SOUTHERN REGION GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME: **S070-6 Eyrie Gap and Fir Creek Geohazard Site**	HIGHWAY & KM: 541:02 7.023	PREVIOUS INSPECTION DATE: May 17, 2022	INSPECTION DATE: **May 9, 2023**
LEGAL DESCRIPTION: SE-01-17-05 M5	NAD 83 COORDINATES: UTM 11 Northing 5585666 Easting 673290	RISK ASSESMENT: PF: 12 CF: 2 TOTAL: 24	
AVERAGE ANNUAL DAILY TRAFFIC: 153 (west) & 158 (east) (Reference No. 55410220)		CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the S070-6 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)
PRIMARY SITE ISSUE: Near-vertical cut slope up to 20 m in height on the north side (westbound lane) of the highway with near vertical bedding planes and a strike roughly perpendicular to the highway.	
APPROXIMATE DIMENSIONS: Approximately 125 m long and up to 20 m high	
DATE OF ANY REMEDIAL ACTION: None.	

ITEM	**CONDITION EXISTS**		**DESCRIPTION AND LOCATION**	**NOTICABLE CHANGE FROM LAST INSPECTION**	
	YES	NO		YES	NO
Pavement Distress		X	Transverse cracking observed, unlikely to be related to the rockfall.		X
Slope Movement		X	Bedrock slopes with ongoing rockfall into the existing shallow catchment ditches.		X
Erosion		X	N/A – none observed		X
Seepage		X	N/A – none observed		X
Culvert Distress		X	N/A – none observed		X
Rockfall	X		Rockfall and debris flow from the slope north of the highway		X

COMMENTS

The bedrock at the site consists of bedded coal, shale, and conglomerate. The central position of the back slope is massively bedded, potentially limestone, and approximately 20 m in height.

Material is eroding and weathering along the bedding planes and has formed an erosion fan consisting of sand and gravel sized particles in the central portion of the slope.

Rockfalls are active and unweathered rockfall debris (up to 0.7 m x 0.3 m x 0.35 m) was noted in the north (westbound) ditch. The site is active with small rockfalls observed during the 2023 inspection. The larger debris noted during the 2022 inspection was present during the 2023 inspection indicating that the ditch was not cleared in the past year.

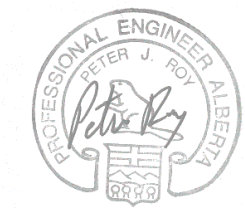
Loose angular gravel, cobble and boulder sized blocks were visible in the rock mass

The existing ditches are shallow and appear to have sufficient capacity for the rockfall debris.

A large block adjacent to the debris fan is at risk of detaching and falling into the north (westbound) ditch and rebounding into the highway (Photo 4).

Maintenance/Repair/Monitoring Recommendations:

- The site should be regularly inspected by AT's MCI and annually as part of the Southern Region GRMP Section B inspections.
- Excavation of rockfall catchment ditches adjacent to the highway and spot bolting of blocks which appear unstable or pose a wedge failure risk. A trajectory model could be used to determine the size of lock block wall required to contain the rockfalls.
- The large block of material shown in Photo 4 should be assessed for stability and if needed, anchored to limit deformation/dilation and toppling.
- A lock block wall or HTCB could be considered but the impact in wildlife movement and road safety would need to be evaluated.
- This site was included in the K-Country Rockfall Hazard Assessment completed by KCB in 2023. A draft report was submitted on September 18, 2023. One the of the recommendations in the report included that the risk rating should be re-assessed during the next Section B inspection based on the results of the rockfall hazard assessment.



13 Oct. 2023
ID 141695

Peter Roy, P.Eng.
Civil Engineer

PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 13 Oct. 2023

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

Legend

- GPS Waypoint (May 16, 2022)
- GPS Track (May 16, 2022)
- Crest of Rock Slope
- Rockfall Zone

0 100 Metres

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
S070-6 - Eyrie Gap and Fir Creek Geohazard Sites
Hwy 541:02, km 7.023

SCALE	PROJECT No.	FIG No.
1:3,000	A05116A03	1

File: Z:\AC\GY\Alberta\A05116A03 ABT Southern Region GRMP\400 Drawings\2022\Section B\S070-6.aprx Date: Time: Creator: : aharrison

Photo 1 **Bedrock cutting on the north side of the highway estimated as up to 20 m high. Photo taken May 9, 2023, facing north.**

Photo 2 **Rockfall material in the ditch and debris fan on the lower portion of the back slope. Photo taken May 9, 2023, facing northwest.**

Photo 3 **Rockfall material in the ditch and mini debris fans on the lower portion of the back slope. Photo taken May 9, 2023, facing east.**

Photo 4 **Large debris fan in central portion of the slope. Block adjacent to debris fan (indicated by red circle) is at risk of detaching. Photo taken May 9, 2023, facing north.**