SOUTHERN REGION GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME: **S077 South Ghost Erosion**		HIGHWAY & KM: 40:14, 29.00	PREVIOUS INSPECTION DATE: May 8, 2023	INSPECTION DATE: **May 27, 2024**
LEGAL DESCRIPTION: SW 20-27-07-W5M	NAD 83 COORDINATES: UTM 11 Northing 5686872 Easting 642530		RISK ASSESMENT: PF: 9 CF: 3 TOTAL: 27	
Average Annual Daily Traffic (AADT): 175 (north) & 265 (south) (Reference No. 00401450)			CONTRACTOR MAINTENANCE AREA (CMA): 28	

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
There is no instrumentation at this site. LAST READING DATE: N/A	Chris Grapel (KCB) Peter Roy (KCB) Renato Macciotta (U of A) Kristen Tappenden (TEC) Alex Frotten (TEC)

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 west 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 west (south bound) 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 east 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.

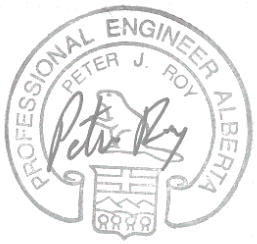
The erosion has over-steepened the highway embankment slope (approximately 1H:1V) and could lead to embankment instability.

Surface runoff from the highway is contributing to erosion of the creek bank/west embankment slope. A linear feature on the west 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 2024 inspection compared to 2023.

A black utility cable was observed lying on the ground surface on the west 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 west 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. Erosion channel to the north of the bank erosion area should be diverted into the creek further upslope with an armoured offtake. If a near vertical or steeply sloping repair is chosen, a guard rail should be installed along the repair area.



16 Oct. 2024
ID 141695

Peter Roy, P.Eng.
Civil Engineer

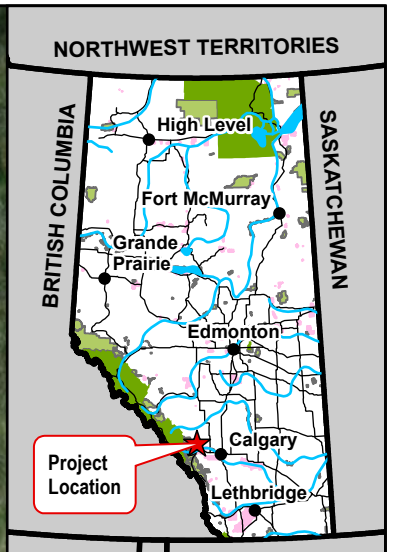
PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

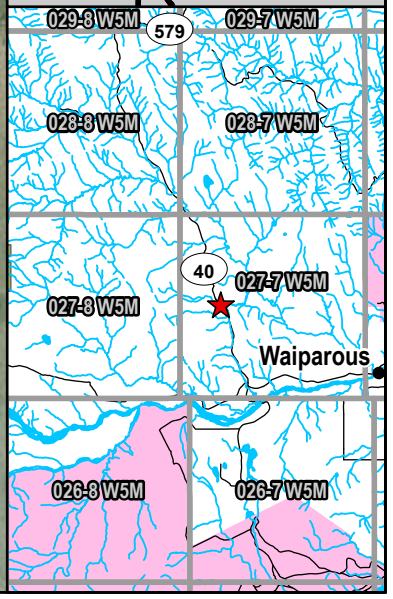
RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 16 Oct. 2024

PERMIT NUMBER: P009196
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)





Legend

- Main Scarp
- Flow Direction
- Watercourse
- Gully

0 50 Metres

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM ZONE 11N
3. IMAGE SOURCE: MAXAR 2024

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	PROJECT No.	FIG No.
1:1,250	A05116A03	1

File: C:\Users\equine\Desktop\TWINS\ABT_Southern_Section\ABT_Southern_Section\ABT_Southern_SectionB.aprx Date:2024-10-11 3:17 PM Creator: EQuine

Photo 1 **The west highway embankment is being eroded by the unnamed creek south of the highway. The erosion has undermined the west (southbound) ditch and has exposed a black Telus utility cable (indicated by red arrow). Photo taken on May 27, 2024, facing west.**

Photo 2 **The erosion has retrogressed into the edge of the west (southbound) lane of highway. Photo taken May 27, 2024, facing south.**

Photo 3 **The runoff from the highway has eroded a portion of the west highway embankment and east bank of the creek. Photo taken May 27, 2024, facing north.**

Photo 4 **Erosion has retrogressed into the west shoulder for approximately 13 m along its length (indicated by red circle). Photo taken May 27, 2024, facing north.**