

00-4

Summary Report

WATERSHED RESTORATION UNIT 00-4

C-LINE NORTH

Super Duper Condensed Executive Summary Version

Jim Howard

Redwood National Park

June, 2001

4-00

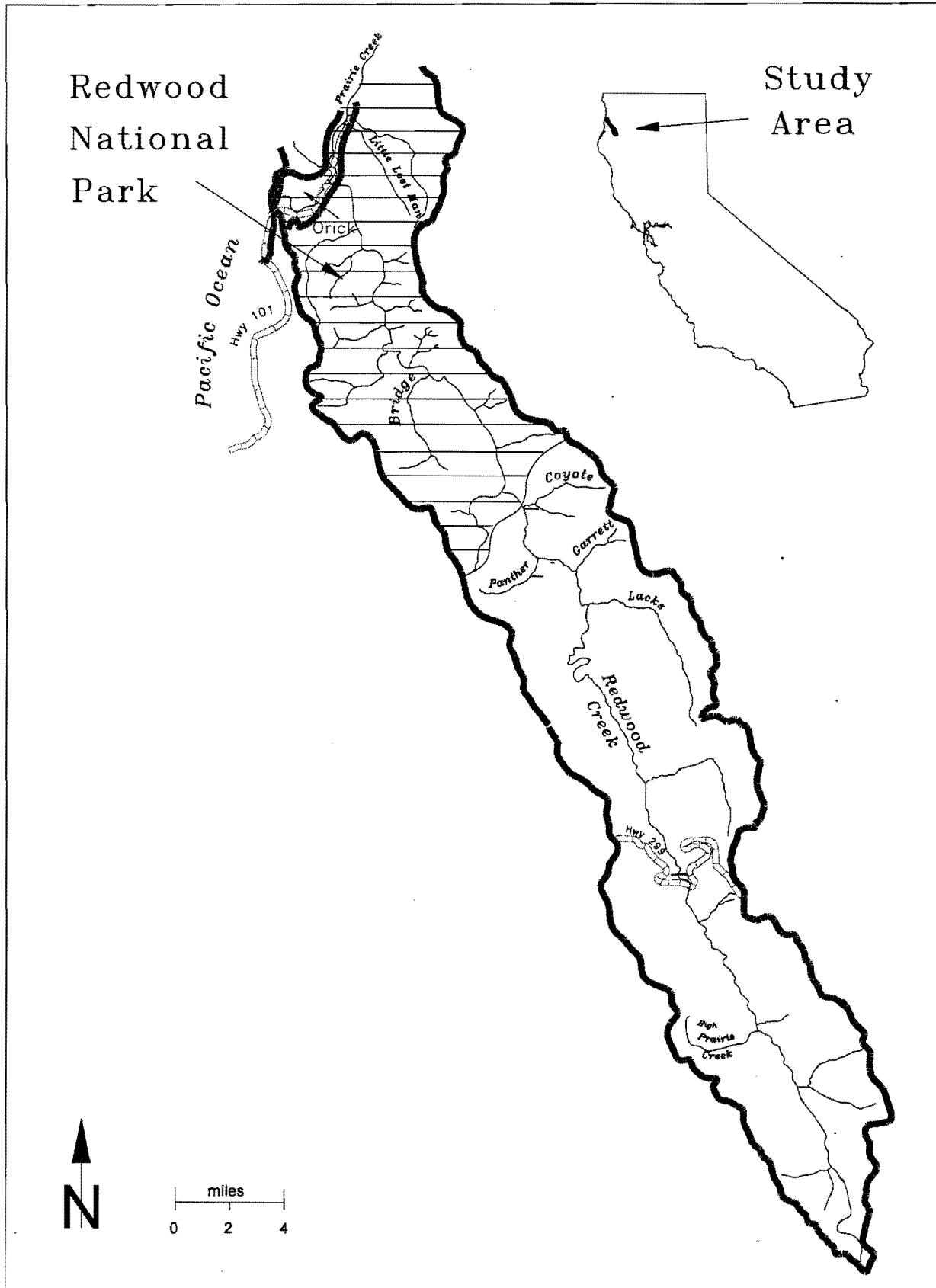


Figure 1. Map of Redwood National Park and Redwood Creek Basin



Figure 2. Project Location

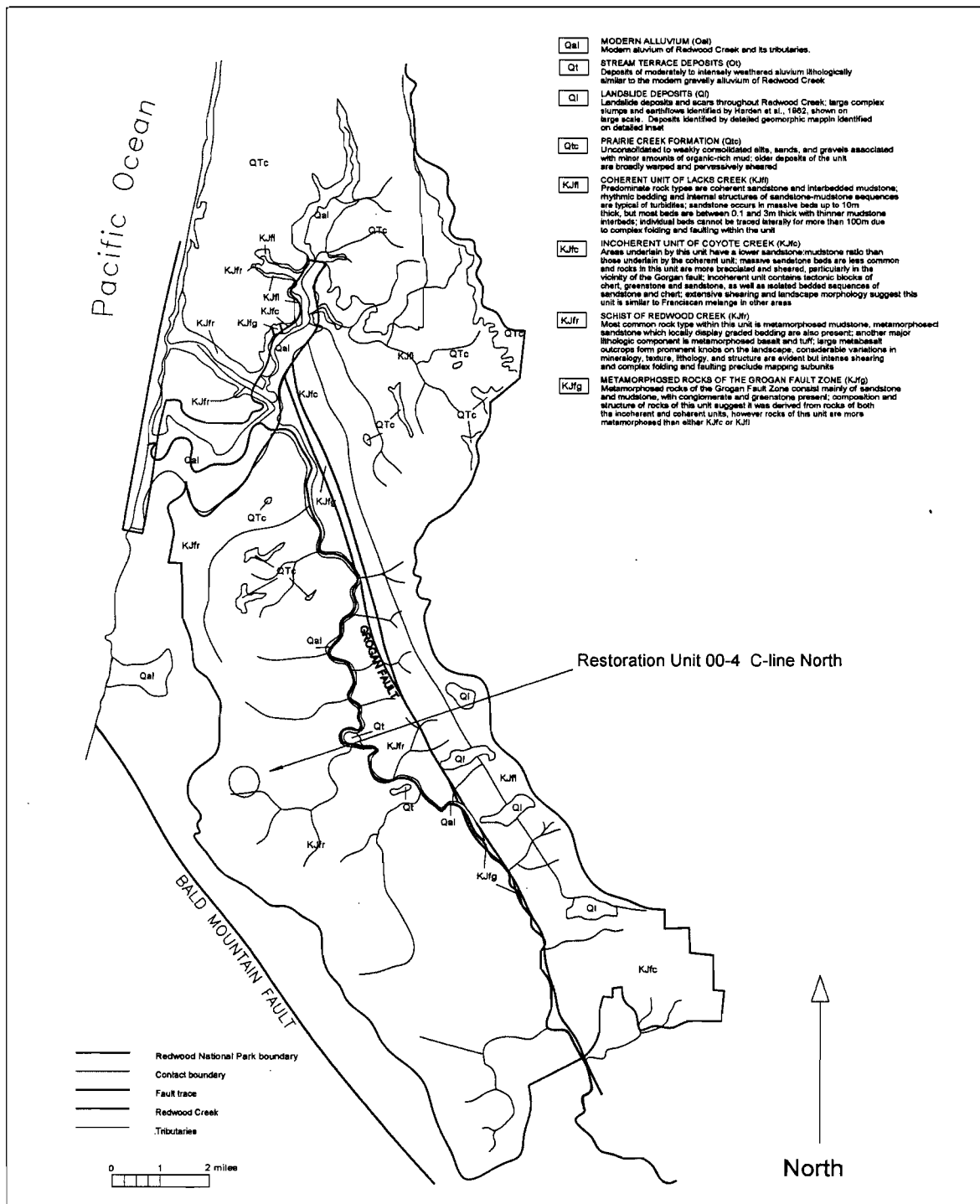


Figure 3. Geology Map

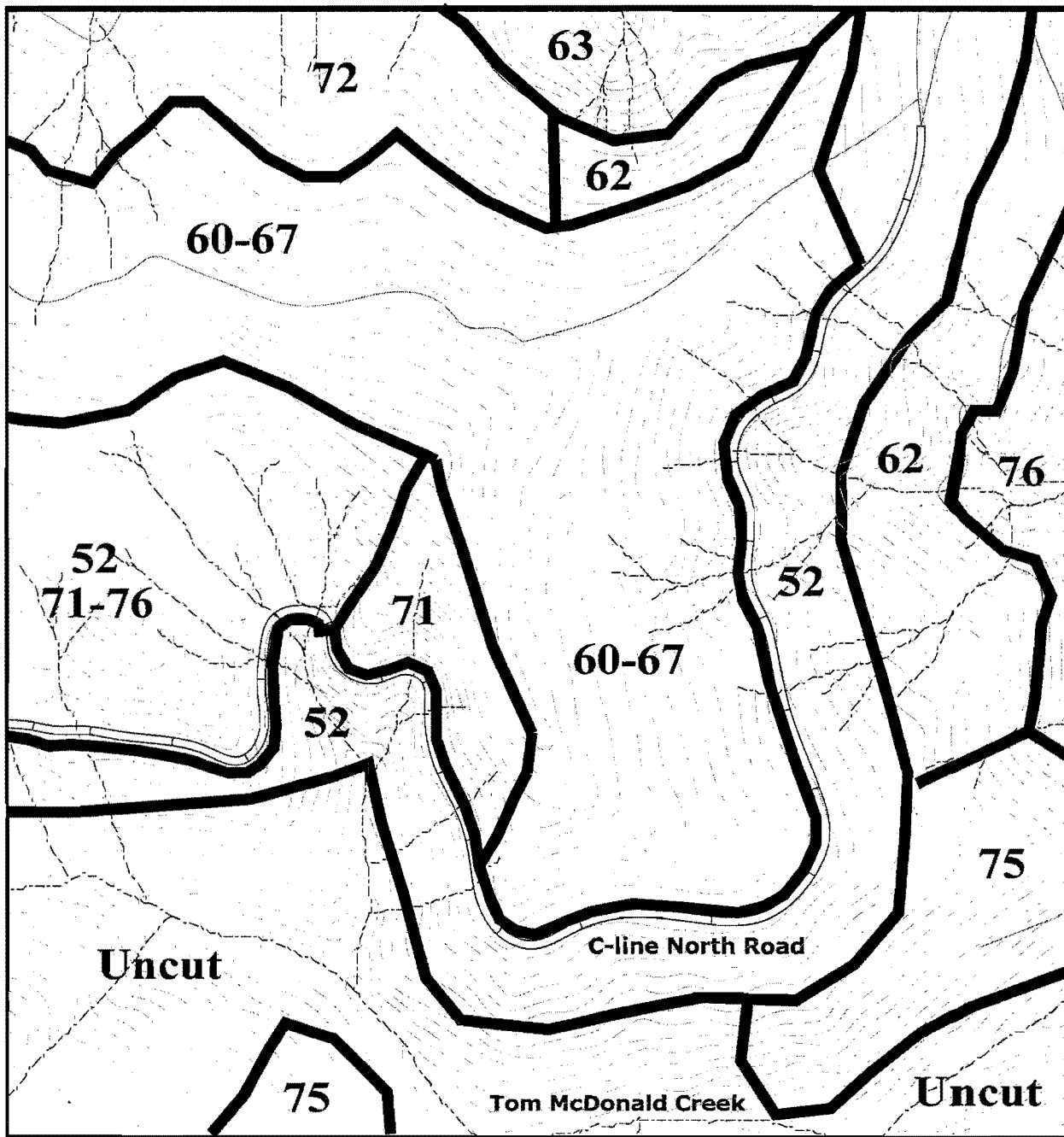


Figure 4. Timber Harvest History

Redwood National and State Parks
Watershed Restoration Project
00-4: C-line North

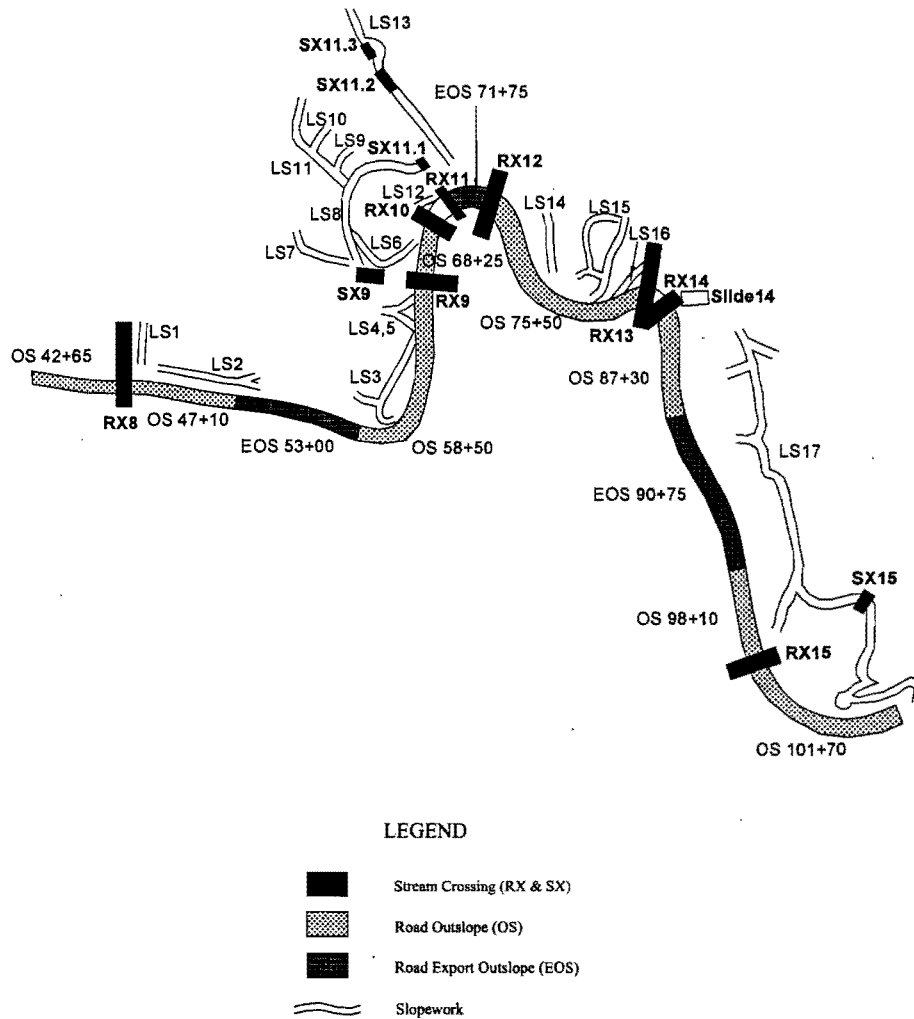


Figure 5. Treatment Prescriptions in the Project Area

Appendix 1

Table 2. Restoration Work Costs Summary for Unit 00-4, C-line North Road

Treatment	Quantity (cubic yards)	Number of Sites	Total Cost (\$)		Percent of Grand Total	Average Unit Cost	
			Actual	H.E.R.E.*		Actual (\$/cu. yd.)	H.E.R.E.*
Heavy Equipment							
Road Crossings	75,864	8	\$ 362,367	\$ 189,218	60.5	\$4.78	\$2.49
Export Outslope	20,725	3	\$ 67,014	\$ 45,801	11.2	\$3.23	\$2.21
Outslope	32,444	7	\$ 80,773	\$ 50,184	13.5	\$2.58	\$1.60
Skid Road Crossings	800	4	\$ 3,133	\$ 1,018	0.5	\$3.92	\$1.27
Skid Road Outslope	3,990	16	\$ 19,450	\$ 6,918	3.2	\$4.81	\$1.71
Move in	---	---	\$ 14,430	---	2.4	---	---
Move out	---	---	\$ 18,729	---	3.1	---	---
Subtotal	133,823	38	\$ 565,896		94.5	\$ 4.23	
	COTR hours	Personnel hrs	Total Cost (\$)		Percent of Grand Total		
Project Implementation							
Mapping	50	---	\$1,279		0.2		
Prescriptions and Layout	20	---	\$511		0.1		
Aerial Photo Interpretation	26	---	\$665		0.1		
Surveying	124	124	\$4,798		0.8		
Contract Preparation	75	---	\$1,918		0.3		
Contract Administration/ Heavy Equipment Supervision	600	80	\$21,840		3.6		
Photo Documentation	41	21	\$1,324		0.2		
Report Writing	30	---	\$767		0.1		
Subtotal	966	225	\$33,102		5.5		
Grand Total			\$598,998				

* H.E.R.E. = heavy equipment rental equivalent. The cost to complete each bid item based on the hours worked. Calculated using the hourly rental rate of each machine (or a comparable machine), added to Bacon-Davis operator wages for each machine, then that total multiplied by 1.4 to account for a 40% overhead. Overhead includes maintenance, fuel, profit, insurance, etc...

Appendix 1 (continued)

Table 3. Road-Stream Crossing Excavation Costs and Production Rates for Unit 00-4, C-line North Road

Work Item	Description	Volume (cu yds)	heavy equipment hours				Total Cost		Unit Cost		Original Bid (\$/cubic yard)	Average Fillsite Distance (feet)	Total Hours per Bid Item (hours)	Excavation Rate (cu yds/machine*hr)
			Caterpillar D9L	Caterpillar D8 46A	John Deere 892E LC	Caterpillar 235	Actual (\$)	H.E.R.E.*	Actual (\$/cubic yard)	H.E.R.E.*				
6	RX8	12668	31	37.5	27.25		\$49,532	\$18,979	\$3.91	\$1.50	\$3.91	250	95.75	132
15	RX9	3739	3.25	11.5	13		\$15,859	\$5,115	\$4.24	\$1.37	\$4.24	400	27.75	135
29	RX10	13686	61.5	46.5	46		\$60,994	\$31,558	\$4.46	\$2.31	\$4.46	400	154	89
30	RX11	200			6.25	8	\$776	\$2,164	\$3.88	\$10.82	\$3.88	100	14.25	14
32	RX12	11436	22.5	79.75	45		\$50,090	\$27,109	\$4.38	\$2.37	\$4.38	400	147.25	78
37	RX13	14077	87.75	59.25	25		\$70,369	\$36,339	\$5.00	\$2.58	\$5.00	1300	172	82
38	RX14	16490	114.8	128.5	55.5	3	\$100,903	\$60,548	\$6.12	\$3.67	\$6.12	1500	301.8	55
43	RX15	3568	11.25	10.75	15.25		\$13,844	\$7,408	\$3.88	\$2.08	\$3.88	200	37.25	96
je 75864			332.05	373.75	233.25	11	362367	189218.5	\$4.78	\$2.49			950.05	

HERE seem way too low.

Wonder what he used!

Terry 7/01

Table 4. Skid Road-Stream Crossing Excavation Costs and Production Rates for Unit 00-4, C-line North Road

Work Item	Description	Volume (cu yds)	heavy equipment hours				Total Cost		Unit Cost		Original Bid (\$/cubic yard)	Average Fillsite Distance (feet)	Total Hours per Bid Item (hours)	Excavation Rate (cu yds/machine*hr)
			Caterpillar D9L	Caterpillar D8 46A	John Deere 892E LC	Caterpillar 235	Actual (\$)	H.E.R.E.*	Actual (\$/cubic yard)	H.E.R.E.*				
23	SX9	350			2.25		\$1,358	\$416	\$3.88	\$1.19	\$3.88	50	2.25	156
25	SX11.1	50			0.5		\$223	\$93	\$4.46	\$1.85	\$4.46	50	0.5	100
26	SX11.2	300			1.25		\$1,164	\$231	\$3.88	\$0.77	\$3.88	50	1.25	240
45	SX15	100			1.5		\$388	\$278	\$3.88	\$2.78	\$3.88	50	1.5	67
total/average			0	0	5.5	0	\$3,133	\$1,018	\$3.92	\$1.27			5.5	

* H.E.R.E. = heavy equipment rental equivalent. The cost to complete each bid item based on the hours worked. Calculated using the hourly rental rate of each machine (or a comparable machine), added to Bacon-Davis operator wages for each machine, then that total multiplied by 1.4 to account for a 40% overhead. Overhead includes maintenance, fuel, profit, insurance, etc...

Appendix 1 (continued)

Table 5. Export Outslope Excavation Costs and Production Rates for Unit 00-4, C-line North Road

Work Item	Description	Volume (cu yds)	heavy equipment hours				Total Cost		Unit Cost		Original Bid (\$/cubic yard)	Average Fillsite Distance (feet)	Total Hours per Bid Item (hours)	Excavation Rate (cu yds/machine*hr)
			Caterpillar D9L	Caterpillar D8 46A	John Deere 892E LC	Caterpillar 235	Actual (\$)	H.E.R.E.* (\$)	Actual (\$/cubic yard)	H.E.R.E.* (\$/cubic yard)				
10	EOS 53+00 to 58+50	8845	52	28	13		\$27,420	\$20,025	\$3.10	\$2.26	\$3.10	250	93	95
31	EOS 71+75 to 73+40	4098	16.5	20.25	14.5		\$15,470	\$10,149	\$3.78	\$2.48	\$3.78	600	51.25	80
41	EOS 90+75 to 98+10	7782	22.25	26.25	23.5	11	\$24,124	\$15,627	\$3.10	\$2.01	\$3.10	250	83	94
total/average		20725	90.75	74.5	51	246	\$67,014	\$45,801	\$3.23	\$2.21			227.25	

Table 6. Outslope Excavation Costs and Production Rates for Unit 00-4, C-line North Road

Work Item	Description	Volume (cu yds)	heavy equipment hours				Total Cost		Unit Cost		Original Bid (\$/cubic yard)	Average Fillsite Distance (feet)	Total Hours per Bid Item (hours)	Excavation Rate (cu yds/machine*hr)
			Caterpillar D9L	Caterpillar D8 46A	John Deere 892E LC	Caterpillar 235	Actual (\$)	H.E.R.E.* (\$)	Actual (\$/cubic yard)	H.E.R.E.* (\$/cubic yard)				
5	OS 42+50 to 45+15	1137			9.75		\$2,933	\$1,804	\$2.58	\$1.59	\$3.00	200	9.75	117
9	OS 47+10 to 53+00	9870	16.75	35	25.5		\$25,465	\$14,680	\$2.58	\$1.49	\$2.50	50	77.25	128
11	OS 58+50 to 66+60	6310	13.75	17.5	23		\$16,280	\$10,580	\$2.58	\$1.68	\$2.50	50	54.25	116
16	OS 68+25 to 69+40	791			4.5		\$2,041	\$833	\$2.58	\$1.05	\$2.50	50	4.5	176
33	OS 75+55 to 83+75	9416	2	21	39.25		\$24,293	\$11,226	\$2.58	\$1.19	\$2.50	50	62.25	151
40	OS 87+30 to 90+75	3575	15	10.5	19.5		\$9,224	\$9,090	\$2.58	\$2.54	\$3.00	50	45	79
42	OS 98+10 to 100+70	1345	1.5	5.5	10.75	4	\$3,470	\$3,775	\$2.58	\$2.81	\$3.00	50	21.75	62
total/average		31307	49	89.5	122.5	4	\$80,773	\$50,184	\$2.58	\$1.60			265	

* H.E.R.E. = heavy equipment rental equivalent. The cost to complete each bid item based on the hours worked. Calculated using the hourly rental rate of each machine (or a comparable machine), added to Bacon-Davis operator wages for each machine, then that total multiplied by 1.4 to account for a 40% overhead. Overhead includes maintenance, fuel, profit, insurance, etc...

Appendix 1 (continued)

Table 7. Skid Road Outslope Excavation Costs and Production Rates for Unit 00-4, C-line North Road														
Work Item	Description	Volume (cu yds)	heavy equipment hours				Total Cost		Unit Cost		Average			
			Caterpillar D9L	Caterpillar D8 46A	John Deere 892E LC	Caterpillar 235	Actual (\$)	H.E.R.E.*	Actual (\$/cubic yard)	H.E.R.E.*	Original Bid (\$/cubic yard)	Fillsite Distance (feet)	Total Hours per Bid Item (hours)	Excavation Rate (cu yds/machine*hr)
7	LS 1	100			1.75		\$400	\$324	\$4.00	\$3.24	NA	25	1.75	57
8	LS 2	650			4.25		\$3,000	\$786	\$4.62	\$1.21	NA	25	4.25	153
12	LS 3	250			2.5		\$1,000	\$463	\$4.00	\$1.85	NA	25	2.5	100
13	LS 4	20			0.25		\$250	\$46	\$12.50	\$2.31	NA	25	0.25	80
14	LS 5	30			0.25		\$300	\$46	\$10.00	\$1.54	NA	25	0.25	120
17	LS 6	350			0.5		\$1,300	\$93	\$3.71	\$0.26	NA	25	0.5	700
19	LS 8	600			2.75		\$3,000	\$509	\$5.00	\$0.85	NA	25	2.75	218
20	LS 9	50			0.75		\$250	\$139	\$5.00	\$2.78	NA	25	0.75	67
21	LS 10	50			0.75		\$250	\$139	\$5.00	\$2.78	NA	25	0.75	67
22	LS 11	150			1.25		\$750	\$231	\$5.00	\$1.54	NA	25	1.25	120
24	LS 12	50			0.5		\$250	\$93	\$5.00	\$1.85	NA	25	0.5	100
28	LS 13	400			2.5		\$2,000	\$463	\$5.00	\$1.16	NA	25	2.5	160
34	LS 14	40		1	0.75		\$200	\$304	\$5.00	\$7.59	NA	26	1.75	23
35	LS 15	400			3.5		\$2,000	\$648	\$5.00	\$1.62	NA	27	3.5	114
36	LS 16	100			3.25		\$500	\$601	\$5.00	\$6.01	NA	28	3.25	31
46	LS 17	800			11		\$4,000	\$2,035	\$5.00	\$2.54	NA	29	11	73
total/average		4040	0	1	36.5	0	\$19,450	\$6,918	\$4.81	\$1.71			37.5	

* H.E.R.E. = heavy equipment rental equivalent. The cost to complete each bid item based on the hours worked. Calculated using the hourly rental rate of each machine (or a comparable machine), added to Bacon-Davis operator wages for each machine, then that total multiplied by 1.4 to account for a 40% overhead. Overhead includes maintenance, fuel, profit, insurance, etc...