

DAILY REPORT #73 – DORIS NORTH INFRASTRUCTURE/ NORTH DAM

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Reviewed by:		Project #:	1CH008.058.0320
Role	Company	Personnel – Position	On Site
Client	Hope Bay Mining Limited (HBML)	Angela Holzapfel – ESR Compliance Manager David Vokey – ESR Coordinator Don Ethelston – HSLP Advisor Dean Wold - Safety Jill Turk – ESR Coordinator Katsky Venter – ESR Manger Michelle Tanquay – ESR Site Manager Stirling Kelly – HSLP Advisor	No No Yes No Yes No No No
	JDS	Lloyd Jackson – Mechanical Superintendent Doug Fielding – Construction Manager Ishan Fechter – Construction Coordinator Jerry Graham – Construction Manager Kevin Whieldon – Project Coordinator Mark Valeriote – Construction Manager	No Yes yes No No Yes
Engineering Design Consultants	SRK Consulting (Canada) Inc.	John Kurylo – Site Engineer Megan Miller – Site Engineer Lawrence Borowski – Site Engineer Murray McGregor – Site Engineer Iozsef Miskolczi – Site Engineer Lowell Wade – Senior Engineer	Yes No Yes No No No
	EBA Engineering Consultants Ltd.	Jeff Orr – Project Manager Jennifer Stirling – Geologist Thomas Bradshaw – Junior Engineer Ernest Palczewski – Geologist	No Yes No Yes
Earthworks Contractor	Nuna Logistics	Doug Haverland – Area Superintendent Gary Sodhi – Field Engineer Georges Cornelissen – Survey Manager Jeff Roberts - Surveyor Jim Cardinal – Foreman Jordan Gunter – Foreman Kevin Oakes – Project Engineer Kevin Kozdrowski – Foreman (Night shift) Kyle Kuntz – Project Engineer Margaret Caley – Surveyor Matt McKay – Civil Supervisor Mike MacMaster – Surveyor Mike Price – Field Engineer Nick Stoneberger – Superintendent Rick Peter – Foreman (Day shift) Ron MacMaster – Surveyor Simon Chipper – Civil Supervisor	Yes No Yes Yes Yes Yes No Yes No Yes No No Yes No No No Yes
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WEATHER (ROBERTS BAY)

<http://www.wunderground.com/weatherstation/WXDailyHistory.asp?ID=INUNAVUT3>

Temperature/Wind Chill (°C)	6AM: -34/-50	12PM : -31/-49	6PM: -31/-48	12AM:-30/-47
Precipitation (mm)	Rain: None		Snow: None	
Conditions	Day Shift: Clear, cold, moderate winds.		Night Shift: Cold, moderate winds.	
Daily norms (°C)	24 hour high:-31C		24 hour low: -34C	

HEALTH, SAFETY AND ENVIRONMENT

- John Kurylo and Jennifer Stirling attended the weekly safety meeting and nightly Nuna toolbox meeting.
- Earnest Palczewski attended the dayshift weekly safety and subsequent daily tool box meeting.

COMMENTS, CORRESPONDENCE AND ACTIVITIES**DAILY MEETING WITH NUNA AND HBML TEAM:**

- The daily meeting was attended by HBML [Jill Turk] Newmont [Don Ethelston], JDS [Doug Fielding, Ishan Fechter, Mark Valeriot]; Nuna [Doug Haverland,] and SRK [Lawrence Borowski, John Kurylo].

Topic	Status
Health and Safety and Environment	<ul style="list-style-type: none"> • One small incident. Worker shovelling snow at airport complained of muscle pain the next day. • Heater shorted at the pump house caused the power outage yesterday afternoon. • Worker removed from site due to banned substance abuse. • ESR reported progress with garbage sorting issues at the waste management site. • INAC inspection planned for Wednesday.
North Dam	<ul style="list-style-type: none"> • Placed 15 loads last night starting at Sta 1+10 and progressing to the south end, including the ramp. • Day shift continued excavating and hauling ROQ from the upstream side and hauling to the downstream side. • Strung out thermister cables at Sta 0+60. • Continued hauling and stockpiling separation material. • Some above GCL Liner mix hauled. • Replacement motor ordered for the motor that was an issue yesterday. • Reliable light plant (yellow) required at the dam for use by SRK taking cores. • SRK noted that snow needs to be cleared on the bank between the core and the ramp ~ Sta 0+50.
Water Management Structures	<ul style="list-style-type: none"> • Cleaned and placed geotextile between Sta 2+95 and Sta 3+30. • Placed bentonite over liner Sta 3+30 to 3+95. • Placed crush and ROQ (1st lift) Sta 3+30 to 3+95
General	<ul style="list-style-type: none"> • One drill working at Quarry 2, day shift and night shift • Blast now planned for Thursday • There were 11 “no shows” for the flight to Hope Bay on Thursday. This has resulted with an acute labour shortage in key areas.

SURVEY:

Required	<ul style="list-style-type: none"> Recent multi-bead cable string pickups and crush cover over cables.
Data Received	<ul style="list-style-type: none"> QC Cross sections for North Dam as-built (as of March 17) Calculated remaining volume of Frozen Core (as of March17)
Outstanding	<ul style="list-style-type: none">
Upcoming	<ul style="list-style-type: none"> Survey of FCM after placement (ongoing). Survey of Doris North Diversion berm (ongoing).

NORTH DAM/FROZEN CORE PLANT PAD:**Multi-bead Thermistors**

- The following multi-bead thermistors were read:
 - ND-HTS-040-31.5, ND-HTS-040-33.5, ND-VTS-040-KT
 - ND-HTS-175-32.5
 - See notes in 'Key Trench / Central Core' section below. Two thermistor strings were cut today and will be required to be repaired (location of damage is immediately apparent).

Frozen Core Plant*Dayshift*

- Stockpiling GCL overliner mix material
- Hauling and stockpiling separation material. D6 dozer working on stockpile.
- No plant operator was available for day shift.

Nightshift

- Cleaning and maintenance was completed at the FCP.
- Transition material continued to be hauled from outside Quarry #2 to the FCP Pad.

Dam Shell*Dayshift*

- Hauling and placing separation material at south end, downstream side.
- Space left between FC material and separation material where FC was underbuilt (around ~0+90 to 0+70)
- Hauled and placed ROQ at south end, downstream side (around ~0+80 to 0+65).

Nightshift

- Minor work spreading and smoothing Transition material on the downstream was completed by the 330 excavator.
- ROQ material was placed with the excavator from ~ 0+65 to 0+40. No compaction was yet observed on this material.
- The multibead cables at 0+40 were strung across to the downstream toe of the dam. Crush material was placed under and above these cables (typically a min of at least 0.3m of crush above and below was observed to be placed. See Photo 20 and 21.
 - Snow removal was required around the area where this cable group runs along the downstream slope of the core. FCM was noted to have been placed over a larger snow drift in this area. The excavator was used to break the frozen core material off of this snow bank. The excavator completed crude cleaning of the snow then hand shovelling was required to clean around the area where the cables bend from the outside of the dam core towards the downstream. After snow removal crush was hand shoveled under

the cables in this area.

- All cables were picked up by Nuna survey.

Some ROQ material has been bladed onto the Transition material, around station 0+80 to 0+70 and will be required to be pulled back before subsequent Transition placement in this area results.

Key Trench/ Central Core

Dayshift

- Thermistors were read at 9:00 am. Readings (in kilo-ohms and degrees Celsius) were as follows:
 - Thermistor 22, Sta 0+75 : 15.2 (+1.40)
 - Thermistor 24, Sta 0+50: 11.7 (+ 6.65)
- Thermistors were read at 11:30. Readings were as follows:
 - Thermistor 22, Sta. 0+75 : 16.2 (+0.15)
 - Thermistor 24, Sta 0+50: 14.0 (+3.03)
- Thermistors were read at 15:15. Readings were as follows:
 - Thermistor 22, Sta 0+75:16.4 (-0.09)
 - Thermistor 24, Sta 0+50: 16.1 (+0.27)
- Thermistors were read at 16:45. Readings were as follows:
 - Thermistor 22, Sta 0+75: 16.4 (-0.09)
 - Thermistor 24, Sta 0+50: 16.3 (+0.03)
- Four labourers cleared snow by hand off the FC bank in areas that were out of reach by the excavator until early afternoon.
- Labourers then brought in a compressor that was parked on the frozen core and cleared off the banks of the core starting at the north end.
- As freezeback had not been achieved, there was little for dayshift to work on. Accordingly, the original plan was to start laying GCL from the north end, and having the night shift place the over GCL mix.
- A 'Trial' placement of GCL was completed on dayshift.
 - Spreading the GCL was fraught with issues.
 - Firstly, an excavator was used as the primary piece of equipment.
 - The excavator could not reach far enough.
 - The roll came out of a sea can, so was frozen. Manpower alone could not unroll it. To unroll it they eventually had to hold it in place by running the skid steer over the end.
 - There was also an issue with the spreader bar which bent under the weight of a roll making it even more difficult to unroll.
 - Rolls were overlapped by ½ meter.
 - There was no plan for spreading the bentonite, The bentonite was eventually spread by workers on their knees spreading the bentonite with their hands. Only one seam had bentonite. The second seam and the bottom do not have bentonite.
 - The GCL trial was stopped short so that additional planning could result to improve future days placement.
- As part of the cleaning exercise the excavator was used to clean snow away from the frozen core material. When he was excavating, the bucket was dropped right at the edge of the frozen core. In so doing, two thermistor cables were cut. The third needs to be checked. It is suspected that the problem arose because the cables emanated from frozen core material close to the top and a smaller amount of crush than expected resulted over the cables around this bend from the core towards the downstream.

Nightshift

- One drilled core was taken on nightshift:
 - HB12-ND-CORE-DC83-20120318 was taken from ~ 0+90 centerline. This was from the material placed on March 17th nightshift.
 - Difficulties continue to be experience in finding a suitable power source for the drill. All light plants currently at the dam were unsuccessfully attempted to be used. A small generator was sourced out and used to drill a core. The breaker for this small generator consistently was

- tripped and somewhat limited the depth of core drilling that could be completed. Additional discussions will be had tomorrow to try and find a better power source for drilling.
- No FCM was placed on nightshift.
 - The 'trial' GCL liner placement that occurred on dayshift was inspected. SRK understands that this was just a 'trial' but had the following additional observations (in addition to the comments outlined by dayshift):
 - An offset from the North end of the core (~ a panel width) has been left before the first panel of GCL was placed. Additional GCL in this area is expected to be required. Nuna survey to go in field and provide SRK with location of elevation 35.0m on the OG (to be formally requested tomorrow).
 - The overlaps for the liner were noted to all be the wrong way / backwards. Similar to roof shingles the GCL panels on the slopes are required to be placed so that the higher elevation panel overlaps the lower elevation panel.
 - Only ~ 1m from the upstream toe of the slope (on the horizontal fillet hinge area) was cleaned of snow and debris. Before overliner material placement result the entire area where overliner material will be placed is required to be cleaned (i.e. the horizontal fillet area beyond 1m of the toe where GCL will be placed is required to be cleaned).
 - The GCL appeared to be stiff and slightly frozen in area which resulted in some minor waves/undulations in the GCL surface.
 - Some track marks (from the skid steer) were observable at the top of the liner. Although no liner damage was readily apparent (such as tears or rips) no vehicle equipment should travel on the liner areas that are within the IFC GCL design limits.
 - GCL rolls were noted to have been left outside in various places around the FCP pad and downstream dam shell area. Better handling and storage of the GCL rolls is suggested to be looked at to minimize the creation of unneeded liner damage / waste.
 - Additional discussions on the noted GCL liner placement items will result tomorrow.
 - See Photos 12, 13, 14, 16 and 17 for additional details.
 - In the SSE corner the intermediate slope, between the top area and lower underbuilt downstream area, was still required to be scraped down to hard ground (i.e. snow removed) at the end of shift. This work is expected to result tomorrow.
 - Labourers worked on cleaning the bottom portion of the upstream slope and the fillet hinge area around station 0+90 to 1+95. For a brief portion of the shift an excavator was used to assist with the cleanup. See Photo 15.
 - After cleaning it the underbuilt area at the toe of the upstream slope around 1+20 became visible. This area will required one last small lift of material to bring this area up to grade. See Photo 22 for additional details. FCM placement in this area is expected to result in the coming days.
 - The multibead cables as 0+40 were all checked and found to be working after they were covered. A small scrape on the plastic of one of the cable at 0+40 was noted (closer to the area where the cable runs alongside the core). This cable was found to be fully operational. As a preventative measure electrical tape was wrapped around this scraped plastic portion of the cable.
 - The multibead cables at 1+75 were checked. Cable ND-HTS-175-32.5 was found to still be working. Cables ND-HTS-175-33.5 and ND-VTS-175-KT were identified as being the cables that were cut on dayshift.
 - Single bead thermistors were monitored throughout nightshift. Freezeback was achieved around 2:30am. The entire dam was frozen back by the end of nightshift.

Field Geotechnical Testing, Laboratory and Sampling

SINGLE BEAD THERMISTOR STATUS

Installed Today			Active			Destroyed / Abandoned		
ID	Station	US/DS/Center	ID	Station	US/DS/Center	ID	Station	US/DS/Center
			SB29	1+15	U/S			
			SB22	0+75	CL			
			SB24	0+50	U/S			

- A summary of today's material testing progress is presented in the tables below.

PARTICLE SIZE DISTRIBUTION SUMMARY

Collected	Testing In Progress	Completed
	HB12-ND-CORE-PSD72-QA-20120317	

MOISTURE CONTENT SUMMARY

Collected	Testing In Progress	Completed
		Up to date

DRILLED CORE

Collected	Testing In Progress	Completed
HB12-ND-CORE-DC83-20120318		HB12-ND-CORE-DC81-20120317 HB12-ND-CORE-DC82-20120317

DORIS NORTH DIVERSION BERM:

- Accumulated snow cleared between Sta 2+95 and Sta 3+35
- Placed HDPE liner between Sta 2+95 and Sta 3+35 . Welding in progress.
- Cleaned between Sta 2+45 and St 2+95
- Small excavator on the north side of the trench slowly excavating snow at Sta 4+45, working east

DORIS SUMPS:

- Second lid has been fabricated.

QUARRY 2:

- One drill working during dayshift and one drill working on nightshift (i.e. one drill working 24 hours).

GENERAL:

- Weather conditions have not improved much. Winds have diminished, but windchill still remained at -50C.
- SRK's truck 10-010 was returned back to service this afternoon. SRK was currently sharing a truck with Nuna supervisor and field engineering crew on dayshift. Additional vehicles were available on nightshift due to the smaller crew size.
- The D6 continued to push the snow stockpile further onto Tails Lake.
- As has been noted in previous daily reports, culverts are being put in by JDS Water Management at various locations around site (note: typically ~ 12" and 16" diameter culverts). Work on these culvert installations continued today.
 - On nightshift around 2:00am the Float Plan Dock Road around the Ponds was noted to be blocked off by a D8. Upon inquiry SRK discovered that the dozer was planned to rip a ~9 foot wide and 4 foot deep trench for JDS Water Management between the Sediment and Pollution Pond (by the area of the Separation berm between the ponds).
 - SRK nightshift was not aware of this activity and inquired with the Nuna about the planned ripping.
 - SRK inquired as to if the ripping of the culvert in relation to the liner / liner anchor trench at the corner of the Sediment and Pollution Pond had been examined in detail. Neither party were able to confirm that this had been looked at.
 - Due to the sensitivity of the area, and the small amount of available space between the

Sediment and Pollution Pond liners (as noted in preliminary as-built reviews), the ripping activities were immediately stopped by SRK.

- Nuna survey loaded up the survey files for the as-built liners. The liner limits as well as what was last known to be the planned location for this culvert excavations centerline were marked out. See Photos 23 and 24 for additional details.
- The excavation was note to be very close and arguably impeding inwards onto the pond liners in areas (around the SE corner of the Sediment Pond and SW corner of the Pollution Pond).
- Construction activities around this area were decided to be stopped until morning.
- SRK and JDS went out at the end of nightshift to inspect this planned water management culvert location.
 - Details of the events and concerns from the nightshift were outlined to JDS.
 - It was decided that the culvert locations would be slightly moved to the WSW to provide a larger offset from the Pond liners.
 - Limits to show the exact extents of planned ripping will be laid out tomorrow for this location.
 - A member of JDS's water management team is planned to watch the ripping in this location to ensure that it does not progress too close to the pond liners.
 - Ripping for this culvert is planned to be completed tomorrow.

PHOTOS:



Photo 1: Photo point 3 facing NNE



Photo 2: Facing SSW



Photo 3 (left): Labourers cleaning core slope by hand.



Photo 4 (right): Excavator was used to handle GCL roll. In this photo it is on top. In the end it was positioned at the bottom.



Photo 5 (left): Skid Steer was used to anchor the GCL
Photo 6 (right): Set up. Skid Steer holding down GCL. Excavator pulling and unrolling the GCL.

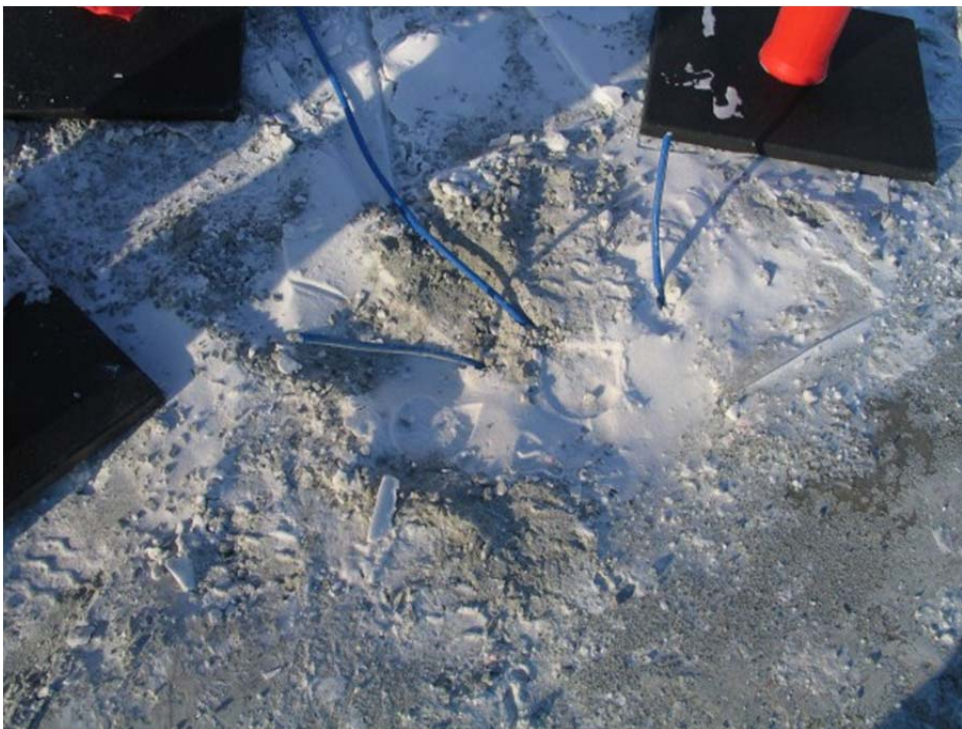


Photo 7 (left): Thermister wires severed at Sta 1+75
Photo 8 (right): Layfield welding seams in HDPE Liner



Photo 8: Layfield cleaning trench before liner installation
Photo 9: HDPE Liner Stn 2+95 to 3+30



Photo 10: Cleaning the next section Stn 2+45 to Stn 2+95



Photo 11: 1st lift of ROQ Stn 3+30 to Stn 3+90



Photo 12 (left): View of some minor wrinkles observed in the stiff (partially frozen) GCL.



Photo 13 (right): View of E upstream end of liner placed, note additional snow removal will be required beyond the 1m past the toe that was cleaned for 'trial' GCL placement.



Photo 14: View of three 'trial' GCL panels placed on dayshift.



Photo 15: ~WSW view of labourers and 330 cleaning DS slope.



Photo 16 & 17: GCL rolls left outside at the DS dam shell and by the FCP hopper



Photo 18: Drilled core 83, drilled at ~ station 0+90 CL



Photo 19: ~WSW view of the Pad R (Doris North Tank Farm). Looking towards the Doris North Power House.



Photo 20 and 21: ~ ESE and SW view respectively of the 330 excavator spreading crush over multibead cables at 0+40.

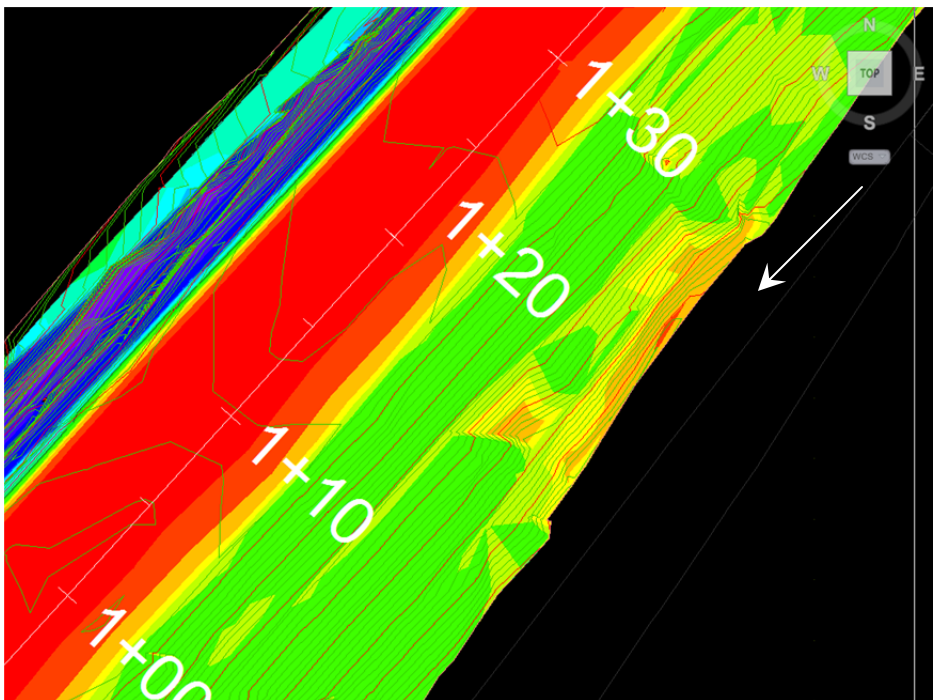


Photo 22: ~SW view of underbuilt US toe slope around station 1+20. A screenshot of the as-built isopach (from 2012/0313) is included to better highlight this slightly underbuilt area. This area is planned to be built up to grade in the coming days.



Photo 23 & 24: ~N and ~ SSE view respectively of the location where the Sediment and Pollution Pond liners meet around the Separation berm at the pond area. Note the stakes in the center of Photo 23 show the old culvert location which was decided to be slightly revised / offset to be further from the liner key trench areas.

FIGURES:

Figure 1 – North Dam Progress – Dayshift

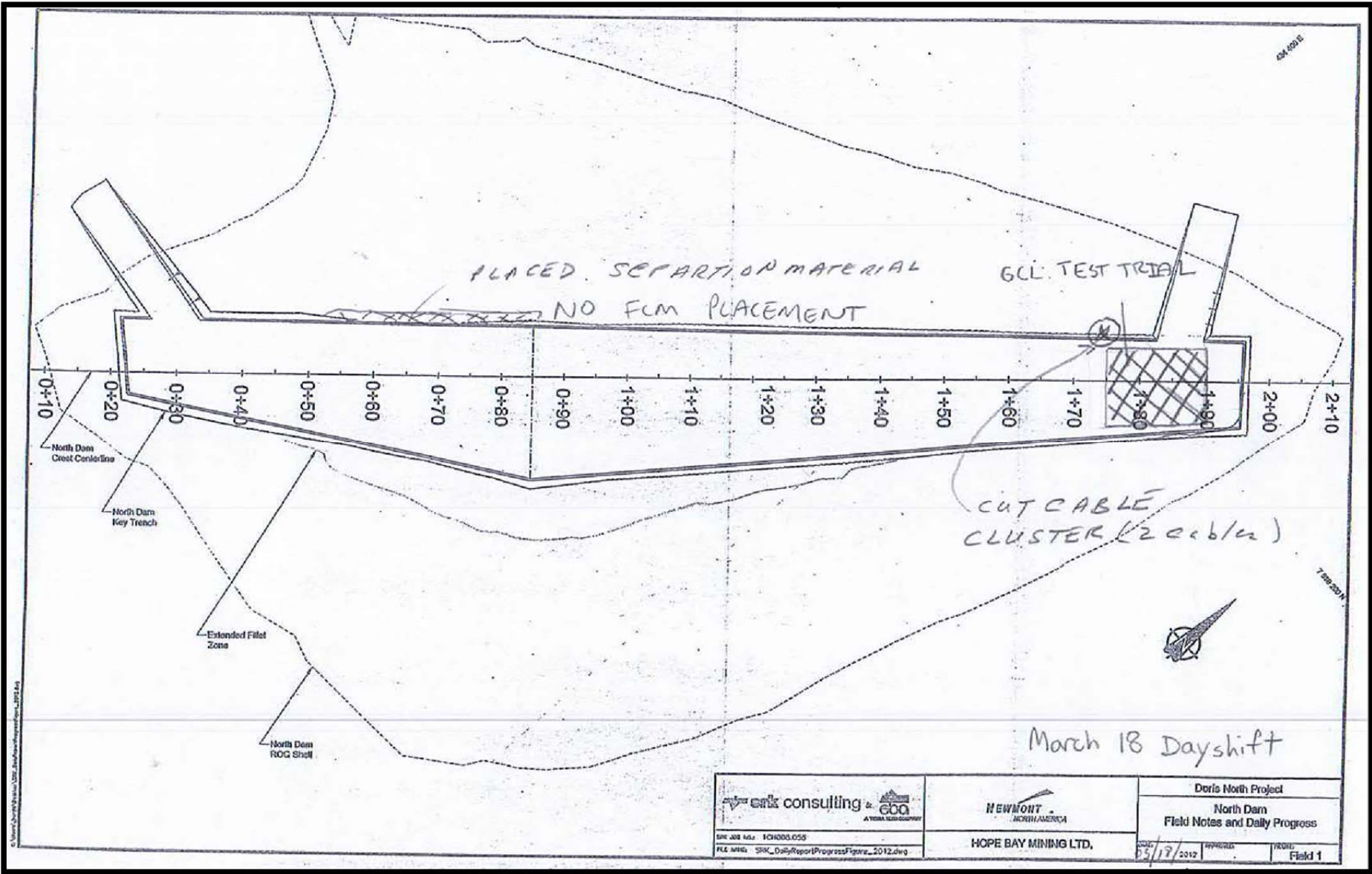


Figure 2 – North Dam Progress – Nightshift

