

SITE NUMBER AND NAME: S060 Lost Knife Creek		HIGHWAY & KM: 40:14, 34.480	PREVIOUS INSPECTION DATE: July 6, 2020	INSPECTION DATE: July 6, 2021
LEGAL DESCRIPTION: 15-29-019-05 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5612799 665797		RISK ASSESSMENT: PF: 12 CF: 6 TOTAL: 72	
MONTHLY AVERAGE DAILY TRAFFIC (MADT): May 2020 390 (west), 382 (east). (Ref. No. 55460220)			CONTRACTOR MAINTENANCE AREA (CMA): 28	

SUMMARY OF SITE INSTRUMENTATION: None LAST READING DATE: N/A	INSPECTED BY: Chris Morgan (KCB) Chris Grapel (KCB) Roger Skirrow(AT) Alex Frotten (AT)
PRIMARY SITE ISSUE: Erosion channel / slope failure on the east side of the highway. The culvert under the highway at the centre of the slide mass has disconnected at a joint; however, it is unknown whether slope movement led to culvert separation, or whether culvert separation led to the erosion feature.	
APPROXIMATE DIMENSIONS: Head scarp is approximately 5.8 m wide (5.3 m in 2020) at the crest of a 30 to 40 m high slope above an unnamed creek (possibly Lost Knife Creek).	
DATE OF ANY REMEDIAL ACTION: None	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Gravel road. Backscarp has started to undermine the highway.		X
Slope Movement	X		Slope failure on east side of highway undermining the guard rail.		X
Erosion	X		Erosion from ditch and highway runoff into slide area.	X	
Seepage	X		Groundwater seepage observed below culvert invert and approximately 6 m below highway elevation.		X
Culvert Distress	X		Existing 0.8 m (32") culvert under highway has disconnected at a joint and has been undermined by approximately 1.5 m (from the end of the CSP).	X	

COMMENTS
The site is on a gravel road, oriented roughly southeast to northwest. Surface runoff erosion has undermined the guard rail for a length of 5.8 m. The erosion has retrogressed approximately 0.3 m into the highway (1.2 m in total) since the 2020 inspection and has undermined 2 guard rail posts. Slope erosion will likely continue to undermine the guard rail and encroach on the highway surface.
Surface runoff, snow melt, culvert discharge, and groundwater seepage through the embankment are contributing to ongoing erosion, undermining of the culvert, and retrogression of the erosion feature laterally and longitudinally.
Water in the ditch on the west side of the highway is discharging into the culvert and draining onto the slide area. Active seepage and slope retrogression of the saturated embankment side slope is occurring.

Candidate repair options include:

- Improvements to surface water drainage;
- Relocation of the highway to the west; or
- Reconstruction of the embankment slope with gravel and riprap, construction of a slope drain, and channel armoring downstream of the highway right of way.

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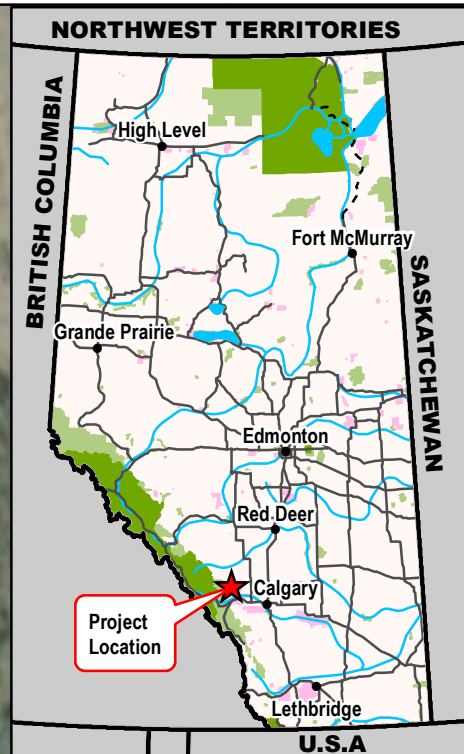
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- (iii) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.



2021-11-24

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Senior Geotechnical Engineer



Legend

- GPS Waypoint (July 6, 2020)
- Main Scarp
- Guardrail
- Culvert
- Flow Direction



NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM Zone 11N
 3. IMAGE SOURCE: World Imagery, ESRI ArcGIS Online
 Source dates October 25, 2014 and June 12, 2017

CLIENT

PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE Site Plan S060 - Lost Knife Creek Hwy 40, Forestry Trunk Road		
SCALE 1:1,500	PROJECT No. A05116A03	FIG No. 1

Time: 13:03:32 PM
 Date: October 12, 2021
 File: Z:\AUCSY\Alberta\A05116A03\ABT_Southern Region GRMP\400 Drawings\2021\Section B figures\MXD\S060_211012.mxd

Photo 1 Head scarp on east side of Hwy 40. Erosion extends 1.2 m into the highway. Photo taken facing northwest on July 6, 2021.



Photo 2 View from highway down the erosion gully and separated culvert. Photo taken facing northeast on July 6, 2021.



Photo 3 Two undermined safety barrier fence posts on the highway. Slumping visible on the right flank due to ongoing erosion. Photo taken facing northwest on July 6, 2021.



Photo 4 Delineator used to mark erosion retrogressing into the gravel road surface. Photo taken facing northwest on July 6, 2021.

