

SITE NUMBER AND NAME: NC079 – Wedgewood Ravine Slides	HIGHWAY AND KM: 216:06, km 12.849	PREVIOUS INSPECTION: June 1, 2023	CURRENT INSPECTION: June 20, 2024
LEGAL DESCRIPTION: SE 28-52-25-W4	NAD83 COORDINATES: UTM12U 5927932N, 324250E		RISK ASSESSMENT: PF: 7 CF: 10 Total: 70
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 73,970 (2023)		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 TEC: Kristen Tappenden, Ryan Luider
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. Summer/Fall 2022: two slope failures south of the northwest approach of AHD were repaired using soil nails. 2022/2023: Collector drain installed at toe of soil nailed slopes. 2023: The slope failure below the northernmost pedestal on the east bank was repaired by removing the slumped mass in a benched configuration and replacing with angular Class 1 riprap.	

ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X			X
Slope Movement	X		Slumping in between concrete pedestals on west slope.		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 (previous observations)		X
Bridge/Culvert Distress	X		Both outfalls are separated with water flowing under/around pipe. Settlement at northeast corner of the northern most pedestal.		X

COMMENTS
<ul style="list-style-type: none"> Repair of both the north and south slides near the northwest approach of AHD has been completed using soil nails. The repaired slopes were well vegetated, and no significant erosion was observed. A steel half-culvert collector drain has also been installed at the toe of the slope repair since the 2023 inspection. (Photos 1 to 3). The crest of the regraded slope is approximately 2.8 m south from SI20-01 and 3.3 m south from SI20-02 (Figure 1). Garbage and sediment was observed to have collected within the new collector drain below the slope repair (Photo 4).

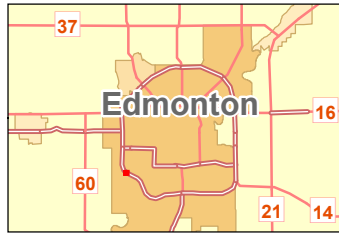
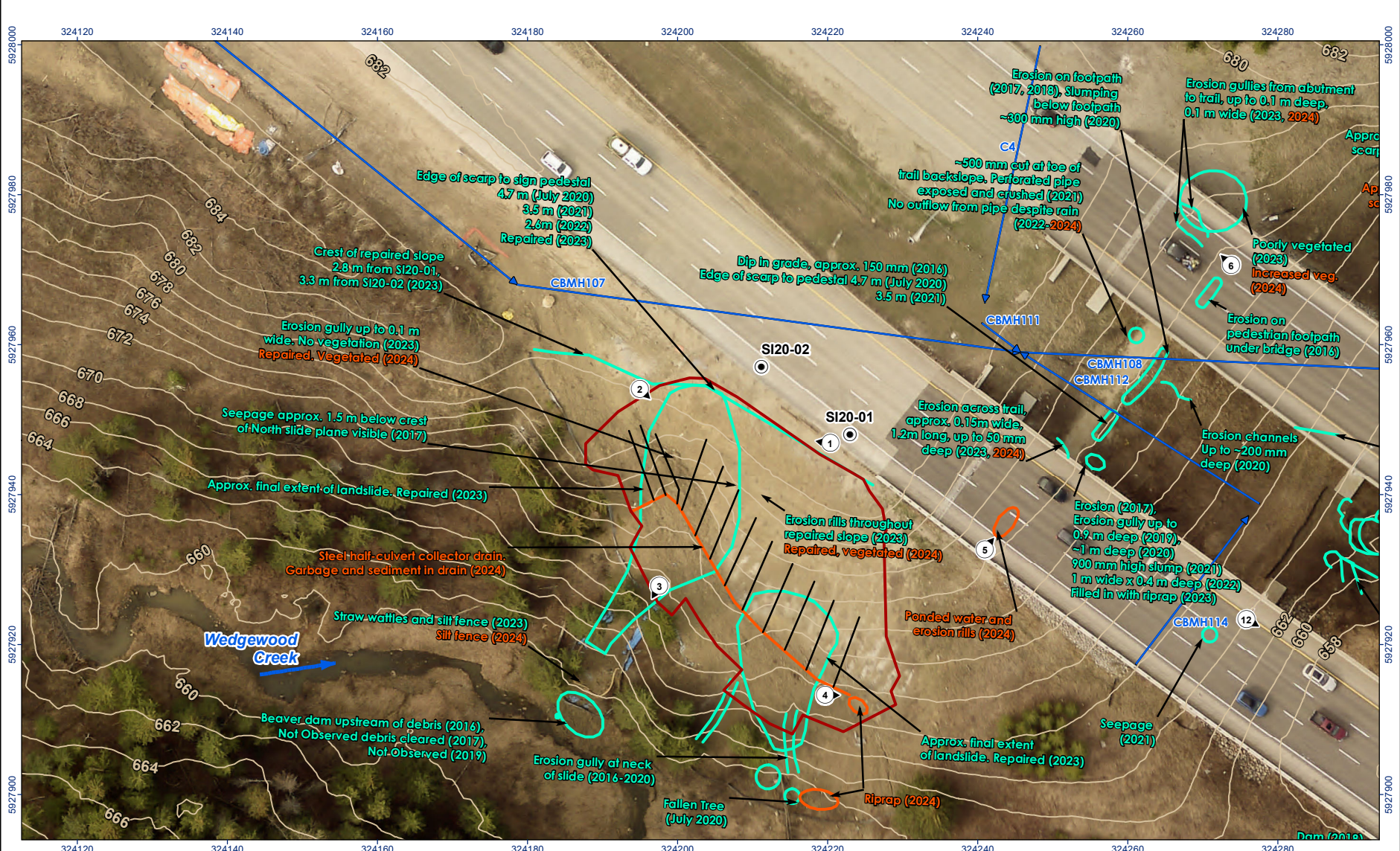
- Wedgewood Creek's water level was relatively low at time of inspection likely due to the relatively dry spring this year.
- Erosion rills were observed on the slope near the southwest end of the footpath near the northwest abutment for the SBL. Ponded water was observed on the footpath (Photo 5).
- An erosion gully was observed across the trail, northwest of the previous erosion/slumping at the north corner of the riprap below the southbound lane. The gully is approximately 0.15 m wide, 1.2 m long and up to 50 mm deep, similar to the measurement in 2023.
- Erosion gullies were observed at the north corner of the northbound lane abutment down to the trail. The gullies appeared relatively unchanged from 2023 and were up to 0.1 m deep and 0.1 m wide. The slope near the gullies is more vegetated than previously observed (Photo 6).
- Erosion was observed behind both outfalls located on the west and east sides of Wedgewood Creek north of AHD (Photos 7 & 8). Erosion above west outfall appears to be similar to 2023, with more tilting of the outfall.
- It is surmised that water is flowing out of the separated pipe upslope from the west outfall and eroding the west creekbank (Photo 7). A small channel has developed from the outfall to the creek due to erosion.
- East outfall condition looked similar to the previous inspection (Photo 9). The separation in the pipe behind the outfall has increased to 270 mm.
- The gap (fill settlement) at the northeast corner of the northernmost pedestal remained the same with a total settlement of 240 mm.
- The two slumps on the west slope between the concrete piers appear relatively unchanged from 2023 (Photo 10). The scarp of the north slump was measured to be 0.7 m away from the concrete pedestal.
- The erosion mat below the north pedestal on the west bank is exposed, but appears similar to 2023.
- The slope failure below the northernmost pedestal on the east bank has been repaired via removal and replacement with Class 1 angular riprap (Photo 11).
- The vegetation on the east bank below the AHD southbound pedestal appears to be dead, similar state to 2023 (Photo 12).
- The Probability Factor for the site has been decreased to 7 as a number of the slope failures have been repaired while others appear relatively inactive at this time or active with a perceptible movement rates. The primary concern at this site is now the erosion around the outfalls and distress to the outfall structure.

RECOMMENDATIONS

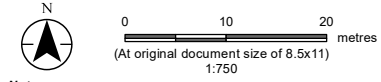
- The site should be regularly monitored by the MCI and/or current Southwest Anthony Henday Drive (SWAHD) Lane Widening team until remediation can be undertaken.
- Slope inclinometer data (SI20-01 and SI20-02) should be requested from the SWAHD geotechnical consultant for review and inclusion in the 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 understood to be scheduled for 2026. Given the time between design and construction, the design and tender package should be reviewed for feasibility and applicability against newer TEC specifications. The estimated cost for construction is approximately \$950,000 excluding engineering costs.
- Site inspections should continue annually.

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

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- Buried Pipe
- Construction / Remediation Limit
- Perforated Drains
- Previous Observation
- 2024 Observation
- Instrument Location
- Photo Number and Direction
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)



- Notes**
1. Coordinate System: NAD 1983 CSRS UTM Zone 12N
 2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
 3. Imagery: City of Edmonton 2023

Project Location
Edmonton, Alberta

Client/Project
Transportation and Economic Corridors
Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

Figure No.
1

Title
Site Plan

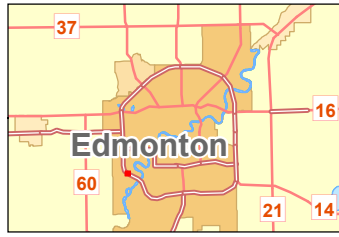
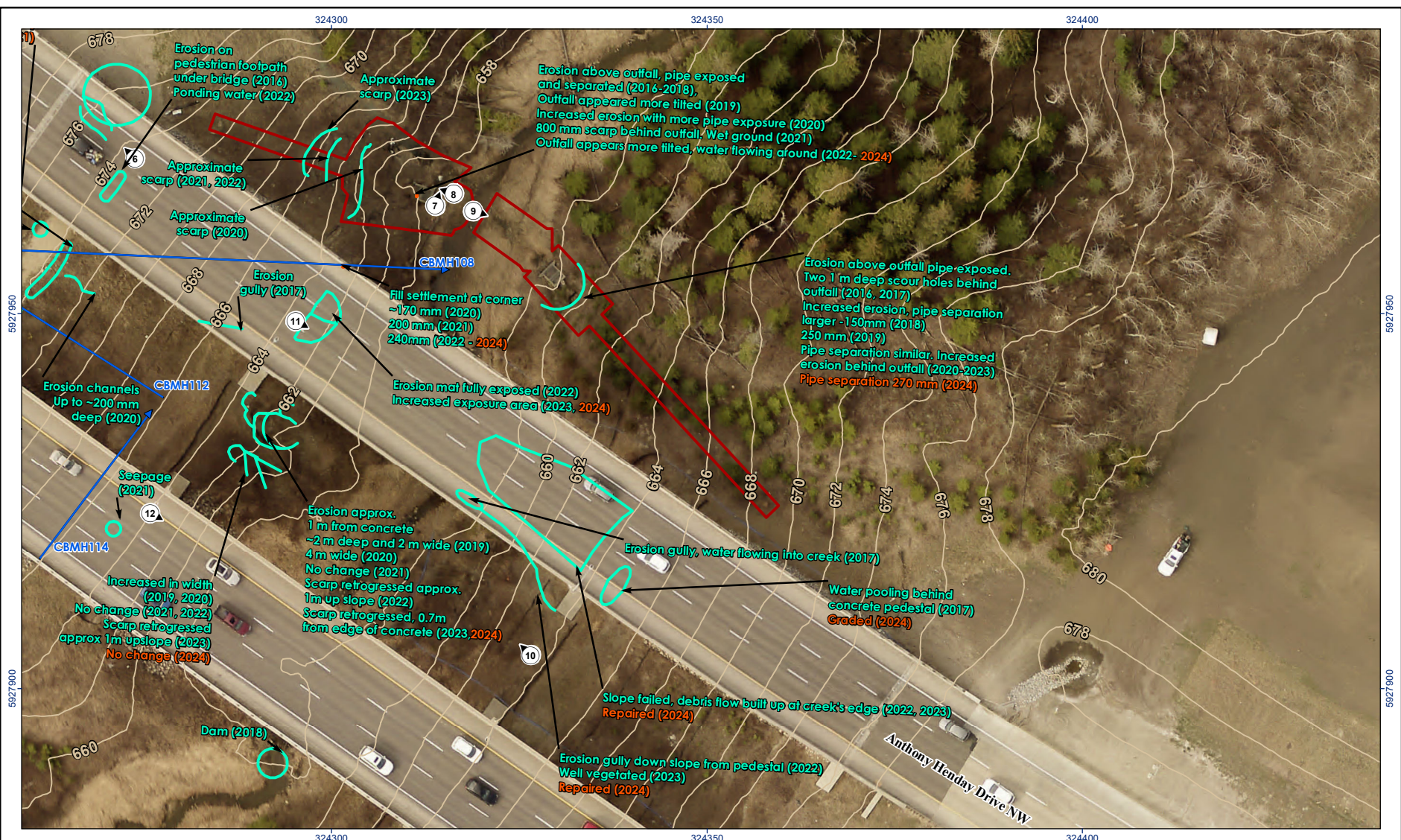
Prepared by SP on 2024-10-13
QR by SP on 2024-10-13
IR by LC on 2024-10-13

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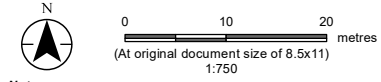


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- Construction Limit
- ➔ Buried Pipe
- Previous Observation
- 2024 Observation
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)
- Photo Number and Direction



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 2. Base features: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
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Figure No.
2

Title
Site Plan

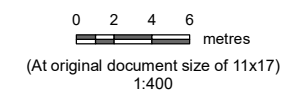
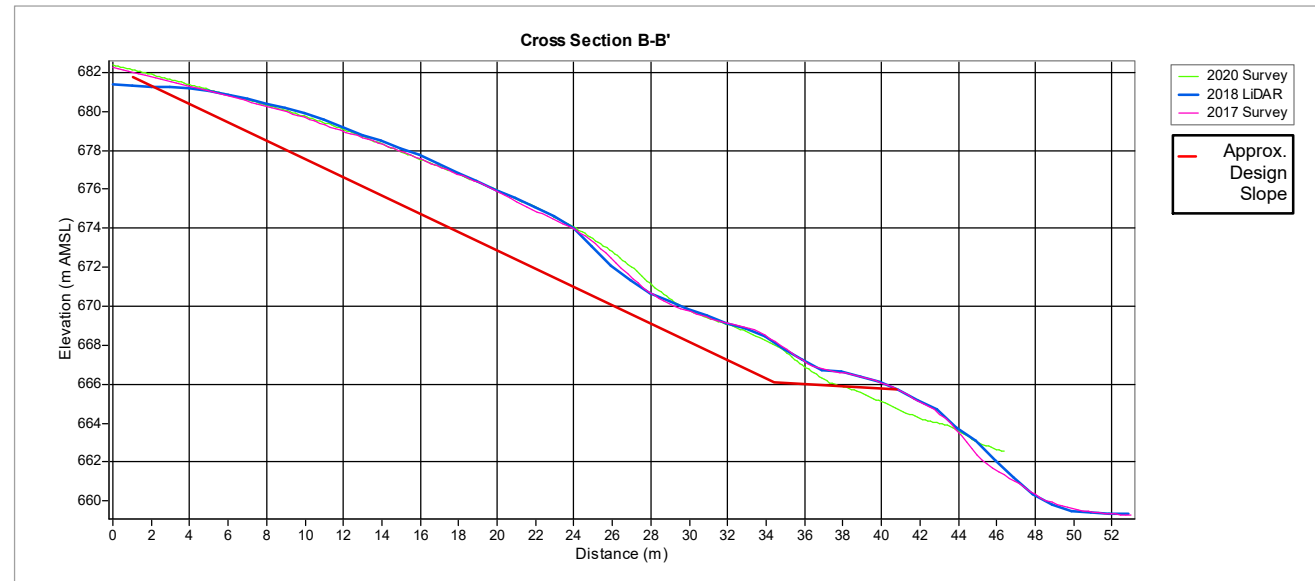
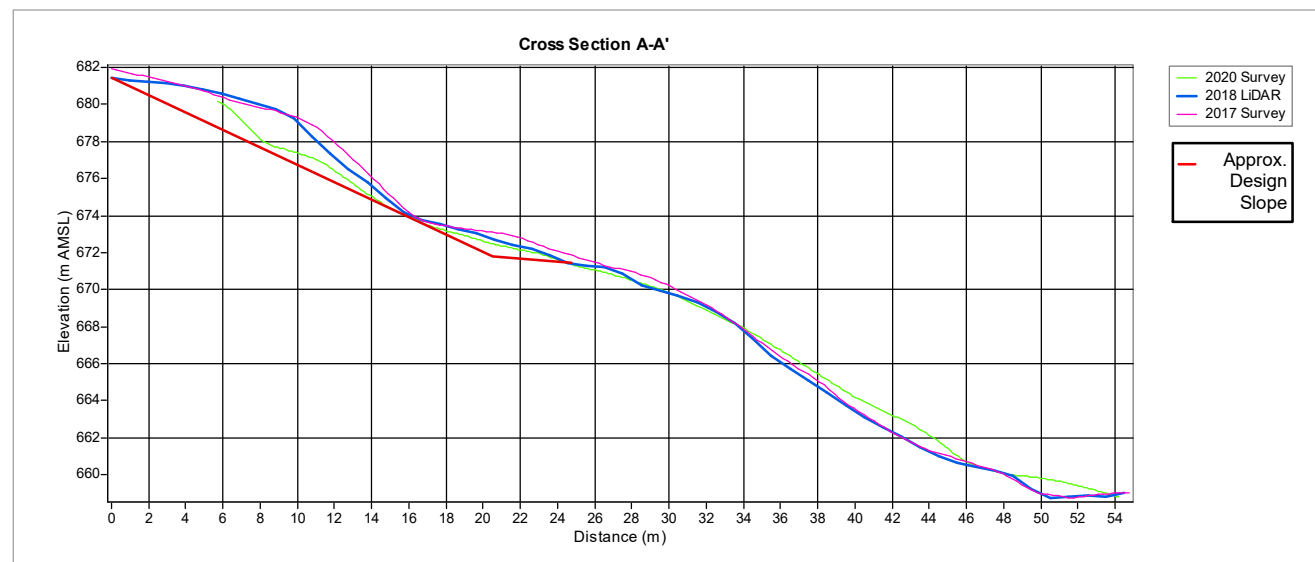
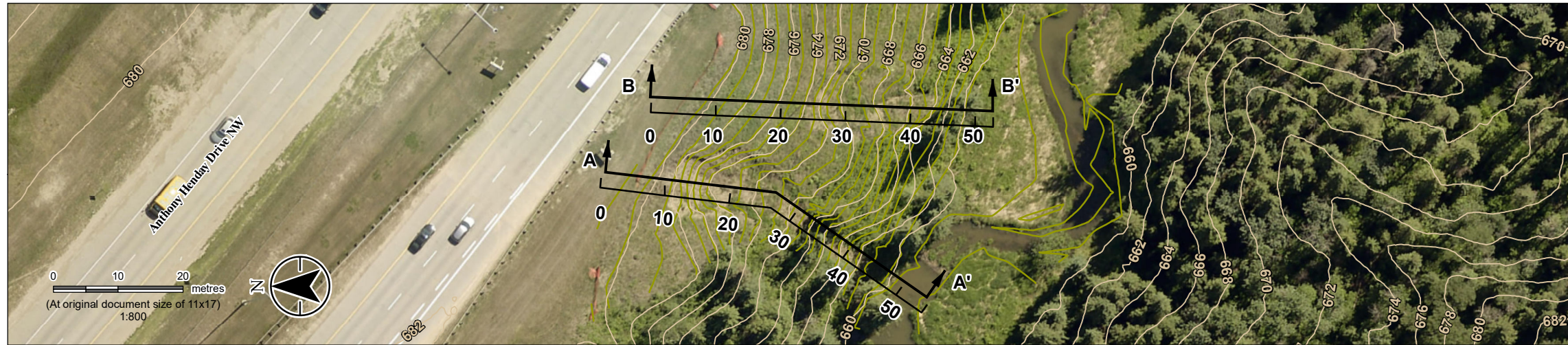
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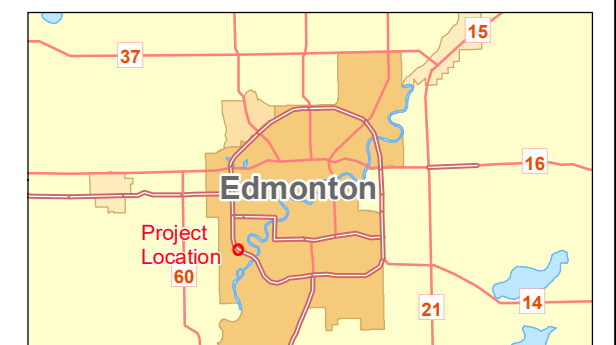


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- Cross Section Location
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)



- Notes**
1. Coordinate System: NAD 1983 UTM Zone 12N
 2. Data Sources: Geogatis, ©Department of Natural Resources Canada, All rights reserved.
 3. Imagery Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
 4. Survey data obtained on July 21, 2020 by CIMA+
 5. Design sections manually approximated based on IFT drawings for Wedgewood Creek Slope Remediation, Contract No. 0022191, Wood Project No. ET170036.



Project Location
Edmonton, Alberta

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Figure No.
3

Title
Ground Profile of Section A and B

2024 Site Inspection Photos at NC079



Photo 1: Soil nailed slope at north and south slides. Looking northwest.



Photo 2: Soil nailed slope at north and south slide area, collector drain installed at toe of repaired slope. Looking southeast.

2024 Site Inspection Photos at NC079



Photo 3: Repaired debris chute below soil nailed area north slide area. Looking southwest.

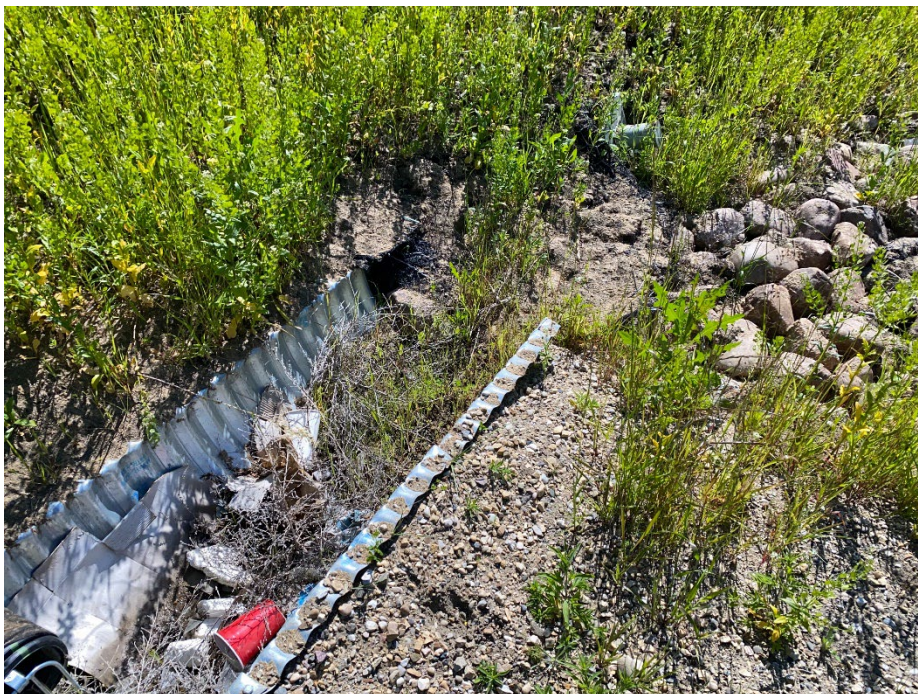


Photo 4: Garbage and sediment collecting in collector drain, sedimentation at outlet of channel. Looking east.

2024 Site Inspection Photos at NC079



Photo 5: Erosion and ponded water on footpath near NW abutment for SBL. Looking northeast.



Photo 6: Erosion gullies at the north corner of NW abutment. Looking northwest.

2024 Site Inspection Photos at NC079



Photo 7: Water from separated pipe eroding the creekbank north of the west outfall. Looking north.



Photo 8: Erosion above west outfall. Looking west.

2024 Site Inspection Photos at NC079



Photo 9: East outfall. Looking southeast.



Photo 10: West slope with two slumps between pedestals and erosion mat exposed below northernmost pedestal. Looking northwest.

2024 Site Inspection Photos at NC079



Photo 11: Repaired slope failure on east bank below AHD northbound pedestal. Looking southeast.



Photo 12: Dead vegetation on east bank below the AH southbound pedestal. Looking southeast.