

SITE NUMBER AND NAME: NC079 – Wedgewood Ravine Slides	HIGHWAY AND KM: 216:06, km 12.849	PREVIOUS INSPECTION: June 28, 2021	CURRENT INSPECTION: June 15, 2022
LEGAL DESCRIPTION: SE 28-52-25-W4	NAD83 COORDINATES: UTM12U 5927932N, 324250E		RISK ASSESSMENT: PF: 11 CF: 8 Total: 88
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 64,930 (2021)		CONTRACTOR MAINTENANCE AREA (CMA): Anthony Henday Drive (AHD)	

SUMMARY OF INSTRUMENTATION: Two slope inclinometers installed during AHD Widening works and being monitored by others. LAST READING DATE: N/A	INSPECTED BY: Stantec: Leslie Cho, Sonja Pharand AT: Rocky Wang
PRIMARY SITE ISSUE: Two slope failures south of the northwest approach of Anthony Henday Drive (AHD). Erosion above both outfalls north of AHD crossing over Wedgewood Creek. Slope failure below concrete pedestal for AHD north bound on east slope of Wedgewood Creek.	
APPROXIMATE DIMENSIONS: North slide: Approximately 12 m wide by 6 m high South Slide: Approximately 9.5 m wide by 4 m high with several successive scarps up to 3 m high.	
DATE OF ANY REMEDIAL ACTION: Riprap extended south under southbound lane (SBL) in Fall 2020 / Spring 2021.	


ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X			X
Slope Movement	X		Two debris flows (north and south slides) south of the northwest approach. Slumping in between concrete pedestals on west slope. Slope failure below north concrete pedestal of east bank.	X	
Erosion	X		Erosion behind both outfalls and along footpath.	X	
Seepage	X		2 m from southeast edge of riprap and 10 m northeast from new riprap edge.		X
Bridge/Culvert Distress	X		Both outfalls are separated with water flowing under/around pipe. Increased settlement at northeast corner of the northern most pedestal.		X

COMMENTS
<ul style="list-style-type: none"> Both the north and south slides appear related to surface water infiltration and erosion. The north slide is actively retrogressing towards the highway whereas the south slide is developing successive scarps downslope. The north slide has retrogressed about 0.9 m further towards the highway since the June 2021 inspection (Photos 1 and 2). The upper scarp of the south slide looks relatively unchanged (Photo 3). The slumping observed further downslope consisting of three smaller scarps up to about 3 m high also appears relatively unchanged (Photo 4).

- Wedgewood Creek level was relatively high at time of inspection. The creek's flow rate appeared relatively higher than previous inspections by Stantec.
- Erosion/slumping of the footpath at the north corner of the riprap below the SBL appears relatively unchanged (Photo 5). Minor works may have been completed around the erosion gully as evidenced by new straw wattle with live staking at the top of riprap.
- Erosion observed behind both outfalls located on the west and east sides of Wedgewood Creek north of AHD (Photo 6 and 7). Erosion above west outfall appears to be slightly worse with more tilting of the outfall. East outfall condition looked similar to the previous inspection (Photo 8).
- The gap (fill settlement) at the northeast corner of the northernmost pedestal increased 40 mm to a total settlement of 200 mm.
- The south slump on the west slope between the concrete piers appears unchanged, while the north slump appears to have retrogressed approximately 1.0 m further up the slope (Photo 9).
- The slope below the northernmost pedestal on the east bank has failed, with debris piled at the edge of the creek (Photo 10). The slope below the southernmost pedestal on the east bank appears to be experiencing erosion and most of the vegetation appears dead.

RECOMMENDATIONS

- The site should be regularly monitored by the MCI and/or current Southwest Anthony Henday Drive (SWAHD) Lane Widening team until remediation can be undertaken.
- From discussions during the July 2020 Call-Out Inspection, remediation of the north and south slides will be undertaken by the SWAHD geotechnical consultant. It is understood that the site will be remediated using soil nails.
- Slope inclinometer data should be requested from the SWAHD geotechnical consultant for review and inclusion in the GRMP monitoring cycle.
- A concrete trough may be considered upslope of the footpath to direct surface water towards the riprap instead of into existing erosion channels.
- Stantec submitted a tender package for outfall remediation consisting of replacing the disjointed and broken pipe segments with new pipe and regrading the surrounding slopes. The existing outfalls will be removed and replaced with an energy dissipater consisting of Class 2 riprap. Construction is currently scheduled for 2024. The estimated cost for construction is approximately \$900,000 adjusting for the removal of the Tecco mesh and excluding engineering costs.
- Stantec submitted a proposal for remediation of the new slump on the east bank. Remediation of the slump is expected to consist of removal and replace. The estimated cost of construction for removal and replace is in the order of \$500,000 to \$650,000 including engineering.
- Site inspections should continue 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 NC079



Photo 1: Distance from edge of scarp to sign pedestal is 2.6 m. Looking northwest.



Photo 2: North slide. Looking north from midslope.

2022 Site Inspection Photos at NC079



Photo 3: Scarp at south slide. Looking northeast.



Photo 4: Successive scarps below Photo 3. Looking south.

2022 Site Inspection Photos at NC079



Photo 5: Erosion/slump retrogressed to footpath, increasing vegetation from 2021. Looking southeast.



Photo 6: Erosion and wet soil behind west outfall. Looking northwest

2022 Site Inspection Photos at NC079



Photo 7: Erosion above west outfall. Looking west.



Photo 8: East outfall. Looking southeast.

2022 Site Inspection Photos at NC079

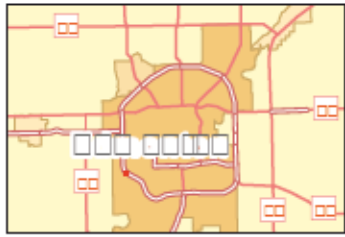
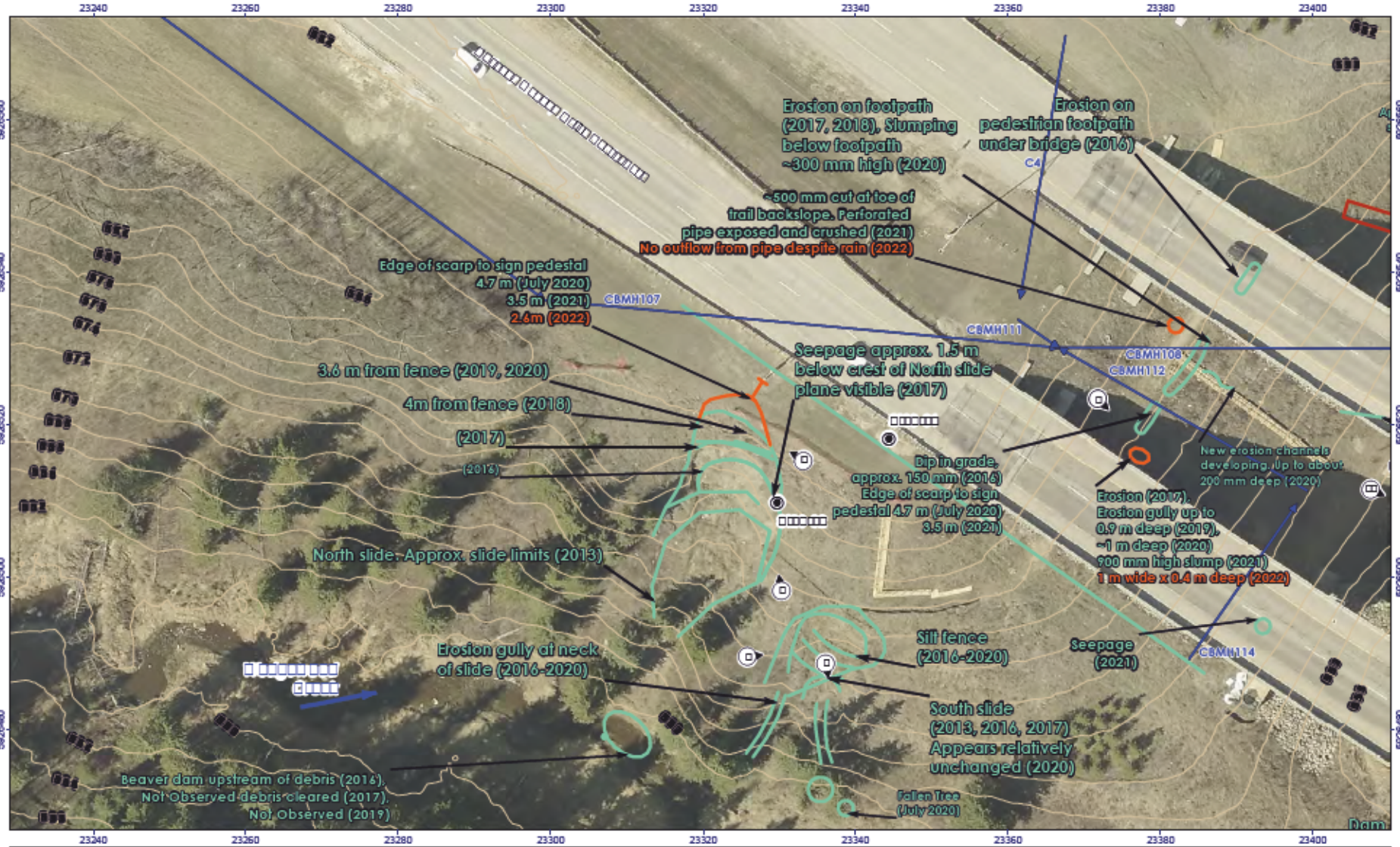


Photo 9: Progressing slump southeast from NW pedestal. Looking southeast.



Photo 10: Slope failure on east bank below AHD NB pedestal, erosion below AHD SB pedestal. Looking southeast.

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 Reviewed: 2022-10-06 By: DR\Robertson



- Construction Limit
- Instrument Location
- Photo Number and Direction
- Buried Pipe
- Previous Observation
- 2022 Observation
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)

0 10 20 metres
 (At original document size of 8.5x11)
 1:750

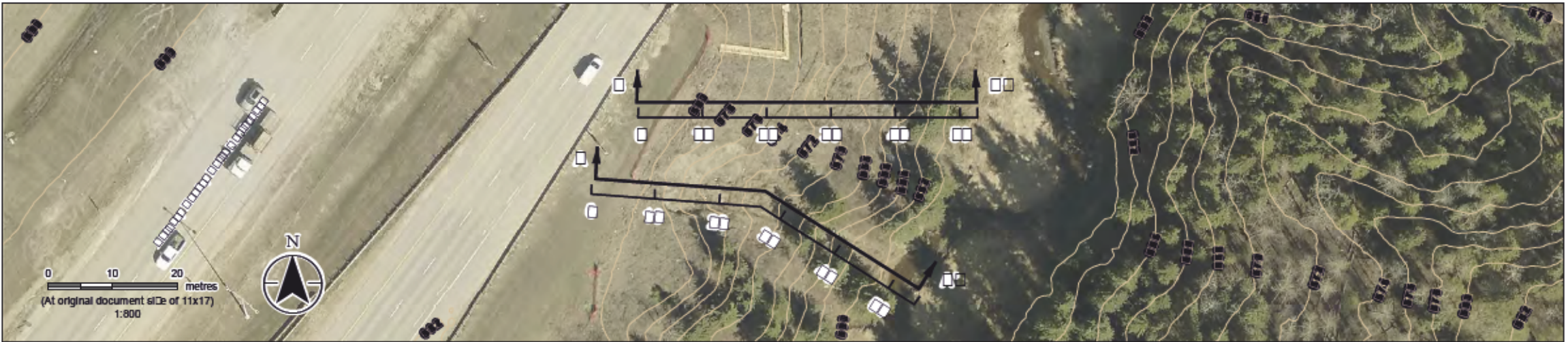
Coordinate System: NAD 1983 3TM 114
 Base features: Geogratis, Department of Natural Resources Canada, All rights reserved.
 Imagery: City of Edmonton, 2020.

Prepared by DR on 2022-09-28
 Quality Review by LC on 2022-09-28
 Independent Review by XL on 2022-09-28
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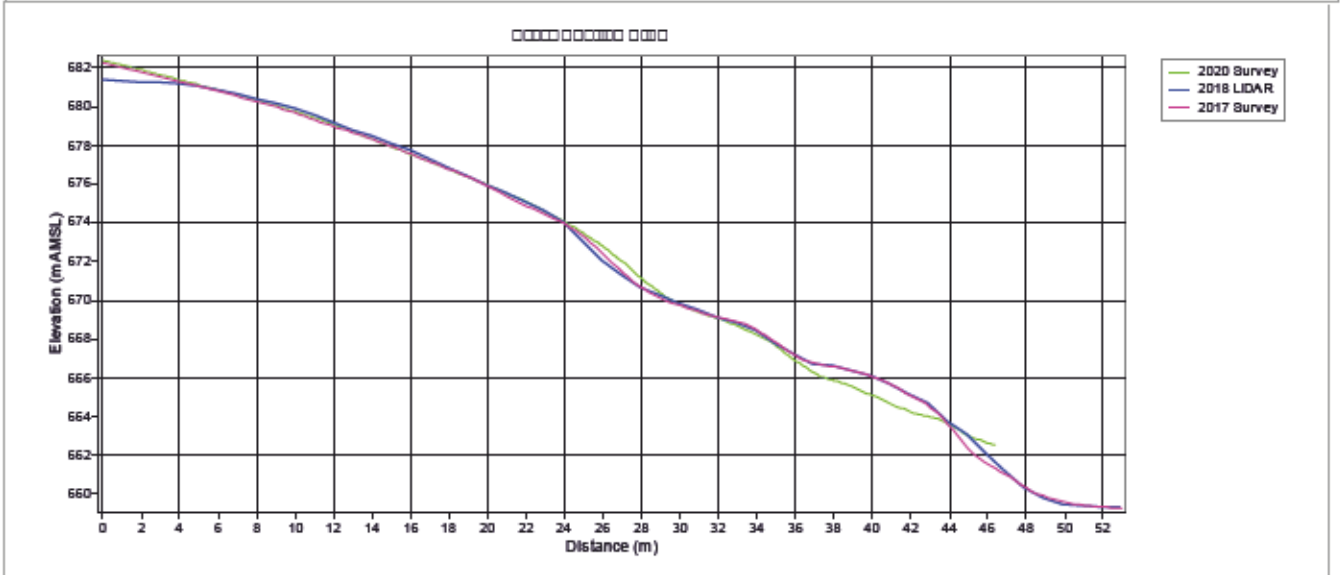
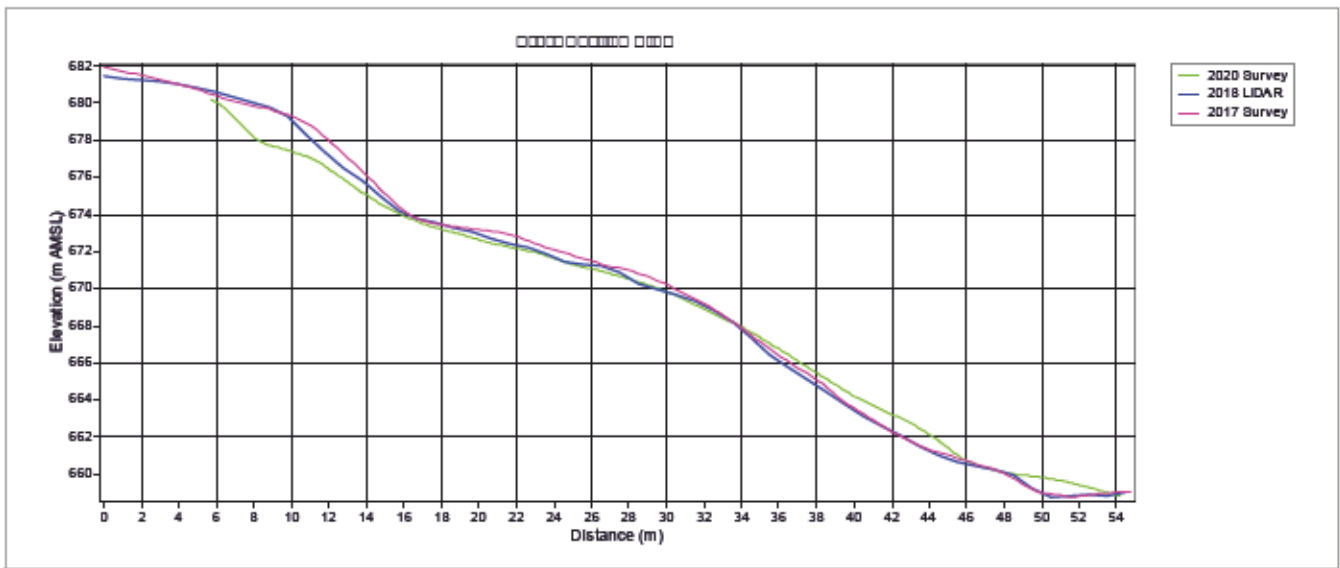
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 Geotechnical Monitoring Program
 NC79 Wedgewood Ravine Slides



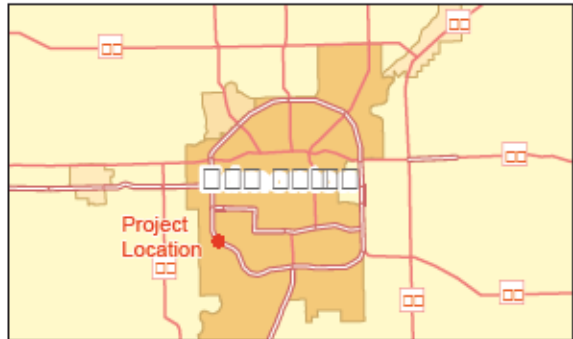
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Cross Section Location
 Ground Elevation Contours (m AMSL, LiDAR April-May 2018)



Coordinate System: NAD 1983 10TM AEP Forest
 Data Sources: Geographics, Department of Natural Resources Canada, All rights reserved.
 Imagery: City of Edmonton, 2019.
 Survey data obtained on July 21, 2020 by CIMAC



Prepared by DR on 2022-09-26
 Quality Review by LC on 2022-09-26
 Independent Review by XL on 2022-09-26

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