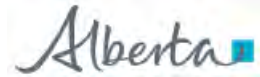




**NORTH CENTRAL REGION GRMP
EDSON / STONY PLAIN
SITE INSPECTION FORM**



SITE NUMBER AND NAME: NC001 – Whitecourt East Hill	HIGHWAY AND KM: 43:16, km 1.707	PREVIOUS INSPECTION: May 25, 2020	CURRENT INSPECTION: June 16, 2022
LEGAL DESCRIPTION: NE 26-59-12-W5M	NAD83 COORDINATES: UTM11U 5999334N, 586330E		RISK ASSESSMENT: PF: 10 CF: 4 Total: 40
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 12,800 (2021)		CONTRACTOR MAINTENANCE AREA (CMA): 508	

SUMMARY OF INSTRUMENTATION: Five slope inclinometers, six pneumatic piezometers, and nine standpipe piezometers functional. LAST READING DATE: May 5, 2022	INSPECTED BY: Stantec: Leslie Cho, Sonja Pharand AT: Rocky Wang, Amy Driessen, Kathleen Davis, Tim Germyn
PRIMARY SITE ISSUE: Slope instability at the base of the glaciolacustrine deposit on the backslope and surficial creep movement. Potential landslide beyond the berm area.	
APPROXIMATE DIMENSIONS: 400 m along Highway 43 by 200 m wide.	
DATE OF ANY REMEDIAL ACTION: A toe berm was constructed north of Highway 43 in 1995. Asphalt patching was performed in 2010 with crack sealing in 2012. The east and westbound lanes were overlaid in Fall 2014. New guardrails were installed in 2014, then replaced with HTC B in 2016. The backslope was repaired (remove and replace) along the pedestrian trail in July 2018.	


ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Cracking along median of Hwy 43, cracks reflecting through overlay in westbound lane. East crack at ~STA 1+920 appears more pronounced with a visible drop.	X	
Slope Movement	X		Angled/circular pavement cracking in the westbound lane. East crack more pronounced. Settlement around light standard at approximately STA 1+880.	X	
Erosion	X		Erosion beside west-bound lane at approximately STA 1+750. Erosion on vehicle trail north of SP06-4.	X	
Seepage		X			X
Bridge/Culvert Distress		X			X

COMMENTS
<ul style="list-style-type: none"> • Pavement cracking in the east and west bound lanes were noted. The west and east cracks in the west bound lane did not appear to have widened, however there is now a visible differential at the east crack (Photos 1 and 2). • The median along Highway 43 is cracked and has a visible differential on the north side at approximately 1+845, just west from the west crack (Photo 3). • Erosion rills were observed at approximately STA 1+750 (Photo 4). • The overall slope north of Highway 43 was well vegetated. Signs of slope instability were not observed along the slope during the inspection (Photos 5 and 6).

- The half culvert was flowing; however there was an accumulation of debris in the culvert (Photo 7).
- The depression feature near the half culvert was well vegetated and appeared unchanged (Photo 8).
- The slight settlement around the light standard at approximately Station 1+880 appeared to be unchanged.
- The inclinometers at SI06-1, SI06-2, and TH14-02 continue to show slope movement ranging from less than 1 mm/yr to 2 mm/yr.
- Many of the interpreted failure planes occurred within the lower portions of the glaciolacustrine clay deposits. This deposit sits on top of a sand and gravel deposit underlain by clay till. It is unlikely that the slope failure would be deep enough to penetrate the sand and gravel layer since it is free draining or the clay till layer due to its strength and low piezometric levels.

RECOMMENDATIONS

- Pavement cracks should be sealed to reduce surface water infiltration into the embankment. Additional pavement patches are not recommended since it is considered an additional driving force on the embankment. Mill and fill could be completed to address the vertical displacement until remediation is completed.
- All culverts and sub-drains should be cleaned and inspected on a regular basis to reduce the risk of pore pressures building up in the slope.
- For remediation of the east and west cracks, toe berms could be a potential solution. Assuming a 4 m high toe berm spanning the distance of both cracks, the estimated cost of construction is \$250,000 to \$400,000 excluding engineering. This option would require installation of additional instrumentation to determine its feasibility.
- Site inspections should continue annually.
- Instrumentation readings should continue to be read semi-annually.

PREPARED BY: Sonja Pharand, E.I.T.	PREPARED BY: Leslie Cho, M.Eng., P.Eng.	REVIEWED BY: Xiteng Liu, M.Sc., P.Eng., PMP
		

2022 Site Inspection Photos at NC014



Photo 1: East crack at approximately STA 1+920. Looking west.



Photo 2: West crack at approximately STA 1+850. Cracking on westbound lane reflecting through 2014 overlay. Looking west.

2022 Site Inspection Photos at NC014



Photo 3: Visible dip in median at approximately STA 1+845. Looking southwest.



Photo 4: Erosion gullies at approximately STA 1+750. Looking southeast.

2022 Site Inspection Photos at NC014



Photo 5: Overall view of north slope. Looking northwest.



Photo 6: Overall view of north slope near highway. Looking southeast.

2022 Site Inspection Photos at NC014



Photo 7: Half-culvert on north slope. Looking west.



Photo 8: Depression in north slope between SI-12 and SP06-1. Looking west.

