

SITE NUMBER AND NAME: S050 Badger Culvert Slide		HIGHWAY & KM: 549:02, 4.831	PREVIOUS INSPECTION DATE: May 29, 2017	INSPECTION DATE: April 30, 2018
LEGAL DESCRIPTION: 05-03-021-04 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5625113 677537		RISK ASSESMENT: PF: 9 CF: 2 TOTAL: 18	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 220 (west), 900 (east), (Ref. No 65170)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: None LAST READING DATE: n/a	INSPECTED BY: Chris Gräpel (KCB) Peter Roy (KCB) Alex Frotten (AT) Roger Skirrow (AT) Maury Siddons (AT)
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PRIMARY SITE ISSUE: Landslide below highway, on north embankment slope. Slide extended 0.5 m into north shoulder of highway. Corroded culvert beneath highway likely allowing water to drain into the embankment. Smaller slide located on the east toe, 3 m inside the fence line, not impacting the highway.

APPROXIMATE DIMENSIONS: Approximately 10 m of the highway shoulder impacted by the slide. Larger slide approximately 30 m wide at the middle. Smaller slide approximately 10 m wide, head scarp up to 1.5 m high.

DATE OF ANY REMEDIAL ACTION: Slide area was graded in 2017, and the repair appears to be performing adequately. Drainage was improved at the toe of the embankment. The corroded culvert inlet was blocked in 2017 and the ditch plug removed to allow water to flow past the former culvert inlet.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	x		Some undermining of the north shoulder, not into driving lane.		x
Slope Movement	x		Slope failure that impacted the highway was graded. Some movement appears to have occurred at the right (east) flank of the slide area since 2017.	x	
Erosion	x		Some erosion below fence line		x
Seepage	x		Embankment toe is wet below the fence line.		x
Culvert Distress		x	Corroded culvert inlet blocked, ditch block removed to allow water to flow down south ditch.	x	

COMMENTS

The right (east) head scarp appears to have dropped about 0.5 m since the 2017 inspection

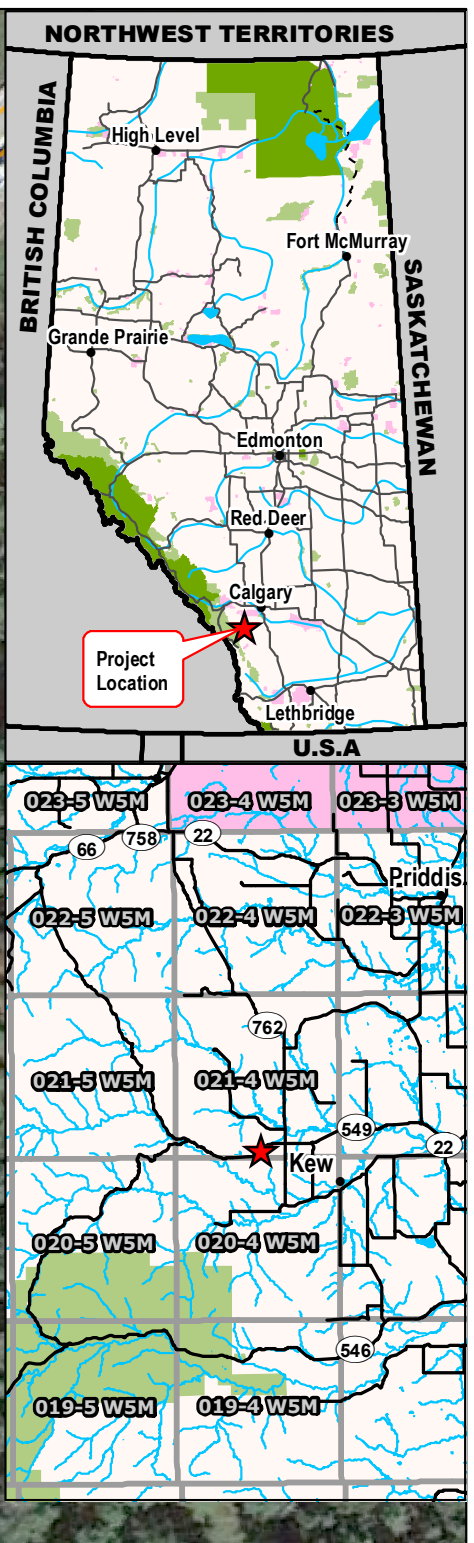
Toe area was wet below the fence line. Some snow present at time of the inspection.

Armouring placed at former corroded culvert inlet on the south side of the highway.

At the center of the large slide, the extent of the movement is indicated by a toe bulge approximately 20 m beyond the toe of the embankment. The slide toe being this far from the toe of the embankment suggests the failure is either deep-seated rotational or translational, sliding along a shallow sub horizontal surface.

Several springs are apparent beyond the toe of the embankment, which suggests high water table and possibly artesian groundwater.

A drilling program consisting of 2 to 3 boreholes should be undertaken to assess the ground conditions in the slide area. Possible remediation could include a shear key at the base of the slope with improved drainage through the embankment.



- Legend**
- GPS Track (April 30, 2018)
 - Flow Direction
 - Culvert
 - Seepage
 - Scarp
 - Toe Roll



NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: Google Earth. Image dated August 22, 2015	CLIENT 	PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM
		TITLE Site Plan S050 - Badger Creek Embankment Slope Slide Hwy 549:02-1
SCALE 1:800	PROJECT No. A05115A03	FIG No. 1

Time: 10:39:36 AM
 Date: August 09, 2018
 File: Z:\AEDM\A05115A03\ABT Southern Region GRMP\400 Drawings\2018\2 Section BIMXD\S050_180510.mxd

Photo 1 North side of highway. Photo taken facing east on April 30, 2018.



Photo 2 Slide area viewed from toe area. Photo taken facing southwest on April 30, 2018.



Photo 3 East (right) flank of slide area where movement has occurred since 2017. Photo taken facing west on April 30, 2018.



Photo 4 Rust staining from seepage through plugged culvert at the toe of the slide. Photo taken on April 30, 2018.

