker Lake – Meadowbank, December 17, 2007

INAC Lease 66A/8-71-2 & 66A/8-72-2

Updated Closure and Reclamation Plan

For the Tehek Lake All Weather Private Access Road

Baker Lake-Meadowbank

Agnico-Eagle Mines Limited
Meadowbank Division

<u>Submitted: December 17, 2007</u>

Agnico-Eagle Mines Limited – Meadowbank Division
555 Burrard Street – Suite 375
Box 209 – Two Bentall Centre
Vancouver, BC, V7X 1M8

TABLE OF CONTENTS

1. Introduction

Agnico-Eagle Mines Limited (AEM) is required to submit a closure and reclamation plan for the Tehek Lake All Weather Private Access Road (AWPAR) and associated borrow areas under covenant #26 of the INAC crown land leases 66A/8-72-2 and 66A/8-71-2. This Plan has been prepared to meet this requirement. This Plan provides information on the proposed decommissioning and reclamation activities planned for this access road once mining operations at the Meadowbank site cease and decommissioning of the mine site is complete. It is intended to be a "living document", meaning that it will be reviewed and updated by AEM on a regular basis and amended to incorporate the experience gained elsewhere on the Meadowbank Project.

1.1 All-Weather Tehek Lake Access Road from Baker Lake

1.1.1 Introduction

The Meadowbank Gold Project is located approximately 70 kilometers north of the Hamlet of Baker Lake, Nunavut. The mine plan includes open pit mining from three separate open pits at the site over a 10 year estimated mine life. The project is host to an open pit mineral reserve of over 2.9 million ounces gold. As part of the project proposal, an all-weather private access road (the Tehek Lake Access Rd.) is being constructed to extend from the Hamlet of Baker Lake to the Meadowbank project site, a distance of approximately 110 kilometers.

The all weather road will be used to provide access to the site during construction of the mine and milling facilities, as well as, providing a transportation route from Baker Lake to the site for supplies (dry goods, fuel, etc.) required until the end of production (est. 2020). During the feasibility level economic assessment of the project, three alternate transportation options were considered: a seasonal ice road following lakes and rivers, a seasonal winter road utilizing both overland and lake ice sections and an all weather gravel road with culverts and bridges. The all-weather road option was selected as it has a significant positive impact on the economics and environmental aspects of the proposed development of the Meadowbank Project. Year-round road access reduces the amount of infrastructure required at the site by significantly reducing the volumes of fuel and other consumable supplies that must be stored at the mine in order to support operations.

Baseline environmental and geotechnical analysis of the proposed route was conducted prior to the submission of the Final Environmental Impact Statement. The right of way for the road was selected to minimize possible effects on the environment. The road is being constructed above grade, using quarried material from non-acid generating country rock, with a minimum number of bridge crossings.

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

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

Decommissioning and reclamation of the access road from Baker Lake to the Meadowbank site will begin once final decommissioning and reclamation of the mine site is complete (estimated to be after 2012 at the earliest)

2.0 Decommissioning and Reclamation

Once decommissioning and reclamation of the mine site has been completed and all equipment and materials that are to be demobilized have been transported to Baker Lake, the access road to the mine will be closed and the right-of-way reclaimed. Any side roads or quarries along the route would also be reclaimed at that time if not previously reclaimed.

2.1 Quarry Sites and Borrow Sources

All quarry sites and borrow sources developed during the construction of the road have been selected to ensure that only non-acid generating materials are quarried as road construction material. These quarry sites were identified in the "Project Alternatives Report" which was submitted as part of the FEIS for the project. Water quality monitoring and testing is being and will be undertaken during the construction and operational period of the road to measure the quality of water draining from the open quarry sites and road base materials.

The quarries and borrow areas will be reclaimed as follows:

- All buildings, equipment and other infrastructure will be removed from the quarries/borrow areas and transported either to the Meadowbank Project site or to Baker Lake for appropriate disposal and/or sale;
- All garbage and other man made debris/waste will be similarly removed from the quarries/borrow areas and transported either to the Meadowbank Project site or to Baker Lake for appropriate disposal;
- All remaining quarried rock material will either be removed and used for reclamation elsewhere or spread over the base of the respective borrow/quarry site;
- The quarry/borrow area high walls will be permanently reduced in slope angle to 45 to 50 degrees to provide a safe long term slope angle;
- The quarry floors are being prepared in a manner to prevent the ponding or collection of pools of water inside the quarry/borrow sites. At closure the quarry floors will be either ditched or graded where necessary to ensure the ongoing unrestricted drainage of runoff water onto the surrounding tundra;

- Any culverts placed in the access roads into the quarry/borrow area sites will be removed and the opening back graded and armoured to ensure the unrestricted flow of water through these openings in a manner that will not cause erosion; and
- Access into each quarry/borrow area will be blocked by placing a rock pile of approximately 2 m in height across the access entryway into the quarry/borrow area to prevent easy access by wheeled vehicles.

  In the unlikely event that sulphide mineral bearing, acid-generating bedrock be exposed during quarry development then this material will be removed and transported to the appropriate waste rock storage area at the Meadowbank Project site (assuming that the volumes make this practical). Where the volumes make this impractical then a site specific action plan would be developed and implemented. Such a plan would include:

- Techniques to prevent/minimize the amount of water coming into contact with this exposed bedrock;
- Techniques to seal off the exposed bedrock from contact with air to the greatest extent possible to retard the rate of sulphide weathering (e.g. spraying on a concrete cover, burying the exposed bedrock under a layer of acid consuming rock, etc.)

2.2 Access Road Right-of-Way

During the environmental assessment of the Meadowbank Project significant concern was raised over the potential impact on wildlife populations from ease of hunting access over the AWPAR after the mining ceased. AEM committed to manage the road as a private road with limited free public access during the mine life. This commitment is contained within the Project Certificate issued by the Nunavut Impact Review Board.

At final decommissioning of the AWPAR, AEM will take action to make the road surface as impassable as possible to limit future access. All bridge structures and culverts will be permanently removed from the road. The culvert areas and stream banks will be back graded and armoured where necessary with coarse boulders to allow future unrestricted passage of the streams and drainage pathways while minimizing the potential for future erosion.

The entire road surface will be “ripped” using the ripper tooth attachment on a dozer to make the surface of the road and as impassable as possible to motorized vehicles. The ripping of the road bed will be accomplished utilizing a Cat D8 dozer with a "ripper" attachment on the back. Successive passes with the dozer longitudinally along the road bed will eliminate the level road surface and make travel difficult. It is anticipated that in this way the abandoned former all-weather access road will not be usable (or desirable for use) by snowmobile, quad or vehicle during either the snow-free or snow-cover period. Adjacent undisturbed tundra areas will offer easier access routes for such vehicles which is the condition present prior to the road construction.

It is anticipated that the road deactivation works will be carried out as necessary to stabilize any low cut-and-fill slopes where potential for slope erosion may exist. Stabilization measures may require pulling back of side cast fill on locally steep slopes or buttressing and/or re-contouring of steepened out slopes using non-acid-generating material. As much as practical, deactivated surfaces will be graded to blend with the existing topography.

To the extent practical, the decommissioning would also restore the natural pre-road hydrology. Natural drainage courses would be restored primarily through the removal of all culverts and/or bridges, and through the rehabilitation of channels and banks at the crossing sites. Cross-drain structures (cross-ditches) will be installed where necessary between culvert sites. Where armoring rock (riprap) is required, this rock will be non-acid-generating for the protection of aquatic life. Where affected watercourses are fish-bearing, the timing of work may be restricted to within the designated fisheries window. For these sites, appropriate fish exclusion and salvage will be undertaken prior to the in-stream works. All in-stream works will be carried out utilizing best management practices for erosion and sediment control.

Decommissioning of the road will start from the Meadowbank end of the road and progress south towards Baker Lake. Stream crossings will be rehabilitated as they are encountered during the progression of the work. The culverts and bridges will be removed from the crossings using a backhoe and crane and the removed materials (i.e. culvert steel, bridge decks, abutment steel, etc.) will be transported to Baker Lake, using a Semi-tractor and low-boy trailer, for disposal and salvage.

Successfully revegetating the entire roadway will be difficult given the lack of available local soils, the lack of a source of seed for native plants and the Arctic growing conditions. AEM will attempt to facilitate natural re-vegetation of the roadway to the maximum extent possible by loosening of the road bed surface and allowing moisture to be retained for seed germination. Where possible AEM will seed the road bed surface provided that a suitable supply of seed can be found that complies with the Nunavut guidelines and restrictions requiring the re-vegetation with native plant species only.

A list of equipment required for the decommissioning of the road and an estimated cost for the proposed work are provided in the following section.

3.0 Equipment to be used for Reclamation

Decommissioning of the road will utilize pieces of equipment from the mining fleet. A list of the equipment required to complete the reclamation of the road is included in Table 1 below:

Table 1: Road Reclamation Equipment

Quantity	***Type of Equipment***
1	Cat D8 Dozer
1	Crane
1	Backhoe
1	Semi tractor with lowboy trailer (float)

4.0 Reclamation Costs

A table is provided in Appendix I below, which provides a detailed estimate of the projected cost for the decommissioning and reclamation of the Tehek Lake Access Road. The estimate as presented covers the projected costs associated with running the proposed equipment (including operators), the cost of the fuel required to complete the work and the cost of food and lodging for the workers.

APPENDIX 1:

Meadowbank Access Road from Baker Lake to Meadowbank

Cost Estimate for Reclamation

Access Road Length (km):	110 km
Number of Bridge Crossings:	9
Number of Multi Culvert Crossings	13

Equipment Parameters

1)	D8	Hourly Rate ($/hr)	$146
	Operator	Hourly Rate ($/hr)	$60
	Total		$206
	Total per day of 10 hrs		$2,060
	Food and camp per day		$40
	Total per day		$2,100
2)	Crane	Hourly Rate ($/hr)	$200
	Operator	Hourly Rate ($/hr)	$65
	Total per day of 10 hrs		$2,650
	Food and camp per day		$40
	Total per day		$2,690
3)	Backhoe	Hourly Rate ($/hr)	$176
	Operator	Hourly Rate ($/hr)	$55
	Total		$231
	Total per day of 10 hrs		$2,310
	Food and camp per day		$40
	Total per day		$2,350
4)	Float incl. operator Hourly Rate ($/hr)		$75
	Total per day of 10 hrs		$750
	Food and camp per day		$40
	Total per day		$790

5) Fuel Consumption

litres per day of 10 hrs plus idling

D8	500	$500
Crane	200	$200
Backhoe	550	$550
Float	200	$200

Basic Approach

1) Road surface to be ripped to an extent that it is no longer motorable
2) All Bridges to be removed and disposed off appropriately
3) All Culverts to be removed and disposed off appropriately

1) Road surface to be ripped to an extent that it is no longer motorable

Approximately 1 km per day; D8 with a ripper plus operator

Number of Days	110	
Cost of D8 per day plus fuel	$2,600	
Total		$286,000

2) All Bridges to be removed and disposed of appropriately

Approximately 1 bridge per day; Crane, Backhoe and Float with operators

Number of Bridges	9	
Cost of Above Fleet per Day	$6,780	
Total		$61,020

3) All Culverts to be removed and disposed of appropriately

Approximately 1 bridge per day; Crane, Backhoe and Float with operators

Number of Culverts	13	
Cost of Above Fleet per Day	$6,780	
Total		$88,140

Total Estimated Cost	$435,160
Allow for Contingencies@10%	$43,516
Reclamation Total	**$478,676 say $500,000**

APPENDIX D

Meadowbank Gold Project, Preliminary Closure and Reclamation Plan, August 2007

MEADOWBANK
MINING CORPORATION

MEADOWBANK GOLD PROJECT

PRELIMINARY CLOSURE & RECLAMATION PLAN

AUGUST 2007

EXECUTIVE SUMMARY

This document presents the preliminary Closure and Reclamation Plan for the Meadowbank Gold Project in Nunavut. The site is located in an arctic environment and is underlain by continuous permafrost. Key issues for successful completion of the Closure and Reclamation Plan are related to both physical components (open pits, buildings, site infrastructure, and waste storage areas) and chemical components (clean and "contact" waters, potential spills of contaminated waters, tailings, and hazardous materials). The plan emphasizes permanent, environmentally sound disposal and storage of tailings, waste rock, and other waste materials generated over the 8 year life of the project.

The objectives of the Closure and Reclamation Plan are to:

- Present a site characterization of the Project and proposed mine site, including the natural setting, history, and a description of the site's proposed facilities;
- Present reclamation measures to address the proposed disturbed areas;
- Provide a schedule of the activities for mining, reclamation and closure of the site;
- Provide a schedule of post closure monitoring activities; and
- Provide a budget of the estimated costs for closure and reclamation of the property.

The Project entails an 8,500 tonnes per day (t/d) mine and processing operation designed to produce gold doré bars on site. The operation will also produce a total of 182 million tonnes (Mt) of mine waste rock, 9 Mt of overburden, and 22 Mt, or about 15 million cubic metres of tailings over the life of the mine. Four deposits will be developed containing the following rock types of varying chemical characteristics:

- Portage Area (North Portage/Connector Zone, and Third Portage Deposits) and Goose Island deposits – iron formation, intermediate volcanic, ultramafic, and minor quartzite rocks; and
- Vault Deposit – intermediate volcanic rocks.

The Portage and Goose Island deposits are located in a centralized mining and milling area. The Vault deposit is approximately 6 km to the north.

Some of the waste rock and all of the tailings are potentially acid-generating (PAG). The ultramafic rocks and approximately 72% of the intermediate volcanic rocks are expected to be acid buffering (non-PAG), while all iron formation, quartzite and the balance of intermediate volcanic rock are either PAG or have an uncertain potential to generate acid rock drainage (ARD). Suitable mine waste rock will be used for mine development and construction purposes. Some of the reactive waste rock will be placed back into the Portage open pit to be flooded at end of mine life, or will be used to construct fish habitat within Second Portage and Third Portage lakes. Remaining waste rock will be stockpiled in Rock Storage Facilities (RSF) near the Portage and Vault open pit areas. Tailings from process operations will be deposited by pipeline in the Tailings Storage Facility (TSF).

Water management facilities will include some 4 km of Dewatering Dikes, water diversion and collection systems, contact water attenuation ponds and tailings water Reclaim Pond. Once mining and milling has been completed, reclaim water will be drained from the TSF and treated if required prior to discharge to the Goose Island or Portage pit lakes. Treatment of reclaim water, if required, may be completed in-situ or via a water treatment plant. The Dewatering Dikes will be constructed and maintained to enable open pit mine operations to progress from on-land pits initially, to deposit extensions beneath adjacent lakes, and to allow monitoring of pit lake water quality at closure. Diversion ditches will direct clean runoff water away from areas affected by mining activities. Contact water originating from project use areas will be intercepted, collected, and conveyed to central storage facilities and decanted to treatment facilities, if necessary, or to receiving lakes at the end of the mine life. Areas within the dewatered Vault Lake and northwest arm of Second Portage Lake will serve as central water attenuation ponds for the Vault and Portage mine areas, respectively.

This preliminary Closure and Reclamation Plan is based on the anticipated site conditions and water balance during the final year of mine operations and is summarized below.

Open Pits

At the end of active mining operations, rock berms will be placed around the perimeters of the pits that will be above water to restrict access and minimize hazards to people and wildlife. Re-watering of the Goose Island and Portage pits will commence before the completion of mining activities at Vault. All of the pits will eventually be flooded. The Dewatering Dikes will remain in place until water levels equilibrate and the quality of pit lake waters is acceptable for mixing with adjacent lakes.

Buildings and Infrastructure

The Process Plant and related buildings will be dismantled and either removed off site as salvage materials, or if not removed off site for salvage, would be decontaminated and disposed of in the open pits or Portage RSF. This includes the primary crusher, ore storage building, mill complex, site services, and power plant.

Other structures and buildings, including the camp complex, the shop, warehousing, and office complex, the mine site tank farm, and miscellaneous dry storage facilities, will be dismantled and disposed of on site in the Portage RSF. Any hazardous material would be washed or removed before disposal.

The ground surface in areas used for the facilities listed above and for other infrastructure associated with mine operations, such as the airstrip, roads, storage pads, quarries, and granular borrow areas (if present), will be recontoured and reclaimed according to site-specific conditions to minimize erosion from surface runoff and wind-blown dust and to enhance the sites for wildlife habitat.

Tailings and Rock Storage Facilities

The TSF and the Portage and Vault RSFs will be closed progressively during mine operations. Waste rock placed in the Portage Pit will be flooded upon completion of mining.

A dry cover of acid buffering, non-PAG ultramafic rockfill will be placed over Portage waste rock piles containing PAG materials and over the previously drained TSF to confine the active permafrost layer within relatively inert materials.

At present, a cover is not anticipated to be required at the Vault RSF as static and kinetic test results suggest that the bulk of the material is non-PAG and that a sufficient quantity of buffering rock is present within the pile to neutralize any localized acidification. Drainage water quality will be monitored during operation and post closure to confirm predictions.

The progressive closure activities will be monitored, inspected, and maintained during and post mine operations. Procedures will be modified as required to achieve the objectives of the Reclamation and Closure Plan.

Water Management Facilities

The Reclaim Pond will remain in place until mining has been completed. At closure, reclaim water will be discharged to the Portage or Goose Island pit lakes, which will be isolated from the receiving lakes by the Dewatering Dikes. If required, reclaim water will be treated prior to discharge to the pit lakes; treatment may be in-situ (within the Reclaim Pond) or via a water treatment plant. Once drained, the Reclaim Pond area will be filled with acid buffering ultramafic rock, and contoured to promote drainage. Additional surface water collecting within the Reclaim Pond area will be monitored and treated, if necessary, prior to release to the Goose Island or Portage pit lakes. Once monitoring indicates that the runoff water quality is acceptable for mixing with receiving lakes, surface water runoff from the TSF will be allowed to flow to Third Portage Lake untreated.

Water quality predictions suggest treatment of Portage and Goose Island pit lake water will not be required; however, in-situ treatment through lime addition to control pH will be applied if necessary. Once monitoring results demonstrate that the water quality of all contact water is acceptable for discharge to the environment without further treatment, the Portage and Goose Island pit lakes will be hydraulically re-connected with Third Portage Lake through breaching of the Goose Island Dike. Dike breach will occur only after the Portage and Goose Island pit lake water levels have equilibrated with Third Portage Lake, and pit lake water quality is deemed acceptable for mixing with receiving lakes.

The Vault Attenuation Pond and Pit within the Vault Lake basin will be reflooded upon cessation of mining activities. Water quality predictions suggest treatment will not be required; however, water quality will be monitored, and in-situ treatment will be undertaken if necessary. The concentrations of constituents that are to be monitored in the Vault Pit Lake are currently predicted to meet the Metal Mining Effluent Regulations (MMER) for all constituents. In addition, the water quality is predicted to be within the recommended Canadian Council of Ministers of the Environment (CCME) guidelines for the protection of aquatic life, for the majority of constituents except for cadmium, copper, and zinc, whose concentrations are predicted to be of the same order of magnitude as the guidelines. The Vault Dike will be breached only after the Vault Pit Lake water level has equilibrated with Wally Lake, and pit lake water quality is acceptable for mixing with receiving lakes.

All contact water ditches and sumps will be drained, recontoured, stabilized and/or capped to minimize erosion from surface runoff and wind-blown dust. Non-contact water diversion ditches may be retained to promote surface water drainage.

The final Reclamation and Closure Plan will be developed in conjunction with the mine plan so that considerations for site closure can be incorporated into the mine design. Monitoring will be carried out during all stages of the mine life to demonstrate the safe performance of the mine facilities. If any non-compliant conditions are identified, then maintenance and planning for corrective measures will be completed in a timely manner to ensure successful completion of the Reclamation and Closure plan.

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SECTION 1 • INTRODUCTION

Meadowbank Mining Corporation (MMC), formerly Cumberland Resources Ltd. (Cumberland), has decided to develop the Meadowbank Gold Project, approximately 70 km north of Baker Lake, Nunavut as shown on Figure 1.1. This Preliminary Closure and Reclamation Plan is a required component to the Type-A Water License Application for the Project (MMC, 2007a).

The design goals for the Project include minimizing the area of surface disturbance, stabilizing disturbed land surfaces against erosion, and returning the land to suitable conditions for post-mining uses such as traditional pursuits and wildlife habitat. Successful completion of the Closure and Reclamation Plan involves both physical components (open pits, buildings, site infrastructure, and waste storage facilities) and chemical components (clean and contact waters, potential spills of contaminated waters, tailings, and hazardous materials). To provide flexibility, the Closure and Reclamation Plan is based on adaptive management methods and will be progressively modified in accordance with the results of ongoing monitoring and assessment during mine operations. The strategy outlined in this Plan is considered appropriate at this stage of the Project.

The proposed facility layout for the project is shown in Figure 1.2. The site will include the following structures and facilities:

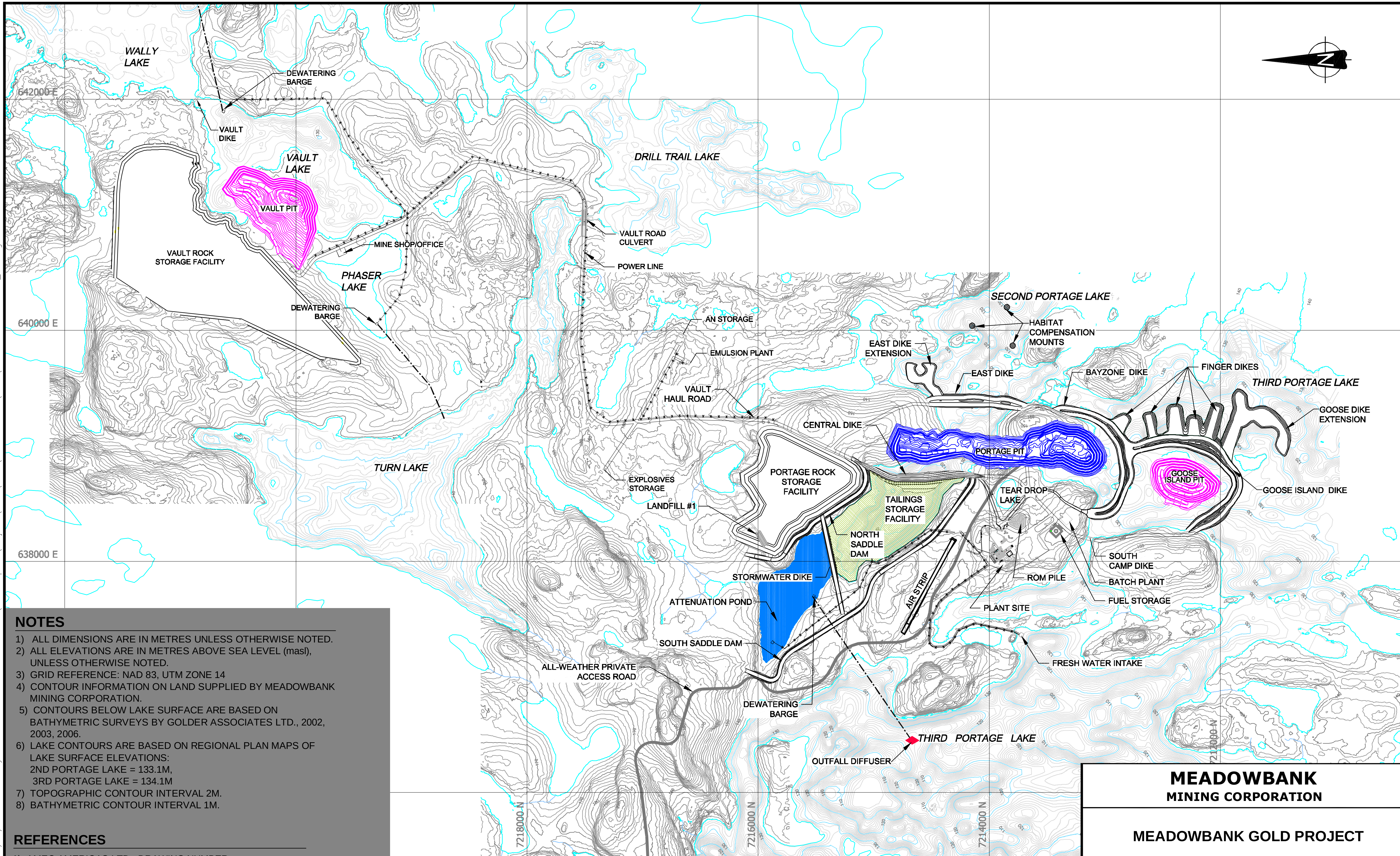
- open pits;
- Dewatering Dikes (Vault Dike, East Dike, Bay Zone Dike and Goose Island Dike);
- Tailings Storage Facility (TSF) and related infrastructure;
- Rock Storage Facilities (RSFs);
- plant site and ancillary facilities;
- airstrip, roads, and storage areas;
- quarries and granular borrow areas, if present;
- water management facilities;
- All-Weather Private Access Road (AWPAR); and
- dry storage and marshalling facilities at Baker Lake.

MEADOWBANK
MINING CORPORATION

MEADOWBANK GOLD PROJECT

MEADOWBANK PROJECT LOCATION | FIGURE 1.1

REVISION DATE: 07/08/09 08:20AM By: ASalvador CADD FILE: N:\Bur-Graphics\Projects\2006\1413\06-1413-089\9800\061413089-9800-FIG_1.1.dwg



NOTES

1) ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED.
2) ALL ELEVATIONS ARE IN METRES ABOVE SEA LEVEL (masl), UNLESS OTHERWISE NOTED.
3) GRID REFERENCE: NAD 83, UTM ZONE 14
4) CONTOUR INFORMATION ON LAND SUPPLIED BY MEADOWBANK MINING CORPORATION.
5) CONTOURS BELOW LAKE SURFACE ARE BASED ON BATHYMETRIC SURVEYS BY GOLDER ASSOCIATES LTD., 2002, 2003, 2006.
6) LAKE CONTOURS ARE BASED ON REGIONAL PLAN MAPS OF LAKE SURFACE ELEVATIONS:
   2ND PORTAGE LAKE = 133.1M,
   3RD PORTAGE LAKE = 134.1M
7) TOPOGRAPHIC CONTOUR INTERVAL 2M.
8) BATHYMETRIC CONTOUR INTERVAL 1M.

REFERENCES

1) AMEC AMERICAS LTD., DRAWING NUMBER A1-131395-100-C-0001 (100-C-0001.DWG), MEADOWBANK FEASIBILITY STUDY, APRIL 2005.

MEADOWBANK
MINING CORPORATION

MEADOWBANK GOLD PROJECT

GENERAL SITE PLAN

FIGURE 1.2

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This Preliminary Closure and Reclamation Plan addresses all of these project components, as well as the handling of contaminated materials, hazardous wastes, and non-hazardous wastes.

1.1 SCOPE OF PRELIMINARY CLOSURE AND RECLAMATION PLAN

This Preliminary Plan is an update to the existing "Conceptual" Closure and Reclamation ("C&R") Plan (Cumberland, 2005a), in compliance with NIRB requirements for a Type A Water License.

The objectives of this Plan include:

- Comply with the Indian and Northern Affairs Canada (INAC) 2006 policy requirement for full cost of restoration (clean-up, modification, decommissioning, abandonment);
- Promote environmental stability of facilities and infrastructure and minimize maintenance and monitoring requirements at abandonment;
- Minimize potential impacts from contaminants and waste (acid rock drainage [ARD]);
- Ensure removal of all hazardous materials and waste; and,
- Assist in the development of written agreements with contractors to ensure all sites are cleaned up.

1.2 REGULATORY REQUIREMENTS

1.2.1 Water License Requirements

Section 173(1) of the Nunavut Waters and Nunavut Surface Rights Tribunal Act (Department of Justice Canada, 2002, c-10) states that the regulations made pursuant to the Northwest Territories Waters Act will continue to apply in Nunavut until they are replaced or repealed under the Act. Therefore, the Northwest Territories Waters Regulations (SOR/93-303) continue to apply in Nunavut, with some exceptions.

In December 2006, the Nunavut Impact Review Board (NIRB) granted Cumberland a project certificate, under the document Meadowbank Gold Mine Project Certificate; Nunavut Land Claims Agreement Article 12.5.12. The commitments pertaining to the Closure and Reclamation Plan are addressed in this document.

1.2.2 Nunavut Guidelines and Regulations

MMC has complied with all governmental policies and regulations pertaining to environmental and socioeconomic issues in developing the Meadowbank Gold Project and have a solid local employment and safety record over nine years of exploration in Canada's Arctic.

MMC has been forthcoming with all government authorities during all aspects of project development, and have a good rapport with the local Inuit people based on mutual respect and communication. In 2007, Agnico-Eagle Mines Limited through its purchase of Cumberland became the owner of the Meadowbank Gold Project. Agnico-Eagle intends to build a mine with integrity; one that is safe, environmentally responsible, and beneficial to all parties involved. To this end, Agnico-Eagle intends to balance good stewardship in the protection of human health and the natural environment with the need for economic growth.

This Preliminary C&R Plan was created consulting the following guidelines and regulations:

- Mine Site Reclamation Guidelines for Nunavut, Indian and Northern Affairs Canada, 2002;
- Mine Site Reclamation Guidelines for the Northwest Territories, Indian and Northern Affairs Canada, Yellowknife, NWT. January 2006 Version;
- The Metal Mining Effluent Regulations (MMER);
- Canadian Environmental Quality Guidelines, Canadian Council for Ministers of the Environment (CCME);
- Report on the Implications of the Precautionary Principle in Northern Mine Design and Closure, Indian and Northern Affairs Canada (INAC), March 27, 2003;
- Financial Assurance for Mine Closure and Reclamation, International Council of Mining & Metals, February, 2005; and,
- Framework for Responsible Mining: A Guide to Evolving Standards, Executive Summary, M. Miranda, D. Chambers and C. Coumans. October 2005.

SECTION 2 • SITE HISTORY

The Meadowbank property is located in the Kivalliq Region of Nunavut approximately 70 km north of the Hamlet of Baker Lake on Inuit-owned surface lands as shown on Figure 1.1. MMC has been actively exploring the Meadowbank area since 1995.

The original Cumberland camp, now referred to as the South Camp, was erected in 1995 on an island in Third Portage Lake in close proximity to the Third Portage and Goose Island Deposits. As the project advanced, additional space was required to accommodate larger field crews. In the summer of 2002, a new kitchen and dry facilities were constructed at the North Camp, located on the mainland approximately one kilometre north of the South Camp.

The location of the new site was selected on the basis of its proximity to the proposed mill complex required for development of the Meadowbank Gold Project. This location will allow the new camp to possibly be used as an initial construction camp. In the spring of 2003, a new office and core processing facilities were constructed at the North Camp. Decommissioning and progressive reclamation of the South Camp was also initiated in 2003.

Fuel storage systems at the site now utilize four 50,000 L and five 75,000 L double walled fuel “vaults”. Originally four 50,000 L tanks were installed in the South Camp for diesel containment. These tanks have now been moved to the North Camp and are installed next to the new 75,000 L tanks, installed in 2003, to provide storage for approximately 451,250 litres of diesel fuel and 71,250 litres of Jet-A. Transportation systems have also been upgraded to accommodate bulk fuel transport of both diesel and Jet-A fuels.

A proposal was made in the fall of 2003 for the construction of a single 5 ML fuel tank at the Meadowbank site which would provide increased diesel storage capacity and allow for consolidation of the multiple tanks currently in use. This tank is scheduled to be installed in 2007.

A 900 m long airstrip is located immediately northeast of the camp. The strip is of a suitable length to accommodate use by small aircraft, as required, in support of exploration work at the site.

SECTION 3 • CURRENT SITE CONDITIONS AND ENVIRONMENTAL BASELINE RESULTS

Engineering, environmental baseline studies and community consultations were undertaken concurrently with the exploration program discussed in Section 2.0. These studies were integrated in the Final Environmental Impact Statement (FEIS), submitted to NIRB on October 2005 (Cumberland, 2005b). The FEIS was submitted in accordance with the NIRB requirements for proposed mine developments established by Part 5 of the Nunavut Land Claims Agreement. The FEIS provided a detailed description of the proposed project, current physical, biological, and socioeconomic conditions, potential impacts, mitigation and management strategies, and long term monitoring plans. An overview of the biophysical, biological and socio-economic environments is presented below. The information in Section 3.1.1 summarises key data presented in the Baseline Physical Ecosystem Final report (Cumberland, 2005i).

3.1 BIOPHYSICAL ENVIRONMENT

3.1.1 Physical Environment

The Meadowbank Gold Project is located within the Low Arctic ecoclimatic zone, one of the coldest and driest regions of Canada. The topography of the area is of generally low relief with an elevation of approximately 70 m. The surficial geology is dominated by discontinuous thin veneers of organic material, till, and/or weathered parent material overlying undulating to hummocky bedrock.

The underlying bedrock consists of iron formation (IF), intermediate volcanic (IV), and ultramafic (UM) rocks, with quartzite (QTZ) in some areas. Two main faults, the Bay Zone Fault and the Second Portage Fault, are present. The sheared and faulted stratigraphic contacts and overall foliation orientations will dip at steep angles to the west at the western and eastern margins of the Third Portage and Goose Island deposits, while they dip at shallower angles through the central portion and north end of the Third Portage deposit, the Connector Zone and the North Portage deposit. The sheared stratigraphic contacts and overall foliation orientations at the Vault deposit will dip to the south and southeast at shallow angles.

The observed periglacial geomorphic processes are typical of areas underlain by continuous permafrost, although their expression is subdued by the relatively thin cover of overburden and the relatively dry site conditions. In general, the geomorphology and soils observed within the area do not present any features or processes that prohibit the development of the proposed mine.

Continuous permafrost to depths of between 450 m and 550 m underlies most of the Project area. The depth of the active layer in the Project area ranges from about 1.3 m in areas of shallow overburden and away from the influence of lakes, up to 4 m adjacent to lakes, and up to 6.5 m beneath the stream connecting Third Portage and Second Portage lakes. It is suspected that Second Portage and Third Portage lakes have taliks extending through the permafrost. The talik beneath Vault Lake (if present) is considered to be isolated, not extending through the permafrost.

The shallow groundwater flow regime at the Project site has little to no hydraulic connection with the groundwater regime located below the deep permafrost. On a regional scale, deep groundwater in the Project area is suspected to flow either to the northwest or to the southeast from Third Portage Lake. This is due to the project being located near the drainage divide between the Back River Basin, which flows north and northwest to the Arctic Ocean, and the Thelon River Basin, which flows east to southeast towards Hudson Bay. The northwest portion of Second Portage Lake, however, is a discharge zone with water flowing upwards from the deep groundwater regime. This is due to large and higher elevation lakes located to the east of Second Portage Lake.

The groundwater velocity near the Second Portage Lake and Third Portage Lake was estimated to be between 0.30 and 0.50 m per year although flows may be higher along specific features such as the Second Portage Lake Fault.

3.2 BIOLOGICAL AND SOCIO-CULTURAL ENVIRONMENTS

3.2.1 Biological Environment

Vegetation Cover

The Meadowbank study area lies at the lower end of the Northern Arctic Ecozone and is characterized by a continuous vegetation cover interspersed with bedrock outcroppings and continuously aggrading surfaces (Cumberland, 2005i).

Vegetative cover is composed of lichens, mosses, ericaceous shrubs and heaths, herbs, grasses, and sedges. Baseline vegetation studies indicated that vegetation at the mine site is typical of upland tundra. No sensitive, rare, or endangered species or communities were identified.

Wildlife

Multiple surveys were used to establish baseline conditions and determine diversity, relative abundance, and distribution of wildlife species within the local and regional study areas. Based on existing information, baseline surveys, and traditional knowledge, the Meadowbank area and vicinity is considered to be a low usage area for caribou hunting and is not used as a calving area for caribou. Grizzly bears have only been observed on two occasions since 1996.

Breeding land birds include Lapland longspur, horned lark, rock ptarmigan and savannah sparrow. Raptors, including peregrine falcon, rough-legged hawk, snowy owl, and gyrfalcon have been seen occasionally. Water birds occur at low densities with Canada goose, long-tailed duck, and loons being the most common. Waterfowl confirmed as nesting within the local study areas include long tailed duck, northern pintail, and Canada goose.

Fish Populations & Habitat

Key fish species in the Meadowbank region are lake trout, Arctic char, and round whitefish. Arctic char in the system are landlocked since there is an impassable barrier on the Quiche River near Chesterfield Inlet. Traditionally, fish has been the secondary food source for Baker Lake residents after caribou meat. Fishing is a year-round activity that is pursued on lakes near the community and Whitehills Lake, south of Meadowbank.

Second Portage, Third Portage, Tehek, and Turn lakes have been the subject of studies investigating seasonal and inter-annual trends in water and sediment quality, lower trophic level, community structure and abundance, and fisheries. All of the lower trophic level taxa identified from the project lakes are common, widespread species that are well known from this region of the Arctic.

Rare and Endangered Species

No rare or regionally unique vascular plants or plant communities have been found within the mine site or access road local study areas (LSAs) (Cumberland, 2005i).

3.2.2 Socio-Cultural and Socio-Economic Environment

The Kivalliq Region, one of three administrative regions in Nunavut, had an estimated population of over 7,500 people in 2001 (Cumberland, 2005b). Baker Lake, with an estimated population of over 1,500 in 2001, is the only inland Kivalliq Region community. In an economy that is predominantly based on traditional activity and government services, there are few employment opportunities for Baker Lake's growing labour force, with its constrained educational achievement. Unemployment levels are very high compared to the rest of Canada. Poor employment prospects have translated into a recent decline in family incomes, which in Baker Lake are substantially lower than in the region and the territory. The challenges to community health and wellness are large.

Participation in traditional ways of life is high, at about 50% both in Nunavut as a whole and in Baker Lake. Traditional activities shape social relationships and are a source of individual identity and values, sustaining Inuit culture.

During archaeological surveys, a total of approximately 70 sites were recorded. Most of the sites identified were considered temporary campsites that had been occupied relatively recently. Tent rings, autumn houses (qarmait), hearths, shelters, inuksuit, markers, blinds, caches, storage features, kayak stands, fox traps, and other unidentified features are described in the Baseline Archaeology Report (Cumberland, 2005c). No Pre-Dorset or Dorset sites were encountered in the study area, and only one Thule or early historic site was visited.

The area between Baker Lake and the mine site is considered primarily a transit route to Back River, a traditional winter hunting and fishing area. This is the likely origin of many campsites and other heritage features along the corridor, as supported by traditional knowledge.

A lack of human activity in Meadowbank prevails today. The area is not used by trappers, outfitters, tourist operators, or any other commercial organizations.

SECTION 4 • PROJECT DESCRIPTION

4.1 GENERAL DESCRIPTION OF MINE AND PLAN FOR CLOSURE

The Meadowbank Gold Project consists of several gold-bearing deposits within reasonable proximity to one another. The four main deposits are:

- Third Portage (including the Connector zone);
- North Portage;
- Goose Island; and
- Vault.

The Third and North Portage deposits will be mined as a single pit (Portage pit) approximately 2 km long running north-south. The Third Portage deposit extends from a peninsula northward under Second Portage Lake and southward under Third Portage Lake. The North Portage deposit is on the northern shore of Second Portage Lake.

The Goose Island deposit lies approximately 1,000 m south of the Third Portage deposit and extends beneath Third Portage Lake. The Vault deposit is located on a peninsula approximately 6 km north of the other mining areas and extends eastward under Vault Lake.

4.2 DIKES AND OPEN PITS

The deposits will be mined as truck-and-shovel open pit operations. A series of Dewatering Dikes will be required to isolate the mining activities from the lakes overlying or adjacent to parts of the deposits. It is proposed to use overburden and rock materials produced during initial mining on the Portage Peninsula or stripped from the footprint of the proposed RSF areas for dike construction.

The three open pits and their associated Dewatering Dikes are listed below, as shown in Figure 1.2:

1. The Third Portage and North Portage deposits will initially be mined in separate pits. The Connector Zone pit will ultimately amalgamate all three pits to form the Portage pit. Dewatering will be achieved using the East Dike and the Bay Zone Dike;

2. The Goose Island Pit. Dewatering will be achieved using the Goose Island Dike and South Camp Dike; and

3. The Vault Pit. Dewatering will be achieved using the Vault Dike.

Run-of-mine ore from the open pits will be trucked to a primary crusher and stockpiled for plant feed. Ore from the stockpile will be conveyed through a crushing and milling circuit to the process plant for treatment through gravity and leach circuits for the production of gold doré bars.

The mining plan indicates that approximately 22 Mt of ore will be mined and processed over 8 years. The mine and processing operation will generate approximately 182 Mt of waste rock materials, and 9 Mt of overburden soil and organic materials. Most of the waste rock will be delivered directly to RSFs, with lesser amounts used to construct fish habitat within Second Portage and Third Portage Lakes, or backfilled into the Portage Pit toward the end of mine life. Waste rock will also be used to construct graded surfaces for the plant site, ancillary facilities, airstrip, and roads; to construct the Dewatering Dikes; and to cap the TSF and PAG sections of the Portage RSF.

Mine pre-stripping and plant-site construction activities will be carried out over a period of 2 years, followed by the start-up of mining and process operations. Mine decommissioning and closure activities will commence on completion of mine operations, approximately 8 years from start-up, and be completed over a period of approximately 2 years. Pit flooding, water management, and closure monitoring will continue for an additional 2 to 3 years. Filling of the Goose Island Pit and the Portage Pit will commence following the completion of mining, in Year 4-5. In Year 6, tailings deposition will begin in the Portage Attenuation Pond basin, and contact water will be diverted to the Goose Island Pit Lake to assist with pit flooding. Filling of the Portage Pit will also commence before closure, once mining of the pit has been completed in approximately Year 5. Post-closure monitoring will commence after this period.

4.3 RECLAIM POND

Approximately 22 Mt, or 15 Mm3 of tailings will be produced and deposited by pipeline in the TSF over the mine life.

4.4 SADDLE DAMS

Saddle Dams will be constructed to retain the tailings and limit seepage from the TSF, and to act as a haul road surface during construction, and a pipe berm for tailings deposition (Golder, 2007a). Specifically, The North Saddle Dam is designed as a haul road and pipe berm only, while the South Saddle Dam is designed as a seepage and tailings barrier.

The South Saddle Dam will be constructed by dumping a 30 m wide rockfill along the alignment, re-sloping the upstream face, excavating a trench to bedrock along the upstream toe and the installation of an impermeable element.

The Saddle Dams will be constructed primarily of rockfill. Ice rich soils will be removed prior to construction.

4.5 CENTRAL DIKE

The Central Dike will be constructed across Second Portage Lake to create the TSF in the northwest arm of Second Portage Lake. The Central Dike is designed to retain tailings and the section includes a cutoff trench connected to a grout curtain at the upstream toe. Tailings will be transported by pipeline from the Process Plant to the TSF and spigotted from the Central Dike to fill the TSF progressively towards the west. The Central Dike will ultimately be some 3 to 4 meters above the surface of the tailings to allow for placement of the 2 m thick cap of ultramafic rock over the deposited tailings as shown on Figure 4.1.

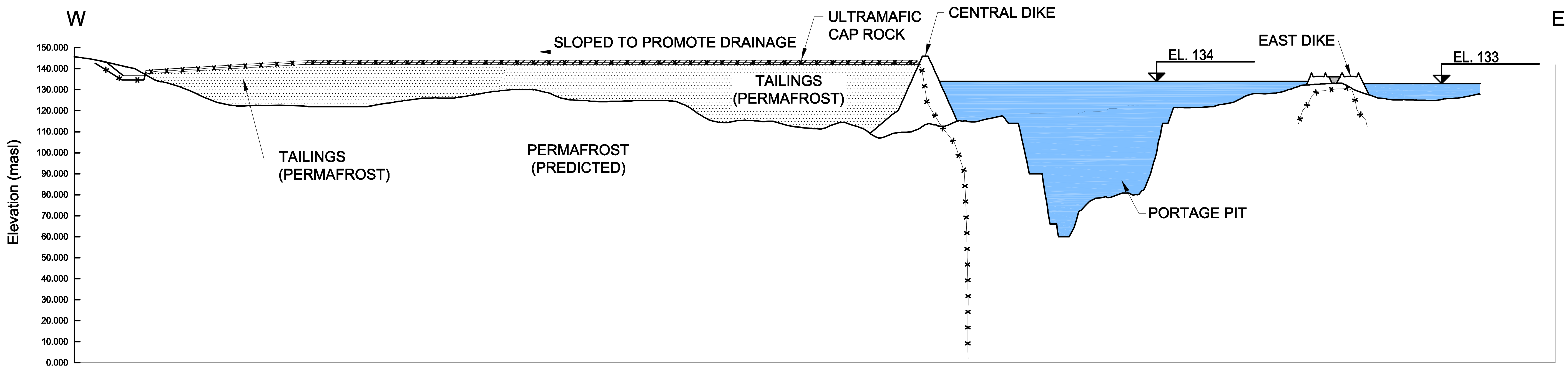
Upon closure, flooding of the Portage Pit will pond water against the downstream slope of the Central Dike.

4.6 ROCK STORAGE FACILITIES

Waste rock from the open pits not used for site development purposes will be deposited in the Portage and Vault RSFs. A smaller proportion will be placed in the Portage Pit near the end of pit operations or will be used to construct fish habitat with Second Portage and Third Portage lakes. The Vault and Portage RSFs will be closed progressively during the later stages of mine operations as the lifts of rock reach their ultimate elevation. Although all rock placed in the RSFs is expected to freeze, facility design in terms of permanent physical stability is not dependent on freezing.

During the later stages of mining of the Portage Pit, some waste rock will be placed back into the pit to be flooded during closure. Some Portage and Goose Island pit waste rock will also be used to build a series of fish habitat finger dikes and dike extensions extending from Goose Island and East dikes out into deep water. In addition, some rock will be used to construct a series of fish habitat compensation mounts within Second Portage Lake.

The mine plan will facilitate management of the non-PAG rock so that sufficient volume is produced from the Portage and Goose Island pits to adequately cover the Portage RSF, both during normal mining operations and immediately after mine closure, so that the underlying PAG waste rock is kept frozen at closure. For the feasibility-level assessment, it is assumed that the cover layer of non-PAG rock will be at least 2 m thick, requiring at least 2.5 Mt, or about 12% of the total amount of ultramafic rock supplied from Portage and Goose Island pit operations. This is shown on Figure 4.2. This thickness is consistent with other mines in the north. Depending on the results of thermal monitoring during mining operations,



A 7.1 CROSS SECTION A-A' TAILINGS STORAGE FACILITY

0 100 200 300 400 500

Horizontal Scale in Metres

0 20 40 60 100 120

Vertical Scale in Metres

LEGEND:

–×–×–×–×–×– PERMAFROST BOUNDARY (INFERRED)

MEADOWBANK MINING CORPORATION	
MEADOWBANK GOLD PROJECT	
PORTAGE TAILINGS STORAGE FACILITY CLOSURE CONCEPT CROSS SECTION	FIGURE 4.1

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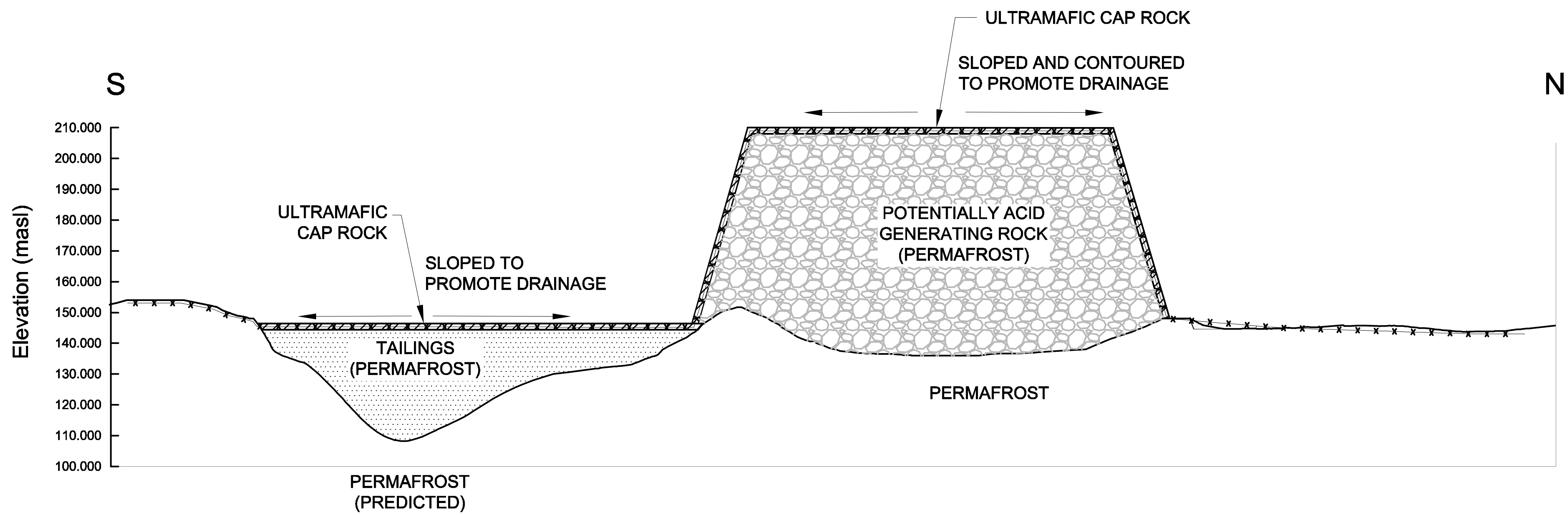
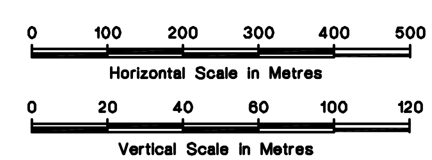


CROSS SECTION B-B'
PORTAGE ROCK STORAGE FACILITY

B
7.1



LEGEND:

–x–x–x–x–x–x– PERMAFROST BOUNDARY (INFERRED)

MEADOWBANK MINING CORPORATION	
MEADOWBANK GOLD PROJECT	
PORTAGE ROCK STORAGE CLOSURE DESIGN CONCEPT CROSS SECTION	FIGURE 4.2

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the cover thickness design for closure may need to be adjusted. If the mine plan does not provide the quantities of non-PAG rock required at the scheduled times, it may be necessary to stockpile cover material adjacent to the waste rock pile for use later when needed.

A cover layer of non-PAG rock is predicted not to be required at the Vault RSF because the bulk of this rock is considered to be non-PAG. A cross section through the Vault RSF and Vault Pit Lake is shown on Figure 4.3. The drainage from the Vault RSF will be monitored during operations to verify predictions.

The final surfaces of both RSFs will be regraded to blend into the existing topography and to enhance conditions for wildlife access. On closure, the seepage and runoff collection sumps at both RSFs will be drained. A layer of non-PAG rock cover will be placed over any sediment in the sumps to prevent dusting and erosion.

The discharge water quality and water management structures for the RSFs will be monitored and assessed according to an approved environmental protocol during each stage of the mine life, including pre-development, operations, closure, and post-closure.

4.7 ACID ROCK DRAINAGE (ARD)

Some of the waste rock and all of the tailings are potentially acid-generating (PAG). The ultramafic rocks and approximately 72% of the intermediate volcanic rocks are expected to be non-PAG, while all iron formation, quartzite and the balance of intermediate volcanic rock are either PAG or have an uncertain potential to generate ARD. Suitable waste rock will be used for mine development and construction purposes. Most of the rest will be stockpiled in separate RSFs in the Portage and Vault open pit areas. A smaller amount will be placed with the Portage Pit at the cessation of pit operations, or will be used to construct fish habitat within Second Portage and Third Portage Lakes. Tailings from process operations will be deposited by pipeline in the TSF.

As discussed in Section 4.1.4, the mine plan will facilitate the management of the non-PAG rock from the Portage Goose Island pits to adequately cover the Portage RSF. It is assumed that the cover layer of non-PAG rock will be at least 2 m thick, requiring at least 2.5 Mt, or about 12% of the total amount of ultramafic rock supplied from Portage Goose Island pit operations.

LEGEND:

-x-x-x-x-x- PERMAFROST BOUNDARY (INFERRED)

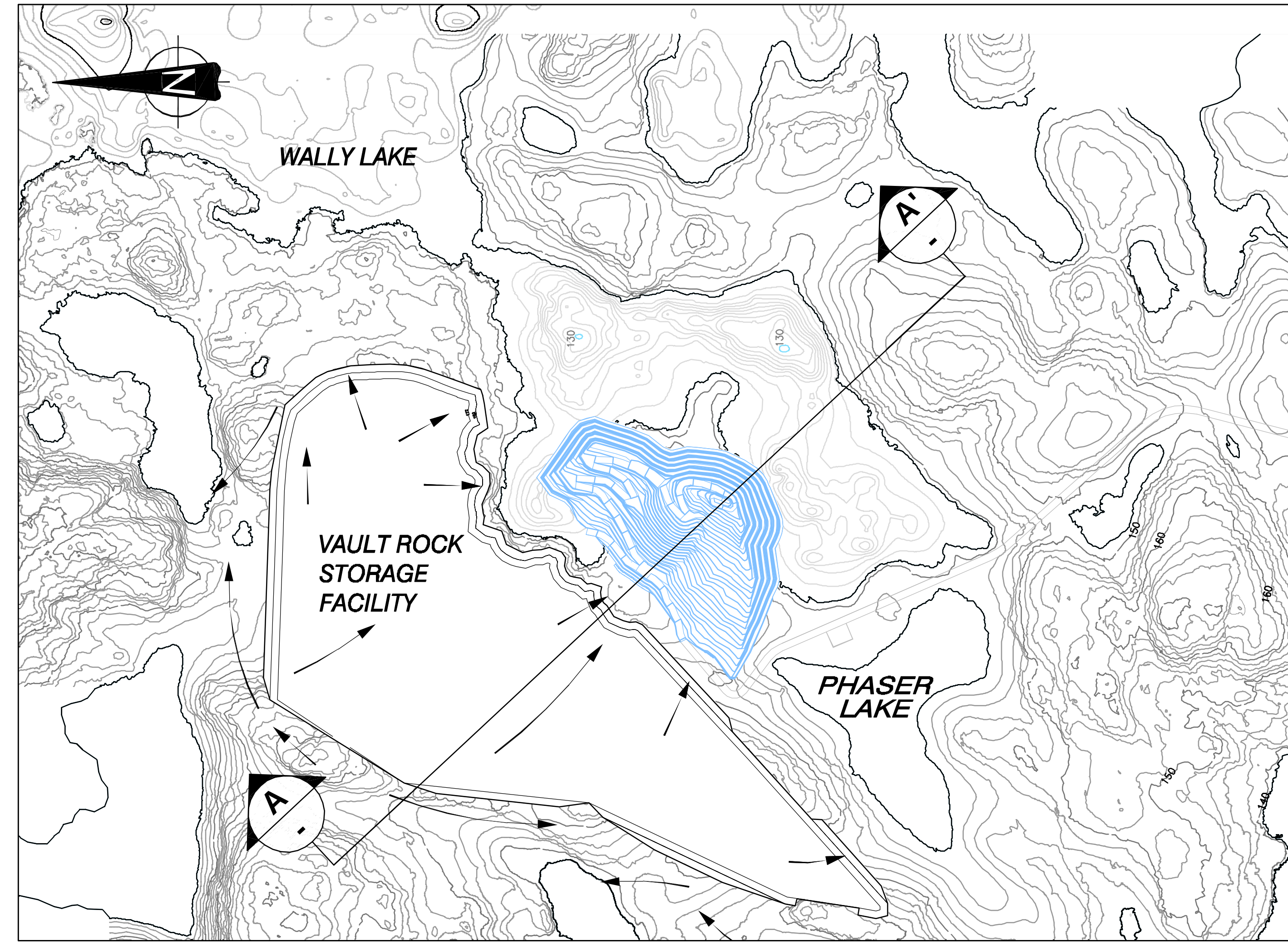
NOTES

1) TOPOGRAPHIC CONTOURS - 2M INTERVAL

2) BATHYMETRY CONTOURS - 1M INTERVAL

REFERENCES

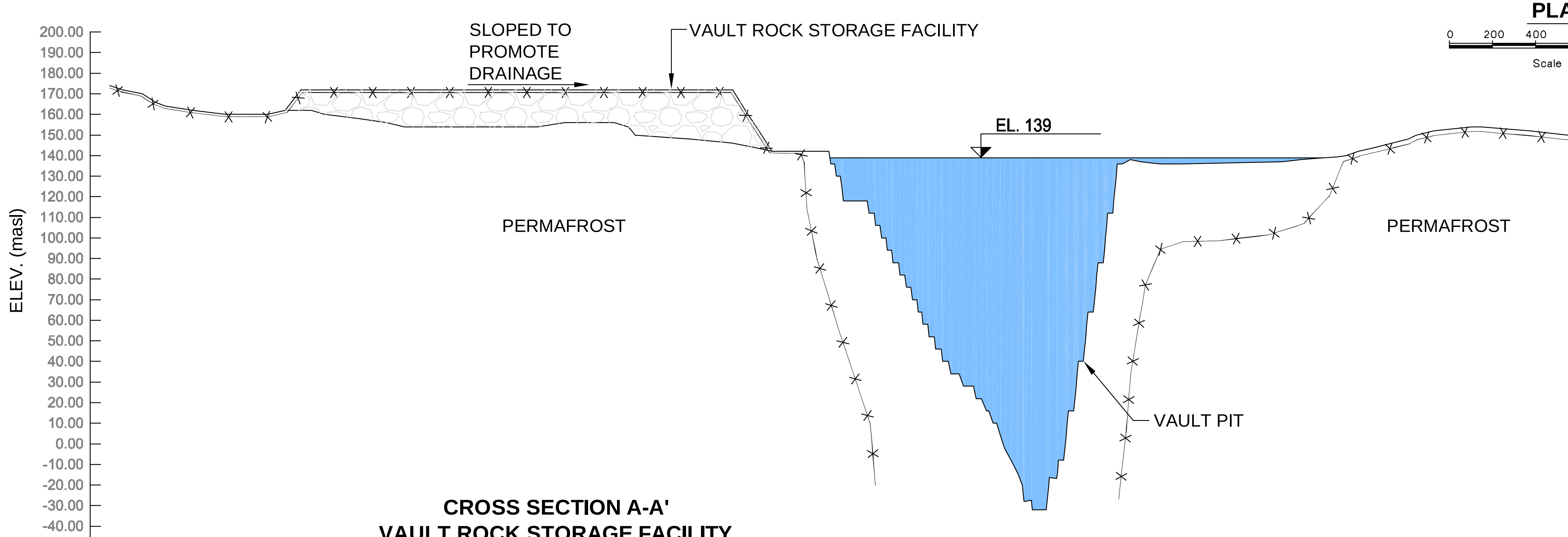
1) AMEC AMERICAS LTD., DRAWING NUMBER A1-131395-100-C-0001 (100-C-0001.DWG), MEADOWBANK FEASIBILITY STUDY, APRIL 2005.



PLAN

0 200 400 600 800 1000

Scale in Metres



CROSS SECTION A-A'
VAULT ROCK STORAGE FACILITY

0 100 200 300 400 500
Horizontal Scale in Metres

0 20 40 60 80 100
Vertical Scale in Metres

MEADOWBANK MINING CORPORATION	
MEADOWBANK GOLD PROJECT	
VAULT ROCK STORAGE CLOSURE DESIGN CONCEPT CROSS SECTION	FIGURE 4.3

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The Vault RSF is not anticipated to require cover layer of non-PAG rock.

4.8 NORTH CAMP

The North Camp area currently has a kitchen, dry facilities, an office and core processing facilities and fuel storage for approximately of 450,000 litres of diesel and 71,250 litres of Jet-A fuel.

4.9 PLANT SITE, CAMP COMPLEX AND FUEL STORAGE

The plant facilities include a Process Plant, the Primary Crusher, ore storage building, Mill Complex, Power Plant and Batch Plant.

Other structures and buildings include the Accommodation Complex, the shop, warehousing, and office complex, the mine site Tank Farm, and miscellaneous dry storage facilities.

4.10 FUEL STORAGE AT SITE

Barges will transport diesel fuel to a lined and bermed tank farm at Baker Lake. From the Baker Lake Tank Farm, fuel will be trucked via haulage route to a 5 million litre (ML) containment facility at the Project site consisting of a steel tank located within a lined berm. A fuel unloading and distribution pump module will feed a network system throughout the plant area, supplying fuel to the exterior day tanks at the power plant and boiler house. The light vehicle fuel dispensing station and heavy vehicle fuel dispensing station will be located adjacent to the storage facility.

4.11 INFRASTRUCTURE

Other infrastructure associated with mine operations include: the airstrip, roads, storage pads, quarries, and granular borrow areas (if present).

4.12 WATER MANAGEMENT FACILITIES

The water management facilities will include 4 km of perimeter Dewatering Dikes, water diversion and collection systems, and contact water attenuation ponds and a tailings water Reclaim Pond. Once mining and milling has been completed, reclaim water will be drained from the TSF and treated prior to discharge to the Goose Island and Portage pit lakes. Reclaim water treatment may be completed in-situ (in the Reclaim Pond) or via a water treatment plant. The water treatment plant would be constructed in the closed Process Plant.

The Dewatering Dikes will be constructed and maintained to enable open pit mine operations to progress from on-land pits initially, to deposit extensions beneath adjacent lakes. Diversion ditches will direct clean runoff water away from areas affected by mining activities. Contact water originating from Project use areas will be intercepted, collected, and conveyed to central storage facilities and decanted to treatment facilities, if necessary, or to receiving lakes. Areas within the dewatered Vault Lake and northwest arm of Second Portage Lake will serve as central water attenuation facilities.

SECTION 5 • CLOSURE & RECLAMATION OBJECTIVES

5.1 MINE CLOSURE AND SITE RECLAMATION

5.1.1 Aim of C & R Planning

Three global post-closure objectives set out in INAC's *Mine Site Reclamation Guidelines for the NWT* (2006) are:

1. Physical Stability: All remaining physical structures will be designed such that they do not pose a threat to humans, wildlife, or environment health and safety;

2. Chemical Stability: All remaining mine components should be chemically stable, such that it does not endanger humans, wildlife, or environment health and safety; and,

3. Future Use and Aesthetics: The site should be compatible with the surrounding lands at the completion of reclamation activities.

5.2 ECOLOGICAL RESTORATION

5.2.1 Objectives

The Aquatics Effects Management Program (AEMP) (Cumberland, 2005d) and the Terrestrial Ecosystem Management Program (TEMP) (Cumberland, 2005e) reported on the programs and plans suggested to protect aquatic and terrestrial resources during construction, operation, and closure of the Meadowbank mine and the all-weather access road between the Hamlet of Baker Lake and the mine site.

The overall objective of these plans are to provide programs so that potential project-related adverse impacts are detected and mitigated, so that construction and operational activities do not cause any undue harm to water quality, sediment quality, vegetation, biota, wildlife, and wildlife habitats. Both of these documents provide the basis to integrate monitoring efforts to ensure compliance with regulatory instruments and agreements, both federally and territorially, such as the Department of Fisheries and Oceans (DFO), NNL, NIRB, and MMER policy.

5.2.2 Terrestrial Habitat Reclamation Strategies

As reported in the TEMP (Cumberland, 2005e), the closure and reclamation phase is the first opportunity to initiate major reclamation of areas lost to wildlife use during the construction and operations phases.

Removal of project facilities, reclamation of tailings and waste rock facilities, and the deactivation of access roads and associated reclamation activities will result in the natural revegetation of many previously affected areas of the project.

Certain facilities will be reclaimed progressively during the life of the mine, such as camps, temporary workspace, marshalling yards, and storage areas. Other facilities will be reclaimed during the closure and post-closure phase of the project. General reclamation measures and mitigation measures for various Project components are outlined below.

Some disturbed areas will be allowed to recover naturally, while vegetation will be established in others. The ability to induce revegetation will be constrained by the limited resources available for revegetation, as well as the limited areas that are suitable for revegetation. In some cases, revegetation of an area may be a combination of both artificial and natural revegetation. In other cases, the surface may be prepared (e.g., scarified, recontoured, slopes stabilized, natural drainage patterns restored) to provide a suitable environment for plant growth to take place.

Areas where facilities have been removed and areas where vegetation has been disturbed will be considered for revegetation. Native soils will be stockpiled whenever and wherever possible. Lakebed sediments, organic soils, and other biosolids will also be used. Tailings will not be used due to their contaminant content. Native-grass cultivars and forbs (e.g., nitrogen-fixing legumes) will be used. Seeds, sprigs, cuttings and transplanted shrubs of indigenous species will also be used, but likely to a lesser extend due to their slower propagation rates observed in experiments at northern mines (BHP, 2000).

Reclamation and revegetation will be a progressive process that will continue throughout the life of the mine as soon as opportunities present themselves to reclaim decommissioned facilities. The Nunavut Water Board (NWB) and the Kivalliq Inuit Association (KIA) will be consulted during this process, and the experiences of reclamation and revegetation of other northern mines (e.g., Ekati and Diavik) will be drawn upon.

Terrestrial riparian vegetation may become established in shoreline areas; therefore, consideration will be given to contouring pit slopes to enhance recolonization of shoreline vegetation. Terrestrial area(s) created by dikes will be contoured, and erosion by wind and water will be minimized by providing proper drainage. Shoreline areas encroached upon by dikes will be restored.

For all mine facilities and structures, all contaminated soil will be removed (if applicable), foundations and building structures will be dismantled, the area will be recontoured (e.g., berms flattened) to encourage regrowth of natural vegetation, and original drainage patterns will be restored to the greatest extent possible. Where warranted, revegetation will be undertaken to enhance re-establishment of vegetation communities.

The airstrip will be retained in a usable condition for long-term safety and future development activity considerations in the initial stages of closure. Efforts will be made to ensure that the airstrip interferes as little as possible with local drainage patterns and allowable growth boundaries for recolonizing vegetation will be determined. Near the end of the closure phase, the airstrip would be decommissioned and restoration activities will include removing culverts, recontouring fill slopes for wildlife access, and scarifying the gravel surface of the airstrip to facilitate natural revegetation. A covering (e.g., large grain gravel) may be required for erosion and dust control.

The AWPAR and temporary mine roads will be scarified, culverts and bridges removed, drainage patterns restored, and slopes stabilized. Consideration will be given to rehabilitating roads to imitate esker habitats. Disturbance of near-shore vegetation will be minimized during removal of culverts and bridges (e.g., along the AWPAR).

At the Baker Lake site, revegetation and rehabilitation will only be conducted on a local level, as these facilities will likely remain for the Hamlet of Baker Lake and other industrial uses following mine closure. The access to the mine will be closed down and partial decommissioning of the in-town staging facility, the explosives magazine, and the tank farm may be necessary, depending on future demand for these facilities. In addition, decontamination of these sites will be undertaken if necessary.

5.2.3 Reclamation Materials Available

Overburden and organic materials stripped during mine preparation.

5.3 AQUATIC HABITAT RESTORATION STRATEGY

Authorization from DFO allows MMC to alter and or destroy fish habitat during the construction and operation phases of the mine under the condition that compensatory fish habitat be recreated resulting in a ‘no net loss’ of fish habitat. This authorization contains several conditions that need to be adhered to, including the development of detailed designs, specifications, and implementation plans that describe how MMC plans to recreate fish habitat that may be lost from the development. The fish habitat creation and modification will be completed as per the No Net-Loss Plan (Cumberland, 2005g).

SECTION 6 • MINE CLOSURE

6.1 GENERAL

Table 6.1 summarizes the key reclamation and closure commitments proposed in the following sub-sections and sections.

Table 6.1: Summary of Proposed Reclamation & Closure Methods

Item	Proposed Reclamation & Closure Method	Reference
Secure Open Pits	Close access ramps and secure pit perimeters.	Section 7.1
Flooding Open Pits	Flood pits over five to eight-year period following completion of pit operations.	Section 7.1
Pit Lake Discharge	Manage and monitor pit lake water quality during and post flooding.	Section 7.2
Breach Dewatering Dikes	Breach Dewatering Dikes at prescribed locations after the open pits are completely flooded and quality of pit lake water is acceptable.	Section 7.2
Maintain East Dike	Leave the East Dike intact to maintain water level differential between Second and Third Portage lakes.	Section 7.2
TSF	Place a minimum 2 m thick cover layer of non-PAG rock over the tailings deposition surface.	Section 7.3
Tailings Water Management	Maintain runoff collection sumps, and discharge ditches to collect, monitor and treat, as required, tailings runoff until water quality meets design discharge criteria.	Section 7.3
RSFs	Regrade and improve the surface for wildlife access through neighbouring areas.	Section 7.4
Portage RSF	Cover Portage RSF with a minimum 2 m thickness of non-PAG waste rock.	Section 7.4
Buildings and Equipment	Remove all hazardous materials, remove salvageable materials, and demolish all buildings.	Section 8.0
Roads and Airstrip	Remove culverts, regrade surfaces, recontour embankment slopes, and provide wildlife access.	Section 8.0
Dry Storage AWPAR	Remove all storage materials and regrade site to suit surrounding topography. Remove culverts, regrade surfaces, recontour embankment slopes, and provide wildlife access.	Section 8.0 Section 8.0
Hazardous Waste	Collect and dispose of hazardous waste at licensed off-site facility. Incinerate acceptable hydrocarbon waste on site.	Section 9.0
Non-Hazardous Waste	Collect and dispose in Portage RSF or open pits or in approved construction debris landfill site.	Section 10.0

6.2 CLOSURE FACTORS

The closure factors are based on the principles for mine site reclamation, covered in the Mine Site Reclamation Policy for Nunavut (INAC, 2002):

- The reclamation policy reflects the collective desire and commitment to operate under the principles of sustainable development, including the "polluter pays" principle;
- The required standard of reclamation is based on the 1994 Whitehorse Mining Initiative definition: "returning mine sites and affected areas to viable and, wherever practicable, self-sustaining ecosystems that are compatible with a healthy environment and with human activities;"
- This mining operation will support the cost of reclamation;
- Adequate security will be provided to ensure the cost of reclamation, including shutdown, closure and post-closure, is born by the operator of the mine;
- Best management practices, including progressive reclamation, will be applied to advance environmental protection and reduce environmental risks; and
- Communication and consultation among all applicable parties will be comprehensive, complete and timely.

SECTION 7 • MINE INFRASTRUCTURE AND CLOSURE PLANS

7.1 OPEN PIT WORKINGS

7.1.1 Description

This section describes the closure activities as these relate to the site closure plan shown in Figure 7.1.

The open pits are designed to have stable slopes during the mine life and post-closure. The slopes will be monitored as part of mine operations and will be progressively modified as required to maintain stability.

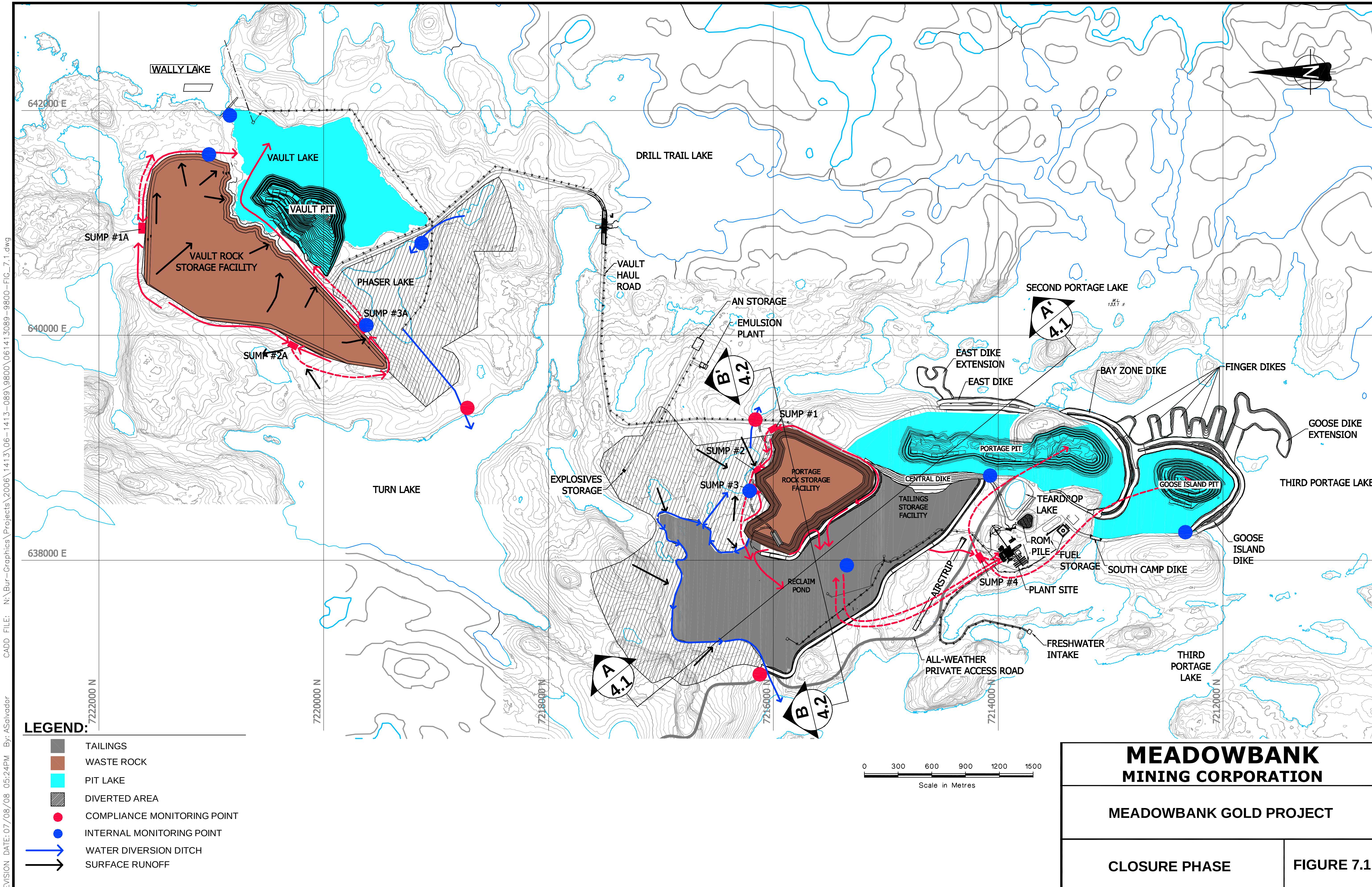
At the end of active mining operations, rock berms will be placed around the perimeters of the pits that will be above water to restrict access and minimize hazards to people and wildlife. Flooding of the Goose Island Pit and Portage Pit will commence before the completion of mining activities at Vault. All of the pits will eventually be flooded.

7.1.2 Closure Factors

The closure factors will be based on the global objectives of maintaining the physical and chemical stability of the open pits and integrating reclamation methods that take into consideration the future use and aesthetics of the area (INAC, 2006).

Factors that will be implemented as part of the C&R plan include:

- Minimizing access of humans and wildlife to open pits;
- Develop a plan for emergency access to, and exit from the flooded pits;
- Integrate a water management plan to minimize and control contaminated drainage; implement a system to collect and treat these waters; and have these waters meet site permit water quality objectives;
- Stabilize all slopes and flood open pits to satisfy end land use – open lake area; and
- Establish new surface drainage patterns.


WALLY LAKE
VAULT LAKE
VAULT PIT
DRILL TRAIL LAKE
SUMP #1A
VAULT ROCK STORAGE FACILITY
PHASER LAKE
SUMP #3A
SUMP #2A
VAULT HAUL ROAD
AN STORAGE
EMULSION PLANT
SECOND PORTAGE LAKE
EAST DIKE EXTENSION
EAST DIKE
BAY ZONE DIKE
FINGER DIKES
GOOSE DIKE EXTENSION
SUMP #1
SUMP #2
SUMP #3
PORTAGE PIT
PORTAGE ROCK STORAGE FACILITY
CENTRAL DIKE
TAILINGS STORAGE FACILITY
TEARDROP LAKE
GOOSE ISLAND PIT
THIRD PORTAGE LAKE
TURN LAKE
EXPLOSIVES STORAGE
ROM PILE
FUEL STORAGE
SOUTH CAMP DIKE
GOOSE ISLAND DIKE
RECLAIM POND
AIRSTRIP
SUMP #4
PLANT SITE
FRESHWATER INTAKE
ALL-WEATHER PRIVATE ACCESS ROAD
THIRD PORTAGE LAKE
642000 E
640000 E
638000 E
7222000 N
7220000 N
7218000 N
7216000 N
7214000 N
7212000 N
A 4.1
A' 4.1
B 4.2
B' 4.2
N
LEGEND:
TAILINGS
WASTE ROCK
PIT LAKE
DIVERTED AREA
COMPLIANCE MONITORING POINT
INTERNAL MONITORING POINT
WATER DIVERSION DITCH
SURFACE RUNOFF
0 300 600 900 1200 1500
Scale in Metres
MEADOWBANK MINING CORPORATION
MEADOWBANK GOLD PROJECT
CLOSURE PHASE
FIGURE 7.1
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7.1.3 Closure Strategies

As presented in INAC (2006), applicable progressive and post-closure strategies for the open pit workings include:

- Completing sequential backfilling of waste rock (and tailings);
- Backfilling the pit with waste rock, and non-hazardous wastes;
- Preventing or minimizing access to pits while maintaining access/exit ramp;
- Recontouring slopes;
- Flooding pits under controlled setting; and
- Monitoring of water quality during flooding and treat water as required.

7.1.4 Proposed Closure Methods

At the end of mining, all pit equipment will be removed and closure activities will proceed. The mined-out pits may be used for the final placement and permanent storage of waste materials, including but not limited to waste rock, non-salvaged buildings and structures, and non-hazardous wastes. The effects of waste rock disposal in pits have been considered in operational and post-closure water quality assessments, the results of which are described in the Physical Environmental Impact Assessment (Cumberland, 2005f) and Water Quality Predictions Report (Golder, 2007b). After disposal of these materials, all pit access ramps will be secured by rock berm barricades, and berms will be constructed around the perimeter of each pit in accordance with applicable mine regulations.

The open pits will be flooded once mining activities in each open pit are complete. Rather than simply breaching the Dewatering Dikes and permitting rapid inflow of lake water, water will be pumped in at controlled rates from the surrounding lakes using barge-mounted, high-capacity mechanical pump systems or syphons. In the case of the Goose Island Pit, filling of the pit may occur in Year 4 after cessation of pit operations. Filling of the Goose Pit via controlled pumping from Third Portage Lake continues through Year 11. In the case of the Portage Pit, filling may commence in Year 5, once mining of the pit has been completed and will continue through Year 12. In the case of Vault Pit, filling will begin in Year 8 and continue through Year 12. The maximum fill rate will be based on the maximum acceptable draw down in each lake. To minimize impacts to aquatic habitat in the surrounding lakes, pumping will be done during periods of increased flow in the spring and summer months. Water quality in the pits will be monitored continuously throughout the flooding process.

All Dewatering Dikes will be kept intact to provide a barrier between the open pits and surrounding lakes until the pit lake water levels achieve static conditions and the water quality is considered acceptable for release to the environment without treatment.

At closure, the walls of the mined-out open pits will have been exposed for several years during mine operation, and some oxidation will have occurred. During flooding, water quality will be affected by slightly increased concentrations of dissolved metals, potentially lower pH, and blasting residues. Treatment with lime will be applied should pH levels need adjustment; on-site test work would be carried out to determine the appropriate treatment method. The water quality within the flooded pits will be managed and monitored until the water is of acceptable quality to be allowed to mix freely with the surrounding lake water.

Concentrations for the constituents that are to be monitored in Portage Pit Lake water are predicted to meet MMER for all chemical constituents. It is also anticipated that concentrations of the majority of chemical constituents should be within the CCME freshwater aquatic life guidelines with the exception of cadmium, manganese, zinc and chromium, whose concentrations are predicted to be on the same order of magnitude as the guidelines. Flooding of the Portage Pit will take approximately 8 years. The water level will then be the same as that of Third Portage Lake (approximately 134.1 m elevation), although some small pit wall surfaces will remain visible above the lake level. The resulting pit lake will subsequently receive overland runoff.

Water quality at Goose Island Pit Lake is predicted to meet MMER for all chemical constituents. It is also anticipated that concentrations of most constituents should be within the CCME freshwater aquatic life guidelines except for arsenic, cadmium and manganese, whose concentrations are predicted to be on the same order of magnitude as the guidelines.

Vault Pit Lake water quality is also predicted to meet MMER criteria for all chemical constituents. It is also anticipated that concentrations of most constituents should be within the CCME freshwater aquatic life guidelines except for cadmium and chromium, although both of these constituents are predicted to have concentrations on the same order of magnitude as the guidelines.

7.1.5 Restoration Plan

The aim of the open pit restoration plan is restore the hydraulic connection between the pit lakes and neighbouring Third Portage or Wally lakes once water levels equilibrate and water quality satisfies MMER water quality guidelines.

7.2 DEWATERING DIKES

7.2.1 Description

The Dewatering Dikes (East Dike, Bayzone Dike, Goose Island Dike, and Vault Dike) will be designed to enable controlled flooding of the open pits, and to maintain the long-term stability of the dike sections to be left in place. Dewatering Dikes will remain intact during the controlled flooding of Goose Island, Portage and Vault pit areas, in order to isolate flooded pit waters from surrounding lakes. Pits will be filled gradually over the course of several years. Once the water levels have stabilized within the flooded pits and water quality is considered acceptable for mixing with neighbouring lakes, parts of dikes will be decommissioned to allow circulation of pit water and lake water.

7.2.2 Closure Factors

Closure factors for the Dewatering Dikes will be based on the overall objectives of maintaining the physical and chemical stability of the Dewatering Dikes and integrating reclamation methods that take into consideration the future use and aesthetics of the area.

7.2.3 Closure Strategies

The two most important closure strategies for the Dewatering Dikes are:

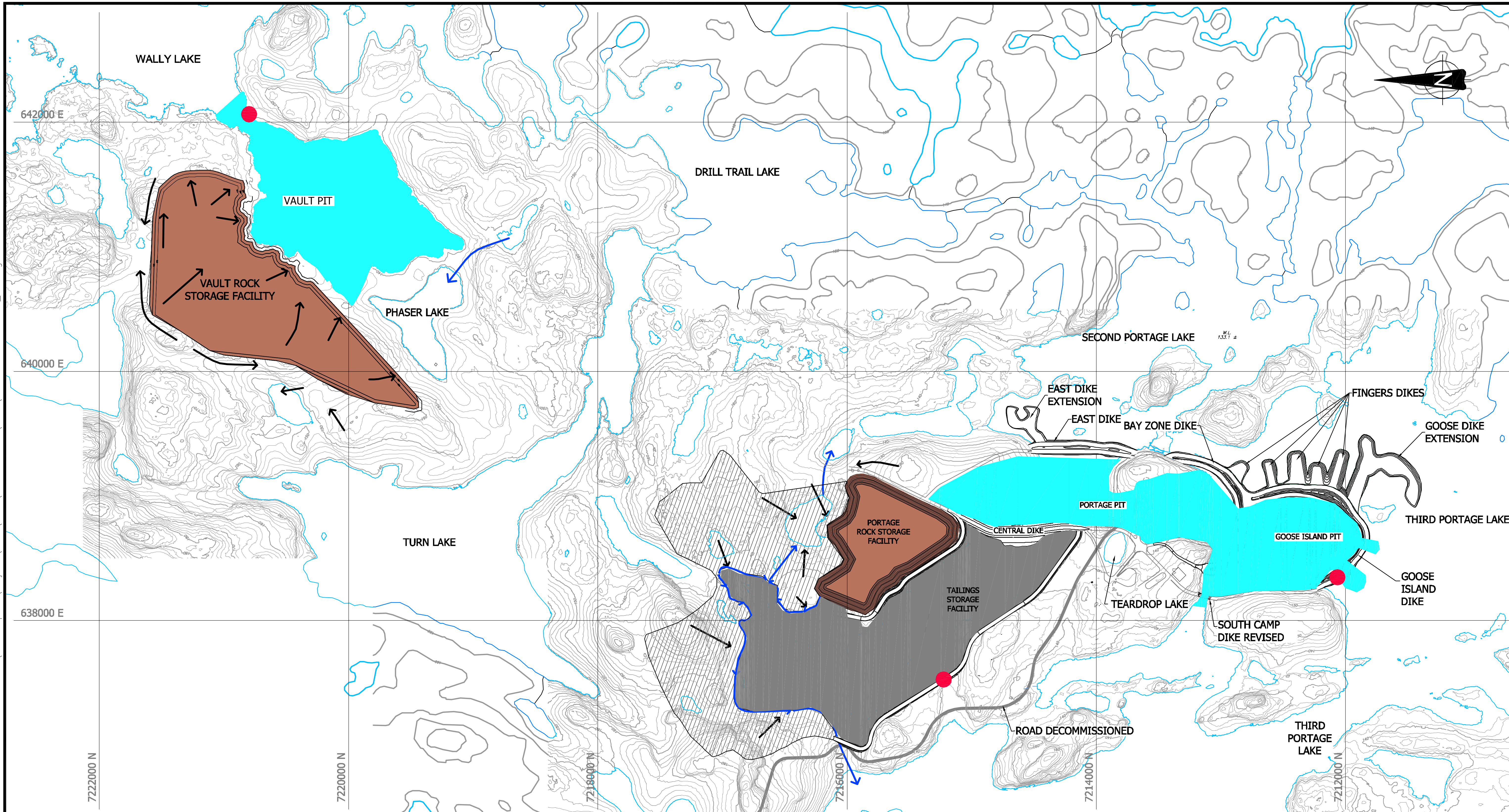
- Meeting applicable water quality objectives; and
- Maintaining controlled flooding and monitor sequential pit infilling.

7.2.4 Proposed Closure Methods

Once the Portage and Goose Island pits are completely flooded and monitoring and testing has determined that pit lake water meets MMER and drinking water quality criteria, the south end of the Goose Island Dike will be breached at a location selected to provide the desired attenuation period for surface water runoff to mix with the pit lake water before discharge to Third Portage Lake. Currently, it is estimated that about 200 m of the dike, in two sections, will be lowered by at least 3 m below the existing lake level to provide all-season aquatic access through the dike (see Figure 7.2). The till core of the excavated dike will be covered with at least 1 m of rockfill to limit sedimentation.

7.2.5 Restoration Plan

The Dewatering Dikes will remain intact during the controlled flooding of both Portage and Vault pit areas, in order to isolate flooded pit waters from surrounding lakes. Pits will be filled gradually over the course of



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LEGEND:

- TAILINGS
- WASTE ROCK
- PIT LAKE
- DIVERTED AREA
- COMPLIANCE MONITORING POINT
- WATER DIVERSION DITCH
- SURFACE RUNOFF

MEADOWBANK
MINING CORPORATION

MEADOWBANK GOLD PROJECT

POST CLOSURE PHASE

FIGURE 7.2

several years. Once the water levels have stabilized within the flooded pits and water quality is considered acceptable for mixing with neighbouring lakes, parts of dikes will be decommissioned during closure activities to allow circulation of pit water and lake water. At least two sections of the Goose Island dike will be taken down to a minimum of 3 metres below the average Third Portage Lake water level (134.1 m elevation) to allow Third Portage Lake and the flooded pits to mix. Similarly, the Vault Dike will be dismantled, to allow water from Wally Lake and the Vault Pit Lake to mix.

The East dike will remain, preserving the 1 m difference in elevation between Third Portage and Second Portage lakes. Similarly, the Central Dike will remain to contain the stored mine tailings. The remaining portions of Goose Island and East Dikes and the finger dikes and dike extensions exterior to these dikes will continue to provide high quality fish habitat during post-closure. The new habitat created along dike walls will be of greater surface area and equal or greater quality (coarse substrate providing shelter, and varying depth available along wall from pit ledges) relative to current pre-mine conditions.

7.2.6 Fish Habitat Creation & Navigable Waters Requirements

During mining of the Portage and Goose Island pit, a series of finger dikes and dike extensions will be constructed on the outside of the Goose Island and East dikes in the areas of deepest water. This will result in an increase in habitat along the dike structures, as indicated on Figure 7.1.

At closure, the Dike exterior and interior habitats will be designed to provide good quality habitat (Cumberland, 2005g). Habitat between 2 and 10 m below lake water surface is considered of high value Habitat Units (HUs) because it will have suitable depth, aspect, slope, substrate size and morphology to satisfy multiple life history requirements (spawning, rearing, foraging) for all important species (lake trout, round whitefish and Arctic char). All fish habitat finger dikes and dike extensions will be constructed to an elevation of 3 m below water surface using low metal leaching iron formation rock.

7.3 TAILINGS STORAGE FACILITY

7.3.1 Description

All tailings will be deposited in the TSF until the end of mine operations. The Central Dike and TSF will be designed so that the tailings freeze after deposition and remain frozen after closure. The TSF will be closed progressively during the mine life as the tailings deposit reaches its ultimate elevation. Closure will include the placement of an erosion barrier consisting of a minimum 2 m thick layer of non-PAG ultramafic waste rock over the tailings. The surface of the final cover will be graded to blend into the existing topography, and to shed water from the surface. Cross-sections through the TSF at closure are shown on Figures 4.1 and 4.2. With time, the TSF and Central Dike are predicted to freeze, resulting in permafrost encapsulation as the long term control strategy for ARD.

7.3.2 Closure Factors

The results of thermal modeling indicate that complete freezing of the tailings and bedrock beneath the TSF will occur with time (Golder, 2007a). Long-term analyses indicated that the entire tailings body will freeze no later than 10 years after the end of operations, and that the tailings foundation will progressively freeze to a depth of 30 to 50 m beneath the bottom of the tailings after 100 years. These analyses included consideration of the potential effects global warming, and therefore indicate that global warming will not be sufficient to prevent freezing beneath the tailings during the 100 years period analyzed.

Modeling has also shown that the rate of advance of the freezing front penetration through the TSF and into the bedrock will be greater than the rate of advective transport of constituents out of the TSF. Consequently, the tailings and any constituent release are predicted to be encapsulated by permafrost. If it is determined by monitoring during operations that the tailings are freezing at lower rates than predicted, then mitigative measures to enhance freezing would be implemented (MMC, 2007b).

7.3.3 Closure Strategies

The proposed closure methods for the TSF were designed in reference to the following closure strategies, as presented in INAC (2006):

- Slope stability;
- Minimizing tailings dust;
- Minimizing potential for contaminant migration;
- Blending with the aesthetics of the surrounding lands; and,
- Limiting access of humans and wildlife to the tailings.

7.3.4 Proposed Closure Methods

On closure, the Reclaim Pond, Portage Attenuation Pond, runoff collection sumps, and drainage ditches will be utilized to collect and manage drainage water from the Portage watershed area. Once the water quality from the mine development area meets discharge criteria, the water collection system will be drained and recontoured to blend with the surrounding topography and to allow uninterrupted drainage of surface runoff to the surrounding lakes. A layer of non-PAG rock cover will be placed over any sediment in the sumps and the Reclaim Pond to minimize dusting and erosion of these materials. Water quality monitoring and assessment will be required during closure to determine when the runoff from the reclaimed TSF can be directed to Third Portage Lake untreated.

The discharge water quality and the water management structures for the TSF will be monitored and assessed according to an approved environmental protocol during each stage of the mine life, including pre-development, operations, closure, and post-closure.

7.3.5 Restoration Plan

The tailings will be allowed to freeze after the operation is complete. Closure will be completed with the placement of a rock barrier consisting of a minimum 2 m thick layer of non-PAG rock over the tailings. The surface of the final cover will be graded to blend into the existing topography, and to shed water from the surface of the TSF area.

7.4 ROCK STORAGE AREAS

7.4.1 Description

Waste rock from the open pit mines not used for site development purposes, fish habitat construction, or backfill to Portage Pit will be deposited in the Portage and Vault RSFs until the end of mine operations. The RSFs will be closed progressively during the later stages of mine operations as the lifts of rock reach their ultimate elevation. Although all rock placed in the RSFs is expected to freeze, facility design in terms of permanent physical stability is not dependent on freezing.

It is currently anticipated that a cover of non-PAG rock will only be required at the Portage RSF.

The water discharge quality and management structures for the RSFs will be monitored and assessed according to an approved environmental protocol during each stage of the mine life, including pre-development, operations, closure, and post-closure.

7.4.2 Closure Factors and Objectives

The closure factors and objectives for the RSF areas include:

- Controlling erosion and the possible effects on the ground thermal regime (i.e., permafrost degradation);

- Confirming that the rock storage areas do not become a source of contamination; and,

- Returning the RSF areas back to a state compatible with the surrounding area and the desired end use.

7.4.3 Closure Strategies

Closure strategies for the RSF areas will include:

- Slope stability;
- Permafrost encapsulation;
- Minimizing potential for contaminant migration; and,
- Blending with the aesthetics of the surrounding lands.

7.4.4 Proposed Closure Methods

The proposed closure methods for the RSFs will follow similar methods as described for the TSF (Section 7.3.4) and the landfill areas (Section 10.3) including:

- Progressive closure activities will be monitored, inspected, and maintained during and post mine operations. Procedures will be modified as required to achieve the objectives of the Closure and Reclamation Plan.
- Capping the Portage RSF with a 2 m layer of coarse acid-buffering, non-PAG ultramafic waste rock material as shown on Figure 4.2.
- Contouring and grading the capping material to ensure stability, minimize infiltration of precipitation and direct surface runoff toward the Portage and Vault RSF catchment areas.
- Regrading final surfaces of RSF areas to blend into the existing topography and to allow for wildlife access and regress.
- On closure, the seepage and runoff collection sumps at both RSFs will be drained. A layer of non-PAG rock cover will be placed over any sediment in the sumps to prevent dusting and erosion.

Drainage water quality will be monitored during operation and post closure.

7.4.5 Restoration Plan

With the implementation of Terrestrial Habitat Reclamation Strategies discussed in Section 5.2.2, vegetation communities will be re-established by growth of natural vegetation or revegetation of disturbed areas, where warranted. The final surfaces of the RSFs will be graded to blend into the existing topography and enhance conditions for wildlife.

SECTION 8 • CLOSURE OF SITE-WIDE PLANT AND INFRASTRUCTURE

8.1 OVERVIEW

All surface buildings and infrastructure will require closure and reclamation measures upon completion of mine operations. The plant and related facilities will be dismantled and removed off-site as salvage materials; or disposed in the Portage RSF area. Other surface facilities will be dismantled and disposed on site.

8.2 FACILITIES TO BE CLOSED

8.2.1 Processing Facilities

The processing facilities that will be closed include:

- primary crusher and associated wall and conveyor system;
- covered ore storage and associated conveyor system;
- mill complex and truck shop;
- site services structures (pipes, power distribution system etc); and
- Power Plant.

8.2.2 Other Surface Facilities

The other surface facilities that will be closed include:

- Accommodation Complex;
- ancillary shop;
- warehousing;
- office facilities;
- mine site Tank Farm; and
- several dry storage facilities.

8.2.3 Other Infrastructure

Other infrastructure that would be considered for closing includes:

- the site roadways and the AWPAR, including bridges and culverts;
- the airstrip;
- the Baker Lake storage and marshalling facilities; and,
- the Baker Lake Tank Farm.

8.3 CLOSURE FACTORS

The closure strategy was designed in accordance to the following factors and objective criteria presented in INAC's reclamation guidelines (INAC, 2006):

- Assurance that buildings, equipment and infrastructure do not become a source of contamination, or that buildings and equipment do not become safety hazard to humans and wildlife;
- Return land to a condition similar to the original state and compatible with the surrounding lands and the goals of end land-use; and
- Once infrastructure has been removed, restore the natural drainage patterns and restore the natural use for wildlife.

8.4 CLOSURE OBJECTIVE AND STRATEGIES

8.4.1 Buildings and Equipment

The proposed progressive and post-closure objectives and strategies outlined for buildings and equipment are as follows:

- Dismantling of buildings not required for end land-use targets;
- Remove building foundations, or if approved and concrete flooring is remaining, break floor slabs and add materials to encourage vegetation growth;
- Backfill excavations and regrade land to restore natural drainage or new acceptable drainage;

- Bury materials below the active layer in approved areas or landfills;

- Remove potential contaminants, including fuel and batteries, from equipment. Remove hazardous materials prior to demolition of buildings or equipment and dispose of accordingly;

- Minimize volume of non-salvageable equipment and buildings being placed in landfill by crushing and breaking demolition debris; and

- Backhaul recyclable materials to appropriate facilities in the south.

8.4.2 Infrastructure

The following are the progressive and post-closure objectives and strategies defined by INAC (INAC, 2006) for mine related infrastructure:

- Removal of structures including bridges, culverts, pipes, power lines. Ditches should be filled in once they are no longer required.

- Areas should be reclaimed to their original topography, or approved new topography, maintaining consistency with end land-use targets;

- Abandoned road and runway surfaces should be scarified and berms or slopes on the sides of roads will be flattened.

8.5 PROPOSED CLOSURE METHODS

8.5.1 Buildings and Structures

Salvageable buildings and surface structures will be dismantled and demobilized from the site. Non-salvageable buildings and structures will be dismantled or demolished and disposed of in the Portage RSF. Concrete structures and foundations will be removed or buried to a point about 1 m below the final ground surface or the final regraded surface. All disturbed site areas will be regraded to suit the surrounding topography. In areas where the original ground surface was lowered for site grading or structural requirements, the slopes will be stabilized and contoured. Cover materials may be required for erosion and dust control.

All site roads not required for post-closure monitoring will be decommissioned and the terrain restored. Wildlife access will be provided at suitable intervals along the Vault Haul Road by regrading the embankment shoulders to flatter slopes. Culverts will be removed and original drainage patterns restored.

Upon completion of mining, the Process Plant may be converted for treatment of the reclaim water remaining in the Reclaim Pond, if required. The water treatment plant in the Portage mining and milling area will likely be kept in operation until the treatment of the reclaim water, open pit flooding and mine closure activities are complete.

Reclamation and closure of quarries and granular borrow pits not located within the open pits will depend on the individual site conditions. All mobile and stationary equipment will be removed; the excavation slopes stabilized and contoured; and disturbed areas covered for erosion and dust control. Any stockpiled materials not used for mine operation and closure activities will be spread and contoured to blend with the natural surroundings.

8.5.2 Roadways and Airstrip

8.5.2.1 Roadways

Once decommissioning of the mine site has been completed, the AWPAR to the mine will be closed and the right of way reclaimed. Any side roads or quarries will also be reclaimed.

Borrow sources developed during the construction of the road have been selected to use only non-acid generating materials. These potential quarry sites are identified in the Project Alternatives Report (Cumberland, 2005h). Water quality monitoring and testing will be undertaken during the construction and operational period of the AWPAR to measure the quality of water draining the open quarry sites and road base materials. During decommissioning of the AWPAR, should acid generating bedrock be exposed in a rock cut or borrow pits/quarries, these areas will be covered with a minimum 2 m thick layer of non-acid generating soil or rock, graded to direct water away from the surface and revegetated.

It is anticipated that the road deactivation works will be carried out as necessary to stabilize any low cut and fill slopes where potential for slope erosion may exist. Stabilization measures may require pulling back of side cast fill on locally steep slopes, or buttressing and/or recontouring of steepened cut slopes using non-acid generating material. These measures would also be applicable to borrow pits/quarries located adjacent to the AWPAR. As much as practical deactivated surfaces will be graded to blend with the existing topography.

The decommissioning would also restore as much as practical the natural pre-AWPAR hydrology. Natural drainage courses would be restored primarily through the removal of all culverts and/or bridges and the rehabilitation of channels and banks at the crossing sites. Cross-drain structures (cross-ditches) may also be installed where necessary between culvert sites. Where armouring rock (riprap) is required, this rock will be non-acid generating for the protection of aquatic life. Where affected watercourses are fish-bearing, the timing of work may be restricted to within the designated fisheries window. For these sites, appropriate fish exclusion and salvage will be undertaken prior to the in-stream works. All in-stream works will be carried out utilizing best management practices for erosion and sediment control.

To facilitate revegetation of the AWPAR, ripping or ploughing of the running surface may be necessary. Site preparation will be followed by seeding with plant species as recommended by the final Closure and Reclamation Plan.

8.5.2.2 Airstrip

The airstrip is expected to be closed near the end of the reclamation and closure phase, as it will not be needed to support the post-closure monitoring program. The actual timing of closure will depend on the progress of mine reclamation and closure monitoring. Airstrip reclamation will involve removing culverts, re-contouring fill slopes for wildlife access, and scarifying the gravel surface to facilitate natural re-vegetation. A cover may be required for erosion and dust control.

8.6 OTHER ANCILLARY FACILITIES - BAKER LAKE STORAGE & MARSHALLING FACILITY

It may prove desirable to leave some or all of the storage structures at the Baker Lake storage and marshalling facility in place for long term use by the local community. Any structures, materials, and equipment not required for future use by the community will be dismantled and demobilized from the site. Non-salvageable buildings and structures will be dismantled or demolished and disposed of off site at an approved disposal facility. Any site roads and storage pads not required for future use will be decommissioned and the terrain restored. Culverts will be removed and original drainage restored. All disturbed site areas will be regraded to suit the surrounding topography. Cover materials may be required for erosion and dust control in some areas.

SECTION 9 • CLOSURE – HAZARDOUS CHEMICALS AND WASTES

9.1 HAZARDOUS AND NON-HAZARDOUS WASTES

9.1.1 Hazardous Materials

As presented in the Hazardous Material Management Plan (MMC, 2007c), hazardous wastes that will be used during mine site operations include:

- Fuel and Lubricants – diesel fuel, oils, greases, anti-freeze, and solvents used for equipment operation and maintenance;
- Process Plant Consumables – sodium cyanide, sulphur (or metabisulphide), hydrochloric acid, lime, flocculants, and anti-scalants used in mineral extraction;
- Explosives – ammonium nitrate and high explosives used for blasting in the mine; and,
- Laboratory Wastes – various by-products classified as hazardous waste and chemicals used in the assay laboratory.

All potentially hazardous materials remaining at the site, including materials in storage, spilled materials, and materials generated from the demolition of buildings and equipment, will be collected and disposed of according to an approved plan and procedure comparable to the current management practice for disposal of particular wastes. Hazardous waste materials will be transported to licensed disposal facilities in accordance with the Hazardous Material Management Plan (MMC, 2007c).

One exception is used oil, which is considered to be a hazardous material. Throughout the mine life operations, MMC intends to arrange for a permit to incinerate used petroleum on site, or use the oil in the production of explosives. Used petroleum products will be collected in tanks marked “Waste Oil” and disposed of under the direction of the Process Plant Manager. Empty petroleum containers will be stored on site in a designated area and returned to the supplier on backhauls.

9.1.2 Non-Hazardous Waste Materials

All non-hazardous materials remaining at the site, including materials in storage, spilled materials, and materials generated from the demolition of buildings and equipment, will be collected and disposed of according to an approved plan and procedure comparable to the current management practice for disposal of particular wastes. Non-hazardous materials with a net salvage value and those that can be cost-effectively recycled will probably be removed from the site. All other non-hazardous materials will be buried in the closure landfill on the top of the Portage RSF.

9.2 TANK FARMS

9.2.1 Mine Site

As discussed in the Hazardous Materials Management Plan (MMC, 2007c), some diesel fuel storage capacity will be left in place at closure of the mine and facilities for the use of personnel involved in close-out and reclamation activities. Small amounts of other petroleum products will also continue to be available. As the operation is concluded the volume of petroleum product will be reduced and ultimately any un-used product will be removed from site.

The mine site Tank Farm will be dismantled and disposed of on site in the closure landfill on the top of the Portage RSF.

Fuel not required during the close-out and reclamation activities will be offered to local residents ‘where is’ at the mine, and to be removed within agreed time frame, or will be incinerated in accordance with a proposed permit.

9.2.2 Baker Lake Site

Fuel storage for approximately 40 ML of diesel fuel and 1 ML of jet fuel will be provided by five single-walled, welded steel above-ground storage tanks. The storage tanks comprise four 10 ML diesel tanks, one 1 ML tank jet fuel tank and one 3,000 L day tank. The fuel will be transported to Baker Lake in bulk tanker barges and transported to site using truck unloading and refuelling centers. The Baker Lake Tank Farm will be contained within an approximately 27,000 m2 secondary containment facility comprising a geomembrane liner overlying soil containment berms and access ramps, seepage collection, a storm water sump and grease trap.

9.3 CONTAMINATED AREAS

9.3.1 General

According to the INAC Mine Site Reclamation Guidelines for the Northwest Territories (2006), contaminated soils include natural media such as soil, sediment, rock and pore water that has been contaminated by control substances. Reclamation activities for snow and ice are similar to soil.

9.3.2 Objectives

Throughout the mine lifespan, all reasonable efforts will be taken to minimize and mitigate soil, snow, and ice contamination caused by controlled substances including: fuel, fertilizers, chemicals, tailings and ore-associated metals through accident or failure of management facilities. Sources of contamination will be remediated in such a way as to be compatible with future uses of the surrounding areas; and to protect humans, wildlife and environmental health.

9.3.3 Progressive and Post Closure Reclamation Options

9.3.3.1 Spilled Materials

As reported in the Spill Contingency Plan (MMC, 2007d), all hydrocarbon product spills and tailings spills associated to the mine operation and closure activities will require written reporting to document the release and investigation to assess the nature and extent of the impacted area resulting from the spill. Remediation of the spilled material will be subject to the investigation results.

Remedial actions could include excavation and removal of the contaminated material (INAC, 2006). This material could be stored on-site in a contained, managed area. In situ treatments may be effective, including bioremediation. Otherwise, contaminants could be immobilized in the soil. If necessary, contaminated materials would be relocated offsite and disposed of at a licensed facility. A study evaluating the potential for an on-site landfarm biocell(s) to treat petroleum contaminated soils at the Meadowbank Gold Project is currently underway (Golder, 2007c).

SECTION 10 • CLOSURE OF LANDFILLS & OTHER WASTE MANAGEMENT DISPOSAL AREAS

10.1 DESCRIPTION

Two industrial waste landfills are required on-site for the disposal of non-salvageable, non-hazardous solid wastes that cannot be incinerated (Golder, 2007d).

Based on the "Mine Site Reclamation Guidelines for the Northwest Territories" (INAC, 2006), the following two locations were selected:

- Landfill #1 - developed near the northwest toe of the Portage RSF; and
- Landfill #2 - developed at the top of the Portage RSF.

While the preferred landfill location was the top of the Portage RSF (minimizing the disturbed area) such a landfill would hinder waste rock placement during mining activities. Therefore, Landfill #1 will be developed first and serve as the non-hazardous waste disposal site for the first 10 years of the mine development and operation. A cross section of Landfill #1 prior to the placement of a cover is shown on Figure 10.1. In the last two years of the mine operation and closure activities, Landfill #2 would serve as the non-hazardous waste disposal site.

10.2 CLOSURE FACTORS AND OBJECTIVES

The closure factors and objectives for the two landfills on the mine site include:

- Controlling erosion and effects to ground thermal regime (i.e., permafrost degradation);
- Ensuring that the landfill areas do not become a source of contamination; and,
- Returning the landfill areas to their original state or to a state compatible with desired end use.

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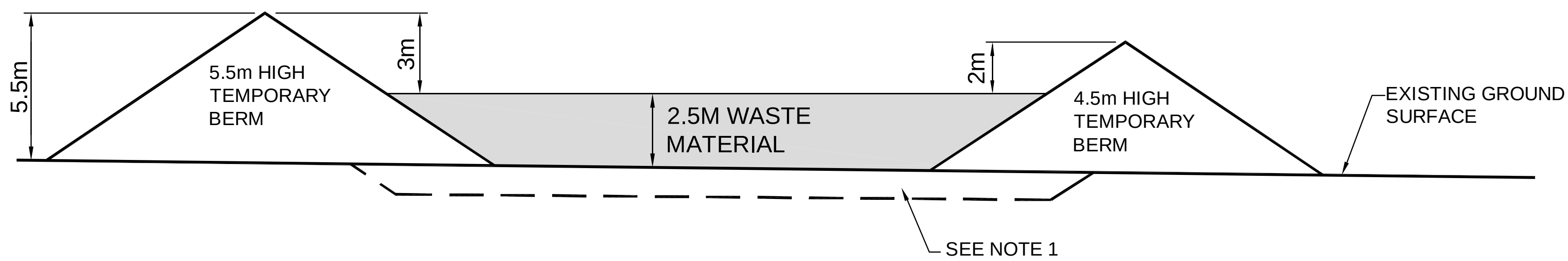

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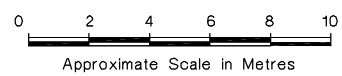

NOTES

1) EXCAVATION SOIL TO BEDROCK OR 2.1M DEPTH, WHICHEVER IS LESS AND REPLACE WITH GRAVEL.
2) TEMPORARY BERM MATERIAL SHALL BE ROCKFILL.

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CONCEPTUAL SECTION OF LANDFILL #1 PRIOR TO PLACEMENT OF COVER	**FIGURE 10.1**

10.3 CLOSURE OBJECTIVE AND STRATEGIES

Closure strategies for the landfills will follow the same strategies proposed for the Portage RSF, as described in Section 7.4.3. These strategies include:

- Slope stability;
- Permafrost encapsulation;
- Minimizing potential for contaminant migration; and,
- Blending with the aesthetics of the surrounding lands.

10.4 PROPOSED CLOSURE METHODS

The proposed closure methods for the landfills will follow the same methods for the Portage RSF and TSF, including:

- Capping landfill waste with 0.3 to 1 m of rockfill, followed by a 2 m layer of coarse acid-buffering ultramafic waste rock material;
- Contouring and grading the capping material to ensure stability, minimize infiltration of precipitation and direct surface runoff toward the Portage RSF catchment; and
- Regrading final surfaces of both landfills to blend into the existing topography and to allow for passage or access of wildlife.

Contact water from the landfills will continue to be managed under the *Mine Waste and Water Management Plan* (MMC, 2007b).

10.5 RESTORATION PLAN

With the implementation of Terrestrial Habitat Reclamation Strategies, discussed in Section 5.2.2, vegetation communities will be re-established by regrowth of natural vegetation or revegetation of disturbed areas, where warranted. The final surfaces of the landfills will be graded to blend into the existing topography and enhance conditions for wildlife.

SECTION 11 • CLOSURE OF WATER MANAGEMENT FACILITIES

11.1 DESCRIPTION

The water management system consists of the following mine site components: ditches and culverts, pipelines, storage tanks, and a diversion system to divert non-contact water. The water management system in closure may also include the Process Plant if it is converted at the end of the mine life to a water treatment plant to treat water within the Reclaim Pond (alternatively reclaim pond water may be treated *in-situ*). If constructed, the water treatment plant would be removed once treatment of reclaim water is complete.

11.2 CLOSURE FACTORS AND OBJECTIVES

The closure factors and objectives of the water management systems at the mine include:

- Engineered systems will be dismantled and removed to restore former drainage patterns, or establish new ones which reflect the new site conditions;
- Releases will be controlled from all points of water discharge into the receiving environment; and,
- MMER water quality standards will be satisfied.

11.3 CLOSURE STRATEGIES

The following are the progressive and post-closure strategies outlined for the water management systems:

- Ditches and settling ponds not required for long-term use will be cleaned out with the sediment removed and disposed of as needed on site. The ditches etc. will be backfilled and the area re-graded.
- Embankments and Dewatering Dikes where appropriate will be breached when no longer required.
- Water tanks and piping will be drained and dismantled prior to off-site removal, or alternatively filled and covered (if approved to remain on site).

11.4 MILL AREA CLOSURE

The proposed water management plan for the main milling area during closure involves the following:

- closing and reclaiming the Portage RSF and mill area collection sumps and reinstating natural surface flows to their respective catchments as practical;
- treatment and discharge of the remaining water in the Reclaim Pond;
- contouring the cover material on the TSF and Portage RSF to develop positive gravity drainage of surface runoff;
- controlled flooding of the Portage and Goose Island pits over a period of approximately eight years following completion of pit operations;
- monitoring water quality to confirm compliance; and
- localized breaching of the Goose Island Dike to establish aquatic habitat and attenuation of the pit lake water.

It is currently planned to progressively place a rock cover over the TSF and RSF areas. The cover will consist of a layer of coarse acid-buffering ultramafic waste rock material, coarse enough to allow the development of convective cooling during winter, and insulation through trapped air within voids during the summer. The cover design for the TSF may also include an insulating layer of finer grained material, possibly till. The inclusion of such a layer would result in a shallower depth of annual thaw penetration. The progressive reclaiming of the TSF and RSF areas would be monitored during operations as part of an adaptive management plan to compare predicted performance of the reclamation strategies against the actual field performance of the strategies.

The capping material will be contoured to direct surface runoff toward nearby lakes after acceptable drainage water quality has been achieved. Pumping from the perimeter sumps at the Portage RSF will be discontinued once capping and final contouring of the pile are complete and water quality monitoring indicates that the surface runoff is acceptable for discharge.

Flooding of the mined-out pits will be done gradually over a number of years through the accumulation of precipitation, seepage, and mine site runoff, and redirection of freshet flows from Third Portage Lake. The amount of water taken from Third Portage Lake will likely be governed by allowable lake level fluctuations and geochemical requirements. Flooding rates will be established during the latter part of the mine life to minimize impact to the surrounding environment. Complete flooding is expected to take about eight years following completion of pit operations.

Once the mill site is reclaimed, the local mill sump(s) will be reclaimed and surface runoff will flow to its original catchment. Select non-contact water diversion ditches may be retained to promote surface water drainage.

11.5 VAULT MINING AREA CLOSURE

The proposed water management plan for the Vault mining area during closure involves the following:

- suspending the Phaser Lake diversion and reinstating natural flows from Phaser Lake to Vault Lake;
- closing and reclaiming the collection sumps at the Vault RSF and reinstating natural surface flows to their respective catchments;
- controlled flooding of the Vault Pit;
- water quality monitoring to confirm compliance; and,
- localized breaching or removal of the Vault Dike to establish aquatic habitat and attenuation of the pit lake water.

Water management activities for reclaiming the Vault mining area will focus on reinstating the surface hydrology to pre-existing conditions. The small berm between Vault and Phaser lakes will be removed, and pumping from Phaser to Turn Lake will be discontinued. Beginning after Year 8 and continuing through Year 12, Vault Lake will gradually refill with runoff contributed from its tributary watershed and controlled flows across the Vault Dike from Wally Lake. The amount of water taken from Wally Lake to flood the Vault Pit and Vault Lake will be governed by allowable lake level fluctuations and geochemical requirements. Complete flooding is expected to take five years. Flooding rates will be established during the latter part of the mine life to minimize impact to the surrounding environment. Once the Vault Lake and pit are flooded, and water quality is acceptable to allow mixing with Wally Lake, the Vault Dike will be removed.

Pumping from the sumps at the Vault RSF will be discontinued once final contouring of the pile is complete and water quality monitoring indicates that the water reporting to the perimeter sumps is acceptable for natural discharge.

11.6 WATER TREATMENT PLANT DISMANTLING

Should a water treatment plant be required, it will be built within the Process Plant at the end of the mining operation. Once the O:\Active_2006\1413\06-1413-081 - Meadowbank Dewatering Dikes\Correspondence\Correspondence Log active water treatment needs are satisfied, the remaining portion of the Process Plant (*i.e.*, the portion with treatment operation) will be removed as noted in the Section 8.5.1, the closure of the buildings and structures.

11.7 POST CLOSURE

11.7.1 Post Operational Groundwater Flow

After closure of the mine, the portion of Second Portage Lake northwest of the Central Dike will be filled by tailings. The tailings are expected to freeze over time, and therefore they will not be hydraulically connected to the regional flow system. During closure, the dewatered pit areas will be re-flooded. The water quality will be monitored and once guideline quality is satisfied, portions of the Goose Island Dike will be breached. This will result in the portion of original Second Portage Lake southeast of the Central Dike and west of the East Dike becoming connected to Third Portage Lake and the elevation of the lake level in this area will increase to the current level of Third Portage Lake (134.1 m elevation). The portion of Second Portage Lake east of the East Dike will remain at its original elevation (133.1 m elevation or approximately
1 m lower than Third Portage Lake).

Groundwater modeling results for these conditions suggest that the flooded area between the Central Dike and East Dike will act as a groundwater discharge zone in the north and as a groundwater recharge zone in the south where water is predicted to flow to the area of Second Portage Lake to the east of the East Dike (MMC, 2007b). The area east of the East Dike will act as a discharge zone in its northern portion with groundwater flow originating from two unnamed lakes to the north and northeast of the Project, from Third Portage Lake and from the flooded area between the two dikes. In the south, the area east of the East Dike will act as a recharge zone with groundwater flow to Tehek Lake, as in the baseline conditions.

Overall the predicted pattern of groundwater flow is similar to baseline conditions, but differs in that there is a gradient between the flooded area between the two dikes and the area of Second Portage Lake east of the East Dike. Overall the groundwater flow to Second Portage Lake is reduced due to the reduction of the total lake area to accommodate the frozen tailings and due to flooding of the area between the dikes to the Third Portage Lake level (134.1 m elevation). The groundwater flow to Tehek Lake from Second Portage Lake is similar to the baseline values. The model estimates of groundwater fluxes to and from the flooded area between the two dikes and the area of Second Portage Lake east of the East Dike are summarized in Tables 11.1 and 11.2 below (MMC, 2007b; Golder, 2005) .

***Table 11.1**: Post-Closure Estimated Groundwater Flux – Flooded Area between the Central Dike and East Dike*

	Flux (m^3/day)
Flooded Area between the Central Dike and East Dike to Second Portage Lake east of the East Dike	8.0
A lake located north of Second Portage Lake (141 m elev.) to flooded area between the Central Dike and East Dike	1.0

***Table 11.2**: Post-Closure Estimated Groundwater Flux – Second Portage Lake East of the East Dike*

	Flux (m^3/day)
Second Portage Lake to Tehek Lake	1.1
A lake located north of Second Portage Lake (141 m elev.) to Second Portage Lake east of the East Dike	1.7
A lake located northeast of Second Portage Lake (144 m elev.) to Second Portage East of the East Dike	0.1
Third Portage Lake to Second Portage Lake east of the East Dike	0.4
Flooded Area between the Central Dike and East Dike to Second Portage Lake east of the East Dike	8.0

SECTION 12 • PROGRESSIVE RECLAMATION AND SCHEDULE

Best management practices, including progressive reclamation, will be applied to advance environmental protection and reduce environmental risks associated with the Project. Based on the current mine schedule, most reclamation and closure activities will commence at the end of mining and processing operations at the mill site and will be completed over a period of two to three years. A summary of key progressive reclamation activities and the proposed timeline are provided below.

12.1 TAILINGS STORAGE AND ROCK STORAGE FACILITIES

The RSFs will be closed progressively during the later stages of mine operations as the lifts of rock reach their ultimate elevation. Progressive closure of the TSF will commence in Year 4 and be finished within two years after completion of mining. Closure of the east half of the TSF is expected to be completed between Years 4 to 8 and the balance of the TSF and Reclaim Pond during the closure period in Years 9 and 10.

The RSFs are expected to be created in 5 m lifts, with the final lifts achieved in the later stages of pile development. Therefore, depending on actual mine operations, progressive closure of the RSFs will probably commence in about Year 5 and be completed in Year 9.

Closure of the TSF and Portage RSF will include the placement of an erosion barrier consisting of a minimum 2 m thick layer of non-PAG rock. The surface of the TSF and RSF areas will be graded to blend into the existing topography, and to shed water from the surface.

12.2 OPEN PITS

Flooding of the open pits, water management, and closure monitoring activities will take approximately eight years following completion of pit operations, followed by post-closure monitoring. The Goose Island and Portage pits will be reclaimed progressively.

Flooding of the Goose Island Pit via controlled pumping from Third Portage Lake is scheduled to commence in Year 4 and is expected to continue through Year 11. The average annual pumping rate was set to accommodate all of the pit inflows and tributary area runoff from Years 4 to approximately 11 (assuming average annual conditions) to Goose Island Pit without having to decant water to the environment (elevation remains below 134.1 m elevation). The re-watering volume within the Goose Island Pit dikes is 14.8 Mm3 assuming the waste rock is not placed inside the diked off area.

Flooding of the Portage Pit via natural inflows and controlled pumping from Third Portage Lake commences in Year 5 and is expected to continue through Year 12. The average annual pumping rate was set to accommodate all of the pit inflows and tributary area runoff for eight years following completion of pit operations (assuming average annual conditions) without having to decant water to the environment. The re-watering volume within the Portage dikes is approximately 30.0 Mm3. The placement of waste rock inside the diked off area of the Portage Pit will reduce the required re-watering volume.

Flooding of the Vault Pit and Attenuation Pond via controlled pumping from Wally Lake commences in Year 8 and is estimated to continue through Year 12. The average annual pumping rate was set to accommodate all of the pit inflows and tributary area runoff for five years (assuming average annual conditions) without having to decant water to the environment. The re-watering volume within the Vault dike, including the mined out pit, is approximately 21.5 Mm3.

12.3 SITE FACILITIES

Certain facilities will be reclaimed progressively during the life of the mine, such as camps, temporary workspace, marshalling yards, and storage areas. Buildings not required for end land-use targets will be dismantled. All excavations will be backfilled to grade to restore natural drainage or new acceptable drainage. All materials will be buried below the active layer. Select non-contact water diversion ditches may be retained to promote surface water drainage.

Some disturbed areas will be allowed to recover naturally, while vegetation will be established in others. In some cases, revegetation of an area may be a combination of both artificial and natural revegetation. In other cases, the surface may be prepared to provide a suitable environment for plant growth to take place.

12.4 SCHEDULE

Table 12.1 summarizes the project schedule time line for the reclamation and closure activities.

Table 12.1: Timeline for Reclamation and Closure Activities

Activity	Yr-2	Yr-1	Yr1	Yr2/3	Yr4	Yr5	Yr6/7	Yr8	Yr9	Yr10	Yr 12	Yr13	Yr30
Mine Construction													
Portage Pit													
Goose Pit													
Vault Pit													
Mine Operation													
Mine Complete								Yr8					
Progressive Closure													
Mine and Mill Closure / Demolition													
Pit Flooding Portage/Goose													
Pit Flooding Vault													
Water Management													
Post-Closure													

Note: Final removal of Mill in year 14 with completion of water treatment needs for Portage Pit flooding

SECTION 13 • INTERIM SHUTDOWN STRATEGIES

13.1 DESCRIPTION

The mine operation is planned to be continuous for the full proposed operating period. However, the mine may shut down temporarily or indefinitely. The plans for both of these shut down periods are discussed below.

13.1.1 Definitions

Temporary shutdown – A cessation of mining and processing operations for three to twelve months. The intention is that the mine will resume operations as soon as possible after the cause for the temporary shutdown has been removed. Possible causes for a temporary shutdown include a major mechanical equipment failure, late delivery of critical equipment or supplies, or labour conflict.

Indefinite shutdown – A cessation of mining and processing operation for an indefinite period of time greater than twelve months. The intention is that the mine will resume operations as soon as possible after the cause for the indefinite shutdown has been removed. The site must maintain safety and environmental stability during this time. Possible causes for an indefinite shutdown include prolonged adverse economic conditions or extended labour disputes.

13.2 TEMPORARY SHUTDOWN

Care and maintenance measures to be taken during a temporary shutdown at the Meadowbank Gold Project will include:

- minimum staffing levels maintained to carry out care and maintenance;
- camp operated at reduced staffing level;
- environmental and geotechnical monitoring and sampling would continue at regular intervals as set out in the mine operations and monitoring program;
- continue to monitor the pumps in the open pits and maintain the pits in a dry condition to maintain dry, stable pit slopes;
- if shutdown is prior to the conversion of the Process Plant to Water Treatment Plant, then water from the Portage Pit and Portage RSF that does not meet discharge quality requirement would be accumulated in the Reclaim Pond;

- if shutdown is after the conversion of the Process Plant to Water Treatment Plant, then water from the Portage Pit, Goose Pit, and Portage RSF would be allowed to accumulate in the Reclaim Pond up to the allowable storage capacity (i.e., allowing for Central Dike freeboard plus storm attenuation volume). Once the available storage capacity has been reached, water would be treated, if required, and discharged;

- all water would be treated and discharged during a four-month period from June to September each year. Therefore, if the temporary shutdown occurs during the October to May period, then little or no water would need to be considered for storage or treatment;

- water from the Vault Pit and Vault RSF would continue to be accumulated within the Vault Attenuation Pond;

- surface water control structures would be maintained;

- tailings and water distribution lines would be drained or emptied, flushed with water, and allowed to drain, but would be left in place;

- critical facilities (plant and camp) would have nominal heat to prevent freezing of the facilities and possible damage;

- Sewage Treatment Plant would continue to operate, as needed; and,

- hazardous wastes on site would be collected and stored in an appropriate area for disposal at a later date.

13.3 INDEFINITE SHUTDOWN

Care and maintenance measures to be taken during an indefinite shutdown at the Meadowbank Gold Project will include:

- minimum staffing levels maintained to carry out care and maintenance;
- camp operated at reduced staffing levels;
- environmental and geotechnical monitoring and sampling would continue at the regular level as set out in the mine operations and monitoring program;
- continued monitoring of the pumps in the open pits and maintaining the pits in a dry condition to maintain dry, stable pit slopes;
- two-metre cover of ultramafic rock will be placed over potentially acid-generating rock and exposed tailings beach areas, to minimize acid generation and to control dust;
- the working face of the waste rock pile slopes would be graded to ensure stability, and to promote drainage to the surface water drainage system adjacent to the RSFs;
- if shutdown is for labour reasons, monitor the TSF and RSFs, and if needed, work with labour force to ensure any short term environmental concerns are addressed;
- monitor and maintain the perimeter dikes, and do not breach any of the Dewatering Dikes;
- if shutdown is prior to the availability of the Goose Island Pit for attenuation storage, then water from the Portage Pit and Portage RSF that does not meet discharge water quality requirements would be accumulated in the Reclaim Pond up to the allowable storage capacity (i.e., allowing for Central Dike freeboard plus storm attenuation volume). Once the available storage capacity had been reached, water would be treated in-pond as necessary, and discharged;
- if shutdown is after the availability of the Goose Island Pit for attenuation storage, then water not meeting discharge quality requirements could be accumulated in the Goose Island Pit Lake and treated in-pit as necessary;

- water from the Vault Pit and Vault RSF would continue to be accumulated within the Vault Attenuation Pond;

- surface water control structures would be maintained as required. In areas where water quality is suitable for discharge, natural drainage courses could be re-established;

- tailings and water distribution lines would be drained or emptied, flushed with water, and allowed to drain. The lines would be removed and placed in a secure lay down area, to reduce impacts on wildlife; and,

- hazardous wastes and hazardous materials would be removed from site and sent for proper disposal and a licensed facility.

SECTION 14 • CLOSURE, POST-CLOSURE MONITORING AND MAINTENANCE

14.1 DESCRIPTION

The Closure and Reclamation Plan will require a commitment to adaptive management and monitoring during all stages of the mine life to demonstrate the safe performance of the mine facilities. Monitoring will identify non-compliant conditions; allow timely maintenance and planning for adaptive and corrective measures, and enable successful completion of the Closure and Reclamation Plan. Monitoring programs will be initiated during pre-development, construction, and during operations to provide additional baseline information on which to base the final Closure Plan document.

Monitoring and maintenance programs that are implemented during the closure and post-closure phases of the mine life will use the data collected during operational monitoring to assess the performance of the reclamation and closure procedures. The data collected during post-closure monitoring will allow the procedures and activities to be adjusted or modified as necessary to confirm on going environmental protection.

14.2 OBJECTIVES AND STRATEGIES

Key features of the Closure and Reclamation Plan will be developed in conjunction with the mine plan so that closure considerations are incorporated into the mine design. Wherever practical, surface facilities will be designed to facilitate reclamation requirements and natural recovery of areas affected by the Project. In line with this objective, reclamation will be carried out progressively during operations whenever possible, notably at the TSF and RSFs.

14.3 MONITORING AND MAINTENANCE PROGRAMS

Development of monitoring and maintenance programs is an iterative process and will be developed in more detail in consultation with communities and regulators as the Project advances. The programs will be extensions of efforts undertaken during the operation and may be modified for closure and post-closure conditions.

The water quality monitoring programs is described in detail in the Water Quality and Flow Monitoring Plan (MMC, 2007e), and includes four levels of monitoring: compliance monitoring (CM); internal monitoring (IM); site specific (SS); and event monitoring (EM). Closure and Post-Closure Monitoring fall mainly within the compliance level of water quality monitoring and is briefly described below.

14.3.1 Closure Phase

During the closure phase, mining will have ceased in the Vault Pit and the pit will be allowed to flood using controlled inflow from Wally Lake. Current estimates are that it will take 5 years for the Vault Pit to completely flood at which time the Vault Attenuation Pond and Pit Lake will merge (MMC, 2007b).

By the end of the late operational phase or early in the closure phase the Portage and Goose Island pits will be completely flooded and the remaining portions of the TSF will be capped.

Sampling will completed to monitor surface water and pit lake water quality over the closure period to evaluate acceptability for release to the environment.

14.3.2 Post-Closure Phase

Monitoring activities conducted during the post-closure phase are primarily associated with water quality of selected mine facilities including flooded pit lakes, RSF areas, and the reclaimed TSF.

Closure and reclamation of the project facilities is expected to be completed after the cessation of mining and ore processing after pit lakes are fully flooded and dikes are breached (at different Project years in the Portage and Vault areas). The Project will then enter the post-closure phase where the physical and environmental conditions of decommissioned mine site infrastructure are expected to progress toward steady-state. There will be no full-time personnel presence at the site during this time, and environmental monitoring is anticipated to be carried out at a reduced frequency, most likely during short site visits by helicopter from Baker Lake. The level of monitoring required will be a function of environmental performance at the site and is expected to be phased out over an agreed-to period of time. Thus, it is proposed that for 10 years after closure is complete, the mine would monitor at the Compliance Monitoring sites annually during open water. After 10 years of monitoring, the results would be review and if appropriate an application to reduce the frequency of monitoring would be submitted. It would then be proposed to monitor every second year for a further 5 to 6 years and if the monitoring indicates consistent conditions have been achieved, a request to stop monitoring would be submitted with the Annual Report.

14.3.3 Location of Compliance Monitoring Points

The CM sampling program will include sites from the Portage and Vault areas. As presented in the AEMP (Cumberland, 2005d), it is possible that a subset of the core program will be retained for long-term monitoring. The choice of where and what to monitor would be made by reviewing the utility of monitoring applied over the course of mine life.

The proposed CM locations (MMC, 2007e) are listed on Table 14.1 as well as the mining phase(s) during which time monitoring will take place.

Table 14.1: Compliance Monitoring Sampling Points

Facility	Construction	Early Operations	Late Operations	Closure	Post-closure
Non-contact water diversion ditches	Two ditches Portage area, one ditch Vault area	Two ditches Portage area, one ditch Vault area	Two ditches Portage area, one ditch Vault area	Two ditches Portage area, one ditch Vault area	-
Portage and Goose Island pit lakes	-	-	-	-	Breached
Third Portage Diffuser discharge	-	At pipe	-	-	-
Vault Pit Lake	-	-	-	-	Breached
Wally Lake Diffuser discharge	-	-	At pipe	-	-

The actual location of each sampling site will be determined by access and safety considerations and will be marked by a highly visible stake that will define the exact location of the collection point for subsequent sampling events.

14.3.4 Post-Closure Revegetation Considerations

The pre-development terrain is covered by discontinuous vegetation interspersed with bedrock outcroppings and continuously aggrading surfaces. The vegetation includes lichens, mosses, shrubs, heaths, grasses, and sedges. The reclamation plan will be designed to encourage a natural succession of indigenous plant species within disturbed site areas. Where appropriate, grading and contouring will be done to control soil stability to promote revegetation. Where rock slopes or other site features preclude revegetation, a layer of ultramafic capping rock will be placed on the surface to ensure long-term stability.

14.3.5 Habitat Enhancement (No Net Loss Management Plan)

Habitat enhancement options are detailed in the No Net Loss of Habitat (Cumberland, 2005g). There are many habitat enhancement options available at post-closure. Monitoring will be conducted by comparing net areas of high value habitat units (HUs) between baseline, construction/operation and closure/post-closure periods.

Habitat enhancement options may include:

- Engineering of structures to provide suitable quality habitats such as substrate/grain size quality, complexity and depth and other parameters.
- Deep (>10 m) areas can be built up to form reefs or shoals and shorelines can be engineered to provide high value habitat.
- The entire contiguous area from the Goose Island Pit north will become part of Third Portage Lake.
- Habitat within the pits and setback areas (sills) between the pit crest and the toe of each dike will be contoured to provide optimal fish habitat.

Details in the final Closure and Reclamation Plan would be based on the data collected and as set out in the No Net Loss of Habitat report (Cumberland, 2005g).

14.3.6 Other Management and Monitoring Programs

14.3.6.1 Environmental Management System

MMC will design and implement an environmental management system (EMS) that incorporates training, environmental monitoring, audits, inspections, and other tools to measure and manage actual environmental performance against established objectives. The EMS will continue through closure and post-closure phases and will consider regulatory compliance and project-related regional socioeconomic and environmental effects. It will also identify circumstances under which additional mitigation should be undertaken if impact predictions prove to be incorrect or underestimated. Later in the mine life, the program will be further refined to focus on monitoring of key issues during the reclamation and closure period. Environmental monitoring and maintenance requirements are expected to decline once the Project facilities have been fully decommissioned and the mine development area has been restored to the endpoints agreed upon in the Water License.

Management and monitoring of aquatic resources are discussed in the Aquatic Effects Monitoring Program (AEMP) (Cumberland, 2005d) and includes monitoring of sediment chemistry, zoo- and phytoplankton, benthic invertebrates and fish. Other management plans are detailed under separate cover (e.g., Metal Mining Effluent Regulations Plan, MMER, 2002).

14.3.6.2 Groundwater Quality Monitoring

MMC will continue with the groundwater quality monitoring programs at or close to the existing sampling stations on an annual basis during construction and operation; as well as through closure and post-closure at reduced frequency. The monitoring programs will evaluate closure performance such as comparison with water quality predictions (i.e., around the perimeter of the TSF to monitor the quality of the groundwater within the talik zone beneath the facility; and into the talik zones beneath the Portage, Goose Island, and Vault pits to collect water quality data).

14.3.6.3 Thermal Monitoring of Tailings, Tailings and Perimeter Dikes

Thermistors installed around the perimeter of the TSF and within the Central Dike and Saddle Dams to monitor freeze-back and compare against predictions will be monitored through closure and post-closure. The thermal performance of the TSF and Central Dike will be measured against the predicted performance.

SECTION 15 • CLOSURE AND RECLAMATION COST ESTIMATES

The financial security requirements for closure and reclamation are outlined in the Nunavut *Mine Site Reclamation Policy* (INAC, 2002):

- The total financial security for final reclamation required at any time during the life of the mine should be equal to the total outstanding reclamation liability for land and water combined (calculated at the beginning of the work year, to be sufficient to cover the highest liability over that time period).

- Estimates of reclamation costs, for the purposes of financial security, are based on the cost of having the necessary reclamation work done by a third-party contractor if the operator defaults. The estimates include contingency factors appropriate to the particular work required.

A closure and reclamation cost estimate has been prepared for the present mine layout and infrastructure. The estimate has been developed using the Reclaim Model 5.1 prepared for Water Resources Division of INAC, by Brodie Consulting Ltd. (2001). The summary of the estimate is presented on Table 15.1 – Summary Closure Cost Estimate. The estimated cost to close the mine / mill is $18 million. The Reclaim Model work sheets have not been provided, but will be submitted if desired by the Nunavut Water Board.

Table 15.1: Summary Closure Cost Estimate

Capital Costs

COMPONENT TYPE		TOTAL COST	Land Liability	Water Liability
OPEN PITS - PORTAGE, GOOSE, VAULT		$1,771,391.00	$120,491	$1,650,900
UNDERGROUND MINE		$0.00	$0.00	$0.00
TAILINGS		$5,490,990.00	$5,490,990	$0
ROCK PILE		$3,521,990.00	$3,521,990	$0
BUILDINGS AND EQUIPMENT		$2,384,085.00	$2,379,575	$4,510
CHEMICALS AND SOIL MANAGEMENT		$461,765.00	$457,125	$4,640
WATER MANAGEMENT		$283,055.45	$0	$283,055
POST-CLOSURE SITE MAINTENANCE		$743,873.74	$371,937	$371,937
SUBTOTAL		**$14,657,150**	**$12,342,108**	**$2,315,042**
		Percentages	84.21	15.79
MOBILIZATION/DEMOBILIZATION		$506,873	$426,814	$80,059
MONITORING AND MAINTENANCE		$550,000	$463,130	$86,870.45
PROJECT MANAGEMENT	3%	$439,715	$370,263	$69,451
ENGINEERING	3%	$439,715	$370,263	$69,451
CONTINGENCY	10%	$1,465,715	$1,234,211	$231,504
GRAND TOTAL - CAPITAL COSTS		**$18,059,167**	**$15,206,789**	**$2,852,378**

SECTION 16 • REFERENCES

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