DORIS NORTH MINE
INTERIM CLOSURE AND RECLAMATION PLAN
JULY 2015 – DETAILED COST ESTIMATE

HOPE BAY, NUNAVUT

July 2015

REVISION HISTORY

Revision #	Date	Section	Summary of Changes	Author	Approver
0	June 2015	Entire Document	None	TMAC Resources Inc. (Written by SRK)	TMAC Resources Inc.
1	July 2015	Entire Document	Updates to entire document to remove unnecessary activities and tasks.	TMAC Resources Inc. (Written by SRK)	TMAC Resources Inc.

TABLE OF CONTENTS

List of Tables

List of Appendices

1 INTRODUCTION

TMAC Resources Inc. (TMAC) has updated the Interim Closure and Reclamation Plan (the Plan) for the Doris North Mine to reflect the current mine plans (TMAC 2015). SRK was asked to prepare a detailed cost estimate for all closure and post-closure activities related to the Project.

These costs were developed using an Nunavut Water Board (NWB) approved spreadsheet based cost estimating process that is consistent with the principles of RECLAIM version 7.0 (Brodie 2014). A summary of the estimated costs (rounded to the nearest thousand) is provided in Table 1, while the estimating inputs are all included in the appendices.

This document provides the detailed cost estimate as a series of appendices and it should be read in conjunction with the Plan (TMAC 2015).

Table 1: Summary of Costs

Work task	WBS Code	Cost (rounded to the nearest thousand)	
		By task	By work Area
Direct Cost Items			
Roberts Bay			**$751,000**
Jetty	RB-001	$7,000	
Roberts Bay Tank Farm - 20ML	RB-002	$436,000	
Quarry 1 Tank Farm - 5ML	RB-003	$175,000	
Mechanical Shop Complex	RB-004	$59,000	
Waste Management Facility	RB-005	$19,000	
Laydown Area	RB-006	$16,000	
Overburden Dump	RB-007	$15,000	
Roberts Bay Access Road	RB-008	$1,000	
Communications Tower	RB-009	$23,000	
Roberts Bay Outfall (costs assigned under PL-001)	RB-010	$0	
Airstrip			**$12,000**
All Weather Airstrip	AS-001	$4,000	
South Apron	AS-002	$1,000	
North Apron	AS-003	$7,000	
Reagent Pads			**$20,000**
Equipment Laydown Area	RP-001	$4,000	
Materials Laydown Area	RP-002	$7,000	
Ammonium Nitrate Storage Area	RP-003	$6,000	
Exploration Drilling Support Shop	RP-004	$3,000	
Waste Management Area			**$31,000**
Land Farm	WM-001	$29,000	
Batch Plant Pad	WM-002	$1,000	
Burn Pan	WM-003	$1,000	

Quarry 2			**$67,000**
Quarry #2	Q2-001	$0	
Overburden Dump	Q2-002	$66,000	
Treated Sewage Discharge Areas	Q2-003	$1,000	
Doris Camp			**$2,997,000**
Accommodation Complex	DC-001	$221,000	
Tank Farm	DC-002	$382,000	
Permanent Power Generator	DC-003	$48,000	
Backup Power generator	DC-004	$7,000	
Sewage Treatment Plant	DC-005	$25,000	
Fire Water Storage Tank	DC-006	$45,000	
Muster Station	DC-007	$4,000	
Warehouse / Core Shack	DC-008	$13,000	
Offices & Mine Dry Complex	DC-009	$77,000	
Crushing, Milling and Processing Plant	DC-010	$2,032,000	
Underground Wash Bay	DC-011	$10,000	
Underground Drilling Support Shop	DC-012	$11,000	
Water Intake Structure and Pumping Facility	DC-013	$8,000	
Sedimentation/Pollution Control Pond	DC-014	$8,000	
Underground Support Mechanical Shop	DC-015	$39,000	
Fresh Water Pipelines	DC-016	$12,000	
Helicopter Support Facilities	DC-017	$5,000	
Waste Rock Pad	DC-018	$0	
Run-off Diversion Berm	DC-019	$1,000	
Sewage Discharge Line	DC-020	$16,000	
Sedimentation Berm	DC-021	$1,000	
Sumps	DC-022	$7,000	
Expanded Waste Rock Storage (Pad T)	DC-023	$6,000	
Expanded Laydown Area (Pad U)	DC-024	$19,000	
Doris Mountain			**$66,000**
Communications Towers	DM-001	$66,000	
Doris Windy Road			**$260,000**
AWR	DW-001	$259,000	
Quarry A	DW-002	$0	
Quarry B	DW-003	$0	
Quarry D	DW-004	$0	
Explosives Storage Facility	DW-005	$1,000	
Tailings Impoundment Area			**$8,656,000**
North Dam	TIA-001	$515,000	
South Dam	TIA-002	$0	
Interim Dike	TIA-003	$6,000	
Subaerial Tailings Area	TIA-004	$6,381,000	
Shoreline Protection	TIA-005	$1,754,000	

Secondary Road Area			**$289,000**
Secondary Road	SR-001	$156,000	
Tailings Discharge And Reclaim Water Pipelines	SR-002	$98,000	
TIA Access Road (Chainage 0+725)	SR-003	$3,000	
Explosives Facility	SR-004	$32,000	
Quarry 3			**$124,000**
Quarry #3	Q3-001	$0	
Q#3 Access Road	Q3-002	$1,000	
Quarry #3 Landfill	Q3-003	$123,000	
Underground Workings			**$125,000**
Doris North Decline Portal	UG-001	$29,000	
Doris North Vent raise	UG-002	$35,000	
Doris Connector Vent raise	UG-003	$30,000	
Doris Central Vent raise	UG-004	$31,000	
Pipeline Area			**$88,000**
Roberts Bay Discharge System	PL-001	$88,000	
Off-site Shipping for Disposal			**$415,000**
Ship off-site for disposal by barge	DN-001	$338,000	
Shipping warehouse inventory off-site for disposal	DN-002	$77,000	
Off-Site Disposal Fees			**$77,000**
Disposal fees in licensed facility	DF-001	$77,000	
Closure Water Management			**$3,361,000**
Operate and maintain water management system	CM-001	$3,361,000	
TOTAL DIRECT COSTS		**$**	**7,339,000**
Indirect Cost Items			
Contingency		$3,368,000	**$3,368,000**
Mobilization & Demobilization		$1,038,000	**$1,038,000**
General and Administration costs		$1,935,000	**$1,935,000**
Field support		$347,000	**$347,000**
Hydrocarbon decontamination		$150,000	**$150,000**
Post-closure Monitoring		$884,000	**$884,000**
Subtotal Indirect Costs		**$**	**7,722,000**
CLOSURE COSTS - TOTAL		**$**	**25,061,000**

2 REFERENCES

TMAC 2015. TMAC Resources Inc. Doris North Mine Interim Closure and Reclamation Plan June 2015.

Brodie Consulting Ltd., 2014. RECLAIM Version 7.0 User Manual. MS Excel Workbook and User Manual prepared for Aboriginal Affairs and Northern Development Canada – Water Resources Division. March 2014.

Appendix A: Cost Estimate Sheet

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
DIRECT COSTS													
Roberts Bay												**$750,347**	
RB-001	1	1	1	Jetty	Remove rock fill to 0.3 m below LLWL	1,013.8	m3	C.5.05	$1.23	$ 1,244.34	$ 7,276.31		
	1	1	2		Remove on-shore mooring points	1.0	LS		$1,200.00	$ 1,200.00			
	1	1	3		Remove mooring buoy	1.0	LS		$2,500.00	$ 2,500.00			
	1	1	4		Crown jetty for positive drainage	1,900.0	m2	C.5.05	$1.23	$ 2,331.97			
RB-002	1	2	1	Roberts Bay Tank Farm - 20ML	Drain tanks into portable fuel storage (EnviroTanks)	4.0	each	C.2.03	$256.75	$ 1,027.01	$ 435,760.61		
	1	2	2		Decommission fuel transfer facilities	1.0	Each	C.1.03	$1,288.18	$ 1,288.18			
	1	2	3		Wash tanks	4.0	each	C.2.04	$1,123.28	$ 4,493.14			
	1	2	4		Operate oil/water separator	4.5	m3	C.2.08	$31.00	$ 139.28			
	1	2	5		Disconnect piping and controls	4.0	each	C.1.02	$448.37	$ 1,793.49			
	1	2	6		Dismantle tanks and cut into manageable pieces	4.0	each	LS	$100,000.00	$ 400,000.00			assumed 20% of cost of building each tank
	1	2	7		Load pieces for transportation	45.5	m3	C.4.01	$10.23	$ 465.08			
	1	2	8		Haul cut metal to Landfill	51.4	m3	C.4.15	$5.99	$ 308.12			
	1	2	9		Remove and stockpile liner protection cover	5,455.0	m3	C.5.04	$2.75	$ 14,994.13			
	1	2	10		load contained contaminated soils into megabags for shipping off-site	50.0	m3	C.4.12	$70.75	$ 3,537.45			Estimated Volume
	1	2	11		haul contaminated material to Roberts Bay laydown	56.8	m3	C.4.04	$2.52	$ 143.10			
	1	2	12		Clean liner	10,300.0	m2	C.2.10	$0.39	$ 4,017.30			
	1	2	13		Remove and cut liner into manageable pieces	10,300.0	m2	C.3.02	$0.16	$ 1,652.84			
	1	2	14		Load Debris into Waste Trucks	92.7	m3	C.4.01	$10.23	$ 948.13			
	1	2	15		Haul containers to Quarry 3 Landfill	92.7	m3	C.4.15	$5.99	$ 555.58			
	1	2	16		Level containment berms	231.3	m2	C.5.05	$1.23	$ 283.86			
	1	2	17		Regrade area for positive drainage	11,530.0	m2	C.5.18	$0.01	$ 113.91			
RB-003	1	3	1	Quarry 1 Tank Farm - 5ML	Drain tanks into portable fuel storage (EnviroTanks)	2.0	each	C.2.03	$256.75	$ 513.50	$ 175,022.84		
	1	3	2		Decommission fuel transfer facilities	1.0	each	C.1.02	$448.37	$ 448.37			
	1	3	3		Wash tanks	2.0	each	C.2.04	$1,123.28	$ 2,246.57			
	1	3	4		Operate oil/water separator	2.2	m3	C.2.08	$31.00	$ 69.64			
	1	3	5		Disconnect piping and controls	2.0	each	C.1.02	$448.37	$ 896.74			
	1	3	6		Dismantle 5ML diesel fuel tank and cut into manageable pieces	1.0	each	LS	$100,000.00	$ 100,000.00			assumed 20% of cost of building the tank
	1	3	7		Dismantle 1ML jet fuel tank and cut into manageable pieces	1.0	each	LS	$50,000.00	$ 50,000.00			assumed 20% of cost of building the tank
	1	3	8		Prepare pieces for transportation	20.0	m3	C.4.01	$10.23	$ 204.27			
	1	3	9		Haul cut metal to Landfill	20.0	m3	C.4.15	$5.99	$ 119.70			
	1	3	10		Remove and stockpile liner protection cover	2,190.0	m3	C.5.04	$2.75	$ 6,019.64			
	1	3	11		load contained contaminated soils into megabags for shipping off-site	50.0	m3	C.4.12	$70.75	$ 3,537.45			Estimated Volume
	1	3	12		haul megabags to Roberts Bay laydown	53.4	m3	C.4.04	$2.52	$ 134.53			
	1	3	13		Clean liner	6,521.0	m2	C.2.10	$0.39	$ 2,543.38			
	1	3	14		Remove and cut liner into manageable pieces	6,521.0	m2	C.3.02	$0.16	$ 1,046.42			
	1	3	15		Drain and wash empty fuel drums	150.0	each	C.2.05	$17.74	$ 2,661.01			
	1	3	16		Crush empty fuel drums	150.0	each	C.3.01	$20.64	$ 3,095.96			
	1	3	17		Load debris for transport to landfill	68.2	m3	C.4.01	$10.23	$ 697.87			
	1	3	18		Haul waste to Landfill	68.2	m3	C.4.15	$5.99	$ 408.93			
	1	3	19		Level containment berms	279.3	m2	C.5.05	$1.23	$ 342.78			
	1	3	20		Regrade area for positive drainage	3,650.0	m2	C.5.18	$0.01	$ 36.06			
RB-004	1	4	1	Mechanical Shop Complex	Decommission electrical, mechanical, heating (including connections to generator house & transformer)	7.0	each	C.1.05	$639.99	$ 4,479.94	$ 59,234.81		
	1	4	2		Demolish (steel modular structure)	2,402.4	m3	C.3.05	$12.90	$ 30,982.54			
	1	4	3		Demolish wood structures (warehouse roof, crew lounge)	283.2	m3	C.3.05	$12.90	$ 3,652.23			
	1	4	4		Demolish tent structure (light vehicle shop)	460.3	m3	C.3.05	$12.90	$ 5,936.23			
	1	4	5		Collect Debris	685.8	m2	C.3.10	$0.17	$ 118.79			
	1	4	6		Load debris for transport to landfill	867.1	m3	C.4.01	$10.23	$ 8,868.41			
	1	4	7		Haul debris to Landfill	867.1	m3	C.4.15	$5.99	$ 5,196.67			
RB-005	1	5	1	Waste Management Facility	Collect ashes and place in containers	0.5	m3	C.2.07	$747.69	$ 373.85	$ 19,410.08		
	1	5	2		Dismantle (welding crew)	2.0	each	C.3.08	$511.00	$ 1,022.00			
	1	5	3		Demolish wood structures (roof, entryway, etc.)	76.2	m3	C.3.05	$12.90	$ 983.29			
	1	5	4		Disconnect containers and prep for shipping off-site	11.0	each	C.1.08	$1,321.37	$ 14,535.06			
	1	5	5		Collect all debris	128.7	m2	C.3.10	$0.17	$ 22.28			
	1	5	6		Load debris for transport to landfill	152.5	m3	C.4.01	$10.23	$ 1,559.67			
	1	5	7		Haul debris to Landfill	152.5	m3	C.4.15	$5.99	$ 913.93			
RB-006	1	6	1	Laydown Area	Decommission vehicle plug system	1.0	each	C.1.05	$639.99	$ 639.99	$ 15,778.06		
	1	6	2		Remove cables and posts	8.0	each	C.3.14	$403.25	$ 3,225.96			Estimated # of posts
	1	6	3		Collect all debris	24,491.6	m2	C.3.10	$0.17	$ 4,242.05			
	1	6	4		Load debris for transport to landfill	10.0	m3	C.4.01	$10.23	$ 102.28			
	1	6	5		Haul debris to Landfill	10.0	m3	C.4.15	$5.99	$ 59.93			
	1	6	6		Regrade area for positive drainage	24,491.6	m2	C.5.18	$0.01	$ 241.97			
	1	6	7	Laydown Area Expansion	Collect all debris	38,800.0	m2	C.3.10	$0.17	$ 6,720.33			
	1	6	8		Load waste into containers for shipping off-site	10.0	m3	C.4.01	$10.23	$ 102.28			
	1	6	9		Haul debris to Landfill	10.0	m3	C.4.15	$5.99	$ 59.93			
	1	6	10		Regrade area for positive drainage	38,800.0	m2	C.5.18	$0.01	$ 383.33			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
RB-007	1	7	1	Overburden Dump	Collect all debris	10,448.0	m2	C.3.10	$0.17	$ 1,809.64	$ 15,259.14		
	1	7	2		Load waste into containers for shipping off-site	10.0	m3	C.4.01	$10.23	$ 102.28			
	1	7	3		Haul debris to Landfill	10.0	m3	C.4.15	$5.99	$ 59.93			
	1	7	4		Grade for positive drainage	10,448.0	m2	C.5.05	$1.23	$ 12,823.35			
	1	7	5		Breach the berm to original ground in several locations (4 locations) to restore natural flow path	378.0	m^2	C.5.05	$1.23	$ 463.94			
RB-008	1	8	1	Roberts Bay Access Road	Crown road for positive drainage	3,378.0	m2	C.5.18	$0.01	$ 33.37	$ 33.37		
RB-009	1	9	1	Communications Tower	Decommission Tower	1.0	Each	C.1.05	$639.99	$ 639.99	$ 22,572.11		
	1	9	2		Remove communication equipment	4.0	each	C.1.07	$352.56	$ 1,410.25			
	1	9	3		Dismantle towers	1.0	each	C.3.11	$15,417.42	$ 15,417.42			
	1	9	4		Prep tower sections for shipping off-site	8.0	m	C.3.12	$619.32	$ 4,954.53			
	1	9	5		Collect all debris	1.4	m2	C.3.10	$0.17	$ 0.25			
	1	9	6		Load waste into containers for shipping off-site	10.5	m3	C.4.01	$10.23	$ 107.74			
	1	9	7		Haul hazardous waste to Roberts Bay	5.0	m3	C.4.11	$1.75	$ 8.77			
	1	9	8		Haul debris to Landfill	5.5	m3	C.4.15	$5.99	$ 33.16			
RB-010	1	10	1	All costs assigned under WBS Code PL-001	see lines 423-427								
Airstrip		1										**$11,782**	
AS-001	2	1	1	All Weather Airstrip	Decomission Airstrip	2.0	Each	C.1.09	$306.75	$ 613.50	$ 4,340.55		
	2	1	2		Remove lighting fixtures (airstrip lighting, approach lights)	70.0	each	C.1.10	$40.00	$ 2,799.96			
	2	1	3		collect all debris	2,850.0	m2	C.3.10	$0.17	$ 493.63			1.5 m width
	2	1	4		load waste for transport to landfill	1.2	m^3	C.4.01	$10.23	$ 12.15			
	2	1	5		Haul debris to Landfill	1.2	m^3	C.4.16	$5.36	$ 6.36			
	2	1	6		crown airstrip and airstrip expansion for positive drainage	42,000.0	m2	C.5.18	$0.01	$ 414.94			regrade the expansion part only
AS-002	2	2	1	South Apron	crown for positive drainage	5,517.2	m2	C.5.18	$0.01	$ 54.51	$ 54.51		
AS-003	2	3	1	North Apron	Decommission electrical, and heating from traffic control tower	1.0	each	C.1.07	$352.56	$ 352.56	$ 7,386.69		
	2	3	2		demolish control tower structure (wood shack)	11.7	m3	C.3.05	$12.90	$ 151.14			
	2	3	3		disconnect containers and prep for shipping off-site	5.0	each	C.1.08	$1,321.37	$ 6,606.84			
	2	3	4		collect all debris	12.2	m2	C.3.10	$0.17	$ 2.11			
	2	3	5		load waste for transport to landfill	17.6	m3	C.4.01	$10.23	$ 179.81			
	2	3	6		haul debris to landfill	17.6	m3	C.4.16	$5.36	$ 94.22			
Reagent Pads												**$20,421**	
RP-001	3	1	1	Equipment Laydown Area	collect all debris	21,870.0	m2	C.3.10	$0.17	$ 3,787.98	$ 4,313.20		
	3	1	2		load waste for transport to landfill	20.0	m3	C.4.01	$10.23	$ 204.56			Assumed hazardous waste
	3	1	3		regrade area for positive drainage	21,870.0	m2	C.5.18	$0.01	$ 216.07			
	3	1	4		haul waste to Landfill	20.0	m3	C.4.17	$5.23	$ 104.60			
RP-002	3	2	1	Materials Laydown Area	collect all debris	33,839.8	m2	C.3.10	$0.17	$ 5,861.20	$ 6,504.68		
	3	2	2		load waste to ship to Landfill	20.0	m3	C.4.01	$10.23	$ 204.56			
	3	2	3		regrade area for positive drainage	33,839.8	m^2	C.5.18	$0.01	$ 334.32			
	3	2	4		haul waste to Landfill	20.0	m3	C.4.17	$5.23	$ 104.60			
RP-003	3	3	1	Ammonium Nitrate Storage Area	remove and stockpile liner protection cover	1,504.6	m3	C.5.04	$2.75	$ 4,135.74	$ 6,143.70		
	3	3	2		clean liner	2,800.0	m^2	C.2.10	$0.39	$ 1,092.08			
	3	3	3		remove and cut liner into manageable pieces	2,800.0	m^2	C.3.02	$0.16	$ 449.32			
	3	3	4		load waste for transport to landfill	25.2	m3	C.4.01	$10.23	$ 257.74			
	3	3	5		Haul waste to Landfill	25.2	m3	C.4.17	$5.23	$ 131.80			
	3	3	6		level containment berms	31.7	m^2	C.5.05	$1.23	$ 38.91			
	3	3	7		regrade area for positive drainage	3,858.0	m^2	C.5.18	$0.01	$ 38.12			
RP-004	3	4	1	Exploration Drilling Support Shop	Decommission electrical, mechanical, heating	2.0	each	C.1.05	$639.99	$ 1,279.98	$ 3,459.29		
	3	4	2		demolish building (tent structure)	149.6	m3	C.3.05	$12.90	$ 1,929.52			
	3	4	3		collect all debris	335.2	m^2	C.3.10	$0.17	$ 58.06			
	3	4	4		load waste for transport to landfill	12.4	m3	C.4.01	$10.23	$ 126.85			
	3	4	5		haul waste to Landfill	12.4	m3	C.4.17	$5.23	$ 64.87			
Waste Management Area												**$29,700**	
WM-001	4	1	1	Land Farm	load contained contaminated soils into megabags for shipping off-site	100.0	m3	C.4.12	$70.75	$ 7,074.89	$ 28,926.83		Assumes 1/3 of overliner is contaminated
	4	1	2		haul megabags to Roberts Bay laydown	100.0	m3	C.4.04	$2.52	$ 251.91			
	4	1	3		treat contained water and discharge	1.0	LS	-	$5,000.00	$ 5,000.00			According to Iozsef's estimate
	4	1	4		remove and stockpile liner protection cover	2,591.0	m3	C.5.04	$2.75	$ 7,121.87			
	4	1	5		clean liner	4,384.0	m^2	C.2.10	$0.39	$ 1,709.89			
	4	1	6		remove and cut liner into manageable pieces	13,152.0	m^2	C.3.02	$0.16	$ 2,110.50			liner and geotextile
	4	1	7		load waste for transport to landfill	118.4	m3	C.4.01	$10.23	$ 1,210.66			Does not include the liner protection cover
	4	1	8		Haul Material to Landfill	118.4	m3	C.4.14	$4.70	$ 556.29			
	4	1	9		level containment berms	3,134.8	m^2	C.5.05	$1.23	$ 3,847.50			
	4	1	10		regrade area for positive drainage	4,384.0	m^2	C.5.18	$0.01	$ 43.31			
WM-002	4	1	11	Batch Plant Pad	collect all debris	740.3	m^2	C.3.10	$0.17	$ 128.23	$ 180.33		
	4	1	12		load waste for transport to landfill	3.0	m3	C.4.01	$10.23	$ 30.68			
	4	1	13		haul waste to Landfill	3.0	m3	C.4.14	$4.70	$ 14.10			
	4	1	14		regrade area for positive drainage	740.3	m^2	C.5.18	$0.01	$ 7.31			
WM-003	4	2	1	Burn Pan	Collect ashes and place in containers	0.1	m3	C.2.07	$747.69	$ 74.77	$ 592.87		
	4	2	2		Dismantle (welding crew)	1.0		C.3.08	$511.00	$ 511.00			
	4	2	3		load waste into containers for shipping off-site	0.2	m3	C.4.01	$10.23	$ 2.52			
	4	2	4		haul containers to Roberts Bay laydown	0.2	m3	C.4.04	$2.52	$ 0.62			
	4	2	5		regrade area for positive drainage	400.0	m^2	C.5.18	$0.01	$ 3.95			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
Quarry 2												**$67,365**	
Q2-001				Quarry #2	No activity required								
Q2-002	5	1	1	Overburden Dump	reslope to 3H:1V	8,781.3	m3	C.5.06	$3.27	$ 28,740.72	$ 65,980.15		assumed 30% of entire footprint
	5	1	2		grade top for positive drainage	18,440.8	m^2	C.5.05	$1.23	$ 22,633.32			assumed 60% of entire footprint
	5	1	3		install erosion protection measures (coconut matting)	2,634.4	m^2	C.5.08	$4.79	$ 12,606.11			asumed 10% of entire surface area
	5	1	4		Remove Culvert	1.0	LS		$2,000.00	$ 2,000.00			
Q2-003	5	2	1	Treated Sewage Discharge Areas	Fill in low-lying areas (assumed sourced within 0.5km)	69.1	m3	C.5.02	$16.35	$ 1,130.38	$ 1,384.82		
	5	2	2		erosion protection: Supply and place cocoa matting	53.2	m^2	C.5.08	$4.79	$ 254.44			
Doris Camp												**$2,996,539**	
DC-001	6	1	1	Accommodation Complex	Decommision (electrical, mechanical, plumbing)	103.0	each	C.1.05	$639.99	$ 65,919.17	$ 221,319.11		
	6	1	2		disconnect trailers and prep for moving (remove boards/piping, etc.; wrap in plastic)	83.0	each	C.1.08	$1,321.37	$ 109,673.61			additional 18 trailers to expand camp to 260 person
	6	1	3		haul trailers to Roberts Bay for shipping off-site	2,755.6	m3	C.4.04	$2.52	$ 6,941.73			
	6	1	4		demolish cabins	319.1	m3	C.3.05	$12.90	$ 4,114.90			
	6	1	5		demolish cribbing, stairs, entryways, etc.	250.3	m3	C.3.05	$12.90	$ 3,228.13			smoke tent, hallway, and storage room
	6	1	6		demolish arctic corridor	132.5	m3	C.3.05	$12.90	$ 1,708.76			
	6	1	7		collect all debris	380.9	m2	C.3.10	$0.17	$ 65.97			
	6	1	8		load waste for transport to Landfill	623.1	m3	C.4.01	$10.23	$ 6,373.07			
	6	1	9		Haul waste to Landfill	623.1	m3	C.4.14	$4.70	$ 2,928.41			
	6	1	10		regrade area for positive drainage	21,050.0	m^2	C.5.18	$0.01	$ 207.96			Pad X
	6	1	11		regrade pad transitions to blend in with topography	15200	m^2	C.5.05	$1.23	$ 18,655.72			
	6	1	12		regrade surface to prevent ponding	152000	m^2	C.5.18	$0.01	$ 1,501.69			Doris N. not including Pad T or ponds
DC-002	6	2	1	Tank Farm	Drain tanks into portable fuel storage (EnviroTanks)	5.0	each	C.2.03	$256.75	$ 1,283.76	$ 381,790.83		
	6	2	2		Decommision Fuel Transfer Fascilities	5.0	each	C.1.02	$448.37	$ 2,241.86			
	6	2	3		Wash tanks	5.0	each	C.2.04	$1,123.28	$ 5,616.42			
	6	2	4		Operate oil/water separator	7.9	m3	C.2.08	$31.00	$ 244.56			Assumed Volume of Oil recovered
	6	2	5		Disconnect piping and controls	5.0	each	C.1.02	$448.37	$ 2,241.86			
	6	2	6		Dismantle tanks and cut into manageable pieces	7.0	each	LS	$50,000.00	$ 350,000.00			assumed cost proportional to 5 ML tanks
	6	2	7		prepare pieces for transportation	22.8	m3	C.4.01	$10.23	$ 232.90			
	6	2	8		haul cut metal to landfill	22.8	m3	C.4.14	$4.70	$ 107.02			
	6	2	9		remove and stockpile liner protection cover	3,360.0	m3	C.5.04	$2.75	$ 9,235.62			
	6	2	10		load contained contaminated soils into megabags for shipping off-site	50.0	m3	C.4.12	$70.75	$ 3,537.45			Assume 50m3 of overliner is contaminated
	6	2	11		haul contaminated material to Roberts Bay laydown	62.0	m3	C.4.04	$2.52	$ 156.07			
	6	2	12		clean liner	5,500.0	m2	C.2.10	$0.39	$ 2,145.16			
	6	2	13		remove and cut geosynthetics into manageable pieces	5,500.0	m2	C.3.02	$0.16	$ 882.58			liner and geotextile
	6	2	14		load waste into containers for transport to landfill	176.6	m3	C.4.01	$10.23	$ 1,806.23			Liners, geotextile and pipes
	6	2	15		haul waste to landfill	176.6	m3	C.4.14	$4.70	$ 829.96			
	6	2	16		level containment berms	962.0	m^2	C.5.05	$1.23	$ 1,180.71			
	6	2	17		regrade area for positive drainage	4,927.7	m^2	C.5.18	$0.01	$ 48.68			
DC-003	6	3	1	Permanent Power Generator	Decommission (electrical)	8.0	each	C.1.06	$754.18	$ 6,033.41	$ 47,993.40		
	6	3	2		Disconnect containers and prep for shipping off-site	8.0	each	C.1.08	$1,321.37	$ 10,570.95			
	6	3	3		haul containers to Roberts Bay laydown	265.6	m3	C.4.04	$2.52	$ 669.08			
	6	3	4		dismantle stacks	40.0	m	C.3.13	$128.38	$ 5,135.04			2, 20m stacks: two in each container 2m high = 5 containers
	6	3	5		prep stacks for shipping off-site	40.0	m	C.3.12	$619.32	$ 24,772.64			
	6	3	6		haul stack sections to Roberts Bay laydown	166.0	m3	C.4.04	$2.52	$ 418.18			
	6	3	7		collect all debris	2,103.0	m2	C.3.10	$0.17	$ 364.25			
	6	3	8		load waste for shipping to landfill	2.0	m3	C.4.01	$10.23	$ 20.46			
	6	3	9		haul waste to landfill	2.0	m3	C.4.14	$4.70	$ 9.40			
DC-004	6	4	1	Backup Power generator	Decommission (electrical)	4.0	each	C.1.05	$639.99	$ 2,559.97	$ 7,323.91		
	6	4	2		Disconnect generator units and prep for shipping off-site	2.0	each	C.1.06	$754.18	$ 1,508.35			
	6	4	3		haul units to Roberts Bay laydown	67.6	m3	C.4.04	$2.52	$ 170.29			
	6	4	4		demolish tent housing structure	94.1	m3	C.3.05	$12.90	$ 1,213.84			
	6	4	5		collect all debris	259.3	m^2	C.3.10	$0.17	$ 44.92			
	6	4	6		load waste for shipping to landfill	122.4	m3	C.4.01	$10.23	$ 1,251.49			
	6	4	7		haul waste to landfill	122.4	m3	C.4.14	$4.70	$ 575.05			
DC-005	6	5	1	Sewage Treatment Plant	Flush and remove sewage plumbing, collect sewage sludge/waste water in 55 gallon drums	9.0	each	C.2.06	$657.86	$ 5,920.78	$ 25,438.87		
	6	5	2		Decommission (electrical)	9.0	each	C.1.05	$639.99	$ 5,759.93			
	6	5	3		Disconnect containers and prep for shipping off-site	9.0	each	C.1.08	$1,321.37	$ 11,892.32			40 ' containers
	6	5	4		haul containers to Roberts Bay laydown	597.6	m3	C.4.04	$2.52	$ 1,505.43			
	6	5	5		Collect Debris	29.8	m^2	C.3.10	$0.17	$ 5.17			
	6	5	6		Load debris into containers for transport (to Roberts Bay)	23.8	m3	C.4.01	$10.23	$ 243.40			
	6	5	7		Haul debris to Roberts Bay	23.8	m3	C.4.14	$4.70	$ 111.84			
DC-006	6	6	1	Fire Water Storage Tank	decommission and disconnect electrical and plumbing	3.0	each	C.1.03	$1,288.18	$ 3,864.54	$ 44,709.02		
	6	6	2		disconnect and remove container housing the pumps and controls, and prep for shipping	1.0	each	C.1.08	$1,321.37	$ 1,321.37			
	6	6	3		haul container to Roberts Bay laydown	33.2	m3	C.4.04	$2.52	$ 83.64			
	6	6	4		remove tank insulation	53.0	m3	C.3.15	$720.03	$ 38,145.73			
	6	6	5		Dismantle tanks and cut into manageable pieces (includes water tank for Boston)	2.9	m3	C.3.07	$265.78	$ 781.42			
	6	6	6		prepare pieces for transportation (includes water tank for Boston)	4.4	m3	C.4.01	$10.23	$ 45.11			
	6	6	7		haul cut metal to Roberts Bay laydown (includes water tank for Boston)	4.4	m3	C.4.04	$2.52	$ 11.11			
	6	6	8		Collect Debris	73.2	m^2	C.3.10	$0.17	$ 12.67			
	6	6	9		Load debris for transport Landfill	29.7	m3	C.4.01	$10.23	$ 303.82			
	6	6	10		Haul debris to landfill	29.7	m3	C.4.14	$4.70	$ 139.60			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
DC-007	6	7	1	Muster Station	demolish tent structure	227.3	m3	C.3.05	$12.90	$ 2,931.38	$ 3,936.74		
	6	7	2		dismantle wood flooring	27.3	m3	C.3.05	$12.90	$ 351.77			
	6	7	3		Collect Debris	90.9	m^2	C.3.10	$0.17	$ 15.75			
	6	7	4		Load debris for transport to landfill	42.7	m3	C.4.01	$10.23	$ 437.03			
	6	7	5		Haul Debris to landfill	42.7	m3	C.4.14	$4.70	$ 200.81			
DC-008	6	8	1	Warehouse / Core Shack	demolish tent structure	269.5	m3	C.3.05	$12.90	$ 3,475.20	$ 13,237.93		
	6	8	2		dismantle wood flooring, shelving, and lofts	186.2	m3	C.3.05	$12.90	$ 2,401.40			
	6	8	3		Collect Debris	720.1	m^2	C.3.10	$0.17	$ 124.72			
	6	8	4		Load debris for transport to landfill	350.3	m3	C.4.01	$10.23	$ 3,582.99			
	6	8	5		Haul debris to landfill	350.3	m3	C.4.14	$4.70	$ 1,646.37			
	6	8	6		haul all warehouse containers to Roberts Bay	796.8	m3	C.4.04	$2.52	$ 2,007.25			
DC-009	6	9	1	Offices & Mine Dry Complex	Decommission (electrical, mechanical, plumbing)	3.0	each	C.1.05	$639.99	$ 1,919.98	$ 76,635.33		
	6	9	2		disconnect trailers and prep for moving (remove boards, cladding, etc.; wrap in plastic)	17.0	each	C.1.08	$1,321.37	$ 22,463.27			
	6	9	3		haul trailers to Roberts Bay for shipping off-site	564.4	m3	C.4.04	$2.52	$ 1,421.80			
	6	9	4		demolish arctic corridor	219.5	m3	C.3.05	$12.90	$ 2,830.43			
	6	9	5		demolish cribbing, stairs, entryways, etc.	998.2	m3	C.3.05	$12.90	$ 12,872.93			Demolish Office Builidng, Minedry, and Admin Builidng
	6	9	6		collect all debris	1,981.2	m^2	C.3.10	$0.17	$ 343.15			
	6	9	7		Load debris for transport to landfill	2,325.6	m3	C.4.01	$10.23	$ 23,785.94			
	6	9	8		haul debris to landfill	2,325.6	m3	C.4.14	$4.70	$ 10,929.57			
	6	9	9		regrade area for positive drainage	6,910.0	m^2	C.5.18	$0.01	$ 68.27			
DC-010	6	10	1	Crushing, Milling and Processing Plant	decommission crusher, milling, and process plants	1	each	LS	$100,000.00	$ 100,000.00	$ 2,031,689.77		
	6	10	2		Drain chemicals and reagents into containers for shipping off site	8.3	m3	C.2.01	$2,628.20	$ 21,866.66			
	6	10	3		disassemble equipment	1	each	LS	$200,000.00	$ 200,000.00			
	6	10	4		prepare equipment for shipping off-site	1	each	LS	$50,000.00	$ 50,000.00			
	6	10	5		demolish / dismantle mill building	123515	m3	C.3.05	$12.90	$ 1,592,885.46			
	6	10	6		Collect Debris	8700	m^2	C.3.10	$0.17	$ 1,506.88			
	6	10	7		load waste for transport to Landfill	4381.80	m^3	C.4.01	$10.23	$ 44,816.69			
	6	10	8		Haul debris to landfill	4381.80	m^3	C.4.14	$4.70	$ 20,593.13			
	6	10	9		transport drums to Roberts Bay	8.3	m^3	C.4.04	$2.52	$ 20.96			
DC-011	6	11	1	Underground Wash Bay	demolish tent structure	776.9	m3	C.3.05	$12.90	$ 10,018.88	$ 10,277.03		
	6	11	2		Collect Debris	155.4	m^2	C.3.10	$0.17	$ 26.91			
	6	11	3		Load debris for transport to landfill	15.5	m3	C.4.01	$10.23	$ 158.44			
	6	11	4		Haul debris to landfill	15.5	m3	C.4.14	$4.70	$ 72.80			
DC-012	6	12	1	Underground Drilling Support Shop	demolish tent structure	859.2	m3	C.3.05	$12.90	$ 11,080.03	$ 11,383.22		
	6	12	2		Collect Debris	229.1	m^2	C.3.10	$0.17	$ 39.68			
	6	12	3		Load debris for transport to landfill	17.7	m3	C.4.01	$10.23	$ 180.55			
	6	12	4		Haul debris to landfill	17.7	m3	C.4.14	$4.70	$ 82.96			
DC-013	6	13	1	Water Intake Structure and Pumping Facility	remove water intake line from Doris Lake	25.0	lm	C.3.03	$11.13	$ 278.14	$ 7,817.88		
	6	13	2		decommission pumping facility (remove electrical)	2.0	each	C.1.03	$1,288.18	$ 2,576.36			
	6	13	3		prep containers for shipping off-site	2.0	each	C.1.08	$1,321.37	$ 2,642.74			
	6	13	4		disconnect and remove generator fuel tank (place in Doris tank farm for cleaning)	1.0	each	C.1.01	$93.46	$ 93.46			
	6	13	5		clean TidyTank and prep for shipping off-site	1.0	each	C.2.02	$23.40	$ 23.40			Assumed there is only one tank
	6	13	6		run oil-water separator	1.0	each	C.2.08	$31.00	$ 31.00			
	6	13	7		prep generator container for shipping off-site	1.0	each	C.1.08	$1,321.37	$ 1,321.37			
	6	13	8		haul containers to Roberts Bay laydown	66.4	m3	C.4.04	$2.52	$ 167.27			
	6	13	9		Collect Debris	2,226.2	m^2	C.3.10	$0.17	$ 385.58			
	6	13	10		Load debris for transport to landfill	20.0	m3	C.4.01	$10.23	$ 204.56			
	6	13	11		Haul debris to landfill	20.0	m3	C.4.14	$4.70	$ 93.99			
DC-014	6	14	1	Sedimentation/Pollution Control Pond	disconnect piping and electrical wiring, remove sump pumps	2.0	each	C.1.05	$639.99	$ 1,279.98	$ 7,715.78		
	6	14	2		remove and cut liner into manageable pieces (Sedimentation Pond only)	14,110.0	m^2	C.3.02	$0.16	$ 2,264.23			Liner+Geotextile
	6	14	3		load waste for transport to Landfill	42.3	m3	C.4.01	$10.23	$ 432.95			Liner+Geotextile
	6	14	4		Haul Debris to landfill	42.3	m3	C.4.14	$4.70	$ 198.94			
	6	14	5		breach Pollution Control pond and Sedimentation Pond containment berms	2,608.2	m^2	C.5.05	$1.23	$ 3,201.17			
	6	14	6		rip-rap breach for erosion protection	13.8	m3	C.5.03	$24.53	$ 338.50			
DC-015	6	15	1	Underground Support Mechanical Shop	Decommission electrical, mechanical (including connections to generator house & transformer)	3.0	each	C.1.05	$639.99	$ 1,919.98	$ 39,377.18		
	6	15	2		demolish building	2,281.6	m3	C.3.05	$12.90	$ 29,423.61			
	6	15	3		Collect Debris	456.3	m^2	C.3.10	$0.17	$ 79.04			
	6	15	4		load waste for transport to Landfill	504.5	m3	C.4.01	$10.23	$ 5,160.24			
	6	15	5		haul debris to landfill	504.5	m3	C.4.14	$4.70	$ 2,371.12			
	6	15	6		Load hazardous waste into container for transport off site	33.2	m3	C.4.01	$10.23	$ 339.57			
	6	15	7		Haul Waste container to Roberts Bay	33.2	m3	C.4.04	$2.52	$ 83.64			
DC-016	6	16	1	Fresh Water Pipelines	Cut pipelines into manageable pieces	830.0	lm	C.3.03	$11.13	$ 9,234.31	$ 12,491.78		
	6	16	2		decommission electrical (heat tracing)	4.0	each	C.1.05	$639.99	$ 2,559.97			
	6	16	3		collect electrical cables and controllers and prep for shipping off-site	1,600.0	m^2	C.3.10	$0.17	$ 277.13			
	6	16	4		Load debris for transport to landfill	28.2	m3	C.4.01	$10.23	$ 288.03			
	6	16	5		haul debris to landfill	28.2	m3	C.4.14	$4.70	$ 132.35			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
DC-017	6	17	1	Helicopter Support Facilities	dismantle helicopter pads and walkway	15.0	m3	C.3.06	$4.13	$ 61.98	$ 5,018.12		
	6	17	2		demolish helishack	27.9	m^3	C.3.05	$12.90	$ 360.24			Heli Office
	6	17	3		demolish washcar and other facilities	81.8	m^3	C.3.05	$12.90	$ 1,054.44			
	6	17	4		Collect Debris	154.2	m^2	C.3.10	$0.17	$ 26.71			
	6	17	5		Load debris for transport to landfill	234.4	m^3	C.4.01	$10.23	$ 2,397.48			
	6	17	6		Haul debris to landfill	234.4	m^3	C.4.14	$4.70	$ 1,101.63			
	6	17	7		Regrade surface for positive drainage	1,582.4	m^2	C.5.18	$0.01	$ 15.63			
DC-018	6	19	1	Waste Rock Pad		11,500.0	m^2	C.5.18	$0.01	$ 113.61	$ 113.61		No waste rock left on surface
DC-019	6	20	1	Run-off Diversion Berm	Breach the berm to original ground in several locations (4 locations) to restore natural flow path	378.0	m^2	C.5.05	$1.23	$ 463.94	$ 468.45		
	6	20	2		Remove cut liners and load for transport to landfill	0.3	m3	C.4.01	$10.23	$ 3.09			
	6	20	3		Haul debris to landfill	0.3	m^3	C.4.14	$4.70	$ 1.42			
DC-020	6	21	1	Sewage Discharge Line	Flush pipeline prior to decommissioning	1.0	Each	C.2.06	$657.86	$ 657.86	$ 15,893.51		Revised - Leave in place through closure
	6	21	2		Cut pipelines into manageable pieces and place in containers for shipping off-site	1,190.0	m	C.3.03	$11.13	$ 13,239.55			
	6	21	3		Remove electrical cables and controllers	1.0	each	C.1.05	$639.99	$ 639.99			
	6	21	4		Load debris into containers for shipping off-site	90.8	m^3	C.4.01	$10.23	$ 929.16			
	6	21	5		Haul debris to landfill	90.8	m^3	C.4.14	$4.70	$ 426.95			
DC-021	6	22	1	Sedimentation Berm	Breach the berm to restore a free drainage path	24.0	m^2	C.5.05	$1.23	$ 29.46	$ 117.76		
	6	22	2		rip-rap breach for erosion protection	3.6	m^3	C.5.03	$24.53	$ 88.31			
DC-022	6	23	1	Sumps	decommision sumps	2.0	each	C.1.05	$639.99	$ 1,279.98	$ 6,742.35		
	6	23	2		remove pumps, pipes, cables, culverts	2.0	LS		$2,500.00	$ 5,000.00			
	6	23	3		backfill sump excavation	28.3	m^3	C.5.02	$16.35	$ 462.37			
DC-023	6	24	1	Expanded Waste Rock Storage (Pad T)	Regrade Stockpile	50,400.0	m2	C.5.20	$0.12	$ 6,185.84	$ 6,335.12		
	6	24	2		Load waste for transport to landfill	10.0	m3	C.4.01	$10.23	$ 102.28			
	6	24	3		Haul debris to landfill	10.0	m3	C.4.14	$4.70	$ 47.00			
DC-024	6	25	1	Expanded Laydown Area (Pad U)	remove pumps, pipes, cables, culverts	1	LS	--	$2,000.00	$ 2,000.00	$ 18,712.30		
	6	25	2		breach Sedimentation Pond containment berms	120.0	m^3	C.5.04	$2.75	$ 329.84			
	6	25	3		Collect all debris	35,200.0	m2	C.3.10	$0.17	$ 6,096.80			
	6	25	4		LHD remaining ore to TIA	1,760.0	m3	C.4.20	$5.76	$ 10,136.38			
	6	25	5		load waste into containers for shipping off-site	10.0	m3	C.4.01	$10.23	$ 102.28			
	6	25	6		haul containers to landfill	10.0	m3	C.4.14	$4.70	$ 47.00			
Doris Mountain												**$65,522**	
DM-001	7	1	1	Communications Towers	Remove communications equipment	12.0	each	C.1.07	$352.56	$ 4,230.74	$ 65,522.10		
	7	1	2		Dismantle the communications towers and prepare for shipping off-site	2.0	each	C.3.11	$15,417.42	$ 30,834.85			
	7	1	3		Demolish equipment housing shack	9.0	m^3	C.3.05	$12.90	$ 115.71			
	7	1	4		Remove electrical and fiber optics cables	12.0	each	C.1.05	$639.99	$ 7,679.90			
	7	1	5		Remove all equipment, material, and waste from Doris Mountain,	9.0	m3	C.3.17	$2,501.40	$ 22,443.33			
	7	1	6		load waste into trucks for transport to landfill	9.0	m^3	C.4.01	$10.23	$ 91.77			
	7	1	7		Transport Waste to Landfill	9.0	m^3	C.4.14	$4.70	$ 42.17			
	7	1	8		Transport Communications tower equipment to Roberts Bay	33.2	m^3	C.4.04	$2.52	$ 83.64			
Doris Windy Road		2										**$259,353**	
DW-001	8	1	1	AWR	Remove bridges	3.0	each	LS	$50,000.00	$ 150,000.00	$ 258,662.20		
	8	1	2		Remove Arched Culvert	1.0	each	LS	$100,000.00	$ 100,000.00			
	8	1	3		Crown road for positive drainage	10.0	km	C.5.17	$866.22	$ 8,662.20			
DW-002	8	2	1	Quarry A	No Closure activities are required			-			$ -		
DW-003	8	3	1	Quarry B	No Closure activities are required			-			$ -		
DW-004	8	4	1	Quarry D	No Closure activities are required			-			$ -		
DW-005	8	5	1	Explosives Storage Facility	Remove all explosive magazines	66.4	m^3	C.4.08	$2.91	$ 193.27	$ 690.31		
	8	5	2		Demolish entry gates	0.5	m^3	C.3.05	$12.90	$ 5.80			
	8	5	3		Load all debris for transport to landfill	25.4	m^3	C.4.01	$10.23	$ 259.79			
	8	5	4		Haul waste to the landfill	25.4	m^3	C.4.18	$8.02	$ 203.73			
	8	5	5		Regrade area for positive drainage	2,805.8	m^2	C.5.18	$0.01	$ 27.72			Including the AWR
Tailings Impoundment Area												**$8,655,952**	
TIA-001	9	1	1	North Dam	Breach the dam by cutting a 20 m slot down to original ground (drill and blast)	7,028.0	m^3	C.5.09	$31.99	$ 224,820.36	$ 514,738.39		
	9	1	2		Load and haul material	31,021.1	m^3	C.5.16	$8.82	$ 273,741.45			
	9	1	3		Remove thermosyphon radiators and superstructure	12.0	each	C.3.08	$511.00	$ 6,131.99			
	9	1	4		Clad the cut core faces for thermal protection	614.2	m^3	C.5.02	$16.35	$ 10,044.59			
TIA-002	9	2	1	South Dam	No closure activities are required						$ -		
TIA-003	9	3	1	Interim Dike	Recontour dike crest	2,000.0	m3	C.5.04	$2.75	$ 5,497.39	$ 5,670.63		
	9	1	4		Crown access road for positive drainage	0.2	km	C.5.17	$866.22	$ 173.24			
TIA-004	9	2	1	Subaerial Tailings Area	Produce ROQ (quarry drill&blast)	132,000.0	m^3	C.5.09	$31.99	$ 4,222,560.08	$ 6,381,139.98		
	9	1	3		LHDP ROQ to construct 0.3 m cover	132,000.0	m^3	C.5.02	$16.35	$ 2,158,579.89			
TIA-005	9	1	1	Shoreline Protection	Install separation geotextile	54,340.0	m^2	M.02	$28.27	$ 1,536,441.23	$ 1,754,403.14		
	9	1	2		Haul and place riprap to prevent erosion	24,700.0	m^3	C.5.16	$8.82	$ 217,961.91			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
Secondary Road Area												**$288,056**	
SR-001	10	1	1	Secondary Road	Remove Doris Creek bridge	1.0	LS		$50,000.00	$ 50,000.00	$ 155,508.04		Remove
	10	1	2		Cut tailings line running alongside the road into manageable pieces	5,750.0	m	C.3.03	$11.13	$ 63,972.61			
	10	1	3		Strap together or load pipe sections in containers for transport to landfill	2,760.0	m^3	C.4.01	$10.23	$ 28,229.05			Assuming the diameter is 0.4 m and the pipeline runs on the side of the road (have the same length)
	10	1	4		Haul waste to the landfill	2,760.0	m^3	C.4.19	$4.17	$ 11,520.70			
	10	1	5		Remove pipe culvert east of the bridge	18.8	lm	C.5.15	$94.98	$ 1,785.68			
SR-002	10	2	1	Tailings Discharge And Reclaim Water Pipelines	Cut pipelines into manageable pieces	8,125.0	lm	C.3.03	$11.13	$ 90,396.07	$ 98,071.12		
	10	2	2		decommission electrical (heat tracing)	4.0	each	C.1.05	$639.99	$ 2,559.97			
	10	2	3		collect electrical cables and controllers and prep for shipping off-site	4,062.5	m^2	C.3.10	$0.17	$ 703.64			
	10	2	4		Load debris for transport to landfill	306.3	m3	C.4.01	$10.23	$ 3,132.86			
	10	2	5		Haul waste to the landfill	306.3	m3	C.4.19	$4.17	$ 1,278.57			
SR-003	10	3	1	TIA Access Road (Chainage 0+725)	Crown road for positive drainage	0.29	km	C.5.17	$866.22	$ 251.20	$ 2,697.28		
	10	3	2		Remove floating dock and bridge	132.0	m^3	C.3.06	$4.13	$ 545.00			
	10	3	3		Load all debris to haul to Landfill	132.0	m^3	C.4.01	$10.23	$ 1,350.09			
	10	3	4		Haul waste to the landfill	132.0	m3	C.4.19	$4.17	$ 550.99			
SR-004	8	4	1	Explosives Facility	Remove all explosive magazines	265.6	m^3	C.4.13	$3.59	$ 953.89	$ 31,779.14		
	8	4	2		Demolish entry gates	1.0	ea	LS	$1,000.00	$ 1,000.00			
	8	4	3		remove and stockpile liner protection cover	3031	m^3	C.5.04	$2.75	$ 8,331.29			
	8	4	4		clean liner	4442	m^2	C.2.10	$0.39	$ 1,732.51			
	8	4	5		remove and cut liner into manageable pieces	4442	m^2	C.3.02	$0.16	$ 712.81			
	8	4	6		load waste into containers for shipping off-site	199.89		C.4.01	$10.23	$ 2,044.46			
	8	4	7		Decommission electrical and heating from facilities	2.0	ea	C.1.05	$639.99	$ 1,279.98			
	8	4	8		Demolish building (tent structure)	429.6	m^3	C.3.05	$12.90	$ 5,539.82			
	8	4	9		disconnect containers and prep for shipping off-site	2.0	ea	C.1.08	$1,321.37	$ 2,642.74			
	8	4	10		load waste into containers for shipping off-site	41.5	m3	C.4.01	$10.23	$ 424.47			
	8	4	11		collect all debris	18,558.0	m^2	C.3.10	$0.17	$ 3,214.33			
	8	4	12		Load all waste and debris and waste into containers	3.71	m^3	C.4.01	$10.23	$ 37.96			
	8	4	13		Haul waste to lanfill	245.1	m^3	C.4.19	$4.17	$ 1,023.10			
	8	4	14		Regrade pad area for positive drainage	18,558.0	m^2	C.5.18	$0.01	$ 183.34			
	8	4	15		Recontour berms to blend in with topography	2,166.0	m^2	C.5.05	$1.23	$ 2,658.44			
Quarry 3												**$122,751**	
Q3-001	11	1	1	Quarry #3	No Closure activities are required outside of landfill	-							
Q3-002	11	2	1	Q#3 Access Road	Crown road for positive drainage	0.2	km	C.5.17	$866.22	$ 177.58	$ 177.58		
Q3-003	11	3	1	Quarry #3 Landfill	LHDP ROQ to construct 1m landfill cap	19,520.0	m3	C.5.21	$6.28	$ 122,573.28	$ 122,573.28		Assumes all material available within Quarry #3
Underground Workings												**$124,197**	
UG-001	12	1	1	Doris North Decline Portal	remove ducts, pipes, electrical cables	100.0	lm	C.3.16	$112.09	$ 11,209.30	$ 28,560.91		assuming 100m length
	12	1	2		construct portal plug	706.8	m3	C.5.03	$24.53	$ 17,337.32			
	12	1	3		regrade area for positive drainage	1,446.0	m2	C.5.18	$0.01	$ 14.29			
UG-002	12	2	1	Doris North Vent raise	Remove ducts, pipes, and cables	100.0	lm	C.3.16	$112.09	$ 11,209.30	$ 35,019.06		
	12	2	2		Construct a concrete cap (0.5 m thick reinforced concrete) to seal the top	1.0	each	C.6.03	$14,007.27	$ 14,007.27			
	12	2	3		Decommission and dismantle all ventilation and heating facilities	4.0	each	C.1.05	$639.99	$ 2,559.97			
	12	2	4		Prepare units for shipping off-site	1.0	each	C.1.08	$1,321.37	$ 1,321.37			
	12	2	5		Haul units to Roberts Bay	33.2	each	C.4.04	$2.52	$ 83.64			
	12	2	6		Regrade pads for positive drainage	4,150.0	m^2	C.5.18	$0.01	$ 41.00			
	12	2	7		Drain and decommission Enviro Tank	1.0	each	C.2.03	$256.75	$ 256.75			
	12	2	8		Haul Enviro Tank to Roberts Bay	33.2	m^3	C.4.04	$2.52	$ 83.64			
	12	2	9		Remove liner and cut into manageable pieces	1,230.0	m^2	C.3.02	$0.16	$ 197.38			
	12	2	10		Load waste for transport to landfill	11.1	m^3	C.4.01	$10.23	$ 113.22			
	12	2	11		Haul waste to landfill	11.1	m^3	C.4.14	$4.70	$ 52.03			
	12	2	12		Backfill area to prevent permanent ponding	4,150.0	m^2	C.5.05	$1.23	$ 5,093.50			
UG-003	12	3	1	Doris Connector Vent raise	Remove ducts, pipes, and cables	100.0	lm	C.3.16	$112.09	$ 11,209.30	$ 30,092.12		
	12	3	2		Decommission and dismantle all ventilation facilities	2.0	each	C.1.05	$639.99	$ 1,279.98			
	12	3	3		Prepare units for shipping off-site	1.0	each	C.1.08	$1,321.37	$ 1,321.37			
	12	3	4		Haul units to Roberts Bay	33.2	each	C.4.04	$2.52	$ 83.64			
	12	3	5		Construct a concrete cap (0.5 m thick reinforced concrete) to seal the top	1.0	each	C.6.03	$14,007.27	$ 14,007.27			
	12	3	6		Remove culvert	1.0	each	LS	$2,000.00	$ 2,000.00			
	12	3	7		Crown road for positive drainage	0.2	km	C.5.17	$866.22	$ 190.57			
UG-004	12	4	1	Doris Central Vent raise	Remove ducts, pipes, and cables	100.0	lm	C.3.16	$112.09	$ 11,209.30	$ 30,525.23		
	12	4	2		Decommission and dismantle all ventilation facilities	2.0	each	C.1.05	$639.99	$ 1,279.98			
	12	4	3		Prepare units for shipping off-site	1.0	each	C.1.08	$1,321.37	$ 1,321.37			
	12	4	4		Haul units to Roberts Bay	33.2	each	C.4.04	$2.52	$ 83.64			
	12	4	5		Construct a concrete cap (0.5 m thick reinforced concrete) to seal the top	1.0	each	C.6.03	$14,007.27	$ 14,007.27			
	12	4	6		Remove culvert	1.0	each	LS	$2,000.00	$ 2,000.00			
	12	4	7		Crown road for positive drainage	0.7	km	C.5.17	$866.22	$ 623.68			

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
Pipeline Area												**$87,521**	
PL-001	13	10	1	Roberts Bay Discharge System	Cut pipelines into manageable pieces	5,470.0	lm	C.3.03	$11.13	$ 60,857.42	$ 87,520.65		
	13	10	2		decommission electrical (heat tracing)	11.0	each	C.1.05	$639.99	$ 7,039.91			
	13	10	3		collect electrical cables and controllers and prep for shipping off-site	5,470.0	m^2	C.3.10	$0.17	$ 947.43			
	13	10	4		Load debris for transport to landfill	1,160.0	m3	C.4.01	$10.23	$ 11,863.92			
	13	10	5		haul debris to landfill	1,160.0	m3	C.4.16	$5.36	$ 6,216.70			
	13	10	6		Remove rock fill to 0.3 m below LLWL	485.0	m3	C.5.05	$1.23	$ 595.26			
Off-site Shipping for Disposal												**$337,793**	
DN-001	14	1	1	Ship off-site for disposal by barge	Hazardous waste	118.3	m^3	S.02	$218.81	$ 25,893.83	$ 337,793.34		
	14	1	2		Hazardous solid waste	38.4	m^3	S.02	$218.81	$ 8,412.57			Transformers and other waste
	14	1	3		Non-Hazardous waste and demolition debris	-	m^3	S.03	$218.81	$ -			
	14	1	4		Hydrocarbon contaminated soils	280.5	m^3	S.01	$1,082.02	$ 303,486.94			
DN-002	14	2	1	Shipping warehouse inventory off-site for disposal	Warehouse inventory in seacan containers or loose materials	0.0	each	S.04	$8,381.53	$ -	$ -		
Off-Site Disposal Fees												**$77,167**	
DF-001	15	1	1	Disposal fees in licensed facility	Hazardous waste	1.0	LS		$25,000.00	$ 25,000.00	$ 77,166.61		
	15	1	2		Non-hazardous waste and demolition debris	0.0	m^3	M.10	$5.85	$ -			
	15	1	3		Disposal fees at Hay River	476.8	t	H.05	$109.41	$ 52,166.61			
Closure Water Management												**$3,361,200**	
CM-001	16	1	1	Operate and maintain water management system	Pump technician	880	day	day rate	$ 1,890	$ 1,663,200.00	$ 3,361,200.00		
	16	1	2		Support person (camp, etc.)	674	day	day rate	$ 2,000	$ 1,348,000.00			
	16	1	3		Site Services Support &Maintenance	5	-	LS	$ 50,000	$ 250,000.00			
	16	1	4		Spare Parts & Consumables	5	-	LS	$ 20,000	$ 100,000.00			See water management tab
TOTAL DIRECT COSTS												**$17,255,665**	

WBS Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Sub-task Total	Task Total	Subtotals	Source / Comments
INDIRECT CLOSURE COSTS													
Contingency												**$3,368,141**	
-	1	1	-	Contingency	20% of direct costs	20%	%	x	$16,840,705	$3,368,141.02			
Mobilization & Demobilization												**$ 1,037,786**	
-	2	1	1	Camp demolition	Mob/Demob	1.0	ls	x	$ 753,307.79	$753,308			Equipment mobilised from Edmonton
	2	2	1	Dam breach	Mob/Demob	1.0	ls	x	$ 284,478.30	$284,478			Equipment demobilised to Edmonton
General and Administration costs												**$ 1,935,021**	
-	3	1	-	Travel allowance		0				$0			Included in Camp Operations Cost
-	3	2	-	Camp Management		1,410.0	day	OC.01	$718.81	$1,013,521			
-	3	3	-	Camp Operations - Doris North Camp reclamation (Year 1)		1,735.0	person-days	OC.06	$500.00	$867,500			
	3	4	-	Camp Operations - TIA North Dam breach (Year 8)		27.0	person-days	OC.02	$2,000.00	$54,000			
-	3	5	-	Camp Rental		-	year	OC.03	$424,702.82	$0			existing tent camp facilities wil be used
Field support												**$ 347,003**	
-	4	1	-	Supervision		116	days	x	$ 1,649	$190,707			
-	4	2	-	Equipment maintenance support - Mechanic		116	days	x	$ 1,120	$129,539			
-	4	3		Helicopter Support		3.0	days	x	$ 8,919	$26,756			minimum of 4 hr per day (Doris Mountain towers)
Hydrocarbon decontamination												**$ 150,000**	
-	5	1	-	Engineering Design		1.0	LS	x	$ 50,000	$50,000			
-	5	2	-	Confirmatory Sampling and Analysis		1.0	LS	x	$ 100,000	$100,000			
Post-closure Monitoring												**$ 884,000**	
	6	1	1	Covers Monitoring	Bi-annual for 10 years	5	LS	x	$ 73,000	$365,000			
	6	1	2	Geotechnical Inspection (including Permafrost Monitoring)	Annual for 3 consecutive years	3	LS	x	$ 73,000	$219,000			
	6	1	3	Water Quality Monitoring	Yearly for 5 years	5	LS	x	$ 60,000	$300,000			
Other													
-	9	1	-	Contractor profit	% of direct and other indirect costs (excluding contingency)	-	%	of	$ 20,725,475	$0.00			included in equipment unit rates and POH (i.e. Production Overhead) labor cost
-	9	2	-	Contractor Bonding	% of direct cost	-	%	of	$ 17,255,665	$0			
Subtotal Indirect Costs												**$7,721,951**	
CLOSURE COSTS - TOTAL												**$24,977,616**	

Appendix B: Mobilization and Demobilization Cost

Mob/Demob Costs

Crew mobilization costs included in loaded labour rates.
The barging fee for equipment is calculated on a square foot basis.

No. of units	Description	Units	Quantity	Unit cost	Task cost	Notes
Camp Demolition	Construction equipment	Footprint				
1	Bobcat	m^2	11.0	$ 332.96	$ 3,657.90	From Hay River to Roberts Bay
2	Loader	m^2	10.2	$ 332.96	$ 6,800.90	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750.26	From Hay River to Roberts Bay
2	Excavator	m^2	38.1	$ 332.96	$ 25,375.10	From Hay River to Roberts Bay
1	small equipment	m^3	24.1	$ 332.96	$ 8,025.01	From Hay River to Roberts Bay
4	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 55,441.39	From Hay River to Roberts Bay
1	Tractor trailer	m^3	86.8	$ 332.96	$ 28,907.95	From Hay River to Roberts Bay
2	Crewcab pickup (Ford F350)	m^3	33.8	$ 332.96	$ 22,508.71	From Hay River to Roberts Bay
14	Haul equipment to Shipping point (Hay River)	each	14	$ 15,000.00	$ 210,000.00	hauling 8 trailers from Edmonton to Hay River / source: Doris cost estimate
Subtotal Mobilisation					**$ 367,467**	
Subtotal Demobilisation					**$ 385,841**	Assumes same cost as mobilisation, updated by 5%
Total					***$ 753,308***	
Dam Breach	Construction equipment	Footprint				
0	Bobcat	m^3	11.0	$ 364.67	$ -	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 364.67	$ 3,724.30	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 364.67	$ 7,393.14	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 364.67	$ 13,895.89	From Hay River to Roberts Bay
0	small equipment	m^3	24.1	$ 364.67	$ -	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 364.67	$ 15,180.38	From Hay River to Roberts Bay
0	Tractor trailer	m^3	86.8	$ 364.67	$ -	From Hay River to Roberts Bay
1	Crewcab pickup (Ford F350)	m^3	33.8	$ 364.67	$ 12,326.20	From Hay River to Roberts Bay
5	Haul equipment to Shipping point (Hay River)	each	5	$ 17,250.00	$ 86,250.00	hauling 8 trailers from Edmonton to Hay River / source: Doris cost estimate
Subtotal Mobilisation					**$ 138,770**	
Subtotal Demobilisation					**$ 145,708**	Assumes same cost as mobilisation, updated by 5%
Total					***$ 284,478***	

Camp Cost

Description	Units	Cost Code	Unit Cost	2021 Year 1 (Camp Demolition+ Water Management)	2022 Year 2 (Water Management)	2023 Year 3 (Water Management)	2024 Year 4	2025 Year 5	2026 Year 6	2027 Year 7	2028 Year 8 (Water Management+ Compliance Reporting + Dam Breach)	2029 Year 9	2030 Year 10	Total	Task Cost	Notes
Camp Management	day	OC.01	$718.81	116	365	151	0	0	0	0	131	0	0	763	$548,452	
Camp Operations	per day per person	OC.02	$2,000.00	0	365	151	0	0	0	0	131		0	647	$1,294,000	5 person crew for 24 days = dam breach
Camp Operations	per day per person	OC.06	$500.00	1735	0	0	0	0	0	0	0	0	0	1735	$867,500	demolition crew for camp reclamation
Camp Rental	year	OC.03	$424,702.82	0	0	0	0	0	0	0	0	0	0	0	$0	
				$ 950,881.90	**$ 992,365.47**	**$ 410,540.24**	$ -	$ -	$ -	$ -	**$ 356,164.05**	$ -	$ -	**$ 2,709,951.66**	**$2,709,952**	

Appendix C: Unit Rates

Cost Code	Item	Unit Rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 182.16	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.15	Dozer (CAT D8)	$ 173.00	hr	hourly equipment rate (less operator)	Nuna 2015 equipment rates
E.02	Dozer (CAT D4)	$ 94.74	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.03	Dozer (CAT D4) w/ Tiller	$ 108.96	hr	15% added for tiller attachment	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.04	Truck (CAT 730)	$ 151.74	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.16	Truck (CAT 740)	$ 152.00	hr	hourly equipment rate (less operator)	
E.05	Excavator (CAT 330 CL)	$ 202.40	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.06	Loader (CAT IT38/930)	$ 90.04	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.17	Loader (CAT 980 Loader)	$ 173.00	hr		
E.07	Skidder (CAT Bobcat)	$ 87.63	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.08	Helicopter	$ 2,229.69	hr	fuel surcharge applies	IMiskolczi (from Angela Holtzapfel@HBML ESR)
E.09	Welding Equipment	$ 62.94	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance, 10% fuel factor
E.10	Power washer	$ 120.35	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/equipment.asp?action=category&category=190&key=190%2D0079
E.11	Drum crusher	$ 38.95	hr	30 tones, mobile	2012 cost plus 3% rate increase to 2015
E.12	Oil-water separator	$ 30.09	hr	10 GPM, underground	2012 cost plus 3% rate increase to 2015
E.13	Air Track Drill	$ 321.18	hr	200 cfm compressor, 196 HP diesel engine	2013-2014 BC Blue Book + 10% Northern Allowance+10% fuel factor
E.14	Tractor Trailer (6 axle lowbed+booster)	$ 86.78	hr	hourly equipment rate (less operator)	2013-2014 BC Blue Book + 10% Northern Allowance
E.15	Flatbed truck (6x4, 5 tonne)	$ 24.47	hr	hourly equipment rate (less operator)	2013-2014 BC Blue Book + 10% Northern Allowance
E.13	Clemro Crusher	$ 861.46	hr	200 tons/hr (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.18	Crusher	$ 800.00	hr		Nuna 2015 equipment rates
E.14	Motor Grader CAT 16M	$ 174.83	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates; Inflated to 2015 cost (3% inflation)
E.19	Motor Grader CAT 14H	$ 135.00	hr	hourly equipment rate (less operator)	Nuna 2015 equipment rates
Materials					
M.01	Liner - HDPE	$ 30.72	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.02	Liner - geotextile	$ 28.27	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Fuel (Diesel)	$ 1.44	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.04	Explosives (ANFO)	$ 0.57	lbs	15% freight cost added	costmine 2014 inflated to 2015
M.05	Silt Fencing	$ 1.49	m	15% freight cost added	Cost Mine 2011; original price quoted in linear ft
M.06	Coco-matting	$ 2.02	m^2	15% freight cost added	Cost Mine 2011; original price quoted in sq. yards
M.07	Seed/Fertilizer	$ 18.76	kg	15% freight cost added	Arctic Alpine seed mix+ fertilizer (2009 increase by 6% to 2013 based on inflation)
M.08	Winter road	$ 18,235.94	km	open and maintain for 2 months	NUNA Logistics (from Court Smith) + 18% cost increase to 2013
M.09	Hazardous Waste Disposal fee	$ 10,617.57	m^3	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay River)	$ 5.85	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.12	Bentonite chips	$ 606.23	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
M.13	Plastic wrapping	$ 1.09	m^2	in 14 ft wide rolls	web search; shrinkit-inc.com accessed June15, 2012
Labour					
L.01	Labour general	$ 64.19	hr		Nuna Blended 2012 rate, POH included; increased by 3% (yoy) to 2015 cost
L.02	Labour - Trades	$ 93.33	hr	Electrician, Welder, plumber etc.	Nuna 2015 Electrician and Mechanic Rate (Average)
L.03	Trades - Electrical	$ 95.81	hr	Electrical Lead	Nuna 2015 Rates
L.04	Trades - Mechanical	$ 90.85	hr	Mechanical lead	Nuna 2015 Rates
L.05	Supervision	$ 137.40	hr		Nuna 2015 Rate
L.06	Truck Drivers	$ 63.54	hr	Heavy Equipment	Nuna 2015 Rate
L.07	Heavy Equipment Operator	$ 72.47	hr	Light equipment	Nuna 2015 Rate
L.08	Technician (Consultant)	$ 143.34	hr	Staff Consultant	SRK-Estimate (all inclusive)
L.09	Note: Loading Rate includes allowances for (EI, CPP, MSP/Benefits/Travel/OT)				
Shipping					
S.01	Outbound Shipping - Soils	$ 1,082.02	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 218.81	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.03	Outbound Shipping - Demolition	$ 218.81	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
S.04	Shipping cost per seacan	$ 8,381.53	each		NTCL 17Apr 2012
Hydrocarbon Soils and Haz Waste					
H.01	Excavate impacted soil	$ 20.36	m^3		WESA estimate say reference
H.02	Low temperature thermal desorption	$ 106.18	m^3		WESA estimate say reference
H.03	Rehydrate and backfill	$ 11.35	m^3		WESA estimate say reference
H.04	Regrade and reshape	$ 2.53	m^2		WESA estimate say reference
H.05	Tipping Fee for HC Soils at Hay River	$ 109.41	tonne		Communication with Hay River Landfill Tsharp 18APR12
Owner's cost					
OC.01	Camp management	$ 718.81	day		Newmont (2013)
OC.02	Camp operations (under 10 person in camp)	$ 2,000.00	day	includes food, camp maintenance, and air transp	TMAC estimate (2015)
OC.03	Camp rental	$ 424,702.82	year	25 man mobile camp	Newmont (2013)
OC.04	Commercial flight	$ 850.00	person	flight from Yellowknife to Cambridge Bay and return	
OC.05	Charter flight	$ 10,617.57	flight	Return from Yellowknife	
OC.06	Camp operations (over 25 person camp)	$ 500.00	day	includes food, camp maintenance, and air transp	TMAC estimate (2015)

Appendix D: Task Unit Costs

Cost Code	Item	Unit	Productivity (Unit/hr)	Unit Rates				Labour						Equipment										Materials				Note / Source
				Total Unit Cost	Material Unit Rate	Labour Unit Rate	Equipment Unit Rate	General Labour	Trades - Electrical	Trades - Mechanic	Trades - Plumbing	Engineer/ Technician	Light Equipment Operator	Heavy Equipment Operator	Dozer - CAT D8	Excavator - Cat 330	Loader - CAT 980	Motor grader CAT 14H	Skidder CAT 242	Truck - CAT 740	Tractor Trailer	Flatbed truck (5 tonne)	Helicopter	Drill	Drum crusher	Power washer	Welding Equipment	Crusher	
								$ 64.19	$ 95.81	$ 90.85	$ 93.33	$ 143.34	$ 63.54	$ 72.47	$ 173.00	$ 202.40	$ 173.00	$ 135.00	$ 87.63	$ 152.00	$ 86.78	$ 24.47	#######	$ 321.18	$ 38.95	$ 12.03	$ 62.94	######	
Decomissioning																												
C.1.01	Decomission and remove all heating fuel tanks and place into lined facility	each	4.00	$ 93.46	$ -	$ 50.21	$ 43.25	2						1			1												Disconnect and remove all fuel drums and disconnect all Tidy Tanks from all structures
C.1.02	Decomission above ground storage tanks	each	0.5	$ 448.37	$ -	$ 448.37	$ -	2	1																				Disconnect all fuel lines and electrical parts
C.1.03	Decomission potable water supply	each	0.25	$ 1,288.18	$ -	$ 1,085.78	$ 202.40	1	1		1			0.25		0.25													Disconnect all electrical and plumbing (intake and distribution)
C.1.04	Decomission waste incinerator	each	0.17	$ 1,298.43	$ -	$ 1,038.93	$ 259.50	1		1				0.25			0.25												Disconnect and remove fuel storage
C.1.05	Decommission Main Camp Facility electricity	each	0.25	$ 639.99	$ -	$ 639.99	$ -	1	1																				De-energise main electrical board, disconnect auxiliary power (if exists)
C.1.06	Decommission electrical generators	each	0.46	$ 754.18	$ -	$ 566.13	$ 188.04	2	1					0.5			0.5												De-energise main breaker board, disconnect external fuel tanks (if needed) / loader used for lifting; source - RSMeans (26050252100)
C.1.07	Dismantle Satelite/Comunication Equipment	each	0.5	$ 352.56	$ -	$ 352.56	$ -	2	0.5																				source - SRK estimate
C.1.08	Prep portable trailers for moving (remove claddling, apply shrinkwrap etc.)	each	0.25	$ 1,321.37	$ 60.17	$ 915.20	$ 346.00	3						0.5			0.5												
C.1.09	Decommision Airstip - Place large X's at each end of strip	each	0.5	$ 306.75	$ 50.00	$ 256.75	$ -	2																					Assumed material cost for a high density plastic, nails and sandbags.
C.1.10	Dismantle airstip approach lights	each	4	$ 40.00		$ 40.00	$ -	1	1																				
C.1.11	Dismantle Hopper, Crusher	each	0.05	$ 3,199.96		$ 3,199.96	$ -	1	1																				
Decontamination																												
C.2.01	Collect hazardous chemical waste and place in suitable containers	m3	0.17	$ 2,628.20	$ -	$ 1,590.20	$ 1,038.00	3						1			1												Includes all chemicals on site / jm_Estimate
C.2.02	Drain and power-wash heating fuel tanks (Tidy Tanks)	each	6.00	$ 23.40	$ -	$ 21.40	$ 2.01	2																	1				Drain fuel from tanks and wash exterior with hot water (collect water for treatment)
C.2.03	Drain above ground fuel storage tank	each	0.5	$ 256.75	$ -	$ 256.75	$ -	2																					Drain fuel /source - SRK estimate
C.2.04	Pressure wash above ground fuel tank	each	0.125	$ 1,123.28	$ -	$ 1,027.01	$ 96.28	2																		1			
C.2.05	Drain and power-wash empty fuel drums	each	12	$ 17.74	$ -	$ 16.74	$ 1.00	2						1											1				Drain fuel and tripple-rinse drum (collect water for treatment)
C.2.06	Flush sewage treatment unit and collect sewage sludge	each	0.4	$ 657.86	$ -	$ 411.53	$ 246.34	2						0.5			0.5									1			Flush treatment unit with water (collect water for treatment)/source - SRK estimate
C.2.07	Empty incinerator and collect ashes	m3	0.25	$ 747.69	$ -	$ 401.69	$ 346.00	1						0.5			0.5												Place ashes and unburned contents into containers / see C.6.04
C.2.08	Operate oil/water separator	m3	6.60	$ 31.00	$ -	$ 29.18	$ 1.82	3																	1				Collect skimmed oil from seperator and place in suitable container - 15 minutes per 55 gal. drum
C.2.09	Empty soil from 45 gallon drums	each	4	$ 100.81	$ -	$ 50.21	$ 50.60	2						1		1													
C.2.10	Liner pressure wash cleaning	m2	360	$ 0.39	$ -	$ 0.36	$ 0.03	2																		1			
Demolition																												
C.3.01	Crush empty fuel drums	each	20.00	$ 20.64	$ -	$ 10.04	$ 10.60	2						1			1								1				
C.3.02	Cut Tank Farm geomembrane to manageable size	sq. m	1200.00	$ 0.16	$ -	$ 0.16	$ -	3																					source - SRK estimate
C.3.03	Remove intake hoses and cut to manegeable size	Lm	100	$ 11.13	$ -	$ 1.65	$ 9.48	2						0.5			0.5											1	source - SRK estimate
C.3.04	Dismantle pollution control berm	each	0.50	$ 256.75	$ -	$ 256.75	$ -	2																					
C.3.05	Demolish office buildings/ shop structures/ living quarters	m3	53.00	$ 12.90	$ -	$ 6.37	$ 6.53	3						2	1		1												Demolish empty wood structures (offices, shacks, etc.)/ source - ECHOS
C.3.06	Demolish helipads/ float plane dock	m3	75	$ 4.13	$ -	$ 1.82	$ 2.31	1						1			1												Demolish wood structure / source - SRK estimate
C.3.07	Demolish Above ground storage tanks	m3	5	$ 265.78	$ -	$ 53.01	$ 212.77	3						1		1												1	
C.3.08	Dismantle Old Equipment	each	0.5	$ 511.00	$ -	$ 385.13	$ 125.87	3																			1		
C.3.08	Cut off top of drill casings	each	2.00	$ 63.56	$ -	$ 32.09	$ 31.47	1																		1			
C.3.10	Clean up debris from site	m2	2529	$ 0.17	$ -	$ 0.10	$ 0.07	3						1			1												source - SRK estimate
C.3.11	Dismantle radio tower	each	0.04	$ 15,417.42	$ -	$ 10,559.84	$ 4,857.59	2	1			1		1		1													source - SRK estimate
C.3.12	Prep stacks for shipping	m	0.50	$ 619.32	$ -	$ 273.32	$ 346.00	1						1			1												Estimate
C.3.13	Dismantle Power Generator Stacks	m	0.50	$ 128.38	$ -	$ 128.38	$ -	1																					
C.3.14	Removing Cables and Posts	each	1.00	$ 403.25	$ -	$ 200.85	$ 202.40	2						1		1													
C.3.15	Remove Tank Insullation	each	0.30	$ 720.03	$ -	$ 427.92	$ 292.11	2											1										
C.3.16	Remove pipes, ducts, and electrical cables	m	2.00	$ 112.09	$ -	$ 112.09	$ -	2	1																				
C.3.17	Remove waste from Doris Mountain (helicopter support)	m3	1.00	$ 2,501.40		$ 271.71	$ 2,229.69	2				1											1						
Material Relocations																												
C.4.01	Load demolition debris/solid waste in containers	m3	48.00	$ 10.23	$ -	$ 3.02	$ 7.21							2	1		1												source - SRK calculated from first principles
C.4.02	Empty Seacan of debris at the landfill, place and track pack	each	6.0	$ 86.72	$ -	$ 24.16	$ 62.57							2	1	1													
C.4.03	Collect Hazardous waste in drums for shipping of site	L	400.0	$ 0.70	$ -	$ 0.48	$ 0.22	2						1					1										
C.4.04	Haul waste to Roberts Bay jetty in 20 ft container (33.2 m3/container)	m^3	59.67	$ 2.52	$ -	$ 1.06	$ 1.45							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.06	Haul Containers on skids from beach laydown to Roberts Bay Jetty	each	1.20	$ 204.56	$ -	$ 60.39	$ 144.17								1	1													
C.4.07	Haul Material From Doris Windy Road to Roberts Bay	m^3	36.31	$ 4.14	$ -	$ 1.75	$ 2.39							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.08	Haul Material From North Dam To Roberts Bay	m^3	51.64	$ 2.91	$ -	$ 1.23	$ 1.68							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.09	Haul Material From Reagent Pad To Roberts Bay	m^3	66.90	$ 2.25	$ -	$ 0.95	$ 1.30							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.10	Haul Mateiral From Airstrip to Roberts Bay	m^3	75.48	$ 1.99	$ -	$ 0.84	$ 1.15							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.11	Haul Mateiral to Jetty (Roberts Bay)	m^3	85.74	$ 1.75	$ -	$ 0.74	$ 1.01							1							1								Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.12	Load soils into megabags	m^3	4.00	$ 70.75	$ -	$ 47.98	$ 22.77	2						1		0.45													
C.4.13	Haul Material From South Dam to Roberts Bay	m^3	41.85	$ 3.59	$ -	$ 1.52	$ 2.07							1							1								
C.4.14	Haul Waste From Doris camp to Quarry #3	m^3	116.2	$ 4.70	$ -	$ 1.72	$ 2.98							2	1	1					2								
C.4.15	Haul Waste From Roberts Bay to Quarry #3	m^3	116.2	$ 5.99	$ -	$ 2.26	$ 3.73							3	1	1					3								
C.4.16	Haul Waste From Airstrip to Quarry #3	m^3	116.2	$ 5.36	$ -	$ 2.00	$ 3.36							2.51	1	1					2.51								
C.4.17	Haul Waste From Reagent Pad to Quarry #3	m^3	116.2	$ 5.23	$ -	$ 1.94	$ 3.29							2.41	1	1					2.41								
C.4.18	Haul Waste from Windy Camp to Quarry 3	m3	116.2	$ 8.02	$ -	$ 3.12	$ 4.90							4.5675	1	1					4.5675								
C.4.19	Haul Waste from along the Secondary Road to Quarry 3	m3	116.2	$ 4.17	$ -	$ 1.50	$ 2.68							1.59375	1	1					1.59375								
C.4.20	Load , Haul, dump Waste Rock from Doris North to TIA	m^3	160.0	$ 5.76	$ -	$ 1.64	$ 4.11							3	1		1						3						
Earth works																													
C.5.01	Install HDPE Liner	m^2	175	$ 33.75	$ 30.72	$ 1.88	$ 1.16	4							1														
C.5.02	Load, haul, dump, place: 1 truck with <0.5 km haul distance	m^3	45	$ 16.35	$ -	$ 4.63	$ 11.72							1	2	1	1						1						
C.5.03	Load, haul, dump, place: 1 truck with <1.0 km haul distance	m^3	30	$ 24.53	$ -	$ 6.95	$ 17.58							1	2	1	1						1						
C.5.04	Excavate: Spoil locally, no trucks	m^3	100	$ 2.75	$ -	$ 0.72	$ 2.02								1		1												
C.5.05	Regrade surface - rough grading, D7	m^2	200	$ 1.23	$ -	$ 0.36	$ 0.87								1	1													
C.5.06	Reslope Stockpiles - D7	m^3	75	$ 3.27	$ -	$ 0.97	$ 2.31								1	1													
C.5.07	Relocate core box pallet (<0.5 km)	ea	6	$ 51.61	$ -	$ 22.78	$ 28.83	1							1								1						
C.5.08	Install soil stabilization measures (straw/coconut matting)	m^2	269	$ 4.79	$ 2.02	$ 1.37	$ 1.40	3.5							2		1	1											
C.5.09	Drill, blast Quarry	m^3	19	$ 31.99	$ 0.31	$ 14.78	$ 16.90	1				0.5			2									1					
C.5.10	Trackpack using loaded rock truck	m^2	100	$ 2.16		$ 0.64	$ 1.52							1									1						
C.5.11	Scaling (loose rock)	hr	1	$ 274.87	$ -	$ 72.47	$ 202.40								1		1												
C.5.12	Load, haul, dump place: 2 trucks with <1.0km haul distance	m^3	75	$ 12.69	$ -	$ 3.63	$ 9.06							2	2	1	1						2						
C.5.13	Seeding/Fertilizing: By hand, high application rate	m^2	320	$ 0.88	$ 0.28	$ 0.60	$ -	3						0															
C.5.14	Summer identification of low-lying areas	day	0.08	$ 7,138.87	$ 100.00	$ 2,490.30	$ 4,548.57	1				1											0.17						
C.5.15	Remove culvert and create swale	lm	5	$ 94.98	$ -	$ 54.50	$ 40.48	2				0.5			1		1												
C.5.16	Load, haul, dump, 2 trucks<0.5 km haul distance	m^3	80	$ 8.82	$ -	$ 2.49	$ 6.33							2	1		1						2						
C.5.17	Crown road	km	0.25	$ 866.22	$ -	$ 326.22	$ 540.00			0.1					1			1												
C.5.18	Road grading (use grader)	m2	21000	$ 0.010	$ -	$ 0.00	$ 0.01								1			1												
C.5.19	Ripping and scarifying roads and pads	m2	5000	$ 0.041	$ -	$ 0.01	$ 0.03								1			1												
C.5.20	Regrage WR pile - Rough Grading	m^2	2000	$ 0.12	$ -	$ 0.04	$ 0.09								1	1													
C.5.21	Load Haul Dump place from Quarry #3 to Landfill Cover	m3	151.52	$ 6.28	$ -	$ 1.80	$ 4.48								2	2	1	1					2						Assumes Stockpile of ROQ available at Quarry 3
Other																													
C.6.01	Sample HC contaminated soils / confirmatory samples	each	2	$ 103.76	$ -	$ 103.76	$ -	1				1																	
C.6.02	Band together core pallets	each	12	$ 10.70	$ -	$ 10.70	$ -	2			0			0		0													
C.6.03	Construction of Vent Raise Seal	each	0.042	$ 14,007.27	$ 3,000.00	$ 8,931.27	$ 2,076.00	3				1			0.5		0.5												

Appendix E: Relocation Unit Rates

Hauling Distance to Roberts Bay			
Doris Camp	5.3	km	One Way
Windy Camp	14.82	km	One Way
North Dam	7.6	km	One Way
Reagent Pads	3.7	km	One-Way
Airstrip	2.2	km	One-Way
Hauling Distance to Doris Camp			
Old Windy Camp	9.52	km	One Way
TIA	4.8	km	One Way
Quarry #3	4.75	km	One Way

C.4.14 - Productivity of hauling bulk materials Doris Camp to Quarry #3 Landfill			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	50	km/hr	
Hauling capacity	1	Containers	One container per trailer
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	23.24	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	4.75	km	
Trucks per hour	1.95		
Loading time	0.2		
Time Required 1 round trip:	**0.39**	**hrs**	**Includes 0.5hr Loading/Unloading time**
Productivity:	**116.20**	**m^3/hr**	

C.4.14 - Productivity of hauling bulk materials Airstrip to Quarry #3 Landfill			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	50	km/hr	
Hauling capacity	1	Containers	One container per trailer
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	23.24	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	7.55	km	
Trucks per hour	2.51		
Loading time	0.2		
Time Required 1 round trip:	**0.50**	**hrs**	**Includes 0.5hr Loading/Unloading time**
Productivity:	**116.20**	**m^3/hr**	

C.4.14 - Productivity of hauling bulk materials Reagent pad to Quarry #3 Landfill			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	50	km/hr	
Hauling capacity	1	Containers	One container per trailer
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	23.24	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	7.05	km	
Trucks per hour	2.41		
Loading time	0.2		
Time Required 1 round trip:	**0.48**	**hrs**	**Includes 0.5hr Loading/Unloading time**
Productivity:	**116.20**	**m^3/hr**	

C.4.18 - Productivity of hauling bulk materials Doris Windy Road to Quarry #3 Landfill			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	40	km/hr	
Hauling capacity	1	Containers	One container per trailer
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	23.24	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	14.27	km	
Trucks per hour	4.5675		
Loading time	0.2		
Time Required 1 round trip:	**0.91**	**hrs**	**Includes 0.5hr Loading/Unloading time**
Productivity:	**116.20**	**m^3/hr**	

C.4.19 - Productivity of hauling bulk materials Secondary Road Average to Quarry #3 Landfill			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	40	km/hr	
Hauling capacity	1	Containers	One container per trailer
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	23.24	m^3	CargoCapacity
Distance:	2.375	km	
Trucks per hour	1.59375		
Loading time	0.2		
Time Required 1 round trip:	**0.32**	**hrs**	**Includes 0.5hr Loading/Unloading time**
Productivity:	**116.20**	**m^3/hr**	

C.4.19 - Productivity of Transporting Mineralized material to TIA (Doris North to TIA)			
Tractor trailer with Lowboy, 1x20 ft seacans per trip			
Average speed	40	km/hr	
Hauling capacity	1		
Cargo capacity	20	m^3	740 Haul Truck
Space utilization ratio	1		
Load	20	m^3	CargoCapacity
Distance:	4.8	km	
Trucks per hour	2.92		
Loading time	0.125	hrs	
Time Required 1 round trip:	**0.37**	**hrs**	
Productivity:	**160.00**	**m^3/hr**	

C.4.19 - Productivity of Transporting ROQ to Quarry #3 Cover			
CAT 740 Haul truck			
Average speed	25	km/hr	
Hauling capacity	1		
Cargo capacity	20	m^3	740 Haul Truck
Space utilization ratio	1		
Load	20	m^3	CargoCapacity
Distance:	0.5	km	
Trucks per hour	1.363636364		
Loading time	0.11	hrs	
Time Required 1 round trip:	**0.15**	**hrs**	
Productivity:	**151.52**	**m^3/hr**	

Appendix F: Structures and Quantities

Demolition Bulking Factors	
Tents - Empty	1.3
Wood Structures - Empty	1.5
Wood Structures - w/ Interior Wall Allowance	2
Steel Structures - Empty	1.5
Steel Structures - w/ Interior Wall Allowance	2
Mechanical Equipment	1.1
Liners	3
Pipelines	3

Structure Volumes

Area	Structure	Quantity	Length (m)	Width/Dia. (m)	Footprint Area (m^2)	Avg Height (m)	Wall thickness (m)	Floor Thickness (m)	Roof Length (m)	Roof Thickness (m)	Wall Volume (m^3)	Floor Volume (m^3)	Roof Volume (m^3)	Total Collapse Volume (m3)	Loose Volume (m^3)	Standing Volume (m^3)	Surface area (m^2)	Source
Accomodation Complex	Portable Trailers	82	17.6	3.1	54.6	2.5	0.15	0.3	3.1	0.16	15.525	16.4	8.7	3331		**136.4**		As built ACAD, height/wall/roof thickness est. from design doc; camp expanded to 240 p
	Building A to B Corridor	2	71.4	3.1	221.3	2.5	0.15	0.3	3.1	0.16	0	66.4	35.4	204	**305.45**	**553.4**		As built ACAD, height/wall/roof thickness est. from design doc
	Arctic Corridor	1	26.5	2	53.0	2.5	0.15	0.3	2	0.16	21.4	15.9	8.5	46	**68.63**	**132.5**		As built ACAD, height/wall/roof thickness est. from photo
	Cabins	7	4.27	4.27	18.2	2.5	0.15	0.3	4.27	0.3	6.4	5.5	5.5	121	**242.83**	**45.6**		As built ACAD, height/wall/roof thickness est. from photo
	Smoke Shack Tent	1	7.42	3.78	28.0	2.5	0.01	0.1	3.78	0.05	0.6	2.8	1.4	5	**6.20**	**70.1**		As built ACAD, height/wall/roof thickness est. from photo
	Sea-can 20'	1	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	1	**2.17**	**37.2**		As built ACAD, height/wall/roof thickness est. from photo
	Storage Sea-can	1	12.3	4.9	60.3	2.75	0.15	0.3	4.9	0.16	14.2	18.1	9.6	42	**83.83**	**165.7**		As built ACAD, height/wall/roof thickness est. from photo
Crusher, Mill, and Process Plant	Mill Building	1	150	58	8700.0	14.2	0.2	0	150	0.2	1181.2	0.0	1740.0	2921	**4381.80**	**123,514.90**	**14606.0**	
	Crusher	1																
	Roberts Bay Discharge System (Pipeline)	1	5470	0.3	1641.0										**1159.95**	**386.7**		
Tank Farm	Fuel Tanks	5	-	14.6	167.4	9.9	0.006	0.005		0.005	1.4	0.8	0.8	15	**22.77**	**1657.4**	**3944.6**	As built ACAD,thickness est. from design doc
	Geotextile	1			11000.0			0.003			0.0	33.0	0.0	33	**99.00**	**0.0**		Fuel Tank Farm design doc
	Liner	1			5500.0			0.003			0.0	16.5	0.0	17	**49.50**	**0.0**		Fuel Tank Farm design doc
	Pipes (Tanks to Fuel Station)	1	265	0.15	0.018									5	**14.05**	**0.0**		Rough Length Estimate based on Judgement (3" pipes)
	Pipes (Fire Suspension to Tanks)	1	265	0.15	0.018									5	**14.05**	**0.0**		Rough Length Estimate based on Judgement (3" pipes)
	Containment Berm	1	278	5	962.000											**0.0**		As built Acad
Permanent Power Generator	Extent of the Area	1	35.54	59.19	2103.0						0.0	0.0	0.0	0		**0.0**		As built Acad, height thickness est. from photo
Temporary Power Generator	Tent	1	21.61	12	259.3	5	0.01	0.3	12.0	0.05	3.4	77.8	13.0	94	**122.36**	**1296.6**		As built ACAD, thickness est. from photo
Sewage Treatment Plant	Sewage Sea-cans 40'	9	12.23	2.44	29.8	2.5	0.15	0.3	2.44	0.16	11.0	9.0	4.8	223		**74.6**		As built ACAD, est from photo
	Sewage Pipes	1	200	0.1	0.01									2	**4.71**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
	Fresh Water Pipes	1	360	0.15	0.02									6	**19.09**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
Fire Water Storage Tank	Fire Water Tank	1	-	9.65	73.1	7.32	0.006	0.006		0.005	0.7	0.4	0.4	1	**2.21**	**535.4**	**176.6**	As built AutoCad, height thickness est. from design doc
	Fire Water Pipes	1	260	0.2032	0.03									8	**25.29**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
	Pump House Sea-can	1	12.2	2.44	29.8	2.5	0.15	0.3	2.44	0.16	11.0	8.9	4.8	25		**74.4**		As built Acad, height/thickness est. from photo
Muster Station	Tent	1	14.76	6.16	90.9	2.5	0.01	0	6.16	0.05	1.0	0.0	4.5	6	**7.27**	**227.3**		As built Acad, height/thickness est. from photo
	Wood flooring	1	14.76	6.16	90.9			0.3			0.0	27.3	0.0	27	**35.46**			
	Sea-Can 20'	2	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	3		**37.2**		As built Acad, height/thickness est. from photo
Warehouse/Core Shack	Tent	1	36.15	17.17	620.7	5	0.01	0.3	17.17	0.05	5.3	186.2	31.0	223	**289.35**	**3103.5**		As built Acad, height/thickness est. from photo
	Bent. Shack Tent	1	7.21	4.94	35.6	2.5	0.01	0.3	4.94	0.05	0.6	10.7	1.8	13	**17.00**	**89.0**		As built Acad, height/thickness est. from photo
	Core Log Tent	1	7.21	4.94	35.6	2.5	0.01	0.3	4.94	0.05	0.6	10.7	1.8	13	**17.00**	**89.0**		As built Acad, height/thickness est. from photo
	wood flooring, shelving, and lofts	1			310.3	0.3								93	**186.21**	**93.1**		Estimated
	Orbit Trailer	1	12.26	3.7	45.4	2.5	0.15	0.3	3.7	0.16	12.0	13.6	7.3	33		**113.4**		As built Acad, height/thickness est. from photo
	Sea-can 20'	12	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	17		**37.2**		As built Acad, height/thickness est. from photo
	Sea-can 40''	5	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	13		**74.6**		As built Acad, height/thickness est. from photo
	Geotech Trailer	1	12.26	3.7	45.4	2.5	0.15	0.3	3.7	0.16	12.0	13.6	7.3	33		**113.4**		As built Acad, height/thickness est. from photo
	Contractor Tents	2	5.18	5.43	28.1	2.5	0.01	0.3	5.43	0.05	0.5	8.4	1.4	21	**26.98**	**70.3**		As built Acad, height/thickness est. from photo
Offices/Mine Dry Complex	Arctic Corridor	1	112.32	2.58	289.8	2.5	0.15	0.3	2.58	0.16	86.2	86.9	46.4	219	**329.21**	**724.5**		As built Acad, height/thickness est. from photo
	Mine Dry	1	40	23.92	956.8	5	0.15	0.3	23.92	0.16	95.9	287.0	153.1	536	**1072.02**	**4784.0**		As built Acad, height/thickness est. from photo
	Admin	1	40.44	12.72	514.4	5	0.15	0.3	12.72	0.16	79.7	154.3	82.3	316	**632.73**	**2572.0**		As built Acad, height/thickness est. from photo
	Office	1	14.96	14.72	220.2	5	0.15	0.3	14.72	0.16	44.5	66.1	35.2	146	**291.63**	**1101.1**		As built Acad, height/thickness est. from photo
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		As built Acad, height/thickness est. from photo
	Sea-can 40''	3	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	8		**74.6**		As built Acad, height/thickness est. from photo
Portal & UG Works	Extent	1			1446.0											**0.0**		
	Plug	1	15	7.6	114.0	6.2								707	**918.84**	**706.8**		Estimated
Underground Wash Bay	Tent	1	15.6	9.96	155.4	5	0.01	0	12	0.05	2.6	0.0	9.4	12	**15.49**	**776.9**		est. from photo
	Sea-cans 20''	24	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	35		**37.2**		est. from photo
	Sea-can 40''	3	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	8		**74.6**		est. from photo
Swick Shop	Tent	1	24.53	9.34	229.1	3.75	0.01	0	9	0.05	2.5	0.0	11.0	14	**17.65**	**859.2**		est. from photo
Water Intake Structure and Pumping Facilitiy					0.0						0.0	0.0	0.0	0	**3.00**	**0.0**		Estimate
Sedimentation Pollution Control Pond	Geotextile	1			9470.0			0.003						28	**0.00**	**0.0**		DN-DMC-033/041
	Liner	1			4640.0			0.003						14	**0.00**	**0.0**		DN-DMC-033/041
	Sedimentation Pond Backfill				1293.0	1										**1293.0**		1 m thick thermal cover
	Breach Volume (Sedimentation)	1	23	18	414.0	3.4										**1407.6**	**13.8**	
	Breach Volume (Pollution)	1	23	18	414.0	2.9										**1200.6**	**13.8**	
UG Mechanical Shop	Shop building	1	24.84	18.37	456.3	5	0.15	0.3	12.72	0.16	64.8	136.9	50.6	252	**504.53**	**2281.6**		est. from photo
	Sea-can 20''	10	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	14		**37.2**		est. from photo
	Sea-can 40''	6	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	16		**74.6**		est. from photo
Helipads	Helipads	6	7.27	4.13	30.0	0.5					0.0	0.0	0.0	15	**15.01**	**15.0**		Foot Print AutoCad, height thickness est. from photo
	Heli Building 1	1	8	5.11	40.9	2.5	0.15	0.4	5.11	0.16	9.8	16.4	6.5	33	**65.45**	**102.2**		As built Acad, height/thickness est. from photo
	Heli Building 2	1	5.05	2.95	14.9	2.5	0.15	0.4	2.95	0.16	6.0	6.0	2.4	14	**28.69**	**37.2**		As built Acad, height/thickness est. from photo
	Office	1	7.45	4.54	33.8	2.5	0.15	0.4	4.54	0.16	9.0	13.5	5.4	28	**55.87**	**84.6**		As built Acad, height/thickness est. from photo
	Lift Station	1	5.89	2.45	14.4	2.5	0.15	0.4	4.54	0.16	6.3	5.8	4.3	16	**32.61**	**36.1**		As built Acad, height/thickness est. from photo
	Washcar	1	3.23	6.24	20.2	2.5	0.15	0.4	6.24	0.16	7.1	8.1	3.2	18	**36.78**	**50.4**		As built Acad, height/thickness est. from photo
	Sea-cans 20''	10	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	37		**37.2**		

Fresh Water Pipelines	Piping	1	830	0.18	0.28									9	**28.16**	**0.0**		As built Acad
Sewage Discharge Pipelines	Piping	1	1190	0.18	0.03									30	**90.85**	**0.0**		As built Acad
Sedimentation Berm	Berm	1	77	8	617.00	1										**24.0**	**3.6**	As built Acad
Run-off Diversion Berm	Breach (Berm)	4	10	6.3	63.00	1.5										**378.0**		
	Cutt-off Sections	4	2	4.2	33.60											**0.0**		Estimate
	Liner	4	2	4.2	33.60			0.003						0.10	**0.30**	**0.0**		Estimate
Sumps	Sump 1 & 2	2		3	7.07	2										**28.3**		
Camp Pads	Aggregated footprint	1			152000.00												**152000.0**	from Interim Water Management Plan
Roberts Bay																**0.0**		
Jetty	Rock fill removal	1	39	26.8	1045.2	0.97										**1013.8**		Jetty As-built estimate
RB Tank Farm	Fuel Tanks	4	-	25.76	521.2	9.75	0.006	0.005		0.005	2.4	2.6	2.6	30	**45.47**	**5081.4**	**4493.1**	Fuel Tank Farm design doc/ photos
	Geotextile	1			20600.0			0.003						62	**185.40**			
	Liner	1			10300.0			0.003						31	**92.70**	**0.0**		Nuna As built Acad est
	Pipes (Tanks to Fuel Station)	1	110	0.15	0.018									2	**5.94**	**0.0**		Nuna As built Acad est
	Containment Berm (breach)	1	11.8	19.6	231.280	2.9										**670.7**		As Built drawing
Q1 Tank Farm (old)	Fuel tank	1	-	25.76	521.2	9.75	0.006	0.005		0.005	2.4	2.6	2.6	8	**11.37**	**5081.4**	**1123.3**	As built Acad, height/thickness est. from photo
	Geotextile	1			13042.0			0.003						39	**117.38**			
	Liner	1			6521.0			0.003						20	**58.69**	**0.0**		estimated from As built Acad
	Pipes (Tank to Fuel Station)	1	75	0.15	0.018									1	**4.05**	**0.0**		As built Acad, est. from photo
	Empty fuel drums	150		0.6	0.283	0.15								0.04	**0.06**			
	Sea-cans 20''	40	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	58		**37.2**		As built Acad, est. from photo
	Fuel Transfer Facitility Trailers	2	12.24	3.4	41.6	2.5	0.15	0.3	3.4	0.16	11.7	12.5	6.7	62		**104.0**		As built Acad, est. from photo
	Containment Berm (breach)	1	25.86	10.8	279.3	1.8										**502.7**		
Mechanical Shop Complex	Nuna Shop	1	15.58	30.84	480.5	5	0.15	0.3	31	0.16	69.6	144.1	77.3	291	**582.11**	**2402.4**		Nuna As built Acad est, height/thickness Photo Est.
	Tent	1	11.58	7.95	92.1	5	0.15	0.3	31	0.16	29.3	27.6	57.4	114	**148.66**	**460.3**		Nuna As built Acad est, height/thickness Photo Est.
	Trailers	3	12.09	2.4	29.0	2.5	0.15	0.3	2.4	0.16	10.9	8.7	4.6	73		**72.5**		Nuna As built Acad est, height/thickness Photo Est.
	Site Service Shack	1	11.8	9.6	113.3	2.5	0.15	0.3	9.6	0.16	16.1	34.0	18.1	68	**136.32**	**283.2**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	28	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	41		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 40''	12	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	32		**74.6**		Nuna As built Acad est, height/thickness Photo Est.
Waste Management Facility	Facility	1	12.23	10.52	128.7	2.5	0.15	0.3	10.52	0.16	17.1	38.6	20.6	76	**152.49**	**321.6**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
Laydown Area	Pad				24491.6											**0.0**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
Overburden Dump					10448.0											**0.0**		
Fuel Transfer Road	Road	1			3378.0											**0.0**		
Communication Tower	Tower	1	1.7	1.7	1.4	10	0.05	0.05	1.70	0.05	3.4	0.1	0.1	4	**5.53**	**14.5**		Nuna As built Acad est, height/thickness Photo Est.
	Shack																	
Marine Outfall Berm	Rock fill removal	1	50	10	500.0	0.97										**485.0**		
Airstrip		1														**0.0**		
Airstrip					68475.0											**0.0**		Nuna As built Acad, photo est
	Ground Lighting fixtures	1	1900	0.025	47.5	0.025										**1.2**		Nuna As built Acad, photo est
South Apron		1			5517.2											**0.0**		
North Apron	Wood Shack	1	5	2.44	12.2	2.5	0.15	0.3	3.1	0.16	5.6	3.7	2.5	12	**17.58**	**30.5**		Nuna As built Acad, photo est
	Portable Trailers	1	8	3.1	24.8	2.5	0.15	0.3	3.1	0.16	8.3	7.4	4.0	20		**62.0**		Nuna As built Acad, photo est
	Sea-can 20''	1	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	1		**37.2**		Nuna As built Acad, photo est
																0.0		
Reagent Pads																**0.0**		
Equipment Laydown					21870.0										**20.00**	**0.0**		Nuna As built Acad, photo est
Material Laydown					33839.8										**20.00**	**0.0**		Nuna As built Acad, photo est
Ammonium Nitrate Storage Area	Extent				3858.0			0.3						1157	**1504.62**	**0.0**		Nuna As built Acad, photo est
	Liner	1			2800.0			0.003						8	**25.20**	**0.0**		Nuna As built Acad, photo est
	Containment Berm	1	63.4	0.5	31.7	0.3										**9.5**		length=19.5x12.2 (8x2 22' seacans)
Geotech Drill Shop	Drill Shop	1	15.24	9.3	141.7	5	0.01	0	9.3	0.05	2.5	0.0	7.1	10	**12.40**	**149.6**		Nuna As built Acad, photo est
	Sea-can 20''	13	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	19		**37.2**		Nuna As built Acad, photo est

Waste Management Area																**0.0**		
Land Farm	Liner	1			4384.0			0.003						13	**39.46**	**0.0**		Nuna As built , design document est
	Non-woven Geotextile	1			8768.0			0.003						26	**78.91**	**0.0**		Nuna As built, design document est
	Containment Berm	1	89.3	33.72	3134.8											**0.0**		
Batch Plant Pad	Tent	1	36.65	20.2	740.3	5	0.01	0.3	11.7	0.05	5.7	222.1	21.4	249	**323.94**	**3701.7**		Nuna As built Acad, photo est
Burn Pan	Burn Pan	1	3.29	2.71	8.9	2	0.005	0.005			0.1	0.0		0	**0.25**	**17.8**		
Quarry #2																**0.0**		
Crusher	Regrade area	1	82.4	32.4	2668											**0.0**		Nuna as built ACAD estimated
Overburden Drump	Regrade area	1			26344											**0.0**		Nuna as built ACAD estimated
Treated Sewage Discharge Areas	Extent	2	6.63	4.01	27	1								53	**69.12**	**0.0**		
Quarry #3																		
Quarry #3																		
Landfill Cover	1m ROQ volume															**19520.0**		SRK Design
TIA																**0.0**		
Tail Lake Access	Bridge	1	30	2	60.0			0.3				18.0		18	**27.00**	**0.0**		Nuna As built Acad, photo est
	Dock	1	10	7	70.0			1				70.0		70	**105.00**	**0.0**		Nuna As built Acad, photo est
North Dam	Breach Volume (Core Material)	1	17.6	53.6	943.4	7.45										**7028.0**	**614.2**	
	Breach Volume (thermal cover)	1	65.5	62	3844.0	8.07										**31,021**	**2367.2**	
North Dam breach Cover Surface Area	East Side	1	23.8	8	190.4													
	West Side	1	23.9	8	191.2													
	Base	1	30.6	20	612.0													
	Total				993.6													
Subaerial Tailings Area	Total footprint	1			440,000													
Reclaim Pond (33.5 Elev.)	Footprint	1			849,700												**54.9**	
	Perimeter	1	5,702														**68.5**	
Reclaim Pond (29.5 Elev.)	Footprint	1			684,500												13.6	
	Perimeter	1	5,103															
Reclaim Pond (28.3 Elev. - natural lake)	Footprint	1			570300													
	Perimeter	1	4,684															
Tailings Reclaim Line	HDPE pipe, 8 inch OD	1	2375	0.2	746.13	0.04								30	**89.54**			assumed pipe diameter
Tailings Discharge Line	HDPE pipe, 8 inch OD	1	5750	0.2	1806.42	0.04								72	**216.77**			assumed pipe diameter
South Dam																		
Interim Dike	Dike Breach		12	10		1.2										**144.0**		
	Access Road		200															
Vent Raise																**0.0**		
Ventilation and Heating Facilities	Air Heaters															**0.0**		
Fuel Storage Area	Enviro Tank	1														**0.0**		
	Liner	1			410.0			0.003						1	**3.69**	**0.0**		Vent Raise Design document est
	Geotextiles	1			820.0			0.003						2	**7.38**	**0.0**		Vent Raise Design document est
Doris Windy Road																**0.0**		
AWR					101334.9											**0.0**		
Quarry A					5130.3											**0.0**		
Quarry B					5178.9											**0.0**		
Quarry D					12661.9											**0.0**		
Explosives Storage Facility	magazines	2	13.4	3.6	2805.8											**0.0**		Nuna As built Acad, photo est
	Gate	1	12	0.2	0.3	1.5								4	**5.40**	**0.5**		Estimate
Secondary Road																**0.0**		
Secondary Road	Road	1	5445		16674.5											**0.0**		Nuna As built Acad, photo est
Tail Lake Road	bridge deck	1	32	4.79	153.3			0.3			0.0	46.0	0.0	46	**91.97**	**0.0**		Nuna As built Acad, photo est
	Girders	4	30	0.3	9.0	1.5								14	**13.50**			
	Tailings Pipes	1	5750	0.4	0.1	0.4								920	**2760.00**	**0.1**		
	Culvert	1	18.8													**0.0**		Estimate -From asbuilt drawings
Explosives Facility	AN storage area				5926.0													SRK Design Drawings TL-EXP-02
	AN storage liner area				4442.0			0.003						13	**39.98**	**0.0**		SRK Design Drawings TL-EXP-03
	AN storage geotextile area				17768			0.003						53	**159.91**	**0.0**		SRK Design Drawings TL-EXP-03
	overliner volume				3031.0													SRK Design Drawings TL-EXP-03
	AN/FO mixing plant pad area				4708.0													SRK Design Drawings TL-EXP-02
	Magazine pad footprint				7924.0													SRK Design Drawings TL-EXP-02
	Berm footprint				2166.0													SRK Design Drawings TL-EXP-02
	magazines	8	13.4	3.6														SRK Design Drawings TL-EXP-02
Doris Mountain																**0.0**		
Communication Tower	Tower	2	1.7	1.7	1.4	10	0.05	0.05	1.70	0.05	3.4	0.1	0.1	7	**11.07**	**14.5**		Nuna As built Acad est
	Equipment Shack	1	3.17	3.03	4.8	2.5	0.1	0.2	3.03	0.1	3.1	1.9	1.0	6	**8.97**	**12.0**		Nuna As built Acad est
TOTAL:						**54.445**	**0.705**								27432.51			

Waste Volume Summary

Item	Destination	Qnty	Unit	Trips Required
Hazardous Waste			L	1
Sludge/Solid Waste	to Doris treatment plant	0.303	m^3	1

Demolition Preparation			Decommision										
Area	**Structure**	**# of Units**	**Electrical**	**Heating System**	**Plumbing System**	**Total**	**Heating Tanks**	**Hazardous Material Vol Estimate (L)**	**Total Hazardous Volume (L)**	**Special Item**	**Special Item Description**		**Source**
Doris Camp													
Accomodation Complex	Trailer Camp	82	1	3	3	88	1		**0**				Accomodation Design Doc, as built ACAD
	Cabins	5	1	1	1	15	1		**0**				As built ACAD
Fuel Tank Farm	Fuel Transfer Facility	1	1			1			**0**				Accomodation Design Doc, as built ACAD
	Piping and Controls	1				0			**0**				As built ACAD
	Above Ground Tanks	5				0		5,022	**25,112**		Residual Fuel (in each)		As built ACAD
Permanent Power Generator	Debris								**500**		Debris		
Temporary Power Generator	Power House	1	1	1		2	1		**0**				Estimated from ACAD
	Mobile Generator	1				0			**0**				Estimated from ACAD
	Fuel Unit	2				0			**0**				As built ACAD
Sewage Treatment Plant	Sewage Treatment Facility	1	1	1	1	3	1		**0**				Estimated from ACAD
	Sludge Storage Tank	1				0		1000	**1000**		Sludge/Solid Waste		Estimate from Sewage Treament Plant Specs
	Chemical Tank	1				0		1000	**1000**		Chemical		Estimate from Sewage Treament Plant Specs
Fire Water Storage Tank	Pump House	1	1		1	2			**0**				Estimated from ACAD
Muster Station	Fuel Unit	1				0			**0**				Estimated from ACAD
	Muster Tent	1	1	1		2	1		**0**				Estimated from ACAD
Warehouse/Core Shack	Fuel Unit	1				0			**0**				Estimated from ACAD
	CoreShack/Warehouse	1	1			1	1	5000	**5000**				
	Contractor Tents	2	1	1		4	1		**0**				Estimated from ACAD
UG Mechanical Shop	Maintenance Shop	1	1	1	1	3	1	200	**200**		Chemicals/Grease/Waste		Estimated from ACAD
Office/Mine Dry	Office/Admin/Mine Dry	3	1	1	1	9	1		**0**				Estimated from ACAD
Portal and Underground WorksWater Treatment	Undeground Works	1	1			1			**0**				Estimated from ACAD
Underground washbay	generators	4				0			**0**				Estimated from ACAD
	Washbay	1	1	1	1	3	1		**0**				Estimated from ACAD
Swick Shop	Shop Tent	1	1	1		2	1		**0**				Estimated from ACAD
Water Intake/Pumping Facility	pumping facitility sea-can	1	1		1	2			**20**		Debris		Estimated from ACAD
	Generator Fuel Tank	1				0			**0**				Estimated from ACAD
Sedimentation Pollution Control Pond	Piping & Wiring	1	1			1			**0**				Estimated from aerial photo
	RO plant	1	1	1		2	1	200	**200**		Sludge		Estimated from ACAD
Fresh Water Pipelines	Pipelines	1	1			1			**0**				Estimated from ACAD
Heli Pad	Offices/Buildings	3	1	1	1	9	1		**200**		Grease		Estimated from ACAD
Sewage Discharge Pipelines	Pipelines	1	1			1			**0**				Estimated from ACAD
Mill Reagents and chemicals	Remaining Chemicals	40						0.208	**8.32**				Assumed volume of reagents and chemicals
Robert's Bay						0			**0**				
New Tank Farm	Fuel Transfer Facility	1	1			1			**0**				As built ACAD
	Above Ground Tanks	4				0		15,635	**62,541**		Residual Fuel (in each)		As built ACAD
Old Tank Farm	Fuel Transfer Facility	1	1			1			**0**				As built ACAD
	Above Ground Tanks	1				0		15,635	**15,635**		Residual Fuel (in each)		As built ACAD
Mechanical Shop Complex	Nuna Shop	1	1	1	1	3	1	1000	**1000**		Grease/Waste		Nuna as built ACAD
	Tent	1	1	1		2	1		**0**				Nuna as built ACAD
	Site Service Shack	1	1	1		2	1		**0**				Nuna as built ACAD
Waste Management Facility	Facility	1	1	1	1	3	1	500	**500**		Waste (ashes)		Nuna as built ACAD, waste est
Laydown Area	Electric System	1	1			1		5000	**5000**		Debris		Nuna as built ACAD, Photo Est.
Overburden Area	Pad								**10**		Debris		
Communication Tower	Tower	1	1			1			**5**		Debris		Nuna as built ACAD, Photo Est.
Beach Laydown	Laydown Area	0	0	0	0	0			**1**		Debris		
Orbit Drill Shop	Shop	1	1	1	1	3	1	50	**50**		Grease		Nuna as built ACAD, Photo Est.
Air Strip						0			**0**				
North Apron	Traffic Control Tower	1	1			1			**0**				Nuna as built ACAD, Photo Est.
Explosive Mixing Facility	Facilities	1	1	1		2	1	100	**100**		Dye		Nuna as built ACAD, Photo Est.
						0			**0**				
Reagent Pads						0			**0**				
Equipment Laydown Area											Debris		
Material Laydown Area											Debris		
Geotech Drill Shop	Drill Shop	1	1	1		2	1	50	**50**		Grease		Nuna as built ACAD, Photo Est.
Waste Management Area						0			**0**				
Landfarm	Soil Pond	1				0			**34**		Contaminated Soil		Nuna as built ACAD,
Burn Pan	Ashe	1				0		100	**100**		Ashe		Nuna as built ACAD, Photo Est.
Quarry 2	Debris								**2.668**		Debris		Estimate
Vent Raise	Doris North Vent Rise Facility	1		1	1	2			**0**				Estimate
	Doris Connector Vent Rise Facility								**0**				
	Doris Central Vent Rise Facility								**0**				
Secondary Road	Debris								**20**		Debris		
Doris Mountain						0			**0**				
communication tower	equipment	1				0			**0**				Nuna as built ACAD, Photo Est.

Appendix G:Reclamation Areas

Earthwork Volumes/Quantities

Bulking Factors	
Soil/Rock Pad	1.2
Cover shrinkage factor	1.1

Reclamation Areas

Work Area	Location	Total Area (m^2)	Area Scarified (m^2)	Area Regraded (m^2)	Area Requiring Fill (m^2)	Coconut-matting Area (m^2)	Seeding Area (m^2)	Source/Comment
Roberts Bay	Beach Laydown Area							Nuna ACAD, Photo Est.
	Beach Laydown Area Expansion			12,200				Dwg. RB-LE-01 (ammendment 3 appendix 17)
	Southeast Laydown Area			8,133				Dwg. RB-LE-01 (ammendment 3 appendix 17)
	Southwest Laydown Area			18,467				Dwg. RB-LE-01 (ammendment 3 appendix 17)
Quarry #2	Overburden Dump					7,600		Nuna ACAD, Photo Est.
	Sewage Discharge Area				20	400		Estimated 2x(10mx20m)

Earthwork Areas

Work Area	Item	Qnty	Length (m)	Width (m)	Height (m)	Side Slope (percent)	Area (m^2)	In-situ Volume (m^3)	Loose Volume (m^3)	Source / Comments
Doris Camp										
Accomodation Area (Pad X)	Regrade area					1	21,050			as built ACAD estimated
Tank Farm (Pad R)	Excavate crush material							2800	3360	Fuel Tank Farm Design Docs
	Regrade area		80.65	61.1		1	4,928			Fuel Tank Farm Design Docs
Warehouse (Pad Y)	Regrade area					1	8,440			as built ACAD estimated
(Pad B)	Regrade area					1	6,910			as built ACAD estimated
Mine Dry (Pad C)	Regrade area					1	13,030			as built ACAD estimated
Pad D	Regrade area					1	5,943			est from Nuna As built ACAD
Pad E/P (UG Maintentance)	Regrade area					1	11,000			as built ACAD estimated
Portal Area	Regrade area					1	1,800			as built ACAD estimated
Pad I - Waste Rock	Regrade area					1	11,500			as built ACAD estimated
Pad G	Regrade area					1	5,340			Nuna as built ACAD estimated
Pad F (washbay area)	Regrade area					1	8,750			Nuna as built ACAD estimated
Pad Q/ J/H	Regrade area					1	9,870			as built ACAD estimated
Pad T	Regrade area						50,400			Dwg. DN-DMC-T1 (ammendment 3, appendix 18)
Pad U	Regrade area						35,200			Dwg. DN-WRE-02 (ammendment 3, appendix 19)
Pad U	Breach berm	1	4	15	2			120		
Pad U	Cut liner	1	4.2		3			13		
Water Intake/Pumping Facility	Regrade area					1	2,226			as built ACAD estimated
Roberts Bay										
Jetty	Escavate rock fill				1.3		1900	2470		as built ACAD estimated
	Regrade area					1	1900			as built ACAD estimated
Roberts Bay Tank Farm	Regrade area					1	11530			as built ACAD estimated
	Excavate crush material				0.6			5455	6546	Tank Farm Design Documents
Quarry #1 Tank Farm	Regrade area					1	3650			as built ACAD estimated
	Excavate crush material				0.6			2190	2628	as built ACAD estimated
Mechanical Shop Complex	Regrade area					1	4780			Nuna as built ACAD estimated
Waste Management Facility	Regrade area					1	3050			Nuna as built ACAD estimated
Laydown Area	Regrade area					1	15530			Nuna as built ACAD estimated
Overburden Dump	Regrade area/side slope					18	11530			Nuna as built ACAD estimated
Fuel Transfer Access Road	Crown road					1	3375			Nuna as built ACAD estimated
Marine Outfall Berm	Escavate rock fill		50	10	0.97		500	485		Dwg. RBDS-04 & 06 (Type A Amend, app P6-7)
	Regrade area		50	10			500			
Airstrip										
Airstrip/Aprons	Regrade area					1	81945			existing + expand (upto explosive facility) ACAD Estimated
Reagent Pads										
Upper and Lower Pads	Regrade area					1	75550			as built ACAD estimated
Waste Management Area										
Land Farm	Excavate crush/surfacing material							2591	3109.2	Landfarm Design Document Quantity
	Contamitated Soil							100	1036	Estimated to be 1/3 of total overliner
	Regrade area					1	8100			Nuna as built ACAD estimated
Batch Plant Pad	Regrade area					1	12130			Nuna as built ACAD estimated
Burn Pan	Regrade Area						400			
Quarry #2										
Crusher	Regrade area					1	25630			Nuna as built ACAD estimated
Overburden Drump	Regrade area					1	28420			Nuna as built ACAD estimated
Quarry #3										
Quarry #3	Access Road		0.205							
Landfill Cover	1m ROQ volume							19520		TL-LF-05
North Dam										
Tail Lake Access Road	Crown Road					1	3429			Nuna as built ACAD estimated
Frozen Core Plant Pad	Regrade area					1	7510			Nuna as built ACAD estimated
TIA (Tailings Impondment Area)	Erosion area						49400			SRK Shoreline erosion study; pro-rated for reduced pond area
Subaerial Tailings area	Footprint						440,000	132,000		0.3 m rock cover
Vent Raise										
Fuel Storage Area	Excavate crush material							123		Design Document estimated
Regrade Pad	Regrade area (Doris North)					1	4150			Nuna as built ACAD estimated
	Regrade area (Doris Central)						250			dwg. DC-01 (ammendment 3, appendix 16)
	Regrade area (Doris Connector)						250			assumed same as above
	Doris Central Vent Raise		0.72							
	Doris Connector Vent Raise		0.22							
Doris Windy Road										
Explosives Storage Facility	Regrade area					1	2050			Nuna as built ACAD estimated
Secondary Road										
Tail Lake Road	Regrade area					1	17500			Nuna as built ACAD estimated

Appendix H: Water Management Schedule

Activity	Task	Unit	Unit Cost	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030		Activity Total	Source / Comments
				Year 1	Year2	Year3	Year4	Year5	Year6	Year7	Year8	Year9	Year10	Total		
Operate and maintain water management system	Pump technician	day	$ 1,890	274	365	151	0	0	0	0	90	0	0	880	$ 1,663,200	
	Support person (camp, etc.)	day	$ 2,000	158	365	151	0	0	0	0	0	0	0	674	$ 1,348,000	Camp costs in year 8 accounted for under dam breach
	Site Services Support &Maintenance	LS	$ 50,000	1	2	1	0	0	0	0	1	0	0	5	$ 250,000	
	Spare Parts & Consumables	LS	$ 20,000	1	2	1	0	0	0	0	1	0	0	5	$ 100,000	
TOTAL															**$ 3,361,200**	