Table 5I-1 - Cut and Fill Summary
Areas TS-3 Through TS-9

Area	Fill (-) Volume (cu. yd.)	Cut (+) volume (cu. yd.)	Excess Volume (cu. yd.)[1]
TS-3	1,454	1,468	14
TS-4	3,460	3,473	13
TS-5	25,157	39,907	14,750
TS-6	5,573	8,126	2,553
TS-7	18,037	6,445	-11,592
TS-8	7,022	3,666	-3,356
TS-9	~~5,851~~10,954	~~5,889~~ 10,911	~~38~~ 43
Cumulative Balanced Volume (cu. yd.) =			~~2,420~~ 2,377

[1] An excess volume of 2,420 cu. Yds. will be generated based on the contours shown on Plates 5-6. This excess is generated in Reclamation Area TS-5, and demonstrates that there is adequate material for reclamation. During reclamation, actual contours in TS-5 can be varied in the areas of cut to eliminate this excess cut. This excess material may also be used to cover any soil found to be unsuitable at the time of reclamation.

File in:
☐ Confidential
☐ Shelf
☒ Expandable
Refer to Record No 0027 Date 7/15/2008
In C/0150025, 2008, Incoming
For additional information

TS-9 Sediment Pond C and Bathhouse Pad

The material generated for the bathhouse parking area will be used as fill material for Sediment Pond C and the ditch leading from the Bathhouse Pad to Sediment Pond C. The 1,200 cu. yd. topsoil stockpile created during the construction of the bathhouse pad will be used in conjunction with the substitute topsoil generated from the bathhouse pad.

Table 5I-8 - Area TS-9 Cut & Fill summary

	Fill (-) Volumes (cu. yd.)			Cut (+) Volumes (cu. yd.)			**Volume Cumulative (cu. yd.)**
Section	Topsoil	Substitute Topsoil	Regular Soil	Topsoil	Substitute Topsoil	Regular Soil	
D-D	1,200*	1,762	~~2,899*~~ 7,992	~~1,200~~ 1,483	2,561	~~2,128~~ 6,867	~~28~~ -43

* It was assumed that sediment Pond C would contain 98 cu. yd. of sediment at the start of reclamation. 1,200 cu. yd. of material will come from the Wild Horse Ridge topsoil stockpile, which was originally recovered from the Bathhouse Pad.

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Table 7-23 Summary of Storm Runoff Calculations for 10 Year 6 Hour Storm

Watershed	Curve Number CN	Time of Concentration (Hr)	Drainage Area (Acres)	Peak Discharge (CFS)
AU-1	76	0.094	6.46	0.83
AU-1A	83	0.032	1.36	0.51
AU-1B	83	0.026	1.16	0.44
AU-1C	76	0.120	~~16.40~~ 16.04	1.95
AU-2	76	0.075	2.23	0.30
AU-2A	76	0.077	1.64	0.22
AU-2B	76	0.081	3.80	0.51
AU-3	76	0.078	3.87	0.52
AU-3A	76	0.016	0.30	0.05
AU-4	76	0.093	7.97	1.02
AU-4A	83	0.029	0.92	0.35
AU-5	76	0.104	20.14	2.51
AU-6	76	0.059	2.73	0.39
AU-7	76	0.094	13.46	1.72
AU-8	76	0.050	4.95	0.72
AU-9	76	0.100	4.77	0.60
AU-10	76	0.137	35.52	4.05
AU-11	76	0.045	0.62	0.09
AU-12	76	0.050	2.33	0.34
AU-13	76	0.022	0.66	0.10
AU-14	76	0.050	2.43	0.35
AU-15	76	0.058	0.91	0.13
AU-16	76	0.152	44.93	4.92
AU-17	76	0.152	30.10	3.29
AU-18	76	0.152	36.55	4.00
AU-19	76	0.144	36.03	4.03

Table 7-23 Summary of Storm Runoff Calculations for 10 Year 6 Hour Storm (cont)

Watershed	Curve Number CN	Time of Concentration (Hr)	Drainage Area (Acres)	Peak Discharge (CFS)
AD-1A	76	0.090	3.70	0.48
AD-1B	76	0.037	2.12	0.32
AD-2A	76	0.040	0.97	0.15
AD-2B	83	0.025	1.08	0.41
AD-2C	83	0.012	0.25	0.10
AD-3A	76	0.034	1.49	0.23
AD-3B	76	0.034	0.78	0.12
AD-4	83	0.011	0.08	0.03
AD-5	76	0.056	2.13	0.30
AD-6	90	0.220	1.39	0.81
AD-7	90	0.145	2.95	1.83
AD-8 upper	90	0.021	0.70	0.48
AD-8 lower	90	0.247	2.79	1.59
AD-9	90	0.069	0.35	0.23
AD-10 upper	90	0.026	0.30	0.20
AD-10 lower	90	0.078	0.65	0.42
AD-11	95	0.011	0.69	0.65
AD-12 upper	90	0.020	0.22	0.15
AD-12 lower	90	0.076	0.34	0.22
AD-13	91	0.106	1.78	1.23
AD-14	90	0.009	0.08	0.05
AD-15	90	0.069	~~1.83~~ 2.19	~~1.20~~ 1.44
AD-16	90	0.030	0.77	1.24
AD-17	90	0.019	0.24	0.16
AD-18	90	0.170	0.9	0.55
AD-19	90	0.009	0.15	0.10
AD-20	90	0.0102	0.65	0.44
AD-21	90	0.0061	0.23	0.16

[1] Sized for the 100 Yr – 6 hr storm event.

Table 7-24 Summary of Division Ditch Calculations

Ditch	Bottom Width (Ft)	Top Width (Ft)	Depth (Ft)	Type Side Slope H:V	Measure d Slope %	Contributing Watershed	REQ'D Av. Rip-Rap Size (In.)
D-1D	0	1.33	0.67	1:1	2 Min 11 Max	AD-3A	Soil
D-2D	0	1.33	0.67	1:1	6 Min 20 Max	AD-3A, AD-5	Bedrock
D-3D	0	2	1	1:1	2 Min 6 Av. 18 Max	AD-3A, AD-5, AD-7	Soil Soil Grouted
D-4D	0	2	1	1:1	2 Min 6 Av. 17 Max	AD-14	Soil Soil D_{50} 6"
D-5D	0	1.33	0.67	1:1	4 Min 10 Max	AD-9	Soil
D-6D	0	3	1.5	1:1	2 Min 4 Max	AD-3A, AD-5 AD-7, AD-9, AD-10 AD-12, AD-14	Soil
D-7D	2	3.5	0.75	1.5:1	2 Min 6 Av. 55 Max	AD-1A, AD-1B, AD-2A AD-2B, AD-2C, AD-3B AD-4, AD-6, AD-8	Soil Soil D_{50} 6"
D-8D	0	2	1	1:1	2 Min 7 Max	AD-13	Soil
D-8D Water Bar	0	14	0.33	6:1	3 Av.	AD-13	Soil
D-9D	~~0~~1	2	1	1:1	4 Min 10	AD-15	Soil
D-10D	1	3.33	0.67	1.5:1	7 Min 50	AD-6, AD-3B, (part) AD-2B, AD-2C	D_{50} 4" Bedrock
D-11D	0	1	0.5	1:1	41 Min Near Vert.	Tipple Wash Hose	Grouted Rip-Rap
D-12D	0	1	0.5	1:1	81 Av.	Tipple Wash Hose	Soil
D-13D Water Shed	0	6	0.5	10:1 2:1	0.5 Av.	AD-6 Partial	Soil
D-14D	0	1.33	0.67	1.5:1	0.06 Av.	AU-4A	Soil
D-15D	0	2.00	1.00	1:1	0.05 Av.	AD-16	Soil
D-16D	0	1.50	1.75	1:1	0.05 Av.	AD-18	Soil
D-17D	0	.96	1	1:1	0.08 Av.	AU-23, AD-20	Soil

Notes: 1. Dimensions given indicate minimum requirements. Actual dimensions may vary. Minimum required cross-sections will be maintained.

2. The use of line drainage ditches is required when flow velocities exceed approximately 5 feet per second. Rip-rap may be installed where not required.

Table 7-25 Culvert Characteristics (Cont)

Culvert	Diameter (in.)	Type	Contributing Watersheds	Slope (ft/ft)	Outlet Condition
C-1D	15	CMP flexible	AD-6, AD-3B	1.00	24" rip-rap
C-2D	15	CMP, RCP flexible	AD-2B, AD-2C, AD-3B, AD-4, AD-6	4.0	10" rip-rap
C-3D	20	slt pipe	AD-3A	0.03	4" rip-rap
C-4D	21	CMP	AD-3A, AD-5, AD-7, AD-14, C-10D	0.18	9" rip-rap
C-5D	18	CMP	AD-34, AD-5, AD-7, AD-9	0.07	rip-rap
C-6D	12	CMP	AD-10	0.48	9" rip-rap
C-7D	18	CMP	Abandoned In Place		
C-8D			Replaced with C-5D-		
C-9D	18	CMP	See C-8D	0.05	3" rip-rap
C-10D	18	CMP	Tipple Wash Hose	0.03	Soil
C-11D	12	CMP flexible	AD-4A	0.05 0.25	3" rip-rap
C-12D	8	CMP	AD-18	0.05	Soil
C-13D	12	CMP	AU-23, AD-20	0.07	Soil
C-14D	18	CMP	AD-13	0.06	Soil

Worksheet
Worksheet for Circular Channel

Project Description	
Worksheet	C-8D
Flow Element	Circular Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.024	
Slope	060000	ft/ft
Diameter	18	in
Discharge	1.23	cfs

Results		
Depth	0.30	ft
Flow Area	0.3	ft²
Wetted Perimeter	1.39	ft
Top Width	1.20	ft
Critical Depth	0.41	ft
Percent Full	20.1	%
Critical Slope	0.016734	ft/ft
Velocity	4.86	ft/s
Velocity Head	0.37	ft
Specific Energy	0.67	ft
Froude Number	1.87	
Maximum Discharge	14.99	cfs
Discharge Full	13.94	cfs
Slope Full	0.0026	ft/ft
Flow Type	Supercritical	

Area AD-8 Drainage, 1993

In 1993, the inlet to culvert C-7D failed, resulting in NOV 93-35-6-1. In order to eliminate the maintenance problems with culvert C-7D, the south end of drainage area AD-8, the coal storage pad, will be regraded to allow the drainage to flow into ditch D-7D below the fans shown on Plate 2-4C. At this point, the storage pad is level with D-7D, allowing drainage to easily flow into the ditch. The berm around the coal storage pad will prevent drainage over the edge of the pad and direct the flow toward ditch D-7D. The point at which the storage pad intersects D-7D is outside of the angle of repose of the coal pile, and the ditch will not be plugged by coal spillage. A catch basin exists just below this point which will trap any coal fines which may be washed into the drainage, protecting ditch D-7D below this point.

Ditch D-8D Water Bar / C-14D

In 1996, Co-Op observed that erosion problems existed which were associated with the water bar conveying runoff from Ditch D-8D to the inlet of Sediment Pond "B" as a result of water associated with the Water Truck. In order to eliminate these problems, the water bar and associated channel will be grouted using an 8" concrete slab. This will prevent the channel from eroding. Figure 7-15 shows a typical cross-section of the concrete crossing. A steel bridge structure and swell provides vehicle crossing as shown in the figure. The bridge is designed so that the water bar design cross-section is maintained passing under it. The water bar has been removed to allow the main access road to be widened to accommodate safer travel through the area. It will be replaced with C-14D so the drainage area AD-13 will continue to drain into Pond "B". This will also eliminate or reduce the erosion problem occurring on the roadside of Pond "B" where the water bar currently drains into Pond "B"

WATERSHED CHARACTERISTICS

Disturbed Areas

P = 1.5"

Watershed	CN	Area (Ac.)	Slope y (%)	Hyd length 1 (ft.)	$S=\frac{1000}{-10\ CN}$	$L=\frac{1^{.8}(s+1)^{.7}}{1900Y^{.5}}$	T=1.67L Time of Conc (hr)
1AD-1A	76	3.70	66	1,300	3.16	0.050	0.090
AD-1B	76	2.12	95.5	520	3.16	0.022	0.037
AD-2A	76	0.97	72	440	3.16	0.020	0.040
AD-2B	83	1.08	59	32 0	2.05	0.015	0.025
AD-2C	83	0.25	64	140	2.05	0.007	0.012
AD-3A	76	1.49	70	400	3.16	0.021	0.034
AD-3B	76	0.78	71	400	3.16	0.020	0.034
AD-4	83	0.08	49	100	2.05	0.007	0.011
AD-5	76	2.13	73	760	3.16	0.034	0.056
AD-6	90	1.39	1.7	720	1.11	0.131	0.220
AD-7	90	2.95	8.0	1,130	1.11	0.087	0.145
AD-8 upper	90	0.70	70	400	1.11	0.013	0.021
AD-8 lower	90	2.79	1.0	600	1.11	0.148	0.247
AD-9	90	0.35	7.2	420	1.11	0.042	0.069
AD-10 upper	90	0.30	34	320	1.11	0.01 5	0.026
AD-10 lower	90	0 .65	2.0	220	1.11	0.047	0.078
AD-11	95	0.69	20	110	0.53	0.007	0.011
AD-12 upper	90	0.22	64	340	1.11	0.012	0.020
AD-12 lower	90	0.34	8.0	500	1.11	0.045	0.076
AD-13	91	1.78	8.0	800	0.99	0.063	0.106
AD-14	90	0.08	61	120	1.11	0.005	0.009
AD-15	90	~~1.83~~ 2.19	10.5	530	1.11	0.041	0.069
AD-16*	90	0.77	22	303	1.11	0.018	0.030
AD-17*	90	0.24	27	190	1.11	0.011	0.019
AD-18	90	0.9	3.2	771	1.11	0.102	0.170
AD-19*	90	0.15	49.24	109	1.11	0.005	0.009
AD-20*	90	0.47	30.48	204	1.11	0.0113	0.019

*Areas AD-16, AD-17 and AD-19 are ASCA areas treated by alternate sediment controls.

WATERSHED CHARACTERISTICS

Undisturbed Areas
and ASCA Areas Not Reporting To Sediment Pond

P = 1.5"

Watershed	CN	Area (Ac.)	Slope y (%)	Hyd length l (ft.)	$\frac{1000}{S=-10\ CN}$	$\frac{l^{.8}(s+1)^{.7}}{L=1900Y^{.5}}$	T=1.67L Time of Conc (hr)
AU-1	76	6.46	57	1,240	3.16	0.056	0.094
AU-1A	83	1.36	65	460	2.05	0.019	0.032
AU-1B	83	1.16	59	330	2.05	0.015	0.026
AU-1C	76	~~16.40~~16.04	72	1,950	3.16	0.072	0.120
AU-2	76	2.23	62	975	3.16	0.045	0.075
AU-2A	76	1.64	63	1,025	3.16	0.046	0.077
AU-2B	76	3.80	63	1,100	3.16	0.049	0.081
AU-3	76	3.87	65	1,060	3.16	0.047	0.078
AU-3A	76	0.30	64	140	3.16	0.009	0.016
AU-4	76	7.97	63	1,300	3.16	0.056	0.093
AU-4A	83	0.92	52	357	2.05	0.018	0.029
AU-5	76	20.14	77.3	1,700	3.16	0.062	0.104
AU-6	76	2.73	70.0	780	3.16	0.035	0.059
AU-7	76	13.46	69.4	1,400	3.16	0.056	0.094
AU-8	76	4.95	85.7	720	3.16	0.030	0.050
AU-9	76	4.77	64.8	1,440	3.16	0.060	0.100
AU-10	76	35.52	76.1	2,380	3.16	0.082	0.137
AU-11	76	0.62	73.0	570	3.16	0.027	0.045
AU-12	76	2.33	44.1	480	3.16	0.030	0.050
AU-13	76	0.66	77.5	240	3.16	0.013	0.022
AU-14	76	2.43	66.7	620	3.16	0.030	0.050
AU-15	76	0.91	15.6	300	3.16	0.035	0.058
AU-16	76	44.93	71.0	2,580	3.16	0.091	0.152
AU-17	76	30.10	71.0	2,580	3.16	0.091	0.152
AU-18	76	36.55	71.0	2,580	3.16	0.091	0.152
AU-19	76	36.03	60.5	2,190	3.16	0.086	0.144
AU-20	76	20.55	57.6	1,880	3.16	0.078	0.131
AU-21	76	9.45	48.4	1,360	3.16	0.066	0.110
AU-22	76	12.05	60.3	1,120	3.16	0.051	0.084

Summary of Peak Flows for 10-year, 6-hour storm P=1.5"
(SCS type B distribution)

1 Watershed	Peak Q (cfs.)	Watershed	Peak Q (cfs)	Watershed	Peak Q (cfs)
AD-1A	0.48	AU-1B	0.44	AU-23	0.78
AD-1B	0.32	AU-1B	0.44	AU-24	1.66
AD-2A	0.15	AU-1C	1.95	AU-25	0.30
AD-2B	0.41	AU-2	0.30	AU-26	0.10
AD-2C	0.10	AU-2A	0.22	AU-27	0.03
AD-3A	0.23	AU-2B	0.50	AU-28	0.10
AD-3B	0.12	AU-3	0.52	AU-29	0.29
AD-4	0.03	AU-3A	0.05	AU-29A	0.67
AD-5	0.30	AU-4	1.02	AU-30	0.08
AD-6	0.81	AU-4A	0.35	AU-31	0.32
AD-7	1.83	AU-5	2.51	AU-32	0.28
AD-8 upper	0.48	AU-6	0.39	AU-33	0.11
AD-8 lower	1.59	AU-7	1.72	AU-34	0.27
AD-9	0.23	AU-8	0.72	AU-35	0.13
AD-10 upper	0.20	AU-9	0.60	AU-36	0.12
AD-10 lower	0.42	AU-10	4.05	AU-37	13.64
AD-11	0.65	AU-11	0.09	AU-38	1.15
AD-12 upper	0.15	AU-12	0.34	AU-39	0.18
AD-12 lower	0.22	AU-13	0.10	AU-40	15.96
AD-13	1.23	AU-14	0.35	AU-41	1.46
AD-14	0.05	AU-15	0.13	AU-42	0.67
AD-15	~~1.20~~1.44	AU-16	4.92	AU-43	1.75
AD-16	1.24	AU-17	3.29	BEAR CREEK	108.18
AD-17	0.16	AU-18	4.00	BEAR CREEK[1]	412.70
AD-18	0.55	AU-19	4.03		
AD-19	0.10	AU-20	2.37		
AU-1	0.83	AU-21	1.15		

PEAK
HYDROGRAPH GENERATION PROGRAM

INPUT SUMMARY FOR W.S.: AD-14

STORM:	WATERSHED:
Distribution = SCS Type 'B'	Curve Number = 90
Precip. Depth = 1.50 in	Time of Conc. = 0.009 hrs
Duration = 6.00 hr	Area = 0.08 ac

OUTPUT SUMMARY

Runoff depth = 0.6835 in
Initial Abstraction = 0.2222 in
Peak Flow = 0.05 cfs (0.6792 iph)
At T = 2.50 hrs

INPUT SUMMARY FOR W.S.: AD-15

STORM:	WATERSHED:
Distribution = SCS Type 'B'	Curve Number = 90
Precip. Depth = 1.50 in	Time of Conc. = 0.069 hr
Duration = 6.00 hr	Area = ~~1.83~~ 2.19 ac

OUTPUT SUMMARY

Runoff depth = 0.6835 in
Initial Abstraction = 0.2222 in
Peak Flow = ~~1.20~~1.44 cfs (~~0.6506~~0.6513 iph)
At T = 2.5~~0~~1 hrs

PEAK
HYDROGRAPH GENERATION PROGRAM

INPUT SUMMARY FOR W.S.: AU-1B

STORM:	WATERSHED:
Distribution = SCS Type 'B'	Curve Number = 83
Precip. Depth = 1.50 in	Time of Conc. = 0.026 hr
Duration = 6.00 hr	Area = 1.16 ac

OUTPUT SUMMARY

Runoff depth = 0.3788 in
Initial Abstraction = 0.4096 in
Peak Flow = 0.44 cfs (0.3753 iph)
At T = 2.50 hrs

INPUT SUMMARY FOR W.S.: AU-1C

STORM:	WATERSHED:
Distribution = SCS Type 'B'	Curve Number = 76
Precip. Depth = 1.50 in	Time of Conc. = 0.120 hr
Duration = 6.00 hr	Area = ~~16.40~~ 16.04ac

OUTPUT SUMMARY

Runoff depth = 0.1873 in
Initial Abstraction = 0.6316 in
Peak Flow = 1.95 cfs (0.1180 iph)
At T = 2.54 hrs

DITCH CHARACTERISTICS

DITCH	CHANNEL SLOPE %	CONTRIBUTING WATERSHED	PEAK Q(cfs)	BANK AND BOTTOM DESC.	MANNING'S $\eta^{(a)}$
D-1D	2 Min, 11 Max	AD-3A	0.23	Rocky Soil	0.03
D-2D	6 Min, 20 Max	AD-3A, AD-5	0.53	Rocky Soil, Bedrock	0.03
D-3D		Replaced with C-5D			
D-4D	2 Min, 7 Av 17 Max	AD-14	0.05	Soil	0.03
D-5D		Replaced with C-5D			
D-6D	2 Min, 4 Max	AD-3A, AD-5, AD-7 AD-9, AD-10, AD-12 AD-14	3.63	Rocky Soil	0.03
D-7D	2 Min, 6 Av 55 Max	AD-1A, AD-1B, AD-2A AD-2B, AD-2C, AD-3B AD-4, AD-6, AD-8	4.90	Soil D_{50} 3"	0.03 0.033
D-8D	2 Min, 7 Max	AD-13	1.23	Soil	0.03
D-8D Water Bar	3 Av.	AD-13	1.23	Soil	0.013
D-9D	4 Min, 10 Max	AD-15	~~1.20~~ 1.44	Soil	0.03
D-10D	7 Min, 50 Max	AD-6, AD-3B, AD-2C	1.03	D_{50} 4"	0.033
D-11D	41 Min Near Vertical Max	TIPPLE WASH HOSE	0.25	Grouted rip-rap	0.035
D-12D	81 Av.	TIPPLE WASH HOSE	0.25	Grouted	0.03
D-13D Water Bar	0.5 Av.	AD-6 Partial	0.23	Soil	0.03
D-14D	0.06 Av.	AU-4A	0.35	Soil	0.03
D-15D	0.05 Av.	AD-16	1.24	Soil	0.03
D-16D	0.05 Av.	AD-18	0.55	Soil	0.03
D-17D	0.08	AU-23,AD-20	0.99		

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	DITCH D-9D
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Slope	0.040000	ft/ft
Left Side Slope	1.00	V : H
Right Side Slope	1.00	V : H
Bottom Width	1.00	ft
Discharge	1.44	cfs

Results		
Depth	0.31	ft
Flow Area	0.4	ft²
Wetted Perimeter	1.87	ft
Top Width	1.55	ft
Critical Depth	0.35	ft
Critical Slope	0.024744	ft/ft
Velocity	3.56	ft/s
Velocity Head	0.20	ft
Specific Energy	0.51	ft
Froude Number	1.26	
Flow Type	Supercritical	

Use Minimum Depth = 1 ft Velocity < 5 fps	Minimum Freeboard = 0.69 ft No rip-rap rquired

Worksheet
Worksheet for Trapezoidal Channel

Project Description	
Worksheet	DITCH D-9D (Max Slope)
Flow Element	Trapezoidal Channel
Method	Manning's Formula
Solve For	Channel Depth

Input Data		
Mannings Coefficient	0.030	
Slope	0.100000	ft/ft
Left Side Slope	1.00	V : H
Right Side Slope	1.00	V : H
Bottom Width	1.00	ft
Discharge	1.44	cfs

Results		
Depth	0.24	ft
Flow Area	0.3	ft²
Wetted Perimeter	1.67	ft
Top Width	1.47	ft
Critical Depth	0.35	ft
Critical Slope	0.024744	ft/ft
Velocity	4.941	ft/s
Velocity Head	0.37	ft
Specific Energy	0.61	ft
Froude Number	1.94	
Flow Type	Supercritical	

Pavement

02220-875-1750 (Pavement Removal 3")

Area = ~~1,450~~ 4,182square yards (~~1,200~~ 4,008 at Bath-House, 174 at load-out)
Cost = ($3.85 /sq yd) (1,374 sq yd) = $~~5,290~~16,101
Time = (1,374 sq yd) / (420 sq yd/day) = ~~3.27~~9.96 days

Asphalt will be relayed at Trail Canyon

Volume = (~~114~~ 348 CY) (2 tons/yd) (1.3 swell factor) = ~~297~~ 905Tons
16 ton truck; distance to haul approx. 4 miles round trip = ~~3.8~~ 57trips/day
Time = (~~114~~ 348cu yd)/(128 cu yd/day) = ~~0.89~~ 2.72days

01590-200- 5300 Dump Truck Cost = ($823.88/day) (2.72 days) = $~~824~~ 2,472

Cost Subtotal	$~~6,114~~ 18,573
Time Subtotal	~~4.2~~ 12.7days

Shower House

02220-100-0100 (Framed Portion, includes disposal)

Volume = (92 ft) (50 ft) (8 ft) = 36,800 cu ft
Cost = ($ 0.24 /cu ft) (36,800 cu ft) = $ 8,832
Dump Fee = ((36,800 cu ft) / 27) (0.3 rubble volume) (1.35 tons/cy) ($7.00/ton) = $3,864
Time = (36,800 cu ft) / (20,100 cu ft/day) = 1.83 days

02220-100-0080 (Masonry Portion, includes disposal)

Volume = (92 ft) (50 ft) (8 ft) = 36,800 cu ft
Boot wash Volume = (12 ft) (5.5 ft) (8 ft) = 528 cu ft
Cost = ($ 0.24 /cu ft) (37,328 cu ft) = $ 8,959
Dump Fee = ((37,328 cu ft) / 27) (0.3 rubble volume) (1.35 tons/cy) ($7.00/ton) = $3,919
Time = (37,328 cu ft) / (20,100 cu ft/day) = 1.86 days

Concrete Demolition

Foundation Volume = (0.67 ft) (2 ft) (284 ft) = (380.6 cu ft) / 27 = 14.1 cu yds
Footing Volume = (0.67 ft) (2 ft) (319 ft) = (427.5 cu ft) / 27 = 15.8 cu yds
Floor Volume = (92 ft) (50 ft) (0.33 ft) = (1518 cu ft) / (27) = 56.2 cu yds
Boot wash Floor Volume =(12 ft) (5.5 ft)(0.33 ft) = (21.8) / 27 = 0.81 cu yds
Total Volume = 86.9 cu yds
Cost = (86.9 CY) ($12.78/CY) = $1,111
Time = (638 s.f.) / (180 s.f./day) + (319 L.F.) / (300 L.F./day) + (4,666 s.f.) / (500 s.f./day) = 13.94 days

02220-875-5550 (Concrete Disposal on Site) 002315-400-1300 (3 CY loader) 02320-200-0320 (16 ton truck)

Volume = (86.9 CY) (1.3 swell factor) = 113.0
Cost = (113 CY) ($10.69/CY) = $1,208
Time = (113 cu. yds) / (232 cu. yds/day) = 0.49 days

Cost Subtotal	$ 27,893
Time Subtotal	18.12 days

Scale House and Sediment Pond B (TS-3)
See Appendix 3L, Table 3L-2

Cut Subtotal 1,454 cu yds
Fill Subtotal 1,454 cu yds

Sediment Pond "A" (TS-4)
See Appendix 3-L, Table 3L-3.

~~Cut (350 sq ft) x (120ft) = 42,000 cu ft =~~ Cut Subtotal =3,460 cu yds
~~Fill (350 sq ft) x (120ft) = 42,000 cu ft =~~ Fill Subtotal =3,460 cu yds

Shower House and Sediment Pond C (TS-9)
See Appendix ~~3-L~~5-I, Table ~~3L~~5I-8.

~~Cut (500 sq ft) x (185ft) = 92,500 cu ft =~~ Cut Subtotal ~~=5,851~~ 10,954cu yds
~~Fill (500 sq ft) x (185ft) = 92,500 cu ft =~~ Fill Subtotal ~~=5,851~~10,954 cu yds

Wild Horse Ridge (TS-12 thru TS-15)
See Appendix 3-O, Table 3O-2, 3 & 4

Cut Subtotal = 23,641 cu yds
Fill Subtotal = 23,641 cu yds

Note: Approximately 12,500 cu yds of the Wild Horse Ridge volume will be regraded using a D9 dozer, and the remaining volume will regraded using a 330BL Excavator.

Wild Horse Ridge Tank Seam (TS-16 thru TS-17)
See Appendix 3-P.

Cut Subtotal 11,089 cu yds
Fill Subtotal 11,089 cu yds

Cut Total = 112,025 cu yds
Fill Total = 112,025 cu yds

SOIL PLACEMENT

Areas		Earth Moved	Cu Yds	Equipment Used	Cost/hr	Time (hrs)	Cost
Tank Seam Access Road & Portal Pad (TS-10 & TS-11)	Cut	Cut	20,310	330BL	$153.13	20.2	$ 3,093
	Fill	20,310					
		Hauled	10,661				
Upper Storage Pad (TS-8)	Cut	3,666		330BL	$153.13	14.6	$ 2,236
		Fill	7,022				
Portal Pad Area & Road (TS-7)		Cut	6,445	330BL	$153.13	37.7	$5,773
		Fill	18,037				
Portal Access Road (TS-6)	Cut	8,126		330BL	$153.13	11.65	$ 1,784
		Fill	5,573				
		Excess Cut	2,553	included in fill volumes above			
Coal Storage Pad (TS-5)		Cut	40,585	D9 Cat	$190.80	50.3	$ 9,597
		Fill	25,157				
		Excess Cut	15,428	included in fill volumes above			
Scale House/ Sed Pond B (TS-3)		Cut	1,454	D9 Cat	$190.80	2.9	$ 553
		Fill	1,454				
Sediment Pond "A" (TS-4)	Cut	3,460		D9 Cat	$190.80	6.9	$ 1,317
		Fill	3,460				
Shower House/ Sed Pond C (TS-9)	Cut	~~5,851~~ 10,954		D9 Cat	$190.80	~~11.7~~ 21.9	$ ~~2,232~~ 4,178
		Fill	~~5,851~~ 10,954				
Wild Horse Ridge Area*** (TS-12 thru TS-15)	Cut	11,141		330BL	$153.13	23.3	$ 3,568
		12,500		D9 Cat	$190.80	25.0	$ 4,770
		Fill	23,641				
Wild Horse Ridge Tank Seam (TS-16 thru TS-17)	Cut	1,016		D9 Cat	$153.13	1.87	$ 286
			10,073	330BL	$190.80	20.1	$ 3,835
	Fill	11,089					
Totals		Cut	~~110,462~~ 125,138			~~219.82~~ 236.42	~~$ 39,044~~ 40,990
		Fill	~~110,708~~ 126,697			(27.48 days)	

*See Appendix 3-L and the following page.

**Excess Cut will be hauled from TS-5 and TS-6 to TS-7 and TS-8, as discussed in Appendix 3-L.

***Wild Horse Ridge material being relocated with the excavator will be hauled an average distance of 200 ft, as shown on the following pages.

e. Revegetation

Hydroseeding (Section 9.5)

C0150256 (Hydro Spreader)
Area = ~~38.3~~ 38.7acres = ~~1,669~~ 1,686MSF
Cost = ($~~19.85~~ 20.95/MSF) (~~1,669~~ 1686MSF) = $~~33,130~~ 35,322

C0150255 (Tractor Spreader)
Area = ~~38.3~~ 38.7acres = ~~1,669~~ 1,686MSF
Cost = ($~~10.28~~12.71/MSF) (~~1,669~~ 1,686MSF) = $~~17,157~~ 21,429

C0150251 (Seed Material)
Area =~~38.3~~ 38.7acres
Cost = ($~~974.10~~ 533.38/acre) (~~38.3~~ 38.7) = $~~37,308~~ 20,642

C0150253 (Hydromulch)
Area = ~~38.3~~ 38.7
Cost = ($~~410.25~~ 523.95/acre) (~~38.3~~ 38.7) = $~~15,712~~ 20,277

C0150252 (~~3,704~~ 10,700Seedlings)
Cost = ($~~0.77~~ 1.71each) (~~3834~~ 10,700) = $~~2,952~~ 18,297

02370-550-0120 Install Matting (Section 9.5)
Cost = ($~~7.5~~ 7.00sys) (~~29,040~~ 4,840) = $ ~~217,800~~ 203,280

02315-400-0260 (Pocking)
Cost = ($~~1.56~~ 1.86/cu yd) (~~29,689~~ 340cu yd) = $~~46,315~~ 10,435

Assume 25% reseeding = $~~92,594~~ 82,420

Time = (~~38.3~~ 38.7acres) / (4 acres/day) = ~~9.58~~ 9.68 days

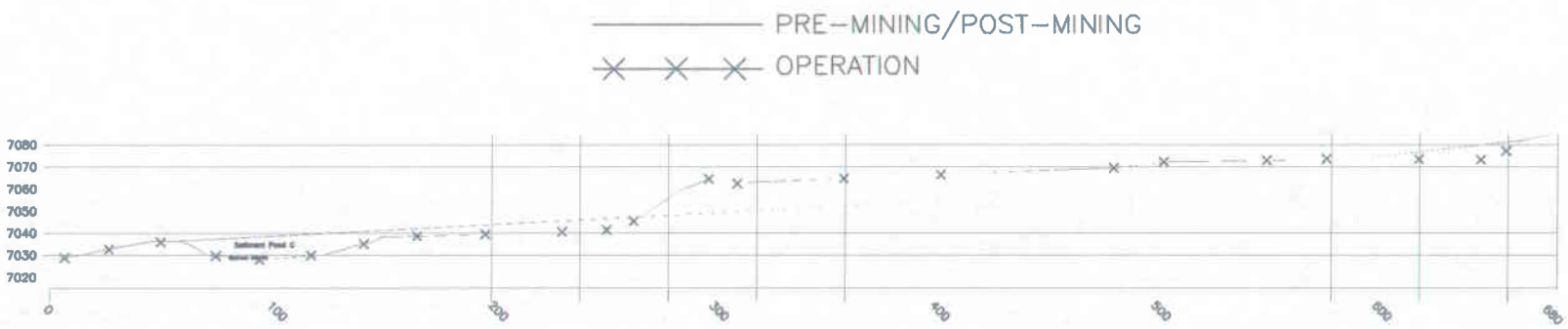
Cost Total $~~462,968~~412,102
Time Total ~~9.58~~9.68 days

f. Monitor Well Plugging
Assume $5,000 per well

The above listed costs include reclamation costs added between 1985 and the latest modification.

SECTION D–D

SEDIMENT POND "C"



05/09/08

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