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| SITE NUMBER AND NAME S051 Pekisko Bank Erosion | | HIGHWAY & KM 540:02, 4.624 | PREVIOUS INSPECTION DATE May 16, 2022 | INSPECTION DATE May 9, 2023 |
| LEGAL DESCRIPTION 08-14-17-02 W5M | NAD 83 COORDINATES UTM Northing Easting 11 5590158 701158 | | RISK ASSESSMENT PF: 10 CF: 10 TOTAL: 100 | |
| AVERAGE ANNUAL DAILY TRAFFIC (AADT): 700 (east) (Ref. No. 71130) | | | CONTRACTOR MAINTENANCE AREA (CMA): 27 | |

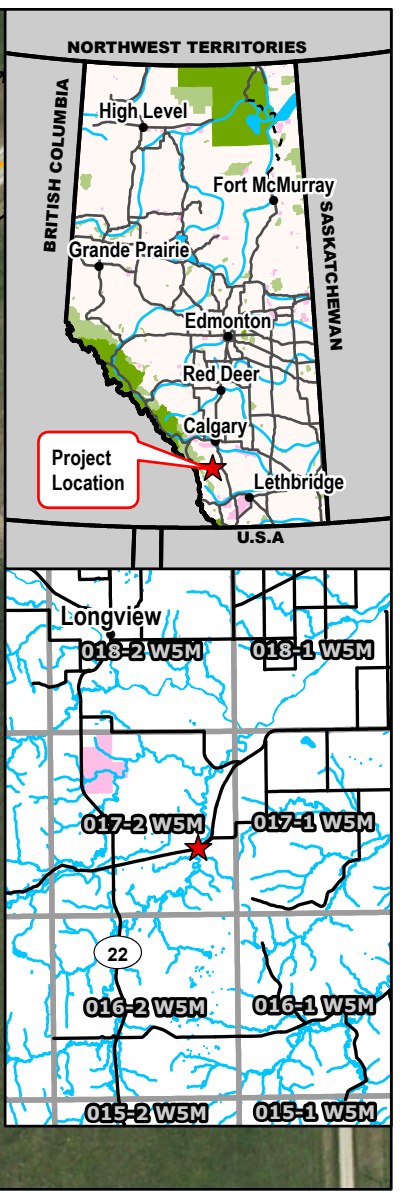
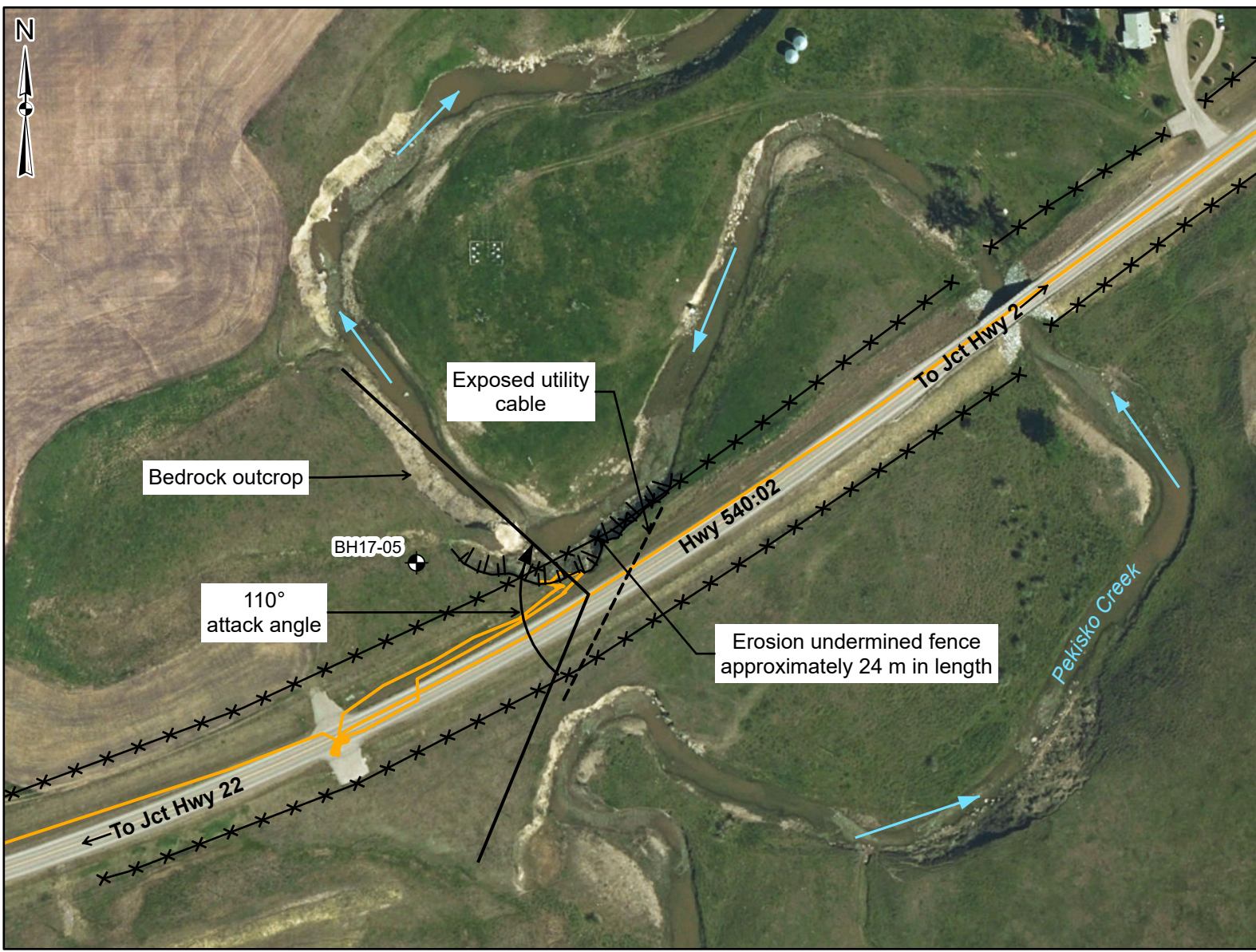
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| SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the S051 bank erosion site. LAST READING DATE: N/A | INSPECTED BY: Chris Grapel (KCB) Peter Roy (KCB) Alex Frotten (AT) Roger Skirrow (AT) |
| PRIMARY SITE ISSUE: Bank erosion on the outside of a sharp (110° attack angle) meander bend. The head scarp has encroached onto highway right-of-way and undermined the highway ditch re-directing ditch flows onto the failed slopes. | |
| APPROXIMATE DIMENSIONS: Bank erosion is approximately 100 m long with fence undermined for a length of approximately 24 m, head scarp located approximately 5 m away from edge of pavement. | |
| DATE OF ANY REMEDIAL ACTION: N/A | |

| ITEM | CONDITION EXISTS | | DESCRIPTION AND LOCATION | NOTICABLE CHANGE FROM LAST INSPECTION | |
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| | YES | NO | | YES | NO |
| Pavement Distress | | X | N/A – none observed | | X |
| Slope Movement | X | | Tension cracking in highway ditch near the west end of the site | X | |
| Erosion | X | | Large scour hole due to surface water runoff erosion along the outside bend of the creek. Ongoing gully erosion occurring where the ditch discharges water onto the slide surface | X | |
| Seepage | | X | N/A – none observed | | X |
| Culvert Distress | | X | N/A – none observed | | X |

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| COMMENTS |
| No distress in pavement has been observed. |
| The height of the embankment is approximately 5 m to 6 m. |
| The erosion feature appears to have enlarged between the 2022 and 2023 inspections. The head scarp has extended towards the highway past the fence (undermining the fence) and is impacting the north (westbound) ditch. The erosion extending into the ditch is redirecting surface water flows into the failure zone, exacerbating erosion. |
| During the 2023 inspection, eight fence posts had been undermined and are hanging; an increase of two since the 2020 inspection, but the same amount since 2022. The fence is undermined for approximately 24 m. |
| A tension crack was observed near the west extent of the site. |

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| <p>The erosion has exposed a black utility cable that is owned by TELUS.</p> |
| <p>The erosion is impacting the north (westbound) ditch. The angle of attack for Pekisko Creek is 110°.</p> |
| <p>Erosion is retrogressing into the ditch and is within approximately 5 m of the high-tension cable barrier (HTCB).</p> |
| <p>The 10 m to 15 m wide slide block observed during the 2021 inspection had collapsed by the 2022 site visit. Multiple smaller slide blocks appear to be forming near the fence line and are expected to eventually slide into the erosion feature, which will enlarge the erosion site and cause additional retrogression towards the highway.</p> |
| <p><u>Maintenance/Repair/Monitoring Recommendations:</u></p> <p><u>Short-Term</u></p> <ul style="list-style-type: none"> • The site should be regularly monitored by AT's MCI, especially after significant precipitation events (e.g., freshet, increased rainfall, or prolonged rainfall). • The site should continue to be inspected as part of the Southern Region GRMP Section B inspections. <p><u>Long-Term</u></p> <ul style="list-style-type: none"> • A repair design has been prepared. The slope should be rebuilt using geogrid reinforced fill and the creek bank should be armoured (e.g., riprap). The north (westbound) ditch should be re-established during the repair and the fence repaired. Construction tentatively scheduled for 2025. |
| <p>This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation (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.</p> <p>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.</p> <p>Use of or reliance upon this instrument of service by the Client is subject to the following conditions:</p> <ol style="list-style-type: none"> (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. |

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| <p>Peter Roy., P.Eng. Civil Engineer</p> | |
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Legend

- Borehole
- GPS Track (May 9, 2023)
- Flow Direction
- Utility Cable
- Scarp
- Fence

NOTES:
 1. HORIZONTAL DATUM: NAD83
 2. GRID ZONE: UTM ZONE 11N
 3. IMAGE SOURCE: ESRI, MAXAR, EARTHSTAR GEOGRAPHICS AND THE GIS USER COMMUNITY.

CLIENT

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| PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM | | |
| TITLE Site Plan S051 - Pekisko Bank Erosion Hwy 540:02, km 4.591 | | |
| SCALE 1:2,500 | PROJECT No. A05116A03 | FIG No. 1 |



Photo 1 Creek erosion extending into highway ditch. Utility cable hanging across failure
Photo was taken facing south on May 9, 2023.



Photo 2 Bank erosion on the outside of a sharp meander bend. Fence line undermined. Utility cable exposed. Photo was taken facing west on May 9, 2023.



Photo 3 Erosion extending along the meandering bend in the river. Note exposed bedrock near river level. Photo was taken facing southwest on May 9, 2023.



Photo 4 View of erosion north of fence undermining. Ditch flows discharge into erosion area. Photo was taken facing north on May 9, 2023.



Photo 5 Erosion feature. Photo was taken facing southwest on May 9, 2023.

