

RECLAMATION COST SUMMARY

Description	Amount
Equipment Capital Costs	\$ 947,234
Equipment Operation and Maintenance Costs	\$ 310,491
Revegetation	\$ 109,949
Manpower	\$ 1,137,390
Manpower support	\$ 324,974
Materials, supplies, other	\$ 379,458
1-Year Holding Period	\$ 551,379
Post Closure Monitoring	\$ 242,507

Subtotal Operating and Maintenance Cost	\$ 4,003,383
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	Percent*	
Contractor Profit	10	\$ 400,000
Contractor Overhead	4	\$ 160,000
<i>subtotal</i>		\$ 4,563,383
Performance and Payment Bond	3	\$ 137,000
Liability Insurance	1.5	\$ 21,000
<i>subtotal</i>		\$ 4,721,383
BLM Contract Administration	9.4	\$ 376,000
Engineering Redesign (ED&C) Plan	6	\$ 240,000
Contingency	12	\$ 480,000
State agency oversight	1.5	\$ 60,000
<i>subtotal</i>		
Total		\$ 5,877,383

*Percent taken from low end of range provided.

Inflation Adjustment	Annual Rate:	0.0267
2011 Estimate	\$	5,877,000
2012 Estimate	\$	6,034,000
2013 Estimate	\$	6,195,000
2014 Estimate	\$	6,360,000
2015 Estimate	\$	6,530,000
2016 Estimate	\$	6,704,000
2015 Estimate	\$	6,704,000

Reference Sheet
Equipment Capital Spread
Equipment O&M Cost Spread
Vegetation
Labor Capital Spread
Manpower Support Spread
Materials/Supplies
One Year Holding Period
Monitoring

EQUIPMENT CAPITAL SPREAD								Estimation Parameters									
Equipment	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	Total	Equipment Preparation/Assembly		Herc Flight		loads		HERC load limit		HERC Flight	
								INBOUND	OUTBOUND	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	outbound
CAT 725A	\$ 12,000.00	\$ 12,000.00	\$ 12,000.00	\$ 12,000.00	\$ 12,000.00		\$ 60,000.00	\$26,290.00	\$33,000.00	\$71,598.00	\$57,600.00	2	2	45500	29500	\$35,799.00	\$28,800.00
CAT 725B		\$ 12,000.00	\$ 12,000.00	\$ 12,000.00			\$ 36,000.00										
CAT IT62A	\$ 11,250.00	\$ 11,250.00	\$ 11,250.00	\$ 11,250.00	\$ 11,250.00	\$ 11,250.00	\$ 67,500.00	\$13,750.00	\$14,400.00	\$35,799.00	\$57,600.00	1	2				
CAT IT62B		\$ 11,250.00	\$ 11,250.00	\$ 11,250.00			\$ 33,750.00										
CAT D6NA	\$ 7,800.00	\$ 7,800.00	\$ 7,800.00	\$ 7,800.00	\$ 11,700.00	\$ 7,800.00	\$ 50,700.00	\$15,000.00	\$15,400.00	\$71,598.00	\$57,600.00	2	2				
CAT D6NB		\$ 7,800.00	\$ 7,800.00	\$ 7,800.00			\$ 23,400.00										
CAT 420	\$ 3,900.00	\$ 3,900.00	\$ 3,900.00	\$ 3,900.00	\$ 3,900.00	\$ 3,900.00	\$ 23,400.00	\$4,500.00	\$0.00								
PUMP		\$ 3,150.00					\$ 3,150.00	\$0.00	\$0.00	\$35,799.00	\$57,600.00	1	2				
f250	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 10,800.00	\$0.00	\$0.00								
service truck	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 1,800.00	\$ 10,800.00	\$0.00	\$0.00								
Finn T120	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 60,000.00										
subtotal	\$ 48,550.00	\$ 82,750.00	\$ 79,600.00	\$ 79,600.00	\$ 52,450.00	\$ 36,550.00	\$ 319,500.00										
Mobilization																	
Herc flights	\$214,794.00	\$0.00	\$0.00	\$0.00													
equipment prep	\$59,540.00	\$0.00	\$0.00	\$0.00													
Demobilization																	
Herc flights					\$57,800.00	\$172,800.00											
equipment prep					\$33,000.00	\$29,800.00											
subtotal	\$274,334.00	\$0.00	\$0.00	\$0.00	\$90,800.00	\$202,600.00	\$567,734.00										
TOTAL	\$322,884.00	\$82,750.00	\$79,600.00	\$79,600.00	\$143,250.00	\$239,150.00	\$947,234.00										

Units marked with a 'B' are night shifted units
1st month rental is for mobilization
6th month rental is demobilization
Cat 420 mobilization cost includes MSHA compliant exhaust

Equipment	Fleet Units	weight	loads in	loads out
725	1	49075	1.1	1.7
IT62H	1	43962	1.0	1.5
D6	1	49500	1.1	1.7
420	1	15201	0.3	0.5
Finn T120	1	5800	0.1	0.2
Pump w/hose	1	3000	0.1	0.1
F250 pickup	2	8800	0.4	0.6
equipment loads required (gross)			4.0	6.2
loads used for estimate			5	7
estimate load factor			81%	89%

EQUIPMENT O&M COST SPREAD

Reclamation Component	Cat 725 A	Cat 725 B	Cat IT62 A	CAT IT62 B	D6N A	D6N B	420	T120T	Pump	F250	Machine Cost
Total Cost Per Shift	art. Truck	art. truck	loader	loader	dozer	dozer	backhoe	hydroseeder		pickup	O&M
	\$ 634.41	\$ 634.41	\$ 515.19	\$ 242.08	\$ 622.30	\$ 622.30	\$ 390.98	\$ 817.70	\$ 172.73	\$ 240.01	
Site Roadways	0		0		27		0	2	0	0	\$ 16,930.34
Exploration Sites	0		0		5		3	3	0	3	\$ 4,806.63
Hercules Airstrip Embankment	0		0		6		0	1	0	1	\$ 3,904.99
Mystery Portal Rock Dump	1		1		16		0	0	0	1	\$ 11,130.12
Crystal Portal Rock Dump	5		5		18	14	0	2	0	2	\$ 25,664.70
Rock Quarry	0		0		5		0	1	0	1	\$ 3,073.87
TSF-Task 1	0		0		22		2	0	2	3	\$ 15,506.25
TSF-Task 2		62		62	4	31	0	0	0	0	\$ 76,452.74
TSF-Task 3	0		0		0		5	0	0	0	\$ 1,954.92
TSF Task 4	0		0		0		0	2	0	2	\$ 416.26
FTDS		27		27		10	0	1	0	1	\$ 30,084.02
Sand Borrow Pit	0		0		2		0	0	0	0	\$ 1,261.41
Mystery Decline Portal	0		0		1		0	0	0	0	\$ 346.50
Mystery Ventilation Raise	0		0		2		2	0	0	2	\$ 2,351.07
Crystal Decline Portal	0		0		1		0	0	0	0	\$ 344.48
Crystal Ventilation Raise	0		0		2		2	0	0	2	\$ 2,380.30
Underground Workings	0		0		0		4	0	0	0	\$ 1,563.93
Multi-Use Complex	0		4		4		4	0	0	0	\$ 6,597.45
Misc. Camp Outbuildings	1		1		1		1	0	0	0	\$ 1,802.40
Misc. Mill Outbuildings	1		1		1		0	0	0	0	\$ 1,898.29
Old (south) Camp Area	0		1		1		1	0	0	1	\$ 1,222.31
Infil gallery and Pumphouse	0		0		0		0	0	0	0	\$ 411.92
Utility Corridor	0		0		0		1	0	0	1	\$ 514.58
Water Treatment Plant	0		0		0		1	0	0	1	\$ 513.57
Water Storage Tank	1		1		1		1	0	0	1	\$ 1,249.53
Office/Dry Complex	2		3		2		3	0	0	0	\$ 5,820.51
Maintenance Shop	0		6		0		6	0	0	0	\$ 5,294.10
Mill Complex	0		32		7		32	0	0	0	\$ 33,570.75
Gen Set Enclosure	0		2		0		2	0	0	1	\$ 1,709.27
Met Station	0		0		0		0	0	0	0	\$ 501.97
Fuel Depot	5		5		2		5	0	0	5	\$ 10,171.43
Solid Waste Landfill	0		0		2		0	0	0	1	\$ 1,438.42
Subtotal dedicated equipment	15	89	62	89	129	56	74	14	2	28	\$ 270,889.04
undedicated equipment	O&M 50 percent total dedicated shifts										
service truck	150	75.0									\$ 18,001.03
f250	180	90.0									\$ 21,601.23
subtotal non dedictated equipment											\$ 39,602.26
TOTAL											\$ 310,491.30

REVEGETATION

Feature	Reclaimed Acreage	Seed Rate	Fertilizer Rate	Hydroseeder										COST ESTIMATE		
				seed		specification				application				Seed	fertilizer	subtotal
				lbs	lbs	gallons	required tanks	spray	fill/mix	total	shifts	manpower	equipment			
Site Roadways	14.8	24	350	355	5180	1000	44.4	4.4	22	27	2.2	\$ 3,299.48	\$ 2,747.15	\$ 3,740.26	\$ 2,156.95	\$ 11,943.84
Exploration Sites	20.0	24	350	480	7000	1000	60.0	5.9	30	36	3.0	\$ 4,458.76	\$ 3,712.36	\$ 5,054.40	\$ 2,914.80	\$ 16,140.32
Hercules Airstrip Embankment	6.0	24	350	144	2100	1000	18.0	1.8	9	11	0.9	\$ 1,337.63	\$ 1,113.71	\$ 1,516.32	\$ 874.44	\$ 4,842.10
Mystery Portal Rock Dump	2.9	24	0	70	0	1000	8.7	0.9	4	5	0.4	\$ 646.52	\$ 538.29	\$ 732.89	\$ -	\$ 1,917.70
Crystal Portal Rock Dump	15.0	24	350	360	5250	1000	45.0	4.4	23	27	2.2	\$ 3,344.07	\$ 2,784.27	\$ 3,790.80	\$ 2,186.10	\$ 12,105.24
Rock Quarry	4.6	24	350	112	1627	1000	13.9	1.4	7	8	0.7	\$ 1,036.38	\$ 862.89	\$ 1,174.83	\$ 677.51	\$ 3,751.62
TSF-Task 1	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
TSF-Task 2	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
TSF-Task 3	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
TSF Task 4	11.6	24	350	278	4060	1000	34.8	3.4	17	21	1.7	\$ 2,586.08	\$ 2,153.17	\$ 2,931.55	\$ 1,690.58	\$ 9,361.39
FTDS	8.0	24	350	192	2800	1000	24.0	2.4	12	14	1.2	\$ 1,783.50	\$ 1,484.94	\$ 2,021.76	\$ 1,165.92	\$ 6,456.13
Sand Borrow Pit	1.1	24	350	27	389	1000	3.3	0.3	2	2	0.2	\$ 247.71	\$ 206.24	\$ 280.80	\$ 161.93	\$ 896.68
Mystery Decline Portal	0.2	24	0	5	0	1000	0.6	0.1	0	0	0.0	\$ 44.59	\$ 37.12	\$ 50.54	\$ -	\$ 132.26
Mystery Ventilation Raise	0.5	24	350	12	175	1000	1.5	0.1	1	1	0.1	\$ 111.47	\$ 92.81	\$ 126.36	\$ 72.87	\$ 403.51
Crystal Decline Portal	0.2	24	350	5	70	1000	0.6	0.1	0	0	0.0	\$ 44.59	\$ 37.12	\$ 50.54	\$ 29.15	\$ 161.40
Crystal Ventilation Raise	0.5	24	350	12	175	1000	1.5	0.1	1	1	0.1	\$ 111.47	\$ 92.81	\$ 126.36	\$ 72.87	\$ 403.51
Underground Workings	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Multi-Use Complex	1.9	24	350	46	665	1000	5.7	0.6	3	3	0.3	\$ 423.58	\$ 352.67	\$ 480.17	\$ 276.91	\$ 1,533.33
Misc. Camp Outbuildings	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Misc. Mill Outbuildings	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Old (south) Camp Area	0.9	24	350	22	315	1000	2.7	0.3	1	2	0.1	\$ 200.64	\$ 167.06	\$ 227.45	\$ 131.17	\$ 726.31
Infil gallery and Pumphouse	0.1	24	0	2	0	1000	0.3	0.0	0	0	0.0	\$ 22.29	\$ 18.56	\$ 25.27	\$ -	\$ 66.13
Utility Corridor	0.2	24	350	5	70	1000	0.6	0.1	0	0	0.0	\$ 44.59	\$ 37.12	\$ 50.54	\$ 29.15	\$ 161.40
Water Treatment Plant	0.1	24	350	2	35	1000	0.3	0.0	0	0	0.0	\$ 22.29	\$ 18.56	\$ 25.27	\$ 14.57	\$ 80.70
Water Storage Tank	0.1	24	350	2	35	1000	0.3	0.0	0	0	0.0	\$ 22.29	\$ 18.56	\$ 25.27	\$ 14.57	\$ 80.70
Office/Dry Complex	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Maintenance Shop	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Mill Complex	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Gen Set Enclosure	0.0	24	350	0	0	1000	0.0	0.0	0	0	0.0	\$ -	\$ -	\$ -	\$ -	\$ -
Met Station	0.1	24	350	2	35	1000	0.3	0.0	0	0	0.0	\$ 22.29	\$ 18.56	\$ 25.27	\$ 14.57	\$ 80.70
Fuel Depot	0.6	24	350	14	210	1000	1.8	0.2	1	1	0.1	\$ 133.76	\$ 111.37	\$ 151.63	\$ 87.44	\$ 484.21
Solid Waste Landfill	3.0	24	350	72	1050	1000	9.0	0.9	5	5	0.4	\$ 668.81	\$ 556.85	\$ 758.16	\$ 437.22	\$ 2,421.05
subtotal	92.5			2219	31241							\$ 20,613	\$ 17,162	\$ 23,366.46	\$ 13,008.73	\$ 74,150.23

Material Frieght
 inbound flights 0.7 1.0 \$35,799.00

TOTAL REVEGETETATION \$ 109,949.2 project per acre cost \$ 1,189

Estimation Information

application rate 170 gpm
 fill/mix 0.5 hour per tank
 manpower 2 laborer 1
 fertilizer (20-20-10) \$ 2.40 \$/lb
 seed \$ 10.53 \$/lb 20.82 per 50 lb bag

HERC load limit		HERC Flight	
Inbound	Outbound	Inbound	outbound
45500	29500	\$35,799.00	28800

SEED MIX AND PRICE		
	PLS/#	
slender wheatgrass	8.5	<i>Elymus trachycaulus</i>
red fescue	7.5	<i>Festuca rubra</i>
tufted hairgrass	2.0	<i>Deschampsia caespitosa</i>
alpine bluegrass	3.5	<i>Poa alpina</i>
annual rye	2.0	<i>Lolium multiflorum</i>
	24	
	10.53 per lb	

costs for seed and fertilizer confirmed by ECP with Mr. Steve Rooke, Alaska Mill and Feed 10/31/2011 (907) 276-6016

Labor Capital Spread									
	QTY	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	rate/shift	
Superintendent	1	\$ 16,940	\$ 16,940	\$ 16,940	\$ 16,940	\$ 16,940	\$ 16,940	\$ 101,640	\$605.00
CAT 725A Operator	1		\$ 22,638	\$ 22,638	\$ 22,638	\$ 22,638		\$ 90,552	superintendent committed for 1 months before and 1 months following project schedule shown
CAT 725B Operator	1		\$ 22,638	\$ 22,638	\$ 22,638	\$ 5,660		\$ 73,574	\$33,880
CAT IT62A Operator	1		\$ 23,888	\$ 23,888	\$ 23,888	\$ 23,888		\$ 95,550	
CAT IT62B Operator	1		\$ 23,888	\$ 23,888	\$ 23,888	\$ 5,972		\$ 77,635	
CAT D6NA Operator	1		\$ 22,274	\$ 22,274	\$ 22,274	\$ 22,274	\$ 22,274	\$ 111,370	
CAT D6NB Opeartor	1		\$ 22,274	\$ 22,274	\$ 22,274	\$ 5,569		\$ 72,391	
Oiler/Fueler	1		\$ 20,876	\$ 20,876	\$ 20,876	\$ 20,876		\$ 83,503	
Laborer 2	1	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 128,210	
Laborer 2	1	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368	\$ 128,210	
Laborer 2	1		\$ 21,368	\$ 21,368	\$ 21,368	\$ 21,368		\$ 85,473	
Laborer 3A	0							\$ -	
Miner 1	0							\$ -	
Miner 2	1		\$ 5,727					\$ 5,727	
Miner 3	1							\$ -	
Mason	1				\$ 5,744	\$ -		\$ 5,744	
Plumber	1			\$ 6,226		\$ 6,226		\$ 12,453	
Electrician	1		\$ 23,610			\$ 7,870		\$ 31,480	
Cat Tech	1								included in equipment setup/teardown
Cat Tech	1								included in equipment setup/teardown
cook	1								included in camp
bull cook	1								included in camp
camp manager	1								included in camp
		\$ 59,677	\$ 268,857	\$ 245,746	\$ 245,264	\$ 202,017	\$ 81,951		
max camp personnel	21							TOTAL \$	1,137,390
onsite personnel		9	16	15	15	14	10		

MANPOWER SUPPORT SPREAD

	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6	
onsite personnel	9	16	15	15	14	10	
person days (28 day month)	252	448	420	420	392	280	
<i>subtotal camp costs</i>	\$ 36,295.65	\$ 44,135.65	\$ 43,015.65	\$ 43,015.65	\$ 41,895.65	\$ 37,415.65	\$ 245,773.91
Personnel flights	4	4	4	4	4	4	24
<i>subtotal personnel flights</i>	\$ 13,200.00	\$ 13,200.00	\$ 13,200.00	\$ 13,200.00	\$ 13,200.00	\$ 13,200.00	\$ 79,200.00

\$ 3,300.00 per fully loaded flight (includes food)

Total \$ 324,973.91

monthly camp costs

Camp Costs		
cook	\$ 15,364.85	\$ 453.51 per day
fuel	\$ 8,850.80	50 gallons per day
phone/internet	\$ 2,000.00	\$ 2,000.00 per month
		28 days per month
<i>subtotal camp</i>	\$ 26,215.65	
food		\$40 per person day

<i>materials</i>										
<i>Inbound</i>					outbound					
materials	qty	wt of materials	load limit	loads		glycol	qty	wt	load limit	loads
concrete	1024	61440	45500	1.4		RCRA	20	8170.8	29500	0.276976
pan decking	512	15360	45500	0.3						
rebar	64	2560	45500	0.1						
geotextile	90	45000	45500	1.0						
benseal	100	5000	45500	0.1						
material subtotal				2.8						0.803231
Hercules cost (mob)		35799		3.0				28800		1

Plans	\$	50,000	ERTC POL Soil Plan
	\$	20,000	TSF Stability analysis
	\$	25,495	SWPPP
	\$	95,495	

freight (inbound)	\$	107,397.00
freight (outbound)	\$	28,800.00
Waste Disposal	\$	86,961.83
Plans	\$	95,495.00
Material Costs	\$	60,804.48
Total	\$	379,458.31

RECLAMATION PLAN SECTION 3.0 - Post Closure Monitoring

Personnel					
Position	rate	field hrs	office hrs	cost	role in inspection program
Engineer	\$140.00 per hour	12	24	\$5,040.00	TSF Inspection
Engineer	\$140.00 per hour	12	24	\$5,040.00	Land farm/FTDS inspection & sampling
Hydrologist	\$120.00 per hour	12	24	\$4,320.00	Water sample collection (Mystery Creek, Ruby Creek)
Vegetation Specialist	\$120.00 per hour	12	24	\$4,320.00	Vegetation Sampling and invasive monitoring
Analytical Sampling					
baseline water quality	\$1,500.00 ea	2		\$3,000.00	
POL Land farm	\$250.00 ea	5		\$1,250.00	
travel	\$2,164.00			\$2,164.00	
subtotal	\$25,134.00				
number of events	7 POO V2	1, 2, 5, 10, 15, 20, and 30 years			
Post Closure monitoring	\$242,506.95				

Year 1	\$25,134.00
Year 2	\$25,805.08
Year 3	\$26,494.07
Year 4	\$27,201.47
Year 5	\$27,927.74
Year 6	\$28,673.42
Year 7	\$29,439.00
Year 8	\$30,225.02
Year 9	\$31,032.02
Year 10	\$31,860.58
Year 11	\$32,711.26
Year 12	\$33,584.65
Year 13	\$34,481.36
Year 14	\$35,402.01
Year 15	\$36,347.24
Year 16	\$37,317.71
Year 17	\$38,314.10
Year 18	\$39,337.08
Year 19	\$40,387.38
Year 20	\$41,465.73
Year 21	\$42,572.86
Year 22	\$43,709.56
Year 23	\$44,876.60
Year 24	\$46,074.81
Year 25	\$47,305.01
Year 26	\$48,568.05
Year 27	\$49,864.82
Year 28	\$51,196.21
Year 29	\$52,563.15
Year 30	\$53,966.58

LABOR ALLOCATION SCHEDULE												Machine Cost Operator
Reclamation Component	Cat 725 A art. Truck	Cat 725 B art. truck	Cat IT62 A loader	CAT IT62 B loader	D6N A dozer	D6N B dozer	420 backhoe	T120T hydroseeder	Pump	F250 pickup		
Operator Cost Per Shift	\$ 808.50	\$ 808.50	\$ 853.13	\$ 808.50	\$ 795.50	\$ 795.50	\$ 853.13	\$ 1,491.13	\$ 746.88	\$ 745.56		
Site Roadways	0		0		27		0	2	0	0	\$ 23,295.25	
Exploration Sites	0		0		5		3	3	0	3	\$ 10,573.04	
Hercules Airstrip Embankment	0		0		6		0	1	0	1	\$ 6,055.45	
Mystery Portal Rock Dump	1		1		16		0	0	0	1	\$ 15,339.96	
Crystal Portal Rock Dump	5		5		18	14	0	2	0	2	\$ 36,359.07	
Rock Quarry	0		0		5		0	1	0	1	\$ 4,753.47	
TSF-Task 1	0		0		22		2	0	2	3	\$ 23,062.97	
TSF-Task 2		62		62	4	31	0	0	0	0	\$ 128,729.33	
TSF-Task 3	0		0		0		5	0	0	0	\$ 4,265.64	
TSF Task 4	0		0		0		0	2	0	2	\$ 2,588.37	
FTDS		27		27		10	0	1	0	1	\$ 53,085.76	
Sand Borrow Pit	0		0		2		0	0	0	0	\$ 1,809.46	
Mystery Decline Portal	0		0		1		0	0	0	0	\$ 456.06	
Mystery Ventilation Raise	0		0		2		2	0	0	2	\$ 4,656.48	
Crystal Decline Portal	0		0		1		0	0	0	0	\$ 456.09	
Crystal Ventilation Raise	0		0		2		2	0	0	2	\$ 4,664.42	
Underground Workings	0		0		0		4	0	0	0	\$ 3,412.51	
Multi-Use Complex	0		4		4		4	0	0	0	\$ 11,057.94	
Misc. Camp Outbuildings	1		1		1		1	0	0	0	\$ 2,758.55	
Misc. Mill Outbuildings	1		1		1		0	0	0	0	\$ 2,640.31	
Old (south) Camp Area	0		1		1		1	0	0	1	\$ 2,171.54	
Infil gallery and Pumphouse	0		0		0		0	0	0	0	\$ 680.98	
Utility Corridor	0		0		0		1	0	0	1	\$ 1,248.22	
Water Treatment Plant	0		0		0		1	0	0	1	\$ 1,237.08	
Water Storage Tank	1		1		1		1	0	0	1	\$ 2,125.33	
Office/Dry Complex	2		3		2		3	0	0	0	\$ 9,265.63	
Maintenance Shop	0		6		0		6	0	0	0	\$ 9,968.42	
Mill Complex	0		32		7		32	0	0	0	\$ 60,577.68	
Gen Set Enclosure	0		2		0		2	0	0	1	\$ 3,508.44	
Met Station	0		0		0		0	0	0	0	\$ 863.52	
Fuel Depot	5		5		2		5	0	0	5	\$ 17,869.39	
Solid Waste Landfill	0		0		2		0	0	0	1	\$ 2,692.81	
Subtotal dedicated equipment operator	15	89	62	89	129	56	74	14	2	28	\$ 452,229.17	
labor cost per shift	Laborer 1 \$ 745.56	Laborer 2 \$ 763.15	Laborer 3A \$ 836.63	Miner 1 \$ 798.70	miner 2 \$ 818.12	Miner 3 \$ 835.53	Mason \$ 820.51	Plumber \$ 889.49	Electrician \$ 1,124.27		Labor Cost	
Site Roadways	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 1,649.74	
Exploration Sites	5.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 6,001.17	
Hercules Airstrip Embankment	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 668.81	
Mystery Portal Rock Dump	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 1,068.82	
Crystal Portal Rock Dump	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 1,672.03	
Rock Quarry	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 518.19	
TSF-Task 1	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 4,842.02	
TSF-Task 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ -	
TSF-Task 3	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 3,727.81	
TSF Task 4	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 1,293.04	
FTDS	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 891.75	
Sand Borrow Pit	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 123.85	
Mystery Decline Portal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 22.29	
Mystery Ventilation Raise	1.6	0.4	0.0	0.0	0.0	0.0	1.5	0.0	0.4		\$ 2,694.36	
Crystal Decline Portal	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 22.29	
Crystal Ventilation Raise	1.6	0.4	0.0	0.0	0.0	0.0	1.5	0.0	0.4		\$ 2,694.50	
Underground Workings	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0		\$ 3,272.49	
Multi-Use Complex	0.3	4.2	0.0	0.0	0.0	0.0	0.0	0.0	1.1		\$ 3,398.45	
Misc. Camp Outbuildings	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 635.96	
Misc. Mill Outbuildings	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 847.95	
Old (south) Camp Area	0.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 571.40	
Infil gallery and Pumphouse	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1		\$ 117.14	
Utility Corridor	0.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5		\$ 481.90	
Water Treatment Plant	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5		\$ 392.79	
Water Storage Tank	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5		\$ 407.12	
Office/Dry Complex	0.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5		\$ 2,550.20	
Maintenance Shop	0.0	5.8	0.0	0.0	0.0	0.0	0.0	0.0	5.8		\$ 4,461.58	
Mill Complex	0.0	32.2	0.0	0.0	0.0	0.0	0.0	9.8	10.8		\$ 33,317.27	
Gen Set Enclosure	0.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6		\$ 1,249.35	
Met Station	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 169.43	
Fuel Depot	0.1	4.8	0.0	0.0	0.0	0.0	0.0	0.0	1.0		\$ 3,760.15	
Solid Waste Landfill	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		\$ 334.41	
Subtotal dedicated labor	29.7	59.7	0.0	0.0	4.0	0.0	3.0	9.8	23.3	0.0	\$ 82,208.55	

EQUIPMENT ALLOCATION SCHEDULE

Reclamation Component	Cat 725 A art. Truck	Cat 725 B art. truck	Cat IT62 A loader	CAT IT62 B loader	D6N A dozer	D6N B dozer	420 Finn T120 backhoe	Pump hydroseeder	F250 pickup	Machine Cost	
Total Cost Per Shift	\$ 1,871.49	\$ 1,871.49	\$ 1,770.10	\$ 1,770.10	\$ 1,835.66	\$ 1,835.66	\$ 1,453.04	\$ 2,960.65	\$ 1,032.11	\$ 934.56	
Site Roadways	0		0		27		0	2	0	2	\$ 52,009.17
Exploration Sites	0		0		5		3	3	0	3	\$ 15,605.39
Hercules Airstrip Embankment	0		0		6		0	1	0	1	\$ 11,722.20
Mystery Portal Rock Dump	1		1		16		0	0	0	1	\$ 33,364.10
Crystal Portal Rock Dump	5		5		18	14	0	2	0	2	\$ 77,377.53
Rock Quarry	0		0		5		0	1	0	1	\$ 9,224.78
TSF-Task 1	0		0		22		2	0	2	3	\$ 48,199.21
TSF-Task 2		62		62	4	31	0	0	0	0	\$ 291,447.89
TSF-Task 3	0		0		0		5	0	0	0	\$ 7,265.20
TSF Task 4	0		0		0		0	2	0	2	\$ 1,620.81
FTDS		27		27		10	0	1	0	1	\$ 117,109.50
Sand Borrow Pit	0		0		2		0	0	0	0	\$ 3,758.55
Mystery Decline Portal	0		0		1		0	0	0	0	\$ 1,028.87
Mystery Ventilation Raise	0		0		2		2	0	0	2	\$ 8,036.21
Crystal Decline Portal	0		0		1		0	0	0	0	\$ 1,031.79
Crystal Ventilation Raise	0		0		2		2	0	0	2	\$ 8,144.83
Underground Workings	0		0		0		4	0	0	0	\$ 5,812.16
Multi-Use Complex	0		4		4		4	0	0	0	\$ 21,822.33
Misc. Camp Outbuildings	1		1		1		1	0	0	0	\$ 5,775.24
Misc. Mill Outbuildings	1		1		1		0	0	0	0	\$ 5,877.89
Old (south) Camp Area	0		1		1		1	0	0	1	\$ 4,085.02
Infil gallery and Pumphouse	0		0		0		0	0	0	0	\$ 1,326.34
Utility Corridor	0		0		0		1	0	0	1	\$ 1,934.29
Water Treatment Plant	0		0		0		1	0	0	1	\$ 1,935.75
Water Storage Tank	1		1		1		1	0	0	1	\$ 4,092.04
Office/Dry Complex	2		3		2		3	0	0	0	\$ 19,007.69
Maintenance Shop	0		6		0		6	0	0	0	\$ 18,830.48
Mill Complex	0		32		7		32	0	0	0	\$ 116,762.66
Gen Set Enclosure	0		2		0		2	0	0	1	\$ 6,159.51
Met Station	0		0		0		0	0	0	0	\$ 1,645.20
Fuel Depot	5		5		2		5	0	0	5	\$ 33,781.55
Solid Waste Landfill	0		0		2		0	0	0	1	\$ 4,511.08
Total Workshifts	15	89	62	89	129	56	74	14	2	31	\$ 940,305.29
Rental Months onsite	0.9	2.7	2.3	2.7	4.3	1.7	2.6	0.8	0.5	1.3	
Rental Month	1.0	3.0	3.0	3.0	5.0	2.0	3.0	1.0	1.0	2.0	

CAT 725B night shift
CAT IT62B night shift
CAT D6NB night shift

Fleet and Labor Rates									
Shift Efficiency			FLEET/EQUIPMENT SHIFT RATES						
shift length	12	hours	regular time	40	hours	assumes 7 day work week 12 hour shift			
effective shift	10.5	hours	overtime	44	hours	hours per 'month' 336			
efficiency	0.88		machine rental factor	1.5		assumes 400 hrs per month max			
FLEET/EQUIPMENT SHIFT RATES									
			FUEL COST	6.322					
Per Shift Labor Costs			Per Shift Machine Costs						
Operator 725 Truck Driver Group 3	hourly	40	725	rental	\$ 428.57	monthly unlimited rental	\$ 12,000.00		
	overtime	44		O&M	\$ 270.27	monthly O&M	\$ 8,108.00		
	hourly rate	\$1,390.40		fuel	6.322	monthly rental	\$ 12,000.00		
	overtime rate	\$2,294.16		fuel consumption	4.8	oil/lube filter (9.25 per hour)	\$ 3,108.00		
	fringe	\$1,201.20		machine hours	12	ground engaging tools	\$ -		
	burden	\$4,458.32		fuel cost	\$ 364.15	tires	\$ 5,000.00		
	subtotal 725 Operator	\$808.50		subtotal 725 Machine Cost	\$ 1,062.99	Total (operator + machine) 725	\$1,871.49		
Operator IT62H Power equipment Group 2	hourly	40	IT62H(5 Yard bucket)	rental	\$ 401.79	monthly unlimited rental	\$11,250.00		
	overtime	44		O&M	\$ 242.08	monthly O&M	\$7,262.33		
	hourly rate	\$1,418.40		fuel	6.322	monthly rental	\$11,250.00		
	overtime rate	\$2,340.36		fuel consumption	3.6	oil/lube filter (7.00 per hour)	\$ 2,352.00		
	fringe	\$1,423.80		machine hours	12	ground engaging tools	\$ 1,577.00		
	burden	\$4,548.10		fuel cost	\$ 273.11	tires	\$ 3,333.33		
	subtotal IT62 Operator	\$853.13		subtotal IT62 Machine Cost	\$ 916.97	Total (operator + machine) IT62	\$1,770.10		
Operator D6 Power equipment Group 1	hourly	40	D6T LGP	rental	\$ 417.86	monthly unlimited rental	\$11,700.00		
	overtime	44		O&M	\$ 235.39	monthly O&M	\$7,061.72		
	hourly rate	\$1,449.20		fuel	6.322	monthly rental	\$7,800.00		
	overtime rate	\$2,391.18		fuel consumption	5.1	oil/lube filter (7.00 per hour)	\$ 2,352.00		
	fringe	\$1,423.80		machine hours	12	ground engaging tools	\$ 1,511.00		
	burden	\$4,144.71		fuel cost	\$ 386.91	undercarriage	\$ 3,198.72		
	subtotal D6 Operator	\$795.50		subtotal D6 Machine Cost	\$ 1,040.15	Total (operator + machine) D6	\$1,835.66		
420 Operator power equipment Group 2	hourly	40	420	rental	\$ 208.93	monthly rental	\$ 5,850.00		
	overtime	44		O&O	\$ 170.98	monthly O&M	\$ 5,129.33		
	hourly rate	\$1,418.40		fuel	6.322	monthly rental	\$3,900.00		
	overtime rate	\$2,340.36		fuel consumption	2.9	oil/lube/filter (3.50 per hour)	\$ 1,176.00		
	fringe	\$1,423.80		machine hours	12	ground engaging tools	\$ 620.00		
	burden	\$4,548.10		fuel cost	\$ 220.01	tires	\$ 3,333.33		
	subtotal 420 Operator	\$853.13		subtotal 420 Machine Cost	\$ 599.91	Total (operator + machine) 420	\$1,453.04		
Hydroseeder Crew Group 1 Labor 2 required	hourly	40	Finn T120	rental	\$ 357.14	monthly unlimited rental	\$ 10,000.00		
	overtime	44		O&M	\$ 66.67	monthly O&M (20% of rental)	\$ 2,000.00		
	hourly rate	\$1,160.00		fuel	6.322	monthly rental	\$ 10,000.00		
	overtime rate	\$1,914.00		fuel consumption	2.8	cost new	60,000		
	fringe	\$1,499.40		machine hours	12				
	burden	\$3,719.54		fuel cost	\$ 817.70				
	subtotal hydroseeder Operator	\$1,491.13		subtotal hydroseed Machine Cost	\$ 1,241.51	Total (operator + machine) 420	\$2,960.65		
Laborer Group 1	hourly	40	Pump	rental	\$ 112.50	monthly unlimited rental	\$ 3,150.00		
	overtime	44	3250 gpm trash pump	O&M	\$ 21.00	monthly O&M (20% of rental)	\$ 630.00		
	hourly rate	\$1,160.00		fuel	6.322	monthly rental	\$ 2,100.00		
	overtime rate	\$1,914.00		fuel consumption	2				
	fringe	\$1,508.64		machine hours	12				
	burden	\$3,719.54		fuel cost	\$ 151.73				
	subtotal Laborer	\$746.88		subtotal Pump Machine Cost	\$ 285.23	Total (operator + machine) pump	\$1,032.11		
Laborer Group 1	hourly	40	F250 Pickup	rental	\$ 64.29	monthly unlimited rental	\$ 1,800.00		
	overtime	40		O&M	\$ 12.00	monthly O&M (20% of rental)	\$ 360.00		
	hourly rate	\$1,160.00		fuel	6.322	monthly rental	\$ 1,800.00		
	overtime rate	\$1,740.00		fuel consumption	2				
	fringe	\$1,436.80		machine hours	12				
	burden	\$3,509.00		fuel cost	\$ 151.73				
	subtotal Laborer	\$706.54		subtotal Pump Machine Cost	\$ 228.01	Total (operator + machine) pump	\$934.56		

5000 per tire cost assumed
Machine # tires
D725 6
IT62 4
D420 4

LABOR RATES

Laborer 1	hourly	40		Asphalt Workers (shovel man, plant crew); Brush	Cutters; Camp Maintenance Laborer ; Carpenter Tenders; Choke
Group 1 Labor	overtime	44		Setters, Hook Tender, Rigger, Signalman; Concrete	Laborer (curb and gutter, chute handler, grouting, curing,
	hourly rate	\$1,160.00	\$29.00	screeding); Crusher Plant Laborer; Demolition Laborer ;	Ditch Diggers; Dump Man; Environmental Laborer (asbestos
	overtime rate	\$1,914.00	\$43.50	(limited to nonmechanical systems), hazardous and toxic	waste, oil spill) ; Fence Installer; Fire Watch Laborer;
	fringe	\$1,499.40	\$17.85	Flagman; Form Strippers ; General Laborer ; Guardrail	Laborer, Bridge Rail Installers; Hydro-Seeder Nozzleman;
	burden	\$3,719.54		Laborers (building); Landscape or Planter; Laying of	Decorative Block (retaining walls, flowered decorative
	subtotal Group 1 Labor		\$745.56	block 4 feet and below); Material Handlers; Pneumatic or	Power Tools; Portable or Chemical Toilet Serviceman; Pump
				Man or Mixer Man; Railroad Track Laborer; Sandblast, Pot	Tender; Saw Tenders; Scaffold Building and Erecting; Slurry
				Work; Stake Hopper; Steam Point or Water Jet Operator;	Steam Cleaner Operator; Tank Cleaning; Utiliwalk, Utilidor
				Laborer and Conduit Installer; Watchman (construction	projects); Window Cleaner
Laborer 2	hourly	40		Burning and Cutting Torch ; Cement or Lime Dumper or	Handler (sack or bulk); Choker Splicer; Chucktender (wagon,
Group 2 Labor	overtime	44		airtrack and hydraulic drills); Concrete Laborers (power	buggy, concrete saws, pumpcrete nozzleman, vibratorman) ;
	hourly rate	\$1,198.40	\$29.96	Culvert Pipe Laborer; Cured in place Pipelayer;	Environmental Laborer (marine work, oil spill skimmer
	overtime rate	\$1,977.36	\$44.94	operator, small boat operator); Foam Gun or Foam Machine	Operator; Green Cutter (dam work); Gunnite Operator; Hod
	fringe	\$1,499.40	\$17.85	Carriers; Jackhammer or Pavement Breakers (more than 45	pounds); Laying of Decorative Block (retaining walls,
	burden	\$3,842.67		flowered decorative block above 4 feet); Mason Tender and	Mud Mixer (sewer work); Pilot Car; Plasterer, Bricklayer
	subtotal Group 2 Labor		\$763.15	and Cement Finisher Tenders ; Power Saw Operator; Railroad	Switch Layout Laborer; Sandblaster; Sewer Caulkers; Sewer
				Plant Maintenance Man; Thermal Plastic Applicator; Timber	Faller, chain saw operator, filer; Timberman
Laborer 3A	hourly	40		Asphalt Raker, Asphalt Belly dump lay down; Drill	Doctor (in the field); Drillers (including, but not limited
Group 3A labor	overtime	44		to, wagon drills, air track drills; hydraulic drills) ;	Powderman ; Pioneer Drilling and Drilling Off Tugger (all
	hourly rate	\$1,358.80	\$33.97	type drills); Pipelayers	
	overtime rate	\$2,242.02	\$50.96		
	fringe	\$1,499.40	\$17.85		
	burden	\$4,356.99			
	subtotal Group 3A Labor		\$836.63		
Miner 1	hourly	40		Brakeman; Muckers; Nippers; Topman and Bull Gang;	Tunnel Track Laborer
Tunnels, Shafts & Raises	overtime	44			
	hourly rate	\$1,276.00	\$31.90		
	overtime rate	\$2,105.40	\$47.85		
	fringe	\$1,499.40	\$17.85		
	burden	\$4,091.49			
	subtotal Miner 1 Labor		\$798.70		
Miner 2	hourly	40		Burning and Cutting Torch; Concrete Laborers;	Jackhammers; Nozzleman, Pumpcrete or Shotcrete.
Tunnels, Shafts & Raises	overtime	44			
	hourly rate	\$1,318.40	\$32.96		
	overtime rate	\$2,175.36	\$49.44		
	fringe	\$1,499.40	\$17.85		
	burden	\$4,227.45			
	subtotal Miner 2 Labor		\$818.12		
Miner 3	hourly	40		Miner; Retimberman	
	overtime	44			
	hourly rate	\$1,356.40	\$33.91		
	overtime rate	\$2,238.06	\$50.87		
	fringe	\$1,499.40	\$17.85		
	burden	\$4,349.30			
	subtotal Miner 3 Labor		\$835.53		

Cement Mason/Finisher	hourly	40	
	overtime	44	
	hourly rate	\$1,361.60	\$34.04
	overtime rate	\$2,246.64	\$51.06
	fringe	\$1,377.60	\$16.40
	burden	\$4,365.97	
	<i>subtotal Cement Mason</i>	<i>\$820.51</i>	
Plumber	hourly	40	
	overtime	44	
	hourly rate	\$1,410.80	\$35.27
	overtime rate	\$2,327.82	\$52.91
	fringe	\$1,702.68	\$20.27
	burden	\$4,523.73	
	<i>subtotal plumber</i>	<i>\$889.49</i>	
Electrician	hourly	40	
	overtime	44	
	hourly rate	\$1,827.20	\$45.68
	overtime rate	\$3,014.88	\$68.52
	fringe	\$2,010.99	\$23.94
	burden	\$5,858.92	
	<i>subtotal electrician</i>	<i>\$1,124.27</i>	

2.1 Storm Water Pollution Controls \$ 25,495.00

2.2 Land Reclamation

2.2.1 Seeding and Fertilization Requirements

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.2.2	Site Roadways	\$ 67,540.75	725	0.0	\$ -	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	15	acres	\$ 17,599.51																			
			D6	27.2	\$ 49,941.24	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ -																			
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ -																			
			Compactor	2.2	\$ -	miner 2	0.0	\$ -																							
			Pump	0.0	\$ -	Miner 3	0.0	\$ -																							
			F250 pickup	2.2	\$ -	Mason	0.0	\$ -																							
					\$ 49,941.24	Plumber	0.0	\$ -																							

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.2.3	Exploration Sites	\$ 40,192.89	725	0.0	\$ -	Laborer 1	3.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	0.0	\$ -	Laborer 2	2.5	\$ 1,907.88	revegetation	20	acres	\$ 23,783.12																			
			D6	5.0	\$ 9,178.28	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ -																			
			420	2.5	\$ 3,632.60	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ -																			
			Compactor	3.0	\$ -	miner 2	0.0	\$ -	sealant	100	50 lb bags	\$ 1,691.00																			
			Pump	0.0	\$ -	Miner 3	0.0	\$ -																							
			F250 pickup	3.0	\$ -	Mason	0.0	\$ -																							
					\$ 12,810.88	Plumber	0.0	\$ -																							

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.2.4	Hercules Airstrip East Embankment Cut	\$ 17,708.66	725	0.0	\$ -	Laborer 1	0.9	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	6	acres	\$ 6,824.82																			
			D6	5.9	\$ 10,883.85	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ -																			
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ -																			
			Compactor	0.9	\$ -	miner 2	0.0	\$ -																							
			Pump	0.0	\$ -	Miner 3	0.0	\$ -																							
			F250 pickup	0.9	\$ -	Mason	0.0	\$ -																							
					\$ 10,883.85	Plumber	0.0	\$ -																							

2.3 Waste Rock Dumps

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.3.1	Mystery Development Rock Stockpile	\$ 43,141.81	725	0.8	\$ 1,551.04	Laborer 1	1.4	\$ 745.56	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	0.8	\$ 1,467.02	Laborer 2	0.0	\$ -	revegetation	3	acres	\$ 3,448.55																			
			D6	15.8	\$ 29,006.28	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ 0.00																			
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ 0.00																			
			Compactor	0.4	\$ -	miner 2	0.0	\$ -	straw wattle	600	each	\$ 988.80																			
			Pump	0.0	\$ -	Miner 3	0.0	\$ -	wetland survey	1	each	\$ 5,000.00																			
			F250 pickup	1.4	\$ 934.56	Mason	0.0	\$ -																							
					\$ 32,958.90	Plumber	0.0	\$ -																							

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.3.2	Crystal Development Rock Stockpile	\$ 66,936.45	725	4.6	\$ 8,693.27	Laborer 1	2.2	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	4.6	\$ 8,222.32	Laborer 2	0.0	\$ -	revegetation	15	acres	\$ 17,837.34																			
			D6	17.5	\$ 32,183.52	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ 0.00																			
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ 0.00																			
			Compactor	2.2	\$ -	miner 2	0.0	\$ -																							
			Pump	0.0	\$ -	Miner 3	0.0	\$ -																							
			F250 pickup	2.2	\$ -	Mason	0.0	\$ -																							
						Plumber	0.0	\$ -																							

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																			
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.3.3	Rock Quarry	\$ 14,103.33	725	0.0	\$ -	Laborer 1	0.7	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost												
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	5	acres																				
			D6	4.7	\$ 8,575.23	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$ 0.00																			
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$ 0.00																			
			Compactor	0.7	\$ -	miner 2	0.0	\$ -																							
			Pump	0.0	\$ -	Miner 3	0.0	\$ -																							
			F250 pickup	0.7	\$ -	Mason	0.0	\$ -																							
						Plumber	0.0	\$ -																							

2.4 Tailings

Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste																	
			725	IT62	D6	420	Compactor	Pump	F250 pickup	Laborer 1	Laborer 2	Laborer 3A	Miner 1	miner 2	Miner 3	Mason	Plumber	Electrician	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost
			725	0.0	\$ -	Laborer 1	6.5	\$ 4,842.02	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost										

2.4.1.1	TSF Task 1	\$ 135,429.54	IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	0	acres	\$0.00								
			D6	21.7	\$ 39,903.82	Laborer 3A	0.0	\$ -	topographic control	1	each	\$0.00								
			420	2.3	\$ 3,269.34	Miner 1	0.0	\$ -	engineering study	1	each	\$10,000.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	engineering study	1	each	\$10,000.00								
			Pump	2.1	\$ 2,144.50	Miner 3	0.0	\$ -	hose (discharge)	200	linear feet	\$2,250.00								
			F250 pickup	5.5	\$ 5,134.87	Mason	0.0	\$ -	hose (suction)	1	each	\$375.00								
						Plumber	0.0	\$ -	evaporation	1	each	\$0.00								
						Electrician	0.0	\$ -	fabric -see quote AK rubber and rigger	90	each	\$57,510.00								
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.4.1.2	TSF Task 2	\$ 291,447.89	725	62.4	\$ 116,826.67	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	62.4	\$ 110,497.74	Laborer 2	0.0	\$ -	revegetation	0	acres	\$0.00								
			D6	34.9	\$ 64,123.47	Laborer 3A	0.0	\$ -	topographic control	1	each	\$0.00								
			420	0.0	\$ -	Miner 1	0.0	\$ -												
			Compactor	0.0	\$ -	miner 2	0.0	\$ -												
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.4.1.3	TSF Task 3	\$ 19,387.74	725	0.0	\$ -	Laborer 1	5.0	\$ 11,183.44	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	0	acres	\$0.00								
			D6	0.5	\$ 939.09	Laborer 3A	0.0	\$ -												
			420	5.0	\$ 7,265.20	Miner 1	0.0	\$ -												
			Compactor	0.0	\$ -	miner 2	0.0	\$ -												
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.4.1.4	TSF Task 4	\$ 16,380.29	725	0.0	\$ -	Laborer 1	1.7		description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.0		revegetation	12	acres	\$13,794.21								
			D6	0.0	\$ -	Laborer 3A	0.0													
			420	0.0	\$ -	Miner 1	0.0													
			Compactor	1.7	\$ -	miner 2	0.0													
			Pump	0.0	\$ -	Miner 3	0.0													
			F250 pickup	0.0	\$ -	Mason	0.0													
						Plumber	0.0													
			Electrician	0.0																
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.4.2	FTDS	\$ 125,504.95	725	26.6	\$ 49,788.59	Laborer 1	1.2	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	26.6	\$ 47,091.36	Laborer 2	0.0	\$ -	revegetation	8	acres	\$9,513.25								
			D6	10.4	\$ 19,111.74	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	1.2	\$ -	miner 2	0.0	\$ -												
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	1.2	\$ -	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															
2.5	Material Sites and Borrow Area																			
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.5.1	Sand Borrow Pit	\$ 4,924.59	725	0.0	\$ -	Laborer 1	0.2	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	1	acres	\$1,321.28								
			D6	2.0	\$ 3,603.30	Laborer 3A	0.0	\$ -	vegetated buffers	1		\$0.00								
			420	0.0	\$ -	Miner 1	0.0	\$ -	preserve existing vegetation	1		\$0.00								
			Compactor	0.2	\$ -	miner 2	0.0	\$ -												
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.2	\$ -	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															
2.6	Open pits	\$ -																		
2.7	Underground Development																			
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.7.1	Mystery Decline Portal	\$ 1,288.99	725	0.0	\$ -	Laborer 1	0.0	\$ 22.29	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	0.2	acres	\$237.83								
			D6	0.5	\$ 1,000.92	Laborer 3A	0.0	\$ -												
			420	0.0	\$ -	Miner 1	0.0	\$ -												
			Compactor	0.0	\$ -	miner 2	0.0	\$ -												
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												

Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
			725	0.0	\$ 27.95	Mason	0.0	\$ -													
						Plumber	0.0	\$ -													
						Electrician	0.0	\$ -													
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
			725	0.0	\$ -	Laborer 1	1.6	\$ 1,118.34	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
2.7.2	Mystery Ventilation Raise	\$ 19,321.52	IT62	0.4	\$ 671.52	Laborer 2	0.4	\$ 868.55	revegetation	0.5	acres	\$594.58	POL soil	5	CY	Yes	N/A	no	\$412.21		
			D6	1.5	\$ 2,807.65	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00	glycol	4	overpack	no		Yes	\$2,000.00		
			420	1.9	\$ 2,730.80	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00									
			Compactor	0.1	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00									
			Pump	0.0	\$ -	Miner 3	0.0	\$ -	hand pump	1	each	\$150.00									
			F250 pickup	2.0	\$ 1,756.38	Mason	1.5	\$ 1,230.77	poly drum	4	each	\$796.00									
									Plumber	0.0	\$ -	concrete	512	60 lb bags	\$3,722.24						
									Electrician	0.4	\$ 426.51	pan decking	256	square foot	\$1,216.00						
												rebar	32	sticks	\$393.60						
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
2.7.3	Crystal Decline Portal	\$1,238.75	725	0.0	\$ -	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	0.2	acres	\$237.83									
			D6	0.5	\$ 1,000.92	Laborer 3A	0.0	\$ -													
			420	0.0	\$ -	Miner 1	0.0	\$ -													
			Compactor	0.0	\$ -	miner 2	0.0	\$ -													
			Pump	0.0	\$ -	Miner 3	0.0	\$ -													
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -													
									Plumber	0.0	\$ -										
									Electrician	0.0	\$ -										
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
2.7.4	Crystal Ventilation Raise	\$ 19,321.52	725	0.0	\$ -	Laborer 1	1.6	\$ 1,118.34	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
			IT62	0.4	\$ 671.52	Laborer 2	0.4	\$ 868.55	revegetation	0.5	acres	\$594.58	POL soil	5	CY	Yes	N/A	no	\$412.21		
			D6	1.5	\$ 2,807.65	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00	glycol	4	overpack	no		Yes	\$2,000.00		
			420	2.0	\$ 2,730.80	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00									
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00									
			Pump	0.0	\$ -	Miner 3	0.0	\$ -	hand pump	1	each	\$150.00									
			F250 pickup	2.0	\$ 1,756.38	Mason	1.5	\$ 1,230.77	poly drum	4	each	\$796.00									
									Plumber	0.0	\$ -	concrete	512	60 lb bags	\$3,722.24						
									Electrician	0.4	\$ 426.51	pan decking	256	61 lb bags	\$1,216.00						
												rebar	32	62 lb bags	\$393.60						
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
2.7.5	Underground Workings	\$ 20,093.64	725	0.0	\$ -	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
			IT62	0.0	\$ -	Laborer 2	0.0	\$ -	revegetation	0.0	acres	\$0.00									
			D6	0.0	\$ -	Laborer 3A	0.0	\$ -	cutting torch	2	each	\$200.00									
			420	4.0	\$ 5,812.16	Miner 1	4.0	\$ 9,584.39													
			Compactor	0.0	\$ -	miner 2	0.0	\$ -													
			Pump	0.0	\$ -	Miner 3	0.0	\$ -													
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -													
									Plumber	0.0	\$ -										
									Electrician	4.0	\$ 4,497.09										
2.8	Support Facilities																				
2.8.1	Living Areas																				
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
2.8.1.1	Multi-use Complex (Camp)	\$ 43,389.85	725	0.0	\$ -	Laborer 1	0.3	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
			IT62	4.2	\$ 7,390.38	Laborer 2	4.2	\$ 9,558.75	revegetation	1.9	acres	\$2,259.40	POL soil	22	CY	Yes	N/A	no	\$1,648.85		
			D6	4.4	\$ 8,099.87	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00	RCRA	2	overpack	No		Yes	\$5,000.00		
			420	4.2	\$ 6,066.61	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00									
			Compactor	0.3	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00									
			Pump	0.0	\$ -	Miner 3	0.0	\$ -	hand pump	1	each	\$150.00									
			F250 pickup	0.3	\$ -	Mason	0.0	\$ -	poly drum	8	each	\$1,592.00									
									Plumber	0.0	\$ -										
									Electrician	1.1	\$ 1,223.99										
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															
2.8.1.2	Miscellaneous Camp Area Outbuildings	\$ 7,883.12	725	0.8	\$ 1,559.57	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost		
			IT62	0.8	\$ 1,475.09	Laborer 2	0.8	\$ 1,907.88	revegetation	0.0	acres	\$0.00									
			D6	0.8	\$ 1,529.71	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00									
			420	0.8	\$ 1,210.87	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00									
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00									
			Pump	0.0	\$ -	Miner 3	0.0	\$ -													
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -													
									Plumber	0.0	\$ -										
									Electrician	0.0	\$ -										
Reclamation Plan Section	Component	Direct Cost	Machine	Labor	Materials	Waste															

2.8.1.3	Miscellaneous Mill Area Outbuildings	\$ 8,168.05	725	0.0	\$ -	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	1.0	\$ 1,770.10	Laborer 2	1.1	\$ 2,543.84	revegetation	0.0	acres	\$0.00								
			D6	1.1	\$ 2,039.62	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	1.1	\$ 1,614.49	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.0	\$ -	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.8.1.4	Old (South) Camp Area	\$ 8,912.11	725	0.0	\$ -	Laborer 1	0.1	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.6	\$ 1,092.66	Laborer 2	0.6	\$ 1,413.25	revegetation	0.9	acres	\$1,070.24								
			D6	2.0	\$ 3,662.15	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	0.6	\$ 896.94	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.1	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.8	\$ 576.89	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.0	\$ -															

2.8.2 Utility Services and Infrastructure

2.8.2.1	Infiltration Gallery and Pump house	\$ 2,105.42	725	0.1	\$ 259.93	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.1	\$ 245.85	Laborer 2	0.1	\$ 317.98	revegetation	0.1	acres	\$118.92								
			D6	0.3	\$ 474.98	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	0.1	\$ 201.81	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.2	\$ 129.80	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.1	\$ 156.15															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.8.2.2	Utility Corridor	\$ 3,301.86	725	0.0	\$ -	Laborer 1	0.1	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.5	\$ 381.58	revegetation	0.2	acres	\$237.83								
			D6	0.0	\$ -	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	1.0	\$ 1,453.04	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.5	\$ 467.28	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.5	\$ 562.14															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.8.2.3	Water Treatment Plant	\$ 3,182.95	725	0.0	\$ -	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.0	\$ -	Laborer 2	0.5	\$ 381.58	revegetation	0.1	acres	\$118.92								
			D6	0.0	\$ -	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	1.0	\$ 1,453.04	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	0	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.5	\$ 467.28	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.5	\$ 562.14															
Reclamation Plan Section	Component	Direct Cost	Machine			Labor			Materials			Waste								
2.8.2.4	Water Storage Tank	\$ 6,167.07	725	0.5	\$ 970.40	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	0.5	\$ 1,187.13	Laborer 2	0.5	\$ 1,187.13	revegetation	0.1	acres	\$118.92								
			D6	0.5	\$ 951.82	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00								
			420	0.5	\$ 753.43	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	0	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -												
			F250 pickup	0.5	\$ 484.58	Mason	0.0	\$ -												
						Plumber	0.0	\$ -												
			Electrician	0.5	\$ 582.96															

2.8.3 Other Buildings

2.8.3.1	Office/Dry Complex	\$ 45,555.67	725	2.2	\$ 4,158.86	Laborer 1	0.0	\$ -	description	qty	units	cost	description	qty	units	onsite	weight	offsite	cost	
			IT62	3.3	\$ 5,914.50	Laborer 2	3.3	\$ 7,649.84	revegetation	0.0	acres	\$0.00	POL soil	0	CY				\$0.00	
			D6	2.2	\$ 4,079.24	Laborer 3A	0.0	\$ -	vegetated buffers	1	each	\$0.00	RCRA	6	overpack	no		yes	\$15,000.00	
			420	3.3	\$ 4,855.09	Miner 1	0.0	\$ -	preserve existing vegetation	1	each	\$0.00								
			Compactor	0.0	\$ -	miner 2	0.0	\$ -	cutting torch	2	each	\$200.00								
			Pump	0.0	\$ -	Miner 3	0.0	\$ -	hand pump	1	each	\$150.00								

RECLAMATION PLAN SECTION 2.2.2 - SITE ROADWAYS

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Reclamation of Road Surfaces
subtask c	Seedbed Preparation
subtask d	Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$25,332.09
	subtotal	\$0.00			subtotal	\$25,332.09
subtask c	materials	\$0.00		subtask d	materials	\$17,599.51
	labor	\$0.00			labor	\$0.00
	machine time	\$24,609.15			machine time	\$0.00
	subtotal	\$24,609.15			subtotal	\$17,599.51

DIRECT COST TASK 1 **\$67,540.75**

Subtask a - Erosion and Sediment Controls

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	vegetated buffers	\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation	\$0.00	each	0	1	0
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0	1 shifts			
	Laborer 2	\$0.00	0	0 shifts			
	Laborer 3A	\$0.00	0	0 shifts			
	Miner 1	\$0.00	0	0 shifts			
	miner 2	\$0.00	0	0 shifts			
	Miner 3	\$0.00	0	0 shifts			
	Mason	\$0.00	0	0 shifts			
	Plumber	\$0.00	0	0 shifts			
	Electrician	\$0.00	0	0 shifts			
	total labor cost	\$0.00					
Machine Costs		cost	shifts				
	725	\$0.00	0	0 shifts			
	IT62	\$0.00	0	0 shifts			
	D6	\$0.00	0	0 shifts			
	420	\$0.00	0	0 shifts			
	hydroseeder	\$0.00	0	0 shifts			
	Pump	\$0.00	0	0 shifts			
	F250 pickup	\$0.00	0	0 shifts			
	total machine cost	\$0.00					

Subtask b - Reclamation of Road Surfaces								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00	none		\$0.00	each	0	1
	total material cost			\$0.00				0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost			\$0.00				
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$25,332.09	13.8	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost			\$25,332.09				
subtask b - Productivity Estimates								
RECLAMATION OF ROAD SURFACE	surface disturbance width	20	feet	average road width existing				
Flat Road(25 percent of total)	ripper spacing	3.33	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper penetration	1.50	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper width	7.25	feet	Cat Performance handbook				
	total surface area	13.30	acres	POO V.2				
	ripped surface area	3.33	acres	one quarter of road surfaces level surface				
	total distance	7241.85	feet					
	rip distance	300.00	feet	lift and reengage ripper shanks				
	number of passes	66.59						
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	1.70	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (lift shank, remove material and reset ripper)				
	rip time per pass (total)	2.20	minutes					
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	17.86	passes/hour					
	total production time	4	hours					
	total shifts required			0.31				

RECLAMATION OF ROAD SURFACE	surface disturbance width	30	feet	1.5 times existing surface width of 25 feet				
Cut and fill (75 percent of total)	ripper spacing	3.33	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper penetration	1.50	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper width	7.25	feet	Cat performance handbook				
	total surface area	13.30	acres	POO V.2				
	ripped surface area	9.98	acres	three quarter of road surfaces cut and fill with ripper				
	total surface length	68922.43	feet					
	rip distance	60.00	feet	lift and reengage ripper shanks				
	number of passes	4753.27		300 foot pass across 20 foot wide surface area 7241 feet long				
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	0.34	minutes	Cat performance handbook				
	Maneuver time	1.00	minutes	assumed by estimator (lift shank, remove material and reset ripper)				
	rip time per pass (total)	1.34	minutes					
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	29.36	passes/hour					
	total production time	162	hours					
	total shifts required	13.49						
Subtask c - Seedbed Preparation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	none		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$24,609.15	13	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$24,609.15						

subtask c - Productivity Estimates							
Track Walking	surface disturbance width	38	feet	1.5 times existing surface width of 25 feet			
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width			
	total surface area	13.30	acres	POO V.2			
	ripped surface area	9.98	acres	road surfaces cut and filled			
	total surface length	17766.67	feet				
	track walked distance	37.50	feet	perpendicular pass to centerline			
	number of passes	8883.34					
	average speed	2.00	mph	Cat Performance Handbook			
	average speed	176	feet/min				
	rip time per pass	0.21	minutes	Cat performance handbook			
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)			
	rip time per pass (total)	0.71	minutes				
	average operator	0.75		Cat performance handbook			
	efficiency	0.88					
	net production rate	55.22	passes/hour				
total production time	161	hours					
total shifts required	13.41						
Subtask d - Revegetation							
materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$17,599.51	none	\$ 1,189	each	0	15	0
	total material cost	\$17,599.51					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	2	shifts	2	included in per acre cost	
	Laborer 2	\$0.00	0	shifts		not required	
	Laborer 3A	\$0.00	0	shifts		not required	
	Miner 1	\$0.00	0	shifts		not required	
	miner 2	\$0.00	0	shifts		not required	
	Miner 3	\$0.00	0	shifts		not required	
	Mason	\$0.00	0	shifts		not required	
	Plumber	\$0.00	0	shifts		not required	
	Electrician	\$0.00	0	shifts		not required	
total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts		not required	
	IT62	\$0.00	0	shifts		not required	
	D6	\$0.00	0	shifts		not required	
	420	\$0.00	0	shifts		not required	
	Finn Hydroseeder	\$0.00	2	shifts	1	included in per acre cost	
	Pump	\$0.00	0	shifts		not required	
	F250 pickup	\$0.00	2	shifts	1	included in per acre cost	
	total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.2.3 - EXPLORATION SITES

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Plugging of boreholes
subtask c	Seedbed preparation
subtask d	Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$1,691.00	
	labor	\$0.00			labor	\$1,907.88	
	machine time	\$0.00			machine time	\$3,632.60	
	subtotal	\$0.00			subtotal	\$7,231.48	
subtask c	materials	\$0.00		subtask d	materials	\$23,783.12	
	labor	\$0.00			labor	\$0.00	
	machine time	\$9,178.28			machine time	\$0.00	
	subtotal	\$9,178.28			subtotal	\$23,783.12	

DIRECT COST TASK 1 \$40,192.89

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts	unit quantity	Notes			
labor	Laborer 1	\$0.00	0	1				
	Laborer 2	\$0.00	0	not required				
	Laborer 3A	\$0.00	0	not required				
	Miner 1	\$0.00	0	not required				
	miner 2	\$0.00	0	not required				
	Miner 3	\$0.00	0	not required				
	Mason	\$0.00	0	not required				
	Plumber	\$0.00	0	not required				
	Electrician	\$0.00	0	not required				
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	not required				
	IT62	\$0.00	0	not required				
	D6	\$0.00	0	not required				
	420	\$0.00	0	not required				
	hydroseeder	\$0.00	0	not required				
	Pump	\$0.00	0	not required				
	F250 pickup	\$0.00	0	not required				
	total machine cost	\$0.00						

Subtask b - Plugging of boreholes

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$1,691.00	sealant		\$16.91	50 lb sack		100
	\$0.00			\$0.00	each	1.5	20	30
total material cost		\$1,691.00						30
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$1,907.88	3	shifts	1	3 shifts plugging boreholes Reclamation Plan		
	Laborer 3A	\$0.00	0	shifts	not required	8 " (.0.66 foot) diameter drill hole assumed		
	Miner 1	\$0.00	0	shifts	not required	10 foot seal assumed		
	miner 2	\$0.00	0	shifts	not required	3.4 cubic feet of benseal required per bore hole		
	Miner 3	\$0.00	0	shifts	not required	benseal in 50 pound sack = 0.7 cubic foot		
	Mason	\$0.00	0	shifts	not required	3.4 cubic feet / 0.7 cubic feet per bag = 5 bags per borehole		
	Plumber	\$0.00	0	shifts	not required	seal will be blended in 420 bucket		
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$1,907.88						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$3,632.60	3	shifts	1	3 shifts plugging boreholes Reclamation Plan		
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$3,632.60					

Subtask c - Seedbed preparation

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	0
total material cost		\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	0	Not Required		
	D6	\$9,178.28	5	shifts	1	Reclamation Plan		
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$9,178.28					

Subtask d - Revegetation

Subtask d - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$23,783.12	none		\$ 1,189	each		20	
	total material cost	\$23,783.12						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	3	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	3	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	3	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.2.4 - HERCULES AIRSTRIP EAST EMBANKMENT CUT

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Seedbed Preparation
 subtask c Ditch Rehabilitation
 subtask d Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$8,757.77
	subtotal	\$0.00			subtotal	\$8,757.77
subtask c	materials	\$0.00		subtask d	materials	\$6,824.82
	labor	\$0.00			labor	\$0.00
	machine time	\$2,126.07			machine time	\$0.00
	subtotal	\$2,126.07			subtotal	\$6,824.82

DIRECT COST TASK 1 \$17,708.66

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>	<i>unit quantity</i>				<i>Notes</i>
	Laborer 1	\$0.00	0	1				
	Laborer 2	\$0.00	0	0	shifts	not required		
	Laborer 3A	\$0.00	0	0	shifts	not required		
	Miner 1	\$0.00	0	0	shifts	not required		
	miner 2	\$0.00	0	0	shifts	not required		
	Miner 3	\$0.00	0	0	shifts	not required		
	Mason	\$0.00	0	0	shifts	not required		
	Plumber	\$0.00	0	0	shifts	not required		
	Electrician	\$0.00	0	0	shifts	not required		
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	0	shifts	not required		
	IT62	\$0.00	0	0	shifts	not required		
	D6	\$0.00	0	0	shifts	not required		
	420	\$0.00	0	0	shifts	not required		
	hydroseeder	\$0.00	0	0	shifts	not required		
	Pump	\$0.00	0	0	shifts	not required		
	F250 pickup	\$0.00	0	0	shifts	not required		
	total machine cost	\$0.00						

Subtask b - Seedbed Preparation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$8,757.77	4.8	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$8,757.77						
subtask b - Productivity Estimates								
Track walking	surface disturbance width	50	feet					
	track width	2.00	feet					Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	5000.00	feet					
	surface disturbance	5.74	acres					
	total surface length	5750.00	feet					
	track walked distance	50.00	feet					perpendicular pass to centerline
	number of passes	2875.00						
	average speed	2.00	mph					Cat Performance Handbook
	average speed	176	feet/min					
	rip time per pass	0.28	minutes					Cat performance handbook
	Maneuver time	0.50	minutes					assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	0.78	minutes					
	average operator	0.75						Cat performance handbook
	efficiency	0.88						
	net production rate	50.22	passes/hour					
	total production time	57	hours					
	total shifts required	4.77						

Subtask c- Ditch Rehabilitation							
materials	cost	Description		cost	unit	installation time (hrs)	total installation time
	\$0.00			\$0.00	each		0
	total material cost						0
labor	unit	cost	shifts	unit quantity		Notes	
	Laborer 1	\$0.00	0	1			
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		
	Electrician	\$0.00	0	shifts	not required		
	total labor cost						
Machine Costs	725	\$0.00	0	shifts	not required		
	IT62	\$0.00	0	shifts	not required		
	D6	\$2,126.07	1.2	1			
	420	\$0.00	0	shifts	not required		
	hydroseeder	\$0.00	0	shifts	not required		
	Pump	\$0.00	0	shifts	not required		
	F250 pickup	\$0.00	0	shifts	not required		
	total machine cost						
subtask c - Productivity Estimates							
Ditch Grading	average dozing distance	20	feet				
	blade width	13.34	feet		Straight blade assumed		
	length of v-ditch	5000.00	feet		length of runway		
	production	18.50	CY		per 100 feet of channel from USDA, SCS 1984 Field Engineering Manual - Chapter 9		
	production per ditch	925.00	CY				
	total production	925	CY				
	gross production rate	500.00	CY/hr		Cat performance handbook		
	side by side dozing	1.20			Cat performance handbook		
	rock	0.80			Cat performance handbook		
	average operator	0.75			Cat performance handbook		
	efficiency	0.88					
	production rate	0.33			v-ditch requires 3 production passes to construct (USDA, SCS, 1984)		
	net production rate	103.95	CY/hr				
	total production time	14	hours		5 hours added for machine maneuver and tramming		
	total shifts required			1			

Subtask d - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$6,824.82	none		\$ 1,189	each		5.74	
	total material cost	\$6,824.82						0
	unit	cost	shifts	unit quantity		Notes		
labor	Laborer 1		1	1 shifts		2	included in per acre cost	
	Laborer 2	\$0.00	0	0 shifts	not required			
	Laborer 3A	\$0.00	0	0 shifts	not required			
	Miner 1	\$0.00	0	0 shifts	not required			
	miner 2	\$0.00	0	0 shifts	not required			
	Miner 3	\$0.00	0	0 shifts	not required			
	Mason	\$0.00	0	0 shifts	not required			
	Plumber	\$0.00	0	0 shifts	not required			
	Electrician	\$0.00	0	0 shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	0 shifts	not required			
	IT62	\$0.00	0	0 shifts	not required			
	D6	\$0.00	0	0 shifts	not required			
	420	\$0.00	0	0 shifts	not required			
	hydroseeder	\$0.00	1	1 shifts		1	included in per acre cost	
	Pump	\$0.00	0	0 shifts	not required			
	F250 pickup	\$0.00	1	1 shifts		1	included in per acre cost	
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.3.1 - MYSTERY DEVELOPMENT ROCK STOCKPILE

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Stockpile Recontouring
subtask c	Seedbed preparation
subtask d	Revegetation

MYSTERY DEVELOPMENT ROCK STOCKPILE - SUMMARY

subtask a	materials	\$5,988.80		subtask b	materials	\$0.00	
	labor	\$745.56			labor	\$0.00	
	machine time	\$934.56			machine time	\$27,484.93	
	subtotal	\$7,668.92			subtotal	\$27,484.93	
subtask c	materials	\$0.00		subtask d	materials	\$3,448.55	
	labor	\$0.00			labor	\$0.00	
	machine time	\$4,539.41			machine time	\$0.00	
	subtotal	\$4,539.41			subtotal	\$3,448.55	

DIRECT COST TASK 1 **\$43,141.81**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	materials	\$0.00	vegetated buffers		\$0.00	each	0	1
\$0.00		preserve existing vegetation		\$0.00	each	0	1	0
\$988.80		straw wattle		\$1.65	linear foot	0.02	600	12
\$5,000.00		wetland survey		\$5,000.00	each	0	1	0
total material cost			\$5,988.80					
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$745.56	1	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$745.56						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$934.56	1	shifts	1			
	total machine cost		\$934.56					

Subtask b - Dump Recontouring								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each		0
	total material cost			\$0.00				0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost			\$0.00			
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$27,484.93	15.0	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost			\$27,484.93			
subtask b - Productivity Estimates								
Recontouring	average dozing distance	150	feet					
	blade width	13.34	feet			Straight blade assumed		
	width of level terrace of cut	45	feet			Reclamation Plan		
	width of total terrace cut	118	feet			Reclamation Plan		
	height of riser slope	25	feet			Reclamation Plan		
	Area of trapezoid	2038	square feet					
	length of trapezoid	600	feet					
	volume	1222500	cubic feet					
	volume	45278	BCY					
	gross production rate	400	CY/hr			Cat performance handbook		
	side by side dozing	1.20				Cat performance handbook		
	rock	0.80				Cat performance handbook		
	average operator	0.75				Cat performance handbook		
	efficiency	0.88						
	net production rate	252	CY/hr					
	total production time	180	hours					
		total shifts required			15			

Subtask c - Seedbed preparation

Subtask c - Seedbed preparation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each		0	0
	total material cost			\$0.00				0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs		cost	shifts					
	725	\$1,551.04	1	shifts	1			
	IT62	\$1,467.02	1	shifts	1			
	D6	\$1,521.35	1	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$4,539.41						

subtask c - Productivity Estimates

	parameter		units	Notes
Estimation Parameters	stockpiled volume	1,300	BCY	Reclamation Plan - Onsite survey
	Loose Material volume	1,529	LCY	
	Bank Material Density	100	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"
	Loose Material Density	85	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"
	swell factor	0.18		
	material density	2700	lbs/BCY	
	Loaded Density	2295	lbs/LCY	
	Loose Material volume	1,529	LCY	
	Payload capacity	20.00	CY	Cat performance handbook "Tailgate Heaped SAE 2:1"
	Payload weight	45900		
	Machine weight	49075		Cat Performance handbook
	GMW loaded	94975		
	Max Loaded weight	101082		Loading does not exceed max capacity (Max loaded weight < GMW loaded)
	Loaded Rolling resistance	6.50	percent	Assume 3 inch tire penetration
	empty rolling resistance	6.50	percent	Assume 3 inch tire penetration
	Haul Section 1	0.00	percent	Effective Grade top of dump
	Haul Section 2	25.00	percent	effective Grade up ramp to top of dump
	Haul Section 3	0.00	percent	effective grade base of dump load area
	Haul distance Section 1	600	feet	maximum top of dump haul
	Haul Distance Section 2	200	feet	ramp
	Haul Distance Section 3	600	feet	maximum haul distance load area
	Effective Grade Haul Section 1	6.50		loaded
	Effective grade Haul Section 2	31.50		loaded
	Effective grade Haul Section 3	6.50		loaded
	Coefficient of Traction	0.55		Cat Performance Handbook "Coefficient of Traction Factors" Firm Earth
	Altitude derating	none		Elevation less than 2,500 meters (mine maps)
	loaded rimpull haul Section 1	7000	lb	Cat Performance handbook - assumes 23.5R25 tires
	loaded rimpull haul section 2	30000	lb	Cat Performance handbook - assumes 23.5R25 tires
	loaded rimpull haul section 3	7000	lb	Cat Performance handbook - assumes 23.5R25 tires
	unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires
unloaded rimpull section 2	0	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires	
Haul Unit Travel Time	max speed haul section 1	1056	ft/min	loaded speed is 12 mph Cat performance handbook
	max speed haul section 2	352	mph	loaded speed is 4 mph Cat performance handbook
	max speed haul section 3	1056	mph	loaded speed is 12 mph Cat performance handbook
	max haul speed section 3	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 2	1320	mph	unloaded max speed is 30 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 1	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	haul time section 1	0.57	min	load
	haul time section 2	0.57	min	load
	haul time section 3	0.57	min	load
	haul time section 3	0.45	min	empty
	haul time section 2	0.15	min	empty
	haul time section 3	0.45	min	empty
	total haul time	2.77	min	round trip

Fixed Times	maneuver and dump time	1.2	min	
	maneuver in load area	0.6	min	
	total fixed time	1.8	min	
Load	bucket capacity	5.00	CY	CAT Performance Handbook
	fill factor	0.82		
	Actual bucket capacity	4.12	CY	
	shift efficiency	0.88		
	required production	469.97	CY/hour	
	loaded weight bucket	9450.00		
	max cycles per hour	90.00		CAT Performance handbook
	cycle time	0.67	min	
	loads per cycle	4.86		
	load time	3.24	min	
	haul/load cycle time	7.80		
Production Estimate	Total number of cycles	76		
	Total time	597	minutes	
	total time	10	hours	
	total shifts required	1		
Surface Roughening	surface disturbance width	150	feet	dump surface width
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	600	feet	Reclamation Plan
	surface disturbance	2.07	acres	
	total surface length	690	feet	
	track walked distance	150	feet	150 foot pass across surface 600 feet long
	number of passes	345		
	average speed	2.00	mph	Cat Performance Handbook
	average speed	176	feet/min	
	rip time per pass	0.85	minutes	Cat performance handbook
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	1.35	minutes	
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	29	passes/hour	
	total production time	12	hours	
	total shifts required	1		

Subtask d - Revegetation

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$3,448.55	none		\$ 1,189	each		2.90	0
	total material cost	\$3,448.55						0
	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
labor	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.3.2 - CRYSTAL DEVELOPMENT ROCK STOCKPILE

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Stockpile recontouring
 subtask c Seedbed preparation
 subtask d Revegetation

TSF TASK 3 - SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$26,182.55
	subtotal	\$0.00			subtotal	\$26,182.55
subtask c	materials	\$0.00		subtask d	materials	\$17,837.34
	labor	\$0.00			labor	\$0.00
	machine time	\$22,916.56			machine time	\$0.00
	subtotal	\$22,916.56			subtotal	\$17,837.34

DIRECT COST TASK 1 **\$66,936.45**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost		\$0.00					
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$0.00					

Subtask b - Recontouring								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0		0
	total material cost			\$0.00				0
labor	unit	cost	shifts	unit quantity	unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$26,182.55	14.3	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$26,182.55					
subtask b - Productivity Estimates								
Topsoil Salvage	average dozing distance	120	feet	Reclamation Plan				
	blade width	13.34	feet	Straight blade assumed				
	depth of cut	1.00	feet	assumed by estimator				
	width of area	1300	feet	Reclamation Plan				
	length of cut	100	feet					
	volume	130000	cubic feet					
	volume	4815	BCY					
	gross production rate	350	CY/hr	Cat performance handbook				
	side by side dozing	1.20		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	221	CY/hr					
	total production time	21.84	hours					
		total shifts required	2					

Recontouring	average dozing distance	150	feet	Reclamation Plan				
	blade width	13.34	feet	Straight blade assumed				
	width of level terrace of cut	60	feet	Reclamation Plan				
	width of total terrace cut	50	feet	Reclamation Plan				
	height of riser slope	40	feet	Reclamation Plan				
	area triangle	1500	square feet					
	length of cut	1300	feet					
	volume	1950000	cubic feet					
	volume of materials to TSF	44000	BCY					
	number of cuts	1.00						
	volume	28222	BCY					
	gross production rate	300	CY/hr	Cat performance handbook				
	side by side dozing	1.20		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	189	CY/hr					
	total production time	149.32	hours					
total shifts required	12							
Subtask c - Seedbed preparation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0		0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	1	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$8,693.27	5	shifts	1			
	IT62	\$8,222.32	5	shifts	1			
	D6	\$6,000.98	3	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$22,916.56						

subtask c - Productivity Estimates

	parameter		units	Notes
Estimation Parameters	stockpiled volume	900	BCY	Reclamation Plan - Onsite survey
	salvaged topsoil volume	4,815	BCY	
	Loose Material volume	6,564	LCY	
	Bank Material Density	100	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"
	Loose Material Density	85	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"
	swell factor	0.18		
	material density	2700	lbs/BCY	
	Loaded Density	2295	lbs/LCY	
	Loose Material volume	1,059	LCY	
	Payload capacity	20	CY	Cat performance handbook "Tailgate Heaped SAE 2:1"
	Payload weight	45900		
	Machine weight	49075		Cat Performance handbook
	GMW loaded	94975		
	Max Loaded weight	101082		Loading does not exceed max capacity (Max loaded weight < GMW loaded)
	Loaded Rolling resistance	6.50	percent	Assume 3 inch tire penetration
	empty rolling resistance	6.50	percent	Assume 3 inch tire penetration
	Haul Section 1	0.00	percent	Effective Grade top of dump
	Haul Section 2	25.00	percent	effective Grade up ramp to top of dump
	Haul Section 3	0.00	percent	effective grade base of dump load area
	Haul distance Section 1	1300	feet	maximum top of dump haul
	Haul Distance Section 2	200	feet	ramp
	Haul Distance Section 3	1300	feet	maximum haul distance load area
	Effective Grade Haul Section 1	6.50		loaded
	Effective grade Haul Section 2	31.50		loaded
	Effective grade Haul Section 3	6.50		loaded
	Coefficient of Traction	0.55		Cat Performance Handbook "Coefficient of Traction Factors" Firm Earth
	Altitude derating	none		Elevation less than 2,500 meters (mine maps)
	loaded rimpull haul Section 1	7000	lb	Cat Performance handbook - assumes 23.5R25 tires
	loaded rimpull haul section 2	30000	lb	Cat Performance handbook - assumes 23.5R25 tires
	loaded rimpull haul section 3	7000	lb	Cat Performance handbook - assumes 23.5R25 tires
unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 2	0	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires	
Haul Unit Travel Time	max speed haul section 1	1056	ft/min	loaded speed is 12 mph Cat performance handbook
	max speed haul section 2	352	mph	loaded speed is 4 mph Cat performance handbook
	max speed haul section 3	1056	mph	loaded speed is 12 mph Cat performance handbook
	max haul speed section 3	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 2	1320	mph	unloaded max speed is 30 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 1	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	haul time section 1	1.23	min	load
	haul time section 2	0.57	min	load
	haul time section 3	1.23	min	load
	haul time section 3	0.98	min	empty
	haul time section 2	0.15	min	empty
	haul time section 3	0.98	min	empty
	total haul time	5.15	min	round trip

Fixed Times	maneuver and dump time	1.2	min	
	maneuver in load area	0.6	min	
	total fixed time	1.8	min	
Load	bucket capacity	5.00	CY	CAT Performance Handbook
	fill factor	0.82		
	Actual bucket capacity	4.12	CY	
	shift efficiency	0.88		
	required production	269	CY/hour	
	loaded weight bucket	9450		
	max cycles per hour	90.00		CAT Performance handbook
	cycle time	0.67	min	
	loads per cycle	4.86		
	load time	3.24	min	
	haul/load cycle time	10.19		
Production Estimate	Total number of cycles	328		
	Total time	3344	minutes	
	total time	56	hours	
	total shifts required	5		
Surface Roughening	surface disturbance width	700	feet	stockpile surface width
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	600	feet	
	surface disturbance	9.64	acres	road surfaces cut and filled
	total surface length	690.00	feet	
	track walked distance	700	feet	perpendicular pass to centerline
	number of passes	345.00		50 foot pass across surface 5000 feet long
	average speed	2.00	mph	Cat Performance Handbook
	average speed	176	feet/min	
	rip time per pass	3.98	minutes	Cat performance handbook
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	4.48	minutes	
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	8.79	passes/hour	
	total production time	39	hours	
total shifts required	3			

Subtask d - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$17,837.34	none		\$ 1,189	each		15.00
	total material cost	\$17,837.34						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	2	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	2	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	2	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.3.3 - Rock Quarry

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Recontouring of rock quarry
 subtask c Seedbed preparation
 subtask d Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$4,734.18
	subtotal	\$0.00			subtotal	\$4,734.18
subtask c	materials	\$0.00		subtask d	materials	\$5,528.10
	labor	\$0.00			labor	\$0.00
	machine time	\$3,841.05			machine time	\$0.00
	subtotal	\$3,841.05			subtotal	\$5,528.10

DIRECT COST TASK 1 \$14,103.33

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each		0	1
	\$0.00	preserve existing vegetation		\$0.00	each		0	1
	total material cost		\$0.00					
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$0.00					

Subtask b - Recontouring of rock quarry								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00		0	\$0.00	each		0
	total material cost		\$0.00					0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost		\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$4,734.18	2.6	shifts	1	add one shift for minor surface grading		
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$4,734.18					
subtask b - Productivity Estimates								
Ripping and Recontouring of quarry surface	surface disturbance width	450	feet	Average quarry width				
	ripper spacing	3.33	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper penetration	1.50	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper width	7.25	feet	Cat Performance Handbook				
	total surface area	4.65	acres	Reclamation Plan				
	ripped surface area	4.65	acres					
	total distance	450	feet					
	rip distance	50	feet	lift and reengage ripper shanks				
	number of passes	559						
	average speed	1.00	mph	Cat Performance Handbook				
	average speed	88	feet/min					
	rip time per pass	0.57	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (lift shank, remove material and reset ripper)				
	rip time per pass (total)	1.07	minutes					
	average operator	0.75		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	efficiency	0.88						
net production rate	29.49	passes/hour						
total production time	19	hours						
	total shifts required		1.58					

Subtask c- Track walking								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each			0
	total material cost			\$0.00				0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$3,841.05	2.1	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$3,841.05						
subtask c - Productivity Estimates								
Track Walking	surface disturbance width	450	feet	Reclamation Plan				
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width				
	surface disturbance distance	450	feet	Reclamation Plan				
	surface disturbance	4.65	acres					
	total surface length	518	feet					
	track walked distance	450	feet	perpendicular pass to centerline				
	number of passes	259						
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	2.56	minutes					
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)				
	rip time per pass (total)	3.06	minutes					
	average operator	0.75		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	efficiency	0.88						
	net production rate	10.30	passes/hour					
total production time	25	hours						
total shifts required	2.09							

Subtask d - Revegetation

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$5,528.10	none		\$ 1,189	each		4.65
	total material cost		\$5,528.10					0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	1	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost		\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	1	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	1	shifts	1	included in per acre cost		
	total machine cost		\$0.00					

RECLAMATION PLAN SECTION 2.4.1.1 TAILINGS FACILITY RECLAMATION AND CLOSURE TASK 1

TASK 1 - SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Stability analysis
subtask c	Thermal analysis
subtask d	Dewatering and Water Treatment
subtask e	Air drying pond and tails
subtask f	Haul road grading
subtask g	recontouring of tailings
subtask h	placement of woven geotextile

TSF TASK 1 - SUMMARY

subtask a	materials	\$0.00	subtask d	materials	\$2,625.00	subtask g	materials	\$0.00
	labor	\$0.00		labor	\$2,543.20		labor	\$0.00
	machine time	\$0.00		machine time	\$4,397.82		machine time	\$24,356.10
	subtotal	\$0.00		subtotal	\$9,566.01		subtotal	\$24,356.10
subtask b	materials	\$10,000.00	subtask e	materials	\$0.00	subtask h	materials	\$57,510.00
	labor	\$310.65		labor	\$0.00		labor	\$1,677.52
	machine time	\$389.40		machine time	\$0.00		machine time	\$5,372.09
	subtotal	\$10,700.05		subtotal	\$0.00		subtotal	\$64,559.61
subtask c	materials	\$10,000.00	subtask f	materials	\$0.00			
	labor	\$310.65		labor	\$0.00			
	machine time	\$389.40		machine time	\$15,547.71			
	subtotal	\$10,700.05		subtotal	\$15,547.71			
DIRECT COST TASK 1		\$135,429.54						

BASIS OF ESTIMATE

Subtask a - Erosion and sediment control

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	topographic control	\$0.00	each	0	1	0
	total material cost		\$0.00				0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts	not required			
	Laborer 3A	\$0.00	0 shifts	not required			
	Miner 1	\$0.00	0 shifts	not required			
	miner 2	\$0.00	0 shifts	not required			
	Miner 3	\$0.00	0 shifts	not required			
	Mason	\$0.00	0 shifts	not required			
	Plumber	\$0.00	0 shifts	not required			
	Electrician	\$0.00	0 shifts	not required			
	total labor cost	\$0.00					
Machine Costs		cost	shifts				
	725	\$0.00	0 shifts	not required			
	IT62	\$0.00	0 shifts	not required			
	D6	\$0.00	0 shifts	not required			
	420	\$0.00	0 shifts	not required			
	hydroseeder	\$0.00	0 shifts	not required			
	Pump	\$0.00	0 shifts	not required			
	total machine cost	\$0.00					

Subtask b - Stability Analysis

materials	cost	Description		cost	unit	time (hrs)	quantity	total installation time
		\$10,000.00	engineering study		\$10,000.00	each		5
	total material cost	\$10,000.00						5
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$310.65	0.4	shifts	1			
	Laborer 2	\$0.00	0	shifts				
	Laborer 3A	\$0.00	0	shifts				
	Miner 1	\$0.00	0	shifts				
	miner 2	\$0.00	0	shifts				
	Miner 3	\$0.00	0	shifts				
	Mason	\$0.00	0	shifts				
	Plumber	\$0.00	0	shifts				
	Electrician	\$0.00	0	shifts				
	total labor cost	\$310.65						
Machine Costs	725	\$0.00	0	shifts				
	IT62	\$0.00	0	shifts				
	D6	\$0.00	0	shifts				
	420	\$0.00	0	shifts				
	hydroseeder	\$0.00	0	shifts				
	Pump	\$0.00	0	shifts				
	F250 pickup	\$389.40	0.4	shifts	1	assumes transportation for engineer doing analysis		
	total machine cost	\$389.40						

Subtask c - Thermal Analysis

materials	cost	Description		cost	unit	time (hrs)	quantity	total time
		\$10,000.00	engineering study		\$10,000.00	each		5
	total material cost	\$10,000.00						5
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$310.65	0.4	shifts	1			
	Laborer 2	\$0.00	0	shifts				
	Laborer 3A	\$0.00	0	shifts				
	Miner 1	\$0.00	0	shifts				
	miner 2	\$0.00	0	shifts				
	Miner 3	\$0.00	0	shifts				
	Mason	\$0.00	0	shifts				
	Plumber	\$0.00	0	shifts				
	Electrician	\$0.00	0	shifts				
	total labor cost	\$310.65						
Machine Costs	725	\$0.00	0	shifts				
	IT62	\$0.00	0	shifts				
	D6	\$0.00	0	shifts				
	420	\$0.00	0	shifts				
	hydroseeder	\$0.00	0	shifts				
	Pump	\$0.00	0	shifts				
	F250 pickup	\$389.40	0.42	shifts	1	assumes transportation for engineer doing analysis		
	total machine cost	\$389.40						

Subtask d - dewatering and water treatment

	cost	Description	cost	unit	install time (hrs)	quantity	total installation time
materials	\$0.00	pumping		each		25	1
	\$2,250.00	hose (discharge)	\$2,250.00	200 linear ft		2	1
	\$375.00	hose (suction)	\$375.00	each		0.5	1
	total material cost		\$2,625.00				
							29
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>	<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$2,543.20	3 shifts	1	set up/monitoring pump		1
	Laborer 2	\$0.00	0 shifts				
	Laborer 3A	\$0.00	0 shifts				
	Miner 1	\$0.00	0 shifts				
	miner 2	\$0.00	0 shifts				
	Miner 3	\$0.00	0 shifts				
	Mason	\$0.00	0 shifts				
	Plumber	\$0.00	0 shifts				
	Electrician	\$0.00	0 shifts				
total labor cost		\$2,543.20					
Machine Costs	725	\$0.00	0 shifts				
	IT62	\$0.00	0 shifts				
	D6	\$0.00	0 shifts				
	420	\$0.00	0 shifts				
	hydroseeder	\$0.00	0 shifts				
	Pump	\$2,144.50	2 shifts	4862000	gallons		25
	F250 pickup	\$2,253.32	2 shifts	1			
total machine cost		\$4,397.82					
Ponded water Volume	width of pond	325	ft		Golder 2009 Survey		
	depth of pond	10	ft		Golder 2009 Survey		
	length of pond	200	ft		Golder 2009 Survey		
	volume	650,000	ft3				
	volume of water in pond	4,862,000	gallons				
	pumping rate	3,250	gpm				

Subtask e - pond drying

	cost	Description	cost	unit	install time (hrs)	quantity	total installation time
materials	\$0.00	evaporation	\$0.00	each		0	1
	total material cost		\$0.00				30 days
							0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>	<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts				
	Laborer 3A	\$0.00	0 shifts				
	Miner 1	\$0.00	0 shifts				
	miner 2	\$0.00	0 shifts				
	Miner 3	\$0.00	0 shifts				
	Mason	\$0.00	0 shifts				
	Plumber	\$0.00	0 shifts				
	Electrician	\$0.00	0 shifts				
total labor cost		\$0.00					
Machine Costs	725	\$0.00	0 shifts				
	IT62	\$0.00	0 shifts				
	D6	\$0.00	0 shifts				
	420	\$0.00	0 shifts				
	hydroseeder	\$0.00	0 shifts				
	Pump	\$0.00	0 shifts				
	F250 pickup	\$0.00	0 shifts				
total machine cost		\$0.00					

Subtask f - haul road grading							
materials	cost	Description	cost	unit	install time (hrs)	quantity	total installation time
	\$0.00	onsite materials	\$0.00	each		0	D6 dozer and operator
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1		
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		
	Electrician	\$0.00	0	shifts	not required		
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required		
	IT62	\$0.00	0	shifts	not required		
	D6	\$15,547.71	8	shifts	1		
	420	\$0.00	0	shifts	not required		
	hydroseeder	\$0.00	0	shifts	not required		
	Pump	\$0.00	0	shifts	not required		
	F250 pickup	\$0.00	0	shifts	not required		
	total machine cost	\$15,547.71					
Subtask f - Productivity Estimates							
Haul Road Grading	average dozing distance	40	feet	assumes blade never reaches capacity during dozing			
	blade width	13.34	feet	Straight blade assumed			
	haul road length	3600.00	feet	reclamation plan			
	number of passes	3.00		13.34 foot wide production passes parallel to road centerline assumed (cut and fill)			
	production per pass	5336.00	CY	assumes 2.0 feet per linear foot material to drift			
	production (total)	32016	CY	per pass production			
	gross production rate	500.00	CY/hr	Cat performance handbook			
	side by side dozing	1.20		Cat performance handbook			
	rock	0.80		Cat performance handbook			
	average operator	0.75		Cat performance handbook			
	efficiency	0.88					
	net production rate	315.00	CY/hr				
	total production time	101.64	hours				
	total shifts required	8					

Subtask g - Recontouring of TSF surface							
materials	cost	Description	cost	unit	install time (hrs)	quantity	total installation time
	\$0.00	onsite materials	\$0.00	each		0	D6 dozer and operator
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts	not required			
	Laborer 3A	\$0.00	0 shifts	not required			
	Miner 1	\$0.00	0 shifts	not required			
	miner 2	\$0.00	0 shifts	not required			
	Miner 3	\$0.00	0 shifts	not required			
	Mason	\$0.00	0 shifts	not required			
	Plumber	\$0.00	0 shifts	not required			
	Electrician	\$0.00	0 shifts	not required			
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0 shifts	not required			
	IT62	\$0.00	0 shifts	not required			
	D6	\$24,356.10	13 shifts	1			
	420	\$0.00	0 shifts	not required			
	hydroseeder	\$0.00	0 shifts	not required			
	Pump	\$0.00	0 shifts	not required			
	F250 pickup	\$0.00	0 shifts	not required			
	total machine cost	\$24,356.10					
subtask g - Productivity Estimates							
Preliminary Grading	average dozing distance	500	feet	reclamation plan			
	blade width	13.34	feet	Straight blade assumed			
	TSF surface area	10.20	acres	reclamation plan			
	TSF surface area	444312	square feet				
		247	CY				
	production (total)	24074	CY				
	gross production rate	200	CY/hr	Cat performance handbook			
	side by side dozing	1.20		Cat performance handbook			
	hard to drift cohesive material	0.80		Cat performance handbook			
	average operator	0.75		Cat performance handbook			
	10 percent downhill grade	1.20		Cat performance handbook			
	efficiency	0.88					
	net production rate	151	CY/hr				
	total production time	159.22	hours				
	total shifts required	13					

RECLAMATION PLAN SECTION 2.4.1.2 TAILINGS FACILITY RECLAMATION AND CLOSURE TASK 2

TASK 2 - SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Construction and top soiling of an engineered cover.
 subtask c Seedbed preparation.

TSF TASK 1 - SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$284,619.36
	subtotal	\$0.00			subtotal	\$284,619.36
subtask c	materials	\$0.00				
	labor	\$0.00				
	machine time	\$6,828.53				
	subtotal	\$6,828.53				

DIRECT COST TASK 2 **\$291,447.89**

Subtask a - Erosion and sediment control

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	topographic control	\$0.00	each	0	1	0
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts	not required			
	Laborer 3A	\$0.00	0 shifts	not required			
	Miner 1	\$0.00	0 shifts	not required			
	miner 2	\$0.00	0 shifts	not required			
	Miner 3	\$0.00	0 shifts	not required			
	Mason	\$0.00	0 shifts	not required			
	Plumber	\$0.00	0 shifts	not required			
	Electrician	\$0.00	0 shifts	not required			
	total labor cost	\$0.00					
Machine Costs		cost	shifts				
	725	\$0.00	0 shifts	not required			
	IT62	\$0.00	0 shifts	not required			
	D6	\$0.00	0 shifts	not required			
	420	\$0.00	0 shifts	not required			
	hydroseeder	\$0.00	0 shifts	not required			
	Pump	\$0.00	0 shifts	not required			
	F150 pickup	\$0.00	0 shifts	not required			
	total machine cost	\$0.00					

Subtask b - Placement of Rock Cover							
materials	cost	Description	cost	unit	install time (hrs)	quantity	total installation time
		waste rock	\$0.00				
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0	shifts	1		
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		
	Electrician	\$0.00	0	shifts	not required		
	total labor cost	\$0.00					
	Machine Costs	725	\$116,826.67	62	shifts	1	100 percent haul dedicated
IT62		\$110,497.74	62	shifts	1	100 percent haul dedicated	
D6		\$57,294.94	31	shifts	1	50 percent dedicated to haul operation	
420		\$0.00	0	shifts	not required		
hydroseeder		\$0.00	0	shifts	not required		
Pump		\$0.00	0	shifts	not required		
F150 pickup		\$0.00	0	shifts	not required		
total machine cost		\$284,619.36					
subtask b - BASIS OF ESTIMATE							
Surface area TSF	10.2	acres			origin of rock fill is Crystal Portal Waste Rock Dump		
Surface area TSF	444312	square feet			all rock will be loaded with IT62 loader equipped with 5 cubic yard bucket		
depth of fill	2.5	feet			all rock will be end dumped onto spread liner		
quantity	1110780	cubic feet			dozer will be used to extend rock onto TSF		
quantity	45254	BCY			10 percent volume added to estimate		

	<i>parameter</i>		<i>units</i>	<i>Notes</i>
Estimation Parameters	stockpiled volume	45,254	BCY	Source is Crystal Waste Rock Stockpile
	salvaged topsoil volume	0	BCY	
	Loose Material volume	45,254	LCY	
	Bank Material Density	156	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "limestone blasted"
	Loose Material Density	89	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "limestone blasted"
	swell factor	0.75		
	material density	4212	lbs/BCY	
	Loaded Density	2403	lbs/LCY	
	Loose Material volume	79,322	LCY	
	Payload capacity	20	CY	Cat performance handbook "Tailgate Heaped SAE 2:1"
	Payload weight	48060		
	Machine weight	49075		Cat Performance handbook
	GMW loaded	97135		
	Max Loaded weight	101082		Loading does not exceed max capacity (Max loaded weight < GMW loaded)
	Loaded Rolling resistance	6.50	percent	Assume 3 inch tire penetration
	empty rolling resistance	6.50	percent	Assume 3 inch tire penetration
	Haul Section 1	12.50	percent	favorable effective grade
	Haul Section 2	50.00	percent	favorable effective grade
	Haul Section 3	12.50	percent	adverse effective grade
	Haul Section 4	50.00	percent	adverse effective
	Haul distance Section 1	609	feet	loaded
	Haul Distance Section 2	1238	feet	loaded
	Haul Distance Section 3	1238	feet	unloaded
	haul distance Section 4	609	feet	unloaded
	Effective Grade Haul Section 1	19.00		loaded
	Effective grade Haul Section 2	56.50		loaded
	Effective grade Haul Section 3	6.50		unloaded
	Effective grade Haul Section 4			unloaded
	Coefficient of Traction	0.55		Cat Performance Handbook "Coefficient of Traction Factors" Firm Earth
	Altitude derating	none		Elevation less than 2,500 meters (mine maps)
	loaded rimpull haul Section 1	2000	lb	Cat Performance handbook - assumes 23.5R25 tires
	loaded rimpull haul section 2	2000	lb	Cat Performance handbook - assumes 23.5R25 tires
unloaded rimpull Section 3	10000	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded ripull Section 4	200000	lb	Cat Performance handbook - assumes 23.5R25 tires	

Haul Unit Travel Time	max speed haul section 1	1056	ft/min	loaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	max speed haul section 2	1056	ft/min	loaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	max speed haul section 3	616	ft/min	unloaded max speed is 7 mph Cat Performance handbook
	max haul speed section 4	352	ft/min	unloaded max speed is 4 mph Cat Performance handbook
	haul time section 1	0.58	min	load
	haul time section 2	1.17	min	load
	haul time section 3	2.01	min	empty
	haul time section 4	3.52	min	empty
	total haul time	7.28	min	round trip
Fixed Times	maneuver and dump time	1.2	min	
	maneuver in load area	0.6	min	
	total fixed time	1.8	min	
Load	bucket capacity	5.00	CY	CAT Performance Handbook
	fill factor	0.25		
	Actual bucket capacity	1.24	CY	
	shift efficiency	0.88		
	required production	200.93	CY/hour	
	loaded weight bucket	2970.00		
	max cycles per hour	90		CAT Performance handbook
	cycle time	0.67	min	
	loads per cycle	16.18		
	load time	10.79	min	
haul/load cycle time	19.86			
Production Estimate	Total number of cycles	2263		
	Total time	44946	minutes	
	total time	749	hours	
	total shifts required	62		
Recontouring	average dozing distance	200	feet	push from margins to center of TSF
	blade width	13.34	feet	Straight blade assumed
	volume	2400	BCY	from TSF embankment 1,200 CY; from embankment margin 1,200 CY
	gross production rate	200	CY/hr	Cat performance handbook
	side by side dozing	1.20		Cat performance handbook
	cohesive material/rock	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	126	CY/hr	
	total production time	19.05	hours	
	total shifts required	2		

Subtask c - Seedbed preparation

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00		\$0.00	each	0		0
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts	not required			
	Laborer 3A	\$0.00	0 shifts	not required			
	Miner 1	\$0.00	0 shifts	not required			
	miner 2	\$0.00	0 shifts	not required			
	Miner 3	\$0.00	0 shifts	not required			
	Mason	\$0.00	0 shifts	not required			
	Plumber	\$0.00	0 shifts	not required			
	Electrician	\$0.00	0 shifts	not required			
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0 shifts	not required			
	IT62	\$0.00	0 shifts	not required			
	D6	\$6,828.53	4 shifts	1			
	420	\$0.00	0 shifts	not required			
	hydroseeder	\$0.00	0 shifts	not required			
	Pump	\$0.00	0 shifts	not required			
	F250 pickup	\$0.00	0 shifts	not required			
	total machine cost	\$6,828.53					

subtask c - Productivity Estimates

Surface roughening TSF	surface disturbance width	450	feet	Reclamation plan
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	1000.00	feet	Reclamation plan
	surface disturbance	10.33	acres	
	total surface length	1150.00	feet	
	track walked distance	450.00	feet	
	number of passes	575.00		
	average speed	2.00	mph	Cat Performance Handbook
	average speed	176	feet/min	
	rip time per pass	2.56	minutes	Cat performance handbook
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	3.06	minutes	
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	12.88	passes/hour	
total production time	45	hours		
	total shifts required	3.72		

RECLAMATION PLAN SECTION 2.4.1.3 TAILINGS FACILITY RECLAMATION AND CLOSURE TASK 3

TSF TASK 3 - SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Construction of diversion ditch outfalls
 subtask c Removal of tailings pipeline

TSF TASK 3 - SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$939.09
	subtotal	\$0.00			subtotal	\$939.09
subtask c	materials	\$0.00				
	labor	\$11,183.44				
	machine time	\$7,265.20				
	subtotal	\$18,448.65				

DIRECT COST TASK 1 \$19,387.74

Subtask a - Erosion and Sediment Controls

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00		\$0.00	each		0	0
	total material cost	\$0.00					0
	<i>unit</i>	<i>cost</i>	<i>shifts</i>	<i>unit quantity</i>	<i>Notes</i>		
labor	Laborer 1	\$0.00	0 shifts	1			
	Laborer 2	\$0.00	0 shifts	not required			
	Laborer 3A	\$0.00	0 shifts	not required			
	Miner 1	\$0.00	0 shifts	not required			
	miner 2	\$0.00	0 shifts	not required			
	Miner 3	\$0.00	0 shifts	not required			
	Mason	\$0.00	0 shifts	not required			
	Plumber	\$0.00	0 shifts	not required			
	Electrician	\$0.00	0 shifts	not required			
		total labor cost	\$0.00				
Machine Costs	725	\$0.00	0 shifts	not required			
	IT62	\$0.00	0 shifts	not required			
	D6	\$0.00	0 shifts	not required			
	420	\$0.00	0 shifts	not required			
	hydroseeder	\$0.00	0 shifts	not required			
	Pump	\$0.00	0 shifts	not required			
	F250 pickup	\$0.00	0 shifts	not required			
		total machine cost	\$0.00				

Subtask b - Construction of Diversion Ditches to Drain Surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each		0	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$939.09	1	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$939.09						
subtask b - Productivity Estimates								
Ditch Grading	average dozing distance	20	feet					
	blade width	13.34	feet		Straight blade assumed			
	length of v-ditch	200.00	feet					
	production	29.60	CY		per 100 feet of channel from USDA, SCS 1984 Field Engineering Manual - Chapter 9			
	production per ditch	59.20	CY					
	total production	118	CY					
	gross production rate	500.00	CY/hr		Cat performance handbook			
	side by side dozing	1.20			Cat performance handbook			
	rock	0.80			Cat performance handbook			
	average operator	0.75			Cat performance handbook			
	efficiency	0.88						
	production rate	0.33			v-ditch requires 3 production passes to construct (USDA, SCS, 1984)			
	net production rate	103.95	CY/hr					
	total production time	6	hours		5 hours added for machine maneuver and tramming			
total shifts required	0.5							

Subtask c - Removal of pipelines

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	none		\$0.00	each		1	0
	total material cost	\$0.00						0
	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
labor	Laborer 1	\$11,183.44	5	5	3	three laborers over 5 shifts to complete pipeline removal		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$11,183.44					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$7,265.20	5	5	1	420 for 5 shifts to complete pipeline removal		
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$7,265.20					

TAILINGS FACILITY RECLAMATION AND CLOSURE TASK 4

TASK 4 - SUBTASKS

subtask a Revegetation

TSF TASK 4 - SUMMARY

subtask a	materials	\$13,794.21
	labor	\$2,586.08
	machine time	\$0.00
	subtotal	\$16,380.29

DIRECT COST TASK 1 \$16,380.29

Subtask a - Erosion and Sediment Controls

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time	
	\$13,794.21	none		\$ 1,189	each		0	11.6	
	total material cost	\$13,794.21						0	
labor	unit	cost	shifts		unit quantity	Notes			
	Laborer 1	\$2,586.08	2	shifts		2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required				
	Laborer 3A	\$0.00	0	shifts	not required				
	Miner 1	\$0.00	0	shifts	not required				
	miner 2	\$0.00	0	shifts	not required				
	Miner 3	\$0.00	0	shifts	not required				
	Mason	\$0.00	0	shifts	not required				
	Plumber	\$0.00	0	shifts	not required				
	Electrician	\$0.00	0	shifts	not required				
	total labor cost	\$2,586.08							
Machine Costs									
	725	\$0.00	0	shifts	not required				
	IT62	\$0.00	0	shifts	not required				
	D6	\$0.00	0	shifts	not required				
	420	\$0.00	0	shifts	not required				
	hydroseeder	\$0.00	2	shifts		1			
	Pump	\$0.00	0	shifts	not required				
	F250	\$0.00	2	shifts		1			
	total machine cost	\$0.00							

RECLAMATION PLAN SECTION 2.4.2 -Filtered Tailings Disposal Site

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b Stockpile Recontouring
 subtask c Seedbed preparation
 subtask d Revegetation

TSF TASK 3 - SUMMARY

subtask a	materials	\$0.00	subtask b	materials	\$0.00
	labor	\$0.00		labor	\$0.00
	machine time	\$0.00		machine time	\$13,963.70
	subtotal	\$0.00		subtotal	\$13,963.70
subtask c	materials	\$0.00	subtask d	materials	\$9,513.25
	labor	\$0.00		labor	\$0.00
	machine time	\$102,028.00		machine time	\$0.00
	subtotal	\$102,028.00		subtotal	\$9,513.25

DIRECT COST TASK 1 \$125,504.95

Subtask a - Erosion and Sediment Controls

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00	vegetated buffers		\$0.00	each	0	1
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - FTDS Recontouring

Subtask b - FTDS Recontouring								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	
	total material cost			\$0.00				0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost			\$0.00				
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$13,963.70	8	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost			\$13,963.70			
subtask b - Productivity Estimates								
Recontouring	average dozing distance	125	feet	midpoint of FTDS to sides				
	blade width	13.34	feet	Straight blade assumed				
	FTDS length	1220	feet	Reclamation Plan				
	FTDS width	250	feet	Reclamation Plan				
	Average depth of cut	1.50	feet	minor regrading				
	surface area	305000	square feet					
	surface area	7.00	acres					
	volume	457500	cubic feet					
	volume	16944	BCY					
	gross production rate	300	CY/hr	Cat performance handbook				
	side by side dozing	1.20		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	average operator efficiency	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	189	CY/hr					
total production time	89.65	hours						
	total shifts required			7				
Reclamation of Percolation Pond	surface disturbance width	100	feet	average road width existing				
	ripper spacing	3.33	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper penetration	1.50	feet	Parallelogram Ripper D6N LGP CAT Performance Handbook				
	ripper width	7.25	feet	Cat performance handbook				
	total surface area	1.00	acres	Reclamation Plan				
	total distance	436	feet					
	rip distance	100	feet	lift and reengage ripper shanks				
	number of passes	60.08						
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	0.57	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (lift shank, remove material and reset ripper)				
	rip time per pass (total)	1.07	minutes					
	average operator efficiency	0.75		Cat performance handbook				
	efficiency	0.88						
net production rate	36.86	passes/hour						
total production time	2	hours						
	total shifts required			0.14				

Subtask c - Seedbed preparation

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	
	total material cost		\$0.00					0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost		\$0.00					
Machine Costs	725	\$49,788.59	27	shifts	1			
	IT62	\$47,091.36	27	shifts	1			
	D6	\$5,148.05	3	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost		\$102,028.00				

subtask c - Productivity Estimates

Estimation Parameters	parameter		units	Notes
	stockpiled volume	5,600	BCY/acre	Reclamation Plan
number of stripped acres	7		Reclamation Plan	
salvaged topsoil volume	39,200	BCY		
Loose Material volume	51,718	LCY		
Bank Material Density	100	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"	
Loose Material Density	85	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "earth, moist"	
swell factor	0.18			
material density	2700	lbs/BCY		
Loaded Density	2295	lbs/LCY		
Loose Material volume	6,588	LCY		
Payload capacity	20	CY	Cat performance handbook "Tailgate Heaped SAE 2:1"	
Payload weight	45900			
Machine weight	49075		Cat Performance handbook	
GMW loaded	94975			
Max Loaded weight	101082		Loading does not exceed max capacity (Max loaded weight < GMW loaded)	
Loaded Rolling resistance	6.50	percent	Assume 3 inch tire penetration	
empty rolling resistance	6.50	percent	Assume 3 inch tire penetration	
Haul Section 1	0.00	percent	Effective Grade top of dump	
Haul Section 2	25.00	percent	effective Grade up ramp to top of FTDS	
Haul Section 3	0.00	percent	effective grade base of dump load area	
Haul distance Section 1	600	feet	maximum top of dump haul assumes center FTDS ramp	
Haul Distance Section 2	90	feet	ramp	
Haul Distance Section 3	600	feet	maximum top of dump haul assumes center FTDS ramp	
Effective Grade Haul Section 1	6.50		loaded	
Effective grade Haul Section 2	31.50		loaded	
Effective grade Haul Section 3	6.50		unloaded	
Coefficient of Traction	0.55		Cat Performance Handbook "Coefficient of Traction Factors" Firm Earth	
Altitude derating	none		Elevation less than 2,500 meters (mine maps)	
loaded rimpull haul Section 1	7000	lb	Cat Performance handbook - assumes 23.5R25 tires	
loaded rimpull haul section 2	30000	lb	Cat Performance handbook - assumes 23.5R25 tires	
loaded rimpull haul section 3	7000	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 2	0	lb	Cat Performance handbook - assumes 23.5R25 tires	
unloaded rimpull section 3	2000	lb	Cat Performance handbook - assumes 23.5R25 tires	

Haul Unit Travel Time	max speed haul section 1	1056	ft/min	loaded speed is 12 mph Cat performance handbook
	max speed haul section 2	352	mph	loaded speed is 4 mph Cat performance handbook
	max speed haul section 3	1056	mph	loaded speed is 12 mph Cat performance handbook
	max haul speed section 3	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 2	1320	mph	unloaded max speed is 30 mph Cat performance handbook - 15 mph speed limit assumed
	max haul speed section 1	1320	mph	unloaded max speed is 25 mph Cat performance handbook - 15 mph speed limit assumed
	haul time section 1	0.57	min	load
	haul time section 2	0.26	min	load
	haul time section 3	0.57	min	load
	haul time section 3	0.45	min	empty
	haul time section 2	0.07	min	empty
	haul time section 3	0.45	min	empty
	total haul time	2.37	min	round trip
	Fixed Times	maneuver and dump time	1.2	min
maneuver in load area		0.6	min	
total fixed time		1.8	min	
Load	bucket capacity	5.00	CY	CAT Performance Handbook
	fill factor	0.82		
	Actual bucket capacity	4.12	CY	
	shift efficiency	0.88		
	required production	542.47	CY/hour	
	loaded weight bucket	9450.00		
	max cycles per hour	90.00		CAT Performance handbook
	cycle time	0.67	min	
	loads per cycle	4.86		
	load time	3.24	min	
haul/load cycle time	7.41			
Production Estimate	Total number of cycles	2586		
	Total time	19155	minutes	
	total time	319	hours	
	total shifts required	27		
Surface Roughening	surface disturbance width	250	feet	dump surface width
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	1200.00	feet	dump surface length
	surface disturbance	6.89	acres	minor regrading
	total surface length	1380.00	feet	
	track walked distance	250.00	feet	
	number of passes	690.00		
	average speed	2.00	mph	Cat Performance Handbook
	average speed	176	feet/min	
	rip time per pass	1.42	minutes	Cat performance handbook
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	1.92	minutes	
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	20.50	passes/hour	
	total production time	34	hours	
total shifts required	3			

Subtask d - Revegetation

Subtask d - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$9,513.25	none		\$ 1,189	each		8.00
	total material cost	\$9,513.25						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	1	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	1	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	1	shifts	1	included in per acre cost		
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.5.1 - Sand Pit Borrow Area

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Recontouring of sand pit borrow area
subtask c	Seedbed preparation
subtask d	Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$2,528.26
	subtotal	\$0.00			subtotal	\$2,528.26
subtask c	materials	\$0.00		subtask d	materials	\$1,321.28
	labor	\$0.00			labor	\$0.00
	machine time	\$1,075.05			machine time	\$0.00
	subtotal	\$1,075.05			subtotal	\$1,321.28

DIRECT COST TASK 1 **\$4,924.59**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each		0	1
	\$0.00	preserve existing vegetation		\$0.00	each		0	1
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Recontouring of sand pit borrow area								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each		0	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$2,528.26	1.4	shifts	1	1	add one shift for minor surface grading	
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$2,528.26						
subtask b - Productivity Estimates								
Ripping and Recontouring of quarry surface	surface disturbance width	250	feet	Reclamation Plan				
	ripper spacing	3.33	feet	Parallelogram Ripper D6N CAT Performance Handbook				
	ripper penetration	1.50	feet	Parallelogram Ripper D6N CAT Performance Handbook				
	ripper width	7.25	feet	Reclamation Plan				
	total surface area	1.11	acres					
	ripped surface area	1.11	acres					
	total distance	194	feet					
	rip distance	50	feet	lift and reengage ripper shanks				
	number of passes	134		50 foot pass				
	average speed	1.00	mph	Cat Performance Handbook				
	average speed	88	feet/min					
	rip time per pass	0.57	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (lift shank, remove material and reset ripper)				
	rip time per pass (total)	1.07	minutes					
	average operator	0.75		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	efficiency	0.88						
	net production rate	29.49	passes/hour					
total production time	5	hours						
total shifts required	0.38							

Subtask c- Track walking								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	50 lb sack			0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$1,075.05	0.6	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$1,075.05					
subtask c - Productivity Estimates								
Track Walking	surface disturbance width	220	feet	Reclamation Plan				
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width				
	surface disturbance distance	220	feet	Reclamation Plan				
	surface disturbance	1.11	acres					
	total surface length	253	feet					
	track walked distance	220	feet	Reclamation Plan				
	number of passes	126.50						
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	1.25	minutes					
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)				
	rip time per pass (total)	1.75	minutes					
	average operator	0.75		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	efficiency	0.88						
	net production rate	18.00	passes/hour					
total production time	7	hours						
	total shifts required	0.59						

Subtask d - Revegetation

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$1,321.28	none		\$ 1,189	each		1.11	
	total material cost	\$1,321.28						0
	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
labor	Laborer 1	\$0.00	0.2	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	0.2	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0.2	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.7.1 - Mystery Decline Portal

SUBTASKS

subtask a	Erosion and Sediment Controls - Included in Mystery Development Rock Stockpile closure
subtask b	Placement of backfill in portal/regrading
subtask c	Recontouring of the Mystery Decline Brow - Included in Mystery Development Rock Stockpile closure
subtask d	Seedbed preparation - Included in Mystery Development Rock Stockpile closure
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$1,000.92
	subtotal	\$0.00			subtotal	\$1,000.92
subtask c & d	materials	\$0.00		subtask e	materials	\$237.83
	labor	\$0.00			labor	\$22.29
	machine time	\$0.00			machine time	\$27.95
	subtotal	\$0.00			subtotal	\$288.07

DIRECT COST TASK 1 **\$1,288.99**

Subtask b - Placement of backfill in portal

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00		\$0.00	each		0
total material cost		\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0	1	shifts		
	Laborer 2	\$0.00	0		shifts not required		
	Laborer 3A	\$0.00	0		shifts not required		
	Miner 1	\$0.00	0		shifts not required		
	miner 2	\$0.00	0		shifts not required		
	Miner 3	\$0.00	0		shifts not required		
	Mason	\$0.00	0		shifts not required		
	Plumber	\$0.00	0		shifts not required		
	Electrician	\$0.00	0		shifts not required		
total labor cost		\$0.00					
Machine Costs	725	\$0.00	0		shifts not required		
	IT62	\$0.00	0		shifts not required		
	D6	\$1,000.92	0.5	1	shifts		
	420	\$0.00	0		shifts not required		
	hydroseeder	\$0.00	0		shifts not required		
	Pump	\$0.00	0		shifts not required		
	F250 pickup	\$0.00	0		shifts not required		
	total machine cost		\$1,000.92				

subtask b - Productivity Estimates							
Recontouring	average dozing distance	100	feet	drift material from dump surface			
	blade width	13.34	feet	Straight blade assumed			
	portal width	15	feet				
	portal height	14	feet				
	portal depth	50	feet				
	surface area	210	square feet				
	surface area	0	acres				
	volume	10500	cubic feet				
	volume	389	BCY				
	gross production rate	400	CY/hr	Cat performance handbook			
	slot dozing	1.20		Cat performance handbook			
	rock	0.80		Cat performance handbook			
	average operator	0.75		Cat performance handbook			
	efficiency	0.88					
	net production rate	252	CY/hr				
total production time	6.54	hours	add 5 hours for maneuver time				
total shifts required	1						
Subtask d - Revegetation							
materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$237.83	none	\$ 1,189	each		0.20	0
	total material cost	\$237.83					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$22.29	0.0	2	included in per acre cost		
	Laborer 2	\$0.00	0				
	Laborer 3A	\$0.00	0				
	Miner 1	\$0.00	0				
	miner 2	\$0.00	0				
	Miner 3	\$0.00	0				
	Mason	\$0.00	0				
	Plumber	\$0.00	0				
	Electrician	\$0.00	0				
total labor cost	\$22.29						
Machine Costs	725	\$0.00	0				
	IT62	\$0.00	0				
	D6	\$0.00	0				
	420	\$0.00	0				
	hydroseeder	\$0.00	0.0	1	included in per acre cost		
	Pump	\$0.00	0				
	F250 pickup	\$27.95	0.0	1	included in per acre cost		
	total machine cost	\$27.95					

RECLAMATION PLAN SECTION 2.7.2 - Mystery Ventilation Raise

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	demolition of existing infrastructure
subtask c	Shaft seal
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$3,558.21	subtask e	materials	\$594.58
	labor	\$0.00		labor	\$1,295.06		labor	\$0.00
	machine time	\$0.00		machine time	\$2,273.69		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$7,126.96		subtotal	\$594.58
subtask b	materials	\$3,558.21	subtask d	materials	\$0.00			
	labor	\$2,349.11		labor	\$0.00			
	machine time	\$3,581.40		machine time	\$2,111.27			
	subtotal	\$9,488.72		subtotal	\$2,111.27			

DIRECT COST TASK 1 **\$19,321.52**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor		<i>unit</i>	<i>cost</i>		<i>unit quantity</i>			<i>Notes</i>
		Laborer 1	\$0.00	0 shifts	1			
		Laborer 2	\$0.00	0 shifts	not required			
		Laborer 3A	\$0.00	0 shifts	not required			
		Miner 1	\$0.00	0 shifts	not required			
		miner 2	\$0.00	0 shifts	not required			
		Miner 3	\$0.00	0 shifts	not required			
		Mason	\$0.00	0 shifts	not required			
		Plumber	\$0.00	0 shifts	not required			
		Electrician	\$0.00	0 shifts	not required			
	total labor cost	\$0.00						
Machine Costs		725	\$0.00	0 shifts	not required			
		IT62	\$0.00	0 shifts	not required			
		D6	\$0.00	0 shifts	not required			
		420	\$0.00	0 shifts	not required			
		hydroseeder	\$0.00	0 shifts	not required			
		Pump	\$0.00	0 shifts	not required			
		F250 pickup	\$0.00	0 shifts	not required			
		total machine cost	\$0.00					

Subtask b - demolition								
	cost	Description		cost	unit		quantity	total installation time
materials	\$412.21	Land farm treatment		\$75.00	LCY	FRTR Reference Guide v. 4.0	5	
	\$200.00	cutting torch		\$100.00	each		2	0
	\$2,000.00	recycle glycol		\$500.00	per drum		4	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	\$796.00	poly drum		\$199.00		Arctic Fire and Safety	4	
	total material cost		\$3,558.21					
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$868.55	0.4	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$426.51	0.4	shifts	1	demolition crew		
total labor cost		\$1,295.06						
Machine Costs	725	\$0.00	0.0	shifts	not required			
	IT62	\$671.52	0.4	shifts	1	demolition crew		
	D6	\$696.39	0.4	shifts	1	demolition crew		
	420	\$551.24	0.4	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$354.54	0.4	shifts	1	demolition crew		
	total machine cost		\$2,273.69					
Subtask b - Productivity estimate								
Demolition of Infrastructure	feature	quantity						
	fans and boilers	40	LCY					
	day tank	10	LCY					
	structural steel	40	LCY					
	total demolition waste	90	LCY					
	estimated daily production	450	LCY		2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	2.4	hours					
number of shifts	0.2	shifts						
POL Contaminated Soil	volume	5	BCY					
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10						
	volume of POL soil	5.50	LCY					
	volume POL per shift	50						
shifts	0.11							

Glycol Transfer and Transport	volume of glycol	250	gallons	estimated volume to be shipped off site				
	Poly drum capacity	65	gallons	Arctic fire and Safety				
	required	4		round to 4 for estimating purposes				
	pump capacity	10	GPM	hand pump				
	time required for transfer	25	minutes					
	setup time	20		assumed by estimator				
	transport to airstrip	25	minutes	assumed by estimator				
	shifts	0.07						
Subtask c - Ventilation Raise Shaft Seal								
materials	cost	Description		cost	unit		quantity	total installation time
	\$3,722.24	concrete		\$7.27	60 lb bag	0.5 cubic foot	512	1.5 CY per hour
	\$1,216.00	pan decking		\$4.75	Square foot	Sampson Steel	256.0	0
	\$393.60	rebar		\$12.30	each	C&R Pipe	32	0
	total material cost	\$5,331.84						
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$1,118.34	1.50	shifts	1	concrete crew	1.5 days to form, mix, and place concrete	
	Laborer 2	\$0.00	0.00	shifts		not required		
	Laborer 3A	\$0.00	0.00	shifts		not required		
	Miner 1	\$0.00	0.00	shifts		not required		
	miner 2	\$0.00	0.00	shifts		not required		
	Miner 3	\$0.00	0.00	shifts		not required		
	Mason	\$1,230.77	1.50	shifts	1	concrete crew	1.5 days to form, mix, and place concrete	
	Plumber	\$0.00	0.00	shifts		not required		
	Electrician	\$0.00	0.00	shifts		not required		
total labor cost	\$2,349.11							
Machine Costs	725	\$0.00	0.00	shifts		not required		
	IT62	\$0.00	0.00	shifts		not required		
	D6	\$0.00	0.00	shifts		not required		
	420	\$2,179.56	1.50	shifts	1	concrete crew	1.5 days to form, mix, and place concrete	
	hydroseeder	\$0.00	0.00	shifts		not required		
	Pump	\$0.00	0.00	shifts		not required		
	F250 pickup	\$1,401.83	1.50	shifts	1	concrete crew	1.5 days to form, mix, and place concrete	
	total machine cost	\$3,581.40						

Subtask c - Productivity Estimate								
Concrete Work	shaft opening width	8.5	feet	Reclamation Plan				
	shaft opening length	8.5	feet	Reclamation Plan				
	seal width	16	feet	four foot overlap of opening				
	seal length	16	feet	four foot overlap of opening				
	seal thickness	1	feet	Reclamation Plan				
	volume of seal	256	cubic feet					
	volume of seal	9.5	CY					
	pan decking	256	square feet					
	rebar	1	feet	Rebar on 12 inch centers				
	rebar required	32	sticks					
Subtask d - Recontouring of shaft seal area								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0	1	
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							

Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$2,111.27	1.2	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$2,111.27						
subtask d - Productivity Estimates								
Preliminary Grading	average dozing distance	150	feet		Reclamation Plan			
	blade width	13.34	feet		Straight blade assumed			
	disturbance width	150	feet		Reclamation Plan			
	disturbance length	150	feet					
	depth of material	2.00	feet					
	volume of material	45000						
	production (total)	1667	LCY					
	gross production rate	250	CY/hr		Cat performance handbook			
	side by side dozing	1.20			Cat performance handbook			
	hard to drift cohesive material	0.80			Cat performance handbook			
	average operator	0.75			Cat performance handbook			
	efficiency	0.88						
	net production rate	158	CY/hr					
	total production time	10.58	hours					
	total shifts required	0.88	shifts					
Track Walking	surface disturbance width	150	feet		Reclamation Plan			
	track width	2.00	feet		Cat Performance Handbook minimum LGP shoe width			
	surface disturbance distance	150	feet		Reclamation Plan			
	surface disturbance	0.52	acres					
	total surface length	150	feet					
	track walked distance	150	feet		Reclamation Plan			
	number of passes	75.00						
	average speed	2.00	mph		Cat Performance Handbook			
	average speed	176	feet/min					
	rip time per pass	0.85	minutes		Cat performance handbook			
	Maneuver time	0.50	minutes		assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)			
	rip time per pass (total)	1.35	minutes					
	average operator	0.75			Cat performance handbook			
	rock	0.80			Cat performance handbook			
	efficiency	0.88						
	net production rate	23.29	passes/hour					
	total production time	3	hours					
total shifts required	0.27	shifts						

Subtask e- Revegetation

Subtask e- Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$594.58	none		\$ 1,189	each		0.50
	total material cost	\$594.58						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.7.3 - Crystal Decline Portal

SUBTASKS

subtask a	Erosion and Sediment Controls - Included in Crystal Development Rock Stockpile closure
subtask b	Placement of backfill in portal/regrading
subtask c	Recontouring of the Crystal Decline Brow - Included in Crystal Development Rock Stockpile closure
subtask d	Seedbed preparation - Included in Crystal Development Rock Stockpile closure
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00		subtask b	materials	\$0.00
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$1,000.92
	subtotal	\$0.00			subtotal	\$1,000.92
subtask c & d	materials	\$0.00		subtask e	materials	\$237.83
	labor	\$0.00			labor	\$0.00
	machine time	\$0.00			machine time	\$0.00
	subtotal	\$0.00			subtotal	\$237.83

DIRECT COST TASK 1 **\$1,238.75**

Subtask b - Placement of backfill in portal

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00		\$0.00	each	0	1	0
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0	1	shifts		
	Laborer 2	\$0.00	0		shifts not required		
	Laborer 3A	\$0.00	0		shifts not required		
	Miner 1	\$0.00	0		shifts not required		
	miner 2	\$0.00	0		shifts not required		
	Miner 3	\$0.00	0		shifts not required		
	Mason	\$0.00	0		shifts not required		
	Plumber	\$0.00	0		shifts not required		
	Electrician	\$0.00	0		shifts not required		
	total labor cost	\$0.00					
Machine Costs							
	725	\$0.00	0				
	IT62	\$0.00	0				
	D6	\$1,000.92	0.5		1		
	420	\$0.00	0				
	hydroseeder	\$0.00	0				
	Pump	\$0.00	0				
	F250 pickup	\$0.00	0				
	total machine cost	\$1,000.92					

subtask b - Productivity Estimates

Recontouring	average dozing distance	100	feet	drift material from dump surface
	blade width	13.34	feet	Straight blade assumed
	portal width	15	feet	Reclamation Plan
	portal height	14	feet	Reclamation Plan
	portal depth	50	feet	Reclamation Plan
	surface area	210	square feet	
	surface area	0	acres	
	volume	10500	cubic feet	
	volume	389	BCY	
	gross production rate	400	CY/hr	Cat performance handbook
	slot dozing	1.20		Cat performance handbook
	rock	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	252	CY/hr	
total production time	6.54	hours	add 5 hours for maneuver time	
total shifts required	1			

Subtask d - Revegetation

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$237.83	none		\$ 1,189	each	24	0.20	24
total material cost	\$237.83							24

	unit	cost	shifts		unit quantity	Notes
labor	Laborer 1	\$0.00	0	shifts	2	included in per acre cost estimate
	Laborer 2	\$0.00	0	shifts		
	Laborer 3A	\$0.00	0	shifts		
	Miner 1	\$0.00	0	shifts		
	miner 2	\$0.00	0	shifts		
	Miner 3	\$0.00	0	shifts		
	Mason	\$0.00	0	shifts		
	Plumber	\$0.00	0	shifts		
	Electrician	\$0.00	0	shifts		
	total labor cost	\$0.00				

Machine Costs	725	\$0.00	0	shifts		
	IT62	\$0.00	0	shifts		
	D6	\$0.00	0	shifts		
	420	\$0.00	0	shifts		
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost estimate
	Pump	\$0.00	0	shifts		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost estimate
	total machine cost	\$0.00				

RECLAMATION PLAN SECTION 2.7.4 - Crystal Ventilation Raise

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b demolition of existing infrastructure
 subtask c Shaft seal
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$3,558.21	subtask e	materials	\$594.58
	labor	\$0.00		labor	\$1,295.06		labor	\$0.00
	machine time	\$0.00		machine time	\$2,273.69		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$7,126.96		subtotal	\$594.58
subtask b	materials	\$3,558.21	subtask d	materials	\$0.00			
	labor	\$2,349.11		labor	\$0.00			
	machine time	\$3,581.40		machine time	\$2,111.27			
	subtotal	\$9,488.72		subtotal	\$2,111.27			

DIRECT COST TASK 1 **\$19,321.52**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>	
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Demolition							
materials	cost	Description	cost	unit		quantity	total installation time
	\$412.21	Land farm treatment	\$75.00	LCY	FRTR Reference Guide v. 4.0	5	
	\$200.00	cutting torch	\$100.00	each		2	0
	\$2,000.00	recycle glycol	\$500.00	per drum		4	
	\$150.00	hand pump	\$150.00	each	10 GPM	1	
	\$796.00	poly drum	\$199.00		Arctic Fire and Safety	4	
	total material cost	\$3,558.21					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$868.55	0.4	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$426.51	0.4	shifts	1	demolition crew	
	total labor cost	\$1,295.06					
Machine Costs	725	\$0.00	0.0	shifts	not required		
	IT62	\$671.52	0.4	shifts	1	demolition crew	
	D6	\$696.39	0.4	shifts	1	demolition crew	
	420	\$551.24	0.4	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$354.54	0.4	shifts	1	demolition crew	
	total machine cost	\$2,273.69					
Subtask b - Productivity estimate							
Demolition of Infrastructure	feature	quantity					
	fans and boilers	40	LCY	Reclamation Plan			
	day tank	10	LCY	Reclamation Plan			
	structural steel	40	LCY	Reclamation Plan			
	total demolition waste	90	LCY				
	estimated daily production	450	LCY	2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	2.4	hours				
number of shifts	0.2	shifts					
POL Contaminated Soil	volume	5	BCY				
	Bank Material Density	144	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10					
	volume of POL soil	5.50	LCY				
	volume POL per shift	50					
shifts	0.11						

Glycol Transfer and Transport	volume of glycol	250	gallons	estimated volume to be shipped off site
	Poly drum capacity	65	gallons	Arctic fire and Safety
	required	4		round to 4 for estimating purposes
	pump capacity	10	GPM	hand pump
	time required for transfer	25	minutes	
	setup time	20		assumed by estimator
	transport to airstrip	25	minutes	assumed by estimator
	shifts	0.07		

Subtask c - Crystal Ventilation Raise Shaft Seal

materials	cost	Description	cost	unit	quantity	total installation time
	\$3,722.24	concrete	\$7.27	60 lb bag	0.5 cubic foot	512
\$1,216.00	pan decking	\$4.75	Square foot	Sampson Steel	256.0	0
\$393.60	rebar	\$12.30	each	C&R Pipe	32	
total material cost	\$5,331.84					0

labor	unit	cost	shifts	unit quantity	Notes
	Laborer 1	\$1,118.34	1.50	shifts	1
Laborer 2	\$0.00	0.00	shifts	not required	
Laborer 3A	\$0.00	0.00	shifts	not required	
Miner 1	\$0.00	0.00	shifts	not required	
miner 2	\$0.00	0.00	shifts	not required	
Miner 3	\$0.00	0.00	shifts	not required	
Mason	\$1,230.77	1.50	shifts	1	concrete crew 1.5 days to form, mix, and place concrete
Plumber	\$0.00	0.00	shifts	not required	
Electrician	\$0.00	0.00	shifts	not required	
total labor cost	\$2,349.11				

Machine Costs	725	\$0.00	0.00	shifts	not required	
	IT62	\$0.00	0.00	shifts	not required	
	D6	\$0.00	0.00	shifts	not required	
	420	\$2,179.56	1.50	shifts	1	concrete crew 1.5 days to form, mix, and place concrete
	hydroseeder	\$0.00	0.00	shifts	not required	
	Pump	\$0.00	0.00	shifts	not required	
	F250 pickup	\$1,401.83	1.50	shifts	1	concrete crew 1.5 days to form, mix, and place concrete
	total machine cost	\$3,581.40				

Subtask c - Productivity Estimate

Concrete Work	shaft opening width	8.5	feet	Reclamation Plan		
	shaft opening length	8.5	feet	Reclamation Plan		
	seal width	16	feet	Reclamation Plan		
	seal length	16	feet	Reclamation Plan		
	seal thickness	1	feet	Reclamation Plan		
	volume of seal	256	cubic feet			
	volume of seal	9.5	CY			
	pan decking	256	square feet			
	rebar	1	feet	Rebar on 12 inch centers		
	rebar required	32	sticks			

Subtask d - Recontouring of shaft seal area

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00		\$0.00	each		0	1
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>	<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	1		
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		
	Electrician	\$0.00	0	shifts	not required		
		total labor cost	\$0.00				
Machine Costs	725	\$0.00	0	shifts	not required		
	IT62	\$0.00	0	shifts	not required		
	D6	\$2,111.27	1.2	shifts	1		
	420	\$0.00	0	shifts	not required		
	hydroseeder	\$0.00	0	shifts	not required		
	Pump	\$0.00	0	shifts	not required		
	F250 pickup	\$0.00	0	shifts	not required		
		total machine cost	\$2,111.27				

subtask d - Productivity Estimates

Preliminary Grading	average dozing distance	150	feet	Reclamation Plan
	blade width	13.34	feet	Straight blade assumed
	disturbance width	150	feet	Reclamation Plan
	disturbance length	150	feet	
	depth of material	2.00	feet	
	volume of material	45000		
	production (total)	1667	LCY	
	gross production rate	250	yd3/hr	Cat performance handbook
	side by side dozing	1.20		Cat performance handbook
	hard to drift cohesive material	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	158	yd3/hr	
	total production time	10.58	hours	
		total shifts required	0.88	shifts

Track Walking	surface disturbance width	150	feet	regrade and recontour				
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width				
	surface disturbance distance	150	feet					
	surface disturbance	0.52	acres	road surfaces cut and filled				
	total surface length	150	feet					
	track walked distance	150	feet	perpendicular pass to centerline				
	number of passes	75						
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	0.85	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)				
	rip time per pass (total)	1.35	minutes					
	average operator	0.75		Cat performance handbook				
	rock	0.80		Cat performance handbook				
	efficiency	0.88						
	net production rate	23.29	passes/hour					
	total production time	3	hours					
total shifts required	0.27	shifts						
Subtask e - Revegetation								
materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time	
	\$594.58	none	\$ 1,189	each	0	0.50	0	
	total material cost	\$594.58					0	
labor	unit	cost	shifts	unit quantity	Notes			
	Laborer 1	\$0.00	0	shifts	not required	included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts		1	included in per acre cost	
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts		1	included in per acre cost	
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.7.5 - Underground Workings

SUBTASKS

subtask a underground infrastructure/material survey
 subtask b dismantling/denergizing of underground infrastructure
 subtask c removal of unsuitable materials from underground workings

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$0.00
	labor	\$3,520.37		labor	\$3,520.37
	machine time	\$1,453.04		machine time	\$1,453.04
	subtotal	\$4,973.41		subtotal	\$4,973.41
subtask b	materials	\$200.00			
	labor	\$7,040.74			
	machine time	\$2,906.08			
	subtotal	\$10,146.82			

DIRECT COST TASK 1 **\$20,093.64**

Subtask a - Underground Infrastructure Survey

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0		0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity		Notes	
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$2,396.10	1	shifts	3	demolition crew		
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$1,124.27	1	shifts	1	demolition crew		
	total labor cost	\$3,520.37						
Machine Costs								
	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$1,453.04	1	shifts	1	demolition crew		
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$1,453.04						

Subtask b - Dismantling/Denergizing Underground infrastructure

Subtask b - Dismantling/Denergizing Underground infrastructure							
materials	cost	Description		cost	unit	quantity	total installation time
	\$200.00	cutting torch		\$100.00	each	2	0
	total material cost	\$200.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	not required		
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$4,792.19	2.0	shifts	3	demolition crew	
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$2,248.55	2.0	shifts	1	demolition crew	
		total labor cost	\$7,040.74				
Machine Costs	725	\$0.00	0.0	shifts	not required		
	IT62	\$0.00	0.0	shifts	not required		
	D6	\$0.00	0.0	shifts	not required		
	420	\$2,906.08	2.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	not required		
		total machine cost	\$2,906.08				

Subtask c - removal of unsuitable materials

Subtask c - removal of unsuitable materials							
materials	cost	Description		cost	unit		total installation time
	\$0.00				each		0
	total material cost	\$0.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	not required		
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$2,396.10	1.0	shifts	3	demolition crew	
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$1,124.27	1.0	shifts	1	demolition crew	
	total labor cost	\$3,520.37					
Machine Costs	725	\$0.00	0.0	shifts	not required		
	IT62	\$0.00		shifts	not required	demolition crew	
	D6	\$0.00	0.0	shifts	not required	demolition crew	
	420	\$1,453.04	1.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	
	total machine cost	\$1,453.04					

RECLAMATION PLAN SECTION 2.8.1.1 - Multi-Use Complex (Camp)

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures and infrastructure
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$2,259.40
	labor	\$0.00		labor	\$7,066.23		labor	\$0.00
	machine time	\$0.00		machine time	\$9,947.97		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$17,214.20		subtotal	\$2,259.40
subtask b	materials	\$8,590.85	subtask d	materials	\$0.00			
	labor	\$3,716.51		labor	\$0.00			
	machine time	\$3,509.02		machine time	\$8,099.87			
	subtotal	\$15,816.38		subtotal	\$8,099.87			

DIRECT COST TASK 1 **\$43,389.85**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials								
	cost	Description		cost	unit		quantity	total installation time
materials	\$1,648.85	Land farm treatment		\$75.00	LCY	FRTR Reference Guide v. 4.0	22	
	\$200.00	cutting torch		\$100.00	each		2	0
	\$5,000.00	RCRA waste		\$2,500.00	per drum		2	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	\$1,592.00	poly drum		\$199.00		Arctic Fire and Safety	8	
	total material cost	\$8,590.85						
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	1			
	Laborer 2	\$2,492.52	1.1	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$1,223.99	1.1	shifts	1	demolition crew		
total labor cost	\$3,716.51							
Machine Costs	725	\$0.00	0.0	shifts	not required			
	IT62	\$1,927.10	1.1	shifts	1	demolition crew		
	D6	\$0.00	0.0	shifts	not required			
	420	\$1,581.92	1.1	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew		
	total machine cost	\$3,509.02						
Subtask b - Productivity estimate								
Removal of hazardous materials	feature	quantity						
	RCRA waste	1	LCY		Reclamation Plan			
	day tank	5	LCY		Reclamation Plan			
	total hazardous waste	6	LCY					
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	5.288	hours					
	number of poly drums	2			Reclamation Plan			
	transport to fuel farm	25	minutes		assumed by estimator			
number of shifts	0.44	shifts						
POL Contaminated Soil	volume	20	BCY					
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10						
	volume of POL soil	21.98	LCY					
	volume POL per shift	50.00						
	shifts	0.44						
volume of fuel	500	gallons		estimated volume to be shipped off site				

fuel Transfer and Transport

Poly drum capacity	65	gallons	Arctic fire and Safety
required	8		round to 8
pump capacity	10	GPM	hand pump
time required for transfer	50	minutes	
setup time	40		assumed by estimator
transport to fuel farm	50	minutes	assumed by estimator
shifts	0.21		

Subtask c - Demolition							
materials	cost	Description		cost	unit		total installation time
		\$200.00	cutting torch		\$100.00	each	2
	total material cost	\$200.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$7,066.23	3.1	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	0	demolition crew	
		total labor cost	\$7,066.23				
Machine Costs	725	\$0.00	0.0	shifts	not required	demolition crew	not used this subtask
	IT62	\$5,463.28	3.1	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	not required	demolition crew	not used this subtask
	420	\$4,484.69	3.1	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	not required	demolition crew	
		total machine cost	\$9,947.97				
Subtask c - Productivity Estimates							
Demolition of structures	feature	quantity					
	existing structure footprint	7500	SF			Reclamation Plan	
	height of structure	10	feet			assumed by estimator	
	standing volume	2778	LCY			Reclamation Plan	
	consolidation factor	0.5				facility assumed to be 50 percent non-solids	
	total waste	1389	LCY				
	estimated daily production	450	LCY			2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13	
	number of hours	37	hours				
	number of shifts	3.09	shifts				
Subtask d - Preparation of seedbed surface of Multi-Use Facility Area							
materials	cost	Description		cost	unit	installation time (hrs)	total installation time
	\$0.00			\$0.00	each	0	0
	total material cost	\$0.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0	shifts	1		
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		

	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$8,099.87	4.4	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$8,099.87						

subtask d - Productivity Estimates

Preliminary Grading	average dozing distance	200	feet	
	blade width	13.34	feet	Straight blade assumed
	disturbance width	370	feet	Reclamation Plan
	disturbance length	150	feet	
	depth of material	2.00	feet	
	volume of material	111000		
	production (total)	4111	LCY	
	gross production rate	190	CY/hr	Cat performance handbook
	side by side dozing	1.20		Cat performance handbook
	hard to drift cohesive material	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	120	CY/hr	
	total production time	34.35	hours	
total shifts required	2.86	shifts		
Top soiling	average dozing distance	200	feet	
	blade width	13.34	feet	Straight blade assumed
	disturbance width	370	feet	
	disturbance length	150	feet	
	production (total)	1700	BCY	Growth media survey
	gross production rate	300	CY/hr	Cat performance handbook
	side by side dozing	1.20		Cat performance handbook
	hard to drift cohesive material	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	189	CY/hr	
	total production time	8.99	hours	
	total shifts required	0.75	shifts	
	Track Walking	surface disturbance width	200	feet
track width		2.00	feet	Cat Performance Handbook minimum LGP shoe width
surface disturbance distance		370	feet	Reclamation Plan
surface disturbance		1.70	acres	
total surface length		370	feet	
track walked distance		200	feet	Reclamation Plan
number of passes		185		
average speed		2.00	mph	Cat Performance Handbook
average speed		176	feet/min	
rip time per pass		1.14	minutes	Cat performance handbook
Maneuver time		0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
rip time per pass (total)		1.64	minutes	
average operator		0.75		Cat performance handbook
rock		0.80		Cat performance handbook
efficiency		0.88		
net production rate		19.25	passes/hour	
total production time		10	hours	

	total shifts required	0.80 shifts	
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Subtask e - Revegetation

Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$2,259.40	none		\$ 1,189	each	0	1.90	0
	total material cost	\$2,259.40						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.8.1.2 - Miscellaneous Camp Outbuildings

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$0.00
	labor	\$0.00		labor	\$1,907.88		labor	\$0.00
	machine time	\$0.00		machine time	\$5,775.24		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$7,883.12		subtotal	\$0.00
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$7,883.12**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials

materials	cost	Description		cost	unit		quantity	total installation time
		\$0.00				each		
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
	IT62	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
	D6	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
	420	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts	0	demolition crew	part of multi use complex estimate	
		total machine cost	\$0.00					

Subtask c - Demolition of structures

materials	cost	Description		cost	unit		quantity	total installation time
		\$200.00	cutting torch		\$100.00	each		2
	total material cost	\$200.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$1,907.88	0.8	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts	0	demolition crew		
	total labor cost	\$1,907.88						
Machine Costs	725	\$1,559.57	0.8	shifts	1	demolition crew		
	IT62	\$1,475.09	0.8	shifts	1	demolition crew		
	D6	\$1,529.71	0.8	shifts	1	demolition crew		
	420	\$1,210.87	0.8	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts	0	demolition crew		
		total machine cost	\$5,775.24					

Subtask c - Productivity Estimates								
Demolition of structures	feature	quantity						
	existing structure footprint	150	SF			Reclamation plan		
	height of structure	10	feet			Reclamation plan		
	number of structures	9				Reclamation plan		
	standing volume	500	LCY					
	consolidation factor	0.75				estimated volume of non-solids		
	total waste	375	LCY					
	estimated daily production	450	LCY			2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	10	hours					
number of shifts	0.83	shifts						
Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0	0	
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0.0	shifts	1			part of multi use complex estimate
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask e - Revegetation

Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	none		\$ 1,189	each	0	part of multi use complex estimate	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts		no labor aerially applied seed (Glen Air Quote)		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs		cost	shifts					
	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.1.3 - Miscellaneous Mill Outbuildings

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$0.00
	labor	\$0.00		labor	\$2,543.84		labor	\$0.00
	machine time	\$0.00		machine time	\$5,424.21		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$8,168.05		subtotal	\$0.00
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$8,168.05**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials

materials	cost	Description		cost	unit		quantity	total installation time
	\$0.00				each			0
	total material cost	\$0.00						0
Notes								
labor	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	not required			
	IT62	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
	D6	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
	420	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts		demolition crew		part of mill complex estimate
		total machine cost	\$0.00					

Subtask c - Demolition of structures

materials	cost	Description		cost	unit		quantity	total installation time
	\$200.00	cutting torch		\$100.00	each		2	0
	total material cost	\$200.00						0
Notes								
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit</i>	<i>quantity</i>		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$2,543.84	1.1	shifts		demolition crew	3	
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts		demolition crew	0	
	total labor cost	\$2,543.84						
Machine Costs	725	\$0.00	0.0	shifts	not required			
	IT62	\$1,770.10	1.0	shifts		demolition crew	1	
	D6	\$2,039.62	1.1	shifts		demolition crew	1	
	420	\$1,614.49	1.1	shifts		demolition crew	1	
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts		demolition crew	0	not used this subtask
		total machine cost	\$5,424.21					

Subtask c - Productivity Estimates								
Demolition of structures	feature	quantity						
	existing structure footprint	2500	SF		Reclamation plan			
	height of material	4	feet		assumed by estimator based on site survey			
	standing volume	370	LCY					
	consolidation factor	0.75			25 percent non solids volume assumed			
	total waste	278	LCY					
	estimated daily production	250	LCY		1/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	13	hours					
number of shifts	1.11	shifts						
Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0	1	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0.0	shifts		1		part of Crystal Development Rock Stockpile
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask e - Revegetation

Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	none		\$ 1,189	each	0	part of Crystal Development Rock Stockpile	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts		no labor aerially applied seed (Glen Air Quote)		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs		cost	shifts					
	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.1.3 - Old (South) Camp Area

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	removal of hazardous materials
subtask c	demolition of structures and infrastructure
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$1,070.24
	labor	\$0.00		labor	\$1,413.25		labor	\$0.00
	machine time	\$0.00		machine time	\$4,085.02		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$5,698.26		subtotal	\$1,070.24
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$2,143.61			
	subtotal	\$0.00		subtotal	\$2,143.61			

DIRECT COST TASK 1 **\$8,912.11**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts				
	Laborer 3A	\$0.00	0	shifts				
	Miner 1	\$0.00	0	shifts				
	miner 2	\$0.00	0	shifts				
	Miner 3	\$0.00	0	shifts				
	Mason	\$0.00	0	shifts				
	Plumber	\$0.00	0	shifts				
	Electrician	\$0.00	0	shifts				
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts				
	IT62	\$0.00	0	shifts				
	D6	\$0.00	0	shifts				
	420	\$0.00	0	shifts				
	hydroseeder	\$0.00	0	shifts				
	Pump	\$0.00	0	shifts				
	F250 pickup	\$0.00	0	shifts				
total machine cost	\$0.00							

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	1	demolition crew	
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	
		total machine cost	\$0.00				
Subtask b - Productivity estimate							
Removal of hazardous materials	feature	quantity					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	0	hours				
	number of poly drums	0			Reclamation Plan		
	transport to fuel farm	0	minutes		assumed by estimator		
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50					
		shifts	0.00				
fuel Transfer and Transport	volume of fuel	0	gallons		estimated volume to be shipped off site		
	Poly drum capacity	65	gallons		Arctic fire and Safety		
	required	0			round to 8		
	pump capacity	10	GPM		hand pump		
	time required for transfer	0	minutes				
	setup time	0			assumed by estimator		
	transport to fuel farm	0	minutes		assumed by estimator		
		shifts	0.00				

Subtask c - Demolition of structures and infrastructure

materials	cost	Description	cost	unit	quantity	total installation time
	\$200.00	cutting torch	\$100.00	each	2	0
total material cost	\$200.00					0
labor	unit	cost	shifts	unit quantity	Notes	
Laborer 1		\$0.00	0.0	shifts	not required	
Laborer 2		\$1,413.25	0.6	shifts	3	demolition crew
Laborer 3A		\$0.00	0.0	shifts	not required	
Miner 1		\$0.00	0.0	shifts	not required	
miner 2		\$0.00	0.0	shifts	not required	
Miner 3		\$0.00	0.0	shifts	not required	
Mason		\$0.00	0.0	shifts	not required	
Plumber		\$0.00	0.0	shifts	not required	
Electrician		\$0.00	0.0	shifts	1	demolition crew
total labor cost	\$1,413.25					
Machine Costs						
725		\$0.00	0.0	shifts	0	demolition crew
IT62		\$1,092.66	0.6	shifts	1	demolition crew
D6		\$1,518.54	0.8	shifts	1	demolition crew
420		\$896.94	0.6	shifts	1	demolition crew
hydroseeder		\$0.00	0.0	shifts	not required	
Pump		\$0.00	0.0	shifts	not required	
F250 pickup		\$576.89	0.6	shifts	1	demolition crew
total machine cost	\$4,085.02					

Subtask c - Productivity Estimates

Demolition of structures	feature	quantity		
	existing structure footprint	2500	SF	
	height of material	4	feet	
	standing volume	370	LCY	
	consolidation factor	0.75		25 percent consolidation assumed by estimator
	total waste	278	LCY	
	estimated daily production	450	LCY	2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	7	hours	
	number of shifts	0.62	shifts	
Landfill Excavation				
	average dozing distance	100	feet	
	blade width	13.34	feet	Straight blade assumed
	disturbance width	20	feet	
	disturbance length	150	feet	
	depth of material	10	feet	
	volume of material	30000		
	production (total)	1111	LCY	
	gross production rate	700	CY/hr	Cat performance handbook
	slot dozing	1.20		Cat performance handbook
	hard to drift cohesive material	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	441	CY/hr	
	total production time	2.52	hours	
	total shifts required	0.21	shifts	

Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$2,143.61	1.2	shifts			1	
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$2,143.61					
subtask d - Productivity Estimates								
Preliminary Grading	average dozing distance	200	feet	Reclamation Plan				
	blade width	13.34	feet	Straight blade assumed				
	disturbance width	200	feet	Reclamation Plan				
	disturbance length	150	feet	Reclamation Plan				
	depth of material	1.00	feet	Reclamation Plan				
	volume of material	30000						
	production (total)	1111	LCY					
	gross production rate	200	CY/hr	Cat performance handbook				
	side by side dozing	1.20		Cat performance handbook				
	hard to drift cohesive material	0.80		Cat performance handbook				
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	126	CY/hr					
	total production time	8.82	hours					

	total shifts required	0.73	shifts					
Track Walking	surface disturbance width	200	feet					Reclamation Plan
	track width	2.00	feet					Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	200	feet					Reclamation Plan
	surface disturbance	0.92	acres					
	total surface length	200	feet					
	track walked distance	200	feet					
	number of passes	100						
	average speed	2.00	mph					Cat Performance Handbook
	average speed	176	feet/min					
	rip time per pass	1.14	minutes					Cat performance handbook
	Maneuver time	0.50	minutes					assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	1.64	minutes					
	average operator	0.75						Cat performance handbook
	rock	0.80						Cat performance handbook
	efficiency	0.88						
	net production rate	19.25	passes/hour					
	total production time	5	hours					
	total shifts required	0.43	shifts					
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$1,070.24	none		\$ 1,189	each	0	0.90	0
	total material cost	\$1,070.24						0
labor	unit	cost	shifts		unit quantity			Notes
	Laborer 1	\$0.00	0	shifts	2			included in per acre cost
	Laborer 2	\$0.00	0	shifts				not required
	Laborer 3A	\$0.00	0	shifts				not required
	Miner 1	\$0.00	0	shifts				not required
	miner 2	\$0.00	0	shifts				not required
	Miner 3	\$0.00	0	shifts				not required
	Mason	\$0.00	0	shifts				not required
	Plumber	\$0.00	0	shifts				not required
	Electrician	\$0.00	0	shifts				not required
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts				not required
	IT62	\$0.00	0	shifts				not required
	D6	\$0.00	0	shifts				not required
	420	\$0.00	0	shifts				not required
	hydroseeder	\$0.00	0	shifts	1			included in per acre cost
	Pump	\$0.00	0	shifts				not required
	F250 pickup	\$0.00	0	shifts	1			included in per acre cost
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.8.2.1 - Infiltration Gallery and Pump House

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	removal of hazardous materials
subtask c	demolition of structures and infrastructure
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$118.92
	labor	\$0.00		labor	\$474.13		labor	\$0.00
	machine time	\$0.00		machine time	\$1,092.34		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$1,766.47		subtotal	\$118.92
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$220.03			
	subtotal	\$0.00		subtotal	\$220.03			

DIRECT COST TASK 1 **\$2,105.42**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			
	total material cost		\$0.00				0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	1		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	not used this subtask
	Laborer 3A	\$0.00	0.0	shifts		not required	
	Miner 1	\$0.00	0.0	shifts		not required	
	miner 2	\$0.00	0.0	shifts		not required	
	Miner 3	\$0.00	0.0	shifts		not required	
	Mason	\$0.00	0.0	shifts		not required	
	Plumber	\$0.00	0.0	shifts		not required	
	Electrician	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
		total labor cost		\$0.00			
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	hydroseeder	\$0.00	0.0	shifts		not required	
	Pump	\$0.00	0.0	shifts		not required	
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
		total machine cost		\$0.00			
Subtask b - Productivity estimate							
Removal of hazardous materials	feature	quantity					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY			per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13	
	number of hours	0	hours				
	number of poly drums	0				Reclamation Plan	
	transport to fuel farm	0	minutes			assumed by estimator	
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3			SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"	
	Loose Material Density	131	lbs/ft3			SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"	
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50.00					
		shifts	0.00				
fuel Transfer and Trasnport	volume of fuel	0	gallons			estimated volume to be shipped off site	
	Poly drum capacity	65	gallons			Arctic fire and Safety	
	required	0				round to 8	
	pump capacity	10	GPM			hand pump	
	time required for transfer	0	minutes				
	setup time	0				assumed by estimator	
	transport to fuel farm	0	minutes			assumed by estimator	
		shifts	0.00				

Subtask c - Demolition of structures							
materials	cost	Description		cost	unit	quantity	total installation time
	\$200.00	cutting torch		\$100.00	each	2	0
	total material cost	\$200.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$317.98	0.1	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$156.15	0.1	shifts	1	demolition crew	
	total labor cost	\$474.13					
Machine Costs							
	725	\$259.93	0.1	shifts	1	demolition crew	
	IT62	\$245.85	0.1	shifts	1	demolition crew	
	D6	\$254.95	0.1	shifts	1	demolition crew	
	420	\$201.81	0.1	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$129.80	0.1	shifts	1	demolition crew	
	total machine cost	\$1,092.34					

Subtask c - Productivity Estimates

Demolition of structures	feature	quantity		
	existing structure footprint	225	SF	
	height of material	10	feet	
	standing volume	83	LCY	
	consolidation factor	0.75		25 percent air by standing volume
	total waste	63	LCY	
	estimated daily production	450	LCY	2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	2	hours	
number of shifts	0.14	shifts		

Subtask d - Preparation of seedbed surface

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$220.03	0.1	shifts			1	
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$220.03					

subtask d - Productivity Estimates

Preliminary Grading	average dozing distance	70	feet	Reclamation Plan
	blade width	13.34	feet	Straight blade assumed
	disturbance width	70	feet	Reclamation Plan
	disturbance length	150	feet	Reclamation Plan
	depth of material	0.50	feet	Reclamation Plan
	volume of material	5250		
	production (total)	194	LCY	
	gross production rate	700	CY/hr	Cat performance handbook
	side by side dozing	1.20		Cat performance handbook
	hard to drift cohesive material	0.80		Cat performance handbook
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	441	CY/hr	
	total production time	0.44	hours	
	total shifts required	0.04	shifts	
Track Walking	surface disturbance width	70	feet	Reclamation Plan
	track width	2.00	feet	Cat Performance Handbook mininum LGP shoe width
	surface disturbance distance	70	feet	Reclamation Plan
	surface disturbance	0.11	acres	
	total surface length	70	feet	
	trackwalked distance	70	feet	
	number of passes	35		
	average speed	2.00	mph	Cat Performance Handbook
	aveage speed	176	feet/min	
	rip time per pass	0.40	minutes	Cat performance handbook
	Manuver time	0.50	minutes	assumed by estimator (lbackup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	0.90	minutes	
	average operator	0.75		Cat performance handbook
	rock	0.80		Cat performance handbook
	efficiency	0.88		
	net production rate	35.09	passes/hour	
	total production time	1	hours	
	total shifts required	0.08	shifts	

Subtask e - Revegetation

Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$118.92	none		\$ 1,189	each	0	0.10	
	total material cost	\$118.92						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
	total labor cost	\$0.00						
Machine Costs		cost	shifts			Notes		
	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.2.2 - Utility Corridor

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	removal of hazardous materials
subtask c	demolition of structures and infrastructure
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$237.83
	labor	\$0.00		labor	\$943.71		labor	\$0.00
	machine time	\$0.00		machine time	\$1,920.32		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$3,064.03		subtotal	\$237.83
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$3,301.86**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			0
	total material cost		\$0.00				
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	not used this subtask
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
		total labor cost		\$0.00			
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
		total machine cost		\$0.00			
Subtask b - Productivity estimate							
Removal of hazardous materials	feature	quantity					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY	per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	0	hours				
	number of poly drums	0		Reclamation Plan			
	transport to fuel farm	0	minutes	assumed by estimator			
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50.00					
		shifts	0.00				
fuel Transfer and Transport	volume of fuel	0	gallons	estimated volume to be shipped off site			
	Poly drum capacity	65	gallons	Arctic fire and Safety			
	required	0		round to 8			
	pump capacity	10	GPM	hand pump			
	time required for transfer	0	minutes				
	setup time	0		assumed by estimator			
	transport to fuel farm	0	minutes	assumed by estimator			
		shifts	0.00				

Subtask c - Demolition of structures and infrastructure								
materials	cost	Description		cost	unit		quantity	total installation time
		\$200.00	cutting torch		\$100.00	each		2
	total material cost	\$200.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$381.58	0.5	shifts	1	demolition crew		reclamation plan
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$562.14	0.5	shifts	1	demolition crew		reclamation plan
		total labor cost	\$943.71					
Machine Costs	725	\$0.00	0.0	shifts	not required	demolition crew		
	IT62	\$0.00	0.0	shifts	not required	demolition crew		
	D6	\$0.00	0.0	shifts	not required	demolition crew		
	420	\$1,453.04	1.0	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$467.28	0.5	shifts	1	demolition crew		
		total machine cost	\$1,920.32					
Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0	0	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required	420 in subtask c assumes scarification of 0.2 acre surface disturbance		
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

Subtask e - Revegetation									
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time	
	\$237.83	none		\$ 1,189	each	0	0.20		
	total material cost	\$237.83						0	
labor	unit	cost	shifts		unit quantity	Notes			
	Laborer 1	\$0.00	0	shifts		2	no labor aerially applied seed (Glen Air Quote)		
	Laborer 2	\$0.00	0	shifts	not required				
	Laborer 3A	\$0.00	0	shifts	not required				
	Miner 1	\$0.00	0	shifts	not required				
	miner 2	\$0.00	0	shifts	not required				
	Miner 3	\$0.00	0	shifts	not required				
	Mason	\$0.00	0	shifts	not required				
	Plumber	\$0.00	0	shifts	not required				
	Electrician	\$0.00	0	shifts	not required				
	total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required				
	IT62	\$0.00	0	shifts	not required				
	D6	\$0.00	0	shifts	not required				
	420	\$0.00	0	shifts	not required				
	hydroseeder	\$0.00	0	shifts		1			
	Pump	\$0.00	0	shifts	not required				
	F250 pickup	\$0.00	0	shifts		1			
	total machine cost	\$0.00							

RECLAMATION PLAN SECTION 2.8.2.3 - Water Treatment Plant

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	removal of hazardous materials
subtask c	demolition of structures and infrastructure
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$118.92
	labor	\$0.00		labor	\$943.71		labor	\$0.00
	machine time	\$0.00		machine time	\$1,920.32		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$3,064.03		subtotal	\$118.92
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$3,182.95**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
total machine cost	\$0.00							

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	1	demolition crew	
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	
		total machine cost	\$0.00				
Subtask b - Productivity estimate							
Removal of hazardous materials	feature	quantity					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	0	hours				
	number of poly drums	0			Reclamation Plan		
	transport to fuel farm	0	minutes		assumed by estimator		
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50.00					
	shifts	0.00					
fuel Transfer and Transport	volume of fuel	0	gallons		estimated volume to be shipped off site		
	Poly drum capacity	65	gallons		Arctic fire and Safety		
	required	0			round to 8		
	pump capacity	10	GPM		hand pump		
	time required for transfer	0	minutes				
	setup time	0			assumed by estimator		
	transport to fuel farm	0	minutes		assumed by estimator		
		shifts	0.00				

Subtask c - Demolition of structures and infrastructure

materials	cost	Description		cost	unit		quantity	total installation time
		\$200.00	cutting torch		\$100.00	each		2
	total material cost	\$200.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$381.58	0.5	shifts	1	demolition crew	reclamation plan	
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$562.14	0.5	shifts	1	demolition crew	reclamation plan	
	total labor cost	\$943.71						
Machine Costs	725	\$0.00	0.0	shifts	0	demolition crew		
	IT62	\$0.00	0.0	shifts	0	demolition crew		
	D6	\$0.00	0.0	shifts	0	demolition crew		
	420	\$1,453.04	1.0	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$467.28	0.5	shifts	1	demolition crew		
		total machine cost	\$1,920.32					

subtask c - productivity estimate

Demolition of structures	feature	quantity		
	existing structure footprint	800	SF	
	height of material	10	feet	
	standing volume	296	LCY	
	consolidation factor	0.9		standing volume estimated to be 10 percent air by volume
	total waste	267	LCY	
	estimated daily production	450	LCY	2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	7	hours	
	number of shifts	0.59	shifts	

Subtask d - Preparation of seedbed surface

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						

Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$118.92	none		\$ 1,189	each	0	0.10	
	total material cost	\$118.92						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.2.3 - Water Storage Tank

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures and infrastructure
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$118.92
	labor	\$0.00		labor	\$1,770.08		labor	\$0.00
	machine time	\$0.00		machine time	\$4,078.07		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$6,048.15		subtotal	\$118.92
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$6,167.07**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
total machine cost	\$0.00							

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	1	demolition crew	
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	
		total machine cost	\$0.00				
Subtask b - Productivity estimate							
Removal of hazardous materials	feature	quantity					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	0	hours				
	number of poly drums	0			Reclamation Plan		
	transport to fuel farm	0	minutes		assumed by estimator		
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50.00					
		shifts	0.00				
fuel Transfer and Transport	volume of fuel	0	gallons		estimated volume to be shipped off site		
	Poly drum capacity	65	gallons		Arctic fire and Safety		
	required	0			round to 8		
	pump capacity	10	GPM		hand pump		
	time required for transfer	0	minutes				
	setup time	0			assumed by estimator		
	transport to fuel farm	0	minutes		assumed by estimator		
		shifts	0.00				

Subtask c - Demolition of structures and infrastructure

materials	cost	Description		cost	unit		quantity	total installation time
		\$200.00	cutting torch		\$100.00	each		2
	total material cost	\$200.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00		shifts	not required			
	Laborer 2	\$1,187.13	0.5	shifts	3	demolition crew		reclamation plan
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$582.96	0.5	shifts	1	demolition crew		not required this task
		total labor cost	\$1,770.08					
Machine Costs	725	\$970.40	0.5	shifts	1	demolition crew		
	IT62	\$917.83	0.5	shifts	1	demolition crew		
	D6	\$951.82	0.5	shifts	1	demolition crew		
	420	\$753.43	0.5	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$484.58	0.5	shifts	1	demolition crew		
		total machine cost	\$4,078.07					

subtask c - productivity estimate

Demolition of structures	feature	quantity		
	existing structure footprint	350	SF	
	height of material	20	feet	including concrete pad
	standing volume	259	LCY	
	consolidation factor	0.5		standing volume assumed to be 50 percent solids by estimator
	total waste	130	LCY	
	estimated daily production	250	LCY	1/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	6	hours	
	number of shifts	0.52	shifts	

Subtask d - Preparation of seedbed surface

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Reclamation plan		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						

Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$118.92	none		\$ 1,189	each	0	0.10	
	total material cost	\$118.92						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.3.1 - Office/Dry Complex

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures and infrastructure
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$0.00
	labor	\$0.00		labor	\$5,087.69		labor	\$0.00
	machine time	\$0.00		machine time	\$15,400.64		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$20,688.32		subtotal	\$0.00
subtask b	materials	\$18,136.00	subtask d	materials	\$0.00			
	labor	\$3,124.29		labor	\$0.00			
	machine time	\$3,607.05		machine time	\$0.00			
	subtotal	\$24,867.35		subtotal	\$0.00			

DIRECT COST TASK 1 **\$45,555.67**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials								
materials	cost	Description		cost	unit		quantity	total installation time
	\$0.00	Land farm treatment		\$75.00	LCY	FRTR Reference Guide v. 4.0	0	
	\$15,000.00	RCRA waste		\$2,500.00	per drum		6	
	\$200.00	cutting torch		\$100.00	each		2	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	\$2,786.00	poly drum		\$199.00		Arctic Fire and Safety	14	
	total material cost	\$18,136.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$2,562.16	1.1	shifts		3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$562.14	0.5	shifts		1	demolition crew	
total labor cost	\$3,124.29							
Machine Costs	725	\$0.00	0.0	shifts		0	demolition crew	not used this subtask
	IT62	\$1,980.94	1.1	shifts		1	demolition crew	
	D6	\$0.00	0.0	shifts		0	demolition crew	not used this subtask
	420	\$1,626.11	1.1	shifts		1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts		0	demolition crew	not used this subtask
	total machine cost	\$3,607.05						
Subtask b - Productivity estimate								
Removal of hazardous materials	feature	quantity						
	RCRA waste	2	LCY					
	day tank	0	LCY					
	total hazardous waste	2	LCY					
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	10.10	hours					
	number of poly drums	6			Reclamation Plan			
	transport to air strip	50	minutes		assumed by estimator			
number of shifts	0.84	shifts						
POL Contaminated Soil	volume	0	BCY					
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10						
	volume of POL soil	0.00	LCY					
	volume POL per shift	50.00						
	shifts	0.00						

fuel Transfer and Transport	volume of fuel	1500	gallons	day tanks		
	Poly drum capacity	65	gallons	Arctic fire and Safety		
	required	23		8 filled at a time and emptied at airport fuel farm		
	pump capacity	10	GPM	hand pump		
	time required for transfer	150	minutes			
	setup time	10		assumed by estimator		
	transport to fuel farm	25	minutes	assumed by estimator		
	shifts	0.28				
Subtask c - Demolition of structures and infrastructure						
materials	cost	Description	cost	unit	quantity	total installation time
	\$200.00	cutting torch	\$100.00	each	2	
	total material cost	\$200.00				0
labor	unit	cost	shifts	unit quantity	Notes	
	Laborer 1	\$0.00		not required		
	Laborer 2	\$5,087.69	2.2	3	demolition crew	reclamation plan
	Laborer 3A	\$0.00	0.0	not required		
	Miner 1	\$0.00	0.0	not required		
	miner 2	\$0.00	0.0	not required		
	Miner 3	\$0.00	0.0	not required		
	Mason	\$0.00	0.0	not required		
	Plumber	\$0.00	0.0	not required		
	Electrician	\$0.00	0.0	1	demolition crew	reclamation plan
total labor cost	\$5,087.69					
Machine Costs	725	\$4,158.86	2.2	1		not used this subtask
	IT62	\$3,933.56	2.2	1	demolition crew	
	D6	\$4,079.24	2.2	1	demolition crew	
	420	\$3,228.98	2.2	1	demolition crew	
	hydroseeder	\$0.00	0.0	not required		
	Pump	\$0.00	0.0	not required		
	F250 pickup	\$0.00	0.0	0	demolition crew	not used this subtask
	total machine cost	\$15,400.64				
subtask c - productivity estimate						
Demolition of structures	feature	quantity				
	existing structure footprint	5400	SF			
	height of material	10	feet			
	standing volume	2000	LCY			
	consolidation factor	0.5		50 percent standing volume air		
	total waste	1000	LCY			
	estimated daily production	450	LCY	2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	27	hours			
number of shifts	2.22	shifts				

Subtask d - Preparation of seedbed surface

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

Subtask e - Revegetation

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00	none		\$ 1,189	each	0	0.00
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.8.3.2 - Maintenance Shop									
SUBTASKS									
subtask a	Erosion and Sediment Controls								
subtask b	removal of hazardous materials								
subtask c	demolition of structures and infrastructure								
subtask d	Preparation of seedbed surface								
subtask e	Revegetation								
SUMMARY									
subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$0.00	
	labor	\$0.00		labor	\$10,016.42		labor	\$0.00	
	machine time	\$0.00		machine time	\$9,457.21		machine time	\$0.00	
	subtotal	\$0.00		subtotal	\$19,673.63		subtotal	\$0.00	
subtask b	materials	\$18,482.27	subtask d	materials	\$0.00				
	labor	\$9,927.53		labor	\$0.00				
	machine time	\$9,373.28		machine time	\$0.00				
	subtotal	\$37,783.09		subtotal	\$0.00				
DIRECT COST TASK 1		\$57,456.71							
Subtask a - Erosion and Sediment Controls									
materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time		
	\$0.00	vegetated buffers	\$0.00	each	0	1	0		
	\$0.00	preserve existing vegetation	\$0.00	each	0	1	0		
	total material cost	\$0.00					0		
labor	cost	shifts	unit quantity	Notes					
Laborer 1	\$0.00	0 shifts	1						
Laborer 2	\$0.00	0 shifts	not required						
Laborer 3A	\$0.00	0 shifts	not required						
Miner 1	\$0.00	0 shifts	not required						
miner 2	\$0.00	0 shifts	not required						
Miner 3	\$0.00	0 shifts	not required						
Mason	\$0.00	0 shifts	not required						
Plumber	\$0.00	0 shifts	not required						
Electrician	\$0.00	0 shifts	not required						
	total labor cost	\$0.00							
Machine Costs	cost	shifts	unit quantity	Notes					
725	\$0.00	0 shifts	not required						
IT62	\$0.00	0 shifts	not required						
D6	\$0.00	0 shifts	not required						
420	\$0.00	0 shifts	not required						
hydroseeder	\$0.00	0 shifts	not required						
Pump	\$0.00	0 shifts	not required						
F250 pickup	\$0.00	0 shifts	not required						
	total machine cost	\$0.00							

Subtask b - Removal of hazardous materials							
	cost	Description		cost	unit	quantity	total installation time
materials	\$8,244.27	Land farm treatment		\$75.00	LCY	FRR Reference Guide v. 4.0 110	
	\$2,500.00	glycol		\$500.00	each	5	
	\$5,000.00	RCRA waste		\$2,500.00	per drum	2	
	\$200.00	cutting torch		\$100.00	each	2	
	\$150.00	hand pump		\$150.00	each	10 GPM 1	
	\$2,388.00	poly drum		\$199.00		Arctic Fire and Safety 12	
	total material cost	\$18,482.27					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$6,658.01	2.9	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$3,269.52	2.9	shifts	1	demolition crew	
	total labor cost	\$9,927.53					
Machine Costs	725	\$0.00	0.0	shifts	0	demolition crew	not used this subtask
	IT62	\$5,147.67	2.9	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	0	demolition crew	not used this subtask
	420	\$4,225.61	2.9	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	0	demolition crew	not used this subtask
	total machine cost	\$9,373.28					
Subtask b - Productivity estimate							
Removal of hazardous materials	<i>feature</i>	<i>quantity</i>					
	RCRA waste	2	LCY		Reclamation Plan		
	glycol	1.8	LCY		Reclamation Plan		
	total hazardous waste	3.8	LCY				
	estimated daily production	250	LCY		per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	5.18	hours				
	number of poly drums	12					
transport to air strip	25	minutes		assumed by estimator			
	number of shifts	0.43	shifts				
POL Contaminated Soil	volume	100	BCY		Reclamation Plan		
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	swell factor	0.10					
	volume of POL soil	109.92	LCY				
	volume POL per shift	50			assumed by estimator		
	shifts	2.20					
fuel Transfer and Transport	volume of fuel	1500	gallons		day tanks		
	Poly drum capacity	65	gallons		Arctic fire and Safety		
	required	23			8 filled at a time and emptied at airport fuel farm		
	pump capacity	10	GPM		hand pump		
	time required for transfer	150	minutes				
	setup time	10			assumed by estimator		
	transport to fuel farm	25	minutes		assumed by estimator		
	shifts	0.28					
Subtask c - Demolition of structures and infrastructure							
materials	cost	Description		cost	unit	quantity	total installation time
	\$200.00	cutting torch		\$100.00	each	2	
	total material cost	\$200.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>
	Laborer 1	\$0.00		shifts	not required		
	Laborer 2	\$6,717.63	2.9	shifts	3	demolition crew	reclamation plan
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
Plumber	\$0.00	0.0	shifts	not required			

	Electrician	\$3,298.79	2.9	shifts	1	demolition crew	reclamation plan
	total labor cost	\$10,016.42					
Machine Costs	725	\$0.00	0.0	shifts	0		not used this subtask
	IT62	\$5,193.76	2.9	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	0		not used this subtask
	420	\$4,263.45	2.9	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts		not required	
	Pump	\$0.00	0.0	shifts		not required	
	F250 pickup	\$0.00	0.0	shifts	0		not used this subtask
	total machine cost	\$9,457.21					
subtask c - productivity estimate							
Demolition of structures	feature	quantity					
	existing structure footprint	7130	SF				Reclamation Plan
	height of material	10	feet				Reclamation Plan
	standing volume	2641	LCY				
	consolidation factor	0.5					50 percent standing volume assumed to be air
	total waste	1320	LCY				
	estimated daily production	450	LCY				2/3 of productivity per 12 hour shift of Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	35	hours				
number of shifts	2.93	shifts					

Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	none		\$ 1,189	each	0	0.00	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.3.3 - Mill Complex

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures and infrastructure
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$1,500.00	subtask e	materials	\$0.00
	labor	\$0.00		labor	\$86,956.10		labor	\$0.00
	machine time	\$0.00		machine time	\$107,513.30		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$195,969.40		subtotal	\$0.00
subtask b	materials	\$48,882.27	subtask d	materials	\$0.00			
	labor	\$7,694.27		labor	\$0.00			
	machine time	\$9,249.37		machine time	\$0.00			
	subtotal	\$65,825.91		subtotal	\$0.00			

DIRECT COST TASK 1 **\$261,795.31**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials								
	cost	Description		cost	unit		quantity	total installation time
materials	\$8,244.27	Land farm treatment		\$75.00	LCY	FRTTR Reference Guide v. 4.0	110	
	\$12,500.00	glycol		\$500.00	each		25	
	\$25,000.00	RCRA waste		\$2,500.00	per drum		10	
	\$600.00	cutting torch		\$100.00	each		6	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	\$2,388.00	poly drum		\$199.00		Arctic Fire and Safety	12	
	total material cost	\$48,882.27						
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$6,570.00	2.9	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$1,124.27	1.0	shifts	1	demolition crew		
	total labor cost	\$7,694.27						
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew		not used this subtask
	IT62	\$5,079.62	2.9	shifts	1	demolition crew		
	D6	\$0.00	0.0	shifts	1	demolition crew		not used this subtask
	420	\$4,169.75	2.9	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew		
	total machine cost	\$9,249.37						
Subtask b - Productivity estimate								
Removal of hazardous materials	feature	quantity						
	RCRA waste	10	drum		Reclamation Plan			
	glycol	25	drum		Reclamation Plan			
	total hazardous waste	11.55	LCY					
	estimated daily production	250	LCY		per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	5.55	hours					
	number of poly drums	35			Reclamation Plan			
	transport to air strip	25	minutes		assumed by estimator			
number of shifts	0.46	shifts						
POL Contaminated Soil	volume	100	BCY					
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10						
	volume of POL soil	109.92	LCY					
	volume POL per shift	50.00						
	shifts	2.20						

fuel Transfer and Transport	volume of fuel	1000	gallons	day tank			
	Poly drum capacity	65	gallons	Arctic fire and Safety			
	required	15		8 filled at a time and emptied at airport fuel farm			
	pump capacity	10	GPM	hand pump			
	time required for transfer	100	minutes				
	setup time	10		assumed by estimator			
	transport to fuel farm	25	minutes	assumed by estimator			
	shifts	0.21					
Subtask c - Demolition of structures and infrastructure							
materials	cost	Description		cost	unit	quantity	total installation time
	\$1,500.00	cutting torch		\$100.00	each	15	
	total material cost	\$1,500.00					0
labor	unit	cost	shifts		unit quantity	Notes	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$67,241.39	29.4	shifts	3	demolition crew	
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$8,708.08	9.8	shifts	1		1/3 time pipefitter
	Electrician	\$11,006.63	9.8	shifts	1	demolition crew	1/3 time electrician
total labor cost	\$86,956.10						
Machine Costs	725	\$0.00	0.0	shifts	0	demolition crew	not used this subtask IT62/420 haul to Crystal Portal
	IT62	\$51,987.91	29.4	shifts	1	demolition crew	
	D6	\$12,849.59	7.0	shifts	1	demolition crew	used for concrete reduction (assumed 7 shifts)
	420	\$42,675.80	29.4	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	not used this subtask	
	total machine cost	\$107,513.30					
subtask c - productivity estimate							
Demolition of structures	feature	quantity					
	existing structure footprint	17622	SF				
	height of material	15	feet			estimated average height of equipment in mill	
	standing volume	9790	LCY				
	consolidation factor	0.75				25 percent air by volume assumed	
	total waste	7343	LCY				
	estimated daily production	250	LCY			1/3 per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13	
	number of hours	352	hours				
number of shifts	29.37	shifts					

Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Rock Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00	none		\$ 1,189	each	0	0.00	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not			
	Laborer 2	\$0.00	0	shifts	not required	Part of Crystal Development Rock Stockpile Closure		
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.8.3.4 - Generator Enclosure

SUBTASKS

subtask a Erosion and Sediment Controls
 subtask b removal of hazardous materials
 subtask c demolition of structures and infrastructure
 subtask d Preparation of seedbed surface
 subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$0.00
	labor	\$0.00		labor	\$3,371.59		labor	\$0.00
	machine time	\$0.00		machine time	\$4,106.37		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$7,677.96		subtotal	\$0.00
subtask b	materials	\$3,840.00	subtask d	materials	\$0.00			
	labor	\$2,174.55		labor	\$0.00			
	machine time	\$4,308.25		machine time	\$0.00			
	subtotal	\$10,322.80		subtotal	\$0.00			

DIRECT COST TASK 1 **\$18,000.76**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost	\$0.00						0
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						

Subtask b - Removal of hazardous materials								
materials	cost	Description		cost	unit		quantity	total installation time
	\$0.00	Land farm treatment		\$75.00	LCY	FRTR Reference Guide v. 4.0	0	
	\$1,500.00	glycol		\$500.00	each		3	
	\$0.00	RCRA waste		\$2,500.00	per drum		0	
	\$200.00	cutting torch		\$100.00	each		2	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	\$1,990.00	poly drum		\$199.00		Arctic Fire and Safety	10	
	total material cost	\$3,840.00						
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$1,458.39	0.6	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$716.16	0.6	shifts	1	demolition crew		
	total labor cost	\$2,174.55						
Machine Costs	725	\$0.00	0.0	shifts		demolition crew	not used this subtask	
	IT62	\$3,382.67	0.6	shifts	3	demolition crew		
	D6	\$0.00	0.0	shifts		demolition crew	not used this subtask	
	420	\$925.59	0.6	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew		
	total machine cost	\$4,308.25						
Subtask b - Productivity estimate								
Removal of hazardous materials	feature	quantity						
	RCRA waste	0						
	glycol	3	drums					
	total hazardous waste	3	LCY					
	estimated daily production	250	LCY		per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	5.14	hours					
	number of poly drums	9			Reclamation Plan			
	transport to air strip	25	minutes			assumed by estimator		
	number of shifts	0.43	shifts					
POL Contaminated Soil	volume	0	BCY					
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"			
	swell factor	0.10						
	volume of POL soil	0.00	LCY					
	volume POL per shift	50.00						
	shifts	0.00						

fuel Transfer and Transport	volume of fuel	1000	gallons	day tank			
	Poly drum capacity	65	gallons	Arctic fire and Safety			
	required	15		8 filled at a time and emptied at airport fuel farm			
	pump capacity	10	GPM	hand pump			
	time required for transfer	100	minutes				
	setup time	10		assumed by estimator			
	transport to fuel farm	25	minutes	assumed by estimator			
	shifts	0.21					
Subtask c - Demolition of structures and infrastructure							
materials	cost	Description		cost	unit		quantity
	\$200.00	cutting torch		\$100.00	each		2
	total material cost	\$200.00					0
labor	unit	cost	shifts		unit quantity		Notes
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$2,261.19	1.0	shifts	3	demolition crew	reclamation plan
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$1,110.39	1.0	shifts	1	demolition crew	reclamation plan
total labor cost	\$3,371.59						
Machine Costs	725	\$0.00	0.0	shifts	0	not used this subtask	
	IT62	\$1,748.25	1.0	shifts	1	demolition crew	
	D6	\$0.00	0.0	shifts	0	not used this subtask	
	420	\$1,435.10	1.0	shifts	1	demolition crew	
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$923.02	1.0	shifts	1		
	total machine cost	\$4,106.37					
subtask c - productivity estimate							
Demolition of structures	feature	quantity					
	existing structure footprint	1600	SF				
	height of material	10	feet				
	standing volume	593	LCY				
	consolidation factor	0.75		25 percent by volume air			
	total waste	444	LCY				
	estimated daily production	450	LCY	2/3 per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13			
	number of hours	12	hours				
number of shifts	0.99	shifts					

Subtask d - Preparation of seedbed surface

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00			\$0.00	each	0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Rock Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

Subtask e - Revegetation

materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
		\$0.00	none		\$ 1,189	each	0	0.00
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required	Part of Crystal Development Rock Stockpile Closure		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.8.3.5 - Meteorological Station

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	removal of hazardous materials
subtask c	demolition of structures and infrastructure
subtask d	Preparation of seedbed surface
subtask e	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$118.92
	labor	\$0.00		labor	\$474.85		labor	\$0.00
	machine time	\$0.00		machine time	\$1,437.39		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$2,112.24		subtotal	\$118.92
subtask b	materials	\$0.00	subtask d	materials	\$0.00			
	labor	\$0.00		labor	\$0.00			
	machine time	\$0.00		machine time	\$0.00			
	subtotal	\$0.00		subtotal	\$0.00			

DIRECT COST TASK 1 **\$2,231.16**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each		0	1
	\$0.00	preserve existing vegetation		\$0.00	each		0	1
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
total machine cost	\$0.00							

Subtask b - Removal of hazardous materials							
materials	\$0.00			\$0.00			
	total material cost	\$0.00					0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>	
	Laborer 1	\$0.00	0.0	shifts	not required		
	Laborer 2	\$0.00	0.0	shifts	3	demolition crew	not used this subtask
	Laborer 3A	\$0.00	0.0	shifts	not required		
	Miner 1	\$0.00	0.0	shifts	not required		
	miner 2	\$0.00	0.0	shifts	not required		
	Miner 3	\$0.00	0.0	shifts	not required		
	Mason	\$0.00	0.0	shifts	not required		
	Plumber	\$0.00	0.0	shifts	not required		
	Electrician	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	IT62	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	D6	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	420	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
	hydroseeder	\$0.00	0.0	shifts	not required		
	Pump	\$0.00	0.0	shifts	not required		
	F250 pickup	\$0.00	0.0	shifts	1	demolition crew	not used this subtask
		total machine cost	\$0.00				
Subtask b - Productivity estimate							
Removal of hazardous materials	<i>feature</i>	<i>quantity</i>					
	RCRA waste	0	LCY				
	day tank	0	LCY				
	total hazardous waste	0	LCY				
	estimated daily production	250	LCY		per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13		
	number of hours	0	hours				
	number of poly drums	0			Reclamation Plan		
	transport to fuel farm	0	minutes		assumed by estimator		
	number of shifts	0.00	shifts				
POL Contaminated Soil	volume	0	BCY				
	Bank Material Density	144	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	Loose Material Density	131	lbs/ft3		SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"		
	swell factor	0.10					
	volume of POL soil	0.00	LCY				
	volume POL per shift	50.00					
		shifts	0.00				
fuel Transfer and Transport	volume of fuel	0	gallons		estimated volume to be shipped off site		
	Poly drum capacity	65	gallons		Arctic fire and Safety		
	required	0			round to 8		
	pump capacity	10	GPM		hand pump		
	time required for transfer	0	minutes				
	setup time	0			assumed by estimator		
	transport to fuel farm	0	minutes		assumed by estimator		
		shifts	0.00				

Subtask c - Demolition of structures and infrastructure								
materials	cost	Description		cost	unit		quantity	total installation time
	\$200.00	cutting torch		\$100.00	each		2	
	total material cost	\$200.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>	
	Laborer 1	\$0.00		shifts	not required			
	Laborer 2	\$474.85	0.2	shifts	3	demolition crew		reclamation plan
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts	1	demolition crew		not required this task
total labor cost	\$474.85							
Machine Costs	725	\$388.16	0.2	shifts	1	demolition crew		
	IT62	\$367.13	0.2	shifts	1	demolition crew		
	D6	\$380.73	0.2	shifts	1	demolition crew		
	420	\$301.37	0.2	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$193.83	0.2	shifts	1	demolition crew		
	total machine cost	\$1,437.39						
subtask c - productivity estimate								
Demolition of structures	feature	quantity						
	existing structure footprint	350	SF					
	height of material	8	feet					
	standing volume	104	LCY					
	consolidation factor	0.5		50 percent air by volume				
	total waste	52	LCY					
	estimated daily production	250	LCY	per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13				
	number of hours	2	hours					
number of shifts	0.21	shifts						
Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each		0	1
	total material cost	\$0.00						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>		<i>Notes</i>	
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost	\$0.00							

Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$0.00						
Subtask e - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$118.92	none		\$ 1,189	each	0	0.10	
	total material cost	\$118.92						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
total labor cost	\$0.00							
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
	total machine cost	\$0.00						

RECLAMATION PLAN SECTION 2.8.3.6 - Fuel Depot

SUBTASKS

- subtask a Erosion and Sediment Controls
- subtask b removal of hazardous materials
- subtask c demolition of structures and infrastructure
- subtask d Preparation of seedbed surface
- subtask e Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask c	materials	\$200.00	subtask e	materials	\$713.49
	labor	\$0.00		labor	\$5,087.69		labor	\$0.00
	machine time	\$0.00		machine time	\$10,169.22		machine time	\$0.00
	subtotal	\$0.00		subtotal	\$15,456.90		subtotal	\$713.49
subtask b	materials	\$8,594.27	subtask d	materials	\$0.00			
	labor	\$7,111.53		labor	\$0.00			
	machine time	\$15,767.17		machine time	\$453.12			
	subtotal	\$31,472.97		subtotal	\$453.12			

DIRECT COST TASK 1 \$48,096.48

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost		\$0.00					
	unit	cost	shifts		unit quantity	Notes		
labor	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$0.00					

Subtask b - Removal of hazardous materials

	cost	Description		cost	unit		quantity	total installation time
materials	\$8,244.27	Land farm treatment		\$75.00	LCY	FRTR Reference Guide v. 4.0	110	
	\$200.00	cutting torch		\$100.00	each		2	
	\$150.00	hand pump		\$150.00	each	10 GPM	1	
	total material cost	\$8,594.27						0
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>	<i>Notes</i>		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$5,987.25	2.6	shifts	3	demolition crew		
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$1,124.27	1.0	shifts	1	demolition crew		
	total labor cost	\$7,111.53						
Machine Costs	725	\$4,894.20	2.6	shifts	1	demolition crew		not used this subtask
	IT62	\$4,629.07	2.6	shifts	1	demolition crew		
	D6	\$0.00	0.0	shifts	0	demolition crew		not used this subtask
	420	\$3,799.90	2.6	shifts	1	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$2,444.00	2.6	shifts	1	demolition crew		
	total machine cost	\$15,767.17						

Subtask b - Productivity estimate

Removal of hazardous materials	feature	quantity		
	RCRA waste	0		Reclamation Plan
	glycol	0	drums	
	total hazardous waste	0	LCY	
	estimated daily production	250	LCY	per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13
	number of hours	5.00	hours	
	number of poly drums	0		Reclamation Plan
	transport to air strip	25	minutes	assumed by estimator
number of shifts	0.42	shifts		
POL Contaminated Soil	volume	100	BCY	
	Bank Material Density	144	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"
	Loose Material Density	131	lbs/ft3	SME, 1999, SME Mining Engineering Handbook, Appendix A Table E "gravel wet"
	swell factor	0.10		
	volume of POL soil	109.92	LCY	
	volume POL per shift	50.00		
	shifts	2.20		
fuel Transfer and Transport	volume of fuel		gallons	
	Poly drum capacity	65	gallons	Arctic fire and Safety
	required	0		8 filled at a time and emptied at airport fuel farm
	pump capacity	10	GPM	hand pump
	time required for transfer	0	minutes	
	setup time			assumed by estimator
	transport to fuel farm		minutes	assumed by estimator
	shifts	0.00		

Subtask c - Demolition of structures and infrastructure								
materials	cost	Description		cost	unit	quantity	total installation time	
		\$200.00	cutting torch		\$100.00	each	2	
	total material cost	\$200.00					0	
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0.0	shifts	not required			
	Laborer 2	\$5,087.69	2.2	shifts	3	demolition crew	reclamation plan	
	Laborer 3A	\$0.00	0.0	shifts	not required			
	Miner 1	\$0.00	0.0	shifts	not required			
	miner 2	\$0.00	0.0	shifts	not required			
	Miner 3	\$0.00	0.0	shifts	not required			
	Mason	\$0.00	0.0	shifts	not required			
	Plumber	\$0.00	0.0	shifts	not required			
	Electrician	\$0.00	0.0	shifts	1	demolition crew	reclamation plan	
	total labor cost	\$5,087.69						
Machine Costs	725	\$4,158.86	2.2	shifts	1	not used this subtask		
	IT62	\$3,933.56	2.2	shifts	1	demolition crew		
	D6	\$0.00	2.2	shifts	0	not used this subtask		
	420	\$0.00	2.2	shifts	0	demolition crew		
	hydroseeder	\$0.00	0.0	shifts	not required			
	Pump	\$0.00	0.0	shifts	not required			
	F250 pickup	\$2,076.79	2.2	shifts	1			
		total machine cost	\$10,169.22					
Subtask c - productivity estimate								
Demolition of tanks	feature	quantity						
	existing structure footprint	3600	SF					
	material height	10	feet					
	standing volume	1333	LCY					
	consolidation factor	0.75		50 percent consolidation assumed by estimator				
	total waste	1000	LCY					
	estimated daily production	450	LCY	per 12 hour shift based on Dodge 1998 Heavy Construction Handbook Crew D13				
	number of hours	27	hours					
	number of shifts	2.22	shifts					
Subtask d - Preparation of seedbed surface								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each	0	1	
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$453.12	0.2	shifts	1			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
		total machine cost	\$453.12					

subtask d - productivity estimates

Surface Roughening	surface disturbance width	150	feet	Reclamation Plan
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width
	surface disturbance distance	150	feet	Reclamation Plan
	surface disturbance	0.52	acres	
	total surface length	173	feet	
	track walked distance	150	feet	
	number of passes	86.25		
	average speed	2.00	mph	Cat Performance Handbook
	average speed	176	feet/min	
	rip time per pass	0.85	minutes	
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)
	rip time per pass (total)	1.35	minutes	
	average operator	0.75		Cat performance handbook
	efficiency	0.88		
	net production rate	29.12	passes/hour	
total production time	3	hours		
total shifts required	0.2			

Subtask e - Revegetation

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$713.49	none		\$ 1,189	each	0	0.60	
	total material cost	\$713.49						0
	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
labor	Laborer 1	\$0.00	0	shifts		included in per acre cost		
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts		1 included in per acre cost		
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts		1 included in per acre cost		
		total machine cost	\$0.00					

RECLAMATION PLAN SECTION 2.3.8.9 - Solid Waste Landfill

SUBTASKS

subtask a	Erosion and Sediment Controls
subtask b	Recontouring
subtask c	Seed bed preparation
subtask d	Revegetation

SUMMARY

subtask a	materials	\$0.00	subtask b	materials	\$0.00
	labor	\$0.00		labor	\$0.00
	machine time	\$0.00		machine time	\$686.39
	subtotal	\$0.00		subtotal	\$686.39
subtask c	materials	\$0.00	subtask d	materials	\$3,567.47
	labor	\$0.00		labor	\$0.00
	machine time	\$2,057.30		machine time	\$0.00
	subtotal	\$2,057.30		subtotal	\$3,567.47

DIRECT COST TASK 1 **\$6,311.16**

Subtask a - Erosion and Sediment Controls

	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
materials	\$0.00	vegetated buffers		\$0.00	each	0	1	0
	\$0.00	preserve existing vegetation		\$0.00	each	0	1	0
	total material cost		\$0.00					
labor	<i>unit</i>	<i>cost</i>	<i>shifts</i>		<i>unit quantity</i>			<i>Notes</i>
	Laborer 1	\$0.00	0	shifts	1			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
total labor cost		\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$0.00	0	shifts	not required			
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost		\$0.00					

Subtask b - recontouring

materials	cost	Description	cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00		\$0.00	each	0		0
	total material cost	\$0.00					0
labor	unit	cost	shifts	unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required		
	Laborer 2	\$0.00	0	shifts	not required		
	Laborer 3A	\$0.00	0	shifts	not required		
	Miner 1	\$0.00	0	shifts	not required		
	miner 2	\$0.00	0	shifts	not required		
	Miner 3	\$0.00	0	shifts	not required		
	Mason	\$0.00	0	shifts	not required		
	Plumber	\$0.00	0	shifts	not required		
	Electrician	\$0.00	0	shifts	not required		
	total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts	not required		
	IT62	\$0.00	0	shifts	not required		
	D6	\$0.00	0.7	shifts	1		
	420	\$0.00	0	shifts	not required		
	hydroseeder	\$0.00	0	shifts	not required		
	Pump	\$0.00	0	shifts	not required		
	F250 pickup	\$686.39	1	shifts	1		
	total machine cost	\$686.39					

subtask b - Productivity Estimates

recontouring	average dozing distance	93	feet	reclamation plan			
	blade width	13.34	feet	cat performance handbook			
	disturbance length	93.00	feet	reclamation plan			
	depth of cut/fill	3.00	CY	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)			
	total production	961	CY				
	gross production rate	400.00	CY/hr	Cat performance handbook			
	side by side dozing	1.20		Cat performance handbook			
	hard to drift material	0.80		Cat performance handbook			
	average operator	0.75		Cat performance handbook			
	efficiency	0.88					
	net production rate	252.00	CY/hr				
	total production time	9	hours	5 hours added for machine maneuver and tramming			
	total shifts required	1					

Subtask c- Seedbed preparation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$0.00			\$0.00	each			0
	total material cost	\$0.00						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	not required			
	Laborer 2	\$0.00	0	shifts	not required			
	Laborer 3A	\$0.00	0	shifts	not required			
	Miner 1	\$0.00	0	shifts	not required			
	miner 2	\$0.00	0	shifts	not required			
	Miner 3	\$0.00	0	shifts	not required			
	Mason	\$0.00	0	shifts	not required			
	Plumber	\$0.00	0	shifts	not required			
	Electrician	\$0.00	0	shifts	not required			
	total labor cost	\$0.00						
Machine Costs	725	\$0.00	0	shifts	not required			
	IT62	\$0.00	0	shifts	not required			
	D6	\$2,057.30	1.1	shifts			1	
	420	\$0.00	0	shifts	not required			
	hydroseeder	\$0.00	0	shifts	not required			
	Pump	\$0.00	0	shifts	not required			
	F250 pickup	\$0.00	0	shifts	not required			
	total machine cost	\$2,057.30						
subtask c - Productivity Estimates								
Track walking	surface disturbance width	361	feet	existing surface width regrade and recontour				
	track width	2.00	feet	Cat Performance Handbook minimum LGP shoe width				
	surface disturbance distance	361.00	feet					
	surface disturbance	2.99	acres					
	total surface length	415.15	feet					
	track walked distance	361.00	feet	perpendicular pass to centerline				
	number of passes	207.58		50 foot pass across surface 5000 feet long				
	average speed	2.00	mph	Cat Performance Handbook				
	average speed	176	feet/min					
	rip time per pass	2.05	minutes	Cat performance handbook				
	Maneuver time	0.50	minutes	assumed by estimator (backup machine, reset pads 2 feet over and minor regrading)				
	rip time per pass (total)	2.55	minutes					
	average operator	0.75		Cat performance handbook				
	efficiency	0.88						
	net production rate	15.43	passes/hour					
total production time	13	hours						
total shifts required	1.12							

Subtask d - Revegetation

Subtask d - Revegetation								
materials	cost	Description		cost	unit	installation time (hrs)	quantity	total installation time
	\$3,567.47	none		\$ 1,189	each	0	3.00	0
	total material cost	\$3,567.47						0
labor	unit	cost	shifts		unit quantity	Notes		
	Laborer 1	\$0.00	0	shifts	2	included in per acre cost		
	Laborer 2	\$0.00	0	shifts		not required		
	Laborer 3A	\$0.00	0	shifts		not required		
	Miner 1	\$0.00	0	shifts		not required		
	miner 2	\$0.00	0	shifts		not required		
	Miner 3	\$0.00	0	shifts		not required		
	Mason	\$0.00	0	shifts		not required		
	Plumber	\$0.00	0	shifts		not required		
	Electrician	\$0.00	0	shifts		not required		
		total labor cost	\$0.00					
Machine Costs	725	\$0.00	0	shifts		not required		
	IT62	\$0.00	0	shifts		not required		
	D6	\$0.00	0	shifts		not required		
	420	\$0.00	0	shifts		not required		
	hydroseeder	\$0.00	0	shifts	1	included in per acre cost		
	Pump	\$0.00	0	shifts		not required		
	F250 pickup	\$0.00	0	shifts	1	included in per acre cost		
		total machine cost	\$0.00					