

SITE NUMBER AND NAME: S077 South Ghost Erosion		HIGHWAY & KM: 40:14, 29.00	PREVIOUS INSPECTION DATE: May 18, 2022	INSPECTION DATE: May 8, 2023
LEGAL DESCRIPTION: SW 20-27-07-W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5686872 642530		RISK ASSESMENT: PF: 9 CF: 3 TOTAL: 27	
Average Annual Daily Traffic (AADT): 279 (north) & 382 (south) (Reference No. 00401450)			CONTRACTOR MAINTENANCE AREA (CMA): 28	

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at this site. LAST READING DATE: N/A	INSPECTED BY: Chris Grapel (KCB) Peter Roy (KCB) Renato Macciotta (U of A) Roger Skirrow (AT) Alex Frotten (AT) Syed Siddeque (AT)
PRIMARY SITE ISSUE: Over-steepening of creek bank adjacent to the highway due to surface runoff erosion and creek erosion. The erosion has retrogressed to near the edge of the southbound lane of Highway 40. The south ditch has been undermined and is draining directly into the erosion feature/creek.	
APPROXIMATE DIMENSIONS: The erosion scarp is approximately 30 m in length at the crest of an approximately 3 m high bank above an unnamed creek. Approximately 13 m of highway shoulder is undermined.	
DATE OF ANY REMEDIAL ACTION: None.	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		The highway has a gravel surface. Erosion of the embankment is undermining the south (eastbound) lane of the highway.		X
Slope Movement		X	N/A – none observed		X
Erosion	X		Surface water runoff from highway forming an erosion gully and erosion at the toe of the highway embankment		X
Seepage		X	N/A – none observed		X
Culvert Distress		X	N/A – none observed		X

COMMENTS
The site is along a two-lane gravel road, oriented approximately southeast-northwest. The highway embankment is located north of a small unnamed creek flowing south. The north bank of the creek is eroding the shoulder of the highway embankment over a length of approximately 30 m. There was minimal flow in the creek during the site inspection.
The erosion has over-steepened the highway embankment slope (approximately 1H:1V) and could lead to embankment instability.

Surface runoff from the highway is contributing to erosion of the creek bank/south embankment slope. A linear feature on the south side of the highway is concentrating surface water runoff from the highway and has formed an erosion gully approximately 0.5 m to 1.0 m wide and 0.3 m deep. The erosion gully will continue to increase in size (depth and width) if not repaired. The rate of erosion will most likely be exacerbated by periods of increased or prolonged rainfall. There was limited change noted during the 2023 inspection compared to 2022.

A black Telus utility cable was observed lying on the ground surface on the south side of the highway (between the ditch bottom and edge of pavement). One Call completed indicates that this line is active and owned by Telus.

Maintenance/Repair/Monitoring Recommendations:

- Reconstruct the south embankment and creek bank and armour the creek bank with riprap, or lock blocks. The Telus utility cable should be relocated or trenched within the east highway embankment. If a near vertical or steeply sloping repair is chosen, a guard rail should be installed along the repair area.

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Peter Roy, P.Eng.
Civil Engineer



Legend

- GPS Track (May 8, 2023)
- Main Scarp
- ▶ Flow Direction
- Watercourse
- Gully

NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM ZONE 11N
 3. IMAGE SOURCE: ESRI, MAXAR, EARTHSTAR
 GEOGRAPHICS AND THE GIS USER COMMUNITY.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE Site Plan S077 - South Ghost Erosion Hwy 40:14, km 29.00		
SCALE 1:1,250	PROJECT No. A05116A03	FIG No. 1



Photo 1 The south highway embankment is being eroded by the unnamed creek south of the highway. The erosion has undermined the south (eastbound) ditch and has exposed a black Telus utility cable (indicated by red arrow). Photo taken on May 8, 2023, facing southeast.



Photo 2 The erosion has retrogressed into the edge of the south (eastbound) lane of highway. Photo taken May 8, 2023, facing southeast.



Photo 3 The runoff from the highway has eroded a portion of the south highway embankment and north bank of the creek. Photo taken May 8, 2023, facing northwest.



Photo 4 The erosion of the south highway embankment has exposed a black utility cable and has over-steepened the highway embankment (approximately 1H:1V). Erosion has retrogressed into the south shoulder for approximately 13 m along its length (Where indicated by red circle). Photo taken May 8, 2023, facing northwest.

