

APPENDIX K

Steep Slopes

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APPENDIX K-1
Steep Slopes 15 to 30% Grade
Mountain Valley Project

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APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
0.78	0.78	-29.16 %	-18.01 %	-16.26°	-10.21°	✓	
1.95	1.97	-20.53 %	-16.40 %	-11.60°	-9.31°	✓	
2.72	2.75	26.39 %	18.68 %	14.78°	10.58°	✓	
2.89	2.89	-18.98 %	-18.39 %	-10.75°	-10.42°	✓	
3.03	3.05	27.61 %	17.24 %	15.44°	9.78°	✓	
3.17	3.18	20.29 %	18.57 %	11.47°	10.52°	✓	
3.23	3.28	-26.92 %	-16.26 %	-15.07°	-9.23°	✓	
3.36	3.37	26.03 %	17.74 %	14.59°	10.06°	✓	
4.05	4.06	-17.27 %	-17.13 %	-9.80°	-9.72°	✓	
4.39	4.43	-26.04 %	-16.65 %	-14.60°	-9.45°	✓	
4.50	4.52	-18.72 %	-15.60 %	-10.60°	-8.86°	✓	
5.80	5.80	24.65 %	16.10 %	13.85°	9.14°	✓	
5.88	5.91	24.32 %	19.25 %	13.67°	10.90°	✓	
5.92	5.93	26.79 %	18.52 %	15.00°	10.49°	✓	
5.94	5.95	-23.07 %	-17.68 %	-12.99°	-10.02°	✓	
6.10	6.10	16.52 %	16.34 %	9.38°	9.28°	✓	
6.34	6.37	-25.19 %	-16.13 %	-14.14°	-9.16°	✓	
6.39	6.41	-24.04 %	-19.57 %	-13.52°	-11.07°	✓	
6.91	6.95	-24.70 %	-17.54 %	-13.87°	-9.95°	✓	
6.96	6.97	-16.61 %	-15.98 %	-9.43°	-9.08°	✓	
7.00	7.02	-18.63 %	-16.94 %	-10.55°	-9.62°	✓	
7.66	7.68	-26.39 %	-17.35 %	-14.78°	-9.84°	✓	
8.03	8.04	23.36 %	21.08 %	13.15°	11.90°	✓	
8.45	8.45	-20.51 %	-17.31 %	-11.59°	-9.82°	✓	
8.93	8.95	26.34 %	20.01 %	14.76°	11.31°	✓	
9.04	9.05	16.03 %	15.24 %	9.11°	8.67°	✓	
9.26	9.29	-25.83 %	-16.52 %	-14.48°	-9.38°	✓	
9.31	9.33	-18.09 %	-15.38 %	-10.25°	-8.75°	✓	
9.43	9.46	25.12 %	16.84 %	14.10°	9.56°	✓	
9.57	9.60	-24.31 %	-16.01 %	-13.66°	-9.10°	✓	
9.85	9.90	28.46 %	15.71 %	15.88°	8.93°	✓	
10.13	10.14	16.67 %	16.54 %	9.46°	9.39°	✓	
10.16	10.16	24.53 %	24.01 %	13.78°	13.50°	✓	
10.49	10.50	18.86 %	18.10 %	10.68°	10.26°	✓	
10.52	10.53	20.66 %	16.88 %	11.67°	9.58°	✓	
10.54	10.56	-20.18 %	-15.63 %	-11.41°	-8.88°	✓	
10.58	10.58	-19.08 %	-16.02 %	-10.80°	-9.10°	✓	
10.85	10.86	-19.90 %	-19.50 %	-11.26°	-11.03°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
11.67	11.67	-18.60 %	-17.22 %	-10.54°	-9.77°	✓	
11.80	11.81	-17.56 %	-15.71 %	-9.96°	-8.93°	✓	
12.72	12.74	22.00 %	15.93 %	12.41°	9.05°	✓	
12.87	12.89	-24.23 %	-15.42 %	-13.62°	-8.77°	✓	
13.17	13.18	-18.23 %	-17.63 %	-10.33°	-10.00°	✓	
13.36	13.38	22.23 %	18.43 %	12.53°	10.44°	✓	
13.40	13.41	-28.36 %	-17.87 %	-15.83°	-10.13°	✓	
13.43	13.46	-22.15 %	-16.65 %	-12.49°	-9.45°	✓	
13.62	13.63	25.92 %	17.94 %	14.53°	10.17°	✓	
13.87	13.90	-25.88 %	-15.44 %	-14.51°	-8.78°	✓	
14.31	14.33	-21.34 %	-18.18 %	-12.05°	-10.31°	✓	
14.39	14.39	-22.18 %	-19.83 %	-12.51°	-11.22°	✓	
14.46	14.48	22.45 %	16.17 %	12.65°	9.19°	✓	
14.56	14.61	-26.40 %	-15.66 %	-14.79°	-8.90°	✓	
14.69	14.70	19.29 %	17.24 %	10.92°	9.78°	✓	
14.79	14.80	22.76 %	15.40 %	12.82°	8.76°	✓	
14.82	14.84	-19.88 %	-15.51 %	-11.25°	-8.81°	✓	
15.80	15.81	24.50 %	20.85 %	13.77°	11.78°	✓	
15.89	15.89	20.75 %	15.43 %	11.72°	8.77°	✓	
16.22	16.23	20.16 %	16.68 %	11.40°	9.47°	✓	
16.40	16.44	-26.23 %	-16.62 %	-14.70°	-9.43°	✓	
16.46	16.47	-19.80 %	-15.09 %	-11.20°	-8.58°	✓	
16.80	16.81	24.40 %	21.51 %	13.71°	12.14°	✓	
16.82	16.83	-22.57 %	-21.11 %	-12.72°	-11.92°	✓	
16.92	16.96	-28.85 %	-16.58 %	-16.09°	-9.41°	✓	
16.98	16.99	-15.92 %	-15.63 %	-9.05°	-8.88°	✓	
17.21	17.23	-24.31 %	-18.30 %	-13.67°	-10.37°	✓	
17.42	17.45	-26.25 %	-19.31 %	-14.71°	-10.93°	✓	
18.25	18.27	-22.65 %	-19.16 %	-12.76°	-10.85°	✓	
19.08	19.13	29.44 %	15.29 %	16.40°	8.69°	✓	
19.41	19.42	20.05 %	18.94 %	11.34°	10.72°	✓	
19.49	19.50	-20.31 %	-18.81 %	-11.48°	-10.65°	✓	
19.67	19.69	27.24 %	21.00 %	15.24°	11.86°	✓	
20.02	20.02	19.48 %	16.54 %	11.02°	9.39°	✓	
20.11	20.11	19.34 %	18.02 %	10.95°	10.21°	✓	
20.56	20.58	-20.66 %	-17.13 %	-11.68°	-9.72°	✓	
20.97	21.01	29.41 %	17.03 %	16.39°	9.67°	✓	
21.09	21.10	-27.09 %	-15.54 %	-15.16°	-8.84°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
21.29	21.32	-27.28 %	-18.07 %	-15.26°	-10.24°	✓	
21.34	21.34	-19.69 %	-18.15 %	-11.14°	-10.29°	✓	
21.74	21.77	18.44 %	15.65 %	10.45°	8.89°	✓	
21.94	21.95	23.18 %	18.22 %	13.05°	10.33°	✓	
22.02	22.04	24.21 %	15.46 %	13.61°	8.79°	✓	
22.22	22.23	-26.73 %	-22.33 %	-14.97°	-12.59°	✓	
22.32	22.32	-20.18 %	-18.64 %	-11.41°	-10.56°	✓	
22.38	22.38	-15.73 %	-15.34 %	-8.94°	-8.72°	✓	
22.69	22.71	25.63 %	16.55 %	14.38°	9.39°	✓	
22.76	22.77	-20.59 %	-16.32 %	-11.63°	-9.27°	✓	
23.20	23.21	-26.96 %	-15.04 %	-15.09°	-8.55°	✓	
23.56	23.58	28.12 %	17.56 %	15.70°	9.96°	✓	
23.76	23.78	27.18 %	17.13 %	15.20°	9.72°	✓	
23.84	23.87	-20.74 %	-15.21 %	-11.72°	-8.65°	✓	
23.92	23.93	21.66 %	18.08 %	12.22°	10.25°	✓	
24.10	24.14	28.91 %	16.46 %	16.12°	9.35°	✓	
24.51	24.52	-24.40 %	-18.69 %	-13.71°	-10.59°	✓	
24.75	24.76	19.46 %	16.01 %	11.01°	9.10°	✓	
24.89	24.90	-24.86 %	-18.44 %	-13.96°	-10.45°	✓	
25.54	25.55	-23.14 %	-16.56 %	-13.03°	-9.40°	✓	
25.62	25.63	17.78 %	15.87 %	10.08°	9.02°	✓	
26.19	26.21	-17.04 %	-15.78 %	-9.67°	-8.97°	✓	
26.31	26.32	20.67 %	17.41 %	11.68°	9.88°	✓	
26.45	26.46	20.66 %	17.66 %	11.67°	10.01°	✓	
26.52	26.54	-21.13 %	-15.46 %	-11.93°	-8.79°	✓	
27.15	27.16	16.46 %	16.31 %	9.35°	9.27°	✓	
27.22	27.24	23.83 %	15.31 %	13.41°	8.71°	✓	
27.46	27.46	22.18 %	20.53 %	12.51°	11.60°	✓	
27.53	27.54	-24.13 %	-17.46 %	-13.57°	-9.90°	✓	
27.63	27.64	17.71 %	15.51 %	10.04°	8.82°	✓	
27.70	27.70	-16.89 %	-15.62 %	-9.59°	-8.88°	✓	
27.80	27.80	-24.49 %	-15.31 %	-13.76°	-8.70°	✓	
27.85	27.86	-18.95 %	-16.36 %	-10.73°	-9.29°	✓	
27.91	27.92	18.40 %	15.75 %	10.42°	8.95°	✓	
28.09	28.10	-21.55 %	-15.02 %	-12.16°	-8.54°	✓	
28.24	28.29	26.75 %	15.86 %	14.97°	9.01°	✓	
28.52	28.55	-26.62 %	-16.42 %	-14.90°	-9.32°	✓	
28.73	28.74	22.58 %	20.98 %	12.73°	11.85°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
29.27	29.28	21.65 %	17.71 %	12.22°	10.04°	✓	
29.31	29.32	23.15 %	16.64 %	13.03°	9.45°	✓	
29.62	29.63	22.39 %	16.29 %	12.62°	9.25°	✓	
29.66	29.67	16.00 %	15.60 %	9.09°	8.87°	✓	
29.70	29.71	20.05 %	16.10 %	11.34°	9.15°	✓	
29.75	29.77	-25.85 %	-16.36 %	-14.49°	-9.29°	✓	
29.80	29.80	-18.20 %	-15.76 %	-10.31°	-8.96°	✓	
29.83	29.84	-15.67 %	-15.63 %	-8.90°	-8.89°	✓	
30.20	30.25	26.49 %	15.01 %	14.84°	8.54°	✓	
30.30	30.31	15.80 %	15.62 %	8.98°	8.88°	✓	
30.32	30.33	23.50 %	20.98 %	13.22°	11.85°	✓	
30.35	30.38	-23.79 %	-17.51 %	-13.38°	-9.93°	✓	
30.51	30.51	19.76 %	16.16 %	11.18°	9.18°	✓	
30.75	30.81	25.52 %	15.08 %	14.32°	8.58°	✓	
30.92	30.99	-23.55 %	-17.57 %	-13.25°	-9.96°	✓	
31.52	31.53	18.71 %	16.16 %	10.60°	9.18°	✓	
31.55	31.56	20.99 %	15.07 %	11.85°	8.57°	✓	
31.59	31.61	19.11 %	15.88 %	10.82°	9.02°	✓	
31.75	31.76	-20.91 %	-15.50 %	-11.81°	-8.81°	✓	
31.94	31.95	25.43 %	17.88 %	14.27°	10.13°	✓	
32.40	32.50	0.19 %	0.28 %	10.87°	15.38°		✓
32.53	32.55	22.02 %	15.02 %	12.42°	8.54°	✓	
33.38	33.40	-21.25 %	-19.59 %	-12.00°	-11.08°	✓	
33.47	33.52	24.21 %	15.23 %	13.61°	8.66°	✓	
33.80	33.84	-27.72 %	-15.41 %	-15.49°	-8.76°	✓	
33.87	33.90	-22.56 %	-16.02 %	-12.71°	-9.10°	✓	
34.59	34.60	-18.01 %	-15.93 %	-10.21°	-9.05°	✓	
34.63	34.66	28.85 %	20.25 %	16.09°	11.45°	✓	
34.76	34.77	-27.63 %	-24.67 %	-15.45°	-13.86°	✓	
35.10	35.11	24.03 %	20.27 %	13.51°	11.46°	✓	
35.56	35.58	21.37 %	17.16 %	12.06°	9.74°	✓	
35.61	35.62	17.99 %	15.25 %	10.20°	8.67°	✓	
35.71	35.72	-23.77 %	-19.69 %	-13.37°	-11.14°	✓	
35.73	35.75	-17.19 %	-15.56 %	-9.75°	-8.84°	✓	
36.23	36.24	-22.30 %	-17.23 %	-12.57°	-9.77°	✓	
36.44	36.45	17.10 %	16.13 %	9.71°	9.16°	✓	
36.71	36.73	-23.49 %	-15.76 %	-13.22°	-8.96°	✓	
36.81	36.82	21.20 %	15.14 %	11.97°	8.61°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
37.25	37.26	-17.37 %	-16.42 %	-9.86°	-9.32°	✓	
37.33	37.34	17.60 %	15.90 %	9.98°	9.04°	✓	
37.41	37.42	-15.86 %	-15.00 %	-9.01°	-8.53°	✓	
37.63	37.64	-20.05 %	-15.23 %	-11.34°	-8.66°	✓	
37.73	37.74	21.44 %	17.32 %	12.10°	9.83°	✓	
38.26	38.27	20.98 %	20.52 %	11.85°	11.59°	✓	
38.40	38.41	21.26 %	19.66 %	12.00°	11.12°	✓	
38.64	38.66	17.93 %	16.34 %	10.17°	9.28°	✓	
38.68	38.69	-29.03 %	-24.72 %	-16.19°	-13.88°	✓	
38.76	38.77	-20.26 %	-15.75 %	-11.46°	-8.95°	✓	
39.00	39.01	-22.78 %	-16.19 %	-12.83°	-9.20°	✓	
39.11	39.12	17.91 %	17.47 %	10.15°	9.91°	✓	
39.14	39.16	-28.61 %	-16.35 %	-15.96°	-9.28°	✓	
39.40	39.40	22.63 %	16.82 %	12.75°	9.55°	✓	
39.49	39.50	-26.92 %	-19.50 %	-15.07°	-11.03°	✓	
39.63	39.67	27.51 %	15.18 %	15.38°	8.63°	✓	
39.68	39.69	-24.36 %	-15.88 %	-13.69°	-9.03°	✓	
39.74	39.76	27.87 %	19.13 %	15.57°	10.83°	✓	
40.03	40.04	-26.12 %	-19.62 %	-14.64°	-11.10°	✓	
40.21	40.21	-23.06 %	-22.08 %	-12.99°	-12.45°	✓	
40.27	40.30	26.79 %	15.68 %	15.00°	8.91°	✓	
40.33	40.34	-21.47 %	-17.14 %	-12.12°	-9.72°	✓	
40.51	40.52	-23.32 %	-18.88 %	-13.13°	-10.69°	✓	
40.76	40.79	-28.83 %	-18.72 %	-16.08°	-10.60°	✓	
40.87	40.90	29.41 %	19.07 %	16.39°	10.80°	✓	
41.45	41.52	28.46 %	20.05 %	15.88°	11.34°	✓	
41.68	41.69	-25.67 %	-22.15 %	-14.39°	-12.49°	✓	
41.77	41.77	-18.98 %	-16.84 %	-10.75°	-9.56°	✓	
41.90	41.95	23.12 %	15.42 %	13.02°	8.76°	✓	
42.11	42.14	22.06 %	17.07 %	12.44°	9.69°	✓	
42.20	42.22	-24.43 %	-15.01 %	-13.73°	-8.53°	✓	
42.26	42.28	21.06 %	15.61 %	11.89°	8.87°	✓	
42.95	42.96	-23.23 %	-23.05 %	-13.08°	-12.98°	✓	
43.57	43.63	-28.80 %	-15.57 %	-16.06°	-8.85°	✓	
43.82	43.84	-26.56 %	-16.42 %	-14.88°	-9.33°	✓	
43.92	43.93	-21.25 %	-15.36 %	-12.00°	-8.73°	✓	
44.04	44.08	20.42 %	15.49 %	11.54°	8.81°	✓	
44.26	44.30	-24.08 %	-15.19 %	-13.54°	-8.64°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
45.17	45.20	-25.02 %	-15.13 %	-14.04°	-8.60°	✓	
45.21	45.23	-26.65 %	-17.14 %	-14.92°	-9.73°	✓	
45.27	45.30	-27.49 %	-16.63 %	-15.37°	-9.44°	✓	
45.33	45.34	-19.33 %	-16.84 %	-10.94°	-9.56°	✓	
45.68	45.71	-22.28 %	-15.76 %	-12.56°	-8.95°	✓	
46.11	46.12	16.30 %	15.03 %	9.26°	8.55°	✓	
46.13	46.15	21.91 %	18.36 %	12.36°	10.40°	✓	
46.18	46.22	25.66 %	18.90 %	14.39°	10.70°	✓	
46.24	46.25	27.08 %	15.65 %	15.15°	8.89°	✓	
46.25	46.46	0.28 %	0.11 %	15.64°	6.28°		✓
46.90	46.95	-24.27 %	-15.18 %	-13.64°	-8.63°	✓	
46.99	47.00	23.00 %	15.94 %	12.95°	9.06°	✓	
47.15	47.16	15.75 %	15.06 %	8.95°	8.56°	✓	
48.23	48.24	17.94 %	15.44 %	10.17°	8.78°	✓	
48.31	48.31	-29.23 %	-19.44 %	-16.30°	-11.00°	✓	
48.33	48.34	-18.77 %	-15.32 %	-10.63°	-8.71°	✓	
48.43	48.45	28.16 %	21.14 %	15.73°	11.94°	✓	
48.49	48.51	17.95 %	15.05 %	10.18°	8.56°	✓	
48.52	48.54	23.98 %	19.58 %	13.48°	11.08°	✓	
48.57	48.60	-24.18 %	-18.39 %	-13.59°	-10.42°	✓	
48.81	48.84	-27.88 %	-15.54 %	-15.58°	-8.83°	✓	
49.73	49.75	17.78 %	16.88 %	10.08°	9.58°	✓	
49.84	49.89	25.89 %	15.72 %	14.52°	8.93°	✓	
49.91	49.99	-29.96 %	-15.29 %	-16.68°	-8.69°	✓	
50.02	50.05	-26.22 %	-16.91 %	-14.69°	-9.60°	✓	
50.19	50.20	19.45 %	16.38 %	11.01°	9.30°	✓	
50.73	50.78	-25.55 %	-19.39 %	-14.33°	-10.97°	✓	
51.53	51.54	-20.27 %	-17.97 %	-11.46°	-10.19°	✓	
51.84	51.85	-18.44 %	-16.87 %	-10.45°	-9.57°	✓	
52.94	52.97	23.08 %	16.01 %	13.00°	9.09°	✓	
53.06	53.14	0.30 %	0.22 %	16.54°	12.35°		✓
53.31	53.36	25.08 %	16.47 %	14.08°	9.35°	✓	
53.46	53.47	-21.07 %	-15.02 %	-11.90°	-8.54°	✓	
53.83	53.85	-21.04 %	-16.06 %	-11.88°	-9.12°	✓	
53.94	53.95	-16.58 %	-16.11 %	-9.42°	-9.15°	✓	
54.04	54.08	27.09 %	15.25 %	15.16°	8.67°	✓	
54.30	54.33	26.27 %	15.21 %	14.72°	8.65°	✓	
54.58	54.59	-25.71 %	-21.12 %	-14.42°	-11.93°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
54.63	54.64	21.11 %	16.92 %	11.92°	9.60°	✓	
54.69	54.74	-23.18 %	-16.05 %	-13.05°	-9.12°	✓	
55.29	55.29	22.97 %	20.23 %	12.94°	11.44°	✓	
55.45	55.46	-17.32 %	-17.10 %	-9.82°	-9.71°	✓	
55.83	55.84	-23.83 %	-18.30 %	-13.41°	-10.37°	✓	
55.85	55.85	25.55 %	15.20 %	14.33°	8.64°	✓	
56.17	56.18	19.13 %	16.98 %	10.83°	9.64°	✓	
56.26	56.26	-23.62 %	-22.19 %	-13.29°	-12.51°	✓	
57.09	57.12	-18.84 %	-15.76 %	-10.67°	-8.96°	✓	
57.27	57.28	22.15 %	19.27 %	12.49°	10.91°	✓	
57.52	57.52	-26.08 %	-20.18 %	-14.62°	-11.41°	✓	
57.76	57.78	17.61 %	17.31 %	9.99°	9.82°	✓	
57.87	57.88	-20.04 %	-17.64 %	-11.33°	-10.00°	✓	
58.12	58.12	24.43 %	17.97 %	13.73°	10.19°	✓	
58.51	58.51	-22.29 %	-18.97 %	-12.57°	-10.74°	✓	
58.74	58.79	27.54 %	15.34 %	15.40°	8.72°	✓	
59.02	59.03	16.31 %	15.81 %	9.27°	8.99°	✓	
59.09	59.13	-27.23 %	-15.10 %	-15.23°	-8.59°	✓	
59.53	59.55	23.00 %	17.41 %	12.95°	9.87°	✓	
59.66	59.67	23.37 %	15.98 %	13.16°	9.08°	✓	
60.60	60.61	-24.94 %	-17.73 %	-14.01°	-10.05°	✓	
61.14	61.16	-23.63 %	-18.29 %	-13.29°	-10.37°	✓	
62.67	62.72	26.47 %	15.76 %	14.83°	8.96°	✓	
62.75	62.75	20.76 %	19.11 %	11.73°	10.82°	✓	
63.37	63.37	16.95 %	16.88 %	9.62°	9.58°	✓	
63.47	63.48	-21.29 %	-19.33 %	-12.02°	-10.94°	✓	
63.57	63.59	-23.78 %	-17.75 %	-13.38°	-10.07°	✓	
63.62	63.62	-18.90 %	-16.43 %	-10.70°	-9.33°	✓	
64.36	64.41	-24.88 %	-18.05 %	-13.97°	-10.23°	✓	
64.61	64.70	27.39 %	15.13 %	15.32°	8.60°	✓	
64.74	64.77	29.55 %	19.98 %	16.46°	11.30°	✓	
64.81	64.81	-20.70 %	-18.25 %	-11.70°	-10.34°	✓	
64.93	64.93	-17.23 %	-17.20 %	-9.77°	-9.76°	✓	
64.97	64.97	-16.47 %	-15.91 %	-9.35°	-9.04°	✓	
65.08	65.09	26.84 %	16.34 %	15.03°	9.28°	✓	
65.63	65.65	19.21 %	15.26 %	10.87°	8.68°	✓	
66.63	66.64	16.14 %	15.75 %	9.17°	8.95°	✓	
66.77	66.79	-21.80 %	-18.50 %	-12.30°	-10.48°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
66.80	66.82	-16.64 %	-15.15 %	-9.44°	-8.62°	✓	
66.83	66.85	-20.92 %	-17.03 %	-11.82°	-9.66°	✓	
66.89	66.89	-23.63 %	-17.83 %	-13.30°	-10.11°	✓	
66.97	67.00	-23.37 %	-17.19 %	-13.15°	-9.75°	✓	
68.13	68.14	-22.15 %	-20.97 %	-12.49°	-11.84°	✓	
68.28	68.29	-16.50 %	-15.46 %	-9.37°	-8.79°	✓	
68.32	68.36	-27.76 %	-16.42 %	-15.51°	-9.32°	✓	
68.80	68.84	27.17 %	15.57 %	15.20°	8.85°	✓	
69.15	69.18	27.18 %	15.64 %	15.20°	8.89°	✓	
69.42	69.50	-26.81 %	-16.71 %	-15.01°	-9.49°	✓	
69.51	69.53	23.46 %	17.69 %	13.20°	10.03°	✓	
69.74	69.75	-26.79 %	-17.47 %	-15.00°	-9.91°	✓	
70.19	70.21	27.99 %	21.93 %	15.64°	12.37°	✓	
70.61	70.63	17.96 %	15.12 %	10.18°	8.60°	✓	
70.68	70.70	22.54 %	15.24 %	12.70°	8.67°	✓	
71.24	71.25	-25.75 %	-19.21 %	-14.44°	-10.87°	✓	
71.50	71.54	-25.70 %	-16.38 %	-14.41°	-9.30°	✓	
72.89	72.91	20.66 %	15.55 %	11.68°	8.84°	✓	
73.06	73.09	-27.55 %	-15.74 %	-15.40°	-8.94°	✓	
73.18	73.19	23.65 %	19.27 %	13.31°	10.91°	✓	
73.74	73.77	-24.98 %	-15.94 %	-14.02°	-9.05°	✓	
74.93	74.95	21.80 %	15.28 %	12.30°	8.69°	✓	
75.76	75.77	20.74 %	17.74 %	11.72°	10.06°	✓	
75.85	75.86	16.80 %	16.22 %	9.54°	9.22°	✓	
76.17	76.17	22.39 %	20.79 %	12.62°	11.74°	✓	
76.35	76.38	-20.84 %	-16.26 %	-11.77°	-9.23°	✓	
76.47	76.49	-17.70 %	-16.36 %	-10.04°	-9.29°	✓	
76.85	76.89	21.85 %	15.09 %	12.32°	8.58°	✓	
76.96	76.97	18.05 %	17.11 %	10.23°	9.71°	✓	
76.99	77.00	16.23 %	15.37 %	9.22°	8.74°	✓	
77.07	77.09	27.58 %	15.73 %	15.42°	8.94°	✓	
77.16	77.16	18.59 %	15.35 %	10.53°	8.72°	✓	
77.24	77.28	-20.75 %	-15.16 %	-11.72°	-8.62°	✓	
77.85	77.86	17.94 %	16.16 %	10.17°	9.18°	✓	
77.88	77.88	19.16 %	15.92 %	10.85°	9.05°	✓	
78.24	78.29	28.46 %	16.86 %	15.89°	9.57°	✓	
78.44	78.44	-17.63 %	-17.03 %	-10.00°	-9.66°	✓	
78.51	78.55	20.88 %	16.41 %	11.79°	9.32°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
78.59	78.59	-18.25 %	-17.68 %	-10.34°	-10.02°	✓	
78.70	78.73	24.92 %	16.31 %	14.00°	9.26°	✓	
79.11	79.11	-25.74 %	-19.76 %	-14.44°	-11.18°	✓	
79.25	79.29	29.97 %	16.65 %	16.68°	9.45°	✓	
80.19	80.23	29.13 %	15.64 %	16.24°	8.89°	✓	
80.26	80.27	17.20 %	17.16 %	9.76°	9.74°	✓	
81.08	81.09	-16.18 %	-15.32 %	-9.19°	-8.71°	✓	
82.09	82.11	-18.29 %	-15.34 %	-10.37°	-8.72°	✓	
82.54	82.55	-17.07 %	-15.68 %	-9.69°	-8.91°	✓	
82.98	82.99	18.44 %	17.99 %	10.45°	10.20°	✓	
83.07	83.08	-19.70 %	-15.12 %	-11.15°	-8.60°	✓	
83.22	83.22	15.60 %	15.53 %	8.87°	8.83°	✓	
83.28	83.29	-27.07 %	-17.73 %	-15.15°	-10.05°	✓	
83.53	83.53	-17.04 %	-16.25 %	-9.67°	-9.23°	✓	
84.24	84.25	28.94 %	15.50 %	16.14°	8.81°	✓	
84.79	84.80	-23.61 %	-15.17 %	-13.28°	-8.63°	✓	
85.26	85.28	-21.83 %	-19.76 %	-12.32°	-11.18°	✓	
85.35	85.36	-19.38 %	-18.38 %	-10.97°	-10.42°	✓	
85.40	85.43	26.09 %	16.85 %	14.63°	9.57°	✓	
85.87	85.88	-17.27 %	-15.83 %	-9.80°	-8.99°	✓	
85.91	85.92	-29.20 %	-23.12 %	-16.28°	-13.02°	✓	
86.21	86.22	16.28 %	15.93 %	9.25°	9.05°	✓	
86.38	86.39	-20.25 %	-15.19 %	-11.45°	-8.63°	✓	
87.36	87.37	21.85 %	18.89 %	12.33°	10.70°	✓	
88.25	88.29	23.49 %	17.39 %	13.22°	9.87°	✓	
88.45	88.45	-20.42 %	-16.85 %	-11.54°	-9.56°	✓	
88.83	88.85	21.09 %	16.49 %	11.91°	9.37°	✓	
89.46	89.46	17.20 %	15.00 %	9.76°	8.53°	✓	
89.72	89.74	-22.65 %	-15.50 %	-12.76°	-8.81°	✓	
90.22	90.23	-19.94 %	-18.83 %	-11.28°	-10.66°	✓	
91.10	91.14	25.34 %	15.34 %	14.22°	8.72°	✓	
91.34	91.35	-20.70 %	-15.57 %	-11.70°	-8.85°	✓	
91.95	91.97	-20.62 %	-15.32 %	-11.65°	-8.71°	✓	
92.02	92.04	-19.17 %	-16.25 %	-10.85°	-9.23°	✓	
92.64	92.69	-22.97 %	-16.07 %	-12.94°	-9.13°	✓	
93.33	93.35	25.06 %	15.40 %	14.07°	8.75°	✓	
93.50	93.51	19.02 %	18.39 %	10.77°	10.42°	✓	
94.39	94.41	20.62 %	18.66 %	11.65°	10.57°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
95.88	95.91	18.60 %	15.27 %	10.54°	8.68°	✓	
96.45	96.46	-29.19 %	-18.69 %	-16.27°	-10.59°	✓	
96.80	96.82	-25.92 %	-16.43 %	-14.53°	-9.33°	✓	
96.89	96.89	20.10 %	16.93 %	11.37°	9.61°	✓	
97.20	97.20	-19.94 %	-19.45 %	-11.28°	-11.00°	✓	
98.10	98.11	26.50 %	20.22 %	14.84°	11.43°	✓	
98.78	98.78	-22.65 %	-20.52 %	-12.76°	-11.59°	✓	
99.41	99.44	-22.15 %	-15.33 %	-12.49°	-8.71°	✓	
99.50	99.50	25.17 %	17.77 %	14.13°	10.07°	✓	
99.62	99.62	19.09 %	17.64 %	10.81°	10.00°	✓	
99.71	99.72	-26.51 %	-18.84 %	-14.85°	-10.67°	✓	
99.75	99.81	-29.40 %	-15.66 %	-16.38°	-8.90°	✓	
100.02	100.03	18.12 %	17.19 %	10.27°	9.75°	✓	
100.19	100.20	-16.87 %	-15.49 %	-9.57°	-8.80°	✓	
101.11	101.13	22.61 %	15.62 %	12.74°	8.88°	✓	
101.23	101.24	-18.15 %	-18.10 %	-10.29°	-10.26°	✓	
101.49	101.50	-23.70 %	-18.56 %	-13.33°	-10.52°	✓	
101.76	101.77	25.03 %	23.22 %	14.05°	13.07°	✓	
101.91	101.95	-25.08 %	-16.84 %	-14.08°	-9.56°	✓	
102.42	102.43	18.69 %	16.90 %	10.59°	9.59°	✓	
102.52	102.54	22.89 %	16.18 %	12.89°	9.19°	✓	
102.56	102.60	26.20 %	19.60 %	14.68°	11.09°	✓	
103.68	103.70	28.89 %	24.10 %	16.11°	13.55°	✓	
103.94	104.05	-29.04 %	-16.14 %	-16.20°	-9.17°	✓	
104.13	104.16	-26.78 %	-20.62 %	-14.99°	-11.65°	✓	
104.20	104.28	-29.56 %	-16.12 %	-16.47°	-9.16°	✓	
104.62	104.63	-22.81 %	-15.55 %	-12.85°	-8.84°	✓	
104.82	104.85	-29.02 %	-16.76 %	-16.18°	-9.52°	✓	
104.93	104.96	25.89 %	16.10 %	14.52°	9.15°	✓	
105.01	105.02	22.83 %	18.19 %	12.86°	10.31°	✓	
105.05	105.08	27.09 %	15.87 %	15.16°	9.02°	✓	
105.42	105.43	-26.48 %	-18.31 %	-14.83°	-10.38°	✓	
105.45	105.47	-26.22 %	-17.03 %	-14.69°	-9.66°	✓	
105.49	105.50	18.64 %	17.31 %	10.56°	9.82°	✓	
105.63	105.64	20.44 %	18.91 %	11.55°	10.71°	✓	
106.66	106.67	16.19 %	15.20 %	9.20°	8.64°	✓	
106.68	106.70	28.96 %	19.64 %	16.15°	11.11°	✓	
106.71	106.73	-22.27 %	-19.58 %	-12.56°	-11.08°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
106.84	106.86	26.37 %	17.84 %	14.77°	10.12°	✓	
107.18	107.22	25.22 %	17.55 %	14.16°	9.95°	✓	
107.28	107.31	29.03 %	15.09 %	16.19°	8.58°	✓	
107.52	107.53	18.61 %	16.65 %	10.54°	9.45°	✓	
107.84	107.86	-19.94 %	-16.26 %	-11.28°	-9.24°	✓	
107.87	107.88	-26.98 %	-16.50 %	-15.10°	-9.37°	✓	
108.07	108.08	-17.82 %	-16.53 %	-10.10°	-9.39°	✓	
108.35	108.41	29.83 %	15.63 %	16.61°	8.88°	✓	
108.43	108.45	28.90 %	16.80 %	16.12°	9.54°	✓	
108.46	108.47	23.14 %	19.96 %	13.03°	11.29°	✓	
108.80	108.82	-20.40 %	-16.50 %	-11.53°	-9.37°	✓	
108.97	109.01	-21.91 %	-15.67 %	-12.36°	-8.91°	✓	
109.02	109.08	-24.74 %	-15.61 %	-13.90°	-8.87°	✓	
109.12	109.14	24.33 %	19.75 %	13.67°	11.17°	✓	
109.25	109.31	-27.52 %	-18.74 %	-15.39°	-10.61°	✓	
109.33	109.35	23.30 %	18.59 %	13.12°	10.53°	✓	
109.66	109.66	-21.43 %	-20.28 %	-12.10°	-11.46°	✓	
109.78	109.81	-27.41 %	-19.69 %	-15.33°	-11.14°	✓	
109.95	109.95	-23.74 %	-19.08 %	-13.36°	-10.80°	✓	
110.03	110.04	-21.93 %	-16.12 %	-12.37°	-9.16°	✓	
110.60	110.62	20.38 %	18.14 %	11.52°	10.28°	✓	
110.75	110.75	-19.39 %	-15.88 %	-10.98°	-9.02°	✓	
110.83	110.84	18.08 %	16.29 %	10.25°	9.25°	✓	
111.41	111.43	19.09 %	16.75 %	10.81°	9.51°	✓	
111.44	111.45	21.03 %	16.90 %	11.88°	9.59°	✓	
111.48	111.58	-26.87 %	-15.39 %	-15.04°	-8.75°	✓	
111.66	111.67	-21.44 %	-17.24 %	-12.10°	-9.78°	✓	
111.69	111.70	-21.36 %	-20.22 %	-12.06°	-11.43°	✓	
111.78	111.79	18.64 %	17.39 %	10.56°	9.87°	✓	
111.81	111.82	21.43 %	18.23 %	12.09°	10.33°	✓	
112.12	112.12	-25.66 %	-15.89 %	-14.39°	-9.03°	✓	
112.14	112.15	26.32 %	21.64 %	14.75°	12.21°	✓	
112.52	112.54	-17.21 %	-16.43 %	-9.76°	-9.33°	✓	
112.68	112.69	-28.03 %	-21.07 %	-15.66°	-11.90°	✓	
112.97	112.98	-17.07 %	-15.63 %	-9.69°	-8.88°	✓	
113.13	113.16	-25.19 %	-20.26 %	-14.14°	-11.45°	✓	
113.40	113.41	-15.61 %	-15.19 %	-8.87°	-8.64°	✓	
113.64	113.65	17.63 %	16.51 %	10.00°	9.38°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
113.86	113.87	-26.71 %	-17.35 %	-14.95°	-9.84°	✓	
113.90	113.91	22.54 %	17.07 %	12.70°	9.69°	✓	
114.00	114.02	-22.17 %	-15.98 %	-12.50°	-9.08°	✓	
115.46	115.49	28.31 %	20.22 %	15.81°	11.43°	✓	
115.60	115.60	24.53 %	17.10 %	13.78°	9.70°	✓	
115.75	115.77	-21.88 %	-18.46 %	-12.34°	-10.46°	✓	
115.84	115.85	18.96 %	16.68 %	10.74°	9.47°	✓	
116.30	116.49	0.21 %	0.19 %	11.91°	10.76°		✓
116.48	116.49	20.47 %	16.29 %	11.57°	9.25°	✓	
116.56	116.60	-28.36 %	-15.03 %	-15.83°	-8.55°	✓	
117.08	117.10	24.51 %	22.97 %	13.77°	12.94°	✓	
117.25	117.26	-22.80 %	-15.60 %	-12.85°	-8.87°	✓	
117.29	117.30	18.01 %	17.52 %	10.21°	9.93°	✓	
117.44	117.45	-25.34 %	-17.09 %	-14.22°	-9.70°	✓	
117.55	117.57	-27.25 %	-15.92 %	-15.24°	-9.05°	✓	
117.63	117.64	20.65 %	16.03 %	11.67°	9.11°	✓	
118.14	118.15	16.84 %	16.20 %	9.56°	9.20°	✓	
118.24	118.25	-25.84 %	-17.93 %	-14.49°	-10.16°	✓	
118.26	118.30	-22.67 %	-16.19 %	-12.77°	-9.20°	✓	
118.33	118.34	-19.62 %	-18.47 %	-11.10°	-10.46°	✓	
118.37	118.38	-25.66 %	-19.25 %	-14.39°	-10.90°	✓	
119.94	119.96	18.99 %	16.11 %	10.75°	9.15°	✓	
120.59	120.61	22.47 %	15.63 %	12.66°	8.89°	✓	
120.66	120.67	24.45 %	17.01 %	13.74°	9.65°	✓	
122.19	122.20	-19.54 %	-15.74 %	-11.06°	-8.94°	✓	
122.23	122.24	20.15 %	16.44 %	11.39°	9.33°	✓	
122.29	122.30	21.12 %	21.06 %	11.93°	11.89°	✓	
122.46	122.47	-23.45 %	-18.88 %	-13.20°	-10.69°	✓	
122.48	122.50	-22.69 %	-15.83 %	-12.78°	-8.99°	✓	
123.13	123.20	0.25 %	0.16 %	14.25°	8.87°		✓
123.63	123.65	-19.90 %	-15.17 %	-11.26°	-8.63°	✓	
124.03	124.04	18.49 %	16.19 %	10.47°	9.20°	✓	
124.30	124.80	0.22 %	0.09 %	12.41°	5.03°		✓
124.31	124.32	-28.89 %	-26.93 %	-16.11°	-15.07°	✓	
124.89	124.89	-20.63 %	-15.92 %	-11.66°	-9.05°	✓	
124.90	124.91	23.40 %	20.19 %	13.17°	11.42°	✓	
124.94	124.95	-18.05 %	-17.05 %	-10.23°	-9.68°	✓	
125.33	125.33	25.75 %	17.86 %	14.44°	10.13°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
125.59	125.61	-20.82 %	-16.19 %	-11.76°	-9.19°	✓	
125.66	125.67	16.07 %	15.64 %	9.13°	8.89°	✓	
125.72	125.73	-17.93 %	-15.52 %	-10.16°	-8.82°	✓	
125.87	125.88	-26.44 %	-22.93 %	-14.81°	-12.91°	✓	
126.26	126.29	26.12 %	17.03 %	14.64°	9.67°	✓	
126.39	126.42	-26.43 %	-16.83 %	-14.81°	-9.55°	✓	
128.12	128.13	-18.17 %	-16.88 %	-10.30°	-9.58°	✓	
128.15	128.16	-25.04 %	-16.91 %	-14.06°	-9.60°	✓	
128.21	128.22	-17.93 %	-15.23 %	-10.17°	-8.66°	✓	
128.39	128.39	-27.25 %	-21.70 %	-15.24°	-12.24°	✓	
128.74	128.75	-19.21 %	-18.26 %	-10.88°	-10.35°	✓	
129.20	129.31	27.20 %	15.16 %	15.22°	8.62°	✓	
129.72	129.73	22.04 %	15.99 %	12.43°	9.08°	✓	
130.37	130.39	-21.92 %	-17.01 %	-12.36°	-9.65°	✓	
131.20	131.21	-17.46 %	-15.19 %	-9.91°	-8.64°	✓	
131.30	131.37	0.28 %	0.20 %	15.43°	11.31°		✓
131.81	132.10	0.27 %	0.20 %	15.06°	11.14°		✓
131.82	131.83	17.82 %	16.56 %	10.11°	9.40°	✓	
132.67	132.68	18.61 %	15.10 %	10.54°	8.59°	✓	
133.10	133.11	-20.27 %	-16.71 %	-11.46°	-9.49°	✓	
133.15	133.16	25.65 %	19.32 %	14.39°	10.94°	✓	
134.41	134.41	18.16 %	15.36 %	10.29°	8.73°	✓	
134.43	134.44	23.90 %	21.29 %	13.44°	12.02°	✓	
135.30	135.32	-28.70 %	-20.07 %	-16.02°	-11.35°	✓	
135.37	135.38	23.37 %	15.71 %	13.15°	8.93°	✓	
136.11	136.12	20.93 %	16.74 %	11.82°	9.50°	✓	
136.64	136.67	-18.79 %	-15.52 %	-10.64°	-8.82°	✓	
137.64	137.65	-22.21 %	-16.48 %	-12.52°	-9.36°	✓	
138.41	138.41	-16.00 %	-15.62 %	-9.09°	-8.88°	✓	
138.72	138.73	-24.30 %	-19.39 %	-13.66°	-10.97°	✓	
138.86	138.89	27.51 %	18.97 %	15.38°	10.74°	✓	
140.92	140.95	29.43 %	15.59 %	16.40°	8.86°	✓	
141.04	141.06	-23.86 %	-18.54 %	-13.42°	-10.51°	✓	
141.07	141.09	28.06 %	18.71 %	15.67°	10.60°	✓	
141.67	141.68	19.71 %	15.71 %	11.15°	8.93°	✓	
141.86	141.87	28.85 %	22.31 %	16.09°	12.58°	✓	
142.39	142.40	-23.01 %	-18.31 %	-12.96°	-10.38°	✓	
142.46	142.50	28.97 %	16.11 %	16.16°	9.15°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
142.83	142.84	20.38 %	18.87 %	11.52°	10.68°	✓	
143.18	143.19	-15.99 %	-15.08 %	-9.08°	-8.58°	✓	
143.39	143.40	-22.63 %	-21.86 %	-12.75°	-12.33°	✓	
143.87	143.88	-20.53 %	-16.52 %	-11.60°	-9.38°	✓	
144.17	144.18	28.99 %	15.87 %	16.17°	9.02°	✓	
144.79	144.80	24.51 %	20.16 %	13.77°	11.40°	✓	
144.87	144.88	26.70 %	21.47 %	14.95°	12.12°	✓	
145.47	145.49	-20.93 %	-18.73 %	-11.82°	-10.61°	✓	
145.50	145.52	-19.09 %	-15.02 %	-10.81°	-8.54°	✓	
145.84	145.86	-18.22 %	-15.33 %	-10.33°	-8.72°	✓	
147.50	147.51	17.80 %	16.79 %	10.10°	9.53°	✓	
148.07	148.09	22.58 %	17.13 %	12.73°	9.72°	✓	
148.16	148.21	-28.65 %	-16.92 %	-15.99°	-9.60°	✓	
148.69	148.72	-19.69 %	-16.00 %	-11.14°	-9.09°	✓	
148.95	148.98	-21.27 %	-15.03 %	-12.01°	-8.55°	✓	
149.17	149.18	-21.74 %	-21.20 %	-12.26°	-11.97°	✓	
149.22	149.24	27.53 %	16.34 %	15.39°	9.28°	✓	
149.43	149.46	-24.14 %	-16.04 %	-13.57°	-9.11°	✓	
150.29	150.32	29.65 %	16.95 %	16.52°	9.62°	✓	
150.52	150.52	-17.24 %	-15.28 %	-9.78°	-8.69°	✓	
150.88	150.90	-24.63 %	-17.18 %	-13.84°	-9.75°	✓	
150.93	150.94	17.81 %	16.22 %	10.10°	9.21°	✓	
151.34	151.39	-29.07 %	-15.20 %	-16.21°	-8.64°	✓	
151.77	151.78	28.65 %	22.59 %	15.99°	12.73°	✓	
152.51	152.52	20.42 %	16.35 %	11.54°	9.29°	✓	
153.00	153.04	25.54 %	17.18 %	14.33°	9.75°	✓	
153.28	153.29	23.49 %	18.90 %	13.22°	10.70°	✓	
153.45	153.46	28.82 %	16.11 %	16.07°	9.15°	✓	
153.63	153.66	23.04 %	15.95 %	12.97°	9.06°	✓	
153.78	153.80	-22.40 %	-18.56 %	-12.63°	-10.52°	✓	
153.83	153.85	-28.23 %	-16.86 %	-15.76°	-9.57°	✓	
153.88	153.89	-29.86 %	-23.43 %	-16.62°	-13.19°	✓	
153.95	153.95	24.98 %	22.95 %	14.03°	12.93°	✓	
154.02	154.04	-19.32 %	-15.04 %	-10.94°	-8.56°	✓	
154.10	154.10	-22.33 %	-18.27 %	-12.59°	-10.35°	✓	
154.19	154.20	-21.86 %	-18.00 %	-12.33°	-10.20°	✓	
154.28	154.31	29.02 %	17.56 %	16.18°	9.96°	✓	
154.40	154.41	-24.76 %	-16.02 %	-13.91°	-9.10°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
154.76	154.80	-22.61 %	-17.38 %	-12.74°	-9.86°	✓	
155.61	155.62	18.98 %	15.85 %	10.75°	9.00°	✓	
155.95	155.97	21.63 %	19.44 %	12.21°	11.00°	✓	
156.01	156.01	22.91 %	16.24 %	12.90°	9.22°	✓	
156.35	156.36	16.34 %	15.47 %	9.28°	8.79°	✓	
156.44	156.45	-17.26 %	-16.80 %	-9.79°	-9.53°	✓	
156.72	156.73	20.80 %	18.07 %	11.75°	10.24°	✓	
156.99	157.00	19.56 %	18.11 %	11.07°	10.26°	✓	
157.12	157.13	22.71 %	15.15 %	12.80°	8.61°	✓	
157.33	157.35	23.39 %	15.01 %	13.17°	8.53°	✓	
157.41	157.43	28.59 %	15.83 %	15.96°	9.00°	✓	
157.59	157.59	-22.64 %	-19.72 %	-12.76°	-11.16°	✓	
158.14	158.15	25.55 %	16.32 %	14.33°	9.27°	✓	
158.18	158.18	-24.12 %	-15.59 %	-13.56°	-8.86°	✓	
158.24	158.25	25.29 %	15.51 %	14.19°	8.81°	✓	
158.39	158.40	-19.69 %	-16.55 %	-11.14°	-9.40°	✓	
158.45	158.47	-26.45 %	-17.40 %	-14.81°	-9.87°	✓	
158.90	158.93	18.81 %	15.02 %	10.65°	8.54°	✓	
158.98	158.99	15.38 %	15.14 %	8.74°	8.61°	✓	
159.00	159.01	27.21 %	16.71 %	15.22°	9.49°	✓	
159.75	159.76	-18.69 %	-16.23 %	-10.59°	-9.22°	✓	
159.86	159.88	19.62 %	16.25 %	11.10°	9.23°	✓	
159.91	159.92	22.20 %	20.61 %	12.51°	11.64°	✓	
160.44	160.46	23.04 %	15.08 %	12.97°	8.58°	✓	
160.52	160.54	29.02 %	19.24 %	16.18°	10.89°	✓	
160.99	161.03	22.39 %	15.12 %	12.62°	8.60°	✓	
161.24	161.25	29.61 %	18.25 %	16.49°	10.34°	✓	
161.34	161.35	16.24 %	15.80 %	9.23°	8.98°	✓	
163.15	163.17	22.47 %	16.77 %	12.66°	9.52°	✓	
163.47	163.49	20.41 %	15.87 %	11.54°	9.02°	✓	
163.76	163.80	27.26 %	16.80 %	15.25°	9.54°	✓	
164.87	164.88	-26.72 %	-20.24 %	-14.96°	-11.44°	✓	
165.54	165.55	-25.40 %	-23.43 %	-14.25°	-13.18°	✓	
165.77	165.81	-27.43 %	-16.31 %	-15.34°	-9.26°	✓	
166.06	166.08	-21.64 %	-19.39 %	-12.21°	-10.98°	✓	
166.72	166.77	-28.70 %	-15.97 %	-16.02°	-9.07°	✓	
166.80	166.81	-21.20 %	-20.58 %	-11.97°	-11.63°	✓	
167.26	167.27	18.88 %	15.51 %	10.69°	8.82°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
167.30	167.30	-18.30 %	-17.76 %	-10.37°	-10.07°	✓	
167.41	167.42	-21.45 %	-19.85 %	-12.11°	-11.23°	✓	
168.36	168.37	-17.62 %	-16.00 %	-9.99°	-9.09°	✓	
168.46	168.47	-17.52 %	-15.62 %	-9.94°	-8.88°	✓	
168.61	168.63	15.51 %	15.07 %	8.82°	8.57°	✓	
168.84	168.88	-21.54 %	-16.00 %	-12.16°	-9.09°	✓	
168.90	168.92	28.04 %	22.67 %	15.66°	12.77°	✓	
169.17	169.17	16.99 %	15.79 %	9.64°	8.97°	✓	
170.66	170.66	15.87 %	15.29 %	9.02°	8.70°	✓	
170.68	170.73	-23.55 %	-15.05 %	-13.25°	-8.56°	✓	
170.75	170.77	-18.52 %	-15.14 %	-10.49°	-8.61°	✓	
170.96	171.05	-25.25 %	-16.47 %	-14.17°	-9.36°	✓	
172.14	172.16	20.53 %	15.41 %	11.60°	8.76°	✓	
172.76	172.79	25.54 %	19.65 %	14.33°	11.12°	✓	
173.32	173.35	-27.48 %	-20.53 %	-15.37°	-11.60°	✓	
173.36	173.38	25.60 %	21.77 %	14.36°	12.28°	✓	
173.39	173.41	17.48 %	15.05 %	9.91°	8.56°	✓	
173.72	173.75	24.55 %	16.47 %	13.79°	9.35°	✓	
174.03	174.05	16.83 %	15.23 %	9.55°	8.66°	✓	
174.94	174.94	-15.26 %	-15.00 %	-8.67°	-8.53°	✓	
175.30	175.39	27.73 %	16.27 %	15.50°	9.24°	✓	
175.44	175.45	17.94 %	16.76 %	10.17°	9.52°	✓	
175.48	175.49	-18.93 %	-17.17 %	-10.72°	-9.74°	✓	
175.53	175.55	22.08 %	17.10 %	12.45°	9.70°	✓	
176.25	176.26	18.26 %	17.45 %	10.35°	9.90°	✓	
177.41	177.41	-26.31 %	-17.42 %	-14.74°	-9.88°	✓	
177.78	177.79	27.48 %	15.12 %	15.37°	8.60°	✓	
179.06	179.08	-25.85 %	-15.82 %	-14.49°	-8.99°	✓	
179.64	179.66	19.56 %	15.21 %	11.07°	8.65°	✓	
179.96	179.98	21.85 %	15.57 %	12.33°	8.85°	✓	
180.14	180.14	-20.87 %	-17.26 %	-11.79°	-9.79°	✓	
180.16	180.17	-16.41 %	-15.38 %	-9.32°	-8.75°	✓	
180.58	180.60	-20.21 %	-16.54 %	-11.43°	-9.39°	✓	
180.71	180.73	21.08 %	15.98 %	11.91°	9.08°	✓	
180.80	180.83	24.07 %	17.02 %	13.53°	9.66°	✓	
181.92	181.93	-18.52 %	-16.03 %	-10.49°	-9.11°	✓	
182.54	182.66	0.22 %	0.16 %	12.35°	9.09°		✓
182.69	182.69	-16.48 %	-15.31 %	-9.36°	-8.70°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
183.05	183.05	26.04 %	25.79 %	14.60°	14.46°	✓	
183.54	183.55	19.22 %	18.64 %	10.88°	10.56°	✓	
183.61	183.62	17.20 %	15.57 %	9.76°	8.85°	✓	
184.27	184.29	24.13 %	17.30 %	13.57°	9.81°	✓	
184.61	184.65	-19.94 %	-15.23 %	-11.28°	-8.66°	✓	
184.98	185.01	23.30 %	15.17 %	13.12°	8.62°	✓	
185.02	185.04	25.70 %	16.35 %	14.42°	9.29°	✓	
187.77	187.78	15.70 %	15.67 %	8.92°	8.91°	✓	
187.94	187.95	23.21 %	16.17 %	13.07°	9.19°	✓	
188.67	188.68	-16.97 %	-15.65 %	-9.63°	-8.89°	✓	
188.89	188.93	27.12 %	16.77 %	15.17°	9.52°	✓	
189.02	189.04	20.36 %	16.38 %	11.51°	9.30°	✓	
189.41	189.42	16.24 %	15.88 %	9.22°	9.03°	✓	
189.49	189.51	-25.68 %	-19.65 %	-14.40°	-11.12°	✓	
189.60	189.64	-22.61 %	-15.58 %	-12.74°	-8.86°	✓	
189.74	189.88	-29.91 %	-18.10 %	-16.65°	-10.26°	✓	
190.21	190.23	21.34 %	15.44 %	12.05°	8.78°	✓	
190.26	190.27	22.22 %	17.75 %	12.53°	10.06°	✓	
190.32	190.35	-22.49 %	-15.60 %	-12.67°	-8.87°	✓	
190.56	190.57	21.84 %	20.35 %	12.32°	11.50°	✓	
190.62	190.66	28.13 %	19.57 %	15.71°	11.07°	✓	
190.71	190.74	-25.42 %	-17.55 %	-14.26°	-9.95°	✓	
190.94	190.94	19.29 %	19.15 %	10.92°	10.84°	✓	
191.12	191.14	-25.85 %	-15.71 %	-14.49°	-8.93°	✓	
191.17	191.19	-21.89 %	-20.06 %	-12.35°	-11.34°	✓	
191.47	191.48	28.86 %	25.32 %	16.10°	14.21°	✓	
191.68	191.72	27.34 %	16.50 %	15.29°	9.37°	✓	
191.75	191.80	-17.97 %	-15.08 %	-10.19°	-8.58°	✓	
192.11	192.16	26.94 %	17.33 %	15.08°	9.83°	✓	
192.60	192.61	-16.73 %	-16.05 %	-9.50°	-9.12°	✓	
192.71	192.73	19.09 %	15.90 %	10.81°	9.03°	✓	
192.94	192.96	-22.03 %	-15.56 %	-12.42°	-8.84°	✓	
193.27	193.30	-19.36 %	-16.05 %	-10.96°	-9.12°	✓	
193.42	193.44	20.96 %	15.95 %	11.84°	9.06°	✓	
193.66	193.67	-16.64 %	-15.54 %	-9.45°	-8.83°	✓	
193.84	193.84	-19.57 %	-15.39 %	-11.07°	-8.75°	✓	
193.89	193.90	20.96 %	16.91 %	11.84°	9.60°	✓	
194.22	194.28	-27.91 %	-16.08 %	-15.60°	-9.13°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
194.66	194.67	18.84 %	16.55 %	10.67°	9.40°	✓	
194.72	194.75	-25.38 %	-18.70 %	-14.24°	-10.59°	✓	
194.80	194.81	18.77 %	15.09 %	10.63°	8.58°	✓	
194.86	194.88	20.45 %	16.24 %	11.56°	9.23°	✓	
195.35	195.39	20.29 %	15.12 %	11.47°	8.60°	✓	
195.55	195.57	28.81 %	15.77 %	16.07°	8.96°	✓	
195.59	195.60	19.64 %	18.34 %	11.11°	10.40°	✓	
195.61	195.62	15.29 %	15.01 %	8.69°	8.54°	✓	
196.74	196.80	24.94 %	15.07 %	14.00°	8.57°	✓	
196.88	196.90	27.59 %	15.28 %	15.43°	8.69°	✓	
197.02	197.08	-27.08 %	-15.62 %	-15.15°	-8.88°	✓	
197.45	197.48	-27.93 %	-15.04 %	-15.60°	-8.56°	✓	
197.51	197.54	-25.47 %	-15.13 %	-14.29°	-8.60°	✓	
198.42	198.45	19.98 %	15.53 %	11.30°	8.83°	✓	
198.48	198.48	21.40 %	15.78 %	12.08°	8.97°	✓	
198.60	198.61	-21.03 %	-16.37 %	-11.87°	-9.29°	✓	
198.66	198.73	-20.90 %	-15.24 %	-11.81°	-8.67°	✓	
199.73	199.76	24.58 %	15.62 %	13.81°	8.88°	✓	
200.46	200.47	18.14 %	15.28 %	10.28°	8.69°	✓	
200.91	200.92	-17.95 %	-16.57 %	-10.18°	-9.41°	✓	
200.94	200.94	-18.04 %	-16.51 %	-10.23°	-9.38°	✓	
200.97	201.00	-27.55 %	-20.83 %	-15.40°	-11.76°	✓	
201.20	201.21	22.37 %	20.03 %	12.61°	11.33°	✓	
201.23	201.25	24.12 %	16.31 %	13.56°	9.27°	✓	
201.59	201.65	-26.88 %	-18.00 %	-15.05°	-10.21°	✓	
201.68	201.71	20.69 %	17.09 %	11.69°	9.70°	✓	
202.11	202.13	-23.58 %	-18.97 %	-13.27°	-10.74°	✓	
202.53	202.56	-18.64 %	-16.00 %	-10.56°	-9.09°	✓	
202.71	202.73	17.51 %	15.07 %	9.93°	8.57°	✓	
202.99	203.06	29.41 %	16.10 %	16.39°	9.15°	✓	
203.10	203.11	-19.93 %	-15.20 %	-11.27°	-8.64°	✓	
203.57	203.59	-17.71 %	-15.05 %	-10.05°	-8.56°	✓	
203.81	203.82	-16.54 %	-15.23 %	-9.39°	-8.66°	✓	
203.86	203.87	-16.21 %	-15.82 %	-9.21°	-8.99°	✓	
203.96	204.01	-23.18 %	-15.88 %	-13.05°	-9.02°	✓	
204.08	204.09	-25.68 %	-16.22 %	-14.40°	-9.22°	✓	
204.83	204.84	-22.75 %	-20.61 %	-12.82°	-11.65°	✓	
206.75	206.79	20.43 %	15.05 %	11.55°	8.56°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
206.81	206.85	26.44 %	15.03 %	14.81°	8.55°	✓	
206.92	206.93	-18.13 %	-17.39 %	-10.28°	-9.86°	✓	
206.96	206.98	-18.09 %	-15.08 %	-10.25°	-8.58°	✓	
207.17	207.20	28.33 %	21.10 %	15.82°	11.91°	✓	
207.21	207.22	16.30 %	16.12 %	9.26°	9.16°	✓	
207.56	207.58	-28.08 %	-18.74 %	-15.68°	-10.61°	✓	
207.61	207.62	27.16 %	17.29 %	15.19°	9.81°	✓	
207.73	207.75	-21.99 %	-17.82 %	-12.40°	-10.10°	✓	
207.81	207.82	29.61 %	22.71 %	16.50°	12.80°	✓	
208.18	208.19	-19.49 %	-18.79 %	-11.03°	-10.64°	✓	
208.44	208.46	-21.50 %	-16.44 %	-12.13°	-9.33°	✓	
208.61	208.63	-22.21 %	-17.28 %	-12.52°	-9.80°	✓	
208.68	208.75	-25.91 %	-16.82 %	-14.53°	-9.55°	✓	
208.78	208.82	23.55 %	16.61 %	13.25°	9.43°	✓	
209.53	209.54	-15.17 %	-15.11 %	-8.62°	-8.59°	✓	
209.62	209.71	-28.80 %	-16.71 %	-16.07°	-9.48°	✓	
210.08	210.14	20.10 %	15.34 %	11.36°	8.72°	✓	
210.53	210.54	20.03 %	15.74 %	11.33°	8.95°	✓	
210.81	210.86	-20.69 %	-15.42 %	-11.69°	-8.76°	✓	
211.38	211.39	17.51 %	16.93 %	9.93°	9.61°	✓	
211.40	211.47	29.54 %	15.77 %	16.45°	8.96°	✓	
211.50	211.68	0.24 %	0.15 %	13.28°	8.47°		✓
211.50	211.52	-27.48 %	-18.89 %	-15.37°	-10.70°	✓	
211.56	211.57	24.01 %	21.51 %	13.50°	12.14°	✓	
211.64	211.66	-22.07 %	-18.19 %	-12.45°	-10.31°	✓	
211.84	211.88	-20.15 %	-15.25 %	-11.39°	-8.67°	✓	
211.90	211.94	-25.68 %	-15.49 %	-14.40°	-8.80°	✓	
211.98	212.01	27.83 %	17.51 %	15.55°	9.93°	✓	
212.13	212.16	17.38 %	15.07 %	9.86°	8.57°	✓	
213.44	213.46	-26.54 %	-17.64 %	-14.87°	-10.00°	✓	
213.61	213.66	25.67 %	16.92 %	14.40°	9.61°	✓	
213.86	213.90	27.39 %	15.99 %	15.32°	9.08°	✓	
214.02	214.04	-18.30 %	-16.32 %	-10.37°	-9.27°	✓	
214.29	214.31	28.58 %	21.93 %	15.95°	12.37°	✓	
214.81	214.83	-19.72 %	-15.51 %	-11.16°	-8.82°	✓	
214.84	214.85	-27.26 %	-18.73 %	-15.25°	-10.61°	✓	
215.39	215.40	23.32 %	17.22 %	13.13°	9.77°	✓	
215.42	215.44	19.43 %	15.31 %	10.99°	8.70°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
215.68	215.71	-19.02 %	-15.33 %	-10.77°	-8.72°	✓	
215.72	215.74	-29.85 %	-15.06 %	-16.62°	-8.56°	✓	
216.16	216.16	-16.76 %	-15.75 %	-9.51°	-8.95°	✓	
216.30	216.30	17.35 %	15.23 %	9.84°	8.66°	✓	
216.42	216.43	25.37 %	15.49 %	14.23°	8.81°	✓	
216.47	216.49	-19.40 %	-15.73 %	-10.98°	-8.94°	✓	
216.81	216.83	-29.84 %	-18.49 %	-16.61°	-10.48°	✓	
216.87	216.88	-15.39 %	-15.02 %	-8.75°	-8.54°	✓	
216.92	216.93	20.14 %	16.02 %	11.39°	9.10°	✓	
216.98	216.99	15.82 %	15.48 %	8.99°	8.80°	✓	
217.13	217.14	24.10 %	15.97 %	13.55°	9.07°	✓	
217.21	217.23	-21.40 %	-16.79 %	-12.08°	-9.53°	✓	
217.24	217.25	-22.22 %	-15.33 %	-12.53°	-8.72°	✓	
217.36	217.43	28.90 %	15.43 %	16.12°	8.77°	✓	
217.54	217.56	-24.36 %	-18.24 %	-13.69°	-10.34°	✓	
217.76	217.77	18.57 %	16.06 %	10.52°	9.12°	✓	
217.81	217.83	-24.89 %	-15.61 %	-13.98°	-8.87°	✓	
217.89	217.91	18.93 %	16.46 %	10.72°	9.35°	✓	
218.02	218.07	24.56 %	15.63 %	13.80°	8.89°	✓	
218.09	218.10	17.15 %	16.81 %	9.73°	9.54°	✓	
218.24	218.30	21.50 %	16.27 %	12.14°	9.24°	✓	
219.60	220.00	0.23 %	0.06 %	13.01°	3.32°		✓
219.69	219.70	27.33 %	22.20 %	15.29°	12.52°	✓	
220.10	220.11	17.94 %	16.95 %	10.17°	9.62°	✓	
220.12	220.18	21.96 %	15.98 %	12.39°	9.08°	✓	
220.25	220.33	20.51 %	16.50 %	11.59°	9.37°	✓	
221.08	221.09	-19.72 %	-19.03 %	-11.15°	-10.78°	✓	
221.10	221.11	-15.08 %	-15.04 %	-8.57°	-8.55°	✓	
221.58	221.66	-23.06 %	-16.64 %	-12.99°	-9.45°	✓	
222.02	222.03	20.63 %	15.93 %	11.66°	9.05°	✓	
222.05	222.07	23.13 %	18.00 %	13.02°	10.20°	✓	
222.39	222.40	-23.89 %	-15.26 %	-13.44°	-8.68°	✓	
222.47	222.48	18.93 %	15.95 %	10.72°	9.06°	✓	
222.65	222.72	-24.82 %	-16.71 %	-13.94°	-9.49°	✓	
222.91	222.92	17.46 %	16.73 %	9.91°	9.50°	✓	
226.19	226.21	-19.91 %	-16.49 %	-11.26°	-9.36°	✓	
226.67	226.68	-16.21 %	-15.04 %	-9.21°	-8.55°	✓	
226.71	226.84	-28.27 %	-16.32 %	-15.79°	-9.27°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
227.52	227.53	-19.44 %	-16.39 %	-11.00°	-9.31°	✓	
227.93	227.94	19.49 %	17.98 %	11.03°	10.19°	✓	
229.03	229.04	-15.72 %	-15.23 %	-8.93°	-8.66°	✓	
229.18	229.19	20.21 %	16.74 %	11.42°	9.50°	✓	
229.20	229.30	0.15 %	0.05 %	8.53°	2.58°		✓
229.38	229.39	29.57 %	19.62 %	16.47°	11.10°	✓	
229.52	229.53	-20.48 %	-16.31 %	-11.58°	-9.26°	✓	
229.79	229.83	21.20 %	16.82 %	11.97°	9.55°	✓	
229.99	230.03	21.20 %	15.51 %	11.97°	8.82°	✓	
230.34	230.35	20.05 %	15.33 %	11.34°	8.72°	✓	
230.79	230.80	-16.72 %	-15.50 %	-9.49°	-8.81°	✓	
231.01	231.02	22.25 %	20.64 %	12.54°	11.66°	✓	
231.80	231.82	26.80 %	21.79 %	15.00°	12.29°	✓	
231.91	231.92	17.34 %	17.11 %	9.84°	9.71°	✓	
232.26	232.28	22.01 %	15.87 %	12.41°	9.02°	✓	
233.77	233.78	-21.27 %	-20.15 %	-12.01°	-11.39°	✓	
234.09	234.10	27.01 %	19.25 %	15.12°	10.90°	✓	
234.50	234.55	29.21 %	15.63 %	16.29°	8.88°	✓	
234.80	234.81	15.68 %	15.03 %	8.91°	8.55°	✓	
234.88	234.89	-15.56 %	-15.12 %	-8.85°	-8.60°	✓	
234.93	234.99	-22.84 %	-16.11 %	-12.87°	-9.15°	✓	
235.64	235.66	19.69 %	15.88 %	11.14°	9.02°	✓	
236.56	236.56	-19.33 %	-15.14 %	-10.94°	-8.61°	✓	
236.75	236.76	-19.37 %	-19.12 %	-10.96°	-10.82°	✓	
237.36	237.37	23.15 %	20.66 %	13.04°	11.67°	✓	
237.74	237.77	-26.03 %	-16.07 %	-14.59°	-9.13°	✓	
237.98	237.98	24.40 %	18.99 %	13.71°	10.75°	✓	
238.01	238.04	28.68 %	15.62 %	16.00°	8.88°	✓	
238.75	238.76	-18.96 %	-16.56 %	-10.74°	-9.40°	✓	
238.89	238.91	-18.24 %	-15.74 %	-10.34°	-8.95°	✓	
239.24	239.27	20.54 %	16.06 %	11.61°	9.12°	✓	
240.66	240.68	-26.02 %	-22.44 %	-14.58°	-12.65°	✓	
240.70	240.71	-17.61 %	-16.27 %	-9.99°	-9.24°	✓	
240.98	240.98	-19.19 %	-15.46 %	-10.86°	-8.79°	✓	
242.17	242.17	19.67 %	15.90 %	11.13°	9.04°	✓	
242.21	242.22	-21.26 %	-17.67 %	-12.01°	-10.02°	✓	
242.24	242.24	-16.01 %	-15.82 %	-9.10°	-8.99°	✓	
242.44	242.45	21.64 %	17.37 %	12.21°	9.85°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
242.64	242.66	29.36 %	20.97 %	16.36°	11.84°	✓	
242.80	242.83	28.53 %	15.23 %	15.93°	8.66°	✓	
242.85	242.86	23.53 %	17.72 %	13.24°	10.05°	✓	
243.72	243.73	27.13 %	25.52 %	15.18°	14.32°	✓	
244.11	244.12	16.91 %	15.89 %	9.60°	9.03°	✓	
244.35	244.36	25.06 %	24.15 %	14.07°	13.58°	✓	
244.39	244.39	25.19 %	20.80 %	14.14°	11.75°	✓	
244.59	244.60	-20.24 %	-16.44 %	-11.44°	-9.34°	✓	
244.71	244.74	-26.82 %	-18.60 %	-15.01°	-10.54°	✓	
244.80	244.81	-24.09 %	-20.92 %	-13.54°	-11.82°	✓	
244.83	244.85	25.27 %	20.21 %	14.18°	11.42°	✓	
245.27	245.29	-23.60 %	-15.99 %	-13.28°	-9.09°	✓	
245.35	245.36	-18.79 %	-17.19 %	-10.64°	-9.75°	✓	
245.59	245.67	-29.30 %	-18.90 %	-16.33°	-10.70°	✓	
246.11	246.15	24.92 %	18.53 %	13.99°	10.50°	✓	
246.54	246.56	-18.52 %	-15.38 %	-10.49°	-8.74°	✓	
246.70	246.72	-19.56 %	-16.49 %	-11.07°	-9.36°	✓	
246.75	246.77	17.29 %	15.41 %	9.81°	8.76°	✓	
246.79	246.84	19.70 %	15.62 %	11.15°	8.88°	✓	
247.05	247.06	20.40 %	20.23 %	11.53°	11.44°	✓	
247.38	247.38	16.47 %	15.12 %	9.35°	8.60°	✓	
247.89	247.93	26.61 %	15.60 %	14.90°	8.87°	✓	
248.73	248.73	-17.25 %	-15.61 %	-9.78°	-8.87°	✓	
248.75	248.76	-16.27 %	-15.05 %	-9.24°	-8.56°	✓	
250.30	250.35	-24.88 %	-17.23 %	-13.97°	-9.77°	✓	
250.42	250.43	19.14 %	15.49 %	10.84°	8.80°	✓	
250.58	250.60	-16.53 %	-15.61 %	-9.38°	-8.87°	✓	
250.62	250.67	-21.23 %	-15.39 %	-11.99°	-8.75°	✓	
251.32	251.34	-22.30 %	-17.10 %	-12.57°	-9.70°	✓	
251.56	251.56	17.46 %	15.54 %	9.90°	8.83°	✓	
251.75	251.80	-21.15 %	-15.36 %	-11.94°	-8.73°	✓	
251.83	251.84	-16.16 %	-15.51 %	-9.18°	-8.82°	✓	
252.18	252.20	29.41 %	18.73 %	16.39°	10.61°	✓	
252.54	252.57	20.23 %	16.01 %	11.44°	9.10°	✓	
252.61	252.62	-24.87 %	-23.53 %	-13.97°	-13.24°	✓	
252.72	252.74	-26.34 %	-15.28 %	-14.76°	-8.69°	✓	
253.05	253.11	26.68 %	16.22 %	14.94°	9.21°	✓	
253.28	253.29	-16.19 %	-15.61 %	-9.20°	-8.87°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
253.62	253.63	24.95 %	17.89 %	14.01°	10.14°	✓	
253.97	254.00	25.99 %	18.45 %	14.57°	10.46°	✓	
254.40	254.42	-17.77 %	-15.83 %	-10.08°	-9.00°	✓	
254.47	254.48	-18.66 %	-16.88 %	-10.57°	-9.58°	✓	
254.68	254.75	25.72 %	17.96 %	14.43°	10.18°	✓	
254.84	254.84	-20.42 %	-19.22 %	-11.54°	-10.88°	✓	
254.87	254.87	-25.08 %	-17.34 %	-14.08°	-9.84°	✓	
254.93	254.94	-17.55 %	-15.97 %	-9.95°	-9.07°	✓	
255.14	255.20	-27.19 %	-15.48 %	-15.21°	-8.80°	✓	
255.40	255.43	-20.83 %	-15.32 %	-11.77°	-8.71°	✓	
255.45	255.49	-26.04 %	-19.68 %	-14.59°	-11.14°	✓	
255.57	255.58	24.79 %	17.54 %	13.92°	9.95°	✓	
255.80	255.82	-17.43 %	-16.07 %	-9.89°	-9.13°	✓	
255.90	256.00	-24.25 %	-15.85 %	-13.63°	-9.01°	✓	
256.06	256.09	22.74 %	15.91 %	12.81°	9.04°	✓	
256.20	256.21	20.34 %	15.43 %	11.50°	8.77°	✓	
256.26	256.29	-24.01 %	-17.20 %	-13.50°	-9.76°	✓	
256.32	256.32	15.53 %	15.35 %	8.83°	8.72°	✓	
256.54	256.57	23.22 %	15.98 %	13.07°	9.08°	✓	
256.83	256.83	18.30 %	16.13 %	10.37°	9.16°	✓	
256.95	256.99	19.66 %	17.73 %	11.12°	10.06°	✓	
257.04	257.07	-27.17 %	-17.26 %	-15.20°	-9.79°	✓	
257.09	257.22	23.06 %	15.88 %	12.98°	9.02°	✓	
257.38	257.40	19.67 %	15.73 %	11.13°	8.94°	✓	
257.58	257.60	-17.97 %	-17.16 %	-10.19°	-9.74°	✓	
257.64	257.66	-19.30 %	-17.91 %	-10.93°	-10.15°	✓	
257.82	257.85	-29.73 %	-18.20 %	-16.56°	-10.32°	✓	
257.87	257.89	25.94 %	16.82 %	14.54°	9.55°	✓	
258.49	258.50	-18.11 %	-15.45 %	-10.27°	-8.78°	✓	
258.67	258.68	-19.45 %	-15.45 %	-11.01°	-8.78°	✓	
259.46	259.51	23.92 %	16.07 %	13.45°	9.13°	✓	
259.84	259.87	-24.91 %	-16.38 %	-13.99°	-9.30°	✓	
260.69	260.70	24.85 %	16.33 %	13.96°	9.28°	✓	
260.76	260.79	-20.02 %	-16.85 %	-11.32°	-9.56°	✓	
261.11	261.11	-25.07 %	-23.91 %	-14.07°	-13.45°	✓	
261.15	261.19	28.59 %	15.06 %	15.96°	8.56°	✓	
261.31	261.34	-28.79 %	-21.40 %	-16.06°	-12.08°	✓	
261.36	261.38	25.42 %	24.47 %	14.27°	13.75°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
261.49	261.51	-26.02 %	-16.38 %	-14.59°	-9.30°	✓	
261.56	261.57	27.90 %	17.01 %	15.59°	9.65°	✓	
261.59	261.60	26.78 %	17.91 %	14.99°	10.15°	✓	
261.83	261.83	-16.23 %	-15.50 %	-9.22°	-8.81°	✓	
262.10	262.11	-21.28 %	-18.08 %	-12.01°	-10.25°	✓	
262.15	262.15	22.59 %	22.29 %	12.73°	12.56°	✓	
262.21	262.22	18.19 %	16.42 %	10.31°	9.33°	✓	
262.35	262.41	-18.56 %	-15.01 %	-10.51°	-8.54°	✓	
263.21	263.25	-19.04 %	-15.15 %	-10.78°	-8.62°	✓	
263.27	263.30	-26.05 %	-19.64 %	-14.60°	-11.11°	✓	
264.02	264.05	-21.49 %	-15.88 %	-12.13°	-9.02°	✓	
264.95	264.96	-19.37 %	-18.37 %	-10.96°	-10.41°	✓	
265.01	265.02	27.10 %	22.62 %	15.16°	12.74°	✓	
265.05	265.08	17.20 %	15.66 %	9.76°	8.90°	✓	
265.73	265.73	17.80 %	17.45 %	10.09°	9.90°	✓	
266.12	266.12	19.91 %	17.05 %	11.26°	9.67°	✓	
266.21	266.22	-19.67 %	-15.91 %	-11.13°	-9.04°	✓	
266.30	266.31	19.53 %	15.92 %	11.05°	9.05°	✓	
266.39	266.39	22.04 %	15.19 %	12.43°	8.63°	✓	
267.40	267.42	-18.09 %	-15.48 %	-10.25°	-8.80°	✓	
267.43	267.45	24.00 %	15.31 %	13.50°	8.70°	✓	
267.67	267.69	-27.04 %	-17.50 %	-15.13°	-9.93°	✓	
268.04	268.05	17.69 %	15.11 %	10.03°	8.59°	✓	
268.33	268.36	-23.71 %	-16.61 %	-13.34°	-9.43°	✓	
268.60	268.62	-22.92 %	-19.64 %	-12.91°	-11.11°	✓	
268.70	268.72	17.74 %	16.56 %	10.06°	9.41°	✓	
268.93	268.98	-29.18 %	-15.51 %	-16.27°	-8.82°	✓	
269.08	269.10	24.72 %	21.17 %	13.89°	11.95°	✓	
269.11	269.12	15.19 %	15.05 %	8.64°	8.56°	✓	
269.18	269.21	19.34 %	16.23 %	10.95°	9.22°	✓	
270.19	270.20	-19.18 %	-16.02 %	-10.86°	-9.10°	✓	
270.45	270.65	0.19 %	0.14 %	10.48°	7.74°		✓
271.16	271.17	18.37 %	15.88 %	10.41°	9.03°	✓	
271.24	271.25	26.69 %	25.08 %	14.94°	14.08°	✓	
271.33	271.33	-20.15 %	-15.31 %	-11.39°	-8.70°	✓	
271.67	271.67	-21.91 %	-16.04 %	-12.36°	-9.11°	✓	
271.69	271.70	-17.12 %	-15.88 %	-9.72°	-9.02°	✓	
273.03	273.05	27.91 %	16.83 %	15.60°	9.55°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
273.07	273.08	16.11 %	15.92 %	9.15°	9.05°	✓	
273.20	273.22	-16.64 %	-15.74 %	-9.45°	-8.95°	✓	
273.42	273.43	17.36 %	15.13 %	9.85°	8.60°	✓	
273.82	273.84	-19.88 %	-17.05 %	-11.24°	-9.67°	✓	
274.22	274.23	-29.02 %	-21.11 %	-16.18°	-11.92°	✓	
274.80	274.81	19.08 %	17.73 %	10.80°	10.05°	✓	
274.89	274.92	20.98 %	17.15 %	11.85°	9.73°	✓	
275.11	275.12	24.15 %	15.84 %	13.58°	9.00°	✓	
275.20	275.22	-22.54 %	-18.84 %	-12.70°	-10.67°	✓	
275.26	275.26	-22.68 %	-16.27 %	-12.78°	-9.24°	✓	
275.32	275.33	-15.26 %	-15.03 %	-8.68°	-8.55°	✓	
275.35	275.36	-23.50 %	-19.00 %	-13.22°	-10.76°	✓	
275.75	275.77	-23.34 %	-16.77 %	-13.14°	-9.52°	✓	
275.81	275.81	20.76 %	18.13 %	11.73°	10.28°	✓	
276.09	276.11	28.83 %	15.43 %	16.08°	8.77°	✓	
276.56	276.58	-18.57 %	-15.63 %	-10.52°	-8.88°	✓	
276.61	276.62	23.86 %	22.07 %	13.42°	12.45°	✓	
276.69	276.71	19.11 %	16.88 %	10.82°	9.58°	✓	
277.29	277.31	-22.00 %	-15.17 %	-12.41°	-8.63°	✓	
277.39	277.41	-26.08 %	-15.38 %	-14.62°	-8.74°	✓	
277.53	277.58	21.53 %	16.38 %	12.15°	9.30°	✓	
277.74	277.76	-29.31 %	-16.24 %	-16.34°	-9.23°	✓	
277.93	277.95	28.22 %	18.52 %	15.76°	10.49°	✓	
278.03	278.06	-25.82 %	-15.92 %	-14.48°	-9.04°	✓	
278.31	278.34	21.64 %	16.15 %	12.21°	9.17°	✓	
278.58	278.59	-29.46 %	-26.70 %	-16.41°	-14.95°	✓	
278.66	278.69	-24.28 %	-15.91 %	-13.65°	-9.04°	✓	
279.08	279.09	23.59 %	17.11 %	13.27°	9.71°	✓	
279.21	279.22	-27.08 %	-17.12 %	-15.15°	-9.72°	✓	
279.28	279.30	18.12 %	15.56 %	10.27°	8.85°	✓	
279.82	279.83	-29.42 %	-15.53 %	-16.39°	-8.83°	✓	
279.87	279.88	24.69 %	17.94 %	13.87°	10.17°	✓	
279.91	279.92	-18.15 %	-18.01 %	-10.29°	-10.21°	✓	
279.94	279.95	-22.56 %	-16.24 %	-12.71°	-9.22°	✓	
280.07	280.08	29.36 %	18.11 %	16.36°	10.27°	✓	
280.26	280.27	-18.17 %	-17.90 %	-10.30°	-10.15°	✓	
280.27	280.30	28.98 %	16.09 %	16.16°	9.14°	✓	
280.45	280.47	-22.15 %	-16.07 %	-12.49°	-9.13°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
280.61	280.61	-18.02 %	-16.89 %	-10.22°	-9.58°	✓	
280.64	280.68	17.67 %	15.14 %	10.02°	8.61°	✓	
280.81	280.82	21.08 %	19.94 %	11.90°	11.28°	✓	
281.22	281.24	21.94 %	19.50 %	12.37°	11.04°	✓	
281.43	281.50	-29.34 %	-15.41 %	-16.35°	-8.76°	✓	
281.52	281.55	26.00 %	15.28 %	14.58°	8.69°	✓	
281.67	281.72	-26.72 %	-15.72 %	-14.96°	-8.93°	✓	
281.72	281.73	21.05 %	19.03 %	11.89°	10.78°	✓	
281.87	281.88	21.48 %	18.04 %	12.13°	10.23°	✓	
282.40	282.44	22.32 %	15.85 %	12.58°	9.01°	✓	
282.51	282.55	26.94 %	18.13 %	15.08°	10.27°	✓	
282.62	282.62	-23.65 %	-23.63 %	-13.31°	-13.30°	✓	
282.67	282.69	-28.41 %	-20.94 %	-15.86°	-11.82°	✓	
283.52	283.52	20.42 %	16.97 %	11.54°	9.63°	✓	
284.37	284.38	-17.49 %	-16.16 %	-9.92°	-9.18°	✓	
284.39	284.44	-25.85 %	-17.42 %	-14.49°	-9.88°	✓	
284.69	284.71	-21.38 %	-15.51 %	-12.07°	-8.82°	✓	
285.03	285.04	26.49 %	19.30 %	14.84°	10.92°	✓	
285.37	285.38	21.02 %	16.82 %	11.87°	9.55°	✓	
285.74	285.75	27.96 %	21.98 %	15.62°	12.40°	✓	
285.95	285.98	23.92 %	16.21 %	13.45°	9.21°	✓	
286.35	286.35	-15.63 %	-15.23 %	-8.88°	-8.66°	✓	
286.38	286.43	26.54 %	16.80 %	14.86°	9.54°	✓	
286.54	286.56	-22.18 %	-18.49 %	-12.50°	-10.48°	✓	
286.62	286.62	-19.79 %	-16.14 %	-11.19°	-9.17°	✓	
286.64	286.66	29.51 %	20.89 %	16.44°	11.80°	✓	
286.67	286.69	24.43 %	18.44 %	13.73°	10.45°	✓	
286.84	286.85	-16.41 %	-15.61 %	-9.32°	-8.87°	✓	
287.62	287.65	-21.30 %	-16.20 %	-12.02°	-9.20°	✓	
288.03	288.04	-22.97 %	-18.29 %	-12.94°	-10.37°	✓	
288.05	288.06	23.80 %	16.08 %	13.39°	9.13°	✓	
289.22	289.23	27.13 %	18.53 %	15.18°	10.50°	✓	
289.53	289.56	22.24 %	16.25 %	12.54°	9.23°	✓	
290.20	290.21	26.97 %	15.03 %	15.09°	8.55°	✓	
290.24	290.24	-21.78 %	-18.07 %	-12.29°	-10.24°	✓	
290.29	290.32	25.03 %	15.38 %	14.05°	8.74°	✓	
290.51	290.57	-28.83 %	-18.75 %	-16.08°	-10.62°	✓	
290.60	290.64	28.88 %	16.96 %	16.11°	9.63°	✓	

APPENDIX K-1

Vertical/Lateral Slopes 15 - 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
290.81	290.81	-17.49 %	-16.61 %	-9.92°	-9.43°	✓	
291.25	291.29	-19.87 %	-15.46 %	-11.24°	-8.79°	✓	
291.29	291.32	27.23 %	16.47 %	15.23°	9.35°	✓	
291.39	291.39	-17.12 %	-15.44 %	-9.71°	-8.78°	✓	
291.42	291.43	18.41 %	16.30 %	10.43°	9.26°	✓	
291.82	291.83	-19.59 %	-17.59 %	-11.08°	-9.98°	✓	
291.86	291.87	26.28 %	22.17 %	14.72°	12.50°	✓	
292.06	292.08	-28.98 %	-16.52 %	-16.16°	-9.38°	✓	
292.12	292.13	17.41 %	15.37 %	9.88°	8.74°	✓	
292.26	292.27	22.43 %	15.44 %	12.64°	8.78°	✓	
293.53	293.54	-17.39 %	-15.24 %	-9.86°	-8.66°	✓	
293.64	293.65	18.93 %	17.22 %	10.72°	9.77°	✓	
293.89	293.90	15.48 %	15.35 %	8.80°	8.73°	✓	
294.31	294.33	21.74 %	15.16 %	12.27°	8.62°	✓	
294.56	294.57	24.30 %	18.21 %	13.66°	10.32°	✓	
294.67	294.69	25.92 %	18.11 %	14.53°	10.26°	✓	
294.83	294.86	-25.71 %	-18.19 %	-14.42°	-10.31°	✓	
294.87	294.88	22.93 %	16.97 %	12.92°	9.63°	✓	
295.38	295.40	24.28 %	15.72 %	13.65°	8.93°	✓	
296.04	296.05	-20.72 %	-15.83 %	-11.71°	-8.99°	✓	
297.26	297.27	-28.68 %	-22.03 %	-16.00°	-12.42°	✓	
297.40	297.40	-20.69 %	-17.34 %	-11.69°	-9.84°	✓	
297.42	297.43	24.60 %	15.99 %	13.82°	9.09°	✓	
297.51	297.52	-16.51 %	-16.10 %	-9.37°	-9.15°	✓	
298.49	298.50	17.97 %	16.51 %	10.19°	9.37°	✓	
299.99	299.99	-17.04 %	-15.60 %	-9.67°	-8.87°	✓	
300.62	300.63	-18.53 %	-15.18 %	-10.50°	-8.63°	✓	
301.88	301.91	-21.62 %	-16.91 %	-12.20°	-9.60°	✓	
301.96	301.97	-29.88 %	-19.65 %	-16.64°	-11.12°	✓	
302.26	302.28	25.53 %	16.41 %	14.32°	9.32°	✓	
302.49	302.51	-27.79 %	-21.22 %	-15.53°	-11.98°	✓	
302.68	302.70	-27.92 %	-15.76 %	-15.60°	-8.95°	✓	

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APPENDIX K-2

Steep Slopes Greater than 30% Grade

Mountain Valley Project

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APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
0.02	0.20	64.13 %	20.42 %	32.67°	11.54°	✓	
0.42	0.45	-36.19 %	-17.23 %	-19.89°	-9.78°	✓	
0.46	0.63	-98.64 %	-16.95 %	-44.61°	-9.62°	✓	
0.64	0.65	-30.51 %	-15.01 %	-16.97°	-8.53°	✓	
0.73	0.75	33.16 %	15.33 %	18.35°	8.71°	✓	
0.81	1.06	60.59 %	15.61 %	31.21°	8.87°	✓	
1.07	1.12	45.24 %	17.09 %	24.34°	9.70°	✓	
1.14	1.32	-67.60 %	-17.44 %	-34.06°	-9.89°	✓	
1.33	1.45	78.04 %	24.54 %	37.97°	13.79°	✓	
1.46	1.56	51.45 %	15.59 %	27.23°	8.86°	✓	
1.64	1.68	42.79 %	16.67 %	23.17°	9.47°	✓	
2.02	2.12	-33.54 %	-15.92 %	-18.54°	-9.05°	✓	
2.13	2.29	-56.42 %	-15.60 %	-29.43°	-8.87°	✓	
2.34	2.48	60.49 %	20.97 %	31.17°	11.84°	✓	
2.55	2.65	45.96 %	19.73 %	24.68°	11.16°	✓	
3.30	3.80	54.00 %	19.00 %	28.37°	10.76°		✓
3.40	3.42	-51.49 %	-18.82 %	-27.24°	-10.66°	✓	
3.54	3.59	-49.11 %	-16.91 %	-26.16°	-9.60°	✓	
3.68	3.74	50.00 %	22.47 %	26.57°	12.67°	✓	
4.53	4.61	-35.59 %	-15.25 %	-19.59°	-8.67°	✓	
4.74	4.84	-68.01 %	-19.38 %	-34.22°	-10.97°	✓	
4.86	4.89	-65.51 %	-19.87 %	-33.23°	-11.24°	✓	
4.98	5.17	62.03 %	17.15 %	31.81°	9.73°	✓	
5.19	5.26	47.79 %	20.69 %	25.55°	11.69°	✓	
5.27	5.31	-30.74 %	-18.95 %	-17.09°	-10.73°	✓	
5.32	5.52	-70.70 %	-19.24 %	-35.26°	-10.89°	✓	
5.54	5.77	63.72 %	16.28 %	32.50°	9.25°	✓	
5.84	5.86	35.21 %	20.21 %	19.40°	11.43°	✓	
6.43	6.54	-77.98 %	-22.21 %	-37.95°	-12.52°	✓	
6.58	6.77	76.74 %	18.75 %	37.50°	10.62°	✓	
6.83	6.89	40.51 %	19.83 %	22.05°	11.22°	✓	
7.15	7.31	-40.06 %	-16.20 %	-21.83°	-9.20°	✓	
7.70	7.85	-57.23 %	-18.58 %	-29.78°	-10.53°	✓	
7.88	8.00	82.02 %	21.87 %	39.36°	12.34°	✓	
8.05	8.18	46.59 %	15.28 %	24.98°	8.69°	✓	
8.37	8.40	-32.14 %	-15.09 %	-17.82°	-8.58°	✓	
8.61	8.79	-56.57 %	-15.52 %	-29.50°	-8.82°	✓	
8.80	8.92	56.86 %	17.41 %	29.62°	9.87°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
9.14	9.19	31.65 %	18.25 %	17.56°	10.34°	✓	
9.20	9.23	33.72 %	17.36 %	18.63°	9.85°	✓	
9.47	9.54	35.98 %	19.77 %	19.79°	11.18°	✓	
9.70	9.77	-31.06 %	-17.58 %	-17.26°	-9.97°	✓	
9.93	10.01	-39.54 %	-15.60 %	-21.57°	-8.87°	✓	
10.99	11.08	-45.41 %	-26.20 %	-24.42°	-14.68°	✓	
11.09	11.14	-60.69 %	-24.30 %	-31.26°	-13.66°	✓	
11.21	11.34	45.73 %	16.52 %	24.58°	9.38°	✓	
11.40	11.44	46.36 %	16.13 %	24.87°	9.16°	✓	
11.46	11.49	36.23 %	17.96 %	19.91°	10.18°	✓	
11.89	12.05	-64.41 %	-16.52 %	-32.79°	-9.38°	✓	
12.10	12.27	58.74 %	20.00 %	30.43°	11.31°	✓	
14.07	14.13	30.18 %	15.40 %	16.79°	8.76°	✓	
14.50	14.54	37.92 %	24.86 %	20.76°	13.96°	✓	
15.01	15.07	-33.13 %	-15.03 %	-18.33°	-8.55°	✓	
15.09	15.30	-39.20 %	-16.04 %	-21.40°	-9.11°	✓	
15.41	15.54	72.21 %	28.63 %	35.83°	15.98°	✓	
15.91	15.93	34.12 %	16.64 %	18.84°	9.45°	✓	
16.34	16.37	-33.29 %	-18.50 %	-18.41°	-10.48°	✓	
16.56	16.63	30.25 %	15.60 %	16.83°	8.87°	✓	
16.64	16.70	35.31 %	15.13 %	19.45°	8.61°	✓	
17.51	17.59	-50.37 %	-18.58 %	-26.73°	-10.53°	✓	
17.61	17.73	-51.46 %	-15.36 %	-27.23°	-8.73°	✓	
17.82	17.95	57.66 %	25.25 %	29.97°	14.17°	✓	
18.07	18.13	36.35 %	15.35 %	19.98°	8.73°	✓	
18.55	18.64	-50.22 %	-17.81 %	-26.66°	-10.10°	✓	
18.65	18.71	-54.75 %	-41.12 %	-28.70°	-22.35°	✓	
18.76	18.89	69.08 %	25.26 %	34.64°	14.18°	✓	
19.72	19.75	-33.84 %	-19.50 %	-18.70°	-11.03°	✓	
19.97	19.98	31.80 %	22.93 %	17.64°	12.92°	✓	
20.29	20.34	-32.91 %	-16.44 %	-18.22°	-9.34°	✓	
20.62	20.75	-53.71 %	-15.96 %	-28.24°	-9.07°	✓	
20.77	20.89	54.54 %	16.17 %	28.61°	9.19°	✓	
20.90	20.93	38.79 %	18.56 %	21.20°	10.51°	✓	
21.37	21.54	-39.39 %	-17.05 %	-21.50°	-9.68°	✓	
21.60	21.73	62.56 %	16.25 %	32.03°	9.23°	✓	
21.85	21.86	30.88 %	30.57 %	17.16°	17.00°	✓	
22.48	22.54	-30.84 %	-15.95 %	-17.14°	-9.06°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
22.84	22.86	-33.42 %	-17.61 %	-18.48°	-9.99°	✓	
22.90	22.97	-63.81 %	-15.15 %	-32.54°	-8.61°	✓	
23.01	23.15	63.90 %	16.36 %	32.58°	9.29°	✓	
23.95	23.99	-32.88 %	-15.72 %	-18.20°	-8.93°	✓	
24.45	24.50	-37.22 %	-15.72 %	-20.42°	-8.93°	✓	
24.80	24.81	32.76 %	20.55 %	18.14°	11.61°	✓	
24.83	24.86	-39.84 %	-15.01 %	-21.72°	-8.54°	✓	
25.65	25.76	-58.98 %	-30.76 %	-30.53°	-17.10°	✓	
25.90	26.07	53.51 %	16.18 %	28.15°	9.19°	✓	
27.05	27.08	-30.35 %	-15.14 %	-16.89°	-8.61°	✓	
27.85	27.95	32.00 %	15.00 %	17.74°	8.53°		✓
28.49	28.50	-33.03 %	-24.00 %	-18.28°	-13.49°	✓	
29.34	29.40	-33.87 %	-15.45 %	-18.71°	-8.78°	✓	
29.93	30.05	-45.92 %	-17.26 %	-24.66°	-9.79°	✓	
30.08	30.18	51.77 %	15.30 %	27.37°	8.70°	✓	
31.10	31.21	-45.22 %	-15.12 %	-24.33°	-8.60°	✓	
31.26	31.37	55.26 %	19.78 %	28.93°	11.19°	✓	
32.26	32.38	-69.27 %	-18.88 %	-34.71°	-10.69°	✓	
32.40	32.42	36.77 %	19.55 %	20.19°	11.06°	✓	
33.04	33.22	56.99 %	16.03 %	29.68°	9.11°	✓	
33.32	33.37	36.69 %	15.51 %	20.15°	8.82°	✓	
33.52	33.57	34.00 %	26.00 %	18.83°	14.74°		✓
33.60	33.68	-36.04 %	-16.45 %	-19.82°	-9.34°	✓	
33.93	34.00	-46.40 %	-15.49 %	-24.89°	-8.80°	✓	
34.01	34.10	-66.11 %	-15.23 %	-33.47°	-8.66°	✓	
34.16	34.19	50.65 %	22.52 %	26.86°	12.69°	✓	
34.20	34.29	32.00 %	17.00 %	17.90°	9.48°		✓
34.27	34.34	-43.22 %	-15.33 %	-23.38°	-8.71°	✓	
34.35	34.41	55.02 %	15.33 %	28.82°	8.71°	✓	
34.41	34.69	45.00 %	21.00 %	24.04°	12.08°		✓
34.67	34.75	-52.93 %	-31.51 %	-27.89°	-17.49°	✓	
34.83	34.95	62.30 %	15.57 %	31.92°	8.85°	✓	
35.05	35.09	45.69 %	25.57 %	24.55°	14.35°	✓	
35.24	35.32	30.85 %	17.83 %	17.15°	10.11°	✓	
36.47	36.55	44.98 %	18.73 %	24.22°	10.61°	✓	
36.59	36.68	-34.45 %	-15.34 %	-19.01°	-8.72°	✓	
37.10	37.17	38.42 %	17.45 %	21.02°	9.90°	✓	
37.76	37.81	-38.13 %	-15.60 %	-20.87°	-8.87°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
37.82	37.95	-54.26 %	-26.92 %	-28.48°	-15.07°	✓	
37.96	37.98	-40.76 %	-24.11 %	-22.18°	-13.55°	✓	
38.03	38.09	59.59 %	19.09 %	30.79°	10.81°	✓	
38.11	38.18	65.79 %	26.04 %	33.34°	14.59°	✓	
38.42	38.46	31.18 %	15.22 %	17.32°	8.66°	✓	
38.95	38.98	32.54 %	24.93 %	18.03°	14.00°	✓	
39.57	39.59	-30.07 %	-19.91 %	-16.74°	-11.26°	✓	
39.85	39.88	38.03 %	16.75 %	20.82°	9.51°	✓	
39.93	39.97	-35.59 %	-20.26 %	-19.59°	-11.45°	✓	
40.97	41.02	-39.26 %	-15.07 %	-21.43°	-8.57°	✓	
41.04	41.18	-44.11 %	-16.41 %	-23.80°	-9.32°	✓	
41.24	41.36	61.54 %	20.73 %	31.61°	11.71°	✓	
41.64	41.65	31.87 %	23.18 %	17.68°	13.05°	✓	
41.71	41.75	-30.73 %	-19.27 %	-17.08°	-10.90°	✓	
41.80	41.83	33.50 %	21.65 %	18.52°	12.21°	✓	
41.85	41.88	-33.70 %	-17.00 %	-18.62°	-9.65°	✓	
42.02	42.07	-41.15 %	-16.69 %	-22.37°	-9.48°	✓	
42.29	42.38	-39.54 %	-19.32 %	-21.57°	-10.93°	✓	
42.40	42.52	-46.22 %	-17.38 %	-24.81°	-9.86°	✓	
42.55	42.69	63.94 %	21.30 %	32.60°	12.02°	✓	
42.79	42.87	30.19 %	17.74 %	16.80°	10.06°	✓	
42.88	42.94	-53.50 %	-29.33 %	-28.15°	-16.35°	✓	
42.97	43.07	-44.51 %	-23.27 %	-23.99°	-13.10°	✓	
43.08	43.22	68.29 %	20.52 %	34.33°	11.59°	✓	
43.25	43.29	-50.44 %	-30.20 %	-26.77°	-16.81°	✓	
43.28	43.45	53.00 %	36.00 %	27.74°	19.90°		✓
43.52	43.56	50.00 %	21.37 %	26.56°	12.06°	✓	
44.38	44.42	-30.66 %	-19.52 %	-17.05°	-11.04°	✓	
44.53	44.64	-62.83 %	-15.98 %	-32.14°	-9.08°	✓	
44.75	44.77	57.33 %	20.22 %	29.83°	11.43°	✓	
44.79	44.86	87.21 %	15.93 %	41.09°	9.05°	✓	
44.92	44.98	42.33 %	15.38 %	22.94°	8.74°	✓	
45.02	45.13	56.99 %	16.73 %	29.68°	9.50°	✓	
45.72	45.76	-59.50 %	-16.09 %	-30.75°	-9.14°	✓	
45.79	45.80	-65.79 %	-17.58 %	-33.34°	-9.97°	✓	
45.87	45.89	42.18 %	29.27 %	22.87°	16.31°	✓	
45.95	46.01	47.89 %	17.92 %	25.59°	10.16°	✓	
46.49	46.52	-32.72 %	-18.47 %	-18.12°	-10.46°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
46.55	46.68	36.00 %	29.00 %	19.80°	16.17°		✓
46.70	46.70	30.98 %	19.24 %	17.21°	10.89°	✓	
46.75	46.77	39.11 %	15.75 %	21.36°	8.95°	✓	
47.40	47.42	32.00 %	17.45 %	17.74°	9.90°	✓	
47.44	47.53	-34.22 %	-16.30 %	-18.89°	-9.26°	✓	
47.73	47.81	-44.89 %	-16.86 %	-24.18°	-9.57°	✓	
47.83	47.91	-54.74 %	-17.11 %	-28.69°	-9.71°	✓	
47.97	48.07	49.38 %	19.73 %	26.28°	11.16°	✓	
48.08	48.19	64.86 %	15.63 %	32.97°	8.89°	✓	
48.26	48.29	43.36 %	22.03 %	23.44°	12.42°	✓	
48.73	48.78	34.66 %	16.23 %	19.12°	9.22°	✓	
49.03	49.09	-31.15 %	-15.82 %	-17.30°	-8.99°	✓	
49.17	49.18	-30.89 %	-23.43 %	-17.17°	-13.19°	✓	
49.26	49.37	44.81 %	20.79 %	24.13°	11.75°	✓	
49.44	49.55	-34.05 %	-16.13 %	-18.80°	-9.17°	✓	
50.79	50.87	-65.71 %	-15.69 %	-33.31°	-8.92°	✓	
50.89	50.92	-38.90 %	-20.60 %	-21.26°	-11.64°	✓	
50.95	51.04	-60.04 %	-16.51 %	-30.98°	-9.38°	✓	
51.09	51.14	60.12 %	32.77 %	31.02°	18.15°	✓	
51.15	51.26	49.47 %	18.57 %	26.32°	10.52°	✓	
51.29	51.37	51.85 %	17.05 %	27.41°	9.67°	✓	
51.42	51.46	38.38 %	17.62 %	21.00°	9.99°	✓	
51.58	51.65	-49.55 %	-24.48 %	-26.36°	-13.75°	✓	
52.02	52.05	-32.17 %	-18.40 %	-17.83°	-10.42°	✓	
52.11	52.19	-51.47 %	-20.01 %	-27.24°	-11.31°	✓	
52.21	52.24	-32.97 %	-24.37 %	-18.25°	-13.70°	✓	
52.28	52.30	33.38 %	17.14 %	18.46°	9.73°	✓	
52.32	52.49	56.76 %	15.18 %	29.58°	8.63°	✓	
52.88	52.91	-32.66 %	-17.49 %	-18.09°	-9.92°	✓	
52.99	53.05	-34.42 %	-19.87 %	-18.99°	-11.24°	✓	
53.42	53.45	38.80 %	16.39 %	21.21°	9.31°	✓	
53.71	53.73	31.31 %	16.38 %	17.39°	9.30°	✓	
53.77	53.82	-30.72 %	-16.17 %	-17.08°	-9.19°	✓	
54.53	54.55	33.80 %	19.65 %	18.67°	11.11°	✓	
54.82	54.88	-36.63 %	-15.72 %	-20.12°	-8.93°	✓	
54.93	54.99	-66.80 %	-18.87 %	-33.74°	-10.69°	✓	
55.00	55.08	-60.65 %	-22.04 %	-31.24°	-12.43°	✓	
55.11	55.24	102.11 %	18.61 %	45.60°	10.54°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
55.32	55.38	35.73 %	16.47 %	19.66°	9.35°	✓	
55.56	55.60	33.16 %	18.20 %	18.34°	10.32°	✓	
55.69	55.75	35.06 %	15.35 %	19.32°	8.73°	✓	
55.76	55.80	-30.76 %	-17.82 %	-17.10°	-10.10°	✓	
55.88	55.93	32.51 %	17.13 %	18.01°	9.72°	✓	
56.11	56.14	30.02 %	19.94 %	16.71°	11.28°	✓	
56.37	56.51	-39.25 %	-15.32 %	-21.43°	-8.71°	✓	
56.52	56.54	-32.09 %	-22.07 %	-17.79°	-12.45°	✓	
56.55	56.58	31.08 %	19.63 %	17.27°	11.10°	✓	
56.59	56.64	39.65 %	15.74 %	21.63°	8.94°	✓	
57.20	57.72	43.00 %	24.00 %	23.22°	13.50°		✓
57.94	58.01	40.60 %	15.42 %	22.09°	8.76°	✓	
58.13	58.31	-45.07 %	-15.38 %	-24.26°	-8.74°	✓	
58.35	58.49	-73.09 %	-15.37 %	-36.16°	-8.74°	✓	
58.56	58.71	72.65 %	15.41 %	36.00°	8.76°	✓	
59.28	59.39	-73.68 %	-15.91 %	-36.38°	-9.04°	✓	
59.40	59.51	57.08 %	17.83 %	29.72°	10.11°	✓	
59.70	59.88	-76.59 %	-17.07 %	-37.45°	-9.69°	✓	
59.89	59.89	66.00 %	25.28 %	33.43°	14.18°	✓	
59.91	60.03	65.35 %	18.29 %	33.17°	10.36°	✓	
60.04	60.08	-33.99 %	-24.65 %	-18.77°	-13.85°	✓	
60.18	60.25	-54.68 %	-17.96 %	-28.67°	-10.18°	✓	
60.26	60.27	-31.02 %	-17.59 %	-17.24°	-9.97°	✓	
60.35	60.58	68.22 %	15.49 %	34.30°	8.81°	✓	
60.69	60.81	-31.87 %	-18.48 %	-17.68°	-10.47°	✓	
60.92	61.02	-70.35 %	-16.59 %	-35.13°	-9.42°	✓	
61.04	61.09	-54.40 %	-23.16 %	-28.54°	-13.04°	✓	
61.26	61.54	63.79 %	15.26 %	32.53°	8.67°	✓	
61.74	61.76	-32.56 %	-19.87 %	-18.04°	-11.24°	✓	
61.86	62.13	-89.85 %	-18.90 %	-41.94°	-10.70°	✓	
62.18	62.32	74.85 %	16.26 %	36.81°	9.23°	✓	
62.77	62.81	34.95 %	16.93 %	19.26°	9.61°	✓	
62.92	62.98	35.26 %	16.51 %	19.42°	9.38°	✓	
62.98	63.04	-43.55 %	-18.77 %	-23.53°	-10.63°	✓	
63.95	63.99	40.02 %	15.02 %	21.81°	8.54°	✓	
64.11	64.16	51.80 %	17.71 %	27.39°	10.04°	✓	
64.18	64.20	-40.34 %	-17.88 %	-21.97°	-10.14°	✓	
64.32	64.35	-31.35 %	-17.90 %	-17.41°	-10.15°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
64.45	64.51	-41.95 %	-15.87 %	-22.76°	-9.02°	✓	
64.58	64.60	42.29 %	20.17 %	22.92°	11.40°	✓	
65.13	65.33	-65.30 %	-17.83 %	-33.14°	-10.11°	✓	
65.34	65.37	-46.01 %	-24.07 %	-24.71°	-13.54°	✓	
65.45	65.56	51.04 %	17.63 %	27.04°	10.00°	✓	
65.57	65.61	45.43 %	19.33 %	24.43°	10.94°	✓	
65.85	65.90	-30.46 %	-16.41 %	-16.94°	-9.32°	✓	
66.37	66.41	53.00 %	16.25 %	27.92°	9.23°	✓	
66.44	66.48	-35.09 %	-19.94 %	-19.34°	-11.28°	✓	
66.65	66.80	38.00 %	25.00 %	20.81°	14.04°		✓
67.16	67.20	-30.07 %	-16.50 %	-16.74°	-9.37°	✓	
67.25	67.34	-50.59 %	-20.30 %	-26.84°	-11.47°	✓	
67.38	67.51	50.70 %	16.73 %	26.88°	9.50°	✓	
67.54	67.56	43.22 %	15.08 %	23.38°	8.57°	✓	
67.60	67.66	46.65 %	15.09 %	25.01°	8.58°	✓	
67.82	67.89	-37.85 %	-15.15 %	-20.73°	-8.61°	✓	
68.46	68.64	-70.19 %	-15.94 %	-35.07°	-9.06°	✓	
68.70	68.79	55.62 %	18.49 %	29.08°	10.48°	✓	
69.02	69.09	72.24 %	15.22 %	35.85°	8.66°	✓	
69.11	69.14	32.35 %	16.20 %	17.92°	9.20°	✓	
69.18	69.65	35.00 %	16.00 %	19.19°	9.15°		✓
69.87	70.00	-71.07 %	-15.85 %	-35.40°	-9.01°	✓	
70.01	70.16	77.43 %	15.87 %	37.75°	9.02°	✓	
70.25	70.32	39.14 %	15.58 %	21.38°	8.86°	✓	
70.35	70.43	38.97 %	15.66 %	21.29°	8.90°	✓	
70.80	70.83	-44.79 %	-25.09 %	-24.13°	-14.09°	✓	
70.93	70.99	-34.06 %	-15.11 %	-18.81°	-8.59°	✓	
71.01	71.10	-34.55 %	-15.96 %	-19.06°	-9.07°	✓	
71.35	71.38	-30.90 %	-17.12 %	-17.17°	-9.72°	✓	
71.57	71.63	-55.72 %	-19.46 %	-29.13°	-11.01°	✓	
71.64	71.72	57.20 %	16.08 %	29.77°	9.14°	✓	
71.79	71.84	47.61 %	17.20 %	25.46°	9.76°	✓	
72.10	72.24	-48.12 %	-16.47 %	-25.70°	-9.36°	✓	
72.26	72.28	42.20 %	26.88 %	22.88°	15.05°	✓	
72.30	72.39	-42.78 %	-17.96 %	-23.16°	-10.18°	✓	
72.42	72.59	73.98 %	20.10 %	36.49°	11.36°	✓	
73.33	73.47	-49.95 %	-19.41 %	-26.54°	-10.98°	✓	
73.51	73.64	48.38 %	16.60 %	25.82°	9.43°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
73.65	73.67	54.71 %	17.27 %	28.68°	9.80°	✓	
73.84	73.94	-45.03 %	-22.68 %	-24.24°	-12.78°	✓	
73.95	73.95	41.07 %	39.01 %	22.33°	21.31°	✓	
74.02	74.03	-62.94 %	-23.83 %	-32.19°	-13.40°	✓	
74.05	74.14	62.73 %	20.10 %	32.10°	11.36°	✓	
74.42	74.52	-37.25 %	-15.36 %	-20.43°	-8.73°	✓	
74.54	74.58	42.07 %	21.15 %	22.82°	11.94°	✓	
74.61	74.79	-76.74 %	-15.16 %	-37.50°	-8.62°	✓	
74.97	75.12	63.95 %	26.79 %	32.60°	15.00°	✓	
75.15	75.17	36.07 %	25.21 %	19.83°	14.15°	✓	
75.57	75.59	34.33 %	17.79 %	18.95°	10.09°	✓	
75.96	76.03	30.88 %	15.88 %	17.16°	9.02°	✓	
76.23	76.26	-38.45 %	-29.99 %	-21.03°	-16.69°	✓	
76.55	76.64	-79.20 %	-16.40 %	-38.38°	-9.32°	✓	
76.66	76.66	-49.07 %	-15.28 %	-26.14°	-8.69°	✓	
76.68	76.78	86.91 %	32.18 %	40.99°	17.84°	✓	
76.80	76.83	42.76 %	20.49 %	23.15°	11.58°	✓	
77.30	77.36	-40.34 %	-15.17 %	-21.97°	-8.62°	✓	
77.51	77.62	-76.58 %	-16.01 %	-37.45°	-9.10°	✓	
77.65	77.76	61.28 %	16.33 %	31.50°	9.28°	✓	
77.91	78.04	-58.23 %	-16.40 %	-30.21°	-9.31°	✓	
78.07	78.23	66.32 %	16.79 %	33.55°	9.53°	✓	
79.36	79.38	-36.21 %	-15.54 %	-19.90°	-8.83°	✓	
79.57	79.70	-89.25 %	-18.74 %	-41.75°	-10.61°	✓	
79.74	79.90	99.62 %	27.84 %	44.89°	15.56°	✓	
80.12	80.13	36.07 %	33.77 %	19.83°	18.66°	✓	
80.48	80.54	-31.68 %	-18.38 %	-17.58°	-10.41°	✓	
80.64	80.69	-44.32 %	-19.38 %	-23.90°	-10.97°	✓	
80.73	80.83	41.55 %	18.61 %	22.56°	10.54°	✓	
80.99	81.01	-39.63 %	-21.27 %	-21.62°	-12.01°	✓	
81.12	81.19	-86.66 %	-16.06 %	-40.91°	-9.12°	✓	
81.21	81.29	-73.86 %	-15.81 %	-36.45°	-8.99°	✓	
81.30	81.42	-50.40 %	-18.15 %	-26.75°	-10.29°	✓	
81.46	81.54	-50.48 %	-23.87 %	-26.79°	-13.43°	✓	
81.55	81.57	-53.33 %	-40.38 %	-28.07°	-21.99°	✓	
81.80	82.17	44.00 %	22.00 %	23.51°	12.24°		✓
81.82	81.82	31.03 %	30.44 %	17.24°	16.93°	✓	
81.85	81.88	35.31 %	18.26 %	19.45°	10.35°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
81.97	82.05	51.02 %	20.93 %	27.03°	11.82°	✓	
82.14	82.27	-39.41 %	-16.83 %	-21.51°	-9.55°	✓	
82.37	82.47	70.73 %	19.54 %	35.27°	11.06°	✓	
82.50	82.62	39.00 %	37.00 %	21.36°	20.30°		✓
82.56	82.59	-39.86 %	-15.90 %	-21.73°	-9.04°	✓	
82.60	82.93	76.24 %	16.17 %	37.32°	9.19°	✓	
83.40	83.45	-48.39 %	-16.41 %	-25.82°	-9.32°	✓	
83.62	83.71	-89.57 %	-16.55 %	-41.85°	-9.40°	✓	
83.72	84.03	-61.61 %	-21.90 %	-31.64°	-12.35°	✓	
84.09	84.14	68.74 %	29.97 %	34.50°	16.68°	✓	
84.26	84.28	43.77 %	17.72 %	23.64°	10.05°	✓	
84.30	84.58	60.71 %	15.42 %	31.26°	8.77°	✓	
84.61	84.64	33.78 %	17.40 %	18.67°	9.87°	✓	
85.03	85.10	44.05 %	16.96 %	23.77°	9.62°	✓	
85.50	85.57	-48.19 %	-18.46 %	-25.73°	-10.46°	✓	
85.67	85.78	51.12 %	19.34 %	27.07°	10.94°	✓	
86.24	86.33	32.99 %	16.90 %	18.26°	9.59°	✓	
86.57	86.74	-54.21 %	-20.56 %	-28.46°	-11.62°	✓	
86.83	87.16	-72.48 %	-17.68 %	-35.93°	-10.03°	✓	
87.18	87.29	-42.35 %	-17.43 %	-22.95°	-9.89°	✓	
87.62	87.63	31.56 %	20.00 %	17.52°	11.31°	✓	
87.68	88.00	51.40 %	17.70 %	27.20°	10.04°	✓	
88.02	88.07	57.75 %	16.43 %	30.01°	9.33°	✓	
88.11	88.19	83.00 %	26.11 %	39.69°	14.63°	✓	
88.30	88.38	51.38 %	18.78 %	27.19°	10.64°	✓	
88.95	88.97	-36.83 %	-16.71 %	-20.22°	-9.49°	✓	
89.07	89.12	30.11 %	16.31 %	16.76°	9.26°	✓	
89.67	89.70	31.62 %	15.67 %	17.55°	8.91°	✓	
90.16	90.21	-44.94 %	-26.03 %	-24.20°	-14.59°	✓	
90.27	90.40	-77.34 %	-16.38 %	-37.72°	-9.30°	✓	
90.43	90.51	-56.17 %	-20.54 %	-29.32°	-11.61°	✓	
90.52	90.63	-72.76 %	-16.63 %	-36.04°	-9.44°	✓	
90.66	91.00	86.69 %	17.50 %	40.92°	9.93°	✓	
91.77	91.79	32.67 %	17.98 %	18.09°	10.19°	✓	
92.17	92.39	-121.62 %	-15.12 %	-50.57°	-8.60°	✓	
92.41	92.63	70.08 %	33.05 %	35.02°	18.29°	✓	
92.74	92.99	-76.04 %	-16.40 %	-37.25°	-9.31°	✓	
93.15	93.29	50.04 %	18.75 %	26.58°	10.62°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
93.36	93.48	54.25 %	23.18 %	28.48°	13.05°	✓	
94.15	94.18	-47.26 %	-19.75 %	-25.29°	-11.17°	✓	
94.30	94.38	49.21 %	18.80 %	26.20°	10.65°	✓	
94.43	94.45	31.42 %	18.71 %	17.44°	10.60°	✓	
96.28	96.35	-41.77 %	-17.53 %	-22.67°	-9.94°	✓	
96.49	96.52	-32.91 %	-15.18 %	-18.22°	-8.63°	✓	
96.55	96.62	52.04 %	17.32 %	27.49°	9.82°	✓	
96.65	96.71	57.24 %	17.26 %	29.79°	9.79°	✓	
97.03	97.05	-30.68 %	-19.84 %	-17.05°	-11.22°	✓	
97.11	97.12	-30.56 %	-16.35 %	-17.00°	-9.29°	✓	
97.13	97.17	-81.84 %	-17.43 %	-39.30°	-9.89°	✓	
97.27	97.39	-44.22 %	-15.89 %	-23.85°	-9.03°	✓	
97.40	97.63	-55.04 %	-15.67 %	-28.83°	-8.91°	✓	
97.72	97.73	53.46 %	24.66 %	28.13°	13.86°	✓	
97.77	97.92	45.99 %	17.05 %	24.70°	9.67°	✓	
97.94	98.05	71.89 %	20.25 %	35.71°	11.45°	✓	
98.13	98.15	38.05 %	22.02 %	20.83°	12.42°	✓	
98.26	98.58	-63.17 %	-19.01 %	-32.28°	-10.76°	✓	
98.83	98.94	62.55 %	18.56 %	32.03°	10.52°	✓	
98.95	98.97	47.34 %	24.17 %	25.33°	13.59°	✓	
99.00	99.04	34.21 %	16.53 %	18.88°	9.39°	✓	
99.11	99.21	56.43 %	15.85 %	29.43°	9.01°	✓	
99.24	99.38	84.81 %	15.15 %	40.30°	8.61°	✓	
99.67	99.70	32.89 %	27.26 %	18.20°	15.25°	✓	
100.04	100.08	59.31 %	19.45 %	30.67°	11.01°	✓	
100.09	100.13	-34.37 %	-16.64 %	-18.97°	-9.45°	✓	
100.47	100.54	-48.01 %	-17.00 %	-25.64°	-9.65°	✓	
100.57	100.65	40.71 %	18.17 %	22.15°	10.30°	✓	
100.73	100.77	52.58 %	15.31 %	27.74°	8.71°	✓	
100.85	100.86	-34.93 %	-29.40 %	-19.25°	-16.38°	✓	
101.53	101.55	31.80 %	17.56 %	17.64°	9.96°	✓	
101.62	101.64	-31.50 %	-16.29 %	-17.49°	-9.25°	✓	
101.97	102.04	-31.45 %	-16.46 %	-17.46°	-9.35°	✓	
102.17	102.25	-31.09 %	-16.27 %	-17.27°	-9.24°	✓	
102.31	102.39	39.94 %	15.03 %	21.77°	8.55°	✓	
102.45	102.49	33.07 %	17.85 %	18.30°	10.12°	✓	
102.63	102.66	43.39 %	22.55 %	23.46°	12.71°	✓	
102.67	102.68	43.74 %	37.81 %	23.62°	20.71°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
102.74	102.76	-35.91 %	-28.17 %	-19.75°	-15.73°	✓	
102.80	102.88	-44.69 %	-16.14 %	-24.08°	-9.17°	✓	
102.91	102.96	30.14 %	15.82 %	16.77°	8.99°	✓	
103.00	103.05	44.02 %	29.04 %	23.76°	16.20°	✓	
103.31	103.34	-44.78 %	-19.36 %	-24.13°	-10.96°	✓	
103.41	103.43	-47.85 %	-21.94 %	-25.57°	-12.38°	✓	
103.43	103.44	37.02 %	22.80 %	20.31°	12.85°	✓	
103.71	103.76	30.75 %	15.10 %	17.09°	8.59°	✓	
104.32	104.40	41.01 %	15.32 %	22.30°	8.71°	✓	
104.42	104.48	-35.32 %	-17.66 %	-19.45°	-10.01°	✓	
105.20	105.23	33.75 %	16.28 %	18.65°	9.24°	✓	
105.25	105.26	-33.77 %	-22.13 %	-18.66°	-12.48°	✓	
105.51	105.55	33.09 %	17.11 %	18.31°	9.71°	✓	
105.96	106.04	-45.21 %	-18.16 %	-24.33°	-10.29°	✓	
106.06	106.07	30.22 %	21.55 %	16.81°	12.16°	✓	
106.10	106.13	36.79 %	16.84 %	20.20°	9.56°	✓	
106.21	106.29	-32.60 %	-15.81 %	-18.06°	-8.98°	✓	
106.36	106.40	39.62 %	18.85 %	21.61°	10.67°	✓	
106.54	106.57	36.94 %	19.42 %	20.27°	10.99°	✓	
106.88	107.00	-53.99 %	-15.92 %	-28.37°	-9.05°	✓	
107.03	107.15	46.03 %	15.76 %	24.72°	8.95°	✓	
107.34	107.45	47.24 %	15.21 %	25.28°	8.65°	✓	
107.54	107.59	-44.03 %	-20.44 %	-23.76°	-11.55°	✓	
107.69	107.71	47.12 %	16.25 %	25.23°	9.23°	✓	
107.75	107.82	-50.08 %	-17.71 %	-26.60°	-10.04°	✓	
107.96	107.98	-32.56 %	-17.42 %	-18.04°	-9.88°	✓	
108.48	108.51	-42.53 %	-15.51 %	-23.04°	-8.82°	✓	
108.57	108.59	-30.47 %	-18.14 %	-16.94°	-10.28°	✓	
108.72	108.76	-37.11 %	-20.18 %	-20.36°	-11.41°	✓	
108.88	108.90	-51.11 %	-19.41 %	-27.07°	-10.99°	✓	
109.37	109.43	-36.42 %	-22.00 %	-20.01°	-12.41°	✓	
109.68	109.73	41.47 %	18.89 %	22.52°	10.70°	✓	
109.82	109.83	39.92 %	21.57 %	21.76°	12.17°	✓	
110.13	110.22	53.05 %	15.49 %	27.95°	8.80°	✓	
110.89	110.94	32.06 %	17.94 %	17.78°	10.17°	✓	
110.96	111.03	-31.35 %	-19.03 %	-17.41°	-10.77°	✓	
111.32	111.33	33.90 %	32.98 %	18.73°	18.25°	✓	
111.59	111.62	37.24 %	19.80 %	20.43°	11.20°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
112.18	112.21	39.04 %	15.64 %	21.33°	8.89°	✓	
112.27	112.32	-33.16 %	-18.16 %	-18.34°	-10.30°	✓	
112.57	112.59	-37.96 %	-21.80 %	-20.79°	-12.30°	✓	
112.60	112.63	68.83 %	15.30 %	34.54°	8.70°	✓	
112.71	112.72	-36.97 %	-17.28 %	-20.29°	-9.81°	✓	
112.73	112.81	42.17 %	16.73 %	22.87°	9.50°	✓	
113.35	113.37	36.61 %	27.20 %	20.11°	15.22°	✓	
113.44	113.45	32.62 %	23.48 %	18.07°	13.21°	✓	
113.74	113.75	31.86 %	16.61 %	17.67°	9.43°	✓	
114.27	114.33	-31.15 %	-15.54 %	-17.30°	-8.84°	✓	
114.41	114.42	35.10 %	21.16 %	19.34°	11.95°	✓	
114.57	114.58	34.37 %	16.96 %	18.97°	9.62°	✓	
115.11	115.12	-31.40 %	-20.74 %	-17.43°	-11.72°	✓	
115.15	115.17	30.92 %	17.70 %	17.18°	10.03°	✓	
115.35	115.43	-43.01 %	-16.80 %	-23.27°	-9.54°	✓	
115.51	115.54	39.23 %	21.18 %	21.42°	11.96°	✓	
115.99	116.01	-56.80 %	-18.11 %	-29.60°	-10.26°	✓	
116.02	116.12	-58.63 %	-30.82 %	-30.38°	-17.13°	✓	
116.17	116.25	97.47 %	25.98 %	44.26°	14.57°	✓	
116.68	116.71	38.98 %	27.30 %	21.29°	15.27°	✓	
117.39	117.41	-37.82 %	-21.02 %	-20.72°	-11.87°	✓	
117.48	117.52	39.45 %	20.81 %	21.53°	11.76°	✓	
117.81	117.81	-40.39 %	-29.59 %	-21.99°	-16.48°	✓	
117.93	117.95	57.56 %	24.26 %	29.92°	13.64°	✓	
118.00	118.01	-42.71 %	-28.71 %	-23.13°	-16.02°	✓	
118.20	118.22	-30.62 %	-16.44 %	-17.02°	-9.34°	✓	
118.43	118.51	48.08 %	18.99 %	25.68°	10.75°	✓	
118.57	118.62	-34.80 %	-16.09 %	-19.19°	-9.14°	✓	
118.65	118.78	-76.63 %	-19.13 %	-37.46°	-10.83°	✓	
118.81	118.87	-63.39 %	-21.74 %	-32.37°	-12.26°	✓	
118.93	118.93	38.20 %	31.97 %	20.91°	17.73°	✓	
118.95	118.97	62.53 %	33.29 %	32.02°	18.41°	✓	
118.99	119.21	67.04 %	17.13 %	33.84°	9.72°	✓	
119.22	119.25	60.37 %	16.78 %	31.12°	9.53°	✓	
119.51	119.67	-39.62 %	-16.78 %	-21.61°	-9.53°	✓	
119.74	119.85	42.97 %	16.65 %	23.25°	9.45°	✓	
120.01	120.21	-61.61 %	-15.75 %	-31.64°	-8.95°	✓	
120.30	120.44	71.75 %	17.08 %	35.66°	9.69°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
122.60	123.00	32.00 %	22.00 %	17.59°	12.63°		✓
122.94	122.98	48.24 %	24.18 %	25.75°	13.59°	✓	
123.00	123.10	-57.16 %	-20.74 %	-29.75°	-11.72°	✓	
123.20	123.33	-71.91 %	-23.80 %	-35.72°	-13.39°	✓	
123.39	123.50	89.15 %	22.13 %	41.72°	12.48°	✓	
124.48	124.54	-35.84 %	-17.10 %	-19.72°	-9.70°	✓	
124.54	124.57	30.07 %	19.63 %	16.73°	11.11°	✓	
124.65	124.66	-31.36 %	-19.40 %	-17.41°	-10.98°	✓	
124.97	125.00	31.70 %	20.65 %	17.59°	11.67°	✓	
125.02	125.04	34.42 %	23.29 %	18.99°	13.11°	✓	
125.26	125.28	-33.95 %	-16.19 %	-18.75°	-9.20°	✓	
125.37	125.49	-41.61 %	-18.97 %	-22.59°	-10.74°	✓	
125.51	125.56	46.27 %	20.82 %	24.83°	11.76°	✓	
125.89	125.99	-48.12 %	-17.82 %	-25.70°	-10.10°	✓	
126.05	126.12	57.36 %	17.38 %	29.84°	9.86°	✓	
126.17	126.18	37.04 %	17.84 %	20.33°	10.12°	✓	
126.19	126.24	38.37 %	15.76 %	20.99°	8.96°	✓	
126.44	126.57	-37.40 %	-15.45 %	-20.50°	-8.78°	✓	
126.59	126.66	-48.48 %	-18.70 %	-25.86°	-10.59°	✓	
126.67	126.78	-51.27 %	-15.33 %	-27.14°	-8.72°	✓	
126.90	127.05	79.25 %	19.37 %	38.40°	10.96°	✓	
127.11	127.20	39.09 %	17.52 %	21.35°	9.94°	✓	
127.21	127.32	35.00 %	24.00 %	19.49°	13.50°		✓
127.24	127.26	-30.91 %	-24.60 %	-17.18°	-13.82°	✓	
127.30	127.34	51.09 %	20.01 %	27.06°	11.32°	✓	
127.36	127.39	33.71 %	22.49 %	18.63°	12.68°	✓	
127.67	127.71	38.75 %	21.10 %	21.18°	11.92°	✓	
127.92	128.00	39.00 %	24.00 %	21.21°	13.50°		✓
127.96	128.10	-45.38 %	-15.10 %	-24.41°	-8.59°	✓	
128.40	128.41	32.68 %	19.48 %	18.10°	11.02°	✓	
128.44	128.62	57.33 %	20.47 %	29.83°	11.57°	✓	
128.77	128.84	-37.68 %	-16.94 %	-20.65°	-9.61°	✓	
129.02	129.04	31.10 %	20.23 %	17.28°	11.43°	✓	
129.58	129.64	-40.37 %	-19.52 %	-21.99°	-11.05°	✓	
129.74	129.81	54.67 %	15.21 %	28.66°	8.65°	✓	
130.18	130.34	-49.81 %	-15.44 %	-26.48°	-8.78°	✓	
130.40	130.45	-36.33 %	-15.62 %	-19.96°	-8.88°	✓	
130.48	130.53	41.88 %	15.33 %	22.73°	8.72°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
130.54	130.63	37.97 %	18.22 %	20.79°	10.32°	✓	
130.64	130.68	44.70 %	20.21 %	24.08°	11.43°	✓	
130.71	130.79	49.21 %	18.87 %	26.20°	10.69°	✓	
131.01	131.17	-55.99 %	-15.01 %	-29.24°	-8.54°	✓	
131.36	131.43	-40.51 %	-15.53 %	-22.05°	-8.83°	✓	
131.49	131.56	73.52 %	16.27 %	36.32°	9.24°	✓	
131.77	131.80	34.29 %	15.27 %	18.93°	8.68°	✓	
132.11	132.18	-39.42 %	-16.34 %	-21.51°	-9.28°	✓	
132.20	132.25	-32.83 %	-15.72 %	-18.17°	-8.93°	✓	
132.27	132.31	-31.07 %	-15.53 %	-17.26°	-8.83°	✓	
132.36	132.40	83.34 %	22.96 %	39.81°	12.93°	✓	
132.42	132.49	83.23 %	18.09 %	39.77°	10.25°	✓	
132.70	132.74	34.29 %	17.92 %	18.93°	10.16°	✓	
134.02	134.16	41.57 %	19.67 %	22.57°	11.13°	✓	
134.20	134.24	-62.17 %	-15.63 %	-31.87°	-8.88°	✓	
134.27	134.30	31.46 %	18.34 %	17.46°	10.39°	✓	
134.66	134.74	-39.00 %	-17.17 %	-21.31°	-9.74°	✓	
135.02	135.05	69.78 %	17.27 %	34.91°	9.80°	✓	
135.96	135.99	33.43 %	16.67 %	18.48°	9.47°	✓	
136.88	136.93	57.98 %	15.31 %	30.10°	8.70°	✓	
138.62	138.66	-42.57 %	-27.58 %	-23.06°	-15.42°	✓	
139.67	139.76	-48.78 %	-17.00 %	-26.00°	-9.65°	✓	
139.81	139.82	-31.22 %	-23.88 %	-17.34°	-13.43°	✓	
139.87	139.88	-50.42 %	-34.17 %	-26.76°	-18.86°	✓	
140.25	140.35	-62.50 %	-15.91 %	-32.00°	-9.04°	✓	
140.45	140.55	67.41 %	18.11 %	33.98°	10.27°	✓	
140.89	140.90	-33.00 %	-24.20 %	-18.26°	-13.60°	✓	
143.50	143.59	-50.21 %	-15.28 %	-26.66°	-8.69°	✓	
143.61	143.67	-51.72 %	-19.12 %	-27.35°	-10.82°	✓	
143.69	143.69	-56.37 %	-43.05 %	-29.41°	-23.29°	✓	
143.71	143.84	-50.17 %	-17.73 %	-26.64°	-10.05°	✓	
144.20	144.39	64.02 %	19.80 %	32.63°	11.20°	✓	
144.43	144.49	71.72 %	15.85 %	35.65°	9.01°	✓	
144.52	144.61	39.48 %	15.51 %	21.54°	8.82°	✓	
144.82	144.82	36.84 %	34.16 %	20.22°	18.86°	✓	
145.88	146.01	-33.12 %	-17.05 %	-18.33°	-9.68°	✓	
146.64	146.96	-57.02 %	-18.00 %	-29.69°	-10.20°	✓	
147.04	147.11	54.11 %	18.91 %	28.42°	10.71°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
147.12	147.23	64.13 %	19.48 %	32.67°	11.02°	✓	
147.25	147.32	50.48 %	21.28 %	26.78°	12.01°	✓	
147.34	147.40	69.07 %	15.89 %	34.63°	9.03°	✓	
148.13	148.15	-31.12 %	-19.17 %	-17.29°	-10.85°	✓	
148.28	148.40	35.19 %	17.76 %	19.39°	10.07°	✓	
148.80	148.85	-85.42 %	-19.30 %	-40.50°	-10.92°	✓	
148.86	148.92	-52.82 %	-24.77 %	-27.85°	-13.91°	✓	
149.06	149.09	-52.91 %	-15.98 %	-27.88°	-9.08°	✓	
149.31	149.34	-47.01 %	-17.99 %	-25.18°	-10.20°	✓	
149.36	149.40	-54.85 %	-15.96 %	-28.75°	-9.07°	✓	
149.46	149.49	42.96 %	20.31 %	23.25°	11.48°	✓	
149.51	149.56	82.02 %	18.07 %	39.36°	10.24°	✓	
149.67	149.71	-31.28 %	-18.25 %	-17.37°	-10.34°	✓	
149.77	149.81	-47.21 %	-16.05 %	-25.27°	-9.12°	✓	
149.84	149.90	-37.87 %	-15.84 %	-20.74°	-9.00°	✓	
149.91	150.13	55.67 %	15.59 %	29.10°	8.86°	✓	
150.36	150.39	32.25 %	19.54 %	17.88°	11.06°	✓	
150.82	150.86	-37.66 %	-15.05 %	-20.63°	-8.56°	✓	
150.99	151.03	-33.86 %	-22.32 %	-18.70°	-12.58°	✓	
151.25	151.27	-30.80 %	-18.87 %	-17.12°	-10.68°	✓	
151.51	151.56	56.42 %	18.58 %	29.43°	10.53°	✓	
151.70	151.73	39.30 %	17.17 %	21.46°	9.74°	✓	
152.65	152.68	32.05 %	15.28 %	17.77°	8.69°	✓	
152.68	152.72	-38.12 %	-21.52 %	-20.87°	-12.15°	✓	
152.95	152.96	33.97 %	18.83 %	18.76°	10.66°	✓	
153.17	153.20	-33.06 %	-17.78 %	-18.29°	-10.08°	✓	
153.23	153.25	-30.00 %	-16.22 %	-16.70°	-9.21°	✓	
153.39	153.41	-31.75 %	-20.73 %	-17.62°	-11.71°	✓	
153.50	153.57	-30.22 %	-16.63 %	-16.82°	-9.44°	✓	
153.68	153.72	38.19 %	15.46 %	20.90°	8.79°	✓	
154.59	154.64	-34.13 %	-15.83 %	-18.85°	-9.00°	✓	
154.67	154.74	-61.53 %	-17.32 %	-31.60°	-9.83°	✓	
155.01	155.03	30.01 %	20.69 %	16.70°	11.69°	✓	
155.20	155.21	-34.19 %	-15.67 %	-18.87°	-8.90°	✓	
155.24	155.27	76.19 %	18.00 %	37.30°	10.20°	✓	
155.32	155.35	71.84 %	35.67 %	35.69°	19.63°	✓	
155.39	155.53	-43.70 %	-16.22 %	-23.60°	-9.21°	✓	
155.56	155.57	36.98 %	31.71 %	20.30°	17.59°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
155.63	155.72	41.00 %	27.00 %	22.29°	15.11°		✓
155.72	155.76	-57.70 %	-19.49 %	-29.98°	-11.03°	✓	
155.83	155.85	36.86 %	19.36 %	20.24°	10.95°	✓	
155.87	155.90	70.92 %	16.50 %	35.34°	9.37°	✓	
156.11	156.14	66.68 %	34.55 %	33.70°	19.06°	✓	
156.48	156.53	37.67 %	24.22 %	20.64°	13.61°	✓	
156.54	156.57	-63.84 %	-33.31 %	-32.55°	-18.42°	✓	
156.62	156.70	-53.08 %	-16.05 %	-27.96°	-9.12°	✓	
156.77	156.78	-45.44 %	-44.50 %	-24.44°	-23.99°	✓	
156.87	156.94	48.27 %	16.57 %	25.77°	9.41°	✓	
157.04	157.10	71.18 %	19.45 %	35.44°	11.01°	✓	
157.20	157.22	37.37 %	17.87 %	20.49°	10.13°	✓	
157.86	157.92	30.35 %	16.86 %	16.88°	9.57°	✓	
157.95	157.97	-35.70 %	-22.49 %	-19.65°	-12.68°	✓	
158.27	158.36	32.13 %	18.20 %	17.81°	10.32°	✓	
158.60	158.68	-67.37 %	-17.40 %	-33.97°	-9.87°	✓	
159.11	159.14	-39.87 %	-16.58 %	-21.74°	-9.41°	✓	
159.32	159.34	-37.15 %	-17.18 %	-20.38°	-9.75°	✓	
159.37	159.39	46.15 %	19.08 %	24.77°	10.80°	✓	
159.64	159.67	-37.01 %	-18.43 %	-20.31°	-10.44°	✓	
160.58	160.70	49.71 %	16.96 %	26.43°	9.63°	✓	
161.08	161.14	36.20 %	20.54 %	19.90°	11.61°	✓	
162.29	162.60	-54.06 %	-16.32 %	-28.40°	-9.27°	✓	
162.65	162.91	-71.60 %	-16.84 %	-35.60°	-9.56°	✓	
162.95	162.98	54.23 %	24.15 %	28.47°	13.58°	✓	
163.00	163.13	80.07 %	20.73 %	38.69°	11.71°	✓	
163.31	163.45	69.83 %	19.26 %	34.92°	10.90°	✓	
164.57	164.72	44.70 %	15.57 %	24.08°	8.85°	✓	
164.91	164.95	32.93 %	16.64 %	18.23°	9.45°	✓	
164.99	165.11	-38.97 %	-18.51 %	-21.29°	-10.49°	✓	
165.17	165.26	43.78 %	17.50 %	23.65°	9.93°	✓	
165.85	165.96	-36.04 %	-16.13 %	-19.82°	-9.16°	✓	
166.60	166.70	-49.55 %	-17.88 %	-26.36°	-10.14°	✓	
167.09	167.14	-41.06 %	-16.57 %	-22.32°	-9.41°	✓	
167.98	168.10	-37.18 %	-16.88 %	-20.40°	-9.58°	✓	
168.14	168.32	-45.37 %	-15.17 %	-24.40°	-8.62°	✓	
169.33	169.53	-37.39 %	-17.22 %	-20.50°	-9.77°	✓	
169.60	169.63	-41.41 %	-16.67 %	-22.50°	-9.46°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
169.97	169.98	41.72 %	25.46 %	22.65°	14.29°	✓	
170.03	170.26	45.49 %	15.34 %	24.46°	8.72°	✓	
171.11	171.19	-48.15 %	-15.99 %	-25.71°	-9.08°	✓	
171.21	171.26	-67.44 %	-17.64 %	-34.00°	-10.00°	✓	
171.89	171.94	58.64 %	18.64 %	30.39°	10.56°	✓	
171.96	171.98	-38.52 %	-16.37 %	-21.07°	-9.30°	✓	
172.00	172.06	40.14 %	21.04 %	21.87°	11.88°	✓	
172.10	172.13	-35.95 %	-23.19 %	-19.77°	-13.06°	✓	
172.43	172.53	-49.03 %	-17.59 %	-26.12°	-9.98°	✓	
172.54	172.57	36.69 %	16.39 %	20.15°	9.31°	✓	
172.59	172.62	-49.66 %	-19.28 %	-26.41°	-10.91°	✓	
172.67	172.71	82.09 %	20.57 %	39.38°	11.63°	✓	
172.82	172.89	32.38 %	15.23 %	17.94°	8.66°	✓	
173.01	173.11	-45.62 %	-16.34 %	-24.52°	-9.28°	✓	
173.78	173.81	-31.38 %	-15.79 %	-17.42°	-8.97°	✓	
174.47	174.54	39.18 %	15.65 %	21.40°	8.90°	✓	
176.56	176.69	-54.07 %	-15.72 %	-28.40°	-8.93°	✓	
176.72	176.73	-34.77 %	-16.57 %	-19.17°	-9.41°	✓	
176.75	176.91	68.92 %	21.32 %	34.58°	12.04°	✓	
177.28	177.39	-42.34 %	-18.25 %	-22.95°	-10.34°	✓	
177.42	177.53	58.93 %	30.93 %	30.51°	17.19°	✓	
178.53	178.68	-40.70 %	-15.72 %	-22.15°	-8.93°	✓	
179.15	179.19	72.02 %	16.56 %	35.76°	9.41°	✓	
179.71	179.78	-50.14 %	-19.24 %	-26.63°	-10.89°	✓	
179.80	179.86	37.51 %	20.92 %	20.56°	11.82°	✓	
180.92	181.09	48.38 %	15.30 %	25.82°	8.70°	✓	
181.23	181.29	-39.75 %	-17.14 %	-21.68°	-9.73°	✓	
181.35	181.55	-35.97 %	-15.17 %	-19.78°	-8.63°	✓	
181.78	181.86	-38.92 %	-15.18 %	-21.27°	-8.63°	✓	
182.15	182.25	-32.73 %	-19.62 %	-18.12°	-11.10°	✓	
182.72	182.74	-36.52 %	-16.12 %	-20.06°	-9.16°	✓	
182.77	182.96	60.33 %	15.17 %	31.10°	8.63°	✓	
183.38	183.48	-43.81 %	-17.82 %	-23.66°	-10.10°	✓	
183.91	184.03	-35.80 %	-15.70 %	-19.70°	-8.93°	✓	
184.32	184.49	36.08 %	15.28 %	19.84°	8.69°	✓	
184.55	184.58	33.98 %	19.20 %	18.77°	10.87°	✓	
184.74	184.79	-45.80 %	-18.01 %	-24.61°	-10.21°	✓	
184.82	184.87	41.62 %	16.54 %	22.60°	9.39°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
185.14	185.28	-37.83 %	-18.61 %	-20.72°	-10.54°	✓	
185.41	185.50	56.47 %	17.49 %	29.45°	9.92°	✓	
185.57	185.66	-37.87 %	-19.57 %	-20.74°	-11.07°	✓	
185.70	185.80	41.09 %	19.28 %	22.34°	10.91°	✓	
185.96	186.04	34.90 %	16.26 %	19.24°	9.23°	✓	
186.11	186.30	43.29 %	16.86 %	23.41°	9.57°	✓	
187.49	187.57	-66.82 %	-23.16 %	-33.75°	-13.04°	✓	
187.63	187.73	72.59 %	16.09 %	35.98°	9.14°	✓	
188.70	188.77	-34.25 %	-20.26 %	-18.90°	-11.45°	✓	
188.80	188.85	61.25 %	16.67 %	31.49°	9.46°	✓	
189.11	189.18	49.41 %	15.98 %	26.29°	9.08°	✓	
189.19	189.23	-38.26 %	-20.38 %	-20.94°	-11.52°	✓	
189.43	189.45	32.77 %	23.09 %	18.14°	13.00°	✓	
189.70	189.72	-30.12 %	-17.75 %	-16.76°	-10.06°	✓	
189.97	190.00	-36.35 %	-18.70 %	-19.98°	-10.59°	✓	
190.05	190.13	54.13 %	15.25 %	28.43°	8.67°	✓	
190.79	190.85	-42.28 %	-23.34 %	-22.92°	-13.14°	✓	
190.99	191.08	33.62 %	17.23 %	18.58°	9.77°	✓	
191.22	191.31	-36.33 %	-16.71 %	-19.97°	-9.49°	✓	
191.33	191.36	36.48 %	16.68 %	20.04°	9.47°	✓	
191.37	191.40	-34.08 %	-23.91 %	-18.82°	-13.44°	✓	
191.54	191.59	48.55 %	23.26 %	25.89°	13.09°	✓	
191.61	191.67	-39.75 %	-20.17 %	-21.68°	-11.40°	✓	
192.03	192.10	43.21 %	22.52 %	23.37°	12.69°	✓	
192.22	192.42	60.95 %	19.04 %	31.36°	10.78°	✓	
192.88	192.91	36.36 %	18.88 %	19.98°	10.69°	✓	
193.74	193.78	-44.90 %	-22.13 %	-24.18°	-12.48°	✓	
194.32	194.51	-39.52 %	-15.26 %	-21.56°	-8.68°	✓	
194.59	194.64	56.16 %	26.30 %	29.32°	14.73°	✓	
195.09	195.09	-31.06 %	-16.35 %	-17.25°	-9.29°	✓	
195.63	195.66	35.32 %	15.92 %	19.45°	9.05°	✓	
195.69	195.98	39.36 %	16.96 %	21.48°	9.63°	✓	
195.99	196.33	63.92 %	15.40 %	32.59°	8.75°	✓	
196.36	196.45	-42.60 %	-19.80 %	-23.07°	-11.20°	✓	
196.47	196.61	-40.24 %	-16.29 %	-21.92°	-9.25°	✓	
196.66	196.69	-31.04 %	-17.40 %	-17.25°	-9.87°	✓	
196.92	197.00	42.88 %	16.02 %	23.21°	9.10°	✓	
197.22	197.25	31.71 %	15.67 %	17.59°	8.91°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
197.50	197.84	32.00 %	15.00 %	17.74°	8.53°		✓
197.84	198.06	-50.39 %	-16.09 %	-26.74°	-9.14°	✓	
198.08	198.38	-76.97 %	-15.74 %	-37.59°	-8.95°	✓	
198.81	198.85	-59.25 %	-17.02 %	-30.65°	-9.66°	✓	
198.86	198.87	62.99 %	31.76 %	32.21°	17.62°	✓	
198.88	198.93	-52.76 %	-22.54 %	-27.82°	-12.70°	✓	
198.95	199.03	45.00 %	17.71 %	24.23°	10.04°	✓	
199.11	199.18	-31.36 %	-17.46 %	-17.41°	-9.91°	✓	
199.26	199.40	34.38 %	18.38 %	18.97°	10.41°	✓	
199.61	199.66	-31.86 %	-15.81 %	-17.67°	-8.98°	✓	
199.79	200.04	-37.30 %	-15.62 %	-20.45°	-8.88°	✓	
200.06	200.07	37.08 %	24.00 %	20.35°	13.49°	✓	
200.18	200.22	-57.75 %	-22.88 %	-30.01°	-12.89°	✓	
200.23	200.26	-47.12 %	-16.14 %	-25.23°	-9.17°	✓	
200.62	200.85	48.31 %	17.65 %	25.78°	10.01°	✓	
201.04	201.17	36.09 %	15.26 %	19.84°	8.68°	✓	
201.84	201.97	-35.42 %	-18.60 %	-19.50°	-10.54°	✓	
201.97	202.01	45.92 %	16.09 %	24.66°	9.14°	✓	
202.33	202.47	54.00 %	15.88 %	28.37°	9.02°	✓	
202.60	202.67	39.81 %	19.76 %	21.71°	11.18°	✓	
202.90	202.96	-37.10 %	-16.76 %	-20.35°	-9.51°	✓	
203.34	203.46	-46.12 %	-17.05 %	-24.76°	-9.68°	✓	
203.48	203.56	38.34 %	15.97 %	20.98°	9.07°	✓	
203.73	203.75	-41.70 %	-16.21 %	-22.64°	-9.21°	✓	
203.77	203.79	31.00 %	20.77 %	17.22°	11.73°	✓	
204.03	204.06	-49.15 %	-26.83 %	-26.18°	-15.02°	✓	
204.34	204.40	51.73 %	21.51 %	27.35°	12.14°	✓	
204.41	204.62	46.00 %	20.00 %	24.47°	11.25°		✓
204.42	204.70	55.49 %	15.48 %	29.03°	8.80°	✓	
204.86	204.93	30.13 %	18.46 %	16.77°	10.46°	✓	
204.95	205.08	-44.30 %	-18.69 %	-23.90°	-10.59°	✓	
205.14	205.28	-52.90 %	-19.13 %	-27.88°	-10.83°	✓	
205.32	205.47	43.31 %	17.04 %	23.42°	9.67°	✓	
205.65	205.82	-37.63 %	-17.33 %	-20.62°	-9.83°	✓	
205.84	206.03	48.06 %	15.72 %	25.67°	8.94°	✓	
206.04	206.08	44.71 %	21.14 %	24.09°	11.94°	✓	
206.40	206.64	-47.06 %	-17.18 %	-25.20°	-9.75°	✓	
206.73	206.73	48.03 %	28.25 %	25.66°	15.78°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
207.36	207.47	36.61 %	17.58 %	20.11°	9.97°	✓	
207.84	207.96	52.73 %	15.58 %	27.80°	8.86°	✓	
208.21	208.34	-58.75 %	-15.26 %	-30.43°	-8.68°	✓	
208.40	208.42	32.89 %	16.85 %	18.21°	9.56°	✓	
208.54	208.55	31.57 %	15.67 %	17.52°	8.91°	✓	
208.87	208.97	-48.76 %	-21.31 %	-26.00°	-12.03°	✓	
208.99	209.04	48.57 %	17.53 %	25.90°	9.94°	✓	
209.22	209.27	-45.10 %	-20.41 %	-24.28°	-11.54°	✓	
209.28	209.34	51.15 %	18.37 %	27.09°	10.41°	✓	
209.85	209.89	-36.15 %	-19.43 %	-19.87°	-10.99°	✓	
209.92	209.99	33.01 %	16.26 %	18.27°	9.24°	✓	
210.23	210.35	-39.53 %	-15.29 %	-21.57°	-8.70°	✓	
210.57	210.67	33.95 %	17.21 %	18.75°	9.76°	✓	
210.89	211.03	-46.58 %	-17.28 %	-24.98°	-9.80°	✓	
211.67	211.75	44.17 %	17.81 %	23.83°	10.10°	✓	
212.44	212.53	31.39 %	17.54 %	17.43°	9.95°	✓	
212.66	212.85	-59.85 %	-15.66 %	-30.90°	-8.90°	✓	
212.88	213.02	46.80 %	18.72 %	25.08°	10.60°	✓	
213.50	213.58	-41.70 %	-16.18 %	-22.63°	-9.19°	✓	
214.16	214.24	-37.87 %	-15.70 %	-20.74°	-8.92°	✓	
214.53	214.72	-36.76 %	-16.21 %	-20.18°	-9.21°	✓	
214.88	214.91	38.86 %	19.25 %	21.23°	10.90°	✓	
215.48	215.56	31.33 %	18.49 %	17.40°	10.48°	✓	
215.81	215.88	30.60 %	16.73 %	17.02°	9.50°	✓	
216.19	216.25	-49.54 %	-16.10 %	-26.35°	-9.15°	✓	
216.60	216.69	34.98 %	15.98 %	19.28°	9.08°	✓	
217.10	217.11	-42.01 %	-20.00 %	-22.79°	-11.31°	✓	
218.13	218.21	41.11 %	21.11 %	22.35°	11.92°	✓	
218.32	218.51	59.96 %	16.15 %	30.95°	9.17°	✓	
218.53	218.60	-64.92 %	-30.43 %	-32.99°	-16.93°	✓	
218.65	218.85	-53.47 %	-17.91 %	-28.13°	-10.16°	✓	
218.87	219.13	-45.19 %	-15.85 %	-24.32°	-9.01°	✓	
219.43	219.44	-30.68 %	-25.84 %	-17.05°	-14.49°	✓	
219.88	219.89	-34.02 %	-17.72 %	-18.79°	-10.05°	✓	
219.91	219.99	45.79 %	16.02 %	24.60°	9.10°	✓	
220.38	220.68	44.51 %	16.27 %	23.99°	9.24°	✓	
220.76	220.92	-33.17 %	-15.11 %	-18.35°	-8.59°	✓	
221.25	221.32	-81.58 %	-18.95 %	-39.21°	-10.73°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
221.34	221.38	89.08 %	23.87 %	41.69°	13.43°	✓	
221.76	221.85	-45.96 %	-15.20 %	-24.68°	-8.64°	✓	
222.08	222.13	31.27 %	15.23 %	17.37°	8.66°	✓	
222.20	222.34	-42.09 %	-20.91 %	-22.83°	-11.81°	✓	
222.50	222.58	40.26 %	15.89 %	21.93°	9.03°	✓	
222.75	222.81	-36.99 %	-19.96 %	-20.30°	-11.29°	✓	
222.85	222.86	62.55 %	39.97 %	32.03°	21.79°	✓	
227.43	227.46	39.99 %	21.53 %	21.80°	12.15°	✓	
227.55	227.58	42.48 %	17.96 %	23.02°	10.18°	✓	
227.61	227.74	68.01 %	17.50 %	34.22°	9.93°	✓	
227.76	227.83	-67.65 %	-39.30 %	-34.08°	-21.46°	✓	
227.85	227.88	83.72 %	33.88 %	39.93°	18.72°	✓	
227.88	227.91	-85.21 %	-24.78 %	-40.43°	-13.92°	✓	
227.95	228.26	48.04 %	16.08 %	25.66°	9.14°	✓	
228.30	228.40	-34.91 %	-15.87 %	-19.24°	-9.02°	✓	
228.42	228.60	-44.66 %	-19.87 %	-24.06°	-11.24°	✓	
228.64	228.70	-40.26 %	-18.95 %	-21.93°	-10.73°	✓	
228.71	228.73	33.88 %	15.53 %	18.72°	8.83°	✓	
228.81	228.89	-44.21 %	-15.82 %	-23.85°	-8.99°	✓	
229.09	229.11	-53.79 %	-18.02 %	-28.27°	-10.22°	✓	
229.16	229.17	-43.42 %	-16.70 %	-23.47°	-9.48°	✓	
229.27	229.30	-34.89 %	-15.57 %	-19.23°	-8.85°	✓	
229.44	229.45	-30.60 %	-18.75 %	-17.01°	-10.62°	✓	
230.06	230.11	47.69 %	16.26 %	25.50°	9.23°	✓	
230.15	230.21	-31.74 %	-15.19 %	-17.61°	-8.64°	✓	
230.24	230.25	-33.73 %	-18.42 %	-18.64°	-10.43°	✓	
230.30	230.34	-37.62 %	-17.56 %	-20.62°	-9.96°	✓	
230.39	230.40	-39.74 %	-29.84 %	-21.67°	-16.61°	✓	
230.42	230.43	33.89 %	18.19 %	18.72°	10.31°	✓	
230.85	230.85	-33.78 %	-16.68 %	-18.66°	-9.47°	✓	
231.05	231.18	41.24 %	16.85 %	22.41°	9.57°	✓	
231.19	231.23	-75.96 %	-29.30 %	-37.22°	-16.33°	✓	
231.24	231.48	62.53 %	22.87 %	32.02°	12.88°	✓	
231.58	231.67	33.71 %	20.14 %	18.63°	11.39°	✓	
231.69	231.79	34.66 %	19.45 %	19.11°	11.01°	✓	
231.95	232.13	44.08 %	17.74 %	23.79°	10.06°	✓	
232.59	232.76	-72.20 %	-26.50 %	-35.83°	-14.84°	✓	
232.77	232.89	57.44 %	18.90 %	29.87°	10.70°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
232.90	233.51	-34.97 %	-15.24 %	-19.27°	-8.66°	✓	
233.55	233.63	-34.93 %	-17.10 %	-19.25°	-9.70°	✓	
233.86	233.91	-30.16 %	-19.51 %	-16.78°	-11.04°	✓	
234.02	234.07	-31.84 %	-15.34 %	-17.66°	-8.72°	✓	
234.18	234.26	-42.45 %	-20.36 %	-23.00°	-11.51°	✓	
234.27	234.28	48.39 %	24.42 %	25.82°	13.72°	✓	
234.31	234.32	-49.60 %	-19.32 %	-26.38°	-10.93°	✓	
234.34	234.37	35.98 %	21.86 %	19.79°	12.33°	✓	
234.42	234.43	-33.59 %	-15.43 %	-18.57°	-8.77°	✓	
234.45	234.47	38.28 %	19.01 %	20.95°	10.76°	✓	
235.31	235.38	-53.20 %	-22.48 %	-28.01°	-12.67°	✓	
235.87	235.89	34.68 %	20.99 %	19.13°	11.86°	✓	
236.06	236.11	37.10 %	22.83 %	20.36°	12.86°	✓	
236.20	236.33	33.06 %	16.34 %	18.30°	9.28°	✓	
236.35	236.36	-32.28 %	-19.31 %	-17.89°	-10.93°	✓	
236.41	236.46	46.95 %	18.23 %	25.15°	10.33°	✓	
236.61	236.64	38.76 %	19.74 %	21.19°	11.17°	✓	
236.78	236.89	56.48 %	19.67 %	29.46°	11.13°	✓	
236.96	237.08	-57.28 %	-24.45 %	-29.80°	-13.74°	✓	
237.08	237.16	67.56 %	21.06 %	34.04°	11.89°	✓	
237.20	237.28	-31.26 %	-17.32 %	-17.36°	-9.82°	✓	
237.30	237.35	-43.30 %	-21.46 %	-23.41°	-12.11°	✓	
237.43	237.54	-44.82 %	-21.40 %	-24.14°	-12.08°	✓	
237.57	237.70	46.80 %	25.00 %	25.08°	14.04°	✓	
237.83	237.86	46.91 %	23.23 %	25.13°	13.08°	✓	
238.13	238.62	78.59 %	17.44 %	38.16°	9.89°	✓	
238.69	238.72	47.23 %	24.02 %	25.28°	13.51°	✓	
238.83	238.85	75.58 %	26.42 %	37.08°	14.80°	✓	
239.10	239.23	39.62 %	15.27 %	21.62°	8.68°	✓	
239.29	239.67	-60.98 %	-16.07 %	-31.37°	-9.13°	✓	
239.69	240.22	75.94 %	16.01 %	37.21°	9.09°	✓	
240.34	240.52	-50.70 %	-17.39 %	-26.88°	-9.87°	✓	
240.57	240.62	-45.71 %	-15.21 %	-24.57°	-8.65°	✓	
240.72	240.79	-37.28 %	-15.42 %	-20.44°	-8.76°	✓	
240.82	240.95	61.82 %	19.31 %	31.72°	10.93°	✓	
241.07	241.19	-31.84 %	-15.28 %	-17.66°	-8.69°	✓	
241.25	241.40	-60.83 %	-18.43 %	-31.31°	-10.44°	✓	
241.45	241.46	-33.13 %	-22.09 %	-18.33°	-12.46°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
241.66	241.70	40.24 %	15.91 %	21.92°	9.04°	✓	
241.72	241.79	35.75 %	19.88 %	19.67°	11.25°	✓	
241.85	241.94	-33.07 %	-16.46 %	-18.30°	-9.35°	✓	
242.03	242.09	-31.00 %	-15.66 %	-17.23°	-8.90°	✓	
242.69	242.79	41.93 %	16.30 %	22.75°	9.26°	✓	
242.89	243.01	-43.98 %	-17.78 %	-23.74°	-10.08°	✓	
244.22	244.33	36.99 %	15.24 %	20.30°	8.67°	✓	
244.30	244.40	39.00 %	23.00 %	21.06°	12.73°		✓
244.50	244.55	-33.73 %	-17.05 %	-18.64°	-9.68°	✓	
244.75	244.77	43.39 %	19.06 %	23.46°	10.79°	✓	
244.95	245.01	-35.35 %	-17.00 %	-19.47°	-9.65°	✓	
245.08	245.09	35.41 %	17.84 %	19.50°	10.12°	✓	
245.18	245.23	32.64 %	19.20 %	18.08°	10.87°	✓	
245.41	245.42	38.82 %	31.67 %	21.22°	17.57°	✓	
245.46	245.57	34.28 %	16.02 %	18.92°	9.10°	✓	
246.59	246.61	-53.52 %	-22.96 %	-28.15°	-12.93°	✓	
246.62	246.64	40.07 %	17.31 %	21.83°	9.82°	✓	
246.85	246.89	-52.88 %	-15.56 %	-27.87°	-8.85°	✓	
246.91	246.94	33.57 %	23.72 %	18.56°	13.35°	✓	
247.20	247.26	-57.95 %	-23.32 %	-30.09°	-13.12°	✓	
247.41	247.65	49.31 %	16.02 %	26.25°	9.10°	✓	
247.66	247.71	37.08 %	16.68 %	20.35°	9.47°	✓	
247.72	247.79	-35.24 %	-18.21 %	-19.41°	-10.32°	✓	
247.80	247.87	-37.34 %	-16.70 %	-20.48°	-9.48°	✓	
248.02	248.08	-52.37 %	-18.32 %	-27.64°	-10.38°	✓	
248.12	248.25	-42.68 %	-17.15 %	-23.11°	-9.73°	✓	
248.26	248.69	-71.56 %	-15.69 %	-35.59°	-8.92°	✓	
248.77	248.85	-32.47 %	-16.47 %	-17.99°	-9.36°	✓	
249.11	249.15	30.17 %	23.23 %	16.79°	13.08°	✓	
249.61	249.65	-52.53 %	-19.01 %	-27.71°	-10.76°	✓	
249.83	250.08	52.15 %	18.03 %	27.54°	10.22°	✓	
250.13	250.22	46.89 %	17.30 %	25.12°	9.81°	✓	
250.45	250.46	30.07 %	19.23 %	16.74°	10.89°	✓	
250.73	250.79	-31.11 %	-17.07 %	-17.28°	-9.69°	✓	
250.81	250.99	-50.43 %	-15.35 %	-26.76°	-8.73°	✓	
251.07	251.15	44.59 %	15.33 %	24.03°	8.72°	✓	
251.20	251.25	30.19 %	16.89 %	16.80°	9.59°	✓	
252.07	252.13	39.52 %	16.19 %	21.56°	9.20°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
252.15	252.17	-60.99 %	-29.82 %	-31.38°	-16.60°	✓	
252.22	252.25	-35.47 %	-25.15 %	-19.53°	-14.12°	✓	
252.25	252.34	51.58 %	16.17 %	27.28°	9.19°	✓	
252.36	252.40	-52.88 %	-21.53 %	-27.87°	-12.15°	✓	
252.42	252.43	38.41 %	18.61 %	21.01°	10.54°	✓	
252.45	252.46	-35.67 %	-17.35 %	-19.63°	-9.84°	✓	
252.48	252.50	48.45 %	23.06 %	25.85°	12.98°	✓	
252.76	252.77	41.06 %	17.51 %	22.33°	9.93°	✓	
252.78	252.79	-36.92 %	-21.85 %	-20.26°	-12.33°	✓	
252.80	252.83	32.20 %	18.42 %	17.85°	10.44°	✓	
252.85	252.88	-31.34 %	-16.05 %	-17.40°	-9.12°	✓	
252.89	253.02	38.27 %	20.61 %	20.94°	11.65°	✓	
253.72	253.84	-39.93 %	-18.18 %	-21.77°	-10.30°	✓	
253.85	253.91	-47.57 %	-22.32 %	-25.44°	-12.58°	✓	
254.13	254.14	-40.25 %	-29.02 %	-21.92°	-16.18°	✓	
254.16	254.25	38.81 %	18.73 %	21.21°	10.61°	✓	
254.27	254.36	31.60 %	17.94 %	17.54°	10.17°	✓	
255.22	255.27	-37.68 %	-17.92 %	-20.65°	-10.16°	✓	
256.15	256.18	-31.50 %	-16.33 %	-17.49°	-9.28°	✓	
256.36	256.37	-64.09 %	-56.85 %	-32.65°	-29.62°	✓	
256.75	256.77	-42.51 %	-15.13 %	-23.03°	-8.60°	✓	
257.98	258.06	-42.31 %	-17.13 %	-22.94°	-9.72°	✓	
258.58	258.60	35.67 %	17.13 %	19.63°	9.72°	✓	
259.88	259.94	44.46 %	15.38 %	23.97°	8.74°	✓	
260.23	260.25	-35.84 %	-16.96 %	-19.72°	-9.62°	✓	
260.92	260.94	31.92 %	19.52 %	17.70°	11.05°	✓	
260.99	261.01	-49.07 %	-26.71 %	-26.14°	-14.95°	✓	
261.08	261.09	36.37 %	15.68 %	19.99°	8.91°	✓	
261.54	261.63	43.00 %	20.00 %	23.27°	11.48°		✓
261.85	261.88	-37.38 %	-17.40 %	-20.50°	-9.87°	✓	
262.03	262.04	38.77 %	20.06 %	21.19°	11.34°	✓	
262.92	262.96	65.86 %	20.61 %	33.37°	11.65°	✓	
264.81	264.84	-41.40 %	-20.42 %	-22.49°	-11.54°	✓	
265.15	265.20	-34.33 %	-17.09 %	-18.95°	-9.70°	✓	
265.23	265.24	40.81 %	16.60 %	22.20°	9.42°	✓	
265.65	265.68	-40.35 %	-17.48 %	-21.98°	-9.92°	✓	
265.83	265.84	35.57 %	22.53 %	19.58°	12.70°	✓	
265.90	265.91	31.65 %	17.27 %	17.56°	9.80°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
265.94	265.97	-34.63 %	-15.97 %	-19.10°	-9.07°	✓	
266.98	267.01	-38.41 %	-19.17 %	-21.01°	-10.85°	✓	
267.03	267.06	35.04 %	16.53 %	19.31°	9.38°	✓	
267.72	267.73	30.52 %	20.77 %	16.97°	11.73°	✓	
267.93	268.00	-34.21 %	-16.27 %	-18.89°	-9.24°	✓	
268.99	268.99	43.39 %	18.59 %	23.45°	10.53°	✓	
269.06	269.07	-32.39 %	-26.49 %	-17.95°	-14.84°	✓	
269.38	269.44	-45.23 %	-22.79 %	-24.34°	-12.84°	✓	
269.76	269.83	53.68 %	15.41 %	28.23°	8.76°	✓	
270.27	270.30	-34.13 %	-15.82 %	-18.85°	-8.99°	✓	
274.25	274.28	46.60 %	16.56 %	24.98°	9.40°	✓	
274.34	274.41	-32.62 %	-18.75 %	-18.07°	-10.62°	✓	
274.46	274.47	32.05 %	30.22 %	17.77°	16.81°	✓	
277.78	277.79	46.77 %	24.27 %	25.06°	13.64°	✓	
277.87	277.91	-30.58 %	-16.89 %	-17.01°	-9.59°	✓	
278.09	278.12	36.55 %	15.54 %	20.08°	8.84°	✓	
278.25	278.29	-33.93 %	-15.16 %	-18.74°	-8.62°	✓	
278.77	278.80	-42.33 %	-18.77 %	-22.94°	-10.63°	✓	
278.84	278.87	39.74 %	16.79 %	21.67°	9.53°	✓	
279.50	279.53	-32.63 %	-16.09 %	-18.07°	-9.14°	✓	
279.98	279.99	38.97 %	16.81 %	21.29°	9.54°	✓	
280.03	280.06	-32.01 %	-19.70 %	-17.75°	-11.14°	✓	
281.83	281.85	-33.07 %	-16.92 %	-18.30°	-9.60°	✓	
282.05	282.07	-37.41 %	-17.16 %	-20.51°	-9.74°	✓	
282.14	282.16	-37.78 %	-24.89 %	-20.70°	-13.97°	✓	
282.34	282.37	-31.61 %	-18.57 %	-17.54°	-10.52°	✓	
283.04	283.12	54.92 %	15.52 %	28.77°	8.82°	✓	
283.82	283.82	30.77 %	22.21 %	17.10°	12.52°	✓	
284.50	284.52	32.13 %	15.35 %	17.81°	8.73°	✓	
284.83	284.87	43.00 %	15.61 %	23.27°	8.87°	✓	
285.33	285.34	-37.06 %	-20.61 %	-20.33°	-11.65°	✓	
287.18	287.22	40.56 %	15.18 %	22.08°	8.63°	✓	
288.17	288.18	-34.77 %	-16.29 %	-19.17°	-9.25°	✓	
289.16	289.20	-72.11 %	-20.34 %	-35.80°	-11.50°	✓	
289.26	289.33	50.98 %	24.81 %	27.01°	13.94°	✓	
289.34	289.39	-38.04 %	-18.89 %	-20.83°	-10.70°	✓	
289.40	289.44	31.13 %	25.03 %	17.29°	14.06°	✓	
289.48	289.51	-34.20 %	-23.43 %	-18.88°	-13.19°	✓	

APPENDIX K-2

Vertical/Lateral Slopes Greater than 30% Grade

MP Start	MP End	Max Slope (%)	Min Slope (%)	Max Slope (°)	Min Slope (°)	Vertical Slope	Lateral Slope
289.85	289.91	-34.60 %	-18.41 %	-19.09°	-10.43°	✓	
289.97	290.00	34.77 %	19.71 %	19.17°	11.15°	✓	
294.52	294.54	-38.29 %	-15.68 %	-20.95°	-8.91°	✓	
294.64	294.66	-33.26 %	-16.58 %	-18.39°	-9.42°	✓	
295.22	295.28	-38.31 %	-15.50 %	-20.96°	-8.81°	✓	
295.34	295.35	36.27 %	24.78 %	19.94°	13.92°	✓	
297.28	297.29	42.02 %	18.84 %	22.79°	10.67°	✓	
302.52	302.54	32.64 %	15.31 %	18.08°	8.71°	✓	