

Operational Work Plan: WP-HB-004 Doris Sumps R3

Kevin Oakes [kevin@nunalogistics.com]

Sent: Wednesday, January 11, 2012 3:41 PM
To: Jerry Graham' (jerryg@jdsmining.ca); Doug Fielding [doug@jdsmining.ca]; Kevin Whieldon (kevinw@jdsmining.ca); Ishan Fechter [ishanf@jdsmining.ca]; Rykaart, Maritz; Wade, Lowell; Angela Holzapfel (Angela.Holzapfel@Newmont.com); Katsky Venter (Katsky.Venter@Newmont.com); Michelle Tanguay (Michelle.Tanguay@Newmont.com)
Cc: Bay, Hope; Nick Stoneberger [nicks@nunalogistics.com]; Doug Haverland [dough@nunalogistics.com]; Simon Chipper [simonc@nunalogistics.com]; Matthew McKay [matthewm@nunalogistics.com]; Gary Sodhi [garys@nunalogistics.com]; Mike Price [mikepr@nunalogistics.com]; Kyle Kuntz [kylek@nunalogistics.com]
Attachments: WP-HB 004 Doris Sumps R3.pdf (2 MB)

Afternoon All,

Pursuant to our phone call this morning, please find attached Nuna's updated operational work plan for the construction of the Doris Sumps, taken from the Release 'A' Execution Plan. Revisions include the excavation and annulus backfill details discussed.

Thanks,

Kevin Oakes

Asst. Project Manager
Hope Bay Mining Project
T: 604.998.5400 ext 87546
C: 780.232.7748

NUNA LOGISTICS LIMITED

9839 - 31 Avenue, Edmonton, AB, T6N 1C5
kevin@nunalogistics.com
www.nunalogistics.com



Operational Work Plan

Work Plan: WP-HB-004 Doris Camp Sumps	Revision: 003
Location: Doris North Camp Area	Date: January 11, 2012

Safety			
See attached Risk Register			
Description	Potential Hazard	Precautions and Actions	Notes:
Hazard # 1	Strains	Some heavy lifting may be required, use proper lifting techniques and 2 people if necessary.	
Hazard # 2	Walking on uneven surfaces	Watch your step on the Tundra, surfaces will be uneven and difficult to judge	
Hazard # 3	Wildlife Encounters	Report all sightings to ESR, stay in equipment if possible	
Hazard # 4	Heavy Equipment	JHA, use radios and proper PPE, make eye contact with operators prior to passing near equipment	
Hazard # 5	Confined Space	Use procedures set out by Newmont	

Quality Control			
Description	Critical Items	Actions to Build it right the first Time	Notes:
Item # 1	Styrofoam Installation	Meets required spec and installation	
Item # 2	Concrete	Concrete tested and certified	
Item # 3	Tundra Pads	No disturbance to the Tundra	
Item # 4	Drill Pattern Locations	Survey will confirm alignment of drill locations. Max spacing allowed between excavation and culvert is 0.3m.	
Item # 5	Template	Pre fabricate working template to assure excavation doesn't exceed boundaries	
Item # 6	Culverts	Install stiffeners previous to installation to assure consistent radius	

Environment			
Description	Critical Items	Precautions and Actions	Notes:
Hazard # 1	Equipment on tundra	Stay within the footprint of the tundra pads. Ice pads will be constructed	Survey to mark out
Hazard # 2	Overspill of material on tundra	Be careful when removing material	
Hazard # 3	Spills	Report all spills immediately to ESR and cleanup promptly. Ensure spill kits and drip trays are on hand at the work site.	
Hazard # 4	Annulus Backfill	"Coco-matting" will be used around the sump to reclaim the disturbed surface material in the annulus.	

Water Mgmt.			
Description	Critical Items	Precautions and Actions	Notes:
Hazard # 1	Permafrost	All measures must be taken to be sure that the permafrost isn't affected through excess tundra damage	
Hazard # 2	Sediment run-off (freshet)	Confirm sediment control measures with EPCM and ESR	
Hazard # 3	Working Platform	To be cleaned of all dirty snow as demobilizing	



Operational Work Plan

Hold Points		
		Description
1	<input type="checkbox"/>	Survey to mark sump locations and culvert outlines
2	<input type="checkbox"/>	Survey to indicate proper depths
3	<input type="checkbox"/>	Confine Space required to complete task
3	<input type="checkbox"/>	Construct steel template for excavation boundaries

Work Procedure / Step-by-Step / Activity Sequence / Access	Hold Point/ Reference
<u>Construction Strategy</u> <ul style="list-style-type: none"> Determine Location of Each Sump / Layout Centre Points Construct a Snow/Ice Road and Working Platform Drill out Circumference of Culvert Excavate Remaining Material Install Culvert Sections Place and Finish Concrete Sump Lid Construction 	HP 1
1.0 <u>Determine Locations</u> <ol style="list-style-type: none"> Survey to layout circumference of culverts. Excavation will be within 0.3m of culvert circumference . Survey to indicate outline of snow road and working platform. 	HP 1
2.0 <u>Construct Road and Working Platform</u> <ol style="list-style-type: none"> Snow Fence to be installed prior to accumulate “clean” snow. Nuna to determine locations based on the snow patterns and access. Tundra cannot be damaged during this process. Load snow into the haul truck with the 325 Excavator / 930 Loader. Haul and place “clean” snow to each sump location with haul truck. Place 300mm snow lifts with D6. Each lift to be watered and let stand to freeze. (See attached sketch for road and working platform dimensions). 	R 1
3.0 <u>Drilling</u> <ol style="list-style-type: none"> Mobilize DX800 to sump location. Set up DX800 Drill on working platform. Place prefabricated working template for drilling boundaries. Drill as many locations as possible within the marked off culvert layout, creating a honeycomb for material removal. Drill depth to be at least 2m. See Reference #2. 	HP 1 HP4, R2 HP2, R2
4.0 <u>Excavate</u> <ol style="list-style-type: none"> Cat 330 Excavator to hollow out remainder of culvert with ripper and bucket. Excavator to place material into 730 Haul truck. Haul to approved dump location. If suitable, it will be hauled to an area near the land farm. Geology may use it to refill collapsed drill holes. 2 laborers’ to use hand shovels and picks to clean up the edges to achieve as much of an even surface as possible. Confined space may be required for this task. It is anticipated that following this method that the width of the annulus can be kept to within 300mm. 	HP 1 HP 2 HP 3
5.0 <u>Pre Assemble Culverts</u> <ol style="list-style-type: none"> Culverts available on site are 1.8m in length. This will require two sections to be mechanically fastened together to acquire the specified length of 2.65m. The second section of culvert that will be placed in the ground will have to be zip cut in half. This will allow the other half of the culvert to be used in Sump #2. 	



Operational Work Plan

<p>5.2 Place cut section with jagged edges facing up. Weld L brackets around the perimeter to hold Styrofoam in place. Flip culvert section with L brackets to the bottom when complete.</p> <p>5.3 Install Styrofoam as per details. Each layer should be cut to suit. Bond each layer together with adhesive to assure stability when transported.</p> <p>5.4 Once 4 layers of horizontal insulation are complete, install the 3 layers of vertical insulation. These will be capped with a vertical retaining bracket. To be fillet welded as indicated on drawings.</p> <p>5.5 Once insulation is completed, place both section on their side. Mechanically fasten both culvert sections together.</p> <p>5.6 Sump lid to be constructed separately. Further details required from SRK.</p>	
<p>6.0 <u>Install Culverts</u></p> <p>6.1 Transport culvert sections to sump locations using low bed. Culverts will be pre-assembled as indicated in 5.0.</p> <p>6.2 Survey to layout/determine bottom elevation of sump location prior to install.</p> <p>6.3 Load and place culverts with Cat 330. Manual assistance may be required to properly place in excavated location. All sections of culvert to be mechanically fastened prior to delivery.</p> <p>6.4 Sump lid will then be placed using Cat 330. Manual direction may also be required.</p> <p>6.5 Once the steel culvert has been placed and positioned, the surrounding annulus will be backfilled loosely with 5/8" clean aggregate up to 1.0 m below OG.</p> <p>6.6 From 1.0 m below OG to the surface the annulus will be backfilled loosely with the previously excavated till. The till material may need to be stockpiled in a warm facility prior to using it as backfill to ensure that any large ice chunks have thawed.</p> <p>6.7 "Coco-matting" (free of all plastics) will be placed on top of the disturbed ground surrounding the sump.</p>	HP 2
<p>7.0 <u>Mix, Transfer and Place Concrete</u></p> <p>7.1 Prepare and mix concrete at batch plant.</p> <p>7.2 Transfer concrete to sump locations with pumper truck.</p> <p>7.3 Pump the concrete as necessary into culvert. 0.1m thick over previously installed Styrofoam.</p> <p>7.4 Confined space is required due to depth.</p>	HP 3

Quantities		
Description:	Quantity	Unit
Excavated Material	32	M3
Snow Road/Working Platform	300	M3
Insulation	160	M2
Concrete	4	M3
Rebar	6.5	LM

List of Required Equipment	
	Description:
1	CAT 330 Excavator
1	CAT 980 Loader
2	CAT 730 Haul Truck
1	CAT D6 Dozer
1	Water Truck
1	DX800 Drill
1	Trailer
1	Light plants
1	Portable Jack Hammer



Operational Work Plan

Clarifications / Information / General Notes

- Further Mechanical Drawings needed for sump lid construction.

Engineering/Survey Support Required

SEE HOLD POINTS ON PAGE 2

Reference of Contract Specifications, RFI's and Site Instructions

Engineered Drawing Package for the Doris North Project, Doris Camp Sump Locations– SRK Consulting Inc.

STS and Permanent Materials

Description:	Quantity	Man Hours
Culverts/Sumps	5 each	

Tolerances

Contractor cannot achieve the designed 25 mm annulus. Using the methods outlined in this plan the annulus width can be kept to a maximum of 300mm barring any unforeseen ground conditions encountered during excavation and installation of the sumps.

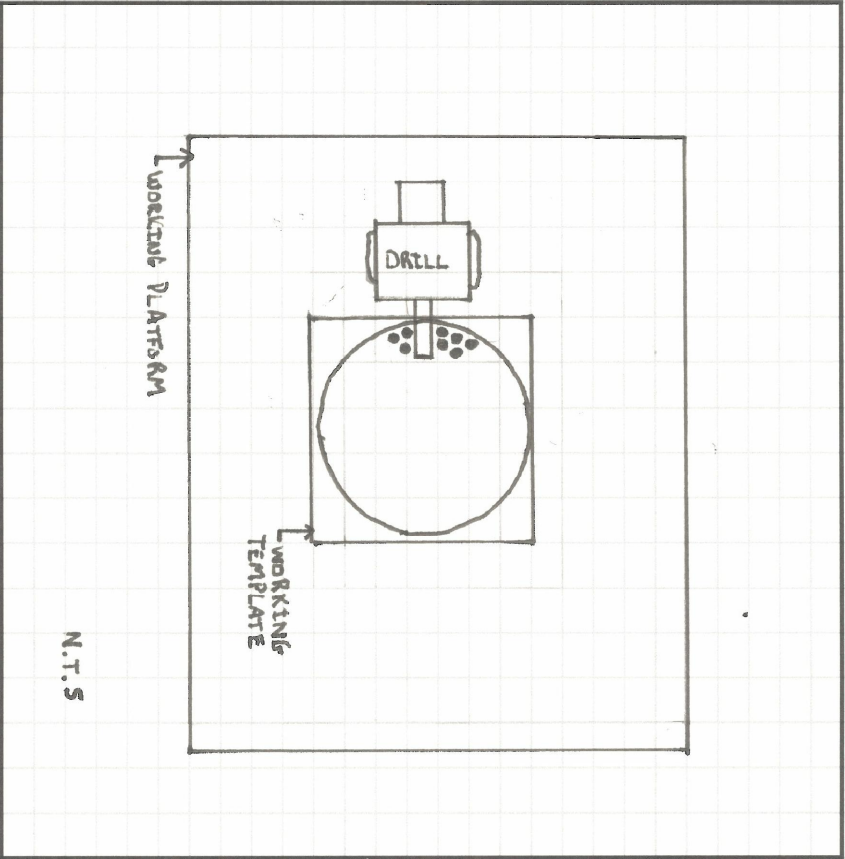
This Work Plan is Approved for Construction.

<u>Superintendent:</u>	_____	_____	_____
	Name	Signature	Date
<u>Client Representative:</u>	_____	_____	_____
	Name	Signature	Date

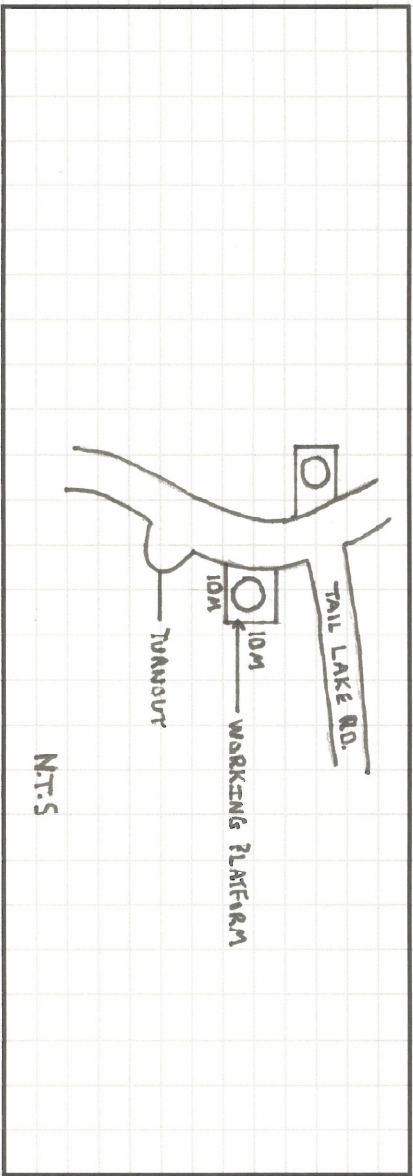
Reference # 1



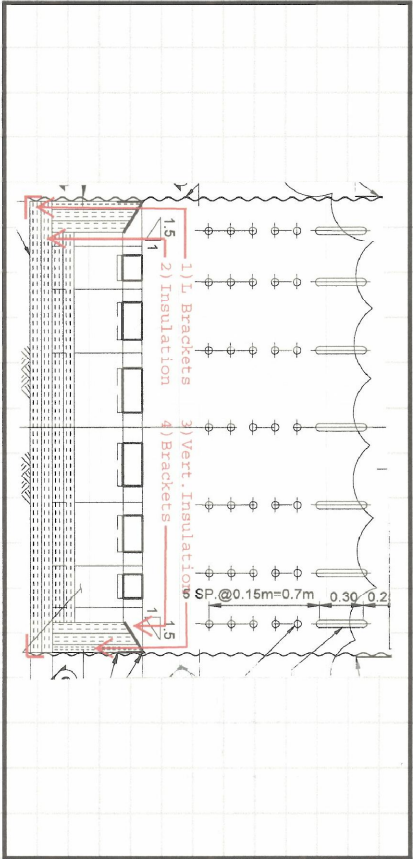
Reference # 3



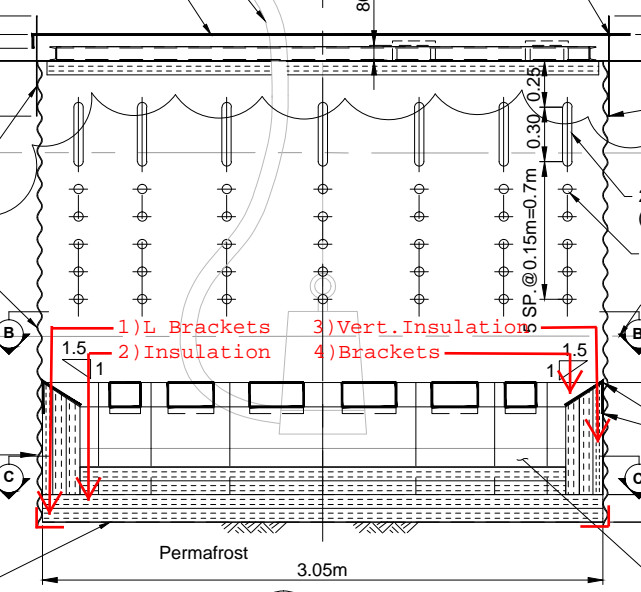
Reference # 2



Reference # 4



NOTES:		OWNER:		PREPARED BY:		DRAWING TITLE:	
		NUEMONT NORTH AMERICA Hope Bay Mining Ltd.		NUNA Contracting Ltd. 9839 - 31 Avenue Edmonton, AB T6N 1C5		Dorts Sumps References 1,2,3,4	
		PROJECT:		DRAWN BY:		DRAWING NAME (FILENAME):	
		Dorts North Project, Hope Bay, Nunavut		RMM		Dorts Sumps.dwg	
				SCALE:			
				DATE:			
				Feb 06, 2011			



Doris North Camp - Revised Sump #1 Location

Kurylo, John

Sent: Monday, January 23, 2012 12:05 PM
To: hopebay survey (hopebaysurvey@nunalogistics.com)
Cc: georgesc@nunalogistics.com; ishanf@jdsmining.ca; Bay, Hope
Attachments: DNCamp_Sump1Location_20120~1.dxf (412 KB)

Hey Georges,

As discussed this morning the location for Sump #1 has been revised, so that it sits in close proximity to the expanded Float Plan Dock Access Road toe. The revised location for Sump #1 is:

→ N = 7558868.7, E = 433341.1

Not that I have also attached an Acad file with the sump location included. Notes on this revised Sump location will be put into the SRK daily for Jan 23rd, 2012 and noted in the RFI response for official documentation. Please let me know if you have any questions or concerns.

Kind Regards

John Kurylo, EIT
Staff Consultant



SRK Consulting (Canada) Inc.

Suite 2200, 1066 West Hastings Street
Vancouver, V6E 3X2, Canada

Tel: +1-604-681-4196; **Fax:** +1-604-687-5532

Mobile: +1-604-709-9212; **Direct:** +1-604-628-2570

Email: jkurylo@srk.com;

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Please consider the environment before printing this e-mail.

FYI, Screen shot of revised SUMP #1 location provided below:



FW: Operational Work Plan: WP-HB-004 Sumps R4

Miller, Megan

Sent: Monday, February 13, 2012 8:23 AM
To: Bay, Hope
Cc: Kurylo, John; Miskolczi, Iozsef
Attachments: WP-HB 004 Doris Sumps R4.pdf (180 KB)

FYI

From: Ishan Fechter [mailto:ishanf@jdsmining.ca]
Sent: Monday, February 13, 2012 8:22 AM
To: Rykaart, Maritz; Wade, Lowell
Cc: Miller, Megan; McGregor, Murray; Jerry Graham; Doug Fielding; Kevin Whieldon
Subject: FW: Operational Work Plan: WP-HB-004 Sumps R4

Please find attached Revision 4 of the Nuna Sump Work Plan for your review.

The current plan is to start drilling the outline of Sump # 1 tomorrow.

Thanks

Ishan

From: Kyle Kuntz [mailto:kylek@nunalogistics.com]
Sent: February-12-12 3:18 PM
To: Jerry Graham; Doug Fielding; Ishan Fechter; Kevin Whieldon; Calvin Goldschmidt
Cc: Gary Sodhi; Mike Price; Nick Stoneberger; Doug Haverland; Simon Chipper; Matthew McKay; Kevin Oakes
Subject: Operational Work Plan: WP-HB-004 Sumps R4

Gentleman,

See attached for the updated Sump 1 Work Plan. The work plan has been modified with new construction methods as per discussions with SRK, JDS and Nuna.

Thanks,

Kyle Kuntz
Project Coordinator
Hope Bay Mining Project
T: 604.998.5400 ext 87546
C: 780.238.6609

NUNA LOGISTICS LIMITED
9839 – 31 Avenue, Edmonton, AB, T6N 1C5
kylek@nunalogistics.com
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Operational Work Plan

Work Plan:	WP-HB-004 Doris Camp Sumps	Revision: 004
Location:	Doris North Camp Area	Date: February 11, 2012

Safety			
See attached Risk Register			
Description	Potential Hazard	Precautions and Actions	Notes:
Hazard # 1	Strains	Some heavy lifting may be required, use proper lifting techniques and 2 people if necessary.	
Hazard # 2	Walking on uneven surfaces	Watch your step on the Tundra, surfaces will be uneven and difficult to judge	
Hazard # 3	Wildlife Encounters	Report all sightings to ESR, stay in equipment if possible	
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Description	Critical Items	Actions to Build it right the first Time	Notes:
Item # 1	Styrofoam Installation	Meets required spec and installation	
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Item # 3	Tundra Pads	No disturbance to the Tundra	
Item # 4	Drill Pattern Locations	Survey will confirm alignment of drill locations. Max spacing allowed between excavation and culvert is 0.3m.	
Item # 5	Culverts	Install stiffeners previous to installation to assure consistent radius	

Environment			
Description	Critical Items	Precautions and Actions	Notes:
Hazard # 1	Equipment on tundra	Stay within the footprint of the tundra pads. Ice pads will be constructed	Survey to mark out
Hazard # 2	Overspill of material on tundra	Be careful when removing material	
Hazard # 3	Spills	Report all spills immediately to ESR and cleanup promptly. Ensure spill kits and drip trays are on hand at the work site.	
Hazard # 4	Annulus Backfill	"Coco-matting" (non-plastic type only) will be used around the sump to reclaim the disturbed surface material in the annulus.	

Water Mgmt.			
Description	Critical Items	Precautions and Actions	Notes:
Hazard # 1	Permafrost	All measures must be taken to be sure that the permafrost isn't affected through excess tundra damage	
Hazard # 2	Sediment run-off (freshet)	Confirm sediment control measures with EPCM and ESR	
Hazard # 3	Working Platform	To be cleaned of all dirty snow as demobilizing	



Operational Work Plan

Hold Points		
		Description
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3	<input type="checkbox"/>	Construct steel template for excavation boundaries

Work Procedure / Step-by-Step / Activity Sequence / Access	Hold Point/ Reference
<u>Construction Strategy</u> <ul style="list-style-type: none"> Determine Location of Each Sump / Layout Centre Points Construct a Snow/Ice Road and Working Platform Drill out Circumference of Culvert Excavate Remaining Material Install Culvert Sections Sump Lid Construction 	HP 1
1.0 <u>Determine Locations</u> <ol style="list-style-type: none"> Survey to layout circumference of culverts. Excavation will be within 0.3m of culvert circumference . Survey to indicate outline of snow road and working platform. 	HP 1
2.0 <u>Construct Road and Working Platform</u> <ol style="list-style-type: none"> Snow Fence to be installed prior to accumulate “clean” snow. Nuna to determine locations based on the snow patterns and access. Tundra cannot be damaged during this process. Load snow into the haul truck with the 325 Excavator / 930 Loader. Haul and place “clean” snow to each sump location with haul truck. Place 300mm snow lifts with D6. Each lift to be watered and let stand to freeze. (See attached sketch for road and working platform dimensions). 	
3.0 <u>Drilling</u> <ol style="list-style-type: none"> Mobilize DX800 to sump location. Set up DX800 Drill on working platform. Drill on the inside of the design circumference with the 3” diameter drill. (As per Reference 1) Offset inwards 300mm around the full circumference as marked out by survey. Begin drilling around the new circumference with the 8 ½” drill. (See Reference 2) Drill as many locations as possible within the reduced area, creating a honeycomb for material removal. Drill depth to be at least 2m. 	HP 1 HP2, R1 R2
4.0 <u>Excavate</u> <ol style="list-style-type: none"> Cat 330 Excavator to hollow out remainder of culvert with ripper and bucket. The 330 will first excavate the inner portion that was honeycombed with the 8 ½” drill. This will be done in approximately 700mm lifts. (See Reference 3 – 1) Once the inner portion is fully excavated approx. 700mm down, the operator will then place the bucket to the outside 3” hole previously drilled and “shear” off the remaining material. (See Ref.3 1A, 1B) Repeat these steps until reaching desired 2 m depth. (See reference 3) 	HP 1 HP 2 HP 3
5.0 <u>Pre Assemble Culverts</u> <ol style="list-style-type: none"> Culverts available on site are 1.8m in length. This will require two sections to be mechanically fastened together to acquire the specified length of 2.65m. The second section of culvert that will be placed in the 	



Operational Work Plan

<p>ground will have to be zip cut in half. This will allow the other half of the culvert to be used in Sump #2.</p> <p>5.2 Place cut section with jagged edges facing up. Weld L brackets around the perimeter to hold Styrofoam in place. Flip culvert section with L brackets to the bottom when complete.</p> <p>5.3 Install Styrofoam as per details. Each layer should be cut to suit. Bond each layer together with adhesive to assure stability when transported.</p> <p>5.4 Once 4 layers of horizontal insulation are complete, install the 3 layers of vertical insulation. These will be capped with a vertical retaining bracket. To be fillet welded as indicated on drawings.</p> <p>5.5 Once insulation is completed, place both section on their side. Mechanically fasten both culvert sections together.</p> <p>5.6 Sump lid to be constructed separately. Further details required from SRK.</p>	
<p>6.0 <u>Install Culverts</u></p> <p>6.1 Transport culvert sections to sump locations using low bed. Culverts will be pre-assembled as indicated in 5.0.</p> <p>6.2 Survey to layout/determine bottom elevation of sump location prior to install.</p> <p>6.3 Load and place culverts with Cat 330. Manual assistance may be required to properly place in excavated location. All sections of culvert to be mechanically fastened prior to delivery.</p> <p>6.4 Sump lid will then be placed using Cat 330. Manual direction may also be required.</p> <p>6.5 Once the steel culvert has been placed and positioned, the surrounding annulus will be backfilled loosely with 5/8" clean aggregate up to 1.0 m below OG.</p> <p>6.6 From 1.0 m below OG to the surface the annulus will be backfilled loosely with the previously excavated till. The till material may need to be stockpiled in a warm facility prior to using it as backfill to ensure that any large ice chunks have thawed.</p> <p>6.7 "Coco-matting" (free of all plastics) will be placed on top of the disturbed ground surrounding the sump.</p>	HP 2

Quantities		
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SEE HOLD POINTS ON PAGE 2

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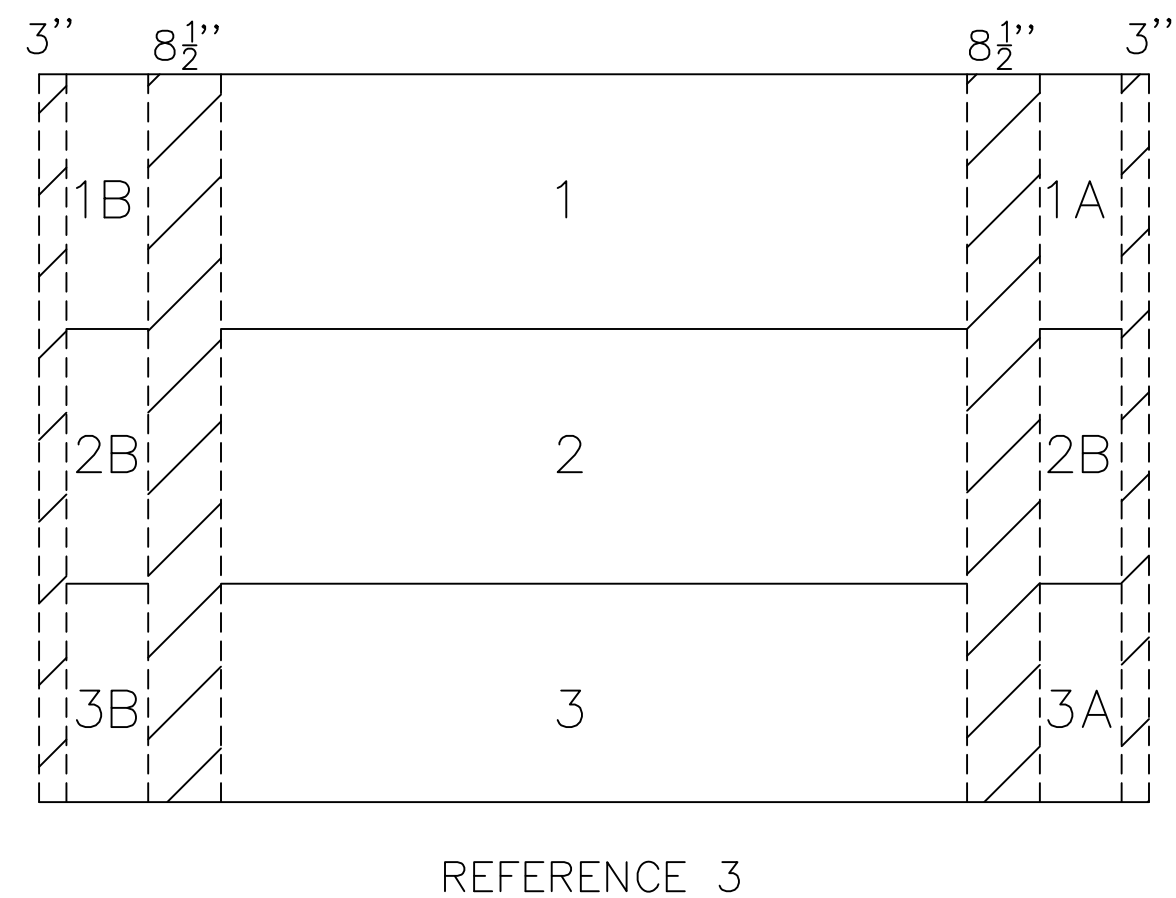
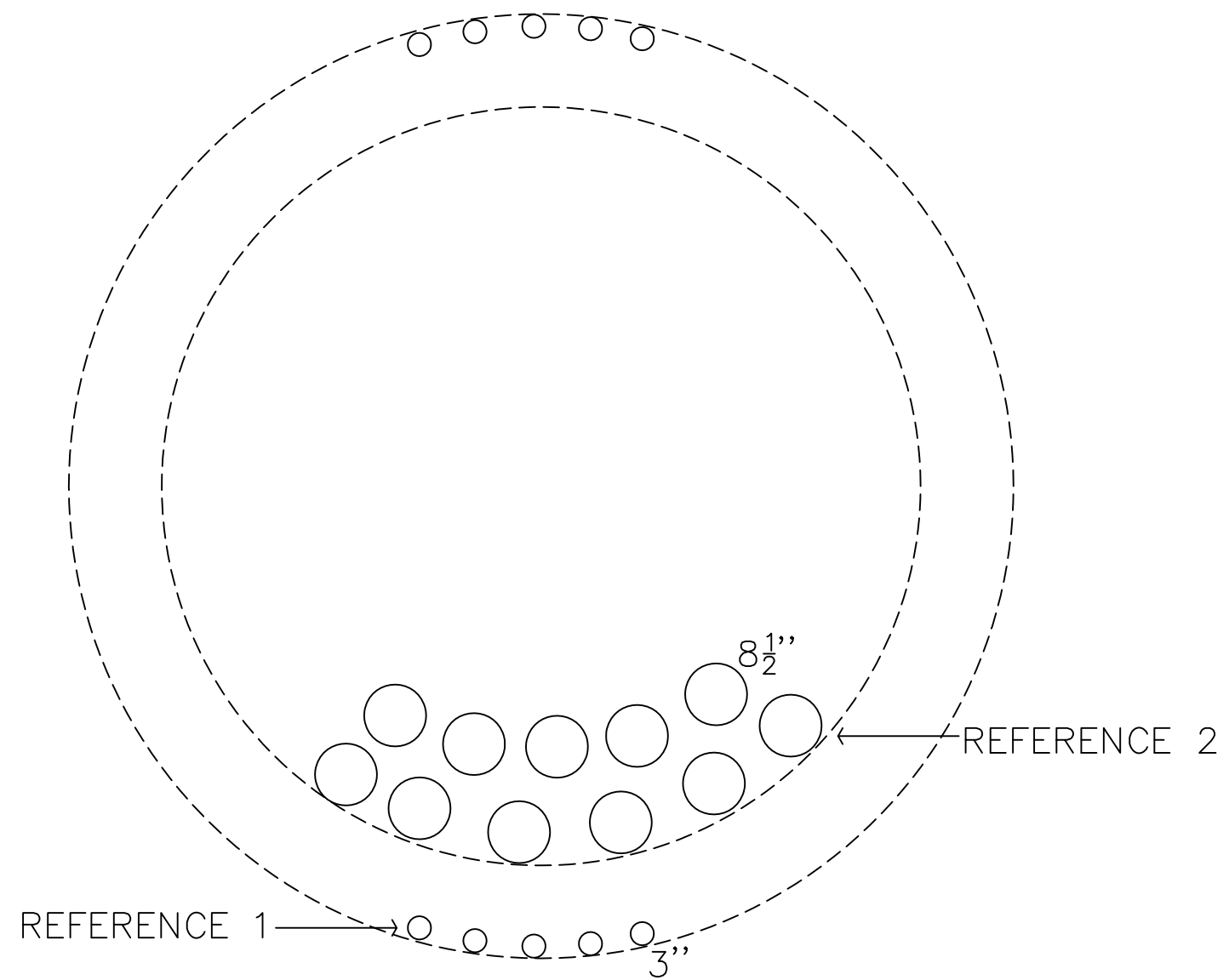
Tolerances

Contractor cannot achieve the designed 25 mm annulus. Using the methods outlined in this plan the annulus width can be kept to a maximum of 300mm barring any unforeseen ground conditions encountered during excavation and installation of the sumps.

This Work Plan is Approved for Construction.

Superintendent: _____
Name Signature Date

Client Representative: _____
Name Signature Date



RE: Sump Lid Cover Design Modification

Jerry Graham [Jerryg@jdsmining.ca]

Sent: Thursday, March 08, 2012 3:26 PM**To:** Gary Sodhi [garys@nunalogistics.com]; Bay, Hope**Cc:** Doug Haverland [dough@nunalogistics.com]; Kyle Kuntz [kylek@nunalogistics.com]; Mike Price [mikepr@nunalogistics.com]; Doug Fielding [dougf@jdsmining.ca]; Ishan Fechter [ishanf@jdsmining.ca]

FYI, I have instructed Nuna to proceed with this work as described. Jerry

Jerry Graham
JDS Energy and Mining
Ph. – 604-998-5400 Ext. 87596
Cell - 250-801-5450

From: Gary Sodhi [mailto:garys@nunalogistics.com]

Sent: March-08-12 3:55 PM**To:** 'Bay, Hope'**Cc:** Doug Haverland; Kyle Kuntz; Mike Price; Jerry Graham; Doug Fielding; Ishan Fechter**Subject:** Sump Lid Cover Design Modification

Lawrence/John,

The IFC design specifies a quarter section of the lid to be used as the lid cover for access. But, due to the weight of the IFC lid cover (83Kg.) Nuna is suggesting to reduce the size of the cover by cutting the cover as per the attached sketch. This would make the lid cover easier to handle and still provide the same access area.

Thanks,

Gary Sodhi

Site Engineer - Hope Bay Mining Project

T (604) 998-5400 ext.87547

C 780.231.5365

NUNA LOGISTICS LIMITED

9839 – 31 Avenue, Edmonton, AB, T6N 1C5

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