



**NORTH CENTRAL REGION GRMP
EDSON / STONY PLAIN
SITE INSPECTION FORM**



SITE NUMBER AND NAME: NC011 – 5.5 km North of Highway 16 (Near Hinton)	HIGHWAY AND KM: 40:30, km 5.617	PREVIOUS INSPECTION: July 15, 2021	CURRENT INSPECTION: May 23, 2025
LEGAL DESCRIPTION: NW-01-51-26-W5	NAD83 COORDINATES: UTM11U 5914110N, 452891E		RISK ASSESSMENT: PF: 5 CF: 10 Total: 50
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 1,250 (2024)		CONTRACTOR MAINTENANCE AREA (CMA): 508	

SUMMARY OF INSTRUMENTATION: Two slope inclinometers (SI) functional	INSPECTED BY: Stantec: Leslie Cho, Sonja Pharand, and Carrie Murray TEC: Kristen Tappenden
LAST READING DATE: May 6, 2025	
PRIMARY SITE ISSUE: Slope movement of a sidehill cut-fill section downslope of highway. Backslope erosion north of highway.	
APPROXIMATE DIMENSIONS: East scarp along south shoulder of highway: 140 m long x 10 m wide. East midslope slide: 50 m long x 90 m wide. West landslide: 55 m long x 75 m wide. Slope flattening / repair of highway backslope: 650 m long x 95 m wide.	
DATE OF ANY REMEDIAL ACTION: Highway spray patched in 2009. Highway realignment began in 2021 and is ongoing. Riprap placed on backslope north of highway in 2024; additional riprap planned for 2025. Two rows of horizontal drains installed at ditch and next bench above ditch in 2024.	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Westbound lane (WBL) removed in 2024 and sacrificial lane placed for winter shutdown. Frequent cracking up to 75 mm wide and occasional potholes observed in EBL.	X	
Slope Movement	X		West landslide approximately 55 m long and 75 m wide. Ground cracks, heaving, and bulging at about midslope below south shoulder scarp. Progression of the east midslope landslide with leaning trees, open scarps and a graben. A section of previously leaning trees has now slid downslope. Progression of tension crack above south shoulder scarp, vertical difference observed. Shallow scarp approximately 1.9 m south of guardrail.	X	
Erosion	X		Erosion rills and channels on highway backslope. Continued erosion of the exposed scarps downslope of the highway. Erosion channel present on north side of half-culvert collector drain on south side of highway. Sediment collecting within the north ditch / gabion mattress, and at both ends of the eastern centreline culvert.	X	

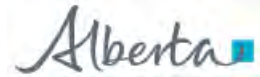
Seepage	X		One confirmed seepage location at midslope landslide below the south shoulder scarp. Multiple areas of seepage on backslope.	X	
Bridge/Culvert Distress	X		Eastern centreline culvert is half-filled with sediment, with ponding water at the outlet.	X	

COMMENTS

- The WBL was removed in fall 2024 as part of the on-going highway realignment work. Due to delays in construction, the highway was reconstructed in the same alignment to allow for two-way traffic over the winter. No pavement cracking was observed on the WBL (Photos 1, 2, and 4).
- The majority of the EBL contains map cracking. Additional larger cracks and potholes were observed within the EBL, with cracks up to 75 mm wide and 25 mm deep. The majority of the cracks were partly infilled with sand (Photos 2, 3 and 4).
- The west mid-slope landslide located downslope from the access bench appeared to be in similar condition as observed in 2021. Two successive scarps were observed on the east portion. The main scarp was about 4 m to 5 m high followed by a second scarp about 1.5 m high.
- SI2 near the west landslide remains operational, with a rate of movement of less than 1 mm / year since the previous inspection in 2021.
- The ridge/graben feature about 600 mm high was observed at the west extent of the east mid-slope landslide and appears to have increased from approximately 35 m long in 2021 to 50 m long. At the east extent of this feature, ground cracks about 400 mm wide and 300 mm deep were observed in similar condition to the previous inspection (Photo 5). Some leaning trees were also noted within this area.
- The survey control monument observed in 2021 that was possibly sliding downhill due to slope movement was not observed during the current inspection.
- Leaning mature coniferous and deciduous trees were observed within the east landslide.
- The highway surface does not appear to be affected by the east landslide, similar to previous observations.
- Seepage was observed within the east landslide near the east and west extents, similar to the 2021 inspection (Photo 6).
- Additional vegetation is present within the east landslide, though continued erosion is visible along the scarp (Photo 6).
- The south shoulder scarp (Photo 7) is retrogressing towards the highway as indicated by widening of the previously observed tension crack. The crack has extended to about 4 m long, 300 mm deep and 300 mm wide, with a vertical difference of approximately 150 mm between the ground on either side. The crack was about 5.2 m away from the guardrail compared to 5.5 m measured in 2020.
- The scarp at the east extent of the downslope failures of the east landslide was observed to be in a similar state as the previous inspection. Additional vegetation was observed within the landslide (Photo 8).
- The scarp about 25 m long and 200 mm high on the south side of the highway, observed in 2021, was observed to be in similar condition. The scarp remains approximately 1.9 m south from the guardrail, near the previous pavement cracking observed at the west extent of the site (Photo 1).
- SI22-01 was installed near the crest of the backslope repair in September 2022 and shows no discernable movement of the slope beyond some construction noise in the upper 2 m.
- The north ditch has been relocated further north as part of the backslope cut / highway realignment works. The ditch has been lined with a combination of gabion mattress and angular 1M riprap below the backslope (Photo 9). The gabion mattress transitions into riprap approximately 300 m west of the C/L culvert inlet (Photo 11).
- Erosion rills and areas of severe erosion and seepage are present along the backslope (Photo 10). Minimal vegetation has taken to the slope, and is mainly concentrated along the flatter benches across the slope.
- Sediment was observed within the north ditch, trapped in the gabion mattresses and riprap (Photos 9 and 11). Sediment is also collecting at both the inlet and outlet of the centreline culvert just east of the backslope repair area. The culvert inlet is half filled with sediment (Photo 12) while standing water and sediment were observed at the outlet (Photo 13). The silt fence along the north ditch near the inlet is in disrepair, and the silt fence at the outlet appears to still be letting sediment-heavy water through to flow downslope towards the river.
- The river level appears to be similar to the previous inspection.
- The probability factor is considered to be 5 due to SI readings showing slow to no movement since remediation of the backslope and highway re-alignment began. The consequence factor has been increased



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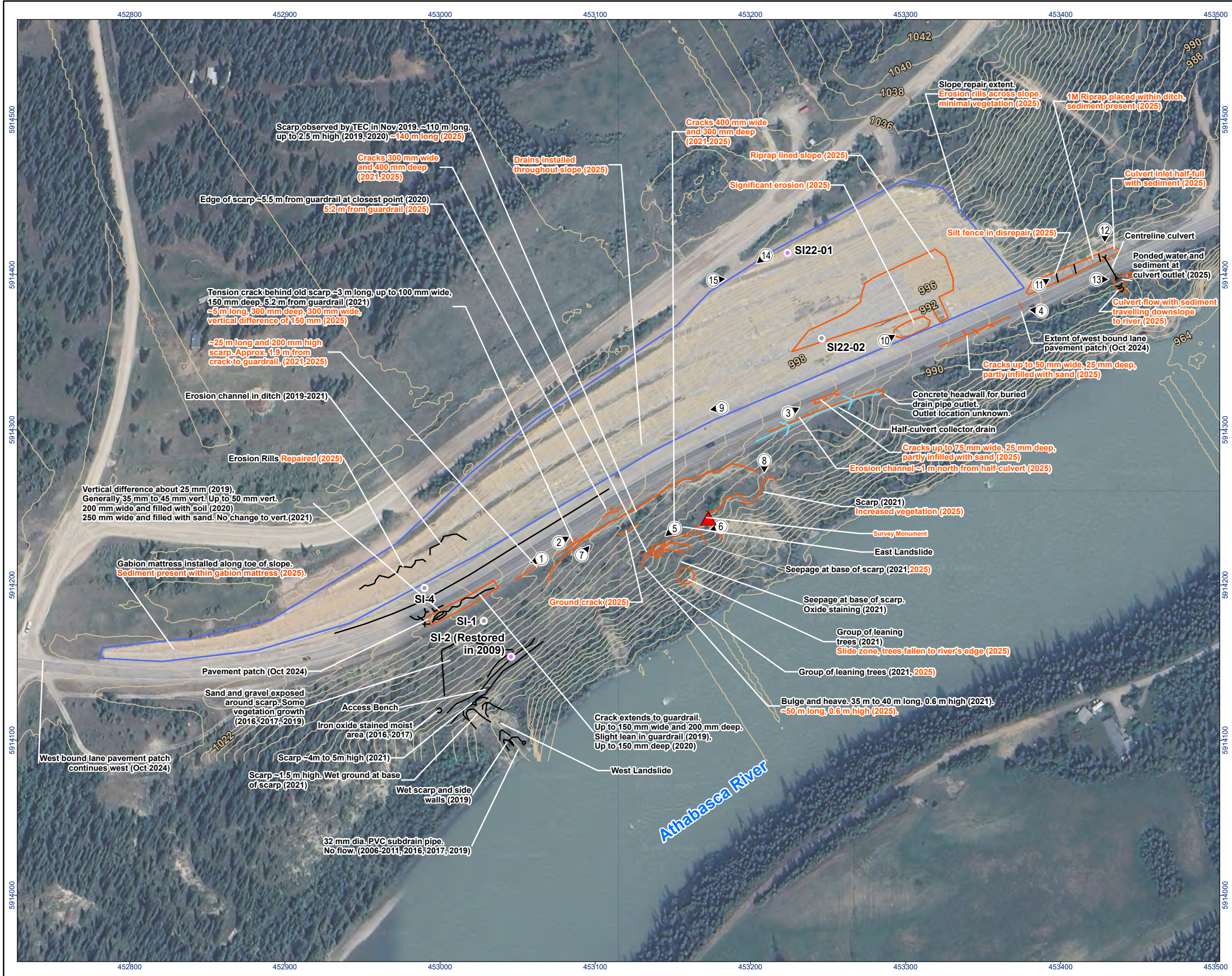


to 10 since rapid mobilization of large scale slide is possible and there are signs of eroded material flowing into a fish bearing river at the C/L culvert.

RECOMMENDATIONS

- The backslope repair / highway realignment works have been underway since Summer 2021. As part of construction, the highway backslope was excavated and benched to make room for realigning about 750 m of Highway 40. It is understood that construction of the pavement structure for the realigned highway portion is to take place Summer 2025. No other remedial recommendations are required at this time.
- The centreline culvert at the east end of the site should be cleaned of sediment to allow for proper drainage. The culvert should be regularly monitored and cleaned out by the MCI following completion of construction as it's the only culvert for the north ditch along the entire site.
- Additional erosion and sedimentation control measures should be considered along the backslope and ditches. This could consist of revegetating the backslope and installing strawbales within the ditch.
- Given the lack of instrumentation at the east midslope landslide location, survey control points could be installed to monitor slide retrogression towards the highway. Alternatively, InSAR or LiDAR change detection can be completed to monitor landslide activity.
- SI22-01 within the backslope repair was cut 2 m shorter in April 2024 due to backslope flattening activities. Upon completion of construction, SI22-01 should be reinitialized.
- The site should continue to be inspected annually.
- Instrumentation monitoring should continue semi-annually.

PREPARED BY: Sonja Pharand, P.Eng.	REVIEWED BY: Leslie Cho, M.Eng., P.Eng.	PERMIT TO PRACTICE

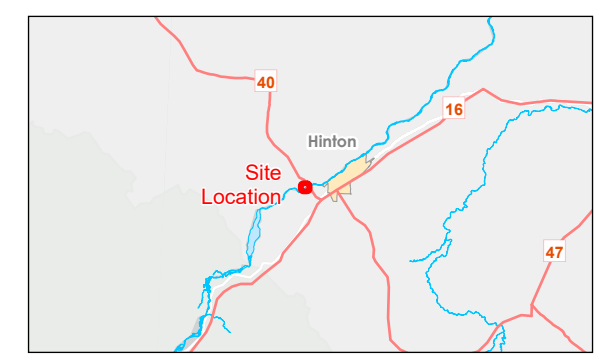


- Operational Instrument
- Non-Operational Instrument
- Ground Elevation Contours³ (m AMSL⁴)
- 2025 Observation
- Previous Observation / Site Detail
- ① Photos and Direction



0 15 30 metres
 (At original document size of 11x17)
 1:2,500

Notes
 1. Coordinate System: NAD 1983 CSRS UTM Zone 11N
 2. Imagery: Light Gray Base: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
 Google Satellite: © OpenStreetMap (and) contributors, CC-BY-SA
 3. Contours created using IDW technique using points from Stantec Geomatics, 2025 survey
 4. m AMSL - Meters Above Mean Sea Level



Project Location
 Hinton, Alberta
 Prepared by NF on 2025-10-09
 Quality Review by SP on 2025-10-09
 Independent Review by LC on 2025-10-09

Client/Project
 Alberta Transportation and Economic Corridors
 Geohazard Monitoring Program
 NC11 5.5 km North of Hwy 16 (Near Hinton)
 12331 5222

Figure No.
1
Title
Site Plan

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2025 Site Inspection Photos at NC011



Photo 1: Pavement and upper south slope condition at west extent of east landslide scarp. Looking southwest.



Photo 2: Pavement condition and benched backslope constructed for highway realignment, above south scarp area near west extent. Looking northeast.

2025 Site Inspection Photos at NC011



Photo 3: Pavement cracking in EBL north from half-culvert collector drain. Looking northeast.



Photo 4: Pavement condition at east extent of site. Looking west.

2025 Site Inspection Photos at NC011



Photo 5: Ground crack at ridge location near the centre of the east landslide. Leaning trees in background. Looking southwest.



Photo 6: Seepage near middle of east landslide. Looking southwest.

2025 Site Inspection Photos at NC011



Photo 7: Scarp along highway, near guardrail. Looking northeast.



Photo 8: Scarp at far east extent of eastern slide zone. Looking south.

2025 Site Inspection Photos at NC011



Photo 9: Transition from gabion mattress to riprap ditch at toe of new backslope. Looking southwest.



Photo 10: Erosion and seepage on recently completed backslope. Looking northeast.

2025 Site Inspection Photos at NC011



Photo 11: Sedimentation in riprap lined ditch east of slope repair. Silt fence in disrepair. Looking east.



Photo 12: Culvert at east end of site, half filled with sediment. Looking south.

2025 Site Inspection Photos at NC011



Photo 13: Ponded water and sedimentation at culvert outlet. Looking southeast.



Photo 14: Highway and backslope, looking southwest from crest of backslope.

2025 Site Inspection Photos at NC011



Photo 15: Highway and backslope, looking east from crest of backslope.