

SITE NUMBER AND NAME S051 A & B - Pekisko Creek Slides		HIGHWAY & KM 540:02, 5.649	PREVIOUS INSPECTION DATE May 6, 2019	INSPECTION DATE June 8, 2020
LEGAL DESCRIPTION 12-13-017-02 W5M	NAD 83 COORDINATES UTM Northing Easting 11 5590917 701863		RISK ASSESSMENT PF: 9 CF: 2 TOTAL: 18	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 720 (east), (Ref. No. 71130)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: 3 slope inclinometers and 3 vibrating wire piezometers are functional. LAST READING DATE: May 2020		INSPECTED BY: Chris Morgan (KCB) Margot Lederman (KCB) Alex Frotten (AT) Roger Skirrow (AT)
PRIMARY SITE ISSUE: Site A & B are at the head scarps of two landslides located approximately 30 m apart, likely caused by elevated groundwater in the steep bank during rainfall events, further accelerated by surface water draining down the slope from the ditch. The head scarp at site A has encroached onto highway right-of-way and undermined the highway ditch re-directing ditch flows onto the failed slopes.		
APPROXIMATE DIMENSIONS: Site A has undermined approximately 30 m of fence line, with total length of the slide being approximately 100 m and the head scarp is located 7 m from the white line on the highway. Site B has a width of approximately 20 m, and the head scarp is located 1.7 m in from the fence line.		
DATE OF ANY REMEDIAL ACTION: Drilling program was carried out in July 2017. Bridge construction was undertaken to the east of Site B in summer 2017, and the work included an overlay.		

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	Pavement not affected at the time of the site visit. The head scarp of A has encroached into the slope as far as the highway drainage ditch.		X
Slope Movement	X		Large retrogressive landslide at site A & B.		X
Erosion	X		Surface water discharges onto the slide surface.	X	
Seepage	X		Wet on bench below slide, runoff from ditch draining into slide. Ditch runoff is causing erosion, with sediment being deposited on the slope.	X	
Culvert Distress		X			X

COMMENTS
No distress in road pavement; the failures at Sites A and B have not reached the pavement.
The east portion of the Site A slide area is a rotational-block failure, and the midslope bench looks like it is rotated by 15°. The west portion of the Site A slide area is shallow and translational (estimated depth of failure of 4 to 5 m). The failure scarp has extended past the fence line and undermined the highway ditch, redirecting ditch flows into the failure zone.
The head scarp at Site A appears to have retrogressed 0.3 to 0.5 m since 2019. Eight fence posts are hanging at

Site A (unchanged from 2019). A broken utility cable is visible in the Site A slope failure. Between Site A and B is an existing section of slope and a power pole.

The back slope at Site A appeared saturated with visible seepage flow in the erosion channel. Recent displaced topsoil and grass was noted at the head scarp at Site A.

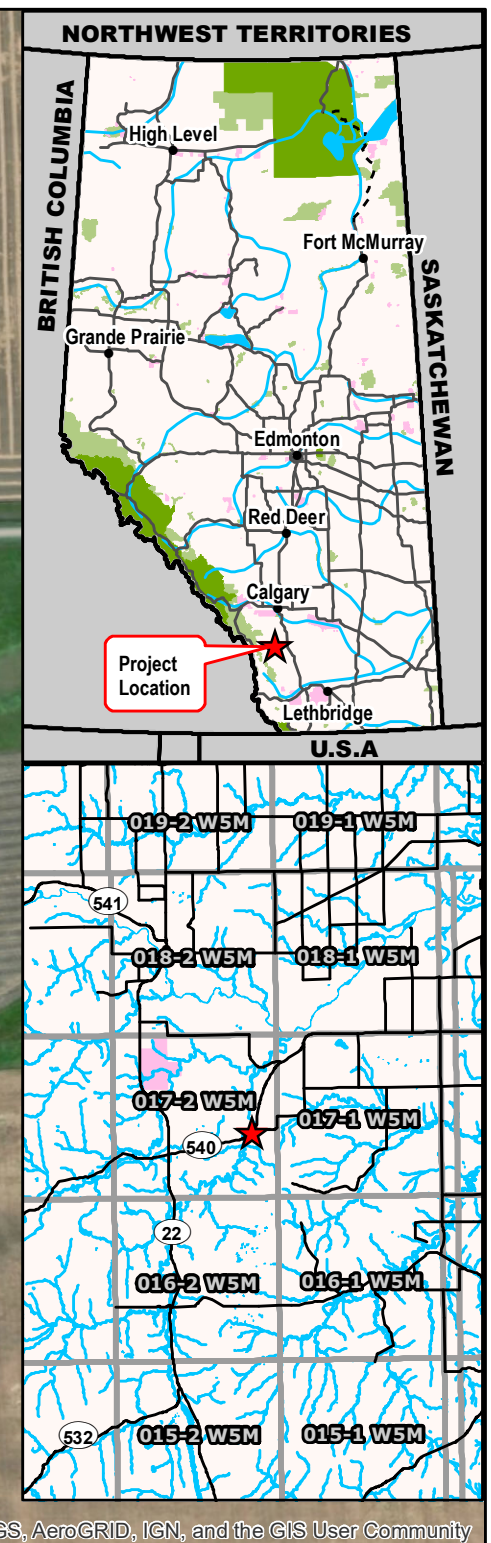
The head scarp of Site B slide area is 1.75 m away from the fence line (no change from 2018). The ditch at the head of the slide is well defined and ditch flows are conveyed past the slide area.

Sites A and B should continue to be inspected on an annual basis.

Recommendations:

Site A & B

- Short-Term
 - Monitor location during and after high flows and significant antecedent rain or snow melt.
 - Ditch-flow containment should be re-established with a ditch berm. The base of the ditch should be lined with a membrane covered by gravel; the liner should extend over the edges of the ditch.
- Long-Term
 - A pile wall with geosynthetic-reinforced fill may be required to stabilize the upper slide mass and minimize potential for further retrogression. Slope stabilization repairs should include subsurface drainage with provision for conveying water to toe of slope without causing erosion. Another option is to construct a gravel shear key and geosynthetic reinforced slope on stable soil or bedrock.
 - A toe berm may also be possible but will require a large volume of fill. A borrow area for bridge construction is present in the valley bottom, near the creek. The volume of fill available from the borrow should be assessed if a toe berm is selected.



Legend

- ▲ GPS Waypoint (June 8, 2020) — GPS Track (June 8, 2020)
- Slope Inclinometer ▤ Scarp
- ⊗ Vibrating Wire Piezometer ×—× Fence
- Power Pole → Flow Direction

NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM Zone 11N
 3. IMAGE SOURCE: World Imagery from ESRI
 ArcGIS Online. Source date September 14, 2016

CLIENT

Alberta

Klohn Crippen Berger

PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE Site Plan S051 A, B, & C - Pekisko Creek Hwy 540:02, km 4.712		
SCALE 1:5,000	PROJECT No. A05115A03	FIG No. 1

Time: 17:36:02 PM
 Date: June 29, 2020
 File: Z:\A\EDM\A05115A03\ABT Southern Region GRMP\400 Drawings\2020\2. Section BIM\XDS\061_200625.mxd

Photo 1 **Site A: Head scarp undermining fence line and ditch. Photo was taken facing north on June 8, 2020.**



Photo 2 **Site A: Instrumentation bench at mid slope of slide. Area around SI is wet. Photo was taken facing west on June 8, 2020.**



Photo 3 **Site A: View of left flank from near middle of head scarp. Photo was taken facing southwest on June 8, 2020.**

