

### SOUTHERN REGION GRMP SITE INSPECTION FORM



SITE NUMBER AND NAME:		HIGHWAY & KM:	PREVIOUS	INSPECTION DATE:	
S070-6 Eyrie Gap and Fir Creek		541:02 7.023	INSPECTION DATE:	May 28, 2024	
Geohazard Site			May 9, 2023	ay 20, 202 :	
LEGAL DESCRIPTION:	NAD 83 COO	RDINATES:	RISK ASSESMENT:		
SE-01-17-05 M5	UTM North	ning Easting	PF: 12 CF: 5	ΓΟΤAL: 60	
	11 5585	666 673290			
AVERAGE ANNUAL DAILY	TRAFFIC:	CONTRACTOR MAINTENANCE AREA (CMA):			
171 (west) & 175 (east) (Refe	erence No. 554	27			

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:				
	Chris Grapel (KCB)				
There is no instrumentation at the S070-6 site.	Peter Roy (KCB)				
	Renato Macciotta (U of A)				
LAST READING DATE: N/A	Kristen Tappenden (TEC)				
	Alex Frotten (TEC)				
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		Х	Transverse cracking observed, unlikely to be related to the rockfall.		Х
Slope Movement		Х	Bedrock slopes with ongoing rockfall into the existing shallow catchment ditches.		Х
Erosion		Χ	N/A – none observed		Х
Seepage		Χ	N/A – none observed		Х
Culvert Distress		Χ	N/A – none observed		Х
Rockfall	Х		Rockfall and debris flow from the slope north of the highway		Х

#### **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  $0.7 \text{ m} \times 0.3 \text{ m} \times 0.35 \text{ m}$ ) was noted in the north (westbound) ditch. The site is active with small rockfalls observed during the 2024 inspection. The larger debris noted during the 2022 inspection was present during the 2024 inspection indicating that the ditch was not cleared in the past two years.

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).



## SOUTHERN REGION GRMP SITE INSPECTION FORM



### Maintenance/Repair/Monitoring Recommendations:

- The site should be regularly inspected by TEC'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.
- 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 temporary lock block/jersey barrier wall should be installed at the edge of the highway to help limit the
  rockfall hazard to vehicles. A detailed rockfall assessment and mitigation design should be completed at
  this site.
- 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 recommendation 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. The risk rating was re-assessed as part of the 2024 Section B inspection based on
  the results of the rockfall hazard assessment.

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation and Economic Corridors (Client) for the specific application to the Southern Region Geohazard Risk Management Program (Contract No. CON0022161) and it may not be relied upon by any other party without KCB's written consent.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

- (i) The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.
- (ii) The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
- (iii) The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
- (iv) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.
- (v) This report is electronically signed and sealed and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.



# SOUTHERN REGION GRMP SITE INSPECTION FORM



Peter Roy, P.Eng. Civil Engineer		
Civil Engineer		



rrr Crest of Rock Slope

[ \_ ] Rockfall Zone

HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM ZONE 11N

3. IMAGE SOURCE: MAXAR 2024

Klohn Crippen Berger



SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM

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

A05116A03

Photo 1 Bedrock cutting on the north side of the highway estimated as up to 20 m high. Photo taken May 28, 2024, facing north.



Photo 2 Rockfall material in the ditch and debris fan on the lower portion of the back slope. Photo taken May 28, 2024, facing west.

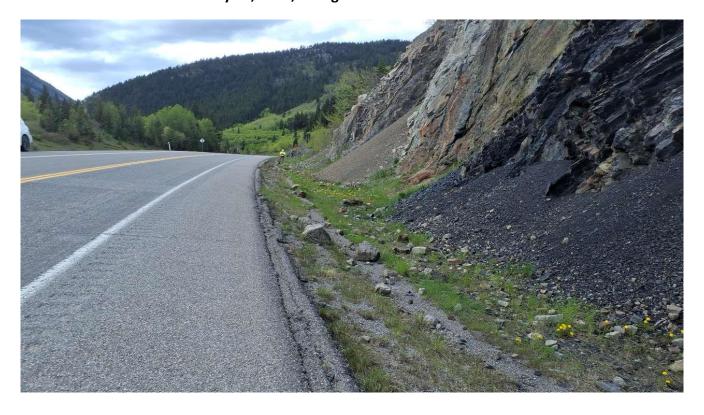


Photo 3 Rockfall material in the ditch and mini debris fans on the lower portion of the back slope. Photo taken facing east on May 28, 2024.



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.

