NORTH CENTRAL REGION GRMP
EDSON / STONY PLAIN
SITE INSPECTION FORM

SITE NUMBER AND NAME:	HIGHWAY AND KM:	PREVIOUS INSPECTION:	CURRENT INSPECTION:
NC092 – Cattlepass Culvert BF 80823	37:02, km 23.855	June 1, 2023	June 20, 2024
LEGAL DESCRIPTION:	**NAD83 COORDINATES:**		**RISK ASSESSMENT:**
NE 33-54-27-W4M	UTM12U 5955908N, 307552E		PF: 10 CF: 6 Total: 60
AVERAGE ANNUAL DAILY TRAFFIC (AADT):		**CONTRACTOR MAINTENANCE AREA (CMA):**	
2740 (2023)		510	

SUMMARY OF INSTRUMENTATION:	INSPECTED BY:
One standpipe installed at this site. **LAST READING DATE:** February 29, 2024	Stantec: Leslie Cho, Sonja Pharand TEC: Kristen Tappenden
PRIMARY SITE ISSUE: Two slope failures south of Highway 37 bisected by a cattlepass culvert.	
APPROXIMATE DIMENSIONS: 25 m wide by 12 m long x 3.5 m deep	
DATE OF ANY REMEDIAL ACTION: No remedial action completed to date.	

ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Transverse cracking at both ends of slump. Some loss of lateral support for guardrails.		X
Slope Movement	X		Retrogressing slump south of HWY37 on both sides of cattlepass culvert. Scarps and tension cracking.		X
Erosion		X			
Seepage		X			
Culvert Distress	X		Sag ~3 m to 4 m into south end of cattlepass culvert.		X

COMMENTS

- Little to no change was observed at the slump on the east side of the cattlepass, with the scarp up to about 2.5 m high. The scarp at the east extent next to the pavement remains approximately 0.3 m high (Photos 1 and 2).
- The height of the toe bulge was about 700 mm high, approximately 100 mm higher than measured in 2023 (Photo 1).
- There does not appear to be additional loss of lateral soil support at the guardrails.
- The west slump appeared to have retrogressed compared to the 2023 inspection. The scarp west of the cattlepass was about 2.5 m high and 2 m away from the guardrail (Photos 3 and 4).
- Tension cracks were observed on the west side of the west scarp and on the west side of the culvert opening, near the top of the culvert. Both appeared unchanged since last visit.
- A sag was observed about 3 m to 4 m inside the south end of the cattle pass culvert since 2021. The sag location appeared to be approximately in line with the two scarps and is potentially separated at the joint.
- In past site inspections, the farmer east of the site informed us that the cattle gate periodically will not open or close due to landslide activity. He occasionally regrades the landslide to maintain functionality of the gate. New posts were installed in 2020-2021 on the west side of the south end of the cattlepass culvert. The wooden posts were significantly leaning in 2021 and was repaired in 2022. Regrading on the east side of the cattlepass may have been completed as part of fence repair. The toe appears to have been cut back in an

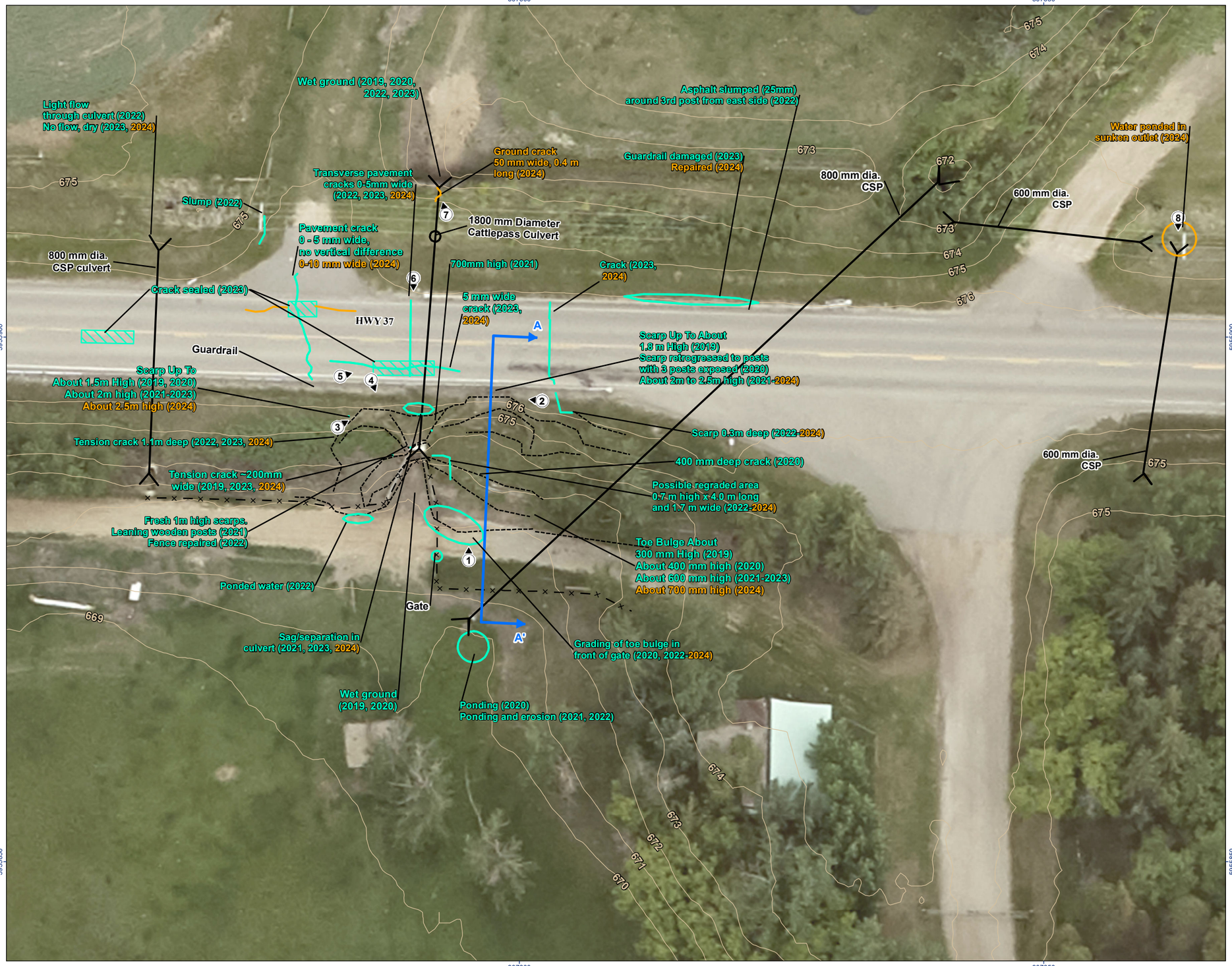
area 1.7 m wide, 4.0 m long, and 0.7 m high. No signs of recent grading were observed during the current site inspection.

- A longitudinal crack in the EBL was observed above the culvert and is partially patched. The crack extends past the patch on both sides and is up to 10 mm wide (Photo 5).
- The transverse crack above the eastern scarp appeared unchanged, and has reflected through the pavement patch (Photo 6).
- The north guardrail was damaged on the east end, and the south guardrail was damaged on the west end during the 2023 inspection. The guardrail in both sections was repaired.
- A black utility cable (likely Telus) continues to be observed running east-west through the landslide.
- A ground crack approximately 50 mm wide was observed above the north end of the cattlepass culvert, at the fence line (Photo 7).
- The culvert inlet in the ditch to the east of the private driveway, on the south side of the highway is sunken into the ground. The outlet in the north ditch is also sunken into the ground, and water is pooling in the outlet, unable to flow out (Photo 8).

RECOMMENDATIONS

- The MCI should continue to monitor the highway surface and guardrails until remediation can be undertaken.
- The MCI should discuss possible solutions with the farmer to maintain functionality of the gate but to refrain from further grading work at the toe of the landslide. Loss of soil support at the toe can trigger additional slope movements.
- In the short-term, fill can be placed at the base of the slope failure to act as a temporary buttress. The nearby Calahoo pit may be a potential source of granular material for this purpose.
- Stantec has submitted a design and work order for remediation of the embankment slope by removal of the failed soils and replacement with granular fill reinforced with geogrid.
- Site inspections should be completed annually.

PREPARED BY: Sonja Pharand, P.Eng.	**REVIEWED BY:** Xiteng Liu, M.Sc., P.Eng., PMP	**PERMIT TO PRACTICE**
PROFESSIONAL ENGINEER ALBERTA SONJA A. PHARAND ID 286545 Oct. 15 2024		PERMIT TO PRACTICE STANTEC CONSULTING LTD. Signature Date 2024-10-15 PERMIT NUMBER: P 0258 The Association of Professional Engineers and Geoscientists of Alberta



Stantec

- Previous Observation
- 2024 Observation
- Fence
- Culvert
- Ground Elevation Contours (m
- Cross-Section Location
- Photo Number and Direction

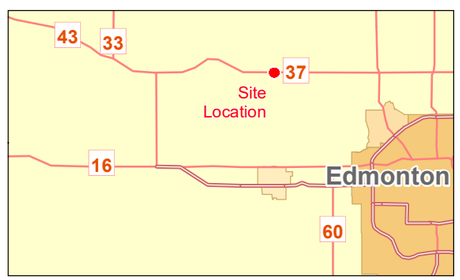
N

0 7 14 metres

(At original document size of 11x17)
1:375

Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Data Sources: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community



Project Location
NE-33-054-27-W4M, Alberta

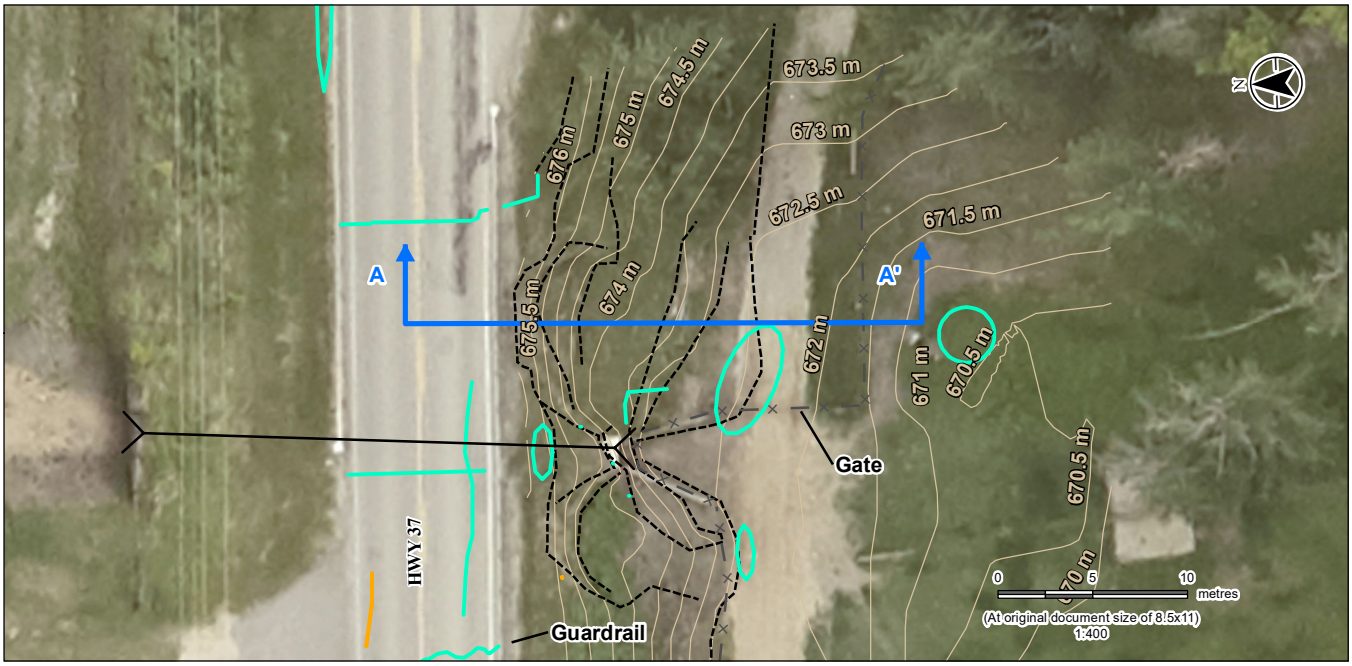
Prepared by SP on 2024-10-08
TR by LC on 2024-10-08
IR by XL on 2024-10-08

Client/Project
123315222
Transportation and Economic Corridors
Geohazard Monitoring Program
NC92 - Highway 37:2 Cattlepass Culvert

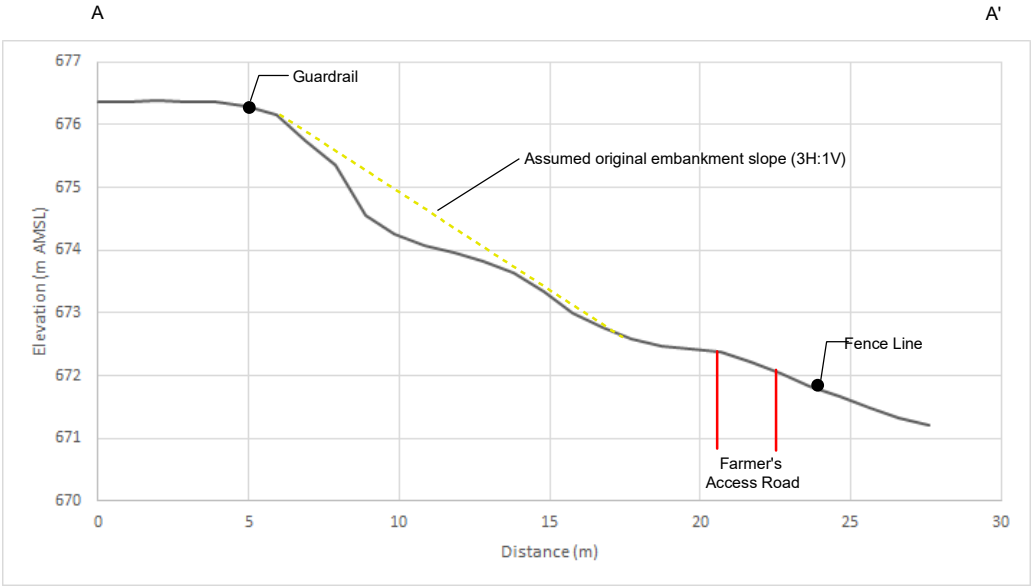
Figure No.
1

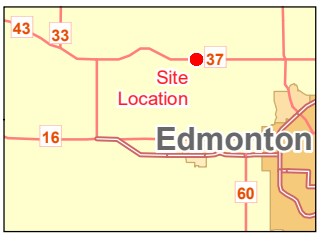
Title
Site Plan

C:\Users\sphanard\Documents\Project not yet set up\123315222\working_figures\fig_1_site_plan_nc92_hwy37_2_11x17.mxd Revised: 2024-10-11 By: sphanard



Cross Section A - A'





- Previous Observation
- 2024 Observation
- Break Line
- Fence
- Ground Elevation Contours (m AMSL)
- Culvert
- Cross-Section Location

m AMSL metres above mean sea level

Notes

1. Coordinate System: NAD 1983 UTM Zone 12N
2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Background: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community.
4. Contours and Cross-Section Profile: Calculated from Stantec Survey Points (Feb. 2019).

Stantec

Project Location
NE-33-054-27-W4M,
Alberta

Prepared by SP on 2024-10-08
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Client/Project 123315222
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Figure No.
2

Title
Ground Profile of Section A - A'

2024 Site Inspection Photos at NC092

Photo 1: Slump on east side of culvert. Possible regraded area on east side of culvert, well vegetated. Looking north.

Photo 2: Slump across cattlepass culvert. Looking west

2024 Site Inspection Photos at NC092

Photo 3: Scarp at west slump. Looking northeast.

Photo 4: West slump next to culvert entrance. Looking southeast.

2024 Site Inspection Photos at NC092

Photo 5: Highway surface above culvert. Looking east.

Photo 6: Transverse pavement crack above eastern scarp. Looking south.

2024 Site Inspection Photos at NC092

Photo 7: Ground crack along centreline of cattlepass culvert at north end. Looking northwest.

Photo 8: Water ponded in sunken culvert outlet in ditch east of private access, north side of highway. Looking south.