SITE NUMBER AND NAME: **C077 H570 Slide and Rockfall**	HIGHWAY & KM: 570:01, 8.8	PREVIOUS INSPECTION DATE: June 18, 2024	INSPECTION DATE: **June 10, 2025**
LEGAL DESCRIPTION: 04-17-027-17 W4M 03-07-027-17 W4M 13-08-027-17 W4M 14-08-027-17 W4M	NAD 83 COORDINATES: UTM Northing Easting 12 5684270 404558	RISK ASSESSMENT: Slide: PF: 9 CF: 4 TOTAL: 36 Rockfall: PF: 11 CF: 4 TOTAL: 44	
HIGHWAY CLASSIFICATION LEVEL: 3		CONTRACT MAINTENANCE AREA (CMA): 519	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 500 (west) & 400 (east) (Ref No. 116220 & 997198)			

SUMMARY OF SITE INSTRUMENTATION: There are no instruments at the C077 site. LAST READING DATE: N/A	INSPECTED BY: Chris Gräpel (KCB) James Lyons (KCB) Tony Penney (TEC) Chris Newman (TEC) Imram Mehmood (TEC)

PRIMARY SITE ISSUE: There is slope instability and rockfall hazards along the north Red Deer River valley slope of Hwy 570:01.

APPROXIMATE DIMENSIONS: The slide is along approximately 250 m to 300 m of the highway, 290 m wide from the toe of the slope to the crest, and approximately 100 m in height. The overall grade of the slope is approximately 3H:1V (compound slope varying from approximately 6H:1V to 1.75H:1V)

DATE OF ANY REMEDIAL ACTION: June 2022 – removal of material that had accumulated in the north (westbound) ditch was completed by the HMC. Rock scaling and rock block removal was completed by BAT Construction Ltd. (BAT) and Spidex All Terrain Excavating Inc. (Spidex).

ITEM	**CONDITION EXISTS**		**DESCRIPTION AND LOCATION**	**NOTICABLE CHANGE FROM LAST INSPECTION**	
	YES	NO		YES	NO
Pavement Distress		X	N/A – not observed during the 2025 inspection.		X
Slope Movement	X		Ongoing slope movement and rockfall as indicated by particles in the north (westbound) ditch	X	
Erosion		X	N/A – not observed during the 2025 inspection.		X
Seepage		X	N/A – not observed during the 2025 inspection.		X
Culvert Distress		X	N/A – not observed during the 2025 inspection.		X

COMMENTS

General:

- The C077 site is located just west of the Central Region C058 site, where sinkholes and voids (in the ditches and below the highway surface) have been observed due to dispersive soils at the site.
- A sinkhole (approximately 1 m tall and 1.5 m wide) was observed in the north valley slope, just east of the site (Photo 6).
- During the 2025 inspection, sinkholes up to approximately 0.3 m in diameter were observed on the south side of Hwy 570:01, downslope of the site (Photo 7). The sinkholes are in an area of a former bedrock

knoll and are generally in line. This could indicate a subsurface preferential drainage path where there is potential for void formation.

C077 Slide:

- There are many large relict translational slides along the slope north of Hwy 770 near the C077 site.
- Some evidence of sliding within the talus slope was observed with a possible mid-slope bulge and ground cracking in upper slope well above the highway (below and west of where rock scaling was completed in 2022).
- A weathered and fractured bedrock outcrop was observed near the west extent of the site, approximately midslope and above an area of sliding within the talus slope (Photos 1 through 4)
- Ground cracking has been observed near the west portion of the site at a near-vertical rock scarp (Photos 1 and 4)
- A weathered bedrock outcrop was observed near the east side of the site, east of the where cracking was observed (Photos 1 and 3). The bedrock outcrop is located approximately halfway to two-thirds up the slope.
- Additional material appeared to have accumulated in the north (westbound) ditch between the 2024 and 2025 inspections (Photos 1 through 3, and 5). The material was blocking drainage in the ditch and water was ponding east of the site (Photo 7). The area of ponding water was near the C058-2 site where sinkholes and voids have been previously observed.

C077 Rockfill:

- During the 2025 inspection, no new rockfall particles were observed on the highway surface or on the south side of the highway.
- Rock particles have been observed in the north (westbound) highway ditch (up to approximately 1 m x 0.6 m x 0.6 m) (Photo 5). KCB suspected the particles were from the 2022 scaling work that was completed at the site, since the particles edges did not appear fresh and blue spray paint was observed on several of the particles.

Maintenance/Repair/Monitoring Recommendations:

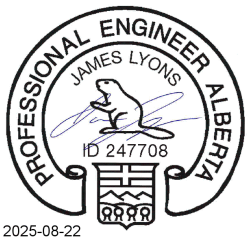
- The site should continue to be regularly inspected by TEC's Maintenance Contract Inspector (MCI) and TEC and KCB should be notified if they observe any changes to the site.
- The site should be inspected annually as part of the Central Region GRMP Section B Inspections.
- The material that has accumulated in the north (westbound) ditch should be removed to restore storage capacity and improve drainage.
- KCB has budget for one more Unmanned Aerial Vehicle (UAV) survey of the site to monitor the rate of displacement of the site. The final survey should be completed after significant precipitation event(s) or if significant additional movement/deposited material is observed.

(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.



2025-08-22

James Lyons, P.Eng.
Civil Engineer

PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

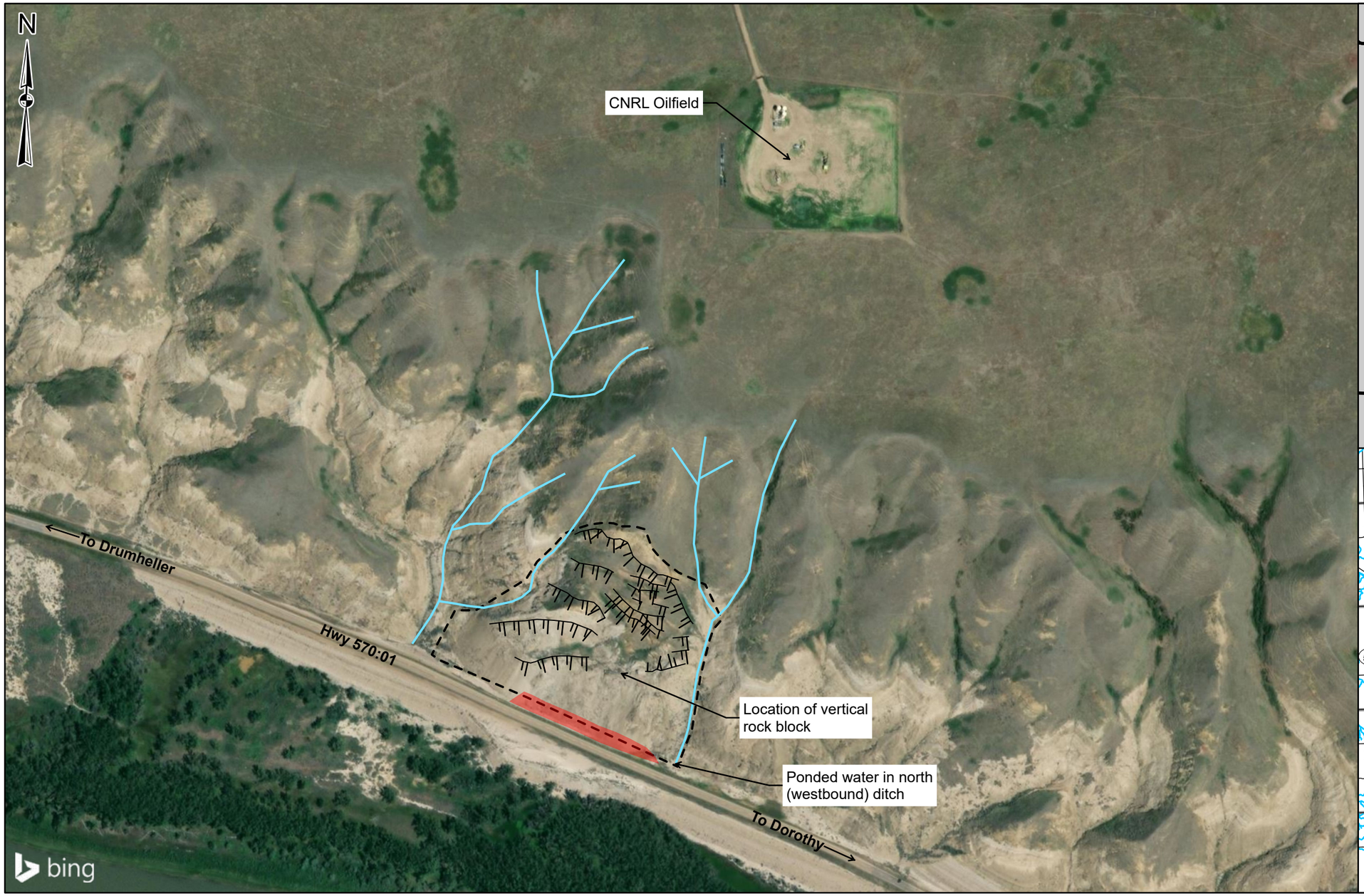
RM SIGNATURE: _____

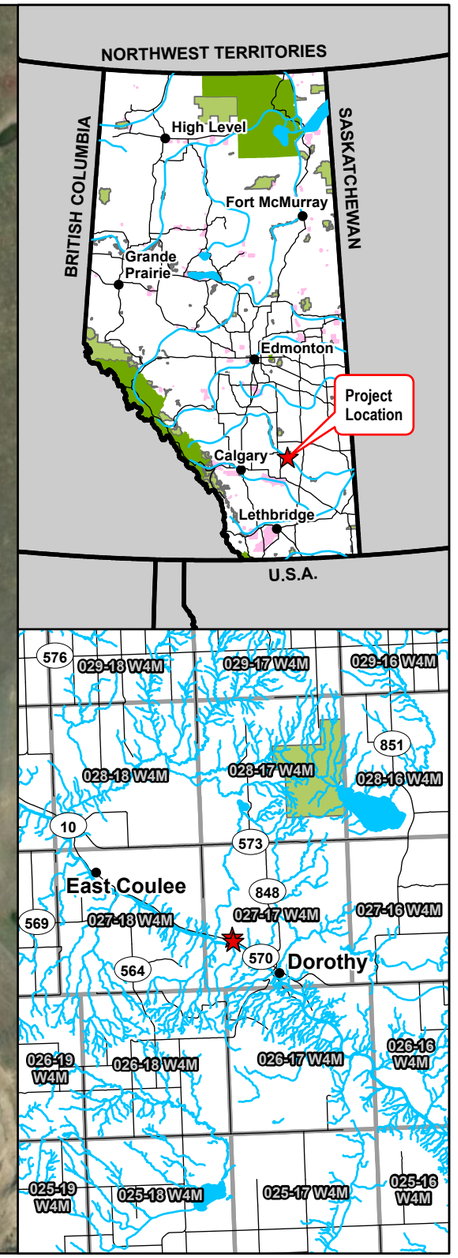
RM APEGA ID #: 58463

DATE: August 25 2025

PERMIT NUMBER: P009196

The Association of Professional Engineers and Geoscientists of Alberta (APEGA)





Legend

- Scarp
- Drainage Route
- Active Zone Extent
- Area of Rock Fall and Debris Deposition

0 150 Metres

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM ZONE 12N
3. IMAGE SOURCE: 2025 MICROSOFT CORPORATION, 2025 MAXAR, CNES, DISTRIBUTION AIRBUS DS

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: CENTRAL REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
C077 - H570 Slide and Rockfall
Hwy 570:01, km 8.8

SCALE	PROJECT No.	FIG No.
1:4,000	A05116A02	1

File: Z:\AE\EDM\A05116A02 ABT Central Region GRMP-400 Drawings\GIS\02_ProFiles\2023\Section B\ABT_Central_SectionB_230724\ABT_Central_SectionB_230724.aprx Date: Time: Creator: : NMirhadi

Photo 1 **Aerial photo of the C077 site. Locations of recent movement are indicated by red arrows, location of cracking observed on the slope is indicated by red rectangle, and previous scaling completed in 2022 is indicated by red circles (note the area of ground cracking was also scaled in 2022). Photo taken June 10, 2025 facing north.**

Photo 2 Oblique aerial view of the site. Photo taken June 10, 2025 facing northeast.

Photo 3 Oblique aerial view of the site. Photo taken June 10, 2025 facing west.

Photo 4 **Aerial photo of the upper portion of the slope. Area where ground cracks have been observed indicated by red rectangle and areas previously scaled in 2022 are indicated by red circles. Photo taken June 10, 2025 facing west.**

Photo 5 **Particles observed in the north (westbound) ditch along the toe of the slope. Photo taken June 10, 2025 facing west.**

Photo 6 **Ponded water along the north (westbound) ditch near the east extent of the site. Sinkhole observed in north slope indicated by red rectangle. Photo taken June 10, 2025 facing northeast.**

Photo 7 **Sinkholes observed on the south side of the highway downslope of the site in an area of shallow bedrock. Photo taken June 10, 2025 facing south.**