

GEOHAZARD RISK MANAGEMENT PROGRAM North Central Region – Edson / Stony Plain Area

2020 Inspection Report

Site Number	Site Name		Hwy	km
NC01	Whitcourt East Hill		43:16	1.9
Legal Land Description	NW 26-59-12-W5M			
UTM Coordinates (NAD 83)	Zone 11U	N5999334	E586330	
Operational Site Instrumentation	Slope Inclinometers		7	
	Pneumatic Piezometers		6	
	Vibrating Wire Piezometers		0	
	Standpipe Piezometers		9	
Date of Last Instrumentation Readings	May 25, 2020			

Risk Assessment	Date	PF	CF	Risk Ranking
Current Inspection	May 25, 2020	10	3	30
Previous Inspection	May 15, 2019	10	3	30
Report Attachments	<input checked="" type="checkbox"/> Photographs (8 photos)		<input checked="" type="checkbox"/> Site Plans (1 page)	

	Stantec	Alberta Transportation
Inspected By	Leslie Cho	Kristen Tappenden and Kathleen Davis
Date of Remediation	Toe berm constructed north of Highway 43 in 1995. Backslope repaired (remove and replace)	

	along pedestrian trail in July 2018.		
Recent Maintenance	<ul style="list-style-type: none"> - Asphalt patching in 2010. Some crack sealing in 2012. - Walking trail overlaid in 2012 - East and westbound lanes overlaid in Fall 2014. New guardrail installed. - Guard rails replaced with HTCB in 2016. 		
Primary Site Issue	<ul style="list-style-type: none"> - Slope instability at the base of glaciolacustrine deposit on backslope - Surficial creep movement - Potential landslide beyond berm area 		
Observations	Description and Location	Change from Previous Inspection	
<input checked="" type="checkbox"/> Pavement Distress	<ul style="list-style-type: none"> - Cracking along median of HWY43 - Cracks reflecting through overlay in westbound lane 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> Culvert Distress		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Bridge Distress		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Slope Movement	<ul style="list-style-type: none"> - Cracks in recently paved asphalt trail at the 2018 slide remediation site. - Severe cracking along pedestrian trail upslope from SP06-7 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input checked="" type="checkbox"/> Erosion	<ul style="list-style-type: none"> - Erosion on vehicle trail north of SP06-4 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
<input type="checkbox"/> Seepage		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input checked="" type="checkbox"/> Other	<ul style="list-style-type: none"> - Settlement around light standard at approximately STA 1+880 	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

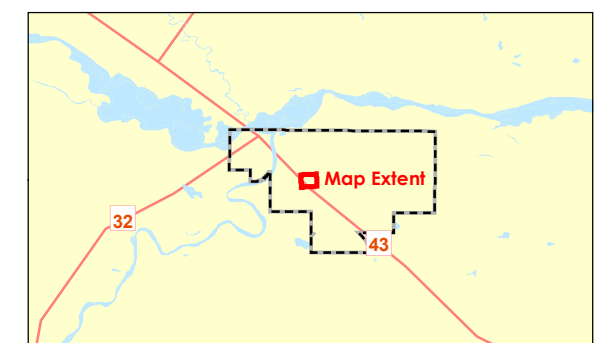
Discussion	<p>The east and west cracks at stations 1+920 and 1+850 are shown in Photos 1 and 2, respectively. The east crack appeared to have more of a vertical difference than in previous years. The other existing pavement distress along Highway 43 appeared to be relatively unchanged.</p> <p>The overall slope north of Highway 43 are shown in Photos 3 and 4. Signs of slope instability were not observed along this slope during the inspection.</p> <p>An erosion gully about 150 mm wide and 150mm deep upslope from the half culvert near SI-12 was observed as shown in Photo 5. There was an accumulation of debris and garbage in the half culvert.</p> <p>Water ponding was observed between BH14-01 and SP06-1 as shown in Photo 6. It appeared that water from the culvert and gullies upslope flowed to this ponding area.</p> <p>Water ponding at SI10 has been observed since 2018.</p> <p>The slight settlement of the light standard at approximately 1+880 appeared to be unchanged.</p>
Assessment	<p>Several inclinometers continue to show slope movement including SI06-1 to SI06-3 and SI14-02. The rates of movement range from creeping at less than 1 mm/yr to 14 mm/yr. Since 2019, SI14-02 has recorded approximately 20 mm of cumulative movement. The pavement cracking observed at about station 1+920 may be related to these ground movements.</p> <p>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 fill. 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 fill layer due to its strength and low piezometric levels.</p> <p>Currently, the highway appears to be performing satisfactorily with no significant changes to its performance.</p>
Recommendations	<p>Short term recommendations include sealing any pavement cracks to reduce surface water infiltration into the slope. Additionally, 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.</p> <p>During the inspection, AT and Stantec agreed to omit the pedestrian trail from the inspection since the trail is maintained by the Town of Whitecourt. Unless requested by AT, future inspections will not include the pedestrian trail.</p> <p>Instrumentation readings at the site should continue to be collected semi-annually, with site inspections completed annually.</p>

- Borehole
- Catch Basin
- Catch Basin Manhole
- Manhole
- Piezometer
- Culvert
- 2020 Observation
- Previous Observation
- Ground Elevation Contours
(m AMSL, LIDAR Aug.-Sept. 2013)



0 30 60 metres
(At original document size of 11x17)
1:2,000

- Notes**
1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Imagery: © 2020 Microsoft Corporation © 2020 Maxar © CNES (2020) Distribution Airbus DS



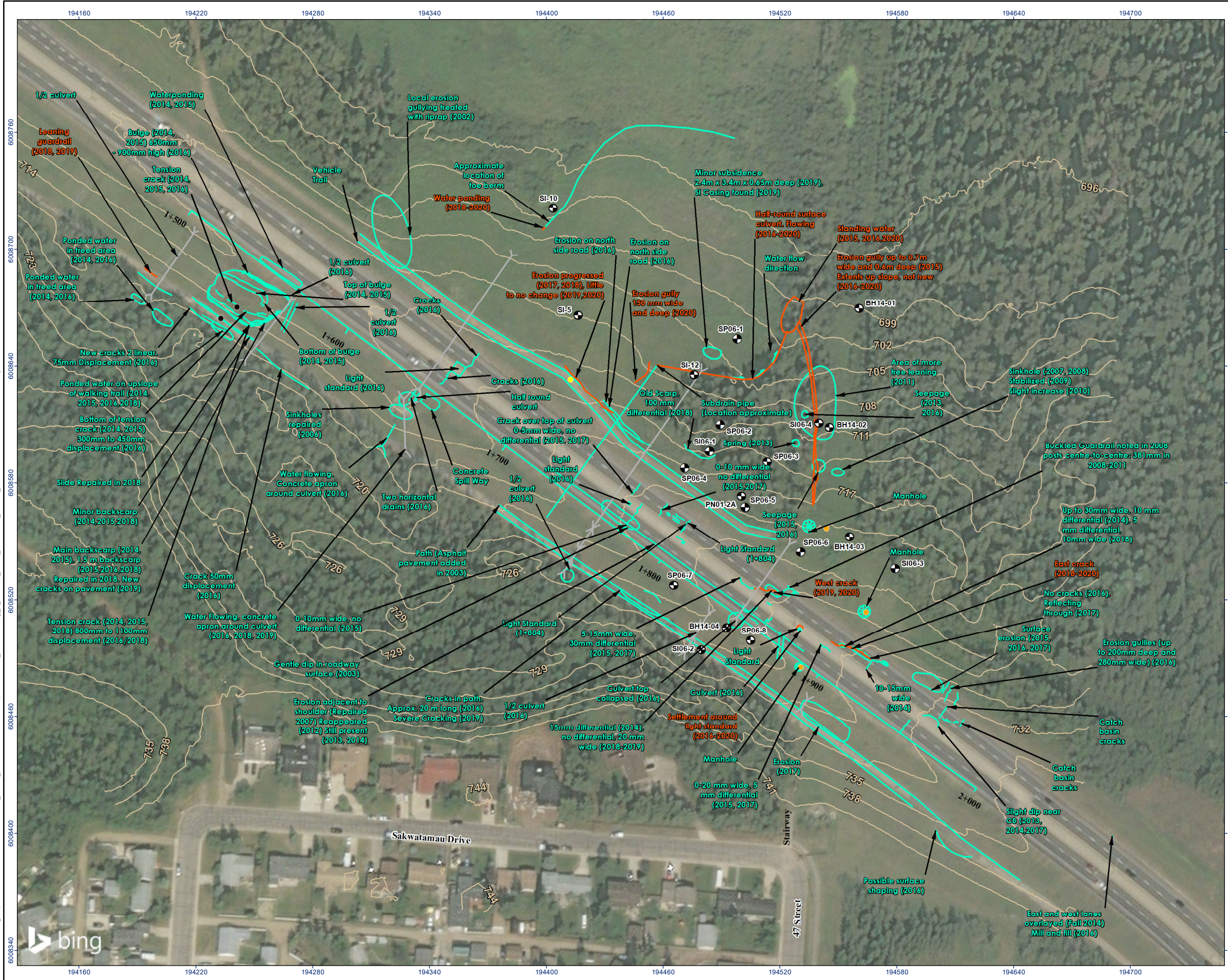
Project Location
Town of Whitecourt,
Alberta

Prepared by MK on 2020-06-11
Quality Review by LC on 2020-06-19
Independent Review by XL on 2020-06-19

Client/Project
Alberta Transportation
Geohazard Monitoring Program
NC01 Whitecourt East Hill 123312435

Figure No.
1

Title
Site Plan



Reference: 2020 Annual Inspection Photographs at NC01 – Whitecourt East Hill
File Number: 123312435



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



Photo 2: Approximately Sta 1+850. Cracking on westbound lane reflecting through 2014 overlay. Looking west.

Reference: 2020 Annual Inspection Photographs at NC01 – Whitecourt East Hill
File Number: 123312435



Photo 3: Overall view of north slope. Looking northwest.



Photo 4: Overall view of north slope. Looking southeast.

Reference: 2020 Annual Inspection Photographs at NC01 – Whitecourt East Hill
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Photo 5: Erosion gully upslope from half-culvert. Looking east.



Photo 6: Standing water at toe of slope between BH14-01 and SP06-1. Looking west.