

Ft. Knox Reclamation Plan

June 2006

Cost Summary - Page 1

Financial Assurance	
	Total
Waste Rock Dumps	6,065,676
Stockpiles	327,748
Growth Media Stockpiles	22,111
Mill Decommission	207,308
Building Foundations	87,296
Building Sites	312,635
Borrow Areas	85,076
Roads	30,313
Pit	64,667
Pit Powerline Demolition	14,519
Gil Causeway	12,306
Tailing - Earthwork	1,108,089
Tailing - Spillway Construct	1,466,015
Tailings Water Mgmt	1,742,779
Heap Leach	1,512,931
Heap Leach Water Mgmt	1,280,143
Well Closure	35,782
Post-Closure Monitoring	734,704
TOTAL DIRECT COSTS	15,110,097
Mobilization/Demobilization	5% 755,505
Engineering/Redesign	4% 604,404
Contractor Profit & Overhead	10% 1,511,010
Performance Bond	1.5% 226,651
Payment Bond	1.5% 226,651
Contract Administration	8% 1,208,808
Contingencies	4% 604,404
Insurance Premiums	1.5% 50,614
Indirect Costs	21% 253,850
TOTAL INDIRECT COSTS	36% 5,441,897
TOTAL	20,551,994

Labor Costs

Total	\$ 3,807,648
Waste Rock Dumps	\$ 1,286,816
Heap Leach	\$ 1,360,238
Heap Leach Water Mgmt	\$ 654,319
Tailings - Earthwork	\$ 186,548
Tailings - Water Mgmt	\$ 74,087
Borrow Areas	\$ 10,113
Growth Media Locations	\$ 2,628
Stockpiles	\$ 81,405
FK Roads	\$ 4,336
Pits & Walls	\$ 15,682
Gil Causeway	\$ 3,026
Site Complex	\$ 79,005
Foundation Demo	\$ 25,929
Demo Pit Powerline	\$ 4,730
Well Closure	\$ 18,784

Assumptions:

- Fort Knox will complete mining in 2010
- Fort Knox will complete milling in 2012
- Waste rock dumps will be reclaimed by sloping to 3:1 and covering with 6 inches of growth media
- Reclamation of the pit will be as a final pit lake and will require a berm and signs warning of hazards.
- Pit walls at the cessation of mining are assumed to meet the criteria of 11 AAC 97.200 that states "...shall leave the wall in a condition such that it will not collapse nor allow loose rock that presents a hazard to fall from it.
- Reclamation of the tailing in conjunction with the wetland functional analysis will satisfy Fort Knox's 404 permit requirements for wetland mitigation.
- Water quality standards for discharging surface water and seepage from the tailing will be achieved in two years following closure.
- The water balance in the tailing impoundment can be pumped to the pit to maintain the water balance prior to meeting water quality standards for discharge.
- Building foundations will be rubble to ground level and covered with one foot of waste rock and one foot of growth media
- Cost of demolition of facilities is assumed to be equal to salvage value of facilities and associated equipment.
- Powerline removal will be required for a length of 4 miles.
- Powerline removal can occur after established that seepage discharge meets standards and no additional pumping will be required.
- Post Reclamation Funding agreement requires FGMI to donate to State of Alaska that portion of the millsite lease downstream of the tailing impoundment including the freshwater lake for development of a public recreation area.
- Major reclamation activities will be completed within two years after mill production ceases and property will be turned over to State of Alaska ten years thereafter.

EQUIPMENT								
Equipment	Type	2006		Assumed Fuel Cost			Total per hour	Source
		Monthly	Hours	Hour Cost	Fuel \$/hour ²	Lube/wear ²		
Cat D10R	Dozer						\$200	AIC June 2006
Cat D9R	Dozer	\$27,000	200	\$135	\$32	\$4	\$171	NC Machinery, June 2006
Cat D8	Dozer	\$17,000	200	\$85	\$25	\$4	\$114	NC Machinery, June 2006
Cat D6R	Dozer	\$9,750	200	\$49	\$11	\$2	\$62	NC Machinery, June 2006
988	Loader	\$21,000	200	\$105	\$24	\$3	\$132	NC Machinery, June 2006
Euclid B-70	Truck						\$150	AIC June 2006
Grader 16H	Grader	\$19,750	200	\$99	\$18	\$3	\$120	NC Machinery, June 2006
Water Truck-3000	Truck	\$10,584	200	\$53	\$6	\$2	\$61	Airport Rental 7/20/05, adjusted upward 12%
4WD Pickup	Truck	\$2,117	200	\$11	\$4	\$1	\$16	Airport Rental 7/20/05, adjusted upward 12%
325L	Excavator	\$9,975	200	\$50	\$14	\$3	\$67	NC Machinery, June 2006
Hydraulic Hammer -H140 with CAT 330CL		\$24,500	200	\$123	\$17	3	\$143	NC Machinery, June 2006

- Notes:
- Equipment cost determined from sources as noted NC Machinery rental rates -6/2006
 NC Machinery rental rates -6/2006
 AIC Contractorrate - 6/2006
 - Lube/Wear/Fuel use for machines - Larry Jackson - conversation 6/23/05, equipment cost guide with adjustment for AK
 North Dakota Public Service Commission,
Policy Memorandum No. 16 to Mine Operators: Reclamation Cost Estimating Guideline, Variable Costs Appendix. July 2004 Data
 28 June, 2005 <http://www.psc.state.nd.us/jurisdiction/reclamation/files/703update.pdf>
 Cover letter. <http://www.psc.state.nd.us/jurisdiction/reclamation/files/bdupdtmem.pdf>
 - Airport Rentals - 7/20/05 quote from Mike Lynch
 Water Truck - 3000 \$9,450
 4WD Pickup \$1,890

LABOR	
	\$/hour
Equipment Operator (includes 50% burden)	\$ 48.79
Supervisor (includes 50% burden)	\$ 53.39
Supervisor hours = sum of operator hours divided by 6 (16% of total job hours) As per Delbert Parr, June 2005	

Base Case Assumptions & Costs - Page 2

REVEGETATION CONTRACTORS AND MATERIALS

Upland Mix

Contractor Estimates				
Aerial Application Seed & Fertilizer	\$ 80.00			Quote
Seed	\$ 83.60	\$/acre		Materials Quote
Fertilizer	\$ 135.00	\$/acre		Materials Quote
	\$ 298.60	\$/acre		

Seed & Fertilizer Unit Price				
Applied lb/acre		Unit Costs	lb/ac	Cost per Acre
Seed	\$ 7.60	\$/lb	11	\$ 83.60
Fertilizer	\$ 0.45	\$/lb	300	\$ 135.00

Aerial Application- GlennAir 907-746-2585 quote to Larry Jackson. April, 2005

AK Garden and Pet, 907-279-4519, quote to Larry Jackson, 17 May, 2005
(seed mix 50% Arcta Red,20% Tundra Bluegrass,20% Alpine Bluegrass, 10% Hairgrass)

20N-20P-10K
Fertilizer application rate: As per Delbert Parr, 27 June 2005

Wetland Mix

Contractor Estimates				
Aerial Application Seed & Fertilizer	\$ 80.00	\$/acre		Labor Quote
Seed	\$ 114.00	\$/acre		Materials Quote
Fertilizer	\$ 135.00	\$/acre		Materials Quote
	\$ 329.00	\$/acre		

Seed & Fertilizer Unit Price				
Applied lb/acre		Unit Costs	lb/ac	Cost per Acre
Seed	\$ 7.60	\$/lb	15	\$ 114.00
Fertilizer	\$ 0.45	\$/lb	300	\$ 135.00

Ft. Knox Reclamation Plan

Topsoil Haul Production - Page 1

Growth media stockpiles	
Name	Volume (CY)
Yellow Pup	1,537,000
Phase 6 Yellow Pup	512,700
Walter Creek	617,000
Tailing North	3,186,400
Tailing South	291,400
Water Supply	1,750,000

Cover requirements	
Name	Volume (CY)
Yellow Pup WR	411,550
Fish Creek WR	79,000
Barnes Creek WR	253,950
Walter Creek LP	188,115
Stockpiles	79,053
Tailing North Sector	46,787
Tailing Northwest Sector	50,013
Tailing Southwest Sector	62,920
Tailing South Sector	66,147
Tailing East Sector	41,947
Laydown yard	17,250
Admin	10,650
Mill	26,400
Total	1,333,781

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Topsoil Haul Production - Page 2 (left)

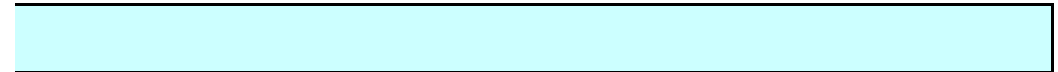
			Cover material haulage								
Source			Yellow Pup WR	Fish Creek WR	Barnes Creek WR	Walter Creek LP	Tailing North Sector	Tailing Northwest Sector	Tailing Southwest Sector	Tailing South Sector	Tailing East Sector
Total needed			411,550	79,000	253,950	188,115	46,787	50,013	62,920	66,147	41,947
Available 101,150	Phase 6 Yellow Pup	Prod. Table #	1								
	512,700	Volume Used	411,550								
		Avg distance (Ft)	1,800								
		Avg grade (%)	-15								
941,630	Yellow Pup	Prod. Table #		2	3				7	8	
	1,537,000	Volume Used		79,000	253,950				62,920	66,147	
		Avg distance (Ft)		3,000	7,000				3,000	8,000	
		Avg grade (%)		5	4				-2	-1	
332,085	Walter Creek	Prod. Table #				4	5	6			
	617,000	Volume Used				188,115	46,787	50,013			
		Avg distance (Ft)				3,500	3,000	2,000			
		Avg grade (%)				16	-5	-8			
3,186,400	Tailing North	Prod. Table #									
	3,186,400	Volume Used									
		Avg distance (Ft)									
		Avg grade (%)									
249,453	Tailing South	Prod. Table #									9
	291,400	Volume Used									41,947
		Avg distance (Ft)									2,000
		Avg grade (%)									10
Total Used			411,550	79,000	253,950	188,115	46,787	50,013	62,920	66,147	41,947

Growth Media Load and Haul Productivity

Loading & Hauling - Truck/Loader			
Equipment	Rated Heap Capacity	Equipment	Weight
Euclid B-70	48.00	Euclid Loaded	Est. 120 tons
988 Loader	8.30	Euclid Empty	Est 48.5 tons

Topsoil Haul Production - Page 2 (right)

Barnes Creek Old & New	Laydown yard	Admin	Mill	Total used
79,053	17,250	10,650	26,400	1,333,781
				411,550
10	11	12	13	
79,053	17,250	10,650	26,400	595,370
4,000	11,000	4,000	5,500	
4	3	2	2	
				284,915
				0
				41,947
79,053	17,250	10,650	26,400	1,333,781



Topsoil Haul Production - Page 3 (left)

Prod. Table #	From	To	Distance (ft)								
	Phase 6 Yellow Pup	Yellow Pup WR	1,800								
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate (cy/hr)	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			2.50	1.40		411.43	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			7.00		
Truck Hauling Time		Grade (%)	Machine Weight Tons	Rolling Resistance	Grade Resistance	Total				Total Time	
Euclid B-70										time	
loaded		(15.00)	Est. 120 tons	3.5		11.50	From Charts CHP Vol 34, page 9-1			1.75	
empty		15.00	Est 48.5 tons	3.5	15.00	18.50				1.40	
											3.2

Prod. Table #	From	To	Distance (ft)								
	Yellow Pup	Fish Creek WR	3,000								
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate (cy/hr)	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			3.20	1.36		375.98	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			7.66		
Truck Hauling Time		Grade	Machine Weight Tons	Rolling Resistance	Grade Resistance	Total				Total Time	
Euclid B-70										time	
loaded		5.00	Est. 120 tons	3.5	5.00	8.50	From Chart CHP Vol 34, page 9-3			3.20	
empty		(5.00)	Est 48.5 tons	3.5		5.00				1.36	
											4.6

Topsoil Haul Production - Page 3 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			3	411,550 cy 2254 Truck Time (hrs) 751 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			3	79,000 cy 433 Truck Time (hrs) 144 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Topsoil Haul Production - Page 4 (left)

3											
From			To			Distance (ft)					
Yellow Pup			Barnes Creek WR			7,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			6.40	3.00		230.40	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			12.50		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		4.00	Est. 120 tons	3.5	4.00	7.50	From Chart CHP Vol 34, page 9-3		6.40		
empty		(4.00)	Est 48.5 tons	3.5		4.00			3.00		9.4

4											
From			To			Distance (ft)					
Walter Creek			Walter Creek LP			3,500					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			5.50	2.34		263.25	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			10.94		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		16.00	Est. 120 tons	3.5	16.00	19.50	From Chart CHP Vol 34, page 9-3		5.50		
empty		(16.00)	Est 48.5 tons	3.5		16.00			2.34		7.8

Topsoil Haul Production - Page 4 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			4	253,950 cy
0.80	0.83				1854 Truck Time (hrs)
		0.66	547.80		464 Loader Time (hrs)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			4	188,115 cy
0.80	0.83				1374 Truck Time (hrs)
		0.66	547.80		343 Loader Time (hrs)

Topsoil Haul Production - Page 5 (left)

5											
From			To			Distance (ft)					
Walter Creek			Tailing North Sector			3,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate (cy/hr)	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00	0.60	6	1.20	1.60		488.14	1.00
988 Loader		8.30	1.00	8.30	0.5	"spot hauler assumption" correction			5.90	830.00	1.00
Truck/Loader Team											
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total					
			Tons							time	Total Time
Euclid B-70			Est. 120 tons	3.5		1.50	From Chart CHP Vol 34, page 9-3		1.20		
loaded		(5.00)							1.60		
empty		5.00	Est 48.5 tons	3.5	5.00	8.50					2.8

6											
From			To			Distance (ft)					
Walter Creek			Tailing Northwest Sector			2,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate (cy/hr)	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00	0.60	6	1.00	1.34		529.41	1.00
988 Loader		8.30	1.00	8.30	0.5	"spot hauler assumption" correction			5.44	830.00	1.00
Truck/Loader Team											
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total					
			Tons							time	Total Time
Euclid B-70			Est. 120 tons	3.5		4.50	From Chart CHP Vol 34, page 9-3		1.00		
loaded		(8.00)							1.34		
empty		8.00	Est 48.5 tons	3.5	8.00	11.50					2.3

Topsoil Haul Production - Page 5 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			2	46,787 cy 171 Truck Time (hrs) 85 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			2	50,013 cy 183 Truck Time (hrs) 91 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Topsoil Haul Production - Page 6 (left)

7											
From			To			Distance (ft)					
Yellow Pup			Tailing Southwest Sector			3,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			1.00	1.00		564.71	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			5.10		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total					
Euclid B-70			Tons							time	Total Time
loaded		(2.00)	Est. 120 tons	3.5		(1.50)				1.00	
empty		2.00	Est 48.5 tons	3.5	2.00	5.50				1.00	
											2.0

8											
From			To			Distance (ft)					
Yellow Pup			Tailing South Sector			8,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			2.50	5.00		271.70	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			10.60		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total					
Euclid B-70			Tons							time	Total Time
loaded		(1.00)	Est. 120 tons	3.5		(2.50)				2.50	
empty		1.00	Est 48.5 tons	3.5	1.00	4.50				5.00	
											7.5

Topsoil Haul Production - Page 6 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			2	62,920 cy
0.80	0.83				230 Truck Time (hrs)
		0.66	547.80		115 Loader Time (hrs)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			4	66,147 cy
0.80	0.83				483 Truck Time (hrs)
		0.66	547.80		121 Loader Time (hrs)

Topsoil Haul Production - Page 7 (left)

10											
From			To			Distance (ft)					
Yellow Pup			Barnes Creek Old & New			4,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			3.60	1.80		338.82	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			8.50		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		4.00	Est. 120 tons	3.5	4.00	7.50	From Chart CHP Vol 34, page 9-3		3.60		
empty		(4.00)	Est 48.5 tons	3.5		4.00			1.80		5.4

9											
From			To			Distance (ft)					
Tailing South			Tailing East Sector			2,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			3.60	1.50		351.22	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			8.20		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		10.00	Est. 120 tons	3.5	10.00	13.50	From Chart CHP Vol 34, page 9-3		3.60		
empty		(10.00)	Est 48.5 tons	3.5		10.00			1.50		5.1

Topsoil Haul Production - Page 7 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			3	79,053 cy 433 Truck Time (hrs) 144 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr			3	41,947 cy 230 Truck Time (hrs) 77 Loader Time (hrs)
0.80	0.83				
0.80	0.83				
		0.66	547.80		

Topsoil Haul Production - Page 8 (left)

11											
From			To			Distance (ft)					
Yellow Pup			Laydown yard			11,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			8.40	3.50		192.00	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			15.00		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		3.00	Est. 120 tons	3.5	3.00	6.50		From Chart CHP Vol 34, page 9-3		8.40	
empty		(3.00)	Est 48.5 tons	3.5		3.00				3.50	
11.9											

12											
From			To			Distance (ft)					
Yellow Pup			Admin			4,000					
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)	
Euclid B-70		48.00	1.00	48.00			2.80	1.30		400.00	1.00
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00
Truck/Loader Team					0.5	"spot hauler assumption" correction			7.20		
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total				time	Total Time
Euclid B-70			Tons								
loaded		2.00	Est. 120 tons	3.5	2.00	5.50		From Chart CHP Vol 34, page 9-3		2.80	
empty		(2.00)	Est 48.5 tons	3.5		2.00				1.30	
4.1											

Topsoil Haul Production - Page 8 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			5	17,250 cy
0.80	0.83				157 Truck Time (hrs)
		0.66	547.80		31 Loader Time (hrs)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			3	10,650 cy
0.80	0.83				58 Truck Time (hrs)
		0.66	547.80		19 Loader Time (hrs)

Topsoil Haul Production - Page 9 (left)

13	From	To	Distance (ft)									
	Yellow Pup	Mill	5,500									
Loading & Hauling - Truck/Loader		Capacity			Cycle Time					Production Rates		
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude	
		(cy)	Soil	(cy)	(min)		(min)	(min)	(min)	(cy/hr)		
Euclid B-70		48.00	1.00	48.00			3.60	1.80		338.82	1.00	
988 Loader		8.30	1.00	8.30	0.60	6				830.00	1.00	
Truck/Loader Team					0.5	"spot hauler assumption" correction			8.50			
Truck Hauling Time		Grade	Machine Weight	Rolling Resistance	Grade Resistance	Total			time	Total Time		
			Tons									
Euclid B-70			Est. 120 tons		2.00	5.50			From Chart CHP Vol 34, page 9-3	3.60		
loaded		2.00		3.5								
empty		(2.00)	Est 48.5 tons	3.5		2.00				1.80		
5.4												

Topsoil Haul Production - Page 9 (right)

Correction Factors			Factored Production Rate	Max Truck/Loader Ratio	Total Task Time
Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)		
Good	50 min/hr				
0.80	0.83			3	26,400 cy
0.80	0.83				145 Truck Time (hrs)
		0.66	547.80		48 Loader Time (hrs)

Ft. Knox Reclamation Plan

Waste Rock Dumps - Page 1

Grade slope from bench crest to bench crest to achieve final grade of 2	\$	3,007,531.39
Load, haul, dump and spread 6 in. growth media	\$	1,766,988.83
Rip on the contour	\$	134,704.81
Revegetation (Seeding and fertilization)	\$	275,428.64
Supervision	\$	164,100.65
Drainage construction	\$	716,922
	\$	6,065,676.46

Estimated Reclamation and Closure Cost	Barnes Creek		Fish Creek		Yellow Pup		Waste Rock Totals	COMMENT
	Quantity	Units	Quantity	Units	Quantity	Units		
Acres	314.4	ac	97.8	ac	510.2	ac	922.40	
Top slope	125	ac	16.8	ac	79.7	ac	221.50	
Side slope	189.4	ac	81	ac	430.5	ac	700.90	
Grading and Recontouring								
Equipment - D10 Dozer								
What is the total volume of material to be recontoured?	3,229,000	cy	319,500	cy	4,399,200	cy	7,947,700.00	
Cut/fill volume of top slopes	363,000	cy	67,500	cy	679,200	cy	1,109,700.00	
Cut/fill volume of side slopes	2,866,000	cy	252,000	cy	3,720,000	cy	6,838,000.00	
What percentage of material will be dozer-pushed?	100%		100%		100%		100%	
Calculated quantity of dozer-pushed material	3,229,000	cy	319,500	cy	4,399,200	cy	7,947,700.00	
Top slope	363,000	cy	67,500	cy	679,200	cy	1,109,700.00	
Side slope	2,866,000	cy	252,000	cy	3,720,000	cy	6,838,000.00	
What is the average push distance?	150	ft	150	ft	150	ft		
What is the productivity of the equipment?								
Top slope	445.33	cy/hr	445.33	cy/hr	445.33	cy/hr		
Side slope	712.53	cy/hr	712.53	cy/hr	712.53	cy/hr		
How many hours will the job take?	4,837.4	hrs	505.2	hrs	6,746.0	hrs	12,088.63	
What is the equipment cost per hour?	\$ 200.00	\$/hr	\$ 200.00	\$/hr	\$ 200.00	\$/hr	\$ 200.00	
What is the labor cost per hour?	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	
What is the overall cost per unit (i.e. cubic yards, acres)?	\$ 0.37	\$/cy	\$ 0.39	\$/cy	\$ 0.38	\$/cy	\$ 0.38	Difference due to proportion of top slope to side slope for each dump
Cost per cubic yard top slope	\$ 0.56	\$/cy	\$ 0.56	\$/cy	\$ 0.56	\$/cy		
Cost per cubic yard side slope	\$ 0.35	\$/cy	\$ 0.35	\$/cy	\$ 0.35	\$/cy		
Cost for Top Slope	\$ 202,794.47		\$ 37,709.72		\$ 379,443.54		\$ 619,947.73	
Cost for Side Slope	\$ 1,000,704.12		\$ 87,989.34		\$ 1,298,890.21		\$ 2,387,583.66	
What is the labor total cost	\$ 236,017.11		\$ 24,650.74		\$ 329,136.64		\$ 589,804.48	
What is the total cost for grading and recontouring?	\$ 1,203,498.59		\$ 125,699.05		\$ 1,678,333.75		\$ 3,007,531.39	
Load, haul, dump and spread growth media								
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D8								
What is amount of topsoil to be loaded with loader?	253,950	cy	78,900	cy	411,550	cy	744,400.00	
Volume to Top Slope	101,150	cy	65,350	cy	64,300	cy	230,800.00	
Volume to Side Slope	152,800	cy	13,550	cy	347,250	cy	513,600.00	
What is wtd avg haul distance one way from TS Pile?	See TS Production Table	ft	See TS Production Table	ft	See TS Production Table	ft		
What is amount of topsoil to be hauled by truck?	253,950	cy	78,900	cy	411,550	cy	744,400.00	
What is the productivity of the loading equipment?	548	cy/hr	548	cy/hr	548	cy/hr		
How many hours will the job take?	464	hrs	144	hrs	751	hrs	1,358.89	
What are the estimated hours for haul and support equipment?								
Estimated hours for Loader	464	hrs	144	hrs	751	hrs	1,358.89	
Estimated hours for Truck	1,854	hrs	433	hrs	2,254	hrs	4,540.80	
Estimated hours for Grader to support hauling effort	464	hrs	144	hrs	751	hrs	1,358.89	
Estimated hours for Water Truck to support hauling effort	464	hrs	144	hrs	751	hrs	1,358.89	
Estimated hours for Dozer to spread topsoil	527	hrs	198	hrs	753	hrs	1,477.60	
Top Slope dozer productivity	373	cy/hr	373	cy/hr	373	cy/hr		
Side Slope dozer productivity	598	cy/hr	598	cy/hr	598	cy/hr		
What is the equipment cost per hour?								
Loader	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr		
Truck	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr		
Grader	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr		
Water Truck	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr		
Dozer	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr		
What is the labor cost per hour?								
Loader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr		
Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr		
Grader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr		
Water Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr		
Dozer	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr		
What is the overall cost per unit (i.e. cubic yards, acres)?	\$ 2.63	\$/cy	\$ 2.34	\$/cy	\$ 2.22	\$/cy	\$ 2.37	
Cost per cubic yard to doze top slope	\$ 0.44	\$/cy	\$ 0.44	\$/cy	\$ 0.44	\$/cy		
Cost per cubic yard to doze side slope	\$ 0.27	\$/cy	\$ 0.27	\$/cy	\$ 0.27	\$/cy		
What are the total equipment costs	\$ 483,127.77		\$ 132,464.44		\$ 658,858.21		\$ 1,274,450.41	
What are the total labor costs	\$ 184,019.13		\$ 51,834.60		\$ 256,684.69		\$ 492,538.42	
What is the total cost for growth media placement?	\$ 667,146.90		\$ 184,299.04		\$ 915,542.90		\$ 1,766,988.83	

Waste Rock Dumps - Page 2

Estimated Reclamation and Closure Cost - Continued				
Rip on the contour				
Equipment - D8 dozer				
How many acres are to be ripped?	314.4 ac	97.8 ac	510.2 ac	922.40
What is the productivity of the equipment?	1.1 ac/hr	1.1 ac/hr	1.1 ac/hr	
How many hours will the job take?	282.0 hrs	87.7 hrs	457.7 hrs	827.48
What is the equipment cost per hour?	\$ 114.00 \$/hr	\$ 114.00 \$/hr	\$ 114.00 \$/hr	
What are the labor costs per hour?	\$ 48.79 \$/hr	\$ 48.79 \$/hr	\$ 48.79 \$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04 \$/ac	\$ 146.04 \$/ac	\$ 146.04 \$/ac	
What are the total equipment costs	\$ 32,153.15	\$ 10,001.84	\$ 52,177.28	\$ 94,332.26
What are the total labor costs	\$ 13,760.98	\$ 4,280.61	\$ 22,330.96	\$ 40,372.55
What is the total cost for ripping?	\$ 45,914.13	\$ 14,282.45	\$ 74,508.23	\$ 134,704.81
Revegetation				
How many acres are to be vegetated?	314.4 ac	97.8 ac	510.2 ac	922.40
What is the cost per acre?	\$ 298.60 \$/ac	\$ 298.60 \$/ac	\$ 298.60 \$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 93,879.84	\$ 29,203.08	\$ 152,345.72	\$ 275,428.64
Supervision				
Hours	930.51 hrs	122.83 hrs	1,325.83 hrs	2,379.17
Equipment	\$ 15.58 \$/hr	\$ 15.58 \$/hr	\$ 15.58 \$/hr	
Supervisor	\$ 53.39 \$/hr	\$ 53.39 \$/hr	\$ 53.39 \$/hr	
Supervision Costs	\$ 64,180.70	\$ 8,472.39	\$ 91,447.55	\$ 164,100.65
SUBTOTAL - GRADE, COVER & REVEG COSTS	\$ 2,074,620	\$ 361,956	\$ 2,912,178	\$ 5,348,754
Drainage (See Details in Supporting Information)				
Excavation				
Quantity	15,978 cy	144 cy	1,644 cy	17,766.67
Unit Cost	\$ 1.75 \$/cy	\$ 1.75 \$/cy	\$ 1.75 \$/cy	
Subtotal	\$ 27,961.11	\$ 252.78	\$ 2,877.78	\$ 31,091.67
Geofabric				
Quantity	247,078 sqft	8,222 sqft	55,656 sqft	310,955.88
Unit Cost	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	
Subtotal	\$ 37,061.68	\$ 1,233.29	\$ 8,348.41	\$ 46,643.38
Riprap				
Quantity	13,727 cy	457 cy	3,092 cy	17,275.33
Unit Cost	\$ 35.00 \$/cy	\$ 35.00 \$/cy	\$ 35.00 \$/cy	
Subtotal	\$ 480,429.19	\$ 15,987.07	\$ 108,220.17	\$ 604,636.43
Place riprap				
Quantity	13,727 cy	457 cy	3,092 cy	17,275.33
Unit Cost	\$ 2.00 \$/cy	\$ 2.00 \$/cy	\$ 2.00 \$/cy	
Subtotal	\$ 27,453	\$ 914	\$ 6,184	\$ 34,550.65
Drainage Construction Costs	\$ 572,905	\$ 18,387	\$ 125,630	\$ 716,922
Total Labor Costs	\$ 497,978	\$ 89,238	\$ 699,600	\$ 1,286,816
TOTAL COSTS	\$ 2,647,525	\$ 380,343	\$ 3,037,809	\$ 6,065,676

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY, REVEGETATION MATERIALS AND OTHER SUPPORT ITEMS

Dozer Production				
Data	LCY/hr production to area (acre) of volume (yds)			
3H:1V	down	up		0.3
grade- -33%		1.6 grade- +33%		
Density	Rock	Topsoil	NOTE:	1.75 spg - loose
	3500	2650		2.16 spg - bank
Unadjusted Dozer Productivity Calculations				
	CPH V33 p1-40: CPH V31 p1-43			
	LCY/hr			
Cat D10R	1350	150 ft distance		
Cat D8	500	200 ft distance		

Waste Rock Dozer Grading Productivity									
Dozer Production Factors									
	CPH V 33		p.1-42						
Regrade									
Rock Dump	Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density	
	Factor	Avg	Rock		Good	50min/hr		Rock	
Slope -18°	0.5278	0.8	0.7	1.2	0.9	0.83	1.6	0.66	
Slope 0°	0.3299	0.8	0.7	1.2	0.9	0.83	1	0.66	

Rock Dump - Adjusted Productivity	
Slope -18°	Regrade
	150 ft distance
	LCY/hr
Cat D10R	712.5

Rock Dump - Adjusted Productivity	
Slope 0°	Regrade
	150 ft distance
	LCY/hr
Cat D10R	445.3

Growth Media - Spread Productivity									
Growth Media		12 depth (inches)	0.333	1613 CY/acre					
		14.4 depth (inches)	0.4	1936 CY/acre	before compaction to 12" depth (20%)'				
Spread Growth Media									
Topsoil	Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density	
	Factor	Avg	Topsoil		Good	50min/hr		Topsoil	
Slope -18°	1.1950	0.8	1.2	1.2	0.9	0.83	1.6	0.87	
Slope 0°	0.7469	0.8	1.2	1.2	0.9	0.83	1	0.87	

Growth Media - Adjusted Productivity	
Slope -18°	Topsoil
	200 ft distance
	LCY/hr
Cat D8	597.5

Growth Media - Adjusted Productivity	
Slope 0°	Topsoil
	200 ft distance
	LCY/hr
Cat D8	373

Ripping Productivity												
Dump & Pad Ripping		speed	width pass	between pass	Total swath	Time	0.83		production			
	MPH	FPM				min/acre	min/acre	hr/acre				
Cat D8R	1.00	88.00	8.08	3.00	11.08	44.68	53.83	0.90				1.11 ac/hr

Waste Rock Dumps - Page 4

Drainage Construction

Barnes Creek	Unit Cost	Quantity	Unit	Total
Northeast trib channel				
Excavation	\$ 1.75	800 cy		\$ 1,400
Geofabric	\$ 0.15	22,768 sqft		\$ 3,415
Riprap	\$ 35.00	1,265 cy		\$ 44,272
Place riprap	\$ 2.00	1,265 cy		\$ 2,530
Northwest trib channel				
Excavation	\$ 1.75	933 cy		\$ 1,633
Geofabric	\$ 0.15	26,563 sqft		\$ 3,984
Riprap	\$ 35.00	1,476 cy		\$ 51,651
Place riprap	\$ 2.00	1,476 cy		\$ 2,951
Southwest trib channel				
Excavation	\$ 1.75	1,244 cy		\$ 2,178
Geofabric	\$ 0.15	35,418 sqft		\$ 5,313
Riprap	\$ 35.00	1,968 cy		\$ 68,867
Place riprap	\$ 2.00	1,968 cy		\$ 3,935
Central channel				
Excavation	\$ 1.75	13,000 cy		\$ 22,750
Geofabric	\$ 0.15	162,329 sqft		\$ 24,349
Riprap	\$ 35.00	9,018 cy		\$ 315,639
Place riprap	\$ 2.00	9,018 cy		\$ 18,037
TOTALS				
Excavation		15,978 cy		\$ 27,961.11
Geofabric		247,078 sqft		\$ 37,061.68
Riprap		13,727 cy		\$ 480,429.19
Place riprap		13,727 cy		\$ 27,453.10
Fish Creek				
West channel				
Excavation	\$ 1.75	144 cy		\$ 253
Geofabric	\$ 0.15	8,222 sqft		\$ 1,230
Riprap	\$ 35.00	457 cy		\$ 15,987
Place riprap	\$ 2.00	457 cy		\$ 914
Yellow Pup				
West drainage channel				
Excavation	\$ 1.75	1,333 cy		\$ 2,333
Geofabric	\$ 0.15	37,947 sqft		\$ 5,685
Riprap	\$ 35.00	2,108 cy		\$ 73,786
Place riprap	\$ 2.00	2,108 cy		\$ 4,216
East slope channel				
Excavation	\$ 1.75	311 cy		\$ 544
Geofabric	\$ 0.15	17,709 sqft		\$ 2,655
Riprap	\$ 35.00	984 cy		\$ 34,434
Place riprap	\$ 2.00	984 cy		\$ 1,968
TOTALS				
Excavation		1,644 cy		\$ 2,877.78
Geofabric		55,656 sqft		\$ 8,340.00
Riprap		3,092 cy		\$ 108,220.17
Place riprap		3,092 cy		\$ 6,184.01

Waste Rock Dumps - Page 5

Channel Calculations

Channel type	Bottom width	Depth	Top width	Excav Vol (w/20% incr)	Fabric Area	Riprap size	Riprap thickness	Riprap volume
	Ft	Ft	Ft	CY/Ft	SF/Ft	In	Ft	CY/Ft
Trapezoidal (3:1 side slopes)	6	3	24	2.0	25.0	9	1.5	1.4
V-notch (3:1 side slopes)	0	3	18	1.0	19.0	9	1.5	1.1
V-notch (3:1 side slopes)	0	2	12	0.4	12.6	9	1.5	0.7
V-notch (3:1 side slopes)	0	1	6	0.1	6.3	9	1.5	0.4

Barnes Creek

Northeast trib channel length - 2 ft v-notch	Ft	1,800
Northwest trib channel length - 2 ft v-notch	Ft	2,100
Southwest trib channel length - 2 ft v-notch	Ft	2,800
Central channel length - 3 ft trapezoidal	Ft	6,500

Fish Creek

West channel - 1 ft v-notch	Ft	1,300
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Yellow Pup

West channel length - 3 ft deep v-notch	Ft	3,000
East slope channel length - 1 ft deep v-notch	Ft	2,800

Ft. Knox Reclamation Plan

Stockpiles (After Ore Removal) - Page 1

Scarify	\$ 6,918
Load, haul, dump and spread 6 in. growth media	\$ 274,266
Rip on the contour	\$ 14,312
Revegetation (Seeding and fertilization)	\$ 29,263
Supervision	\$ 2,989
	<u>\$ 327,748</u>

Estimated Reclamation and Closure Cost	Barnes Old		Barnes New		Stockpiles Totals
	Quantity	Units	Quantity	Units	
Acres	42	ac	56	ac	98
Flat	35	ac	3	ac	38
Sloped	7	ac	53	ac	60
Scarify on the contour					
Equipment - D10 dozer					
How many acres are to be scarified?	35	ac	3	ac	
What is the productivity of the equipment?	1.4	ac/hr	1.4	ac/hr	
How many hours will the job take?	25.6	hrs	2.2	hrs	
What is the equipment cost per hour?	200.00	\$/hr	200.00	\$/hr	
What are the labor costs per hour?	48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 182.05	\$/ac	\$ 182.05	\$/ac	
What are the total equipment costs	\$ 5,122.33		\$ 439.06		\$ 5,561
What are the total labor costs	\$ 1,249.59		\$ 107.11		\$ 1,357
What is the total cost for scarifying?	\$ 6,371.92		\$ 546.16		\$ 6,918
Load, haul, dump and spread growth media					
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D8					
What is amount of topsoil to be loaded with loader?	33,880.00	cy	45,173.33	cy	79,053
What is wtd avg haul distance one way from TS Pile?	See TS Productio	ft	See TS Production 1	ft	
What is amount of topsoil to be hauled by truck?	33,880.00	cy	45,173.33	cy	
What is the productivity of the loading equipment?	547.80	cy/hr	547.80	cy/hr	
How many hours will the job take?	61.85	hrs	82.46	hrs	
What are the estimated hours for haul and support equipment?					
Estimated hours for Loader	61.85		82.46		
Estimated hours for Truck	432.93	hrs	432.93	hrs	
Estimated hours for Grader to support hauling effort	61.85	hrs	82.46	hrs	
Estimated hours for Water Truck to support hauling effort	61.85	hrs	82.46	hrs	
Estimated hours for Dozer to spread topsoil	94.50	hrs	126.00	hrs	221
Dozer productiivity	358.51	cy/hr	358.51	cy/hr	
What is the equipment cost per hour?					
Loader	132.00	\$/hr	132.00	\$/hr	
Truck	150.00	\$/hr	150.00	\$/hr	
Grader	119.75	\$/hr	119.75	\$/hr	
Water Truck	60.92	\$/hr	60.92	\$/hr	
Dozer	114.00	\$/hr	114.00	\$/hr	
What is the labor cost per hour?					
Loader	48.79	\$/hr	48.79	\$/hr	
Truck	48.79	\$/hr	48.79	\$/hr	
Grader	48.79	\$/hr	48.79	\$/hr	
Water Truck	48.79	\$/hr	48.79	\$/hr	
Dozer	48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	3.83	\$/cy	3.20	\$/cy	
What are the total equipment costs	\$ 95,050.96		\$ 105,088.03		\$ 200,139
What are the total labor costs	\$ 34,786.16		\$ 39,340.63		\$ 74,127
What is the total cost for growth media placement?	\$ 129,837.12		\$ 144,428.66		\$ 274,266

Stockpiles (After Ore Removal) - Page 2			
Rip on the contour			
Equipment - D8 dozer			
How many acres are to be ripped?	42 ac	56 ac	98
What is the productivity of the equipment?	1.1 ac/hr	1.1 ac/hr	
How many hours will the job take?	37.7 hrs	50.2 hrs	88
What is the equipment cost per hour?	114 \$/hr	114 \$/hr	
What are the labor costs per hour?	48.79 \$/hr	48.79 \$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04 \$/ac	\$ 146.04 \$/ac	
What are the total equipment costs	\$ 4,295.27	\$ 5,727.02	\$ 10,022
What are the total labor costs	\$ 1,838.30	\$ 2,451.07	\$ 4,289
What is the total cost for ripping?	\$ 6,133.57	\$ 8,178.09	\$ 14,312
Revegetation			
How many acres are to be vegetated?	42 ac	56 ac	98
What is the cost per acre?	\$ 298.60 \$/ac	\$ 298.60 \$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 12,541.20	\$ 16,721.60	\$ 29,263
Supervision			
Hours	20.86 hrs	22.48 hrs	43
Equipment	\$ 15.58 \$/hr	\$ 15.58 \$/hr	
Supervisor	\$ 53.39 \$/hr	\$ 53.39 \$/hr	
Supervision Costs	\$ 1,438.53	\$ 1,550.71	\$ 2,989
Total Labor Costs	\$ 38,062.99	\$ 43,342.41	\$ 81,405
TOTAL COSTS	\$ 156,322.34	\$ 171,425.23	\$ 327,748

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Dozer Production				
Data	LCY/hr production to area (acre) of volume (yds)			
3H:1V	down	up		0.3
grade- -33%		1.6 grade- +33%		
Density	Rock	Topsoil	NOTE:	1.75 spg - loose
	3500	2650		2.16 spg - bank
Unadjusted Dozer Productivity Calculations	CPH V33 p1-40: CPH V31 p1-43			
	300 ft distance			
	LCY/hr			
Cat D8	300			

Waste Rock Dozer Grading Productivity

Dozer Production Factors		CPH V 33 p.1-42							
Regrade		Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density
Rock Dump		Factor	Avg	Rock		Good	50min/hr		Rock
Slope -18°		0.5278	0.8	0.7	1.2	0.9	0.83	1.6	0.66
Slope 0°		0.3299	0.8	0.7	1.2	0.9	0.83	1	0.66

Growth Media - Spread Productivity

Growth Media	12 depth (inches)	0.333	1613 CY/acre	
	14.4 depth (inches)	0.4	1936 CY/acre	before compaction to 12" depth (20%)

Spread Growth Media

Spread Growth Media		CPH V 33 p.1-42							
Topsoil		Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density
		Factor	Avg	Topsoil		Good	50min/hr		Topsoil
Slope -18°		1.1950	0.8	1.2	1.2	0.9	0.83	1.6	0.87

Growth Media - Adjusted Productivity

Slope -18°	Topsoil
	300 ft distance
	LCY/hr
Cat D8	358.5

Ripping Productivity

Ripping Productivity		Dump & Pad Ripping											
		MPH	speed FPM	width pass	between pass	Total swath	Time	0.83	production				
Cat D8R		1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90	hr/acre	1.11 ac/hr
D-10R (Pads, etc.)		1.00	88.00	9.58	4.00	13.58	36.44	min/acre	43.91	min/acre	0.73	hr/acre	1.37 ac/hr

Ft. Knox Reclamation Plan

Building Demolition - Page 1

Foundations broken using equipment	
Slope to 2.5:1 or flatter & establish drainage	\$ 72,597
2 feet rock material placed over foundation area	\$ 10,219.93
No Revegetation	\$ -
50 ft dozer push for rock material	\$ 4,478.95
	\$ 87,296

Remainder of process included in Site Complex

Acres - Foundations	Sq Ft	CY	Flat (ac)	Slope (ac)	Total
Admin/Maintenance Bldg	7200	1067	0.165	0.000	0.165
Mill Bldgs	50000	7407	1.148	0.000	1.148
Crusher/Conveyor Bldgs	1200	178	0.028	0.000	0.028
Substation Bldg	1400	207	0.032	0.000	0.032
Total	59800	8859	1.373	0.000	1.373

Estimated Reclamation and Closure Cost	Admin/Maintenance Bldg		Mill Bldgs		Crusher/Conveyor Bldgs		Substation Bldg		Buildign Demolition
	Quantity	Units	Quantity	Units	Quantity	Units	Quantity	Units	Totals
Foundation Removal									
Equipment - Hydraulic Hammer -H140 with CAT 330CL									
What is the total volume of material to be broken?	1,067	cy	7,407	cy	178	cy	207	cy	8,859
What is the productivity of the equipment?	23.34	cy/hr	23.34	cy/hr	23.34	cy/hr	23.34	cy/hr	
How many hours will the job take?	46	hrs	317	hrs	8	hrs	9	hrs	
What is the equipment cost per hour?	\$ 142.50	\$/hr	\$ 142.50	\$/hr	\$ 142.50	\$/hr	\$ 142.50	\$/hr	\$ 142.50
What is the labor cost per hour?	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79
What is the cost per unit (i.e. cubic yards, acres)?	\$ 8.19	\$/cy	\$ 8.19	\$/cy	\$ 8.19	\$/cy	\$ 8.19	\$/cy	\$ 8.19
What are the total labor costs?	\$ 2,229.40		\$ 15,481.98		\$ 371.57		\$ 433.50		\$ 18,516
What is the total cost for concrete demolition?	\$ 8,740.78		\$ 60,699.89		\$ 1,456.80		\$ 1,699.60		\$ 72,597
Load, haul, dump and spread cover									
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D8									
What is amount of topsoil to be loaded with loader?	533.33	cy	3,703.70	cy	88.89	cy	103.70	cy	4,429.63
What is wtd avg haul distance one way from TS Pile?	2,640.00	ft	2,640.00	ft	2,640.00	ft	2,640.00	ft	
What is amount of topsoil to be hauled by truck?	533.33	cy	3,703.70	cy	88.89	cy	103.70	cy	4,429.63
What is the productivity of the loading equipment?	438.24	cy/hr	438.24	cy/hr	438.24	cy/hr	438.24	cy/hr	
How many hours will the job take?	1.22	hrs	8.45	hrs	0.20	hrs	0.24	hrs	10.11
What are the estimated hours for haul and support equipment?									
Estimated hours for Loader	1.22	hrs	8.45	hrs	0.20	hrs	0.24	hrs	10.11
Estimated hours for Truck	2.43	hrs	16.90	hrs	0.41	hrs	0.47	hrs	20.22
Estimated hours for Grader to support hauling effort	1.22	hrs	8.45	hrs	0.20	hrs	0.24	hrs	10.11
Estimated hours for Water Truck to support hauling effort	1.22	hrs	8.45	hrs	0.20	hrs	0.24	hrs	10.11
Estimated hours for Dozer to spread topsoil	1.15	hrs	8.02	hrs	0.19	hrs	0.22	hrs	9.59
Dozer productivity	461.83	cy/hr	461.83	cy/hr	461.83	cy/hr	461.83	cy/hr	
What is the equipment cost per hour?									
Loader	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	
Truck	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	
Grader	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	
Water Truck	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	
Dozer	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	
What is the labor cost per hour?									
Loader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Grader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Water Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Dozer	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 2.31	\$/cy	\$ 2.31	\$/cy	\$ 2.31	\$/cy	\$ 2.31	\$/cy	\$ 2.31
What are the total equipment costs	\$ 877.26		\$ 6,092.11		\$ 146.21		\$ 170.58		\$ 7,286.17
What are the total labor costs	\$ 353.23		\$ 2,452.98		\$ 58.87		\$ 68.68		\$ 2,933.76
What is the total cost for rock placement?	\$ 1,230.49		\$ 8,545.09		\$ 205.08		\$ 239.26		\$ 10,219.93
Revegetation									
How many acres are to be vegetated?	0.000	ac	0.000	ac	0.000	ac	0.000	ac	0.00
What is the cost per acre?	\$ 298.60	\$/ac	\$ 298.60	\$/ac	\$ 298.60	\$/ac	\$ 298.60	\$/ac	
What is the total cost of seed, fertilize and mulch?	\$ -		\$ -		\$ -		\$ -		\$ -
Supervision									
Hours	7.82	hrs	54.29	hrs	1.30	hrs	1.52	hrs	64.94
Equipment	\$ 15.58	\$/hr	\$ 15.58	\$/hr	\$ 15.58	\$/hr	\$ 15.58	\$/hr	
Supervisor	\$ 53.39	\$/hr	\$ 53.39	\$/hr	\$ 53.39	\$/hr	\$ 53.39	\$/hr	
Supervision Costs	\$ 539.27		\$ 3,744.94		\$ 89.88		\$ 104.86		\$ 4,478.95
Total Labor Costs	\$ 3,121.91		\$ 21,679.90		\$ 520.32		\$ 607.04		\$ 25,929.16
TOTAL COSTS	\$ 10,510.55		\$ 72,989.92		\$ 1,751.76		\$ 2,043.72		\$ 87,295.95

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Hydraulic Hammer -H140 with CAT 330CL		CPH V-33	17-10
Unadjusted Production			
	Unadjusted Production Rates	250-650	cy/8hr
	Using 250cy	31.25	cy/hr
Operations factors			
	Operator Efficiency	0.9	
	50 min/hr	0.83	
	Production Factor	0.747	
Adjusted Production			
	Adjusted Production Rate	23	cy/hr

Dozer Production			
Data	LCY/hr production to area (acre) of volume (yds)		
3H:1V	down	up	
grade- -33%		1.6 grade- +33%	0.3
Density	Rock	Topsoil	NOTE: 1.75 spg - loose 2.16 spg - bank
	3500	2650	
Unadjusted Dozer Productivity Calculations			
	CPH V33 p1-40: CPH V31 p1-43		
	50 ft distance		
	LCY/hr		
Cat D8	1400		

Waste Rock Dozer Grading Productivity									
Dozer Production Factors		CPH V 33	p.1-42						
Regrade		Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density
Rock Dump		Factor	Avg	Rock		Good	50min/hr		Rock
Slope -18°		0.5278	0.8	0.7	1.2	0.9	0.83	1.6	0.66
Slope 0°		0.3299	0.8	0.7	1.2	0.9	0.83	1	0.66

Rock Dump - Adjusted Productivity		Regrade
Slope 0°		50 ft distance
		LCY/hr
Cat D8		461.8

Growth Media Load and Haul Productivity

Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates	Correction Factors				Factored Production Rate	Max Truck/Loader Ratio	
Equipment		Rated Heap Capacity	Material Correction	Adjusted Capacity	Loader Cycle Time	Loader Cycles Per Load	Loaded Haul / Dump	Empty Haul	Total Load / Haul Time	Maximum Production Rate	Altitude	Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)	2
		(cy)	Rock	(cy)	(min)		(min)	(min)	(min)	(cy/hr)		Good	50 min/hr			
Euclid B-70		48.00	0.80	38.40			2.00	1.00		349.09	1.00	0.80	0.83			
988 Loader		8.30	0.80	6.64	0.60	6				664.00	1.00	0.80	0.83			
	Truck/Loader Team								6.60					0.66	438.24	

Ft. Knox Reclamation Plan

Building Site Complex - Page 1

Scarify hardpack	\$	9,467
Grade to 2.5:1 or flatter & establish drainage	\$	53,794
Load, haul, dump and spread 12 in. growth media	\$	216,301
Rip on the contour	\$	9,814
Revegetation (Seeding and fertilization)	\$	20,066
Supervisor	\$	3,194
Subtotal	\$	<u>312,635</u>

Estimated Reclamation and Closure Cost	Admin/Maintenance Complex		Mill Complex		Laydown Yard		Site Complex
	Quantity	Units	Quantity	Units	Quantity	Units	Totals
Acres	13.1	ac	32.7	ac	21.4	ac	67.20
Flat	16	ac	14	ac	22	ac	52.00
Sloped	4	ac	1	ac	4	ac	9.00
Scarify on the contour							
Equipment - D10 dozer							
How many acres are to be scarified?	16	ac	14	ac	22	ac	52.00
What is the productivity of the equipment?	1.4	ac/hr	1.4	ac/hr	1.4	ac/hr	
How many hours will the job take?	11.7	hrs	10.2	hrs	16.1	hrs	38.05
What is the equipment cost per hour?	\$ 200.00	\$/hr	\$ 200.00	\$/hr	\$ 200.00	\$/hr	
What are the labor costs per hour?	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 182.05	\$/ac	\$ 182.05	\$/ac	\$ 182.05	\$/ac	
What are the total equipment costs	\$ 2,341.64		\$ 2,048.93		\$ 3,219.75		
What are the total labor costs?	\$ 571.24		\$ 499.84		\$ 785.46		
What is the total cost for scarifying?	\$ 2,912.88		\$ 2,548.77		\$ 4,005.21		9,466.86
Grading and Recontouring							
Equipment - D10 Dozer							
What is the total volume of material to be recontoured?	21,134.67	cy	52,756.00	cy	34,525.33	cy	108,416.00
What is the weighted average push distance?	200.00	ft	200.00	ft	200.00	ft	
What percentage of material will be dozer-pushed?	100%		100%		100%		
Calculated quantity of dozer-pushed material	21,134.67	cy	52,756.00	cy	34,525.33	cy	108,416.00
What is the productivity of the equipment?	501.41	cy/hr	501.41	501.4	501.41	cy/hr	
How many hours will the job take?	42	hrs	105.2	hrs	69	hrs	216.22
What is the equipment cost per hour?	200.00	\$/hr	200.00	\$/hr	200.00	\$/hr	
What is the labor cost per hour?	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	0.50	\$/cy	0.50	\$/cy	0.50	\$/cy	
What are the total labor costs?	\$ 2,056.52		\$ 5,133.45		\$ 3,359.51		10,549.48
What is the total cost for grading and recontouring?	\$ 10,486.61		\$ 26,176.50		\$ 17,130.80		53,793.90
Load, haul, dump and spread growth media							
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D10							
What is amount of topsoil to be loaded with loader?	41,946.67	cy	26,400.00	cy	17,250.00	cy	85,596.67
What is wtd avg haul distance one way from TS Pile?	See TS Production Tab	ft	See TS Production	ft	5,280.00	ft	
What is amount of topsoil to be hauled by truck?	41,946.67	cy	26,400.00	cy	17,250.00	cy	85,596.67
What is the productivity of the loading equipment?	547.80	cy/hr	547.80	cy/hr	547.80	cy/hr	
How many hours will the job take?	76.57	hrs	48.19	hrs	31.49	hrs	156.26
What are the estimated hours for haul and support equipment?							
Estimated hours for Loader	76.57	hrs	48.19	hrs	31.49	hrs	
Estimated hours for Truck	229.72	hrs	144.58	hrs	157.45	hrs	
Estimated hours for Grader to support hauling effort	76.57	hrs	48.19	hrs	31.49	hrs	
Estimated hours for Water Truck to support hauling effort	76.57	hrs	48.19	hrs	31.49	hrs	
Estimated hours for Dozer to spread topsoil	117.00	hrs	73.64	hrs	48.12	hrs	
Dozer productiivity	358.51	cy/hr	358.51	cy/hr	358.51	cy/hr	
What is the equipment cost per hour?							
Loader	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	
Truck	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	
Grader	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	
Water Truck	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	
Dozer	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	
What is the labor cost per hour?							
Loader	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
Truck	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
Grader	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
Water Truck	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
Dozer	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	2.38	\$/cy	2.38	\$/cy	3.11	\$/cy	
What are the total equipment costs	\$ 71,738.37		\$ 45,150.02		\$ 38,948.31		155,836.70
What are the total labor costs?	\$ 28,124.60		\$ 17,700.80		\$ 14,638.62		60,464.01
What is the total cost for growth media placement?	\$ 99,862.97		\$ 62,850.82		\$ 53,586.93		216,300.72

Building Site Complex - Page 3

Rip on the contour				
Equipment - D8 dozer				
How many acres are to be ripped?	13.1 ac	32.7 ac	21.4 ac	67.20
What is the productivity of the equipment?	1.1 hr/ac	1.1 hr/ac	1.1 hr/ac	
How many hours will the job take?	11.8 hrs	29.3 hrs	19.2 hrs	60.28
What is the equipment cost per hour?	114 \$/hr	114 \$/hr	114 \$/hr	
What are the labor costs per hour?	48.79 \$/hr	48.79 \$/hr	48.79 \$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04 \$/ac	\$ 146.04 \$/ac	\$ 146.04 \$/ac	
What are the total equipment costs	\$ 1,339.71	\$ 3,344.17	\$ 2,188.54	6,872.43
What are the total labor costs?	\$ 573.37	\$ 1,431.25	\$ 936.66	2,941.28
What is the total cost for ripping?	\$ 1,913.09	\$ 4,775.42	\$ 3,125.20	9,813.71
Revegetation				
How many acres are to be vegetated?	13.1 ac	32.7 ac	21.4 ac	67.20
What is the cost per acre?	\$ 298.60 \$/ac	\$ 298.60 \$/ac	\$ 298.60 \$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 3,911.66	\$ 9,764.22	\$ 6,390.04	20,065.92
Supervision				
Hours	23.70 hrs	32.16 hrs	22.61 hrs	78.47
Equipment	\$ 15.58 \$/hr	\$ 15.58 \$/hr	\$ 15.58 \$/hr	
Supervisor	\$ 53.39 \$/hr	\$ 53.39 \$/hr	\$ 53.39 \$/hr	
Supervision Costs	\$ 1,634.49		\$ 1,559.30	3,193.79
Total Labor Costs	\$ 32,960.23	\$ 24,765.33	\$ 21,279.54	79,005.10
TOTAL COSTS	\$ 120,721.70	\$ 106,115.72	\$ 85,797.47	312,634.90

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Dozer Production			
Data	LCY/hr production to area (acre) of volume (yds)		
3H:1V	down	up	
grade- -33%		1.6 grade- +33%	0.3
Density	Rock	Topsoil	NOTE: 1.75 spg - loose 2.16 spg - bank
	3500	2650	
Unadjusted Dozer Productivity Calculations	CPH V33 p1-40: CPH V31 p1-43		
	200 ft distance	300 ft distance	
	LCY/hr	LCY/hr	
Cat D10R	950	650	
Cat D8	500	300	

Waste Rock Dozer Grading Productivity

Dozer Production Factors		CPH V 33	p.1-42							
Regrade										
Rock Dump	Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density		
	Factor	Avg	Rock		Good	50min/hr		Rock		
Slope -18°	0.5278	0.8	0.7	1.2	0.9	0.83	1.6	0.66		
Slope 0°	0.3299	0.8	0.7	1.2	0.9	0.83	1	0.66		

Rock Dump - Adjusted Productivity		
Slope -18°	Regrade	Regrade
	200 ft distance	300 ft distance
	LCY/hr	LCY/hr
Cat D10R	501.4	343.1
Cat D8	263.9	158.3

Growth Media - Spread Productivity									
Growth Media		12 depth (inches)	0.333	1613 CY/acre					
		14.4 depth (inches)	0.4	1936 CY/acre	before compaction to 12" depth (20%)'				
Spread Growth Media									
Topsoil	Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density	
	Factor	Avg	Topsoil		Good	50min/hr		Topsoil	
Slope -18°	1.1950	0.8	1.2	1.2	0.9	0.83	1.6	0.87	
Slope 0°	0.7469	0.8	1.2	1.2	0.9	0.83	1	0.87	

Growth Media - Adjusted Productivity		
Slope -18°	Topsoil	Topsoil
	200 ft distance	300 ft distance
	LCY/hr	LCY/hr
Cat D10R	1135.3	776.8
Cat D8	597.5	358.5

Ripping Productivity												
Dump & Pad Ripping			speed	width pass	between pass	Total swath	Time	0.83	production			
		MPH	FPM									
Cat D8R	1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90	hr/acre	1.11 ac/hr
D-10R (Pads, etc.)	1.00	88.00	9.58	4.00	13.58	36.44	min/acre	43.91	min/acre	0.73	hr/acre	1.37 ac/hr

Ft. Knox Reclamation Plan

Borrow Areas	
Rip on the contour	\$ 27,309
Revegetation (Seeding and fertilization)	\$ 55,838
Supervision	\$ 1,928
	<u>\$ 85,076</u>

Estimated Reclamation and Closure Cost	Borrow Areas		Tailings dam/ Borrow 3		Powerlines		Borrow Areas	
	Quantity	Units	Quantity	Units			Totals	
Acres	72	ac	76	ac	39	ac		187.00
Flat	0	ac	3	ac	0	ac		3.00
Sloped	72	ac	73	ac	39	ac		184.00
Rip on the contour								
Equipment - D8 dozer								
How many acres are to be ripped?	72	ac	76	ac	39	ac		187.00
What is the productivity of the equipment?	1.1	ac/hr	1.1	ac/hr	1.1	ac/hr		
How many hours will the job take?	64.6	hrs	68.2	hrs	35.0	hrs		167.76
What is the equipment cost per hour?	114	\$/hr	114	\$/hr	114	\$/hr		
What are the labor costs per hour?	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr		
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04	\$/ac	\$ 146.04	\$/ac	\$ 146.04	\$/ac		
What are the total equipment costs	\$ 7,363.32		\$ 7,772.39		\$ 3,988.46			\$ 19,124.2
What are the total labor costs	\$ 3,151.37		\$ 3,326.45		\$ 1,706.99			\$ 8,184.81
What is the total cost for ripping?	\$ 10,514.69		\$ 11,098.84		\$ 5,695.46			\$ 27,308.98
Revegetation								
How many acres are to be vegetated?	72	ac	76	ac	39	ac		
What is the cost per acre?	\$ 298.60	\$/ac	\$ 298.60	\$/ac	\$ 298.60	\$/ac		
What is the total cost of seed, fertilize and mulch?	\$ 21,499.20		\$ 22,693.60		\$ 11,645.40			\$ 55,838.20
Supervision								
Hours	10.77	hrs	11.36	hrs	5.83	hrs		27.96
Equipment	\$ 15.58	\$/hr	\$ 15.58	\$/hr	\$ 15.58	\$/hr		
Supervisor	\$ 53.39	\$/hr	\$ 53.39	\$/hr	\$ 53.39	\$/hr		
Supervision Costs	\$ 742.51		\$ 783.76		\$ 402.19			\$ 1,928.47
Total Labor Costs	\$ 3,893.88		\$ 4,110.21		\$ 2,109.19			\$ 10,113.27
TOTAL COSTS	\$ 32,756.40		\$ 34,576.20		\$ 17,743.05			\$ 85,075.64

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Ripping Productivity

Dump & Pad Ripping	MPH	speed FPM	width pass	between pass	Total swath	Time	0.83	production				
Cat D8R	1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90	hr/acre	1.11 ac/hr

Ft. Knox Reclamation Plan

Roads - Page 1

Fish Creek Road and Pipeline Access Road below Tailings Dam will not be reclaimed to provide access to proposed camping area
Main Access (Walter Creek Road) and Melba Causeway will not be reclaimed to provide pit access.
Causeway covered by tails

Roads will need ripping with D-10 to loosen hardpack - 1 pass	\$	3,063
Grade to 2.5:1 or flatter & establish drainage	\$	1,610
No growth media necessary	\$	-
Rip on the contour (furrow)	\$	8,149
Revegetation (Seeding and fertilization)	\$	16,663
Supervision	\$	827
	\$	<u>30,313</u>

Estimated Reclamation and Closure Cost							
	Pipeline Access		Heap Ore Haul Road		Miscellaneous Roads		Roads Totals
	Quantity	Units	Quantity	Units	Quantity	Units	
Acres	9.5	ac	21.3	ac	25	ac	55.80
Flat	8	ac	10.65	ac	15	ac	33.65
Sloped	1.5	ac	10.65	ac	10	ac	22.15
Scarify on the contour							
Equipment - D10 dozer							
How many acres are to be scarified?	8	ac	10.65	ac	15	ac	33.65
What is the productivity of the equipment?	2.7	ac/hr	2.7	ac/hr	2.7	ac/hr	
How many hours will the job take?	2.9	hrs	3.9	hrs	5.5	hrs	12.31
What is the equipment cost per hour?	200.00	\$/hr	200.00	\$/hr	200.00	\$/hr	
What are the labor costs per hour?	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 91.03	\$/ac	\$ 91.03	\$/ac	\$ 91.03	\$/ac	
What are the total equipment costs	\$ 585.41		\$ 779.47		\$ 1,097.64		\$ 2,462.52
What are the total labor costs	\$ 142.81		\$ 190.15		\$ 267.77		\$ 600.73
What is the total cost for scarifying?	\$ 728.22		\$ 969.62		\$ 1,365.41		\$ 3,063.25
Grading and Recontouring							
Equipment - G16 Grader							
How many acres are to be graded?	9.5	ac	21.30394858	ac	25	ac	55.80
What is the productivity of the equipment?	5.8	ac/hr	5.8	ac/hr	5.8	ac/hr	
How many hours will the job take?	1.6	hrs	3.6	hrs	4.3	hrs	9.55
What is the equipment cost per hour?	119.75	\$/hr	119.75	\$/hr	119.75	\$/hr	
What are the labor costs per hour?	48.79	\$/hr	48.79	\$/hr	48.79	\$/hr	
What are the material costs?	0	\$	0	\$	0	\$	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 28.85	\$/ac	\$ 28.85	\$/ac	\$ 28.85	\$/ac	
What are the total equipment costs	\$ 194.74		\$ 436.70		\$ 512.47		\$ 1,143.91
What are the total labor costs	\$ 79.34		\$ 177.93		\$ 208.80		\$ 466.07
What is the total cost for road grading?	\$ 274.08		\$ 614.63		\$ 721.27		\$ 1,609.98
Rip on the contour							
Equipment - D8 dozer							
How many acres are to be ripped?	9.5	ac	21.3	ac	25	ac	55.80
What is the productivity of the equipment?	1.1	ac/hr	1.1	ac/hr	1.1	ac/hr	
How many hours will the job take?	8.5	hrs	19.1	hrs	22.4	hrs	50.06
What is the equipment cost per hour?	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	
What are the labor costs per hour?	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04	\$/ac	\$ 146.04	\$/ac	\$ 146.04	\$/ac	
What are the total equipment costs	\$ 971.55		\$ 2,178.72		\$ 2,556.71		\$ 5,706.97
What are the total labor costs	\$ 415.81		\$ 932.45		\$ 1,094.23		\$ 2,442.48
What is the total cost for ripping?	\$ 1,387.35		\$ 3,111.17		\$ 3,650.93		\$ 8,149.46
Revegetation							
How many acres are to be vegetated?	9.5	ac	21.30394858	ac	25	ac	55.80
What is the cost per acre?	\$ 298.60	\$/ac	\$ 298.60	\$/ac	\$ 298.60	\$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 2,836.70		\$ 6,361.36		\$ 7,465.00		\$ 16,663.06
Supervision							
Hours	2.18	hrs	4.44	hrs	5.37	hrs	
Equipment	\$ 15.58	\$/hr	\$ 15.58	\$/hr	\$ 15.58	\$/hr	
Supervisor	\$ 53.39	\$/hr	\$ 53.39	\$/hr	\$ 53.39	\$/hr	
Supervision Costs	\$ 150.31		\$ 306.43		\$ 370.10		\$ 826.84
Total Labor Costs	\$ 788.27		\$ 1,606.96		\$ 1,940.89		\$ 4,336.12
TOTAL COSTS	\$ 5,376.67		\$ 11,363.21		\$ 13,572.71		\$ 30,312.59

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Ripping Productivity

Dump & Pad Ripping	MPH	speed FPM	width pass	between pass	Total swath	Time	0.83	production					
Cat D8R	1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90	hr/acre	1.11	ac/hr
D-10R (Roads)	2.00	176.00	9.58	4.00	13.58	18.22	min/acre	21.95	min/acre	0.37	hr/acre	2.73	ac/hr

Road Grading Productivity

Road Grading	MPH	speed FPM	Width of Pass	Time	0.90	production					
G16 Grader	4.50	396.00	11.90	9.24	min/acre	10.27	min/acre	0.17	hr/acre	5.84	ac/hr

Ft. Knox Reclamation Plan

Pits and Walls - Page 1

Berm constructed with material within 100 feet of pit edge	
Slope to 2.5:1 or flatter & establish drainage	\$ 6,803
Load, haul, dump and spread 12 in. growth media	\$ 41,602
Berm not require growth media	
Rip on the contour	\$ 4,381
Revegetation (Seeding and fertilization)	\$ 10,750
Supervision	\$ 1,131
	<hr/>
	\$ 64,667

Pits and Walls - Page 2

Estimated Reclamation and Closure Cost	Pit Berm		50 ft Berm Disturbance		25 ft Berm Disturbance to Pit Edge		Pit and Walls
	Quantity	Units	Quantity	Units	Quantity	Units	Totals
Acres	6	ac	20	ac	10	ac	36.0
Flat	4	ac	10	ac	4	ac	18.0
Sloped	2	ac	10	ac	6	ac	18.0
Grading and Recontouring							
Equipment - D10 Dozer							
What is the total volume of material to be pushed?	30,849	cy					30,849.5
What is the weighted average push distance?	50.00	ft					
What percentage of material will be dozer-pushed?	100%						
Calculated quantity of dozer-pushed material	30,849.49	cy					
What is the productivity of the equipment?	1,128.17	cy/hr					
How many hours will the job take?	27.3	hrs					27.3
What is the equipment cost per hour?	200.00	\$/hr					
What is the labor cost per hour?	48.79	\$/hr					
What is the cost per unit (i.e. cubic yards, acres)?	0.22	\$/cy					
What is the labor cost?	\$ 1,334.15		\$ -		\$ -		\$ 1,334
What is the total cost for grading and recontouring?	\$ 6,803.07		\$ -		\$ -		\$ 6,803
Load, haul, dump and spread growth media							
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D10							
What is amount of topsoil to be loaded with loader?			16,130.00	cy	8,065.00	cy	24,195.0
What is wtd avg haul distance one way from TS Pile?			5,280.00	ft	5,280.00	ft	
What is amount of topsoil to be hauled by truck?			16,130.00	cy	8,065.00	cy	24,195.0
What is the productivity of the loading equipment?			547.80	cy/hr	547.80	cy/hr	
How many hours will the job take?			29.45	hrs	14.72	hrs	44.2
What are the estimated hours for haul and support equipment?							
Estimated hours for Loader			29.45	hrs	14.72	hrs	
Estimated hours for Truck			58.89	hrs	29.45	hrs	
Estimated hours for Grader to support hauling effort			29.45	hrs	14.72	hrs	
Estimated hours for Water Truck to support hauling effort			29.45	hrs	14.72	hrs	
Estimated hours for Dozer to spread topsoil			15.43	hrs	7.71	hrs	23.1
Dozer Productivity			1,045.64	cy/hr	1,045.64	cy/hr	
What is the equipment cost per hour?							
Loader			132.00	\$/hr	132.00	\$/hr	
Truck			150.00	\$/hr	150.00	\$/hr	
Grader			119.75	\$/hr	119.75	\$/hr	
Water Truck			60.92	\$/hr	60.92	\$/hr	
Dozer			114.00	\$/hr	114.00	\$/hr	
What is the labor cost per hour?							
Loader			48.79	\$/hr	48.79	\$/hr	
Truck			48.79	\$/hr	48.79	\$/hr	
Grader			48.79	\$/hr	48.79	\$/hr	
Water Truck			48.79	\$/hr	48.79	\$/hr	
Dozer			48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?			1.72	\$/cy	1.72	\$/cy	
What are the total equipment costs	\$ -		\$ 19,798.66		\$ 9,899.33		\$ 29,698
What are the total labor costs	\$ -		\$ 7,935.75		\$ 3,967.88		\$ 11,904
What is the total cost for growth media placement?	\$ -		\$ 27,734.41		\$ 13,867.20		\$ 41,602
Rip on the contour							
Equipment - D8 dozer							
How many acres are to be ripped?			20	ac	10	ac	30.0
What is the productivity of the equipment?			1.1	ac/hr	1.1	ac/hr	
How many hours will the job take?			17.9	hrs	9.0	hrs	26.9
What is the equipment cost per hour?			114	\$/hr	114	\$/hr	
What are the labor costs per hour?			48.79	\$/hr	48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?			\$ 146.04	\$/ac	\$ 146.04	\$/ac	
What are the total equipment costs	\$ -		\$ 2,045.37		\$ 1,022.68		\$ 3,068
What are the total labor costs	\$ -		\$ 875.38		\$ 437.69		\$ 1,313
What is the total cost for ripping?	\$ -		\$ 2,920.75		\$ 1,460.37		\$ 4,381
Revegetation							
How many acres are to be vegetated?	6	ac	20	ac	10	ac	36.0
What is the cost per acre?	\$ 298.60	\$/ac	\$ 298.60	\$/ac	\$ 298.60	\$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 1,791.60		\$ 5,972.00		\$ 2,986.00		\$ 10,750
Supervision							
Hours	4.56	hrs	7.90	hrs	3.95	hrs	16.4
Equipment	\$ 15.58	\$/hr	\$ 15.58	\$/hr	\$ 15.58	\$/hr	
Supervisor	\$ 53.39	\$/hr	\$ 53.39	\$/hr	\$ 53.39	\$/hr	
Supervision Costs	\$ 314.34		\$ 544.74		\$ 272.37		\$ 1,131
Total Labor Costs	\$ 1,648.49		\$ 9,355.88		\$ 4,677.94		\$ 15,682
TOTAL COSTS	\$ 8,909.02		\$ 37,171.90		\$ 18,585.95		\$ 64,667

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Dozer Production			
Data	LCY/hr production to area (acre) of volume (yds)		
3H:1V	down	up	0.3
grade- -33%	1.6	grade- +33%	
Density	Rock	Topsoil	NOTE: 1.75 spg - loose 2.16 spg - bank
	3500	2650	
Unadjusted Dozer Productivity Calculations			
	CPH V33 p1-40: CPH V31 p1-43		
	50 ft distance		
	LCY/hr		
Cat D10R	2850		
Cat D8	1400		

Growth Media - Spread Productivity			
Growth Media	12 depth (inches)	0.333	1613 CY/acre
	14.4 depth (inches)	0.4	1936 CY/acre before compaction to 12" depth (20%)

Spread Growth Media								
Topsoil	Performance Factor	Operator Avg	Material Topsoil	Slot	Visibility Good	Job Eff. 50min/hr	Grade Eff.	Density Topsoil
Slope -18°	1.1950	0.8	1.2	1.2	0.9	0.83	1.6	0.87
Slope 0°	0.7469	0.8	1.2	1.2	0.9	0.83	1	0.87

Growth Media - Adjusted Productivity	
Slope 0°	Topsoil 50 ft distance LCY/hr
Cat D10R	2129
Cat D8	1046

Growth Media Load and Haul Productivity

Loading & Hauling - Truck/Loader		Capacity			Cycle Time				Production Rates	Correction Factors				Factored Production Rate	Max Truck/Loader Ratio	
Equipment		Rated Heap Capacity (cy)	Material Correction Soil	Adjusted Capacity (cy)	Loader Cycle Time (min)	Loader Cycles Per Load	Loaded Haul / Dump (min)	Empty Haul (min)	Total Load / Haul Time (min)	Maximum Production Rate (cy/hr)	Altitude	Operator Efficiency	Job Efficiency	Total Correction Factor	(Cy/Hr)	
Euclid B-70 988 Loader		48.00	1.00	48.00	0.60	6	1.75	1.00		453.54	1.00	0.80	0.83			2
	Truck/Loader Team	8.30	1.00	8.30					6.35	830.00	1.00	0.80	0.83	0.66	547.80	

Ripping Productivity													
Dump & Pad Ripping		speed MPH	width pass	between pass	Total swath	Time	0.83	production					
Cat D8R		1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90	hr/acre	1.11 ac/hr

Pit Berm Assumptions									
Berm Construction									
Equipment - D10R									
Berm center perimeter	17353 ft								
Base width	16 ft								
Berm height	6 ft								
Berm Volume	30849 CY								
Berm Acres	6								
Grade 10%	Operator Avg	Material Rock	Slot	Visibility Good	Job Eff. 50min/hr	Grade Eff.	Density Rock		
Production Factor	0.3959	0.8	0.7	1.2	0.9	0.83	1.2	0.66	
50ft push	1128.2 LCY/Hr								
Production	27 hr								
Production Rate	0.2 acres/hr								

Ft. Knox Reclamation Plan

Cost Estimate - Pit Powerline Removal

Power Lines	haul distance	poles	loads	handle time each pole/wire	speed ft/hr	labor hrs	D10 handle hrs	D10 haul hrs	labor cost	D10 cost	Oper cost	
Total power line	12,000	5,000	48	3	1	15840	48	48	0.95	\$ 2,341.92	\$ 9,789.39	\$ 2,388.12

Total Labor Costs \$ 4,730

Total power line removal cost \$ 14,519

Laborer \$ 48.79

Operator \$ 48.79

D10 \$ 200.00

CAT SPEED AT 3 MPH/15,840 FEET PER HOUR
PIPELINE DISTANCE IS TO LAB
12000 FEET TO BARNES CREEK WASTE DUMP FOR LAND FILL.
Pull 16 poles at a time with the wire attached to each each set of poles.

Ft. Knox Reclamation Plan

Gil Causeway

Open Gill Causeway & Misc.	\$	5,806
Grade to establish drainage, install ditch & ponds	\$	-
Revegetation (Seeding and fertilization)	\$	5,922
Supervision	\$	577
	\$	<u>12,306</u>

Estimated Reclamation and Closure Cost	Gil Causeway Quantity	Units	Causeway Totals
Acres	18	ac	18.0
Flat	18	ac	18.0
Sloped	0	ac	0.0
Excavate Causeway			
Equipment - 325C Excavator			
What is the total volume of material to be excavated?	12,000	cy	12,000.0
What percentage of material will be excavated?	100%		
Calculated quantity of excavated material	12,000.00	cy	
What is the productivity of the equipment?	239.04	cy/hr	
How many hours will the job take?	50.20	hrs	50.2
What is the equipment cost per hour?	\$ 66.88	\$/hr	
What is the labor cost per hour?	\$ 48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 0.48	\$/cy	
What is total labor costs?	\$ 2,449.30		2,449.3
What is the total cost for grading and recontouring?	\$ 5,806.48		\$ 5,806
Revegetation			
How many acres are to be vegetated?	18	ac	18.0
What is the cost per acre?	\$ 329.00	\$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 5,922.00		\$ 5,922
Supervision			
Hours	8.37	hrs	
Equipment	\$ 15.58	\$/hr	
Supervisor	\$ 53.39	\$/hr	
Supervision Costs	\$ 577.09		\$ 577
	\$ 3,026.39		\$ 3,026
TOTAL COSTS	\$ 12,305.57		\$ 12,306

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

325C EXCAVATOR										
RATED PRODUCTION RATE		Material	Adjusted	Cycle	Maximum	CORRECTION FACTORS				ADJUSTED
Rated Heap Capacity	Correction	Capacity	Time	Production Rate	Altitude	Operator Efficiency	Job Efficiency	Correction	Factor	PRODUCTION RATE
(cy)	packed road	(cy)	(min)	(cy/hr)		Average	50 min/hr	Factor		(cy/hr)
2.20	0.90	1.98	0.33	360	1.00	0.80	0.83	0.66		239.04

Ft. Knox Reclamation Plan

Tailings Impoundment Earthwork - Topsoil Perimeter - Page 1

Construct access roads for topsoil haulage	\$	150,000
Load, haul, dump and spread 12 in. growth media	\$	598,766
Rip on the contour	\$	30,123
Revegetation (Seeding and fertilization)	\$	143,662
Supervision	\$	7,747
Drainage Construction	\$	177,792
	\$	1,108,089

Estimated Reclamation and Closure Cost	North Sector		Northwest Sector		Southwest Sector		South Sector		East Sector (Dam)		Tailings Area Totals
	Quantity	Units	Quantity	Units	Quantity	Units	Quantity	Units	Quantity	Units	
Acres											
Uplands	29.0	ac	31.0	ac	39.0	ac	41.0	ac	26.0	ac	166.00
Wetlands	50.0		53.4		67.2		70.6		44.8		286.00
Construct Access Roads											
What is the length of road to be constructed?	1000	lf	500	lf	500	lf	1000	lf	0	lf	3,000.00
What is the cost per linear foot	\$ 50.00	lf	\$ 50.00	lf	\$ 50.00	lf	\$ 50.00	lf	\$ 50.00	lf	
What is the cost for the TS haul road	\$ 50,000.00		\$ 25,000.00		\$ 25,000.00		\$ 50,000.00		\$ -		150,000.00
Load, haul, dump and spread growth media											
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D8											
What is amount of topsoil to be loaded with loader?	46,787	cy	50,013	cy	62,920	cy	66,147	cy	41,947	cy	267,813.33
What is wtd avg haul distance one way from TS Pile?	See TS Production	ft	See TS Production 1	ft	See TS Productio	ft	See TS Production T	ft	See TS Productior	ft	
What is amount of topsoil to be hauled by truck?	46,786.67	cy	50,013.33	cy	62,920.00	cy	66,146.67	cy	41,946.67	cy	267,813.33
What is the productivity of the loading equipment?	547.80	cy/hr	547.80	cy/hr	547.80	cy/hr	547.80	cy/hr	547.80	cy/hr	2,739.00
How many hours will the job take?	85.41	hrs	91.30	hrs	114.86	hrs	120.75	hrs	76.57	hrs	488.89
What are the estimated hours for haul and support equipment?											
Estimated hours for Loader	85.41	hrs	91.30	hrs	114.86	hrs	120.75	hrs	76.57	hrs	488.89
Estimated hours for Truck	170.82	hrs	182.60	hrs	229.72	hrs	483.00	hrs	229.72	hrs	1,295.85
Estimated hours for Grader to support hauling effort	85.41	hrs	91.30	hrs	114.86	hrs	120.75	hrs	76.57	hrs	488.89
Estimated hours for Water Truck to support hauling effort	85.41	hrs	91.30	hrs	114.86	hrs	120.75	hrs	76.57	hrs	488.89
Estimated hours for Dozer to spread topsoil	125.28	hrs	133.92	hrs	168.49	hrs	177.13	hrs	112.32	hrs	717.15
Dozer Production	373.44	cy/hr	373.44	cy/hr	373.44	cy/hr	373.44	cy/hr	373.44	cy/hr	
What is the equipment cost per hour?											
Loader	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	\$ 132.00	\$/hr	
Truck	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	\$ 150.00	\$/hr	
Grader	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	\$ 119.75	\$/hr	
Water Truck	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	\$ 60.92	\$/hr	
Dozer	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	\$ 114.00	\$/hr	
What is the labor cost per hour?											
Loader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Grader	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Water Truck	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
Dozer	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	\$ 48.79	\$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	2.00	\$/cy	2.00	\$/cy	2.00	\$/cy	2.73	\$/cy	2.36	\$/cy	
What are the total equipment costs	\$ 66,609.53		\$ 71,203.29		\$ 89,578.33		\$ 130,396.99		\$ 71,204.83		\$ 428,993
What are the total labor costs	\$ 26,947.98		\$ 28,806.46		\$ 36,240.39		\$ 49,881.62		\$ 27,896.25		\$ 169,773
What is the total cost for growth media placement?	\$ 93,557.51		\$ 100,009.75		\$ 125,818.72		\$ 180,278.61		\$ 99,101.08		\$ 598,766

Tailings Impoundment Earthwork - Topsoil Perimeter - Page 2

Rip on the contour						
Equipment - D8 dozer						
How many acres are to be ripped?	29 ac	31 ac	39 ac	41 ac	26 ac	166.00
What is the productivity of the equipment?	1.1 hr/ac	1.1 hr/ac	1.1 hr/ac	1.1 hr/ac	1.1 hr/ac	5.57
How many hours will the job take?	32.3 hrs	34.6 hrs	43.5 hrs	45.7 hrs	29.0 hrs	185.04
What is the equipment cost per hour?	114 \$/hr	114 \$/hr	114 \$/hr	114 \$/hr	114 \$/hr	
What are the labor costs per hour?	48.79 \$/hr	48.79 \$/hr	48.79 \$/hr	48.79 \$/hr	48.79 \$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 181.46 \$/ac	\$ 181.46 \$/ac	\$ 181.46 \$/ac	\$ 181.46 \$/ac	\$ 181.46 \$/ac	
What are the total equipment costs	\$ 3,685.25	\$ 3,939.40	\$ 4,956.02	\$ 5,210.18	\$ 3,304.02	\$ 21,095
What are the total labor costs	\$ 1,577.22	\$ 1,686.00	\$ 2,121.09	\$ 2,229.87	\$ 1,414.06	\$ 9,028
What is the total cost for ripping?	\$ 5,262.47	\$ 5,625.40	\$ 7,077.11	\$ 7,440.04	\$ 4,718.08	\$ 30,123
Revegetation						
How many Wetland acres are to be vegetated?	50.0	53.4	67.2	70.6	44.79518072	286.00
What is the cost per acre (Wetlands Mix)?	\$ 329.00	\$ 329.00	\$ 329.00	\$ 329.00	\$ 329.00	
Subtotal	\$ 16,438.11	\$ 17,571.77	\$ 22,106.42	\$ 23,240.08	\$ 14,737.61	\$ 94,094
How many Upland acres are to be vegetated?	29 ac	31 ac	39 ac	41 ac	26 ac	166.00
What is the cost per acre (Upland Mix)?	\$ 298.60 \$/ac	\$ 298.60 \$/ac	\$ 298.60 \$/ac	\$ 298.60 \$/ac	\$ 298.60 \$/ac	
Subtotal	\$ 8,659.40	\$ 9,256.60	\$ 11,645.40	\$ 12,242.60	\$ 7,763.60	\$ 49,568
What is the total cost of seed, fertilize and mulch?	\$ 25,097.51	\$ 26,828.37	\$ 33,751.82	\$ 35,482.68	\$ 22,501.21	\$ 143,662
Supervision						
Hours	19.62 hrs	20.98 hrs	26.39 hrs	27.74 hrs	17.59 hrs	112.32
Equipment	\$ 15.58 \$/hr	\$ 15.58 \$/hr	\$ 15.58 \$/hr	\$ 15.58 \$/hr	\$ 15.58 \$/hr	
Supervisor	\$ 53.39 \$/hr	\$ 53.39 \$/hr	\$ 53.39 \$/hr	\$ 53.39 \$/hr	\$ 53.39 \$/hr	
Supervision Costs	\$ 1,353	\$ 1,447	\$ 1,820	\$ 1,913	\$ 1,213	\$ 7,747
SUBTOTAL - GRADE, COVER & REVEG COSTS	\$ 175,271	\$ 158,910	\$ 193,468	\$ 275,115	\$ 127,534	\$ 930,298
Drainage (See Details in Supporting Information)						
Excavation						
Quantity	622 cy	667 cy	667 cy	800 cy	0 cy	2,755.56
Unit Cost	\$ 1.75 \$/cy	\$ 1.75 \$/cy	\$ 1.75 \$/cy	\$ 1.75 \$/cy	\$ 1.75 \$/cy	
Subtotal	\$ 1,088.89	\$ 1,166.67	\$ 1,166.67	\$ 1,400.00	\$ -	4,822.22
Geofabric						
Quantity	17,709 sqft	18,974 sqft	18,974 sqft	22,768 sqft	0 sqft	78,424.49
Unit Cost	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	\$ 0.15 \$/sqft	
Subtotal	\$ 2,656.31	\$ 2,846.05	\$ 2,846.05	\$ 3,415.26	\$ -	11,763.67
Riprap						
Quantity	984 cy	1,054 cy	1,054 cy	1,265 cy	0 cy	4,356.92
Unit Cost	\$ 35.00 \$/cy	\$ 35.00 \$/cy	\$ 35.00 \$/cy	\$ 35.00 \$/cy	\$ 35.00 \$/cy	
Subtotal	\$ 34,433.69	\$ 36,893.24	\$ 36,893.24	\$ 44,271.89	\$ -	152,492.06
Place riprap						
Quantity	984 cy	1,054 cy	1,054 cy	1,265 cy	0 cy	4,356.92
Unit Cost	\$ 2.00 \$/cy	\$ 2.00 \$/cy	\$ 2.00 \$/cy	\$ 2.00 \$/cy	\$ 2.00 \$/cy	
Subtotal	\$ 1,968	\$ 2,108	\$ 2,108	\$ 2,530	\$ -	8,714
Drainage Construction Costs	\$ 40,147	\$ 43,014	\$ 43,014	\$ 51,617	\$ -	\$ 177,792
Total Labor Costs	\$ 29,879	\$ 31,939	\$ 40,182	\$ 54,025	\$ 30,524	\$ 186,548
TOTAL COSTS	\$ 215,417	\$ 201,924	\$ 236,482	\$ 326,732	\$ 127,534	\$ 1,108,089

Drainage Construction

Tailings Soil Cover Channels	Unit Cost	Quantity	Unit	Total
North Sector				
Excavation	\$ 1.75	622 cy		\$ 1,089
Geofabric	\$ 0.15	17,709 sqft		\$ 2,656
Riprap	\$ 35.00	984 cy		\$ 34,434
Place riprap	\$ 2.00	984 cy		\$ 1,968
Northwest Sector				
Excavation	\$ 1.75	667 cy		\$ 1,167
Geofabric	\$ 0.15	18,974 sqft		\$ 2,846
Riprap	\$ 35.00	1,054 cy		\$ 36,893
Place riprap	\$ 2.00	1,054 cy		\$ 2,108
Sourhwest Sector				
Excavation	\$ 1.75	667 cy		\$ 1,167
Geofabric	\$ 0.15	18,974 sqft		\$ 2,846
Riprap	\$ 35.00	1,054 cy		\$ 36,893
Place riprap	\$ 2.00	1,054 cy		\$ 2,108
South Sector				
Excavation	\$ 1.75	800 cy		\$ 1,400
Geofabric	\$ 0.15	22,768 sqft		\$ 3,415
Riprap	\$ 35.00	1,265 cy		\$ 44,272
Place riprap	\$ 2.00	1,265 cy		\$ 2,530
East Sector (Dam)				
Excavation	\$ 1.75	0 cy		\$ -
Geofabric	\$ 0.15	0 sqft		\$ -
Riprap	\$ 35.00	0 cy		\$ -
Place riprap	\$ 2.00	0 cy		\$ -
TOTALS				
Excavation		2,756 cy		\$ 4,822
Geofabric		78,424 sqft		\$ 11,764
Riprap		4,357 cy		\$ 152,492
Place riprap		4,357 cy		\$ 8,714

Channel Calculations

Channel type	Bottom width	Depth	Top width	Excav Vol (w/20% incr)	Fabric Area	Riprap size	Riprap thickness	Riprap volume
	Ft	Ft	Ft	CY/Ft	SF/Ft	In	Ft	CY/Ft
Trapezoidal (3:1 side slopes)	6	3	24	2.0	25.0	9	1.5	1.4
V-notch (3:1 side slopes)	0	3	18	1.0	19.0	9	1.5	1.1
V-notch (3:1 side slopes)	0	2	12	0.4	12.6	9	1.5	0.7
V-notch (3:1 side slopes)	0	1	6	0.1	6.3	9	1.5	0.4

Tailings Soil Cover Channels

North sector channel length - 2ft v-notch	Ft	1,400
Northwest sector channel length - 2ft v-notch	Ft	1,500
Southwest sector channel length - 2ft v-notch	Ft	1,500
South sector channel length - 2ft v-notch	Ft	1,800
East sector channel length - 2ft v-notch	Ft	0

Ft. Knox Reclamation Plan

Tailing Dam Spillway	
Earthworks	\$ 1,310,431
Add'l items	\$ 155,584
	<u>\$ 1,466,015</u>

Quantities and cost basis		UNIT	QTY	
DESCRIPTION				
Area spillway channels		Acres	4.3	
Cost estimate				
DESCRIPTION	RATE	QTY	UNIT	EST. COST
EARTHWORKS				
Spillway				
Excavation - rock	\$ 10.00	14,800	cy	\$ 148,000
Excavation - soil	\$ 4.00	32,100	cy	\$ 128,400
Geofabric	\$ 0.20	142,300	sqft	\$ 28,460
Riprap - 12 in	\$ 35.00	4,160	cy	\$ 145,600
Riprap - 6 in	\$ 35.00	560	cy	\$ 19,611
Place riprap	\$ 3.00	4,720	cy	\$ 14,161
Grouted riprap - 12 in	\$ 135.00	4,860	cy	\$ 656,100
Place grouted riprap	\$ 35.00	4,860	cy	\$ 170,100
Subtotal				\$ 1,310,431
Other Items				
Seepage collection system	\$100,000	1	ls	\$ 100,000
Clear and grub	\$ 1,000.00	4.3	acres	\$ 4,300
Revegetate disturbed area	\$ 298.60	4.3	acres	\$ 1,284
Subtotal				\$ 105,584
TECHNICAL SUPPORT				
Field exploration along alignment	\$ 35,000	1	LS	\$ 35,000
Survey	\$ 15,000	1	LS	\$ 15,000
Subtotal				\$ 50,000
TOTAL				\$ 1,466,015

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY, REVEGETATION MATERIALS AND OTHER SUPPORT ITEMS

	Units	Channel Type					
		Spillway	Grtd 12 in riprap	12 in riprap	6 in riprap	Stilling basin	
Slope		1%	>8%	2-8%	<2%	0%	
Excavation volume	CY/Ft	5.2	5.6	8.0	8.0	20.0	
Fabric area	SF/Ft		30.0	38.0	38.0	60.0	
Riprap volume	CY/Ft			2.8	1.3	3.8	
Grouted riprap volume	CY/Ft		1.9			1.5	

Channel Section	Type	Length	Excav rock CY	Excav soil CY	12 in riprap CY	6 in riprap CY	Fabric SF	Grtd 12 in riprap CY
0	Spillway	740	14,800					
740	Grtd 12 in riprap	810		4,536			24,300	1,539
1550	12 in riprap	62		496	174		2,356	
1612	6 in riprap	91		728		118	3,458	
1703	Grtd 12 in riprap	247		1,383			7,410	469
1950	Stilling basin	100		2,000	375		6,000	150
2050	12 in riprap	88		704	246		3,344	
2138	6 in riprap	340		2,720		442	12,920	
2478	Grtd 12 in riprap	72		403			2,160	137
2550	Stilling basin	100		2,000	375		6,000	150
2650	12 in riprap	52		416	146		1,976	
2702	Grtd 12 in riprap	448		2,509			13,440	851
3150	12 in riprap	50		400	140		1,900	
3200	Stilling basin	100		2,000	375		6,000	150
3300	12 in riprap	315		2,520	882		11,970	
3615	Grtd 12 in riprap	185		1,036			5,550	352
3800	Stilling basin	100		2,000	375		6,000	150
3900	Grtd 12 in riprap	400		2,240			12,000	760
4300	12 in riprap	250		2,000	700		9,500	
4550	Stilling basin	100		2,000	375		6,000	150
Totals		4,650	14,800	32,100	4,160	560	142,300	4,860

Ft. Knox Reclamation Plan

Tailings Impoundment - Water Management

Dismantle equipment	\$	142,928
Construct drainfield and wetland channel	\$	70,111
Pumping	\$	1,529,741
	\$	1,742,779

Dismantle and Construct

	Est. Labor	Total Cost
Remove Pipelines	\$ 23,012.36	\$ 55,667.15
Remove Tailing/Freshwater Powerline	\$ 27,937.78	\$ 87,260.36
Construct drainfield for seepage	\$ 16,931.64	\$ 51,308
Const. Wetlands/channel north	\$ 6,204.99	\$ 18,803
Subtotal	\$ 74,086.77	\$ 213,039

Pumping Costs

	Operating Time	Days/yr	Cost/day	Cost
Seepage Pump	9/30/2012 - 12/31/2012	92	683.18	\$ 62,853
	12/31/2012 - 12/31/2013	365	683.18	\$ 249,361
	12/31/2013 - 12/31/2014	365	684.18	\$ 249,726
	12/31/2014 - 7/1/2015	182	683.18	\$ 124,339
Pump to Pit	9/30/2012 - 12/31/2012	92	840.94	\$ 77,366
	12/31/2012 - 12/31/2013	365	840.94	\$ 306,943
	12/31/2013 - 12/31/2014	365	840.94	\$ 306,943
	12/31/2014 - 6/30/2015	181	840.94	\$ 152,210
Subtotal	2/28/2009 - 7/1/2015	2,314		\$ 1,529,741
Based on calculations by Charlie Wells (PUMPING COST.xls)				
Total Cost				\$ 1,742,779

Ft. Knox Reclamation Plan

Cost Estimate - Tailing Pipeline & Powerline Removal

Water Lines	Feet	haul distance/	speed	loads	handle line	# pieces	labor	D10	D10	labor	D10	Oper
		ft/hr	ft/hr		hrs		hrs	handle hrs	haul hrs	cost	cost	cost
Fresh Water												
18"	18,280	21,140	15,840	4.57	0.5	91.40	45.70	0.20	6.10	\$ 2,229.70	\$ 4,875.82	\$ 1,189.46
12"	32,730	28,365	15,840	8.18	0.5	163.65	81.83	0.20	14.65	\$ 3,992.24	\$ 9,476.51	\$ 2,311.80
Reclaim	14,450	19,125	15,840	7.23	1.05	72.25	75.86	0.40	8.72	\$ 3,701.33	\$ 7,524.67	\$ 1,835.64
Tails line	20,000	22,000	15,840	10.00	1.05	100.00	105.00	0.40	13.89	\$ 5,122.95	\$ 10,777.78	\$ 2,629.24
Total	85,460	90,630								\$ 15,046.23	\$ 32,654.78	\$ 7,966.13

Total Labor Costs 23,012
Total water and tails lines \$ 55,667

Power Lines	haul distance	poles	loads	handle time	speed	labor	D10	D10	labor	D10	Oper	
				each pole/wire	ft/hr	hrs	handle hrs	haul hrs	cost	cost	cost	
Total power line	30,417	27,209	276	12	1	15840	276	276	20.61	\$ 13,466.04	\$ 59,322.58	\$ 14,471.74

Total Labor Costs \$ 27,938 **TOTAL LABOR COST FOR POWER LINE TAILS LINE AND WATER LIN \$ 50,950.14**
Total power line cost \$ 87,260 **TOTAL COST FOR POWER LINE TAILS LINE AND WATER LINES= \$ 142,927.50**

Laborer \$ 48.79
 Operator \$ 48.79
 D10 \$200.00

Pull 2000 feet of 24" HDPE EACH TIME IN 200' LENGTHS.(10 PIECES) Pull
 Pull 4000 feet of 18" pipe each time in 200' lengths.
 Pull 4000 feet of 12" pipe each time in 200' lengths.
 CAT SPEED AT 3 MPH/15,840 FEET PER HOUR
 PIPELINE DISTANCE IS TO LAB
 12000 FEET TO BARNES CREEK WASTE DUMP FOR LAND FILL.
 Pull 23 poles at a time with the wire attached to each each set of poles.

Heap Leach - Page 2

Estimated Reclamation and Closure Cost		Walter Heap Phase I & II		Heap Phase III Footprint		Heap Leach
		Quantity	Units	Quantity	Units	Totals
Acres		116.6	ac	193.4	ac	310
Top slope		14.9	ac		ac	15
Side slope		101.7	ac		ac	102
Grading and Recontouring						
Equipment						
What is the total volume of material to be recontoured?	D9 Dozer	933,587.05	cy			933,587
Cut/fill volume of top slopes		89,199.00	cy			89,199
Cut/fill volume of side slopes		844,388.05	cy			844,388
What percentage of material will be dozer-pushed?		100%				1
Calculated quantity of dozer-pushed material		933,587.05	cy			933,587
Top slope		89,199.00	cy			89,199
Side slope		844,388.05	cy			844,388
What is the weighted average push distance?		150.00	ft			
What is the productivity of the equipment?						
Top slope		296.89	cy/hr			
Side slope		475.02	cy/hr			
How many hours will the job take?		2,078.0	hrs			2,078
What is the equipment cost per hour?		\$ 171.00	\$/hr			
What is the labor cost per hour?		\$ 48.79	\$/hr			
What is the overall cost per unit (i.e. cubic yards, acres)?		\$ 0.49	\$/cy			
Cost per cubic yard top slope		\$ 0.74	\$/cy			
Cost per cubic yard side slope		\$ 0.46	\$/cy			
Cost for Top Slope		\$ 66,035.24				\$ 66,035
Cost for Side Slope		\$ 390,695.00				\$ 390,695
What are the total labor costs		\$ 101,387.09				\$ 101,387
What is the total cost for grading and recontouring?		\$ 456,730.23		\$ -		\$ 456,730
Load, haul, dump and spread growth media						
Equipment - 988, Euclid B-70 Haul Truck, Water Truck, G16 Grader, D8						
What is amount of topsoil to be loaded with loader?		188,115	cy			188,115
Volume to Top Slope		23,984.62	cy			23,985
Volume to Side Slope		164,130.05	cy			164,130
What is wtd avg haul distance one way from TS Pile?		See TS Production Ta	ft			
What is amount of topsoil to be hauled by truck?		188,114.67	cy			188,115
What is the productivity of the loading equipment?		547.80	cy/hr			548
How many hours will the job take?		343.40	hrs			343
What are the estimated hours for haul and support equipment?						0
Estimated hours for Loader		343.40	hrs			343
Estimated hours for Truck		1,373.60	hrs			1,374
Estimated hours for Grader to support hauling effort		343.40	hrs			343
Estimated hours for Water Truck to support hauling effort		343.40	hrs			343
Estimated hours for Dozer to spread topsoil		338.92	hrs			339
Top Slope dozer productivity		373.44	cy/hr			
Side Slope dozer productivity		597.51	cy/hr			
What is the equipment cost per hour?						
Loader		\$ 132.00	\$/hr			
Truck		\$ 150.00	\$/hr			
Grader		\$ 119.75	\$/hr			
Water Truck		\$ 60.92	\$/hr			
Dozer		\$ 114.00	\$/hr			
What is the labor cost per hour?						
Loader		\$ 48.79	\$/hr			
Truck		\$ 48.79	\$/hr			
Grader		\$ 48.79	\$/hr			
Water Truck		\$ 48.79	\$/hr			
Dozer		\$ 48.79	\$/hr			
What is the overall cost per unit (i.e. cubic yards, acres)?		\$ 2.58	\$/cy			
Cost per cubic yard to doze top slope		\$ 0.44	\$/cy			
Cost per cubic yard to doze side slope		\$ 0.27	\$/cy			
What are the total equipment costs		\$ 352,047.51				\$ 352,048
What are the total labor costs		\$ 133,817.19				\$ 133,817
What is the total cost for growth media placement?		\$ 485,864.70		\$ -		\$ 485,865

Heap Leach - Page 3

Rip on the contour			
Equipment - D8 dozer			
How many acres are to be ripped?	116.6 ac	193.4 ac	310
What is the productivity of the equipment?	1.1 ac/hr	1.1 ac/hr	
How many hours will the job take?	104.6 hrs	173.5 hrs	278
What is the equipment cost per hour?	\$ 114.00 \$/hr	\$ 114.00 \$/hr	
What are the labor costs per hour?	\$ 48.79 \$/hr	\$ 48.79 \$/hr	
What is the cost per unit (i.e. cubic yards, acres)?	\$ 146.04 \$/ac	\$ 146.04 \$/ac	
What are the total equipment costs	\$ 11,924.48	\$ 19,778.69	\$ 31,703
What are the total labor costs	\$ 5,103.47	\$ 8,464.93	\$ 13,568
What is the total cost for ripping?	\$ 17,027.95	\$ 28,243.62	\$ 45,272
Revegetation			
How many acres are to be vegetated?	116.6 ac	193.4 ac	310
What is the cost per acre?	\$ 298.60 \$/ac	\$ 298.60 \$/ac	
What is the total cost of seed, fertilize and mulch?	\$ 34,816.76	\$ 57,749.24	\$ 92,566
Supervision			
Hours	421.01 hrs	28.92 hrs	450
Equipment	\$ 15.58 \$/hr	\$ 15.58 \$/hr	
Supervisor	\$ 53.39 \$/hr	\$ 53.39 \$/hr	
Supervision Costs	\$ 29,038.41	\$ 1,994.47	\$ 31,033
SUBTOTAL - GRADE, COVER & REVEG COSTS	\$ 1,023,478.05	\$ 87,987.32	\$ 1,111,465
Drainage (See Details in Supporting Information)			
Excavation			
Quantity	6,222 cy		6,222
Unit Cost	\$ 1.75 \$/cy		
Subtotal	\$ 10,888.89		\$ 10,889
Geofabric			
Quantity	177,088 sqft		177,088
Unit Cost	\$ 0.15 \$/sqft		
Subtotal	\$ 26,563.13		\$ 26,563
Riprap			
Quantity	9,838 cy		9,838
Unit Cost	\$ 35.00 \$/cy		
Subtotal	\$ 344,336.90		\$ 344,337
Place riprap			
Quantity	9,838 cy		9,838
Unit Cost	\$ 2.00 \$/cy		
Subtotal	\$ 19,676		\$ 19,676
Drainage Construction Costs	\$ 401,465	\$ -	\$ 401,465
Total Labor - Costs	\$ 1,263,786	\$ 96,452	\$ 1,360,238
TOTAL COSTS	\$ 1,424,943	\$ 87,987	\$ 1,512,931

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Dozer Production			
Data	LCY/hr production to area (acre) of volume (yds)		
3H:1V	down	up	
grade- -33%		1.6 grade- +33%	0.3
Density	Rock	Topsoil	NOTE: 1.75 spg - loose 2.16 spg - bank
	3500	2650	
Unadjusted Dozer Productivity Calculations			
	CPH V33 p1-40: CPH V31 p1-43		
	LCY/hr		
Cat D9R	900	150 ft distance	
Cat D8	500	200 ft. distance	

Waste Rock Dozer Grading Productivity

Dozer Production Factors		CPH V 33 p.1-42							
Regrade		Performance	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density
Rock Dump		Factor	Avg	Rock		Good	50min/hr		Rock
Slope -18°		0.5278	0.8	0.7	1.2	0.9	0.83	1.6	0.66
Slope 0°		0.3299	0.8	0.7	1.2	0.9	0.83	1	0.66

Rock Dump - Adjusted Productivity	Regrade
Slope -18°	150 ft distance
	LCY/hr
Cat D9R	475.0
Rock Dump - Adjusted Productivity	Regrade
Slope 0°	150 ft distance
	LCY/hr
Cat D9R	296.9

Growth Media - Spread Productivity			
Growth Media	12 depth (inches)	0.333	1613 CY/acre
	14.4 depth (inches)	0.4	1936 CY/acre before compaction to 12" depth (20%)

Spread Growth Media		Performance							
Topsoil		Factor	Operator	Material	Slot	Visibility	Job Eff.	Grade Eff.	Density
			Avg	Topsoil		Good	50min/hr		Topsoil
Slope -18°		1.1950	0.8	1.2	1.2	0.9	0.83	1.6	0.87
Slope 0°		0.7469	0.8	1.2	1.2	0.9	0.83	1	0.87

Growth Media - Adjusted Productivity	Topsoil
Slope -18°	150 ft distance
	LCY/hr
Cat D8	597.5

Growth Media - Adjusted Productivity	Topsoil
Slope 0°	150 ft distance
	LCY/hr
Cat D8	373

Ripping Productivity											
Dump & Pad Ripping		speed	width pass	between pass	Total swath	Time	0.83		production		
		FPM									
Cat D8R	MPH	1.00	88.00	8.08	3.00	11.08	44.68	min/acre	53.83	min/acre	0.90 hr/acre 1.11 ac/hr

SUPPORTING INFORMATION - EQUIPMENT PRODUCTIVITY AND REVEGETATION MATERIALS

Drainage Construction

Walter Heap Phase I & II	Unit Cost	Quantity	Unit	Total
East Perimeter Channel				
Excavation	\$ 1.75	3,111 cy		\$ 5,444
Geofabric	\$ 0.15	88,544 sqft		\$ 13,282
Riprap	\$ 35.00	4,919 cy		\$ 172,168
Place riprap	\$ 2.00	4,919 cy		\$ 9,838
West Perimeter Channel				
Excavation	\$ 1.75	3,111 cy		\$ 5,444
Geofabric	\$ 0.15	88,544 sqft		\$ 13,282
Riprap	\$ 35.00	4,919 cy		\$ 172,168
Place riprap	\$ 2.00	4,919 cy		\$ 9,838
TOTALS				
Excavation		6,222 cy		\$ 10,888.89
Geofabric		177,088 sqft		\$ 26,563.13
Riprap		9,838 cy		\$ 344,336.90
Place riprap		9,838 cy		\$ 19,676.39

Channel Calculations

Channel type	Bottom width	Depth	Top width	Excav Vol	Fabric Area	Riprap size	Riprap thickness	Riprap volume
	Ft	Ft	Ft	(w/20% incr) CY/Ft	SF/Ft	In	Ft	CY/Ft
Trapezoidal (3:1 side slopes)	6	3	24	2.0	25.0	9	1.5	1.4
V-notch (3:1 side slopes)	0	3	18	1.0	19.0	9	1.5	1.1
V-notch (3:1 side slopes)	0	2	12	0.4	12.6	9	1.5	0.7
V-notch (3:1 side slopes)	0	1	6	0.1	6.3	9	1.5	0.4

Walter Heap Phase I & II

East perimeter channel length - 2 ft deep v-notch
 West perimeter channel length - 2 ft deep v-notch

Ft	7,000
Ft	7,000

Ft. Knox Reclamation Plan

Cost Estimate - Well Closure - Page 1

		Labor Component
Dewatering Wells	\$ 30,092.37	\$ 15,612.80
Interceptor Wells	\$ 3,560.13	\$ 1,951.60
Monitoring Wells	\$ 2,129.96	\$ 1,219.75
Grand Total	\$ 35,782.46	\$ 18,784.15

Estimated Closure Costs for Well Abandonment

Well #	Diameter	Depth	Stemming Cu. Yd.	Stemming Cost	Bentonite 50# /Bag	Bentonite Cost	Labor	Supervisor	Cost/Well
Dewatering Wells & Piezometers									
DW97-24	6	439	3	\$ 38.31	11	\$ 150.90	\$ 243.95	\$ 44.31	\$ 477.47
DW97-28	6	1312	10	\$ 114.49	21	\$ 291.18	\$ 243.95	\$ 44.31	\$ 693.94
DW98-36	8	714	9	\$ 108.57	24	\$ 339.92	\$ 243.95	\$ 44.31	\$ 736.75
DW98-40	8	693	9	\$ 105.37	24	\$ 334.04	\$ 243.95	\$ 44.31	\$ 727.68
DW98-47	8	641	8	\$ 97.47	23	\$ 319.48	\$ 243.95	\$ 44.31	\$ 705.21
DW98-50	8	390	5	\$ 59.30	18	\$ 249.20	\$ 243.95	\$ 44.31	\$ 596.76
DW98-51	8	598	8	\$ 90.93	22	\$ 307.44	\$ 243.95	\$ 44.31	\$ 686.63
DW99-62	8	735	9	\$ 111.76	25	\$ 345.80	\$ 243.95	\$ 44.31	\$ 745.82
DW99-73	8	1038	13	\$ 157.83	31	\$ 430.64	\$ 243.95	\$ 44.31	\$ 876.73
DW99-75	6	957	7	\$ 83.51	17	\$ 234.14	\$ 243.95	\$ 44.31	\$ 605.91
DW00-78	8	1220	15	\$ 185.50	34	\$ 481.60	\$ 243.95	\$ 44.31	\$ 955.37
DW00-79	8	1015	13	\$ 154.33	30	\$ 424.20	\$ 243.95	\$ 44.31	\$ 866.80
DW01-99	8	600	8	\$ 91.23	22	\$ 308.00	\$ 243.95	\$ 44.31	\$ 687.50
DW01-107	8	990	13	\$ 150.53	30	\$ 417.20	\$ 243.95	\$ 44.31	\$ 856.00
DW01-108	8	1293	16	\$ 196.60	36	\$ 502.04	\$ 243.95	\$ 44.31	\$ 986.91
DW01-112	8	850	11	\$ 129.25	27	\$ 378.00	\$ 243.95	\$ 44.31	\$ 795.51
DW01-117	8	1197	15	\$ 182.01	34	\$ 475.16	\$ 243.95	\$ 44.31	\$ 945.43
DW01-122	8	680	9	\$ 103.40	24	\$ 330.40	\$ 243.95	\$ 44.31	\$ 722.06
DW04-138	8	540	7	\$ 82.11	21	\$ 291.20	\$ 243.95	\$ 44.31	\$ 661.57
DW04-143	8	820	10	\$ 124.68	26	\$ 369.60	\$ 243.95	\$ 44.31	\$ 782.55
DW04-145	8	645	8	\$ 98.07	23	\$ 320.60	\$ 243.95	\$ 44.31	\$ 706.94
DW04-148	8	740	9	\$ 112.52	25	\$ 347.20	\$ 243.95	\$ 44.31	\$ 747.98
PL98-536	2	1269	1	\$ 11.34	2	\$ 29.11	\$ 243.95	\$ 44.31	\$ 328.71
PL98-556	2	1648	1	\$ 14.73	3	\$ 35.35	\$ 243.95	\$ 44.31	\$ 338.34
PL98-35	2	1233	1	\$ 11.02	2	\$ 28.52	\$ 243.95	\$ 44.31	\$ 327.80
PL98-37	2	1274	1	\$ 11.38	2	\$ 29.19	\$ 243.95	\$ 44.31	\$ 328.84
PL98-39	2	1266	1	\$ 11.31	2	\$ 29.06	\$ 243.95	\$ 44.31	\$ 328.64
PL98-41	2	1263	1	\$ 11.29	2	\$ 29.01	\$ 243.95	\$ 44.31	\$ 328.56
PL98-42	2	1526	1	\$ 13.64	2	\$ 33.34	\$ 243.95	\$ 44.31	\$ 335.24
PL-00-82	1 1/2	1077	0	\$ 5.41	1	\$ 14.60	\$ 243.95	\$ 44.31	\$ 308.27
PL-00-83L	1 1/2	801	0	\$ 4.03	1	\$ 12.04	\$ 243.95	\$ 44.31	\$ 304.33
PL-00-83U	1 1/2	1818	1	\$ 9.14	2	\$ 21.46	\$ 243.95	\$ 44.31	\$ 318.86
PL-00-90	2	710	1	\$ 6.34	1	\$ 19.91	\$ 243.95	\$ 44.31	\$ 314.52
PL-00-91	2	692	1	\$ 6.18	1	\$ 19.61	\$ 243.95	\$ 44.31	\$ 314.06
PL-00-92	2	1241	1	\$ 11.09	2	\$ 28.65	\$ 243.95	\$ 44.31	\$ 328.00
PL-00-94	1 1/2	1276	1	\$ 6.41	1	\$ 16.44	\$ 243.95	\$ 44.31	\$ 311.12
PL-01-105	2	755	1	\$ 6.75	1	\$ 20.65	\$ 243.95	\$ 44.31	\$ 315.66
PL-03-109I	2	850	1	\$ 7.60	2	\$ 22.21	\$ 243.95	\$ 44.31	\$ 318.07
PL-03-109S	2	850	1	\$ 7.60	2	\$ 22.21	\$ 243.95	\$ 44.31	\$ 318.07
PL-03-110I	2	848	1	\$ 7.58	2	\$ 22.18	\$ 243.95	\$ 44.31	\$ 318.02
PL-03-110S	2	1574	1	\$ 14.07	2	\$ 34.13	\$ 243.95	\$ 44.31	\$ 336.46
PL-03-113I	2	1336	1	\$ 11.94	2	\$ 30.21	\$ 243.95	\$ 44.31	\$ 330.41
PL-03-113S	2	1427	1	\$ 12.75	2	\$ 31.71	\$ 243.95	\$ 44.31	\$ 332.73
PL-03-114I	2	841	1	\$ 7.52	2	\$ 22.07	\$ 243.95	\$ 44.31	\$ 317.85
PL-03-114S	2	1281	1	\$ 11.45	2	\$ 29.31	\$ 243.95	\$ 44.31	\$ 329.02
PL-03-116I	2	669	0	\$ 5.98	1	\$ 19.24	\$ 243.95	\$ 44.31	\$ 313.48
PL-03-116S	2	1040	1	\$ 9.29	2	\$ 25.34	\$ 243.95	\$ 44.31	\$ 322.90
PL-03-119I	1 1/2	1438	1	\$ 7.23	1	\$ 17.94	\$ 243.95	\$ 44.31	\$ 313.43
PL-03-119S	1 1/2	1803	1	\$ 9.06	2	\$ 21.32	\$ 243.95	\$ 44.31	\$ 318.64
PL-03-124	2	842	1	\$ 7.52	2	\$ 22.08	\$ 243.95	\$ 44.31	\$ 317.87
PL-03-127I	2	1249	1	\$ 11.16	2	\$ 28.78	\$ 243.95	\$ 44.31	\$ 328.21
PL-03-127S	2	1465	1	\$ 13.09	2	\$ 32.33	\$ 243.95	\$ 44.31	\$ 333.69
PL-03-130I	2	891	1	\$ 7.96	2	\$ 22.89	\$ 243.95	\$ 44.31	\$ 319.12
PL-03-130S	2	1529	1	\$ 13.66	2	\$ 33.39	\$ 243.95	\$ 44.31	\$ 335.32
PL-03-131I	1 1/2	1304	1	\$ 6.55	1	\$ 16.70	\$ 243.95	\$ 44.31	\$ 311.52
PL-03-131S	1 1/2	1645	1	\$ 8.27	1	\$ 19.85	\$ 243.95	\$ 44.31	\$ 316.39
PL-04-132	1 1/2	538	0	\$ 2.70	1	\$ 9.61	\$ 243.95	\$ 44.31	\$ 300.58

Cost Estimate - Well Closure - Page 2

Estimated Closure Costs for Well Abandonment

Well #	Diameter	Depth	Stemming Cu. Yd.	Stemming Cost	Bentonite 50#/Bag	Bentonite Cost	Labor	Supervisor	Cost/Well
PL-04-139	2	1438	1	\$12.85	2	\$31.89	\$243.95	\$44.31	\$333.00
PL-04-140	2	1328	1	\$ 11.87	2	\$ 30.08	\$ 243.95	\$ 44.31	\$ 330.21
PL-04-141	2	1256	1	\$ 11.22	2	\$ 28.90	\$ 243.95	\$ 44.31	\$ 328.38
PL-04-142	1 1/2	1367	1	\$ 6.87	1	\$ 17.28	\$ 243.95	\$ 44.31	\$ 312.42
PL-04-144	1 1/2	962	0	\$ 4.84	1	\$ 13.53	\$ 243.95	\$ 44.31	\$ 306.63
PL-04-146	2	937	1	\$ 8.37	2	\$ 23.65	\$ 243.95	\$ 44.31	\$ 320.28
PL-04-146	2	1367	1	\$ 12.22	2	\$ 30.72	\$ 243.95	\$ 44.31	\$ 331.20
Dewatering Well Closure Total									\$ 30,092
Interceptor Wells									
IW-1	6	320	2	\$ 27.93	9	\$ 131.77	\$ 243.95	\$ 44.31	\$ 447.96
IW-2	6	329	2	\$ 28.71	10	\$ 133.22	\$ 243.95	\$ 44.31	\$ 450.19
IW-3	6	310	2	\$ 27.05	9	\$ 130.17	\$ 243.95	\$ 44.31	\$ 445.48
IW-4	6	330	2	\$ 28.80	10	\$ 133.38	\$ 243.95	\$ 44.31	\$ 450.44
IW-5	6	380	3	\$ 33.16	10	\$ 141.41	\$ 243.95	\$ 44.31	\$ 462.84
IW-6	6	380	3	\$ 33.16	10	\$ 141.41	\$ 243.95	\$ 44.31	\$ 462.84
MW-3	6	296	2	\$ 25.83	9	\$ 127.92	\$ 243.95	\$ 44.31	\$ 442.01
MW-5	6	120	1	\$ 10.47	7	\$ 99.63	\$ 243.95	\$ 44.31	\$ 398.37
Interceptor Well Closure Total									\$ 3,560
Monitor Wells									
MW-1	6	305	2	\$ 26.62	9	\$ 129.36	\$ 243.95	\$ 44.31	\$ 444.24
MW-2	6	279	2	\$ 24.35	9	\$ 125.18	\$ 243.95	\$ 44.31	\$ 437.79
MW-4	6	288	2	\$ 25.13	9	\$ 126.63	\$ 243.95	\$ 44.31	\$ 440.03
MW-6	6	150	1	\$ 13.09	7	\$ 104.45	\$ 243.95	\$ 44.31	\$ 405.81
MW-7	6	135	1	\$ 11.78	7	\$ 102.04	\$ 243.95	\$ 44.31	\$ 402.09
Monitor Well Closure Total									\$ 2,130

SUPPORTING INFORMATION - MATERIALS AND AMOUNTS

Hole Diameter	Pi	R ²	Area (sq ft)	ft/cu yd
8" =	3.14159	0.1089	0.342119151	78.9
6" =	3.14159	0.0625	0.196349375	137.5
4" =	3.14159	0.0289	0.090791951	297.4
2" =	3.14159	0.0064	0.020106176	1342.9
1.5" =	3.14159	0.0036	0.011309724	2387.3

Bags surface seal

8" =	6.84	0.68	10.00
6" =	3.93	0.68	5.74
4" =	1.82	0.68	2.65
2" =	0.40	0.68	0.59
1.5" =	0.23	0.68	0.33

Bentonite mixed with stemming

		ft/bag
8" =	17.10596	50
6" =	17.10596	87
4" =	17.10596	188
2" =	17.10596	851
1.5" =	17.10596	1,513

Bentonite:

1 1/2" well	0.15 lb/ft	\$/lb
2" well	0.26 lb/ft	\$/lb
5" well	1.60 lb/ft	\$/lb
6" well	2.31 lb/ft	\$/lb
8" well	4.11 lb/ft	\$/lb

Driller:

1 1/2"	2.36
2"	2.36
6"	2.8
8"	2.8

Stemming Cost \$ 12.00 \$/cy
 Bentonite \$ 14.00 per 50# bag

Ft. Knox Reclamation Plan
Cost Estimate
Post-Reclamation Monitoring

All Post-Reclamation Monitoring by Category				2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2036	2037	2038	2039	2041	2042	2043	2044	2046	2047	2048	2049	2051	2052	2053-2056															
Analytical	\$	257,236		1,300	1,300	1,300	1,300	1,300	1,300	1,300	34,632	34,632	33,332	33,332	20,042	20,042	5,498	5,498	5,498	5,498	5,498	5,498	5,498	4,848	4,848	4,848	650	4,848	4,848	650	4,848	4,848	650	4,848	616	4,848	616	4,848	616	4,848	616	4,848	2,600														
Contract Sampling	\$	237,468									33,264	33,264	32,032	32,032	19,096	19,096	5,236	5,236	5,236	5,236	5,236	5,236	4,620	4,620	4,620		30,000	30,000		30,000	30,000		30,000	30,000		30,000	30,000		30,000	30,000		2,464															
Periodic Dam Safety Inspection	\$	210,000																																																							
Diver Inspection - Freshwater Dam	\$	30,000																																																							
TOTAL MONITORING	\$	734,704		1,300	1,300	1,300	1,300	1,300	1,300	1,300	67,896	67,896	65,364	65,364	39,138	39,138	10,734	10,734	10,734	10,734	10,734	10,734	10,734	9,468	9,468	9,468	5,000	1,266	30,000	9,468	5,000	1,266	30,000	9,468	5,000	1,266	30,000	9,468	5,000	1,266	30,000	9,468	5,064														
Post-Reclamation Analytical Monitoring (Sample and Analysis)																																																									
Sample Type	Analysis Type	Samples/Year	Cost Each	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2036	2037	2038	2039	2041	2042	2043	2044	2046	2047	2048	2049	2051	2052	2053-2056															
Fort Knox-755100515				1	1	1	1	1	1	1	27	27	26	26	17	17	17	17	17	17	17	17	17	15	15	15	0	2	0	15	0	2	0	15	0	2	0	15	0	2	0	15	0	2	0	15	1										
Analytical Costs																																																									
Upper Wetlands	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																															
Lower Wetlands	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Water Reservoir	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Water Reservoir IML Dup	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Water Dam Seepage	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Tailings Seepage	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Tailings Seepage IML Dup	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Tailings Decant	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Duplicate	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Rinse Blank	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Surface Compliance Point	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
Pit Lake	profile I	4	\$ 325	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																													
HL PCMS	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
HL Underdrain System	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
HL In-Heap Storage Pond	profile I	4	\$ 325								\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 1,300	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325	\$ 325																														
MW-1	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-2	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-3	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-4	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-5 (Monitor)	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-6 (Monitor)	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
MW-7 (Monitor)	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
IW-1	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
IW-2	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
IW-3	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
IW-4	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316	\$ 316																														
IW-5	profile II	4	\$ 316								\$ 1,264	\$ 1,264	\$ 1,264	\$ 1,264	\$ 1																																										