Landfill Management Plan
Doris North Project, Nunavut

Prepared by:
Miramar Hope Bay Ltd.
North Vancouver, BC

Prepared by:
Lawrence J.Connell, P.Eng.
NWT/NU Registration Number L1720
General Manager, Environment,
Miramar Mining Corporation

April 2007

TABLE OF CONTENTS

Page

LIST OF FIGURES

LIST OF TABLES

TABLE OF CONTENTS

Page

LIST OF APPENDICES

1.0 INTRODUCTION

1.1 Overview

The Landfill Management Plan provides information on how inert industrial wastes will be handled in a safe Project (Doris North) in Nunavut. During construction, the mine will have on site a maximum of approximately 120 including MHBL employees and contractors. This number will increase to a maximum of approximately 175 during operations, and the number of people on site will reduce once the closure phase is entered. The proposed landfill is relatively small, consistent with the mine size and underground operations mode, but designed to be expandable to the extent required to accommodate all inert industrial waste anticipated to be generated during the life of mine. The quarry location is large enough to accommodate industrial waste from an expanded mine, should additional reserves be proven and the Doris North mine continue operation beyond the current projection of two years.

The proposed landfill is designed to operate in a safe, efficient and environmentally sound manner. All wastes and drainage will be contained and environmental control will be straight forward. No hazardous wastes will be placed in the industrial landfill. Management procedures for hazardous wastes are discussed in the Hazardous Materials Management Plan for the Doris North Project[1].

1.2 Purpose and Scope of the Landfill Management Plan

The purpose of this document is to provide a consolidated summary of information on the operation of the non-hazardous landfill area to be used at the Doris North Project during the construction, operational and reclamation phases to permanently store non-hazardous waste materials generated by MHBL's operations and through final demolition and reclamation. These procedures are an integral component of the overall Environmental Protection Plan (EPP) for the proposed Doris North Project and will be periodically reviewed and updated as the Project moves through construction, operations, and final closure and reclamation.

This Management Plan is a component of the Doris North Environmental Management System and will be updated after the water license has been issued to incorporate any new commitments made by MHBL during the license process and to incorporate any conditions contained within the water license relating to the handling and disposal of non-hazardous waste materials. This Management Plan is to be reviewed annually during the first quarter of each calendar year by the mine's environmental staff and updated as needed to reflect changes in operating procedures. The revised Landfill Management Plan will be made available to the appropriate mine operating staff with appropriate refresher training and sent to the Nunavut Water Board (NWB) for inclusion in the public registry.

The Landfill Management Plan is intended to provide the mine's operating staff with a summary of the handling and management procedures for the disposal of non-hazardous

[1] Section 2.4, Hazardous Materials Management Plan, Supporting Document S10e to the Revised Water License Application Support Document, April 2007.

solid waste and operation of the landfill that were developed through the environmental assessment and project design process. It similarly provides a summary of the same to the regulatory agencies and to the land owner who have regulatory interest over the mine facilities.

This Plan is not intended to be a design document for the landfill facility. The reader is referred to the following sources for design information:

- Design of the Surface Infrastructure Components Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S2 to the Revised Water License Application Support Document, April 2007)
    - Sections 4.16 and 5.10 Landfill.

- Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S4 to the Revised Water License Application Support Document, April 2007)
    - Drawing G-02 General Arrangement;
    - Drawings S-13 and S-14 Landfill and Landfarm Typical Plan, Sections and Details.

- Technical Specifications for Tailings Containment Area and Surface Infrastructure Components, Doris North Project, Hope Bay, Nunavut, Canada, prepared for MHBL by SRK Consulting Engineers and Scientists, dated March 2007. (Supporting Document S3 to the Revised Water License Application Support Document, April 2007)
    - Section 10.2.22 Landfill;
    - General material specifications for fill materials is contained in Section 7;
    - General specifications for fill placement is contained in Section 9.

1.3 Location of Facilities

The industrial landfill will be located in Quarry 2 once broken rock production is complete. Figure 1-1 shows the location of the Quarry at Doris North.

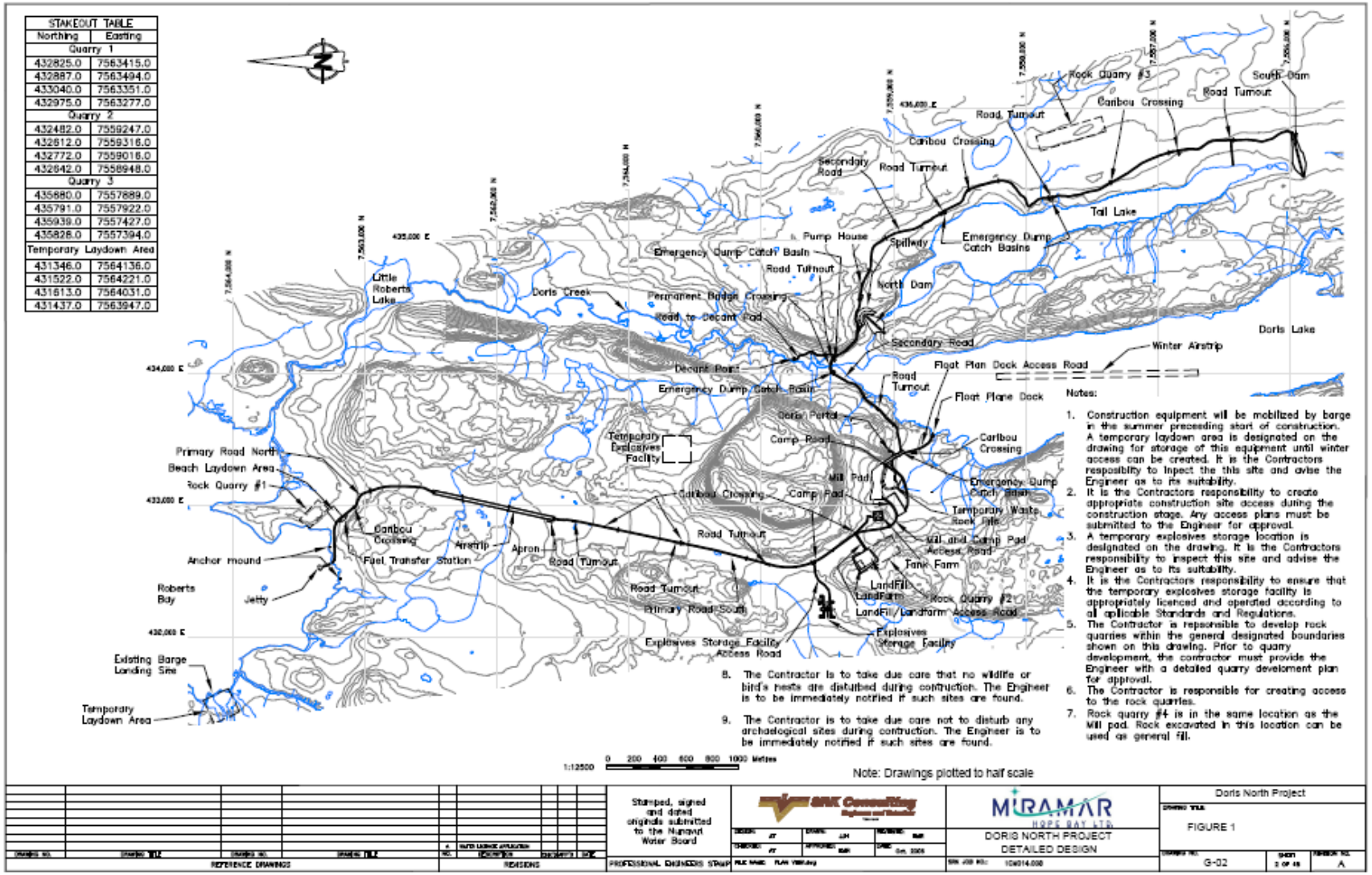
1.4 Responsibility

- Mine General Manager - The Mine General Manager has overall responsibility for this management plan and will be the party to provide the mine site resources to develop and manage the landfill facility;

- Surface Superintendent - The mine's Surface Superintendent will have mine site responsibility for the implementation of this management plan and will provide the on-site resources to operate and manage the landfill facility in accordance with the plan; conduct regular inspections of the landfill; and provide input to the mine management team on modifications in design and operational procedures to improve operational performance of this facility; and

- Environmental Coordinator – The site Environmental Coordinator has responsibility to: keep this management plan updated; provide technical expertise to the site operational personnel on the operation and maintenance of the landfill; sampling of runoff and leachate and assessment of whether this water has met applicable regulatory standards for release onto the tundra; provide operational personnel with direction as to when and where water from the landfill should be sent; conduct annual audit of the facility; and provide an audit report to Surface Superintendent and Mine General Manager.

Figure 1.1: Site Map



2.0 REGULATORY SETTING

Waste management is regulated under the Nunavut *Public Health Act*, the Nunavut *Environmental Protection Act* and the federal *Environmental Protection Act*. In addition to mandatory requirements, a number of waste management guidelines are commonly used in the NWT. The most recent of these was developed for municipal solid waste, and is titled "Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT" (Ferguson Simek Clark, April 2003, on behalf of the Department of Municipal and Community Affairs, Government of Northwest Territories). While all of the recommendations provided in this guideline are not appropriate for the management of industrial waste such as those generated at a gold mine, those principals that are considered applicable have been adopted in the proposed waste management plan contained in the current document.

3.0 LANDFILL LOCATION AND CONSTRUCTION

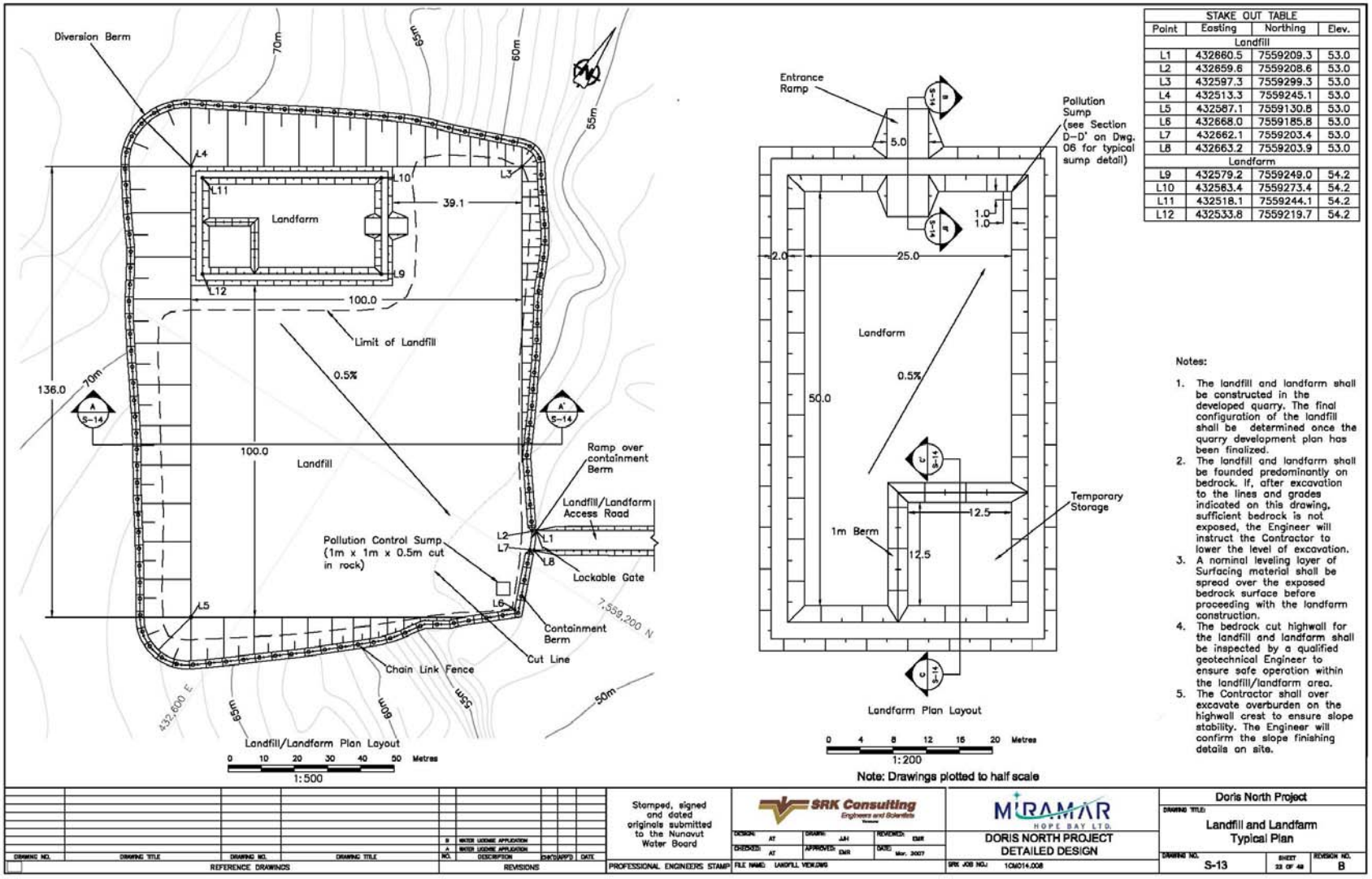
All solid non-combustible, non-hazardous waste will be disposed of in a portion of the rock quarry (Quarry 2) immediately west of the camp (Figure 1-1). An area approximately 100 m x 100 m will be dedicated to landfill operations. In addition, any remaining surface area within the quarry that is not occupied by the landfarm will be used for landfill. Details regarding the expected waste volumes and types to be deposited in the landfill are provided in Section 4 of this Plan. These estimates suggest that the total expected waste volume to be generated during construction and operation over the mine life will be less than 1,000 m^3, and the landfill will have a capacity of at least 30,000 m^3.

Figure 3-1 shows a detail of the proposed location. The area for landfilling will be prepared by removing surface debris, large rocks, and brush. The final quarry configuration will consist of a flat surface, graded in the down slope direction, adjoining a steeper angled rock surface that forms the transition to natural ground on the ridge above. Storm and melt water will be diverted away from the landfill by perimeter rockfill berms on the upslope edges of the excavation (Figure 3-2). These berms will be constructed from select sub grade material and will be 1 m high[2]. The landfill is also hydrogeologically isolated due to the presence of permafrost, and the host rock is of good quality such that cracks or fractures created by blasting are expected to be surficial and will not propagate any leachate.

A landfarm for treatment of petroleum-contaminated soil will also be located in the quarry but physically separated from the landfill such that cross contamination will not be possible. Further details are presented in the Landfarm Management Plan[3].

[2] Similar in design to the temporary waste rock pile containment berms depicted in Drawing S-08, Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components Supporting Document S4 to the Revised Water License Application Support Document, April 2007.

[3] Landfarm Management Plan, Supporting Document S10h to the Revised Water License Application Support Document, April 2007.



STAKE OUT TABLE			
Point	Easting	Northing	Elev.
Landfill			
L1	432660.5	7559209.3	53.0
L2	432659.6	7559208.6	53.0
L3	432597.3	7559299.3	53.0
L4	432513.3	7559245.1	53.0
L5	432587.1	7559130.8	53.0
L6	432668.0	7559185.8	53.0
L7	432662.1	7559203.4	53.0
L8	432663.2	7559203.9	53.0
Landfarm			
L9	432579.2	7559249.0	54.2
L10	432563.4	7559273.4	54.2
L11	432518.1	7559244.1	54.2
L12	432533.8	7559219.7	54.2

Notes:

1. The landfill and landfarm shall be constructed in the developed quarry. The final configuration of the landfill shall be determined once the quarry development plan has been finalized.
2. The landfill and landfarm shall be founded predominantly on bedrock. If, after excavation to the lines and grades indicated on this drawing, sufficient bedrock is not exposed, the Engineer will instruct the Contractor to lower the level of excavation.
3. A nominal leveling layer of Surfacing material shall be spread over the exposed bedrock surface before proceeding with the landfarm construction.
4. The bedrock cut highwall for the landfill and landfarm shall be inspected by a qualified geotechnical Engineer to ensure safe operation within the landfill/landfarm area.
5. The Contractor shall over excavate overburden on the highwall crest to ensure slope stability. The Engineer will confirm the slope finishing details on site.

Figure 3.1: Proposed Landfill Site

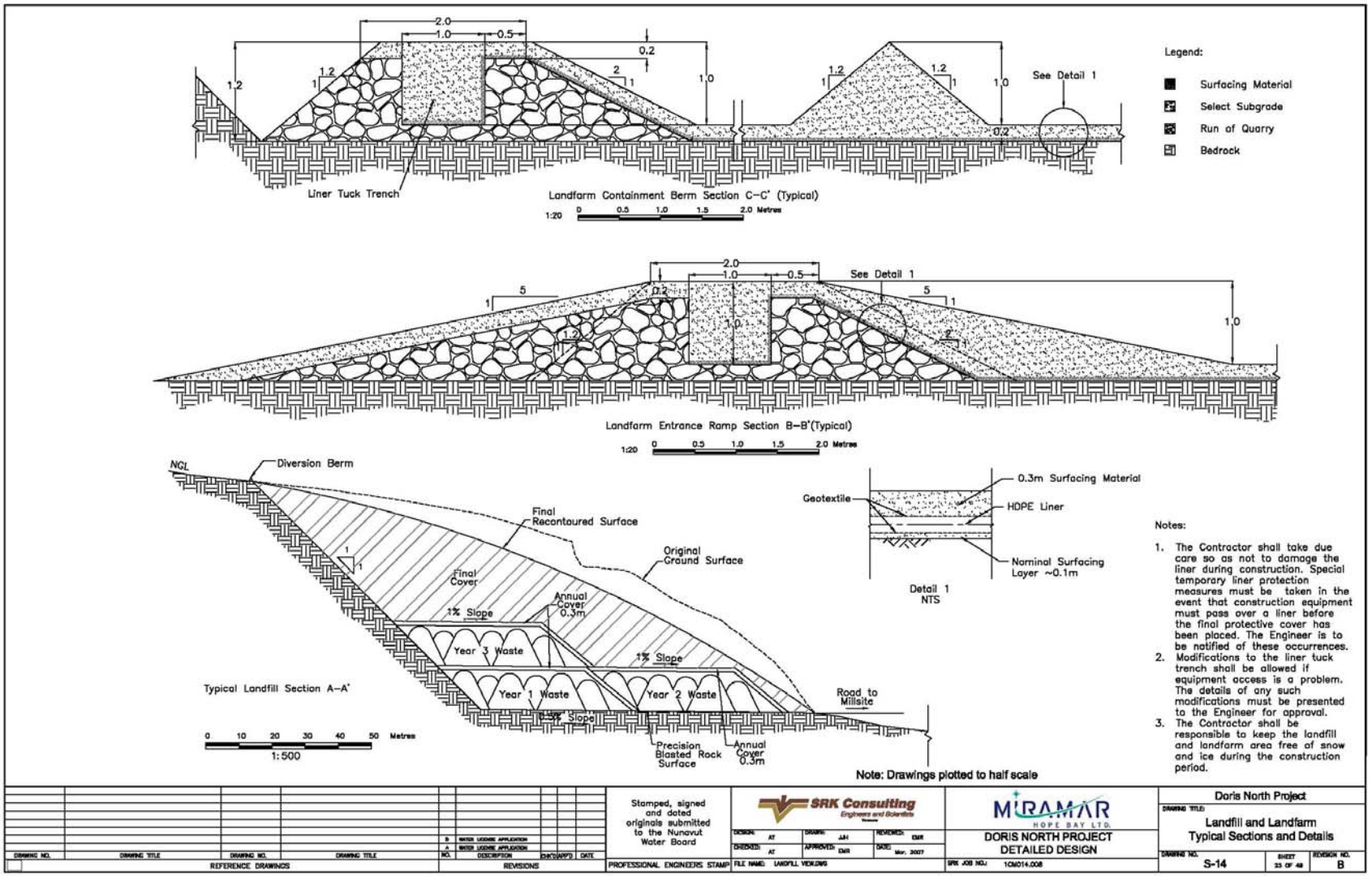


Figure 3.2: Schematic Cross Section of Landfill

4.0 LANDFILL OPERATION

4.1 Types of Wastes

Table 4.1 provides a pre-construction estimate of the types of inert industrial wastes that are likely to be generated at Doris North.

Table 4.1: Potential Types of Inert Industrial Waste

Waste Type	Examples
Scrap metal	Structural steel, equipment guards, plate steel, steel pilings, tanks (decommissioned), bins, cladding, doors, rebar, filing cabinets, cable tray, metal furniture, wheels, washed out reagent and grinding ball drums
Rubble	Broken concrete, masonry
Wood products	Timber dunnage, plywood and lumber from formwork and camp modules and plywood from cyanide shipping boxes
Rubber products	Tires, conveyor belting, floor mats
Construction	Construction and demolition debris
Glass	Cleaned bottles, jars, plate glass and mirrors
Piping	Steel and plastic piping (fuel and glycol piping clean), including insulation, heat trace cable and support brackets
Fabrics and liners	HDPE liner, woven geotextile, insulation (liners cut into strips for burial to prevent water containment)
Electrical	Cabling, cable support systems, electrical panels, switchgear, transformers (except oil-filled units)
Equipment (non-recyclable)	Non-hydrocarbon-contaminated and cleaned equipment: electric motors, boilers, fans, heaters, bearings, gearboxes, pumps, screens, truck parts, conveyor idlers and pulleys, truck shop equipment, appliances

The volume of each potential type of industrial waste has been estimated as indicated in Table 4.2:

Table 4.2: Estimate Annual Volumes of Inert Industrial Waste

Waste Type	Estimated Volume – m^3/yr	
	Construction	Operation
Scrap metal	10	25
Rubble	2	5
Wood products	25	50
Rubber products	2	10
Glass	1	2
Piping	5	10
Fabrics and liners	2	5
Electrical	2	5
Equipment (non-recyclable)	1	5
Estimated Total	50	117

These estimates were generated by MHBL and come from MHBL's experience with inert waste generation at its Con Mine in Yellowknife combined with a review of the anticipated volumes of reagent containers (drums, bags, super-sacks, and wood boxes and pallets)

that were drawn from looking at the quantities of each reagent to be used annually at the Doris North mine site.[4]

4.2 Waste Reduction Opportunities

The remote location of the Doris North Project makes it difficult to recycle materials that otherwise will end up in the landfill. This is a similar problem for all of the communities within Nunavut and consequently very little of the total waste generated can be effectively recycled in a cost effective manner. However, MHBL has assessed its options and will approach this issue from four fronts:

- **Reduce Waste**: The cost of transporting any material to this remote site is expensive and so MHBL will work with its suppliers and employees to minimize the amount of material that they need to use to sustain their operations. This will have the added benefit of reducing the amount of waste generated on site. Organic materials from the camp kitchen (kitchen food wastes) will be segregated at source and incinerated to prevent them ending up in the landfill where they could attract wildlife;
- **Re-Use Material**: MHBL will work with their employees to encourage the re-use of materials wherever possible to avoid the high cost of transporting operating supplies to this remote site. Materials with potential for re-use, be they lumber from packing or used piping components or machine parts, will be segregated and held in a storage yard established for this purpose so that these materials are available for internal recycle thereby having the added benefit of reducing waste material that has to be placed into the landfill;
- **Segregation and Removal of All Potentially Hazardous Materials**: MHBL will segregate all potentially hazardous wastes at their source of generation. This will include such items as waste batteries from vehicles, waste solvents, greases, antifreeze, etc. These will be segregated, packaged and shipped off-site with each annual sealift so that they can be sent to an appropriate recycling facility where possible[5]; and
- **Burn all Clean Combustible Wood Waste Before Landfilling**: Approximately 50% of the total estimated volume of waste generated will be in the form of relatively clean wood waste typically associated with shipping containers and pallets. Wherever possible, MHBL will stockpile such items as undamaged wood pallets and return them on the outgoing sealift barges for re-use in future shipments. The sodium cyanide used in the mill will generate wood waste in the form of a plywood shipping crate. MHBL proposes to burn these wood crates in a burn pit to be sited within the landfill area along with other untreated wood debris that cannot be recycled. This eliminates a potential safety concern related to wood being reused that may have accidentally come into contact with cyanide briquettes during shipping. Cyanide is totally destroyed in the burning process consequently the resultant ash will not contain any cyanide traces. At the same time, the volume of waste placed into the landfill will be significantly reduced.

[4] See Table 3.1 for hydrocarbon products such as motor oils, grease and glycol and Table 5.1 for list of milling reagents expected to be used at Doris North in the Hazardous Materials Management Plan, Supporting Document S10e to the Revised Water License Application Support Document, April 2007.

[5] Additional information in Section 2.4.3, Hazardous Materials Management Plan, Supporting Document S10e to the Revised Water License Application Support Document, April 2007.

The burn pit will be constructed using quarried rock to create a contained area within the Quarry 2 footprint but a minimum distance of 20 m away from the landfarm facility to protect the HDPE liner from heat damage.

In this manner, the amount of waste placed into the landfill can be reduced.

4.3 Recyclables Stored on Site

The mine will establish a recyclable materials storage area adjacent to one of the laydown areas where equipment will be stored pending possible re-use at the mine site. The storage area location will be determined at the time of mine construction and will be sited 30 meters away from any water bodies and in a controlled drainage area, in close proximity to the mill pad.

Large tires (e.g. those for ore trucks) when no longer useable on trucks and, if not recyclable through truck tire dealers, could be used as roadside barriers; a typical of use at mine sites for these items. Any tires used as barriers would be buried in the landfill on closure.

4.4 Liquid Wastes

Liquid waste will consist of the water component of the final mill tailings slurry and treated sewage effluent and will not report to the landfill. Separate management plans for these two liquid materials have been developed as part of the Doris North Environmental Protection Plan, specifically:

- Tailings Management Plan[6] ;and
- Water Management Plan[7].

[6] Tailings Management Plan, Supporting Document S10i to the Revised Water License Application Support Document, April 2007.
[7] Water Management Plan, Supporting Document S10j to the Revised Water License Application Support Document, April 2007.

5.0 LANDFILL MANAGEMENT

5.1 General

Annual landfill operation will involve clearing of uncontaminated snow prior to the spring melt, periodic placement of non-acid generating quarried rock to encapsulate filled landfill cells as needed over the summer period, and the placement of a graded cover over filled landfill cells prior to the winter period of snow accumulation. Inert wastes produced during the winter months will be stored temporarily in a designated portion of the landfill and then relocated into an operating landfill cell following the spring thaw. The capping rock will come from Quarry 2 and will be stockpiled at the end of the construction period for use during operations and during reclamation.

An area method of dumping will be used such that materials will be dumped in rows and covered as required. Wastes will be disposed of directly on the ground and compacted with heavy equipment against the berm or existing row. To the extent, practical dumped materials will be segregated in the strips so that each major type occupies a subsection of the operating cell.

5.2 Surface Runoff Management in the Landfill

Uncontaminated precipitation runoff will be directed away from the landfill area by perimeter rockfill berms located along the upslope edge of the quarry excavation. Similar unlined rockfill berms constructed along the down slope edge of the quarry excavation will retain most precipitation runoff and snowmelt within the landfill footprint. These berms will be constructed from select sub grade material and will be 1 m high[8]. As seen in Figure 3-1, the floor of the quarry is founded on solid bedrock and sloped gently to drain into an excavated sump located at the south-east corner of the landfill area. Geotechnical drilling[9] conducted in the winter of 2006 indicates that the rock in Quarry 2 is competent basalt and gabbro rock with little variation in rock type with depth. The tightness of the bedrock and the presence of permafrost ensures that there is no potential for leachate to drain away from the landfill site through the underlying rock. Any drainage is predicted to be on surface across the floor of the quarry.

During the spring melt, the water collected in this sump will be sampled by the on-site environmental personnel and analyzed for pH, TSS, Total Ammonia, Total Sulphate, Total CN, Total Oil and Grease, Al, As, Cu, Fe, Pb, Ni, and Zn.

Water will be pumped from the sump onto the tundra and be land applied, as long as it meets the proposed discharge standards as set out in Table 5.1 (the same discharge standard as proposed for the mill and camp pad sedimentation pond). Pumping from the landfill pollution control sump will only start once water in the sump has been verified as meeting the proposed discharge standards. The water will be discharged to the area

[8] Similar in design to the temporary waste rock pile containment berms depicted in Drawing S-08, Engineering Drawings for Tailings Containment Area and Surface Infrastructure Components, Supporting Document S4 to the Revised Water License Application Support Document, April 2007.

[9] See Section 4.2.1 and Appendix C, Geochemical Characterization of Quarry Materials, Supporting Document S7 to the Revised Water License Application Support Document, April 2007.

immediately to the east of quarry 2 where it will have a long cross country flow path before reaching Doris Lake.

Once pumping starts the discharge from the sump will be sampled daily for each day of pump operation with the sample analyzed for pH, TSS, Total Ammonia, Total Sulphate, Total CN, Total Oil and Grease, Al, As, Cu, Fe, Pb, Ni, and Zn.

The water will be discharged to an area immediately to the east of Quarry 2 where it will have a long cross country flow path before reaching Doris Lake.

If water quality does not meet the proposed discharge standards then the water contained in the landfill pollution control sump will be pumped into a truck mounted tank and transferred to the tailings containment facility at Tail Lake. This transfer of water will continue until sampling verifies that the landfill pollution control sump water complies with the proposed discharge standards.

The volume of water collected in the sump is expected to peak in the spring freshet then remain relatively dry throughout the summer months, increasing during the final 30 days leading up to winter.

Table 5.1: Proposed Discharge Criteria for Landfill Pollution Control Sump

Parameter Being Monitored	Proposed Discharge Standard (mg/L)[1]
pH	5.0 to 9.0
TSS	15.0
Total Ammonia	2.00
Total CN	1.00
Total Oil and Grease	5.0 and no visible sheen on pond
Al	1.0
As	0.05
Cu	0.02
Fe	0.30
Pb	0.01
Ni	0.05
Zn	0.01

[1] Based on a review of discharge limits used at other mine sites in the NWT for small volume discharges into freshwater

MHBL looked at discharge limits established in other water licenses for relatively new mine sites in the North to determine what discharge standards were being used to protect the freshwater aquatic environment for small volume discharges from surface runoff ponds and fuel containment facilities. Only limited information could be found[10]. At Doris North the water released from the landfill sump will be land applied onto the tundra. The tundra will play a significant role in attenuating contaminants contained in this release. The large dilution available in Doris Lake will further attenuate these contaminants. The proposed discharge limits for the release of water from this sump (Table 5.1) were drawn from the data in Table 6.2 in the Water Management Plan. These levels have been selected by the regulatory agencies managing water in the N.W.T. as being protective of water quality in the receiving environment in similar settings.

5.3 Kitchen Wastes and Incinerator Ash

Putrescible kitchen waste will be incinerated on a daily basis in a small diesel fuel incinerator unit to prevent food waste from becoming a wildlife attractant. A good supply of spare parts including a spare burner unit will be kept on site to minimize the downtime for this unit. Incinerator ash will be drummed and transferred for storage to the landfarm facility within Quarry 2. The ash will be periodically tested for heavy metals using a 36 element ICP scan and if found to be uncontaminated, mixed into any soil undergoing remediation within the landfarm. This material is a good source of additional nutrients to enhance the revegetation capacity of the remediated soil. Given the source of the organic kitchen waste being incinerated it is unlikely that this material will contain any metal contaminants at harmful levels (as defined by CCME Guidelines for remediation of industrial soils). Once the combined soil-ash meets the Nunavut Environmental Guidelines for Site Remediation[11] for soil remediation; the soil will be used on site for remediation of disturbed lands. If the ash does not meet acceptable standards it will be placed underground in an appropriate area for permanent isolation from the surface environment where it will become encapsulated within the frozen ground upon final mine closure.

5.4 Waste Water Treatment Plant Sludge

During the construction phase of the Project the treated wastewater from the sewage treatment plant will be pumped overland and discharged approximately 200 m to 500 m to the northwest of the camp in a direction away from Doris Lake. The discharge technique would be similar to that used at the Windy exploration camp over the past several years where the treated wastewater is pumped into a small depression on the tundra in an area where the flow is not directed through an existing drainage swale directly into a lake or watercourse. In this manner the treated wastewater can be distributed across the tundra avoiding direct impact on the local lakes. During the operational phase of the project treated

[10] Results of the MHBL review are presented in Table 6.2, Water Management Plan, Supporting Document S10j to the Revised Water License Application Support Document, April 2007.
[11] Appendix A, Landfarm Management Plan, Supporting Document S10h to the Revised Water License Application Support Document, April 2007.

effluent and sludge will be pumped to the tailings impoundment as part of the tailings feed stream.

5.5 Equipment

Only clean equipment that cannot be recycled or reused will be landfilled. Burial on site of equipment that is drained of hydrocarbons is standard practice at mining operations. Equipment containing petroleum hydrocarbons will be drained prior to landfilling. The waste petroleum products will be disposed of either through burning in the on-site waste oil burner or shipped off-site to the petroleum supplier or a licensed hazardous materials disposal contractor.

5.6 Clean Wood and Paper

Clean wood and paper will be burned at the landfill in a designated area where the fire can be controlled and well away from the perimeter of the landfill. Burning will only be done under the supervision of the surface superintendent. No petroleum-stained wood or paper will be burned at the landfill. Burning will only be conducted at times when winds are low or calm. Materials burning practices at Doris North will follow Nunavut guidelines, “Municipal Solid Wastes Suitable for Open Burning”, attached for reference in Appendix A.

5.7 Inspection

Regular inspection of the landfill operation (minimum of once per week) will be the responsibility of the Surface Superintendent. The Surface Superintendent will report issues to the Mine General Manager who will have the authority to ensure issues are addressed. Ongoing issues that need general cooperation at the mine to be resolved will be subject to discussion at senior management meetings.

Inspection by the Surface Superintendent will include but not be limited to:

- Amount of water in the landfill pollution control sump;
- Berm integrity;
- Cover integrity;
- Housekeeping;
- Evidence of unauthorized use of the landfill;
- Evidence of ponding of water on berms, mounds or unused areas; and
- Any other items that may indicate problems with safe operation of the landfill.

Problems will be reported to the Mine General Manager for action. Issues will be ranked and addressed on a priority basis.

5.8 Closure

Upon closure[12], the disposal site will receive a final cover of non-acid generating rock, the surface will be re-graded to blend in with the surrounding terrain, and surface drainage will be directed away from the site.

It is expected that the landfill will freeze with only a surface skin of capping rock seeing annual thaw. Consequently the landfill is not expected to generate any leachate after final reclamation. As this landfill does not contain any hazardous waste the risk of generating contaminated leachate is anticipated to be low. This assumption will be verified during the operating life of the landfill by the ongoing monitoring of the water quality reporting to the pollution control sump. If permafrost conditions are not established in the reclaimed landfill within two years then additional capping material will be added to the landfill to move the active thaw layer away from the stored waste. In the interim, water quality reporting to the pollution control sump will continue to be monitored and managed until it can be demonstrated that this water can be released without causing environmental impairment to the receiving waters.

[12] Section 6.1.5.10, Mine Closure and Reclamation Plan, Supporting Document S10l to the Revised Water License Application Support Document, April 2007.

6.0 PLAN REVIEW AND CONTINUAL IMPROVEMENT

This Landfill Management Plan will be reviewed at least annually by the mine Environmental Coordinator in consultation with the Surface Superintendent and Mine General Manager. Suggestions for improvements will be solicited from employees through the Health and Safety Committee on an on-going basis. Improvements suggested through these reviews will be implemented in consultation with the Nunavut Water Board and the Kitikmeot Inuit Association.

This report, “Landfill Management Plan, Doris North Project, Nunavut, April 2007”, has been prepared by Miramar Hope Bay Ltd.

Prepared By

_____

Lawrence J. Connell, P.Eng.
General Manager, Environment

REFERENCES

Kent, R., P. Marshall and L. Hawke. 2003. Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the NWT. Report prepared for Dept. Municip. and Commun. Affairs, GNWT by Ferguson Simek Clark.

MHBL. 2006a. Landfarm Design and Management Plan.

MHBL. 2006b. Hazardous Materials Management Plan.

APPENDIX A

Municipal Solid Wastes Suitable for Open Burning

Municipal Solid Wastes Suitable for Open Burning

Municipal solid wastes (MSW) that are conditionally suitable for open burning are paper products, paperboard packing and untreated wood wastes only.

Conditions for this burning are:

1. The principle of source reduction should be utilized to reduce, reuse and recycle materials otherwise bound for landfill.

2. The appropriate materials are segregated and burned in a controlled manner and at a controlled site which is separate from the working landfill so that the fire cannot spread.

3. Standard burning conditions shall apply, such as burning on days where winds are light and blowing away from the community.

4. Materials are burned in manageable volumes so that fires do not get out of control.

5. Having applicable permits for burning.

6. Managed by authorized, qualified personnel from the community.

7. The above conditions are also recommended in the NWT Municipal and Community Affairs Solid Waste Modified Landfill Guidelines, which have been adopted for Nunavut.

Building demolition wastes should not be burned unless they have been sorted to remove non-wood waste such as roofing materials, electrical wire, plastics, asbestos and other non-wood wastes.

Waste wood treated with preservatives such as creosote, pentachlorophenol or heavy metal solutions shall not be burned. Examples of treated wood materials include railroad ties, telephone/hydro poles, pilings, cribbing and foundations.

Following a review of the specific landfill location, additional local conditions or controls may be applied.

Where geographic conditions do not allow for the proper operation of a modified landfill, such as limited availability of cover materials and unsuitable ground conditions, communities may have to assess other alternatives of MSW management i.e.: balefill and/or incineration.

The open burning of non-segregated MSW remains an unacceptable option for the management of MSW. Continuation of this practice should not be allowed unless a site-specific assessment fails to identify a feasible and practical alternative. At this point, some form of segregation will be required.