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| SITE NUMBER AND NAME: C048-I & -III Slides | | HIGHWAY & KM: 575:04, 14.5 | PREVIOUS INSPECTION DATE: June 9, 2020 | INSPECTION DATE: June 23, 2021 |
| LEGAL DESCRIPTION: | NAD 83 COORDINATES: UTM Northing Easting | | RISK ASSESSMENT: | |
| C048-I 03-28-29-22 W4M | 12 | 5707777 358483 | PF: 3 CF: 5 | TOTAL: 15 |
| C048-III 14-21-29-22 W4M | 12 | 5707780 358250 | PF: 3 CF: 4 | TOTAL: 12 |
| AVERAGE ANNUAL DAILY TRAFFIC (AADT): 870 (west) and 800 (east) (Ref No. 106230 & 105240) | | | CONTRACT MAINTENANCE AREA (CMA): 517 | |

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| SUMMARY OF SITE INSTRUMENTATION: Operable: Three slope inclinometers (SIs) were installed at C048-I in 2021. Inoperable: One slope inclinometer (SI) installed at C048-I in 2011. LAST READING DATE: June 12, 2021 | INSPECTED BY: Chris Gräpel (KCB) James Lyons (KCB) Roger Skirrow (AT) Tony Penney (AT) |
| PRIMARY SITE ISSUE: C048-I and -III: two shallow slides in the highway embankment fill. Both slides are located on the south side (eastbound lane) of Hwy 575 near the east and west abutments, respectively. | |
| APPROXIMATE DIMENSIONS: C048-I and -III are approximately 20 m and 100 m wide, respectively. | |
| DATE OF ANY REMEDIAL ACTION: C048 – I: July 2010 – soil nails launched (52 nails, 4 rows); July 2014 – H-pile wall installed (65 HP310 X 93 piles, 0.75 m spacing, 48 m long, 12 m deep); “retaining wall” constructed behind the H-pile wall, by excavating to a depth of 2 m, placing filter cloth, installing 2x10 pressure-treated-wood lagging between the piles, and then backfilling with gravel; C048-III repaired in 2020 with excavate and replace using geogrid reinforced gravel; C048-I existing pile wall extended in winter 2021 with addition of a downslope second pile wall | |

| ITEM | CONDITION EXISTS | | DESCRIPTION AND LOCATION | NOTICABLE CHANGE FROM LAST INSPECTION | |
|-------------------|------------------|----|--|---------------------------------------|----|
| | YES | NO | | YES | NO |
| Pavement Distress | X | | C048-I: pavement subsided and cracked C048-II: pavement cracks in eastbound lane have expanded. | X | |
| Slope Movement | X | | C048-I: there appears to be movement east of the pile wall | X | |
| Erosion | | X | None observed | | X |
| Seepage | | X | None observed | | X |
| Culvert Distress | | X | N/A – No culvert present | | X |

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| COMMENTS |
| C048-III was repaired in 2020. The embankment slope was rebuilt using geogrid-reinforced fill. The repaired slope does not match the existing highway embankment, particularly near the toe of the embankment (repaired slope “sticks out” from existing slope and was not graded properly during the repair work). The silt fencing at the toe of the slope has collapsed due to fill placed against the silt fence. |
| In early-2021, the existing pile wall installed at the C048-I site was extended to the east and west, as the slide had begun to outflank the existing pile wall. Wooden planks were installed between the piles and space between the highway and pile wall was backfilled with granular material. A second pile wall was installed downslope of the existing pile wall. Three SIs were installed, one in the west extension of the existing pile wall and two SIs in the |

new pile wall. A casing protector should be installed for the SI installed in the west pile wall extension (e.g., sleeved with a 6" length of PVC pipe).

Discussed remedial actions:

C048-I:

- The piles should be cut-off to ground surface and the guardrail should be replaced. AT wants the work to be completed during the fall or winter due to the dry condition of the site.

C048-III:

- There is poor vegetation cover for the repaired slope and it requires reseeding.
- Fill is piled up against the silt fencing and requires regrading to match the existing highway embankment slope.
- The silt fence has collapsed at the lower portions of the repair due to fill being placed against the silt fence. The slope should be regraded as soon as possible due to the creek's proximity to the repair area.

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- (iii) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.

Chris Gräpel, M.Eng., P.Eng.
Civil Engineer, Associate

Inspection Photographs

Photo 1 Cracking of the pavement upslope of the C048-I slide area. Pavement cracks appear to be similar since the 2020 inspection. Photo taken June 23, 2021 facing east.



Photo 2 West pile wall extension and wooden planks installed in early-2021. Photo taken June 23, 2021 facing east.



Photo 3 Upper pile wall (2015 pile wall was extended east and west in 2021) and lower pile wall (installed in 2021) south of Hwy 575. Photo taken June 23, 2021 facing northwest.



Photo 4 C048-III slide viewed from the roadway just south of Hwy 575. Photo taken June 23, 2021 facing northeast.



Photo 5 The C048-III slide was repaired in 2020. Photo taken June 23, 2021 looking east.



Photo 6 C048-III repair was not graded to match the existing highway embankment slope and there is little to no vegetation (required reseeding). Photo taken June 23, 2021 facing west.

