APPENDIX D

SOIL RESOURCES

TABLE D-1
Soil Map Units Within Emigrant Project Study Area

Soil Map Unit	Dominant Soil Subgroup Name	Control Texture	Depth to Induration or Bedrock (Inches)	Profile Permeability Class	Surface Runoff Class
A	Xeric Haplargid	Clayey Skeletal	>60	Slow/Very slow	Very rapid
B	Lithic Xeric Haplargid	Clayey Skeletal	< 20	Slow	Rapid
C	Xeric Paleargid	Fine	>60	Very slow	Very rapid
D	Xeric Argidurid	Fine Loamy	40-60	Slow	Rapid to Very rapid
F	Lithic Xeric Haplocambid	Loamy	<20	Slow	Rapid
G	Xeric Calciargid	Fine	>60	Moderately slow	Rapid
H	Lithic Xeric Haplocambid	Loamy Skeletal	<20	Slow	Very rapid
I	Xeric Haplargid	Fine	>60	Moderately slow	Medium
J	Xeric Paleargid	Fine loamy	>60	Slow	Rapid
K	Xeric Haplargid	Clayey Skeletal	20-40	Slow	Medium to Rapid
L	Xeric Paleargid	Fine	>60	Slow	Medium to Rapid
M	Xeric Haplocambid	Fine Loamy	>60	Moderate	Slow to Medium
MC	Xeric Paleargid	Fine	> 60	Very slow	Very rapid
MD	Xeric Calciargid	Clayey Skeletal/Fine	> 60	Slow	Very rapid
ME	Xeric Calciargid	Clayey Skeletal/Fine	20-40	Slow	Rapid
MJ	RO and Lithic Xeric Haplargid	Clayey Skeletal/Loamy Skeletal	< 20	Very slow to slow	Very rapid
MK	Xeric Haplargid	Clayey Skeletal	40-60	Very slow to slow	Very rapid
ML	Xeric Haplargid	Clayey Skeletal/Fine	40-60	Very slow to slow	Very rapid
MM	Xeric Haplargid	Clayey Skeletal/Fine	20-40	Very slow to slow	Very rapid
MO	Xeric Haplargid	Clayey Skeletal	20-40	Very slow to slow	Very rapid
N	Xeric Haplodurid	Coarse Loamy	20-40	Slow	Medium
NA	Xeric Haplocalcid	Fine Loamy	20-40	Slow	Medium to Rapid
NB	Xeric Haplodurid	Coarse Loamy	20-40	Slow	Very rapid
O	Xeric Haplargid	Fine Loamy	>60	Moderately slow	Medium
P	Duric Xeric Paleargid	Fine	40-60	Very slow to slow	Very rapid
PA	Lithic Xeric Haplocalcid	Loamy Skeletal	10-20	Slow	Very Rapid
ROM	RO and Lithic Xeric Haplargid	Clayey Skeletal/Loamy Skeletal	< 20	Very slow to slow	Very rapid
ROS	RO and Lithic Xeric Haplcambid	Loamy	< 20	Slow	Very rapid
RB	Xeric Haplargid	Clayey Skeletal/Loamy Skeletal	40-60	Slow	Rapid to Very rapid
RC	Xeric Calciargid	Clayey Skeletal/Fine	40-60	Very slow to slow	Medium to Rapid
RD	Xeric Haplargid	Clayey Skeletal/Fine	40-60	Very slow to slow	Rapid to Very rapid

Source: Maxim 2004a.

Table D-2
Soil Salvage Potential
With Consideration For Equipment Limitations

Soil Subgroup	Salvage Considerations	Total Acreage	Percent of Map Unit	Estimated Acreage	Topsoil (Lift 1)	Subsoil (Lift 2)	Other Material (Lift 3) [1]	Other Material Relative Quality [2]	Total Cubic Yards
A Consociation									
Xeric Haplargid and similar	Steep Slopes, Rocky Subsoil	24.6	75	18.4	12	8	add	3	49,476
RO			10	2.5				4	-
Lithic Xeric Haplargid			10	2.5	6	12		4	6,050
Xeric Haplocambid			5	1.2	11	8	16	2	5,647
		Subtotal	100	24.6					
B Association									
Lithic Xeric Haplargid	Steep Slopes, Shallow Soil, Rocky Subsoil	8.1	55	4.5	3	8		4	6,655
Lithic Xeric Haplocambid			15	1.2	8		add	3	1,291
Xeric Haplocambid			15	1.2	11	8	13	2	5,163
RO and Fragmental			15	1.2				4	-
		Subtotal	100	8.1					
C Consociation									
Xeric Paleargid or similar	Steep Slopes, Rocky Subsoil, and Shallow Soil	21.1	80	16.8	10	20		4	67,760
Lithic Xeric Haplargid			15	3.2	4	12		4	6,884
Rock Outcrop			5	1.1				4	-
		Subtotal	100	21.1					
D Association									
Xeric Haplargid or similar	Few Steep Slopes & Shallow Soil	108.5	45	48.8	7	16	7	1	196,827
Lithic Xeric Haplocambid			20	21.7	18			4	52,514
Lithic Xeric Haplocambid or similar			20	21.7	8		add	3	23,340
Xeric Argidurid or similar			15	16.3	12	7		4	41,637
		Subtotal	100	108.5					
E Consociation									
Xeric Calciargid or similar	Occasional Shallow Soil	4.6	20	0.9	9	20	21	2	6,050
Lithic Xeric Haplocalcid			10	0.5	7			4	471
		Subtotal	100	4.6					
F Consociation									
Lithic Xeric Haplocambid	Shallow Soil, Rocky Subsoil, and Frequent Rock Outcrops	37	60	22.2	8			4	23,877
Xeric Haplocambid			20	7.4	5	5	16	2	25,867
Xeric Haplargid			10	3.7	5	8	add	3	6,467
RO and Lithic Xeric Torriorthents			10	3.7				4	-
		Subtotal	100	37					

Table D-2
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With Consideration For Equipment Limitations

Soil Subgroup	Salvage Considerations	Total Acreage	Percent of Map Unit	Estimated Acreage	Topsoil (Lift 1)	Subsoil (Lift 2)	Other Material (Lift 3) [1]	Other Material Relative Quality [2]	Total Cubic Yards
G Consociation									
Xeric Calciargid	Occasional Shallow Soil	10.5	90	9.5	7	29	24	1	76,633
Xeric Haplargid or similar			5	0.5	7	11	19	2	2,487
Lithic Xeric Haplargid or similar			5	0.5	6	12		4	1,210
		Subtotal	100	10.5					
H Association									
Lithic Xeric Haplocambid	Shallow Soil, Steep Slopes, Rocky Subsoil	6.4	50	3.2	6		add	3	2,581
Xeric Haplocambid			30	1.9	6	6	8	2	5,109
Xeric Haplargid			20	1.3	6	6	8	2	3,496
		Subtotal	100	6.4					
I Association									
Xeric Haplargid/Xeric Paleargid	No Limitations	4.3	90	3.9	8	15	18	2	21,498
Xeric Calciargid			5	0.2	9	21	21	2	1,371
Xeric Haplodurid			5	0.2	7	9	add	3/4	430
		Subtotal	100	4.3					
J Consociation									
Xeric Paleargid/ Xeric Haplargid	Occasional Shallow Soil	2.2	80	1.5	11	25	22	1	11,697
Xeric Calciargid			15	0.5	9	21	21	2	3,428
Lithic Xeric Haplargid or similar			5	0.2	6	12		4	484
		Subtotal	100	2.2					
K Association									
Xeric Paleargid/ Xeric Haplargid	No Limitations	99.4	65	64.6	7	12	14	2	286,609
Lithic Xeric Haplargid or similar			25	24.9	6	6	add	3	40,172
RO and very shallow phases			10	9.9				4	-
		Subtotal		99.4					
L Association									
Xeric Paleargid/ Xeric Haplargid	Common Shallow Soil	6.7	55	3.7	13	25	21	1	29,349
Lithic Xeric Haplargid or similar			30	2	6	10		4	4,302
Xeric Haplocambid			15	1	6	18	26	2	6,722
		Subtotal	100	6.7					
M Association									
Xeric Haplargid	No Limitations	85	35	27.5	6	12	add	3	66,550
Xeric Haplocambid			35	27.5	12	12	30	2	199,650
Xeric Calciargid			15	15	10	26	add	3	72,600
Calcic Paleargid			15	15	10	25	15	2	100,833
		Subtotal	100	85					

Table D-2
Soil Salvage Potential
With Consideration For Equipment Limitations

Soil Subgroup	Salvage Considerations	Total Acreage	Percent of Map Unit	Estimated Acreage	Topsoil (Lift 1)	Subsoil (Lift 2)	Other Material (Lift 3) [1]	Other Material Relative Quality [2]	Total Cubic Yards
MC Consociation									
Xeric Paleargid/ Haplargid	Steep slopes & Shalllow Soils	17	90	15.3	6	12	20	1	78,166
Lithic soil			10	1.7				4	-
		Subtotal	100	17					
MD Consociation									
Xeric Calciargid/Haplargid	Steep Slopes & Shallow Soils	34.3	55	18.9	6	16	add	3	55,902
Disturbed			20	6.9	12			4	11,132
Xeric Haplargid			15	5.1	8	12	12	2	21,941
Lithic Xeric Haplargid			10	3.4	6	12		4	8,228
		Subtotal	100	34.3					
ME Consociation									
Xeric Haplargid	Shallow Soils, Coarse Fragments	60.7	60	36.4	6	10	add	3	78,300
Lithic Xeric Haplargid			25	15.2	6		10	2	32,697
Disturbed			15	9.1	6			4	7,341
		Subtotal	100	60.7					
MJ Consociation									
RO and Lithic Xeric Haplargid	Very Steep Slopes, Many Rock Outcrops, and	23.6	75	17.7				4	-
Xeric Haplargid			20	4.7	8	8	8	2	15,165
Other			5	1.2				4	-
		Subtotal	100	23.6					
MK Consociation									
Xeric Calciargid	Steep Slopes, Rocky Subsoil	112.7	80	90.1	6	8	6	1	242,269
RO/Lithic Xeric Haplargid			10	11.3				4	-
Disturbed			10	11.3	6			4	9,115
		Subtotal	100	112.7					
ML Association									
Xeric Calciargid	Steep Slopes, Shallow Soil, Rocky Subsoil	160	30	48	11	16	6	2	212,960
Xeric Haplargid			30	48	12	16	add	3	180,693
Lithic Xeric Haplocambid			10	16	6		add	3	12,907
Lithic Xeric Haplargid			10	16	6	9		4	32,267
Xeric Haplocambid			5	8	28	10	add	3	40,871
RO			15	24				4	-
		Subtotal	100	160					

Table D-2
Soil Salvage Potential
With Consideration For Equipment Limitations

Soil Subgroup	Salvage Considerations	Total Acreage	Percent of Map Unit	Estimated Acreage	Topsoil (Lift 1)	Subsoil (Lift 2)	Other Material (Lift 3) [1]	Other Material Relative Quality [2]	Total Cubic Yards
MM Consociation									
Xeric Haplargid or similar	Steep Slopes,		90	8.6	6	8	8	2	25,437
Lithic Xeric Haplargid or similar	Shallow Soil,	9.6	5	0.5	6	6		4	807
RO	Rocky Subsoil		5	0.5				4	-
		Subtotal	100	9.6					
MO Consociation									
Xeric Haplargid	Steep Slopes,		80	10.8	6	8	12	2	37,752
RO/very shallow soil	Shallow Soil,	13.6	10	1.4				4	-
Xeric Calciargid	Rocky Subsoil		10	1.4	6	12	12	2	5,647
		Subtotal	100	13.6					
N Complex									
Xeric Haplodurid	Frequent		65	113.7	7	12	add	3/4	290,440
Xeric Argidurid	Indurated Subsoil,	176.3	25	44.4	8	22		4	179,080
Xeric Calciargid	Coarse Fragments		5	9.1	9	21	21	2	62,396
Xeric Haplocalcid	in Subsoil		5	9.1	8	18	add	3	31,810
		Subtotal	100	176.3					
NA Complex									
Xeric Calciargid or similar	Occasional		50	66.7	7	18	24	2	439,405
Xeric Haplocalcid	Indurated Subsoil,	133.7	40	53.6	7	30	add	3	266,630
Xeric Haplodruid	Coarse Fragments		10	13.4	10	15		4	45,039
		Subtotal	100	133.7					
NB Consociation									
Xeric Argidurid or similar	Steep Slopes,		85	28.9	13	12		4	97,136
Xeric Haplodruid or similar	Frequent	34	10	3.4	6	8	add	3/4	6,400
Lithic Xeric Haplargid or similar	Indurated Subsoil		5	1.7	6	8		4	3,200
		Subtotal		34					
O Consociation									
Xeric Haplargid	Coarse Fragments		85	10.8	9	22	20	2	74,052
Xeric Haplocambid	in Subsoil,	12.7	10	1.3	12	6	add	3/4	3,146
Lithic Xeric Haplocambid	Occasional Shallow		5	0.6	6		add	3/4	484
		Subtotal	100	12.7					
P Association									
Duric Xeric Paleargid or similar	Steep Slopes and		40	17.4	6	22	12	2	93,573
Xeric Calciargid or similar	Cut Banks on	43.4	20	8.6	6	16	24	1	53,186
Lithic Xeric Haplocalcid	Terraces,		30	13	6			4	10,487
Xeric Haplocadurid	Occasional		10	4.4	6	12	add	3/4	10,648
		Subtotal	100	43.4					

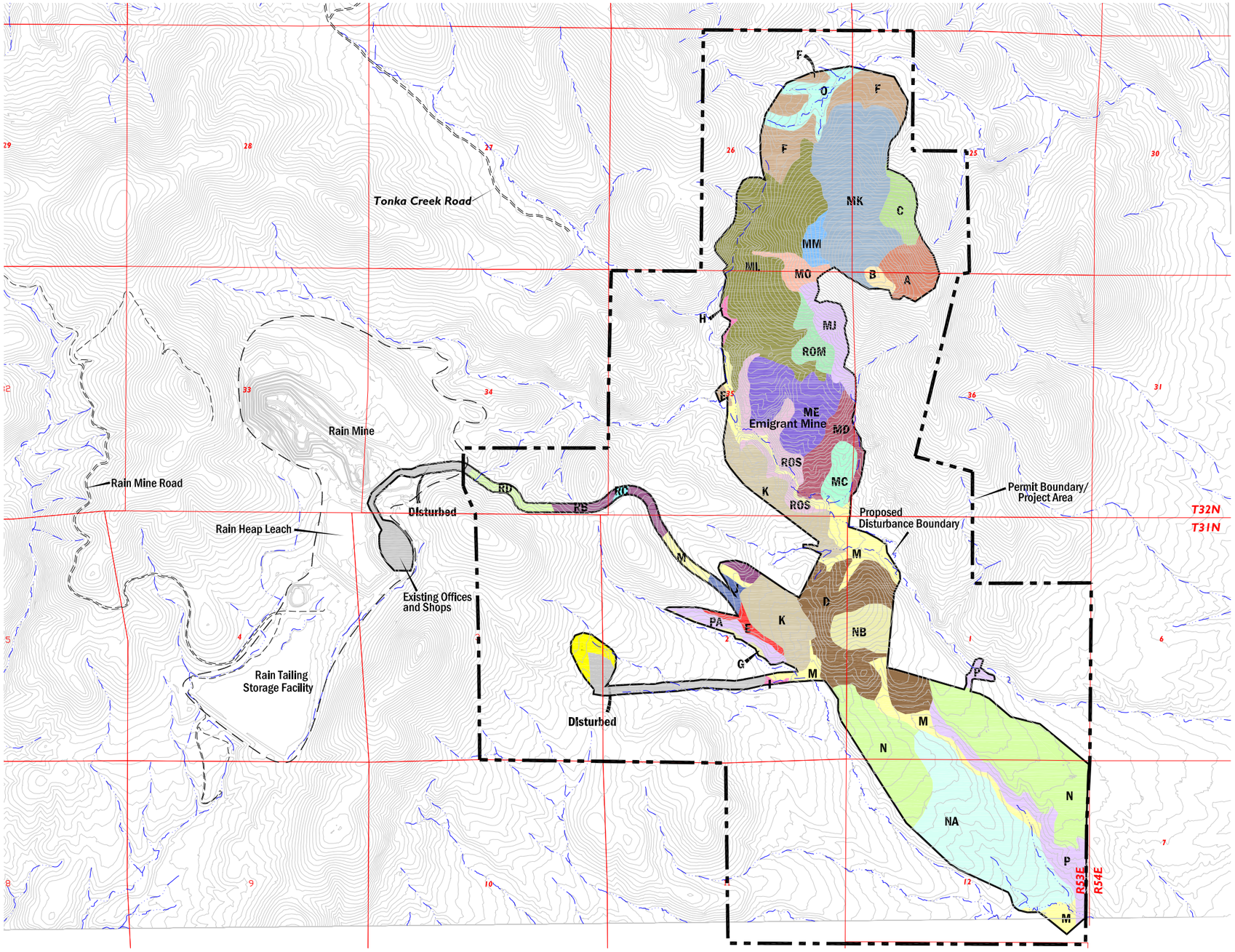
Table D-2
Soil Salvage Potential
With Consideration For Equipment Limitations

Soil Subgroup	Salvage Considerations	Total Acreage	Percent of Map Unit	Estimated Acreage	Topsoil (Lift 1)	Subsoil (Lift 2)	Other Material (Lift 3) [1]	Other Material Relative Quality [2]	Total Cubic Yards
PA Complex									
Lithic Xeric Haplocalcid	Steep Slopes, Coarse Fragments in Subsoil	14.7	65	9.6	6			4	7,744
Xeric Calciargid or similar			20	2.9	8	16	16	2	15,596
Xeric Haplocalcid			15	2.2	8	16	add	3	7,099
		Subtotal	100	14.7					
RB Complex									
Xeric Haplargid	Occasional Shallow Soil	23.7	60	14.2	6	12	6	2	45,819
Xeric Calciargid			25	5.9	6	10	32	1	38,075
Xeric Haplocambid			10	2.4	12	10	24	2	14,843
Lithics			5	1.2				4	-
		Subtotal	100	23.7					
RC Consociation									
Xeric Calciargid or similar	No Limitations	3.4	80	2.7	8	20	20	2	17,424
Xeric Haplocambid or similar			20	0.7	10	10	24	2	4,141
		Subtotal	100	3.4					
RD Consociation									
Xeric Haplargid	Steep Slopes, Shallow Soils	13.3	80	10.6	6	16	18	1	57,004
Xeric Haplocambid			15	2	8	8	24	2	10,756
Lithics			5	0.7				4	-
		Subtotal	100	13.3					
ROM Association									
RO	Steep Slopes, Shallow Soil, Rocky Subsoil	18	55	9.9				4	-
Xeric Haplargid or similar			25	4.5	6	6	16	2	16,940
Lithic Xeric Haplocambid			15	2.7	6		add	3/4	2,178
Lithic Xeric Haplargids			5	0.9	6	6		4	1,452
		Subtotal	100	18					
ROS Association									
RO	Steep Slopes, Shallow Soil, Rocky Subsoil	34.6	50	17.3				4	-
Lithic Xeric Haplocambid			20	6.9	6		add	3/4	5,566
Lithic Xeric Haplargid			20	6.9	8			4	7,421
Xeric Calciargid or similar			10	3.5	6	6	add	2/3	5,647
		Subtotal	100	34.5					
Disturbed		60	100	60				4	-
								TOTAL	**4,519,538**

1 - Other material likely suitable for salvage. Although no depths are shown, soil types with "add" noted have potential for salvage of additional deep materials with high coarse fragment content, if desired.

2 - Relative quality of the other material. Classes 1, 2, 3, and 4 are described in the report (Maxim 2004a) text.

AMEC Geomatrix 2010a.



Legend

- Permit Boundary/Project Area
- Proposed Disturbance Boundary
- A Soil Units

Data Source: Maxim 2004a, 2004c

0 Feet 2400
Contour Interval 20 Feet

N

U.S. Department of the Interior
Bureau of Land Management
Elko Field Office
Elko, Nevada

Soil Resources
Emigrant Project
Elko County, Nevada
FIGURE D-1

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