SOUTHERN REGION GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME: **S056-I West Gorge Creek Steep Slope Slides**	HIGHWAY & KM: 25002:02 7.693	PREVIOUS INSPECTION DATE: May 16, 2022	INSPECTION DATE: **May 28, 2024**
LEGAL DESCRIPTION: 15-29-019-05 W5M	NAD 83 COORDINATES: UTM 11 Northing 5612799 Easting 665797	RISK ASSESSMENT: PF: 12 CF: 10 TOTAL: 120	
MONTHLY AVERAGE DAILY TRAFFIC (MADT): May 2024 242 (west) & 232 (east) (Reference No. 55460220)		CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the S056-I site. LAST READING DATE: N/A	INSPECTED BY: Chris Grapel (KCB) Peter Roy (KCB) Renato Macciotta (U of A) Alex Frotten (TEC) Kristen Tappenden (TEC) Maury Siddons (TEC)

PRIMARY SITE ISSUE: Slope failure on the south side of the highway due to surface runoff erosion and groundwater. The highway is located at the crest of a steep valley slope above Sheep Creek River. The southern ditch has been undermined and is draining directly into the slide zone. Head scarp has reached the south edge of the highway.

APPROXIMATE DIMENSIONS: Head scarp is approximately 15 m wide at the crest of a 40 m to 50 m high slope above Sheep River. Approximately 1/3 of the way down the slope, the failure area narrows to a 3 m to 5 m wide erosion gully.

DATE OF ANY REMEDIAL ACTION: None

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Head scarp has started to undermine the pavement		X
Slope Movement	X		Slope failure due to ongoing erosion from surface water runoff		X
Erosion	X		Slope erosion due to surface water runoff from the south (eastbound) ditch into slide area	X	
Seepage	X		Groundwater seepage has been observed approximately 3 m down the slope on west side	X	
Culvert Distress		X	N/A – none observed		X

COMMENTS

Steep slope at approximately 2H:1V, with no vegetative cover in the slide area. The highway ditch on the right (west) flank of the slide is draining directly onto the slide area. The slope failure will continue to encroach on the highway surface and guard rail with continued erosion due to the ditch discharge.

A seepage zone was observed during the 2024 inspection, approximately 3 m below the west ditch.

Between the 2022 and 2024 inspection, the slope failure has continued to expand to the west (upslope) and vegetation is falling into the erosion feature. In addition to expanding westwards, the overall slope of the erosion feature is flattening in the upper section as the feature deepens and ongoing erosion continues to remove sediment. Erosion has exposed a sedimentary rock ledge on the west side.

The back scarp has retrogressed to the south edge of highway and the guardrail continues to be undermined. No

deflection of the guardrail was noted.

Slope erosion appears to be depositing an alluvial fan in the Sheep River.

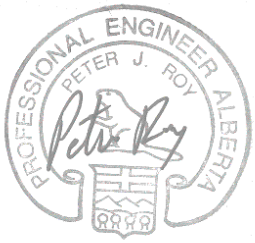
There is a wooden stake and a rock painted orange present upstream of the right flank used to estimate the gully retrogression. At the time of the 2023 inspection, the wooden stake was 1.7 m from the edge of the right flank (Photo 1), which is the same measurement as in 2022.

During the 2020 inspection, tension cracking and slumping was first observed on the left (east) flank of the slope failure. Between the 2021 and 2022 inspections, the ground surface appears to have dropped approximately 0.30 m and a tree had fallen down the slope. There was minimal change noted in this area during the 2024 inspection. The area is expected to eventually fail into the erosion feature downslope, enlarging the disturbed area.

The ongoing toe erosion from the river and surface water runoff from the highway ditch are causing the erosion feature to enlarge and will eventually lead to further undermining of the pavement, surface cracking, and a dip that will require extensive repairs.

Maintenance/Repair/Monitoring Recommendations:

- The surface water flow into the slide area from the south (eastbound) ditch should be diverted away from the slide area. A cross culvert could divert flow beneath the highway into the north (westbound) ditch.
- The slope could be stabilized using either geogrid reinforced granular fill with a timber crib wall, a lock block retaining wall, or a gabion basket wall constructed at the toe of the slide zone on stable ground. A repair design is in progress and this site is tentatively scheduled for construction in 2025.



16 Oct. 2024
ID 141695

Peter Roy, P.Eng.
Civil Engineer

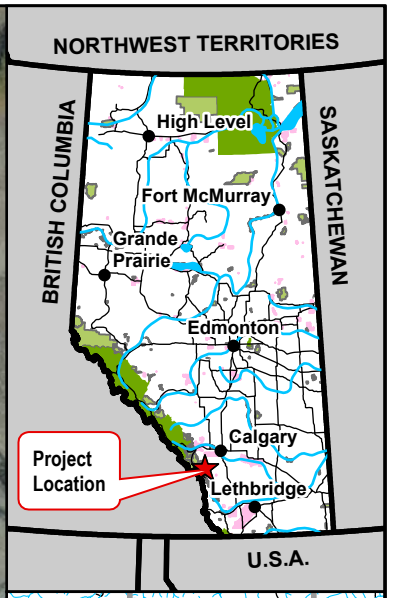
PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

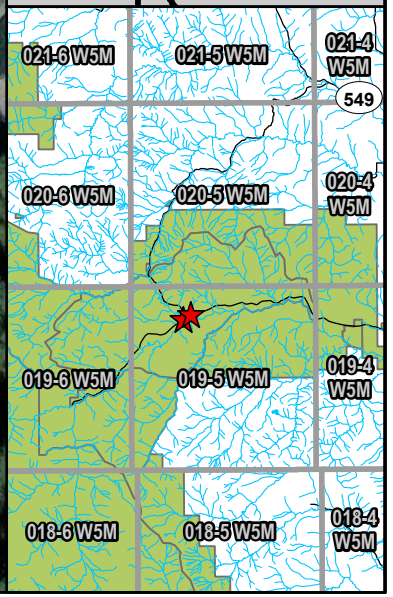
RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 16 Oct. 2024

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





Legend

- Flow Direction
- Main Scarp

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
S056-1 - West of Gorge Creek Steep Slope Slides
Hwy 25002:02, km 7.693

SCALE	PROJECT No.	FIG No.
1:1,500	A05116A03	1

File: C:\Users\equine\Desktop\TWINS\ABT_Southern_Section\ABT_Southern_Section\ABT_Southern_SectionB.aprx Date:2024-10-10 4:10 PM Creator: EQuine

Photo 1 **Failure area located on the downslope side of Sheep River Road. Photo taken May 28, 2024, facing east.**

Photo 2 **View from highway of the erosion gully, facing downslope. An alluvial fan is forming in the Sheep River due to ongoing erosion. Photo taken May 28, 2024, facing south.**

Photo 3 **The south (eastbound) ditch is diverting flows into failure area. A painted wooden stake is approximately 1.7 m from the edge of the right (west) flank. Photo taken May 28, 2024, facing west.**

Photo 4 **Failure of slope close to the shoulder of the eastbound lane, undermining guardrail post. Photo taken May 28, 2024, facing southwest.**