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# **Doris North Project Interim Water Management Plan**

**Report Prepared for**

**Hope Bay Mining Ltd.**

**Report Prepared by**



SRK Consulting (Canada) Inc.  
1CH008.038  
July 2011

# **Doris North Project Interim Water Management Plan**

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**SRK Project Number 1CH008.038**

**July 2011**

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# 1 Introduction

Hope Bay Mining Limited (HBML) is conducting advanced exploration and developing the infrastructure for the Hope Bay Mining Project in Hope Bay, Nunavut, Canada. The Hope Bay Mining Project (the Project) is located on Inuit Owned Land administered by the Kitikmeot Inuit Association (KIA), in the West Kitikmeot region of Nunavut approximately 125 km southwest of Cambridge Bay and 75 km northeast of Umingmaktok.

This *Doris North Interim Water Management Plan* (the Plan) has been prepared by HBML in accordance with Type A Water License No. 2AM-DOH0713, (the water license) and subsequent amendments to the Water License issued to HBML by the Nunavut Water Board (the Board).

# 2 Purpose and Scope of the Plan

The purpose of this Interim Water Management plan is to address the requirements of the water license listed in Part F, which are:

- a. A requirement to continuously monitor Doris Lake levels and outflow during the two (2) years of mining and beyond to confirm water balance model predictions;
- b. Requirements for on-going monitoring and calibration of the water quality model;
- c. A strategy to monitor and remove where necessary snow accumulation in the Pollution Control Pond, roads, ditches, and drainage channels; and
- d. The Plan shall consider the monitoring requirements set out in Parts J and K.

The water management plan presented in the 2007 Water License application by Miramar Hope Bay Mining Ltd. (MHBL) relied on the utilization of Tail Lake. Due to changes in project timing, removal of fish from Tail Lake will not be complete until the end of the open water season in 2011. Until such time the use of Tail Lake is approved by the regulatory authorities, the facility must be excluded from the Water Management Plan. It is currently anticipated that Hope Bay Mining Ltd. (HBML) will start to incorporate the use of Tail Lake into the water management plan as per the original design when water can be discharged into Tail Lake. In the interim, management of seepage and runoff from the Doris North Mine Area is still required to prevent the release of contaminants to the downstream environment.

This interim plan addresses the short term water management needs of the Doris North Mine Area as outlined in Figure 1. The relevant components of the overall water balance discussed in this plan are comprised of seepage and runoff as well as storm water management. This plan is intended to address these components of the overall Hope Bay Water Management Plan (April 2007) from January 1, 2011 until such time Tail Lake has been constructed and integrated into the Project's overall Water Management Plan.

Following construction of the North Dam at Tail Lake HBML will submit a comprehensive Water Management Plan which will detail the integration of all previously approved components and those that are currently in regulatory process for the Doris North Project involving the conservation, use, reuse, treatment and release of water to the environment as per the Water Licence and NIRB Project Certificate.

This Plan covers:

- Diversion of maximum volumes of non-impacted runoff from entering the Doris North Mine Area.
- Separation and management of clean seepage and runoff.
- Collection and management of potentially contaminated seepage and runoff, including options to either store or treat this water during the 2011 open water season when Tail Lake will not be available for this purpose.
- Management of short duration rainfall events up to a 24 hour duration 1:25 year recurrence interval storm event.
- Protection of surface water bodies potentially impacted from runoff associated with the Doris North Mine Area.

### 3 Responsibility

The overall responsibility for the implementation of the Interim Water Management Plan rests with HBML General Manager of Operations. The general manager will be responsible to ensure that all necessary resources and personnel are made available to ensure that components of the water management plan such as pipelines, diversion berms, lined ponds, silt curtains and/or the water treatment plant are ready for operation prior to onset of the 2011 freshet and that these facilities are maintained throughout the open water season and properly taken off line prior to freeze up in the fall of 2011.

If the water treatment option is selected for the Interim Water Management Plan, the water treatment plant operators will be responsible for the proper operation and maintenance of the Water Treatment Plant.

The Manager of Environmental Compliance and the Environmental Coordinator will be responsible for reporting requirements related all monitoring associated with all component parts of this plan.

## 4 Environmental Setting

### 4.1 Climate

Climatic data has been collected for the project at the Boston and Windy camps during exploration activities between August 1993 and 2003. Additional meteorological data has been collected from the Doris North climate station between March 2004 and December 2008. These local datasets combined with longer term regional datasets collected from a variety of Environment Canada meteorological weather stations such as Cambridge Bay and Kugluktuk have been used to profile the annual climatic patterns of the Doris North site.

The mean annual temperature at the site is  $-12.4^{\circ}\text{C}$ . During the winter months, October to May, the daily temperature typically ranges from  $-50^{\circ}\text{C}$  to  $+11^{\circ}\text{C}$ . In the summer months, June through September the mean daily temperatures ranges between  $-14^{\circ}\text{C}$  and  $+30^{\circ}\text{C}$ .

The prevailing winds for the region are from west and west-northwest and blow from this direction approximately 20% of the time. South-westerly winds blow less than 2% of the time. Wind speeds show similar characteristics with the strongest winds following the prevailing direction.

Precipitation on the property occurs as rainfall or snow melt. The mean annual rainfall is 98.7 mm, the mean annual snowfall is 133.8 mm equalling a mean annual precipitation rate of 232.5 mm (Golder 2009). Annual evaporation rate, which occurs during the open water season is reported to

be 220 mm. The mean relative humidity has been estimated to be 78% for the project area (Golder 2009). The 24 hour 1 in 10 year extreme rainfall event is reported to be 29.7 mm. The 24 hour 1 in 25 year extreme rainfall event is reported to be 37.8 mm. The associated risk of this event occurring within the timeframe of this interim plan equals a 4% chance of occurrence.

Approximately one half the region's water comes from snow melt or snow water equivalent (SWE). This volume is dependent on the quantity of snow, its distribution, redistribution by wind or man and sublimation. The rates of sublimation depend primarily on wind, or the redistribution of snow and the relative humidity.

## 4.2 Permafrost

The Doris North Mine Area and the overall Doris North Project are underlain by continuous permafrost. The estimated depths are approximately 500 metres.

## 4.3 Hydrology

The Doris North Mine Area falls within the larger Doris Lake drainage basin. The sub-basin of the Doris Lake drainage basin that is occupied by the Doris North Mine Area is shown on Figure 1. The catchment naturally drains to the south towards Doris Lake.

Flows in this sub-basin are consistent with all drainage basins within the project area with peak flows occurring during freshet. Based on mean annual precipitation rates and no allowance for infiltration, ice entrainment and sublimation the maximum runoff from this basin is calculated to be approximately 91,000 m<sup>3</sup> annually.

For the purposes of this management plan the Doris North Mine Area sub-basin has been sub-divided into two main components: Upstream of Camp and the Mine Area. The area referred to as "Upstream of Camp" is further sub-divided into "upstream of the diversion berm and downstream of the diversion berm. Upstream of the Camp would produce volumes of runoff which have not been impacted by any HBML activities but if allowed to flow naturally they will pass through the Mine Area. The Mine Area refers to that portion of the drainage that will come in contact with HBML construction, exploration and/or mining related facilities. With no allowance for infiltration, ice entrainment and sublimation, the annual average runoff from the Upstream of Camp portion of the drainage is approximately 53,000 m<sup>3</sup>, and the annual average runoff volume from the Mine Area is approximately 38,000 m<sup>3</sup>.

## 4.4 Hydrogeology

The permafrost underlying the overall region is essentially impervious limiting the ability to charge the underlying strata with seepage water which would result in groundwater. Limited movement of groundwater will occur in the shallower more active areas of the tundra. This limited flow takes place during the summer months at depths ranging from (0.5 m to 2.0 m).

## 5 Facilities

The mine facilities relevant to this management plan are a combination of constructed facilities and facilities that are planned for construction in 2011. These facilities are listed in Table 1 and are shown on Figure 1 and 2. Regardless of the current state of construction, the significance each facility has with respect to this interim water management plan is based on the physical location of the facility within the Doris North Mine Area. The ultimate use of each facility and the expected quality of runoff associated with it has determined the physical location and individual foundation or pad designs.

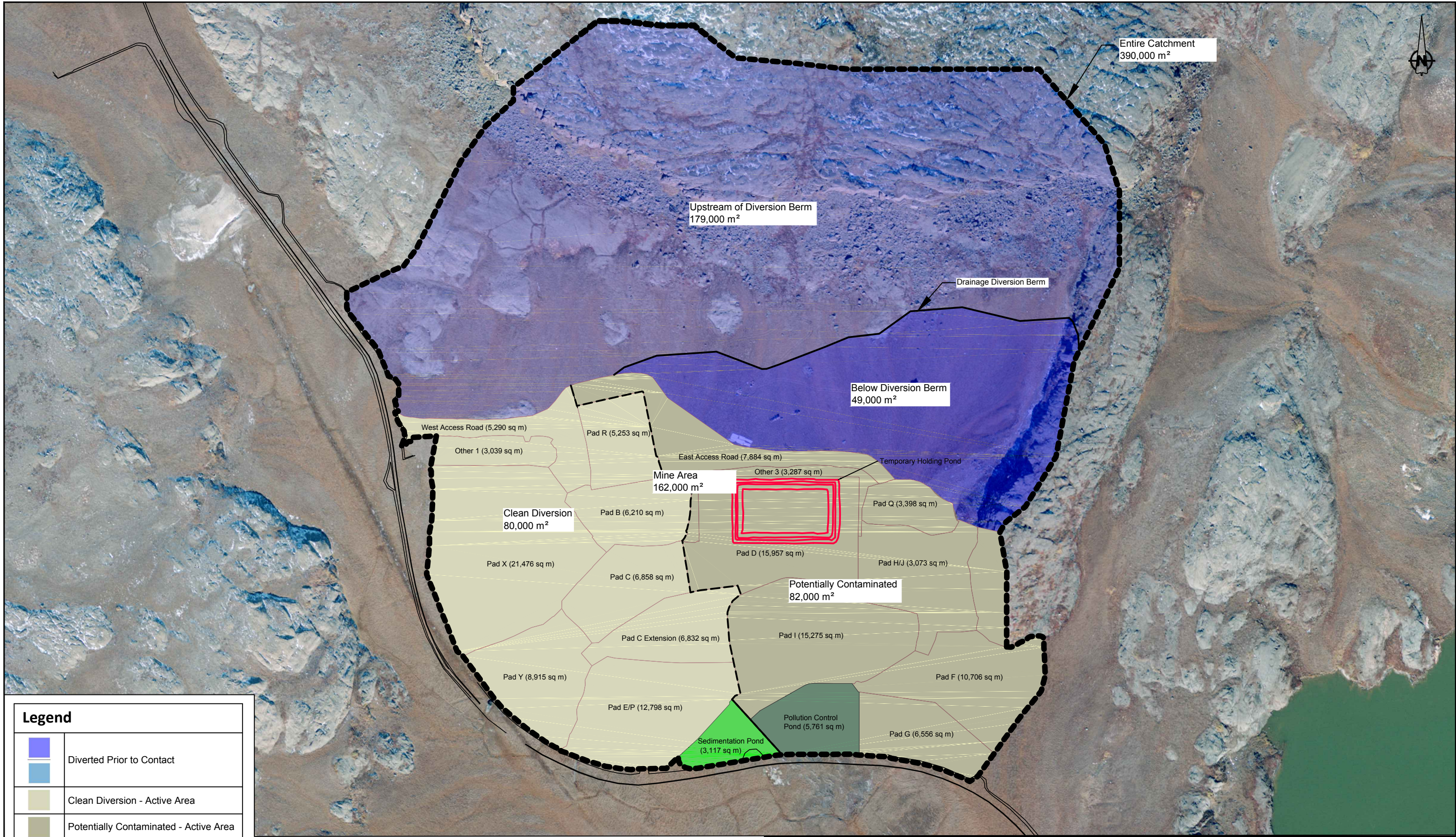
As shown in Figure 1 approximately half of the mine area will be in contact with non-mineralized rock used to construct the pads, and will report to the Sedimentation Pond. The other half includes runoff from the mill area, ore stockpiles and waste rock storage area on the east side of the site, and will report to the Pollution Control Pond. The grading of individual camp pads was designed such that run-off from the pads is directed to and eventually drain either into the Sedimentation or the Pollution Control Pond, as shown in Figure 1.







**Table 1: Facilities within the Mine Area**

<b>Facilities Reporting to Sedimentation Pond</b>	<b>Facilities Reporting to the Pollution Control Pond</b>
Main Camp (Pad X)	Fuel Storage Area (Pad R)
Lay Down Area (Pad B)	Mill Terrace (Pad D)
Administrative Buildings/Dry (Pad C)	Ore Storage Pad ( Pads Q, H/J)
Warehouse/Laydown Area (Pad Y)	Waste Rock Storage (Pad I)
Lay Down Area (Pad E/P)	Waste Rock Storage (Pad F/G)



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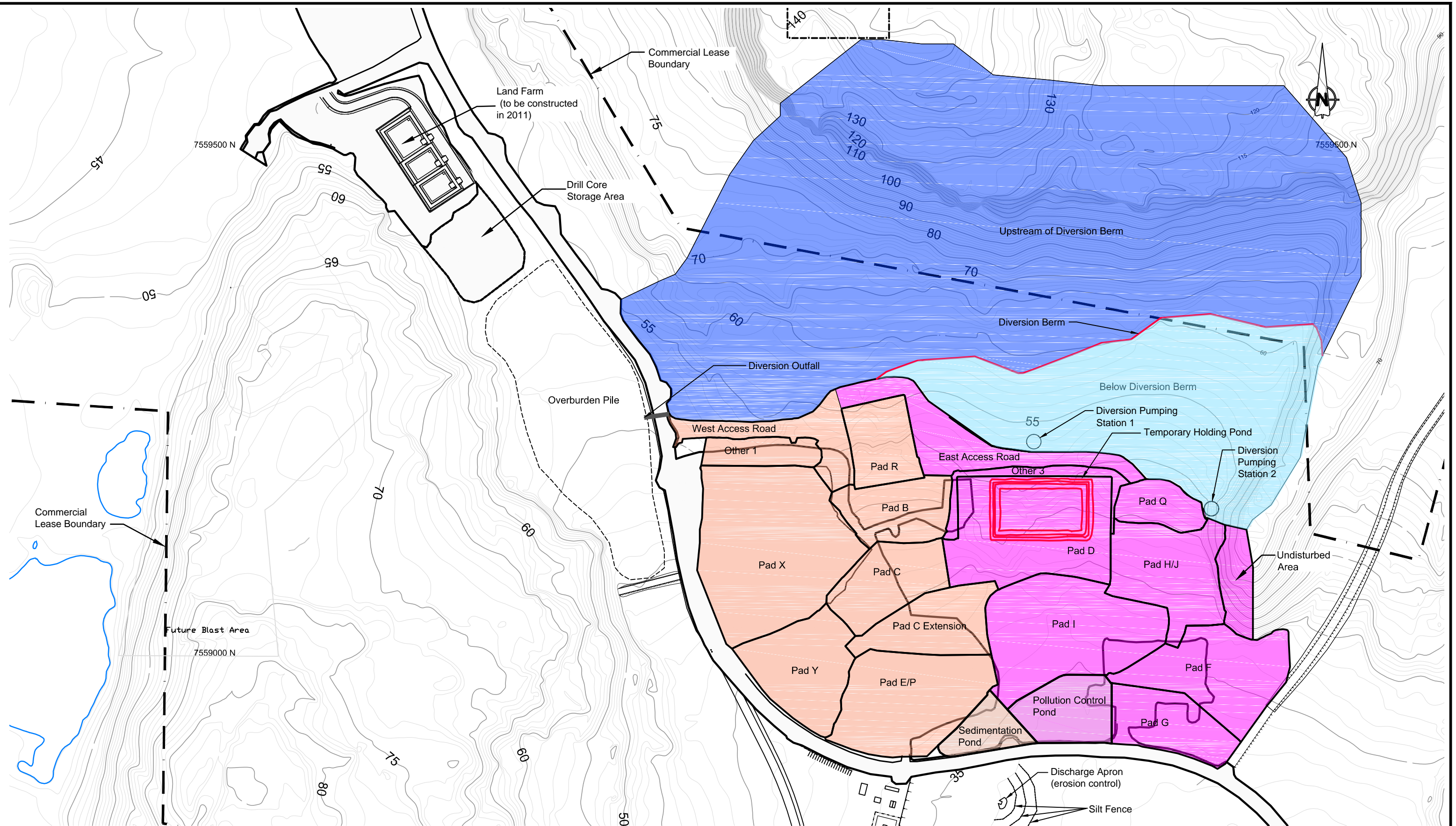


Legend	
	Diverted Prior to Contact
	Clean Diversion - Active Area
	Potentially Contaminated - Active Area
	Pollution Control Pond
	Sedimentation Pond
	Mine Area

 SRK Consulting Engineers and Scientists	 NEWMONT NORTH AMERICA	DORIS NORTH PROJECT	
	SRK JOB NO.: 1CH008.038—Water Management Plan FILE NAME: 1CH008.038—WMP_Figure_1_wjm_rev03_SC Edits.dwg	HOPE BAY MINING LIMITED	DATE: July 2011 APPROVED: — FIGURE:



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Doris North Project

Doris North Mine Area and Land Farm

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HOPE BAY MINING LTD.

DATE: July 2011  
APPROVED: -  
FIGURE: 2

## 6 Water License Requirements

Water License (2AM-DOH0713) sets out a number of terms and conditions related to the management of water at the Doris North site. All of these terms and Conditions have been considered throughout the development of this plan. Table 2 is a concordance table that provides the specific Terms and Conditions of the Water License that pertain to the management of water within the Doris North Mine Area of the Doris North site and where in this plan the condition is addressed.

**Table 2: Concordance Table**

<b>Location in Licence</b>	<b>Licence Condition</b>	<b>Document Reference</b>
Part D – 5 (page 5)	The Licensee shall undertake appropriate corrective measures to mitigate impacts on surface drainage resulting from the Licensee's operation.	Section 7.2.2 and 7.2.3
Part D – 18 (page 6)	The Licensee shall conduct daily visual inspections for all construction activity during spring freshet & during & after remarkable rainfall events with sampling of runoff/seepage where turbidity is evident.	Section 8 and 9
Part D – 19 (page 6)	All surface runoff during the construction of any facilities, where flow may directly or indirectly enter a water body, shall meet the following effluent quality limits.	Section 7.1
Part D – 25 (page 7)	The Licensee shall ensure that all containment & runoff control structures are constructed & maintained to prevent escape of wastes to the surface or groundwater systems.	Section 7.2.2 and 7.2.3
Part F – 1 (page 9)	The Licensee shall submit to the Board for review by May 1, 2008, a revised Water Management Plan.	Partially addressed by this submission. This requirement will be fully addressed in the Water Management Plan submitted to the Board following Regulatory Approvals to commission Tail Lake
a	A requirement to continuously monitor Doris Lake levels and outflow during the two (2) years of mining and beyond to confirm water balance model predictions;	This will be addressed in the Water Management Plan submitted to the Board following Regulatory Approvals to commission Tail Lake
b	Requirements for on-going monitoring and calibration of the water quality model;	Partially addressed by this submission, Section 9. This requirement will be fully addressed in the Water Management Plan submitted to the Board following Regulatory Approvals to commission Tail Lake
c	A strategy to monitor and remove where necessary snow accumulation in the Pollution Control Pond, roads, ditches, and drainage channels; and	Section 7.2.1. This requirement will be fully addressed in the Water Management Plan submitted to the Board following Regulatory Approvals to commission Tail Lake
d	The Plan shall consider the monitoring requirements set out in Parts J and K;	Section 8

**Table 2: Concordance Table (Cont.)**

<b>Location in Licence</b>	<b>Licence Condition</b>	<b>Document Reference</b>
Part F – 4 (page 9)	The Licensee shall carry out regular inspections of all water management structures during periods of flow (rock drains, culverts, sedimentation and pollution control ponds and associated diversion berms) and the records be kept for review upon request of an Inspector. More frequent inspections may be required at the request of an Inspector.	Sections 7.4, 7.5 and 7.6
Part G – 2 (page 9)	The Licensee shall ensure that all land applied discharges are performed in a manner that prevents erosion at the point of discharge and downstream.	Section 7.2.2 and 7.2.3
Part G – 21 (page 12)	The Licensee shall operate and maintain the Sedimentation Pond in accordance with the following	Section 7.2.2
a	Water discharged from the Sedimentation Pond at monitoring station ST-1 shall not exceed the following effluent quality limits	Section 7.1
b	The Licensee shall establish compliance with effluent quality limits prior to discharge;	Section 7.2.1 and 7.2.3
c	Water from the Sedimentation Pond that is acceptable for discharge under Part G, Item 21(a) shall be discharged immediately south of the facility approximately 500m upstream of Doris Lake, or as designated by an Inspector; and	Section 7.2.1 and 7.2.3
d	Sedimentation Pond Water that does not meet criteria in Part G, Item 21(a) shall be directed to the Tailings Impoundment Area.	Section 7.2.1 and 7.2.3
Part J – 1 (page 18)	The Licensee shall install and maintain flow meters or other such devices, or implement suitable methods required for the measuring of water use and Effluent discharge volumes, to be operated and maintained to the satisfaction of an Inspector.	Section 9 and 10
Part J – 7 (page 19)	Additional monitoring may be requested by the Board or by the Inspector.	HBML is prepared to undertake any additional monitoring requested
Part J – 18 (page 21)	The Licensee shall ensure that a geotechnical inspection is carried out annually between July and September by a Geotechnical Engineer. The inspection shall be conducted in accordance with the <i>Canadian Dam Safety Guidelines</i> where applicable and take into account all major earthworks, including the following:	
j	Sedimentation Pond;	Section 8, 9 and 10
k	Pollution Control Pond;	Section 8, 9 and 10
Part J – 20 (page 21)	The Licensee shall visually monitor and record observations on a daily basis during periods of discharge, all discharge onto the tundra from the:	
b	Sedimentation Pond;	Section 8, 9 and 10
Part J – 21 (page 21)	The Licensee shall, within thirty (30) days following the month being reported, submit to the Board a monthly monitoring report in an electronic and hardcopy.	Section 10
Part K – 1 (page 22)	The Licensee shall submit to an Analyst for approval by March 1, 2008, a Quality Assurance/ Quality Control Plan that includes field and laboratory procedures and requirements. This Plan shall be developed in accordance with the <i>1996 Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "A" (INAC)</i> .	Section 9

## 7 Water Management

### 7.1 Background

The water management plan presented in the 2007 Water License application by Miramar Hope Bay Mining Ltd. (MHBL) relied on the utilization of Tail Lake. Due to changes in project timing, construction of the North Dam and removal of fish from Tail Lake will not be complete until the end of the open water season in 2011. Until such time the use of Tail Lake is approved by the regulatory authorities, the facility must be excluded from the Water Management Plan. It is currently anticipated that construction completed under existing approvals and those associated with amendments will allow for the incorporation of Tail Lake into the water management plan as per the original design will be obtained in the Fall of 2011.

With respect to the Doris North Mine Area the plan included a Sedimentation Pond to capture precipitation and snowmelt in the form of runoff and seepage from the clean portion of the Mine Area, and a Pollution Control Pond to capture precipitation and snowmelt in the form of runoff and seepage from the mill area, ore stockpile and temporary waste rock pile. The water collecting in the Pollution Control Pond was to be pumped to Tail Lake. The clean water reporting to the Sedimentation Pond would be sampled and if the analytical results met or exceeded the effluent quality limits outlined in Part G, 21 (a) of the Water License provided in Table 3, the water would be discharged on land immediately south of the pond approximately 500 metres from Doris Lake.

**Table 3: Effluent Discharge Limits as Per Part G, 21 (a) of the Water Licence**

Parameter	Maximum Average Concentration (mg/L)	Maximum Concentration in any Grab Sample (mg/L)
pH	6.0-9.0	9
Total Suspended Solids	15	30
Total Ammonia –N	2	4
Total CN	1	2
Total Oil and Grease	5 and no visible sheen	10 and no visible sheen on pond
Total Aluminum – T-Al	1	2
Total Arsenic – T-As	0.05	0.1
Total Copper – T-Cu	0.02	0.3
Total Iron – T-Fe	0.3	0.6
Total Lead – T-Pb	0.01	0.02
Total Nickel – T-Ni	0.05	0.1
Total Zinc – T-Zn	0.01	0.02

## **7.2 Interim Plan**

### **7.2.1 Water Diversions**

In accordance with the 2007 Water Management Plan HBML will construct upstream diversion structures in order to divert as much runoff from the undisturbed portion of the catchment prior to allowing it to come in contact with the Mine Area. Construction of these relatively simple diversion structures (the diversion berm as well and a diversion structure to route the runoff from the sub-catchment located below the diversion berm northeast of the Mine Area as shown in Figure 1) will divert runoff associated with approximately 228,000 m<sup>2</sup> of undisturbed land. Runoff associated with 179,000 m<sup>2</sup> of this area could be diverted to the south western edge of the mine area and runoff from the remaining 49,000 m<sup>2</sup> could be pumped around to the South eastern edge of the mine area. These diversions would reduce the total catchment draining to the Sedimentation and Pollution Control Ponds to 162,000 m<sup>2</sup>.

Approximately 49% of the mine area (80,000 m<sup>2</sup>) will be in contact with non-mineralized rock used to construct the pads, and will report to the Sedimentation Pond. The remaining 51% or 82,000 m<sup>2</sup> includes runoff from the mill area, ore stockpiles and waste rock storage area, and will report to the Pollution Control Pond.

For the 1 in 25 year, 24 hour precipitation event, the runoff volumes that would report to the Pollution Control Pond and the Sedimentation Pond are 3100 m<sup>3</sup> and 3024 m<sup>3</sup>, respectively.

Active snow management removal activities will occur throughout the winter months to limit unnecessary snow melt within the Mine Area. Snow removed from the Mine Area is stockpiled near the Overburden Stockpile upgradient of the sedimentation berm.

### **7.2.2 Sedimentation Pond**

All facilities being constructed on the clean side of the Mine Area, as shown in Table 1, will be graded to ensure all runoff and seepage will be diverted and retained in the Sedimentation Pond. The Sedimentation Pond is designed to be a detention pond and has a storage capacity of 2,636 m<sup>3</sup>. Once suspended solids have been allowed to settle, the water quality is expected to meet or exceed the effluent discharge limits outlined in Part G 21 of the Water License (Table 3). Therefore, as soon as monitoring data is available to demonstrate this, this water will be actively discharged to the tundra. If required, a series of silt curtains will be installed immediately downstream of the discharge point as a further means of settling out any remaining suspended solids.

If the pond water does not meet effluent discharge limits it will be recycled to the Pollution Control Pond.

### **7.2.3 Pollution Control Pond**

All facilities being constructed on the potentially contaminated side of the Mine Area, as shown in Table 1, will be graded to ensure all runoff and seepage will be diverted and collected in the Pollution Control Pond. The Pollution Control Pond is designed to be a retention pond for the 24 hour 1 in 25 year storm event and has a storage capacity of 6,786 m<sup>3</sup>.

For the purposes of developing this Plan it has been assumed that the site should be prepared to manage approximately 14,700 m<sup>3</sup> of water on an annual basis. The basis for this estimate is:

- Precipitation rates for a 1 in 20 wet year, plus a 24 hour 1 in 25 year storm event, plus 5% of the total runoff and seepage expected to be diverted from the undisturbed areas north of the Mine Area; and,
- Active snow removal, and partial freezing of water infiltrating into the pads and waste rock pile.

#### **7.2.4 Temporary Holding Pond**

A fully lined Temporary Holding Pond was constructed on Pad D with a full storage level capacity of 6,786 m<sup>3</sup>. The purpose of this pond to retain excess contact water until the water can be treated to meet discharge standards and then discharged to the Sedimentation Pond.

#### **7.2.5 Mitigation Alternatives**

In the event the volumes of potentially contaminated runoff exceed the capacity of the Pollution Control Pond HBML will implement one or more mitigation measures as described below. The total pond capacity of the Sedimentation Pond, Pollution Control Pond and Temporary Holding Pond is 14,513 m<sup>3</sup>.

##### **Mitigation Option 1**

HBML will install a Reverse Osmosis Water Treatment Facility (RO Plant) to treat water from the Pollution Control Pond so that it can be discharged to the Sedimentation Pond and then onto the tundra without adversely affecting the discharge water quality.

Under this mitigation option, water accumulating in the Pollution Control Pond that was determined by site management to not meet discharge quality and therefore require treatment prior to its discharge to the environment would be routed through the RO Plant, treated and discharged into the Sedimentation Pond. From the Sedimentation Pond the water would be handled in accordance with the existing approvals as discussed in Section 7.2.1.

Treating the potentially contaminated water in this manner would ensure that all water entering the Sedimentation Pond from the RO Plant would be well within the Effluent Discharge limits. In the event of an upset condition within the plant resulting with water that did not meet discharge limits it would be recycled to the Pollution Control Pond or the Temporary Holding Pond.

##### **Mitigation Option 2**

In the event the Pollution Control Pond capacity is consumed the Temporary Holding Pond will be used to store impacted water until it can be treated and discharged.

##### **Mitigation Option 3**

In the event the Sedimentation Pond capacity is consumed, impacted water will be conveyed to the Temporary Holding Pond for storage until it can be treated and discharged.



## 8 Inspections

Daily visual inspections of all pads and diversion channels located throughout the Doris North Mine Area will be completed by operations or environmental staff. These inspections will look for the following types of issues:

- Drainage channels have not been inadvertently blocked or re-routed in a manner that could alter the intended routing of the clean runoff to the Sedimentation Pond and the potentially contaminated water to the Pollution Control Pond
- Signs of erosion, occurring during high flow periods
- Volumes of the Sedimentation Pond, Pollution Control Pond and, if applicable, the Temporary Holding Pond
- Integrity of silt curtains and erosion protection at point of discharge to the tundra

Any irregularities identified during the visual inspections will be recorded in field books and immediately relayed to the General Manager of Operations and/or the Engineering, Procurement and Construction (EPC) Manager in order to ensure immediate corrective action can be implemented.

A weekly inspection of all upstream diversion berms will be conducted to ensure the integrity of these structures.

## 9 Monitoring

Continuous monitoring of Doris Lake water levels and outflows will continue under the hydrologic baseline characterization.

The Sedimentation, Pollution Control Pond and the Temporary Holding Pond will be constructed with permanent staff gauges to allow for visual monitoring of incoming flows to each pond. Daily volumes will be recorded in two separate Pond Log books maintained by the environmental staff.

The volume of all water transferred from the Pollution Control Pond will be monitored with a flow meter during the transfer.

All recycled water, if it is necessary to do so will be monitored for flows.

In accordance with the Water License requirements the water quality of the Sedimentation Pond will be tested for compliance with the Effluent Discharge Limits. Confirmation of compliance will be required prior to discharging any water from the facility.

Pond water quality in the Pollution Control Pond and the Temporary Holding Pond (if applicable) will be monitored in accordance with the Water Licence.

In the event an RO Plant is installed the treated discharge will be monitored for volume as well as quality once daily while discharging.

The EPC Manager and operations are responsible for monitoring.

All sampling procedures and QA/QC activities will follow those documented in the SNP requirements and the *1996 Quality Assurance (QA) and Quality Control (QC) Guidelines for Use by Class "A"* as stipulated in the Water License.



## 10 Reporting

As per the requirement specified in Item 8, Part D of the Nunavut Water Board Water License 2AM-DOH0713, a Construction Monitoring Report will be prepared and submitted no later than March 31 of the year following construction. That report will include responses to the commitments made in the *Water License Application Monitoring and Follow Up Plan, July 2007* and all requirements specified in Nunavut Water Board Type A Water License 2AM-DOH0713.

The Construction Monitoring report will document the construction of Sedimentation Pond, Pollution Control Pond, the Temporary Holding Pond (if necessary) and/or the construction of the RO Plant. The report will include but not necessarily be limited to the following:

- A summary of all inspections conducted during construction; and
- Updated “As-built” drawings of the constructed infrastructure.

All inspection and monitoring data compiled will be documented and incorporated into the existing monthly and annual monitoring reports submitted to the Board.

These reports will include but not be limited to:

- An assessment of data to identify areas of non-compliance with regulated discharge parameters referred to in Part G
- A summary of monthly operational assessments of the water balance
- Water quality model including model calibration; and
- A water balance of all water movement involving the Sedimentation, Pollution Control Pond, the Temporary Holding Pond and/or the RO Plant.

# 11 Document Control Record

This, the *Doris North Project - Interim Water Management Plan* dated December 2010, has been reviewed and is approved by:

## Document Approval

Position	Name	Signature	Date
Vice President of Environmental Affairs			
General Manager Operations			

The re-issuance of this document have been reviewed and approved in accordance with Newmont's Quality Assurance and Management Plan and is authorized for use by Hope Bay Mining Ltd.

## Document Control Revision History

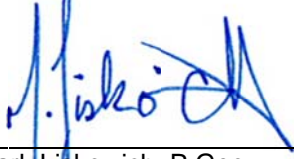
Document Control Revision History					
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This revised report, “**Doris North Project - Interim Water Management Plan**”, has been prepared by SRK (Consulting) Canada Inc.

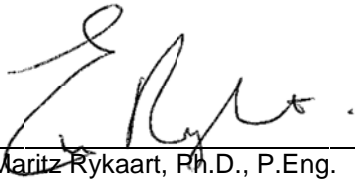
**Prepared by**



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Mark Liskowich, P.Geo.  
Principal

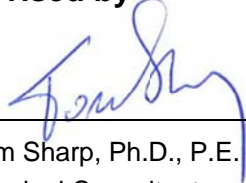
**Reviewed by**



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**Revised by**



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Tom Sharp, Ph.D., P.E.  
Principal Consultant

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

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## 12 References

- Golder, 2009. Doris Project Area 2008 Hydrology Baseline Update – Draft Report, December 2009.
- SRK Consulting, 2010. Hope Bay Project Quarry Management and Monitoring Plan, March 2010.