Alberta Transportation

**CENTRAL REGION GRMP**
**SITE INSPECTION FORM**

Klohn Crippen Berger

| SITE NUMBER AND NAME: **C072 North of Rocky Mountain House (RMH)** | HIGHWAY & KM: 22:24, 9.8 | PREVIOUS INSPECTION DATE: June 11, 2018 | INSPECTION DATE: **July 09, 2019** |
|---|---|---|---|
| LEGAL DESCRIPTION: 09-33-040-07 W5M 12-34-040-07 W5M | NAD 83 COORDINATES: UTM 11 Northing 5817436 Easting 640058 | RISK ASSESSMENT: PF: 8 CF: 4 TOTAL: 32 | |
| AVERAGE ANNUAL DAILY TRAFFIC (AADT): 2,540 (north) (Ref No. 990020) | | CONTRACT MAINTENANCE AREA (CMA): 17 | |

| SUMMARY OF SITE INSTRUMENTATION: | INSPECTED BY: |
|---|---|
| Three slope inclinometers (SIs) installed on the east slope in 1990 – status unknown.<br><br>LAST READING DATE: N/A | Chris Gräpel (KCB)<br>Ryan Gazley (KCB)<br>Rishi Adhikari (AT)<br>Tony Penney (AT) |

PRIMARY SITE ISSUE: An upper slope failure along the west slope (southbound lane) of the highway embankment. At the location of the slide, Hwy 22 crosses a tributary creek of Canyon Creek, which is a tributary of the North Saskatchewan River. The original slide on the east embankment slope was repaired in 1990.

APPROXIMATE DIMENSIONS: The upper west slope is approximately 6 m high sloped at approximately 3H:1V. The east slope is approximately 13 m high sloped at approximately 4H:1V.

DATE OF ANY REMEDIAL ACTION: 1990: site investigation and repair work conducted/completed at the location of the original slide on the east slope; October 2016 – southbound lane patched. 2017 – southbound lane patched.

| ITEM | CONDITION EXISTS | | DESCRIPTION AND LOCATION | NOTICABLE CHANGE FROM LAST INSPECTION | |
|---|---|---|---|---|---|
| | YES | NO | | YES | NO |
| Pavement Distress | X | | Old pavement cracks reflected in asphalt patch placed in 2017 appear to have expanded. Little to no change in cracking at south end of patch since 2018. | X | |
| Slope Movement | X | | Guardrail subsided and deflected; fence deflected within slide area, no evidence of ground cracking | | X |
| Erosion | | X | None observed | | X |
| Seepage | | X | None observed | | X |
| Culvert Distress | | X | 1300 mm diameter CSP culvert (BF13457) | | X |

**COMMENTS**

No new cracking was observed in the pavement patch placed in 2017. The old pavement cracks that are reflecting through the patch appear to have expanded slightly. The cracking at the south end of the patch observed during the 2018 inspection does not appear to have expanded.

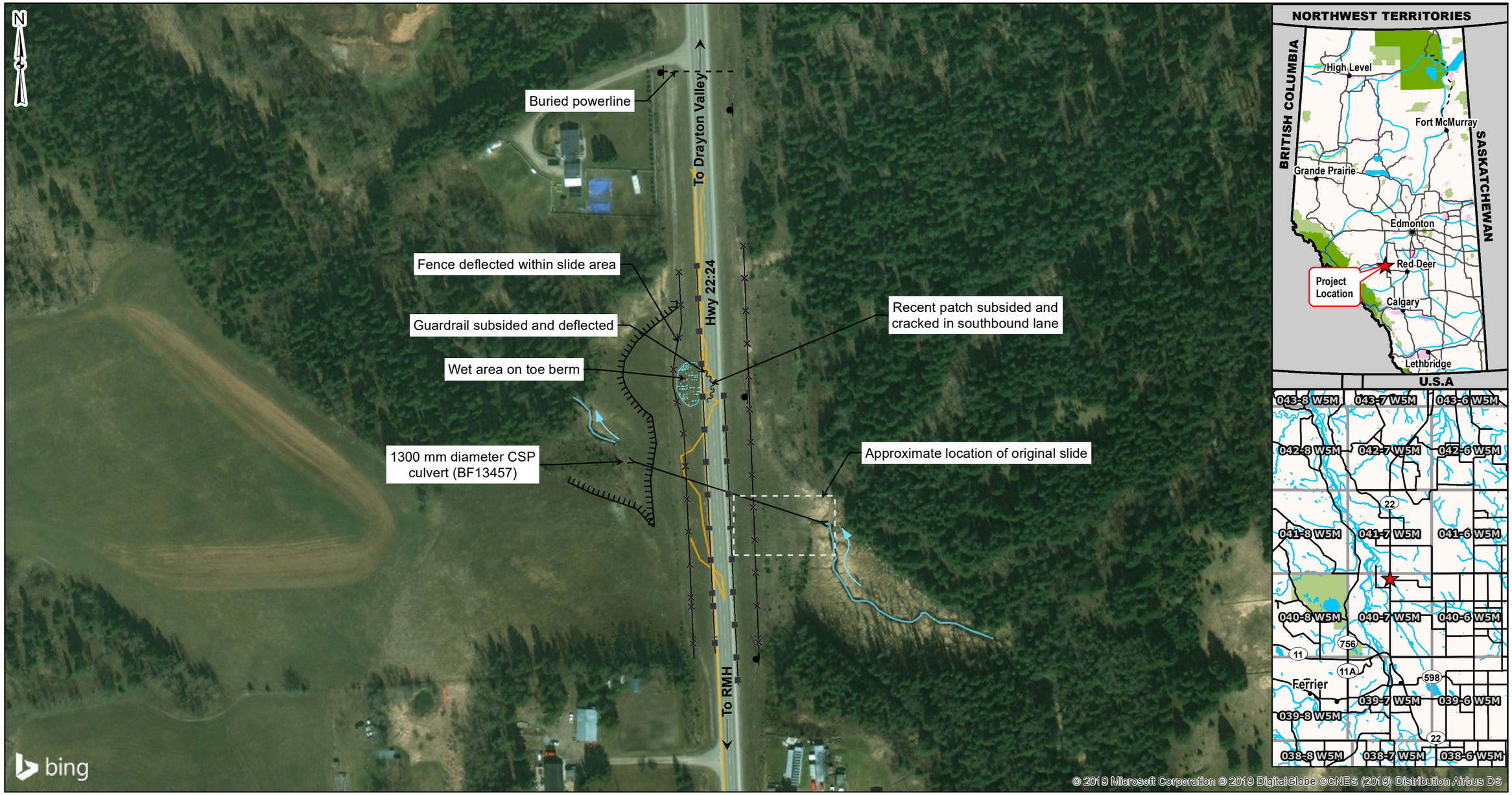
The fence at the toe of the embankment is deflected slightly to the west with little to no change from the 2018 inspection. The slope below the crest of the highway and the bench were both wet (likely due to recent rainfall).

Cracking in the southbound lane could indicate potential retrogression of the backscarp onto the highway.

The presence of wet areas on the slope, bench, and near the deflected section of fence, indicate the slope is poorly drained.

During the 2017 inspection, debris (e.g., branches, and small logs - flotsam) was observed at or just above the crown elevation of the culvert inlet indicating that the water level at some point was at or just above the crown

| |
|---|
| elevation of the culvert. This may indicate that the culvert has insufficient capacity to handle flow volumes. |
| The bridge file number of the culvert is BF13457. The culvert consists of a 1300-mm-diameter CSP culvert sleeved into the original 1800-mm-diameter multi-plate CSP culvert. Previous inspection observations have included flotsam from highwater events present above the crown of the culvert, indicating the culvert could be undersized. |
| A geotechnical site investigation (e.g., drilling, laboratory testing, and instrumentation installation and monitoring program) should be conducted on the west slope to assess subsurface conditions; and to monitor depth of movement, and groundwater conditions. |
| Discussed remedial actions: Repair of the upper slide area could include excavating the slide area and reconstructing the upper portion of the slope with geosynthetic reinforced fill, with a shear key and subsurface drainage. The bridge culvert should be inspected with a remotely operated video camera, and a hydrologic assessment should be conducted to assess the discharge capacity of the culvert. If needed, a new culvert could be drilled through the base of the embankment. |







**Legend**

- GPS Track (July 9, 2019)
- Power Pole
- Guardrail
- Creek
- Culvert
- Berm Downslope Crest
- Buried Powerline
- Fence
- Crack
- Flow Direction
- Wet Area

Metres
0 100

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 11N
3. IMAGE SOURCE: Bing Maps 2018, Microsoft Corporation. Image dated August 2012

CLIENT: Alberta

Klohn Crippen Berger

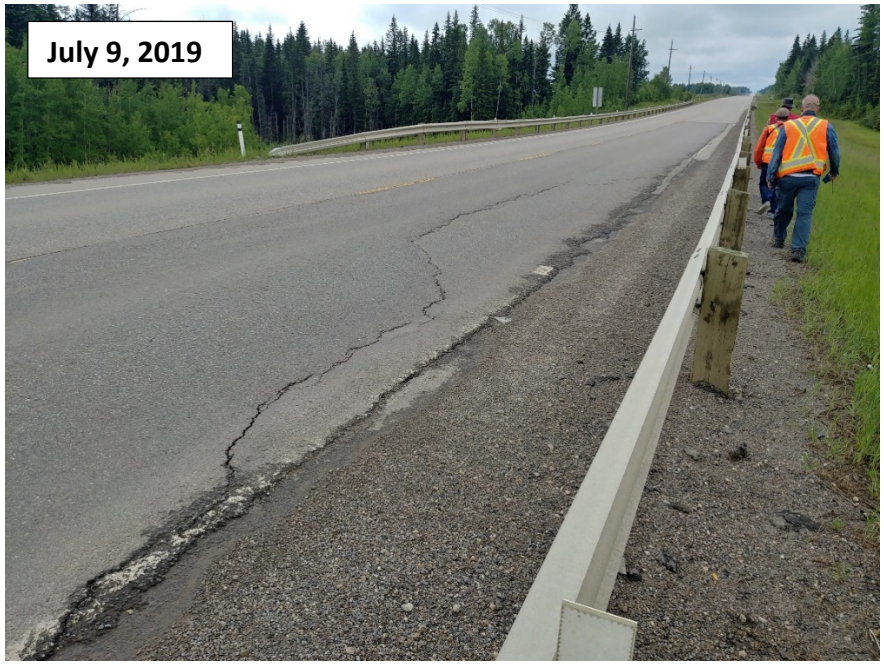
PROJECT: CENTRAL REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
C072 – North of Rocky Mountain House (RMH)
Hwy 22:24, km 9.8

| SCALE | PROJECT No. | FIG No. |
|---|---|---|
| 1:2,000 | A05115A02 | 1 |

Time: 10:37:44 AM
Date: August 01, 2019
File: Z:\AIEDM\A05115A02 ABT Central Region GRMP\400 Drawings\20192. Section B\2. 2019 Site Inspections\MXD\C072_190911.mxd

**Photo 1** **Pavement cracking in asphalt patch appears to have expanded. Photo taken July 9, 2019 looking south. (Photo from 2018 inspection included for comparison)**



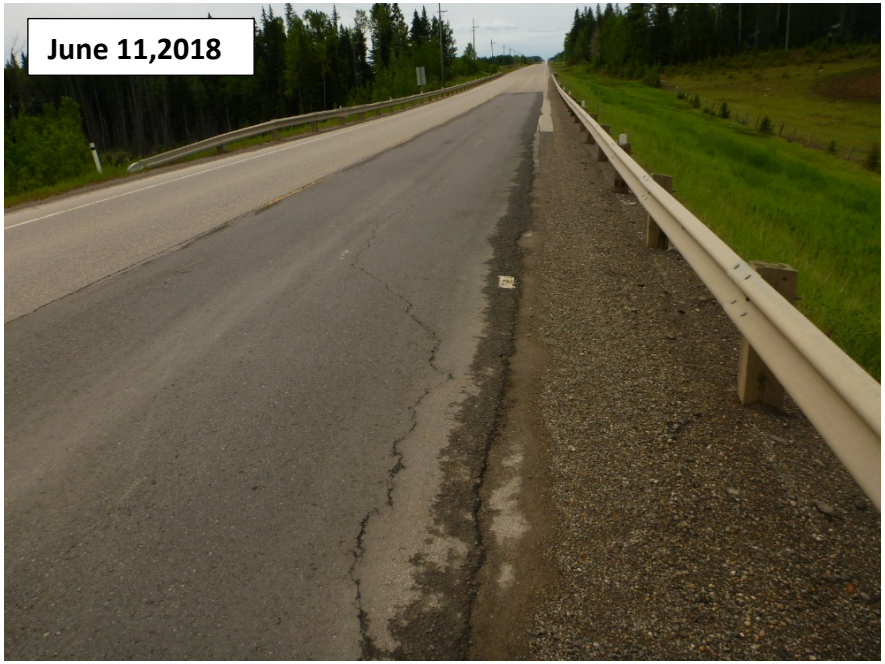



**Photo 2** **Close-up view of cracking through patch in southbound lane. Photo taken July 9, 2019.**

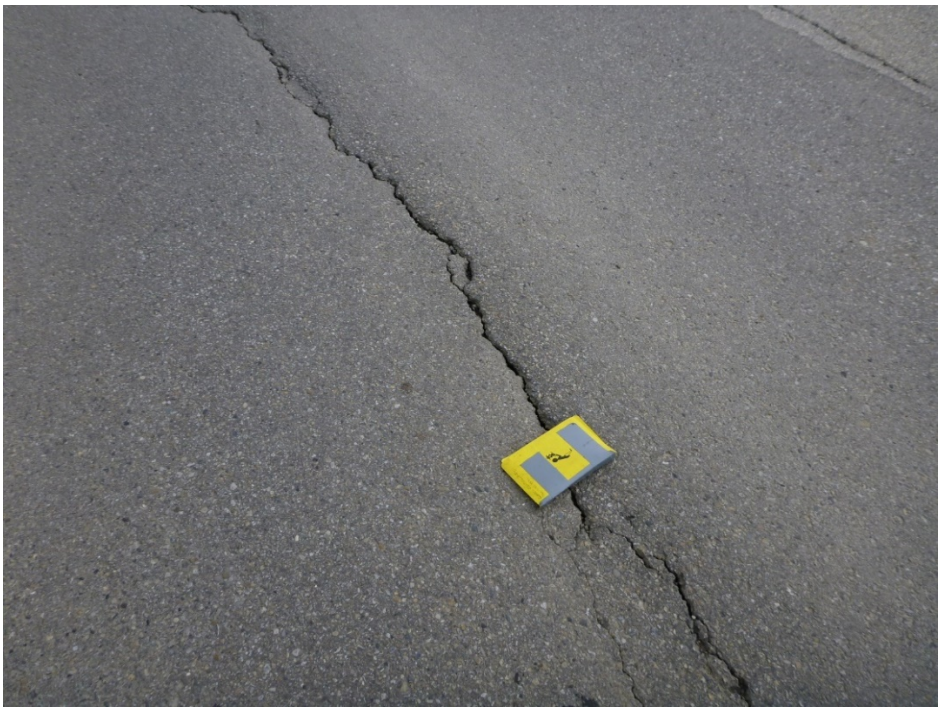


**Photo 3** **The fence line at the toe of the slide is deflected but shows little change since 2018 inspection. Photo taken July 9, 2019 looking north.**