

Appendix E:
SEDCAD Modeling
Reports

Coal Creek Watershed Pre-Mining

OSM

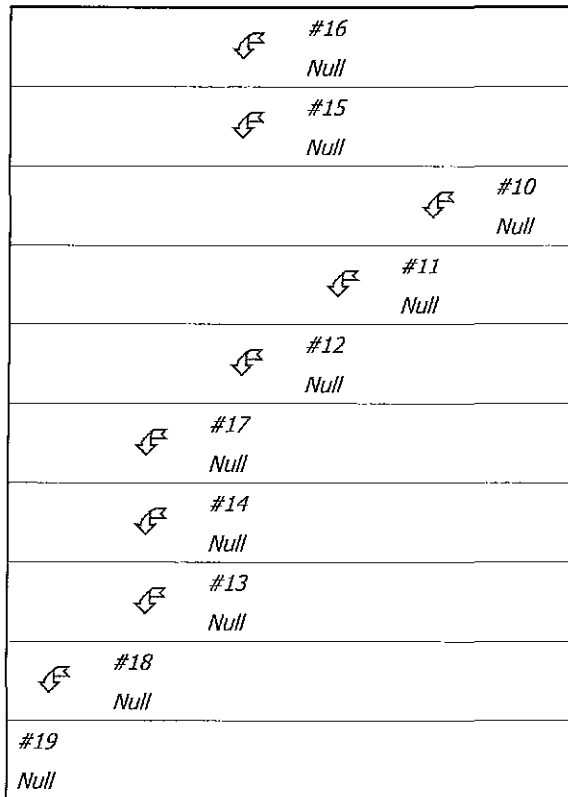
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.300 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#10	==>	#11	0.000	0.000	
Null	#11	==>	#12	0.541	0.326	
Null	#12	==>	#17	0.990	0.322	
Null	#13	==>	#18	0.000	0.000	
Null	#14	==>	#18	0.000	0.000	
Null	#15	==>	#17	0.000	0.000	
Null	#16	==>	#17	0.000	0.000	
Null	#17	==>	#18	3.667	0.234	
Null	#18	==>	#19	2.962	0.234	
Null	#19	==>	End	0.000	0.000	



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#11	8. Large gullies, diversions, and low flowing streams	1.13	70.00	6,200.72	3.18	0.541

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Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#11	Muskingum K:					0.541
#12	8. Large gullies, diversions, and low flowing streams	1.05	115.00	10,950.29	3.07	0.990
#12	Muskingum K:					0.990
#17	8. Large gullies, diversions, and low flowing streams	0.25	50.00	19,801.98	1.50	3.667
#17	Muskingum K:					3.667
#18	8. Large gullies, diversions, and low flowing streams	0.25	40.00	16,000.00	1.50	2.962
#18	Muskingum K:					2.962

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#16	7,300.000	7,300.000	467.26	213.70
#15	3,530.000	3,530.000	388.14	103.33
#10	2,860.000	2,860.000	370.09	85.50
#11	3,930.000	6,790.000	898.95	202.93
#12	940.000	7,730.000	933.82	223.67
#17	5,060.000	23,620.000	1,827.86	689.00
#14	1,280.000	1,280.000	261.33	39.01
#13	1,762.000	1,762.000	250.23	53.97
#18	1,590.000	28,252.000	1,757.70	829.50
#19	0.000	28,252.000	1,719.96	829.50

Structure Detail:

Structure #16 (Null)

Structure #15 (Null)

Structure #10 (Null)

Structure #11 (Null)

Structure #12 (Null)

Structure #17 (Null)

Structure #14 (Null)

Structure #13 (Null)

Structure #18 (Null)

Structure #19 (Null)

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#16	1	3,500.000	1.666	1.666	0.319	88.000	M	482.75	102.471
	2	3,800.000	3.588	3.588	0.293	88.000	M	301.20	111.230
	Σ	7,300.000						467.26	213.701
#15	1	3,530.000	2.208	2.208	0.308	88.000	M	397.56	103.325
	Σ	3,530.000						388.14	103.325
#10	1	1,660.000	1.043	1.043	0.355	87.000	M	282.80	44.218
	2	800.000	0.442	0.442	0.360	89.000	M	280.42	25.735
	3	400.000	0.221	0.221	0.360	91.000	M	220.98	15.547
	Σ	2,860.000						370.09	85.500
#11	1	2,230.000	1.084	0.885	0.360	87.000	M	370.48	59.441
	2	1,200.000	0.442	0.442	0.360	89.000	M	420.64	38.603
	3	500.000	0.271	0.271	0.353	91.000	M	260.01	19.385
	Σ	6,790.000						898.95	202.930
#12	1	940.000	0.268	0.000	0.000	85.000	M	269.99	20.743
	Σ	7,730.000						933.82	223.673
#17	1	5,060.000	0.559	0.559	0.362	88.000	M	1,412.31	148.302
	Σ	23,620.000						1,827.86	689.002
#14	1	780.000	0.667	0.667	0.372	88.000	M	196.46	22.870
	2	500.000	0.308	0.308	0.372	89.000	M	205.13	16.137
	Σ	1,280.000						261.33	39.007
#13	1	940.000	1.151	1.151	0.360	88.000	M	167.40	27.528
	2	822.000	0.533	0.533	0.367	89.000	M	261.43	26.444
	Σ	1,762.000						250.23	53.972
#18	1	1,590.000	0.141	0.141	0.388	88.000	M	732.90	47.524
	Σ	28,252.000						1,757.70	829.505
#19	Σ	28,252.000						1,719.96	829.505

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#10	1	8. Large gullies, diversions, and low flowing streams	1.94	305.00	15,700.60	4.180	1.043

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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#10	1	Time of Concentration:					1.043
#10	2	8. Large gullies, diversions, and low flowing streams	2.14	150.00	7,000.18	4.390	0.442
#10	2	Time of Concentration:					0.442
#10	3	8. Large gullies, diversions, and low flowing streams	2.14	75.00	3,500.09	4.390	0.221
#10	3	Time of Concentration:					0.221
#11	1	8. Large gullies, diversions, and low flowing streams	1.88	300.00	15,999.99	4.100	1.084
#11	1	Time of Concentration:					1.084
#11	2	8. Large gullies, diversions, and low flowing streams	2.14	150.00	7,000.18	4.390	0.442
#11	2	Time of Concentration:					0.442
#11	3	8. Large gullies, diversions, and low flowing streams	1.88	75.00	3,999.99	4.100	0.271
#11	3	Time of Concentration:					0.271
#12	1	5. Nearly bare and untilled, and alluvial valley fans	5.23	115.00	2,200.03	2.280	0.268
#12	1	Time of Concentration:					0.268
#13	1	8. Large gullies, diversions, and low flowing streams	2.14	390.00	18,200.48	4.390	1.151
#13	1	Time of Concentration:					1.151
#13	2	8. Large gullies, diversions, and low flowing streams	2.44	220.00	9,000.00	4.690	0.533
#13	2	Time of Concentration:					0.533
#14	1	8. Large gullies, diversions, and low flowing streams	2.73	325.00	11,900.40	4.950	0.667
#14	1	Time of Concentration:					0.667
#14	2	8. Large gullies, diversions, and low flowing streams	2.73	150.00	5,500.14	4.950	0.308
#14	2	Time of Concentration:					0.308
#15	1	8. Large gullies, diversions, and low flowing streams	0.83	180.00	21,702.43	2.730	2.208
#15	1	Time of Concentration:					2.208
#16	1	8. Large gullies, diversions, and low flowing streams	1.00	180.00	18,000.00	3.000	1.666
#16	1	Time of Concentration:					1.666
#16	2	8. Large gullies, diversions, and low flowing streams	0.65	200.00	31,002.94	2.400	3.588
#16	2	Time of Concentration:					3.588
#17	1	8. Large gullies, diversions, and low flowing streams	2.22	200.00	9,000.09	4.470	0.559
#17	1	Time of Concentration:					0.559
#18	1	8. Large gullies, diversions, and low flowing streams	3.83	115.00	3,000.02	5.870	0.141
#18	1	Time of Concentration:					0.141

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#10	1	8. Large gullies, diversions, and low flowing streams	1.94	305.00	15,700.60	4.180	1.043
#10	1	Muskingum K:					1.043
#10	2	8. Large gullies, diversions, and low flowing streams	2.14	150.00	7,000.18	4.390	0.442
#10	2	Muskingum K:					0.442
#10	3	8. Large gullies, diversions, and low flowing streams	2.14	75.00	3,500.09	4.390	0.221
#10	3	Muskingum K:					0.221
#11	1	8. Large gullies, diversions, and low flowing streams	2.14	300.00	14,000.37	4.390	0.885
#11	1	Muskingum K:					0.885
#11	2	8. Large gullies, diversions, and low flowing streams	2.14	150.00	7,000.00	4.390	0.442
#11	2	Muskingum K:					0.442
#11	3	8. Large gullies, diversions, and low flowing streams	1.88	75.00	3,999.99	4.100	0.271
#11	3	Muskingum K:					0.271
#13	1	8. Large gullies, diversions, and low flowing streams	2.14	390.00	18,200.48	4.390	1.151
#13	1	Muskingum K:					1.151
#13	2	8. Large gullies, diversions, and low flowing streams	2.44	220.00	9,000.16	4.690	0.533
#13	2	Muskingum K:					0.533
#14	1	8. Large gullies, diversions, and low flowing streams	2.73	325.00	11,900.40	4.950	0.667
#14	1	Muskingum K:					0.667
#14	2	8. Large gullies, diversions, and low flowing streams	2.73	150.00	5,500.14	4.950	0.308
#14	2	Muskingum K:					0.308
#15	1	8. Large gullies, diversions, and low flowing streams	0.83	180.00	21,702.43	2.730	2.208
#15	1	Muskingum K:					2.208
#16	1	8. Large gullies, diversions, and low flowing streams	1.00	180.00	18,000.00	3.000	1.666
#16	1	Muskingum K:					1.666
#16	2	8. Large gullies, diversions, and low flowing streams	0.65	200.00	31,002.94	2.400	3.588
#16	2	Muskingum K:					3.588
#17	1	8. Large gullies, diversions, and low flowing streams	2.22	200.00	9,000.09	4.470	0.559
#17	1	Muskingum K:					0.559
#18	1	8. Large gullies, diversions, and low flowing streams	3.83	115.00	3,000.02	5.870	0.141
#18	1	Muskingum K:					0.141

Chaco-Chinde Watershed Post Mining

OSM

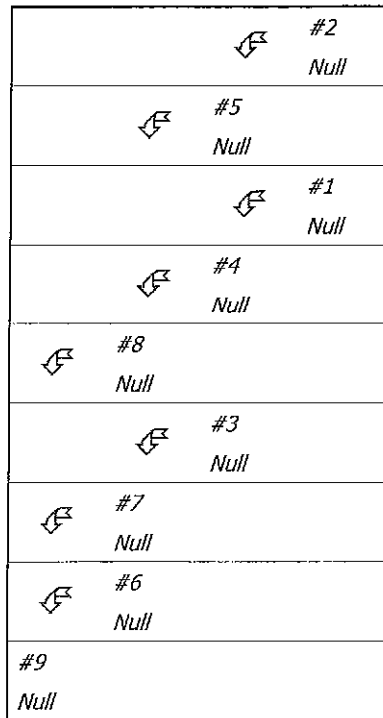
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.300 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#4	0.000	0.000	
Null	#2	==>	#5	0.000	0.000	
Null	#3	==>	#7	0.000	0.000	
Null	#4	==>	#8	0.770	0.355	
Null	#5	==>	#8	0.658	0.358	
Null	#6	==>	#9	0.000	0.000	
Null	#7	==>	#9	0.967	0.340	
Null	#8	==>	#9	0.385	0.320	
Null	#9	==>	End	0.000	0.000	



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#4	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.00	4.18	0.770
#4	Muskingum K:					0.770
#5	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.30	0.658

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Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#5	Muskingum K:					0.658
#7	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.00	3.62	0.967
#7	Muskingum K:					0.967
#8	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.00	3.03	0.385
#8	Muskingum K:					0.385

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#2	1,650.000	1,650.000	81.38	11.14
#5	750.000	2,400.000	262.42	33.13
#1	850.000	850.000	32.21	5.70
#4	1,250.000	2,100.000	307.04	42.33
#8	980.000	5,480.000	575.42	104.18
#3	1,140.000	1,140.000	161.25	25.03
#7	1,225.000	2,365.000	326.80	51.91
#6	1,985.000	1,985.000	406.98	58.12
#9	2,930.000	12,760.000	1,331.61	292.27

Structure Detail:

Structure #2 (Null)

Structure #5 (Null)

Structure #1 (Null)

Structure #4 (Null)

Structure #8 (Null)

Structure #3 (Null)

Structure #7 (Null)

Structure #6 (Null)

Structure #9 (Null)

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#2	1	1,650.000	0.272	0.818	0.364	75.000	M	99.12	11.135
	Σ	1,650.000						81.38	11.135
#5	1	750.000	0.658	0.658	0.358	88.000	M	190.45	21.992
	Σ	2,400.000						262.42	33.127
#1	1	850.000	0.632	0.632	0.363	75.000	M	32.81	5.704
	Σ	850.000						32.21	5.704
#4	1	1,250.000	0.770	0.770	0.355	88.000	M	288.29	36.631
	Σ	2,100.000						307.04	42.334
#8	1	980.000	0.385	0.385	0.320	88.000	M	329.99	28.722
	Σ	5,480.000						575.42	104.182
#3	1	1,140.000	0.900	1.106	0.353	85.000	M	169.76	25.026
	Σ	1,140.000						161.25	25.026
#7	1	1,225.000	0.967	0.967	0.340	85.000	M	174.30	26.882
	Σ	2,365.000						326.80	51.908
#6	1	1,985.000	0.867	0.867	0.358	88.000	M	424.81	58.115
	Σ	1,985.000						406.98	58.115
#9	1	2,930.000	1.129	1.129	0.372	87.000	M	473.76	78.066
	Σ	12,760.000						1,331.61	292.272

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	8. Large gullies, diversions, and low flowing streams	2.25	230.00	10,225.40	4.490	0.632
#1	1	Time of Concentration:					0.632
#2	1	9. Small streams flowing bankfull	2.29	305.00	13,340.00	13.600	0.272
#2	1	Time of Concentration:					0.272
#4	1	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.45	4.180	0.770
#4	1	Time of Concentration:					0.770
#5	1	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.300	0.658
#5	1	Time of Concentration:					0.658

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#6	1	8. Large gullies, diversions, and low flowing streams	2.04	272.00	13,360.00	4.280	0.867
#6	1	Time of Concentration:					0.867
#7	1	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.00	3.620	0.967
#7	1	Time of Concentration:					0.967
#8	1	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.00	3.030	0.385
#8	1	Time of Concentration:					0.385
#9	1	8. Large gullies, diversions, and low flowing streams	2.70	540.00	20,000.00	4.920	1.129
#9	1	Time of Concentration:					1.129

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	8. Large gullies, diversions, and low flowing streams	2.25	230.00	10,225.40	4.490	0.632
#1	1	Muskingum K:					0.632
#2	1	8. Large gullies, diversions, and low flowing streams	2.29	305.00	13,340.33	4.530	0.818
#2	1	Muskingum K:					0.818
#3	1	8. Large gullies, diversions, and low flowing streams	1.86	302.00	16,250.53	4.080	1.106
#3	1	Muskingum K:					1.106
#4	1	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.45	4.180	0.770
#4	1	Muskingum K:					0.770
#5	1	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.300	0.658
#5	1	Muskingum K:					0.658
#6	1	8. Large gullies, diversions, and low flowing streams	2.04	272.00	13,360.18	4.280	0.867
#6	1	Muskingum K:					0.867
#7	1	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.51	3.620	0.967
#7	1	Muskingum K:					0.967
#8	1	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.03	3.030	0.385
#8	1	Muskingum K:					0.385
#9	1	8. Large gullies, diversions, and low flowing streams	2.70	540.00	20,000.00	4.920	1.129
#9	1	Muskingum K:					1.129

Chaco-Chinde Watershed Pre-Mining

OSM

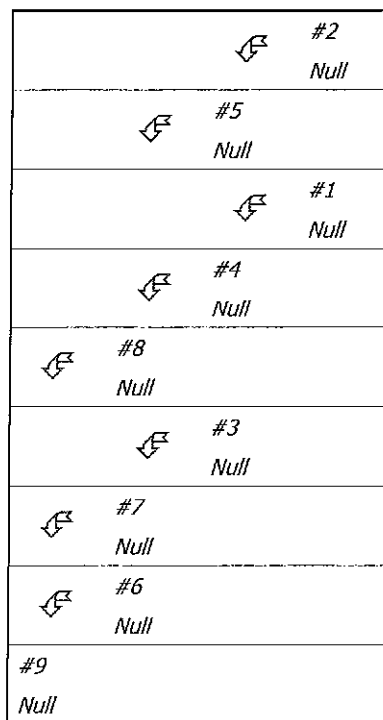
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.300 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#1	==>	#4	0.000	0.000	
Null	#2	==>	#5	0.000	0.000	
Null	#3	==>	#7	0.000	0.000	
Null	#4	==>	#8	0.770	0.355	
Null	#5	==>	#8	0.658	0.358	
Null	#6	==>	#9	0.000	0.000	
Null	#7	==>	#9	0.967	0.340	
Null	#8	==>	#9	0.385	0.320	
Null	#9	==>	End	0.000	0.000	



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#4	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.00	4.18	0.770
#4	Muskingum K:					0.770
#5	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.30	0.658

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Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#5	Muskingum K:					0.658
#7	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.00	3.62	0.967
#7	Muskingum K:					0.967
#8	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.00	3.03	0.385
#8	Muskingum K:					0.385

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#2	2,010.000	2,010.000	680.13	59.21
#5	1,100.000	3,110.000	929.94	91.46
#1	1,210.000	1,210.000	298.30	35.44
#4	1,540.000	2,750.000	609.87	80.57
#8	980.000	6,840.000	1,408.08	200.75
#3	1,565.000	1,565.000	221.37	34.36
#7	1,650.000	3,215.000	444.33	70.56
#6	1,235.000	1,235.000	253.21	36.16
#9	2,930.000	14,220.000	2,096.39	385.54

Structure Detail:

Structure #2 (Null)

Structure #5 (Null)

Structure #1 (Null)

Structure #4 (Null)

Structure #8 (Null)

Structure #3 (Null)

Structure #7 (Null)

Structure #6 (Null)

Structure #9 (Null)

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#2	1	2,010.000	0.272	0.818	0.364	88.000	M	779.56	59.208
		Σ 2,010.000						680.13	59.208
#5	1	1,100.000	0.658	0.658	0.358	88.000	M	279.32	32.254
		Σ 3,110.000						929.94	91.462
#1	1	1,210.000	0.632	0.632	0.363	88.000	M	314.58	35.439
		Σ 1,210.000						298.30	35.439
#4	1	1,540.000	0.770	0.770	0.355	88.000	M	355.18	45.129
		Σ 2,750.000						609.87	80.568
#8	1	980.000	0.385	0.385	0.320	88.000	M	329.99	28.722
		Σ 6,840.000						1,408.08	200.752
#3	1	1,565.000	0.900	1.106	0.353	85.000	M	233.04	34.356
		Σ 1,565.000						221.37	34.356
#7	1	1,650.000	0.967	0.967	0.340	85.000	M	234.78	36.208
		Σ 3,215.000						444.33	70.564
#6	1	1,235.000	0.867	0.867	0.358	88.000	M	264.30	36.157
		Σ 1,235.000						253.21	36.157
#9	1	2,930.000	1.129	1.129	0.372	87.000	M	473.76	78.066
		Σ 14,220.000						2,096.39	385.539

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	8. Large gullies, diversions, and low flowing streams	2.25	230.00	10,225.40	4.490	0.632
#1	1	Time of Concentration:					0.632
#2	1	9. Small streams flowing bankfull	2.29	305.00	13,340.00	13.600	0.272
#2	1	Time of Concentration:					0.272
#4	1	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.45	4.180	0.770
#4	1	Time of Concentration:					0.770
#5	1	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.300	0.658
#5	1	Time of Concentration:					0.658

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#6	1	8. Large gullies, diversions, and low flowing streams	2.04	272.00	13,360.00	4.280	0.867
#6	1	Time of Concentration:					0.867
#7	1	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.00	3.620	0.967
#7	1	Time of Concentration:					0.967
#8	1	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.00	3.030	0.385
#8	1	Time of Concentration:					0.385
#9	1	8. Large gullies, diversions, and low flowing streams	2.70	540.00	20,000.00	4.920	1.129
#9	1	Time of Concentration:					1.129

Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#1	1	8. Large gullies, diversions, and low flowing streams	2.25	230.00	10,225.40	4.490	0.632
#1	1	Muskingum K:					0.632
#2	1	8. Large gullies, diversions, and low flowing streams	2.29	305.00	13,340.33	4.530	0.818
#2	1	Muskingum K:					0.818
#3	1	8. Large gullies, diversions, and low flowing streams	1.86	302.00	16,250.53	4.080	1.106
#3	1	Muskingum K:					1.106
#4	1	8. Large gullies, diversions, and low flowing streams	1.95	226.00	11,600.45	4.180	0.770
#4	1	Muskingum K:					0.770
#5	1	8. Large gullies, diversions, and low flowing streams	2.06	210.00	10,200.11	4.300	0.658
#5	1	Muskingum K:					0.658
#6	1	8. Large gullies, diversions, and low flowing streams	2.04	272.00	13,360.18	4.280	0.867
#6	1	Muskingum K:					0.867
#7	1	8. Large gullies, diversions, and low flowing streams	1.46	184.00	12,610.51	3.620	0.967
#7	1	Muskingum K:					0.967
#8	1	8. Large gullies, diversions, and low flowing streams	1.02	43.00	4,200.03	3.030	0.385
#8	1	Muskingum K:					0.385
#9	1	8. Large gullies, diversions, and low flowing streams	2.70	540.00	20,000.00	4.920	1.129
#9	1	Muskingum K:					1.129

Coal Creek Watershed Post-Mining

OSM

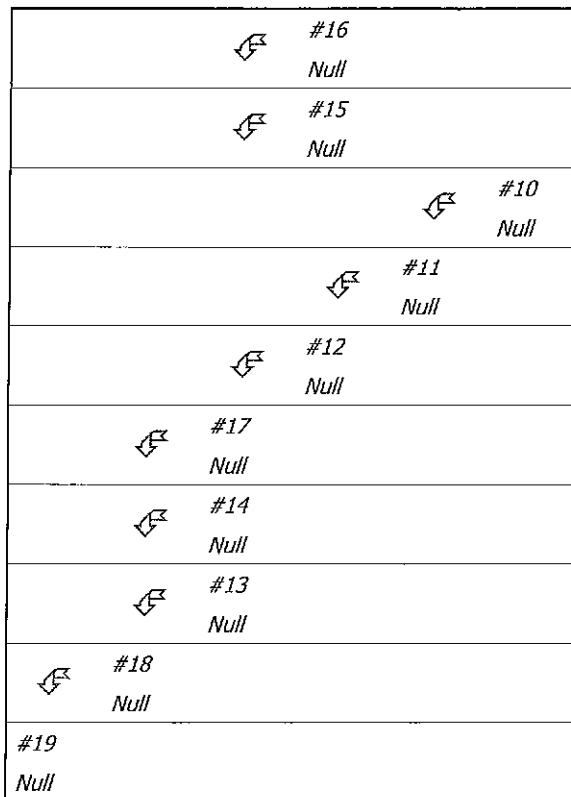
General Information

Storm Information:

Storm Type:	NRCS Type II
Design Storm:	10 yr - 6 hr
Rainfall Depth:	1.300 inches

Structure Networking:

Type	Stru #	(flows into)	Stru #	Musk. K (hrs)	Musk. X	Description
Null	#10	==>	#11	0.000	0.000	
Null	#11	==>	#12	0.541	0.326	
Null	#12	==>	#17	0.990	0.322	
Null	#13	==>	#18	0.000	0.000	
Null	#14	==>	#18	0.000	0.000	
Null	#15	==>	#17	0.000	0.000	
Null	#16	==>	#17	0.000	0.000	
Null	#17	==>	#18	3.667	0.234	
Null	#18	==>	#19	2.962	0.234	
Null	#19	==>	End	0.000	0.000	



Structure Routing Details:

Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#11	8. Large gullies, diversions, and low flowing streams	1.13	70.00	6,200.72	3.18	0.541

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Stru #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#11	Muskingum K:					0.541
#12	8. Large gullies, diversions, and low flowing streams	1.05	115.00	10,950.29	3.07	0.990
#12	Muskingum K:					0.990
#17	8. Large gullies, diversions, and low flowing streams	0.25	50.00	19,801.98	1.50	3.667
#17	Muskingum K:					3.667
#18	8. Large gullies, diversions, and low flowing streams	0.25	40.00	16,000.00	1.50	2.962
#18	Muskingum K:					2.962

Structure Summary:

	Immediate Contributing Area (ac)	Total Contributing Area (ac)	Peak Discharge (cfs)	Total Runoff Volume (ac-ft)
#16	7,300.000	7,300.000	467.26	213.70
#15	3,530.000	3,530.000	388.14	103.33
#10	2,860.000	2,860.000	240.25	46.02
#11	3,930.000	6,790.000	500.47	96.60
#12	940.000	7,730.000	523.35	117.35
#17	5,060.000	23,620.000	1,471.57	582.68
#14	1,280.000	1,280.000	261.33	39.01
#13	1,762.000	1,762.000	250.23	53.97
#18	1,590.000	28,252.000	1,383.23	723.18
#19	0.000	28,252.000	1,335.69	723.18

Structure Detail:

Structure #16 (Null)

Structure #15 (Null)

Structure #10 (Null)

Structure #11 (Null)

Structure #12 (Null)

Structure #17 (Null)

Structure #14 (Null)

Structure #13 (Null)

Structure #18 (Null)

Structure #19 (Null)

Subwatershed Hydrology Detail:

Stru #	SWS #	SWS Area (ac)	Time of Conc (hrs)	Musk K (hrs)	Musk X	Curve Number	UHS	Peak Discharge (cfs)	Runoff Volume (ac-ft)
#16	1	3,500.000	1.666	1.666	0.319	88.000	M	482.75	102.471
	2	3,800.000	3.588	3.588	0.293	88.000	M	301.20	111.230
	Σ	7,300.000						467.26	213.701
#15	1	3,530.000	2.208	2.208	0.308	88.000	M	397.56	103.325
	Σ	3,530.000						388.14	103.325
#10	1	2,860.000	1.177	1.043	0.355	82.000	M	245.19	46.024
	Σ	2,860.000						240.25	46.024
#11	1	3,930.000	1.084	0.885	0.360	80.000	M	269.11	50.580
	Σ	6,790.000						500.47	96.605
#12	1	940.000	0.268	0.000	0.000	85.000	M	269.99	20.743
	Σ	7,730.000						523.35	117.348
#17	1	5,060.000	0.559	0.559	0.362	88.000	M	1,412.31	148.302
	Σ	23,620.000						1,471.57	582.676
#14	1	780.000	0.667	0.667	0.372	88.000	M	196.46	22.870
	2	500.000	0.308	0.308	0.372	89.000	M	205.13	16.137
	Σ	1,280.000						261.33	39.007
#13	1	940.000	1.151	1.151	0.360	88.000	M	167.40	27.528
	2	822.000	0.533	0.533	0.367	89.000	M	261.43	26.444
	Σ	1,762.000						250.23	53.972
#18	1	1,590.000	0.141	0.141	0.388	88.000	M	732.90	47.524
	Σ	28,252.000						1,383.23	723.179
#19	Σ	28,252.000						1,335.69	723.179

Subwatershed Time of Concentration Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#10	1	8. Large gullies, diversions, and low flowing streams	1.79	305.00	17,000.16	4.010	1.177
#10	1	Time of Concentration:					1.177
#11	1	8. Large gullies, diversions, and low flowing streams	1.88	300.00	15,999.99	4.100	1.084
#11	1	Time of Concentration:					1.084

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#12	1	5. Nearly bare and untilled, and alluvial valley fans	5.23	115.00	2,200.03	2.280	0.268
#12	1	Time of Concentration:					0.268
#13	1	8. Large gullies, diversions, and low flowing streams	2.14	390.00	18,200.48	4.390	1.151
#13	1	Time of Concentration:					1.151
#13	2	8. Large gullies, diversions, and low flowing streams	2.44	220.00	9,000.00	4.690	0.533
#13	2	Time of Concentration:					0.533
#14	1	8. Large gullies, diversions, and low flowing streams	2.73	325.00	11,900.40	4.950	0.667
#14	1	Time of Concentration:					0.667
#14	2	8. Large gullies, diversions, and low flowing streams	2.73	150.00	5,500.14	4.950	0.308
#14	2	Time of Concentration:					0.308
#15	1	8. Large gullies, diversions, and low flowing streams	0.83	180.00	21,702.43	2.730	2.208
#15	1	Time of Concentration:					2.208
#16	1	8. Large gullies, diversions, and low flowing streams	1.00	180.00	18,000.00	3.000	1.666
#16	1	Time of Concentration:					1.666
#16	2	8. Large gullies, diversions, and low flowing streams	0.65	200.00	31,002.94	2.400	3.588
#16	2	Time of Concentration:					3.588
#17	1	8. Large gullies, diversions, and low flowing streams	2.22	200.00	9,000.09	4.470	0.559
#17	1	Time of Concentration:					0.559
#18	1	8. Large gullies, diversions, and low flowing streams	3.83	115.00	3,000.02	5.870	0.141
#18	1	Time of Concentration:					0.141

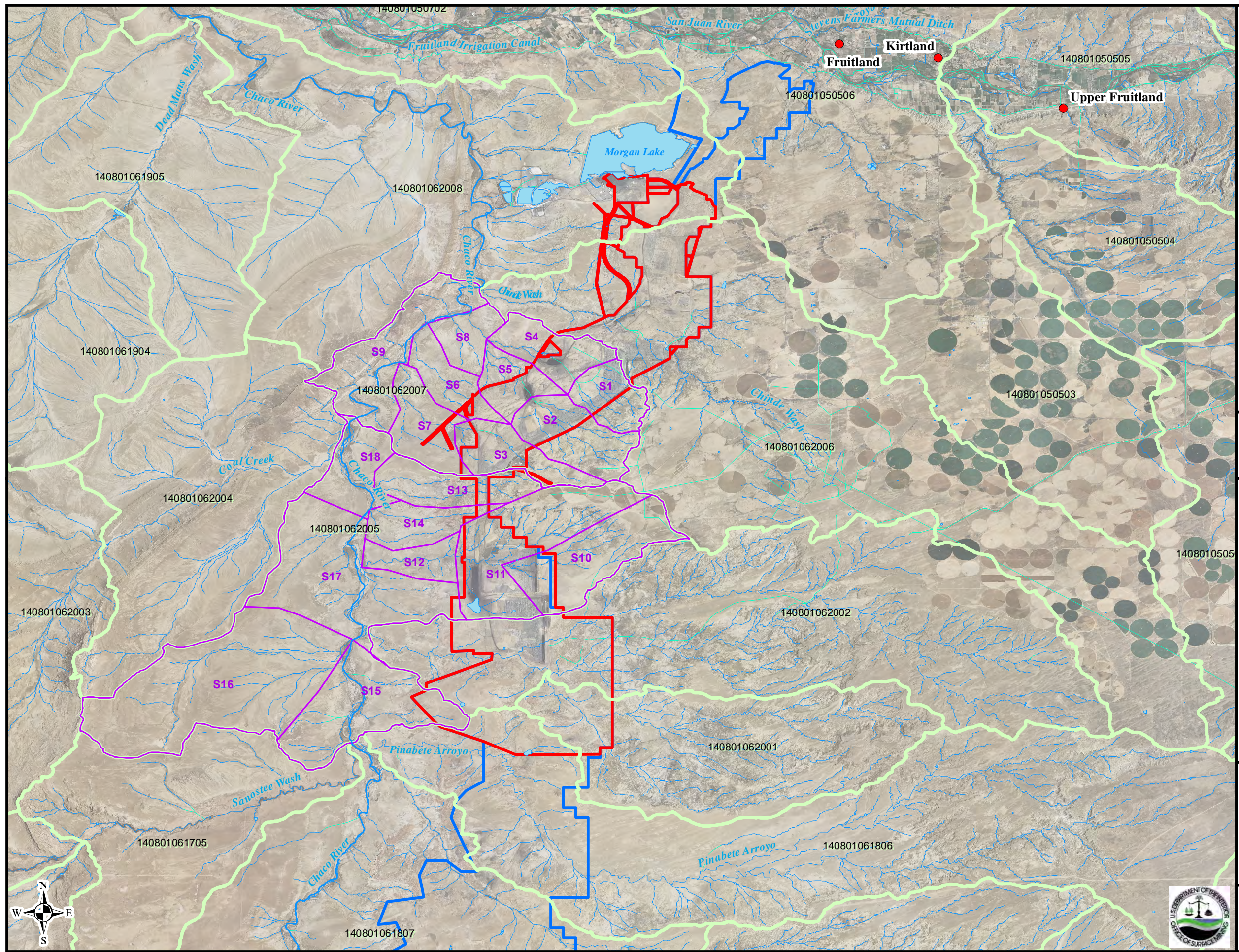
Subwatershed Muskingum Routing Details:

Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#10	1	8. Large gullies, diversions, and low flowing streams	1.94	305.00	15,700.60	4.180	1.043
#10	1	Muskingum K:					1.043
#11	1	8. Large gullies, diversions, and low flowing streams	2.14	300.00	14,000.37	4.390	0.885
#11	1	Muskingum K:					0.885
#13	1	8. Large gullies, diversions, and low flowing streams	2.14	390.00	18,200.48	4.390	1.151
#13	1	Muskingum K:					1.151
#13	2	8. Large gullies, diversions, and low flowing streams	2.44	220.00	9,000.16	4.690	0.533
#13	2	Muskingum K:					0.533

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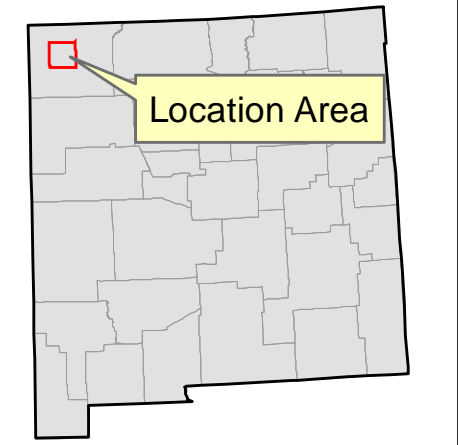
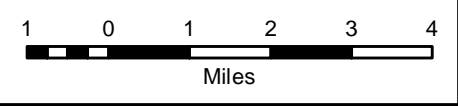
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Stru #	SWS #	Land Flow Condition	Slope (%)	Vert. Dist. (ft)	Horiz. Dist. (ft)	Velocity (fps)	Time (hrs)
#14	1	8. Large gullies, diversions, and low flowing streams	2.73	325.00	11,900.40	4.950	0.667
#14	1	Muskingum K:					0.667
#14	2	8. Large gullies, diversions, and low flowing streams	2.73	150.00	5,500.14	4.950	0.308
#14	2	Muskingum K:					0.308
#15	1	8. Large gullies, diversions, and low flowing streams	0.83	180.00	21,702.43	2.730	2.208
#15	1	Muskingum K:					2.208
#16	1	8. Large gullies, diversions, and low flowing streams	1.00	180.00	18,000.00	3.000	1.666
#16	1	Muskingum K:					1.666
#16	2	8. Large gullies, diversions, and low flowing streams	0.65	200.00	31,002.94	2.400	3.588
#16	2	Muskingum K:					3.588
#17	1	8. Large gullies, diversions, and low flowing streams	2.22	200.00	9,000.09	4.470	0.559
#17	1	Muskingum K:					0.559
#18	1	8. Large gullies, diversions, and low flowing streams	3.83	115.00	3,000.02	5.870	0.141
#18	1	Muskingum K:					0.141



- Legend**
- SEDCAD Sub-drainages
 - HUC12 Watersheds ¹
 - Natural Stream ¹
 - Artificial Path/Ditch ¹
 - Coal Lease Area
 - Permit Area
 - Population Centers

Data Sources:
 Aerial Photography (San Juan County) 2009
¹ USGS National Hydrography Dataset



Coordinate System: GCS North American 1983
 Datum: North American 1983
 Units: Degree

**Navajo Mine CHIA
 SEDCAD Sub-drainages
 Used in Modeling
 San Juan County, NM**

Figure E-1

