

Alaska DOT&PF Rock Slope Rating Calculator

Fill in orange cells		Rated By LT - AEM	
Ver. 1.2b Jan 2021		12/2021 copied to V1.2, updated AADT to 2020 & milepoints	
Rating Date 10/17/2014		Site ID 2995000003392014	
Site Information			
Region	South Coast Region	Community	SKAGWAY
Highway Name	KLONDIKE HIGHWAY	Maint. District	SOUTHEAST MAINT DISTRICT
CDS Route Number	299500	Maint. Station	SKAGWAY
Road and Highway No.	2041009X000		
Hwy MP	5.05	Common Name	
CDS Milepoint	3.39	B-Slope	NO
Latitude	59.50789	Mitigation Present	NO
Longitude	-135.25570	Site Rating Status	ACTIVE
Comments	5 Mile Cut. Height increasing from about 30 ft to over 100 ft as cut rounds curve heading south. Transition to B-slope at both ends. Rockfall up to 4' max dimension has bounced into pullout across rd. Pullout along highest part of cut.		

Character Count 237

Site Measurements

Slope Height (ft)	105	Roadway Width (ft)	27	Sight Distance (ft)	300
Slope Length (ft)	2000	Speed Limit (mph)	40	AASHTO DSD (ft)	600
Block Size (ft)	3.5	Annual Precipitation (in)	90	GIS Alaska Precipitation Map - http://arcg.is/1kmhCUN	
Event Volume (cy)		AADT (Count)	410	AADT updated to 2020 counts	

Evaluation Result Summary (Class B slopes are all classified in "Good" Condition)

Condition Index	43	Total USMP Rating	521	Programmatic Improvement Cost to CS1	
Condition State	3	Hazard Rating	397	Note calculation is programmatic and does not reflect site-specific needs. Actual costs may differ significantly.	
Condition State Text	FAIR	Risk Rating	124	\$ 1,992,900	

Slope Hazard Rating (Class A unstable slopes only)

Highest of size or volume scores			47
Slope Height Score			100
Case 1 Structure Score	27	Discon. Fav, discon rand, discon adverse, cont. adverse	
Case 1 Joint Friction Score	20	Rough irreg, undulating, planar, clay filled/slicks	
Case 2 Features Score		Few features, Occ, Many, Major	
Case 2 Diff Erosion Score		Small diff, Mod, Large w/ fave, Large w/un fave	
Geologic Character Score (Highest sum of Case 1 or Case 2 Scores)			47
Ditch Effectiveness Score	27	Good, Moderate, Limited, None	
Ditch Effectiveness Score			27
Maintenance Freq. Score	81	Sched. ditch maint, patrols after storms, daily seasonal patrols, daily patrols	
Maintenance Frequency Score			81
Rockfall History Score	50	Few, Occ, Many, Constant	
Rockfall History Score			50
Annual Precipitation Score	81		
Slope Drainage Score	9	Dry or well drained, intermittent water, usually on slope, always on slope	
Water on Slope Score			45
Hazard Subtotal			397

Slope Risk Rating (Class A unstable slopes only)

Decision Sight Distance Score			47
Roadway Width Score			31
AADT Score			3
Average Vehicle Risk Score			2
Impact on Traffic Score	20	Minor Delay, One Lane Open, 100 mi or 1 day closure, no detour or 3 days +	
Traffic Impacts Score			20
ROW Impacts Score	3	None, minor, private prop-no structures, structures/roads/RR/util/parks	
Right of Way Impacts Score			3
Envir. Impacts Score	0	Zero points if no environmental impacts are likely, 50 pts if some possible	
Environmental Impacts Score			0
Maint. Complexity Score	9	Routine, Specialized equip, difficult effort/location, complex or dangerous	
Maintenance Complexity Score			9
Event Cost Score	9	\$10k, \$50k, \$100k, \$250k in reasonable worst case	
Event Cost Score			9
Risk Subtotal			124

Alaska DOT&PF Rock Slope Rating Calculator

Ver. 1.1 Dec 2017

Rated By	LT - AEM
Rating Date	10/17/2014
Site ID	2995000003412014

Site Information

Region	SR	Community	SKAGWAY	Rockfall Type	
Highway Name	KLONDIKE HIGHWAY	Maint. District	SOUTHEAST	Rock Avalanche	NO
CDS Route Number	299500	Maint. Station	SKAGWAY	Planar Failure	YES
Highway Milepost	5.05	Common Name		Wedge Failure	YES
CDS Milepoint	3.41	B-Slope	NO	Toppling Failure	NO
Latitude	59.50789	Mitigation Present	NO	Raveling/Undermining	NO
Longitude	-135.2557	Site Rating Status	ACTIVE	Block Failure	YES
Comments	5 Mile Cut. Height increasing from about 30 ft to over 100 ft as cut rounds curve heading south. Transition to B-slope at both ends. Rockfall up to 4' max dimension has bounced into pullout across rd. Pullout along highest part of cut.				

Site Measurements

Slope Height (ft)	105	Roadway Width (ft)	27	Sight Distance	300
Slope Length (ft)	2000	Speed Limit (mph)	40	AASHTO DSD (ft)	
Block Size (ft)	3.5	Annual Precipitation (in)			
Event Volume (cy)	0	AADT (count)	302		

GIS Alaska Precipitation Map - <https://arcg.is/1kmhCUN>
GIS 2012/2013 AADT Map - <http://arcg.is/1MnAl6W>

Site Summary

Condition Index	42.989040	Total USMP Rating	479	Programmatic Improvement Cost to CS1	
Condition State	3	Hazard Rating	397		3985800
Condition State text	FAIR	Risk Rating	82	Calculation is programmatic and does not reflect site-specific needs. Actual costs may differ significantly	

Slope Hazard Rating

			Highest of size of volume scores	47
			Slope Height Score	100
Case 1 Structure Score	27	Discon. Fail, discon rand, discon adverse, cont. adverse	Geologic Character Score (Highest sum of Case 1 or Case 2 Scores)	47
Case 1 Joint Friction Score	20	Rough Irreg. undulating, planar, clay filled/slickensides		27
Case 2 Features Score	0	Few features, Occ, Many, Major	Ditch Effectiveness Score	81
Case 2 Diff Erosion Score	0	Small diff. mod, Large w/fave, Large w/Unfave	Maint. Freq. Score	50
Ditch Effectiveness Score	27	Good, Moderate, Limited, None	Rockfall History Score	81
Maintenance Freq. Score	81	Sched. Ditch maint, patrols after storms, daily seasonal patrols, daily patrols	Annual Precip. Score	45
Rockfall History Score	50	Few, Occ, Many, Constant	Water on Slope Score	
Annual Precip. Score	81		Hazard Subtotal	397
Slope Drainage Score	9	Dry or well drained, Intermittent water, usually wet, always wet		

Slope Risk Rating

			Decision Sight Distance Score	6
			Roadway Width Score	31
			AADT Score	2
			Average Vehicle Risk Score	2
% Time Car Within Site	2	Minor Delay, One Lane Open, 100 mi or 1 day closure, no detour or 3 days+	Traffic Impact Score	20
Impact on Traffic Score	20	None, Minor, Private property-no structures, structures/roads/RR/util/parks	ROW Impacts Score	3
ROW Impact Score	3	Zero points if no environmental impacts are likely, 50 pts if some possible	Environ. Impacts Score	0
Environ. Impacts Score	0	Routine, Specialized Equip, Difficult effort/location, Complex/dangerous	Maint. Complexity Score	9
Maint. Complexity Score	9	Sched. Ditch maint, patrols after storms, daily seasonal patrols, daily patrols	Maint. Freq. Score	9
Maintenance Freq. Score		\$10k, \$50k, \$100k, \$250k in reasonable worst case	Event Cost Score	9
Event Cost Score	9		Risk Subtotal	82

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KLONDIKE HIGHWAY



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Fill in orange cells		Rated By LT - AEM	
Ver. 1.2b Jan 2021		12/2021 copied to V1.2, updated AADT to 2020 & milepoints	
Rating Date 10/17/2014		Site ID 2995000003662014	
Site Information			
Region	South Coast Region	Community	SKAGWAY
Highway Name	KLONDIKE HIGHWAY	Maint. District	SOUTHEAST MAINT DISTRICT
CDS Route Number	299500	Maint. Station	SKAGWAY
Road and Highway No.	2041009X000		
Hwy MP	5.31	Common Name	
CDS Milepoint	3.66	B-Slope	NO
Latitude	59.51132	Mitigation Present	YES
Longitude	-135.25365	Site Rating Status	ACTIVE
Comments	No mitigation on northern 40 ft of cut. Existing mitigation at least 10 years old. Draped mesh torn along seams in multiple locations. Some damage to concrete jersey barriers apparent. Most rockfall from wedge failures in highly fractured rock.		

Character Count 248

Site Measurements

Slope Height (ft)	38	Roadway Width (ft)	25	Sight Distance (ft)	225
Slope Length (ft)	430	Speed Limit (mph)	40	AASHTO DSD (ft)	600
Block Size (ft)	2.5	Annual Precipitation (in)	90	GIS Alaska Precipitation Map - http://arcg.is/1kmhCUN	
Event Volume (cy)		AADT (Count)	410	AADT updated to 2020 counts	

Evaluation Result Summary (Class B slopes are all classified in "Good" Condition)

Condition Index	63	Total USMP Rating	417	Programmatic Improvement Cost to CS1	
Condition State	2	Hazard Rating	213	Note calculation is programmatic and does not reflect site-specific needs. Actual costs may differ significantly.	\$ 77,533
Condition State Text	FAIR	Risk Rating	204		

Slope Hazard Rating (Class A unstable slopes only)

Highest of size or volume scores			16
Slope Height Score			5
Case 1 Structure Score	81	Discon. Fav, discon rand, discon adverse, cont. adverse	
Case 1 Joint Friction Score	27	Rough irreg, undulating, planar, clay filled/slicks	
Case 2 Features Score		Few features, Occ, Many, Major	
Case 2 Diff Erosion Score		Small diff, Mod, Large w/ fave, Large w/un fave	
Geologic Character Score (Highest sum of Case 1 or Case 2 Scores)			108
Ditch Effectiveness Score	9	Good, Moderate, Limited, None	
Ditch Effectiveness Score			9
Maintenance Freq. Score	3	Sched. ditch maint, patrols after storms, daily seasonal patrols, daily patrols	
Maintenance Frequency Score			3
Rockfall History Score	27	Few, Occ, Many, Constant	
Rockfall History Score			27
Annual Precipitation Score	81		
Slope Drainage Score	9	Dry or well drained, intermittent water, usually on slope, always on slope	
Water on Slope Score			45
Hazard Subtotal			213

Slope Risk Rating (Class A unstable slopes only)

Decision Sight Distance Score			93
Roadway Width Score			41
AADT Score			3
Average Vehicle Risk Score			1
Impact on Traffic Score	9	Minor Delay, One Lane Open, 100 mi or 1 day closure, no detour or 3 days +	
Traffic Impacts Score			9
ROW Impacts Score	3	None, minor, private prop-no structures, structures/roads/RR/util/parks	
Right of Way Impacts Score			3
Envir. Impacts Score	0	Zero points if no environmental impacts are likely, 50 pts if some possible	
Environmental Impacts Score			0
Maint. Complexity Score	27	Routine, Specialized equip, difficult effort/location, complex or dangerous	
Maintenance Complexity Score			27
Event Cost Score	27	\$10k, \$50k, \$100k, \$250k in reasonable worst case	
Event Cost Score			27
Risk Subtotal			204

Alaska DOT&PF Rock Slope Rating Calculator

Ver. 1.1 Dec 2017

Rated By	LT - AEM
Rating Date	10/17/2014
Site ID	2995000003672014

Site Information

Region	SR	Community	SKAGWAY	Rockfall Type	
Highway Name	KLONDIKE HIGHWAY	Maint. District	SOUTHEAST	Rock Avalanche	NO
CDS Route Number	299500	Maint. Station	SKAGWAY	Planar Failure	NO
Highway Milepost	5.31	Common Name		Wedge Failure	YES
CDS Milepoint	3.67	B-Slope	NO	Toppling Failure	NO
Latitude	59.51132	Mitigation Present	YES	Raveling/Undermining	YES
Longitude	-135.25365	Site Rating Status	ACTIVE	Block Failure	YES
Comments	No mitigation on northern 40 ft of cut. Existing mitigation at least 10 years old. Draped mesh torn along seams in multiple locations. Some damage to concrete jersey barriers apparent. Most rockfall from wedge failures in highly fractured rock.				

Site Measurements

Slope Height (ft)	38	Roadway Width (ft)	25	Sight Distance	225
Slope Length (ft)	430	Speed Limit (mph)	40	AASHTO DSD (ft)	
Block Size (ft)	2.5	Annual Precipitation (in)			
Event Volume (cy)	0	AADT (count)	302		

GIS Alaska Precipitation Map - <https://arcg.is/1kmhCUN>
 GIS 2012/2013 AADT Map - <http://arcg.is/1MnAl6W>

Site Summary

Condition Index	62.5	Total USMP Rating	343	Programmatic Improvement Cost to CS1	
Condition State	2	Hazard Rating	213		77533.3000
Condition State text	FAIR	Risk Rating	130	Calculation is programmatic and does not reflect site-specific needs. Actual costs may differ significantly	

Slope Hazard Rating

			Highest of size of volume scores	16
			Slope Height Score	5
Case 1 Structure Score	81	Discon. Fav, discon rand, discon adverse, cont. adverse		
Case 1 Joint Friction Score	27	Rough Irreg, undulating, planar, clay filled/slickensides		
Case 2 Features Score	0	Few features, Occ, Many, Major		
Case 2 Diff Erosion Score	0	Small diff, mod, Large w/fave, Large w/Unfave		
		Geologic Character Score (Highest sum of Case 1 or Case 2 Scores)		108
Ditch Effectiveness Score	9	Good, Moderate, Limited, None	Ditch Effectiveness Score	9
Maintenance Freq. Score	3	Sched. Ditch maint, patrols after storms, daily seasonal patrols, daily patrols	Maint. Freq. Score	3
Rockfall History Score	27	Few, Occ, Many, Constant	Rockfall History Score	27
Annual Precip. Score	81		Annual Precip Score	81
Slope Drainage Score	9	Dry or well drained, Intermittent water, usually wet, always wet	Water on Slope Score	45
			Hazard Subtotal	213

Slope Risk Rating

			Decision Sight Distance Score	20
			Roadway Width Score	41
			AADT Score	2
			Average Vehicle Risk Score	1
% Time Car Within Site	1	Minor Delay, One Lane Open, 100 mi or 1 day closure, no detour or 3 days+	Traffic Impact Score	9
Impact on Traffic Score	9	None, Minor, Private property-no structures, structures/roads/RR/util/parks	ROW Impacts Score	3
ROW Impact Score	3	Zero points if no environmental impacts are likely, 50 pts if some possible	Environ. Impacts Score	0
Environ. Impacts Score	0	Routine, Specialized Equip, Difficult effort/location, Complex/dangerous	Maint. Complexity Score	27
Maint. Complexity Score	27	Sched. Ditch maint, patrols after storms, daily seasonal patrols, daily patrols	Maint. Freq. Score	27
Maintenance Freq. Score		\$10k, \$50k, \$100k, \$250k in reasonable worst case	Event Cost Score	27
Event Cost Score	27		Risk Subtotal	130

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KLONDIKE HIGHWAY









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