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

| SITE NUMBER AND NAME: | HIGHWAY AND KM: | PREVIOUS INSPECTION: | CURRENT INSPECTION: |
|---|---|---|---|
| NC079 – Wedgewood Ravine Slides | 216:06, km 12.849 | May 21, 2020 | June 28, 2021 |
| **LEGAL DESCRIPTION:** | **NAD83 COORDINATES:** | | **RISK ASSESSMENT:** |
| SE 28-52-25-W4 | UTM12U 5927932N, 324250E | | PF: 11 CF: 8 Total: 88 |
| **AVERAGE ANNUAL DAILY TRAFFIC (AADT):** | | **CONTRACTOR MAINTENANCE AREA (CMA):** | |
| 66,510 (2020) | | Anthony Henday Drive (AHD) | |

| SUMMARY OF INSTRUMENTATION: | INSPECTED BY: |
|---|---|
| No instrumentation installed at this site.<br>**LAST READING DATE:** N/A | Stantec: Leslie Cho and Owen Zhang<br>AT: Bernard Ching and Rishi Adhikari |

**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

**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. | 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**

- 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 1.2 m further towards the highway since the July 2020 call-out. The run-out is encroaching into the creek and reduced it to less than 0.5 m width. (Photos 1 to 3)
- The upper scarp of the south slide looks relatively unchanged (Photo 4). Additional slumping observed further downslope consisting of three smaller scarps up to about 3 m high (Photo 5).
- Riprap between the eastbound east abutment and piers extended south since the previous site visit.
- Seepage observed on the west slope between the riprap and piers (Photo 6).
- Wedgewood Creek level relatively low at time of inspection.

- Erosion/slumping of the footpath at the north corner of the riprap below the SBL developing a scarp (Photo 7). Scarp is about 900 mm high and is starting to retrogress into footpath. Surface water appears to be flowing between the highway towards this slump.
- Erosion observed behind both outfalls located on the west and east sides of Wedgewood Creek north of AHD (Photo 8). Erosion above west outfall appears to be retrogressing further upslope with a new scarp developed (Photo 9). East outfall condition looked similar to the previous inspection (Photos 10 and 11).
- The gap (fill settlement) at the northeast corner of the northernmost pedestal increased by 30 mm to 200 mm.
- The two slumps on the west slope between the concrete piers appear unchanged (Photo 12).

**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.
- 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 $800,000 adjusting for the removal of the Tecco mesh and excluding engineering costs. This cost also includes outfall repair for the nearby NC67.
- Site inspections should continue annually.

| **PREPARED BY:** Leslie Cho, M.Eng., P.Eng. | **REVIEWED BY:** Carrie Murray, M.Eng., P.Eng. |
|---|---|
| PROFESSIONAL ENGINEER ALBERTA<br>LESLIE CHO<br>2021-10-08<br>ID# 139079 | PERMIT TO PRACTICE<br>STANTEC CONSULTING LTD.<br>Signature<br>Date 13-Oct-2021<br>PERMIT NUMBER: P 0258<br>The Association of Professional Engineers and Geoscientists of Alberta<br>ID# 74389 |

2021 Site Inspection Photos at NC079


**Photo 1:** Edge of scarp approximately 3.5 m away from sign pedestal. Looking southeast.

**Photo 2:** Scarp at north slide. Looking north.

2021 Site Inspection Photos at NC079

**Photo 3:** Run-out at north slide encroaching into Wedgewood Creek. Looking west.

**Photo 4:** Scarp at south slide. Looking northeast.

2021 Site Inspection Photos at NC079

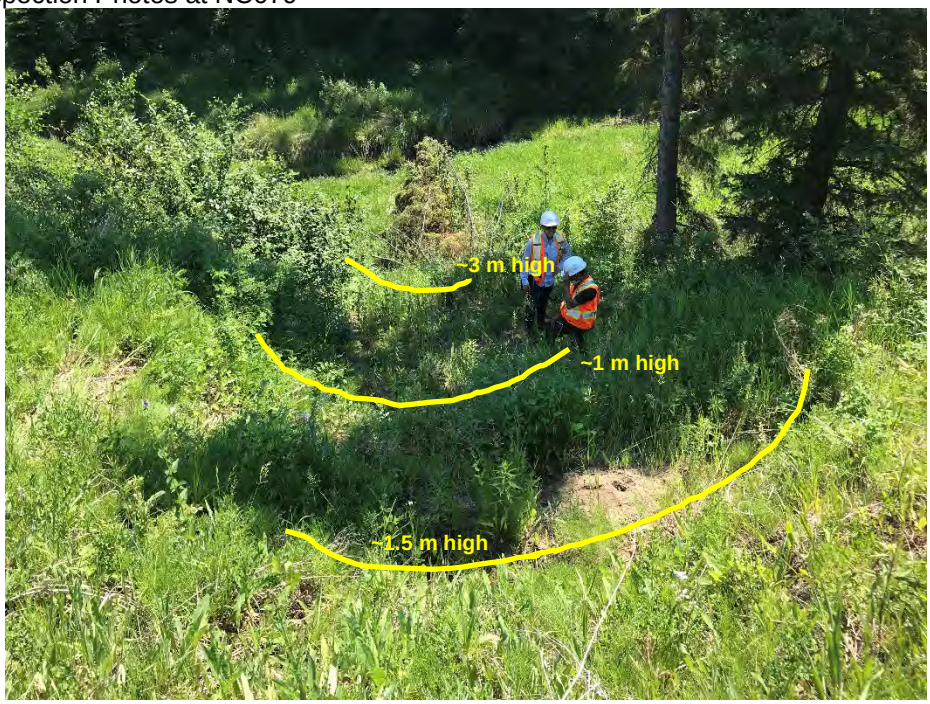



**Photo 5:** Successive scarps below Photo 4. Looking south.


**Photo 6:** Riprap extended under southbound lane. Looking southeast.

2021 Site Inspection Photos at NC079

**Photo 7:** Erosion/slump retrogressing to footpath. Looking southeast.

**Photo 8:** Erosion and wet soil behind west outfall. Looking east

2021 Site Inspection Photos at NC079

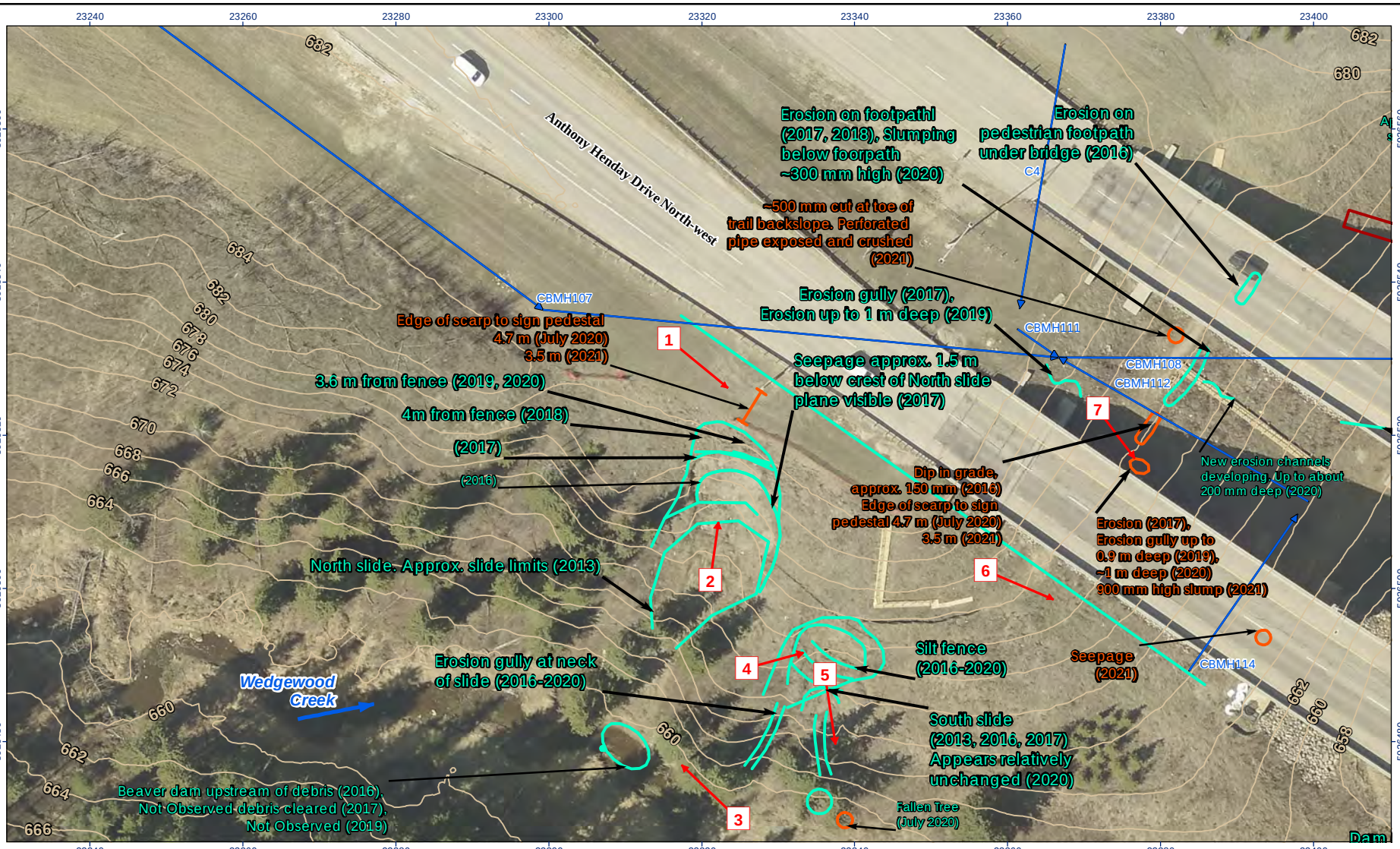

**Photo 9:** Erosion above west outfall. Looking west.

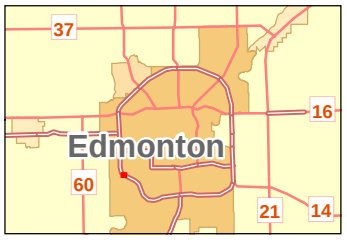
**Photo 10:** Separation behind east outfall. Looking south.

2021 Site Inspection Photos at NC079

**Photo 11:** East outfall. Looking southeast.

**Photo 12:** Two slumps between the two concrete pedestals for bridge piers. Looking northwest.




- Construction Limit
- Buried Pipe
- Previous Observation
- 2021 Observation
- Ground Elevation Contours (m AMSL, LiDAR April-May 2018)
- 1 Photo Number and Direction

N

0 10 20 metres

(At original document size of 8.5x11)
1:750

**Notes**

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

Stantec

*Project Location*
Edmonton, Alberta

Prepared by AK on 2021-09-02
Quality Review by LC on 2021-09-14
Independent Review by CM on 2021-09-14

*Client/Project* 123315222
Alberta Transportation
Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

*Figure No.*
**1**

*Title*
**Site Plan - North and South Slides**

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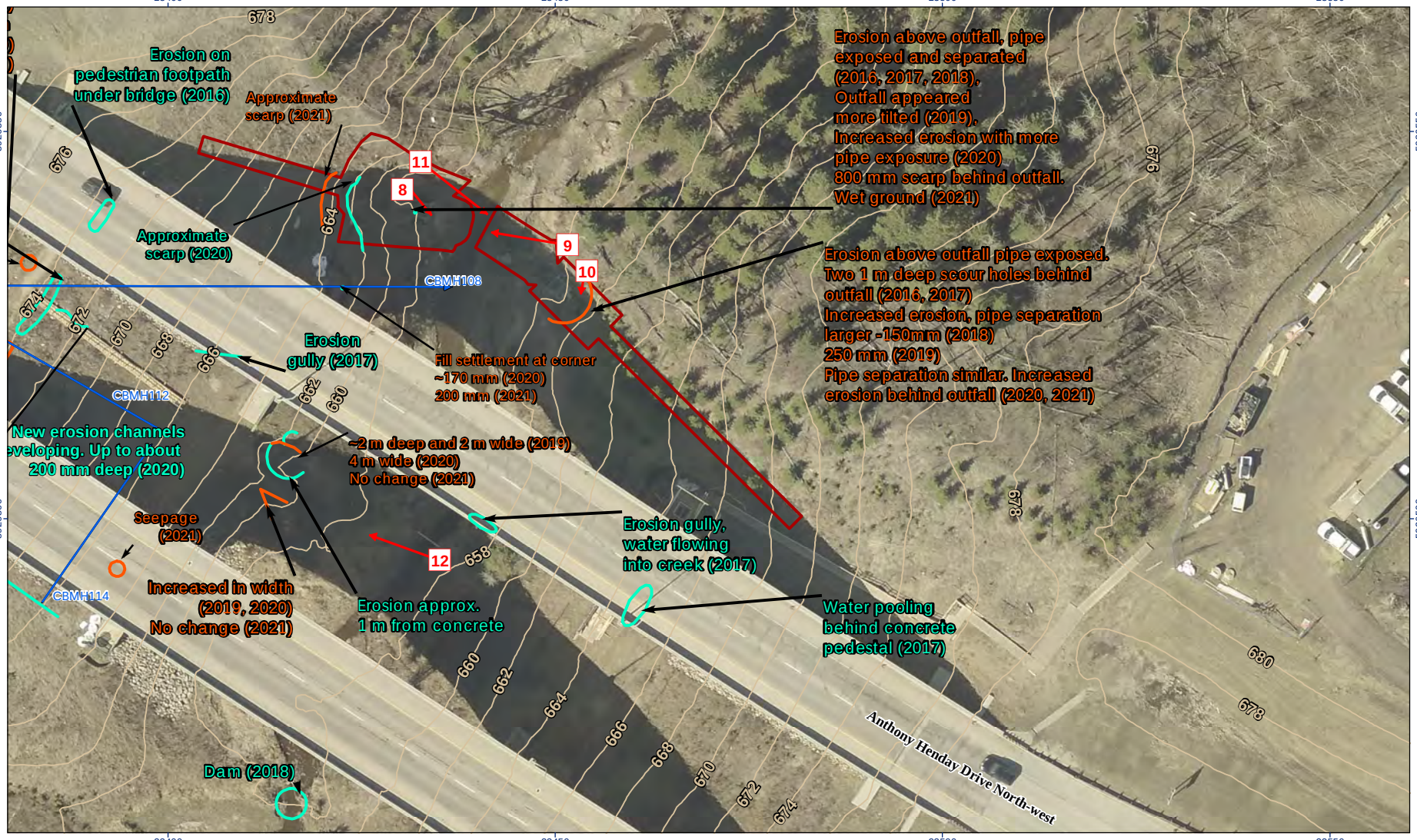


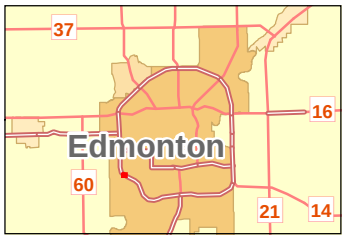


Construction Limit
Buried Pipe
Previous Observation
2021 Observation
Ground Elevation Contours (m AMSL, LiDAR April-May 2018)
Photo Number and Direction

N

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

**Notes**
1. Coordinate System: NAD 1983 3TM 114
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3. Imagery: City of Edmonton, 2019.

Stantec

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*Client/Project*
123315222
Alberta Transportation
Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

*Figure No.*
**2**

*Title*
**Site Plan - Outfall Area**

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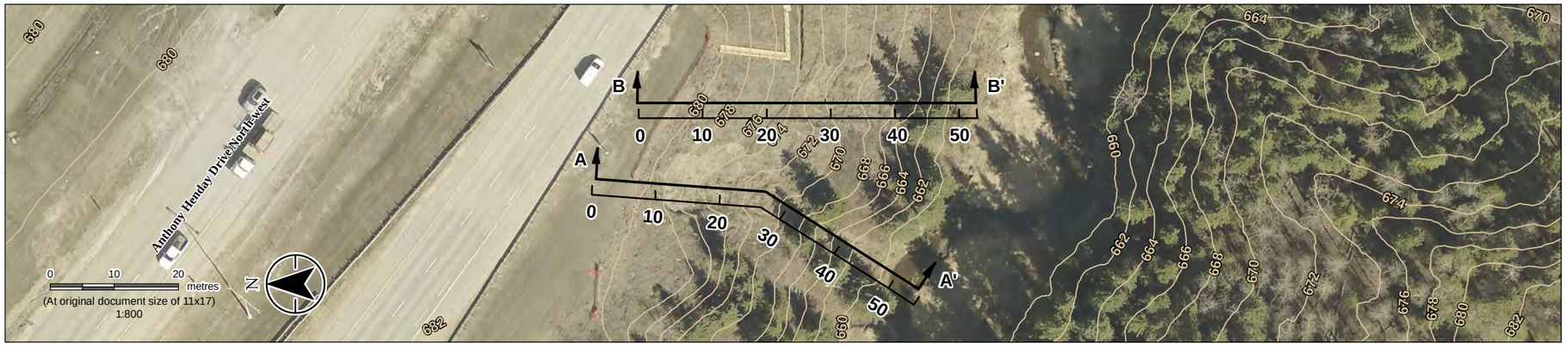


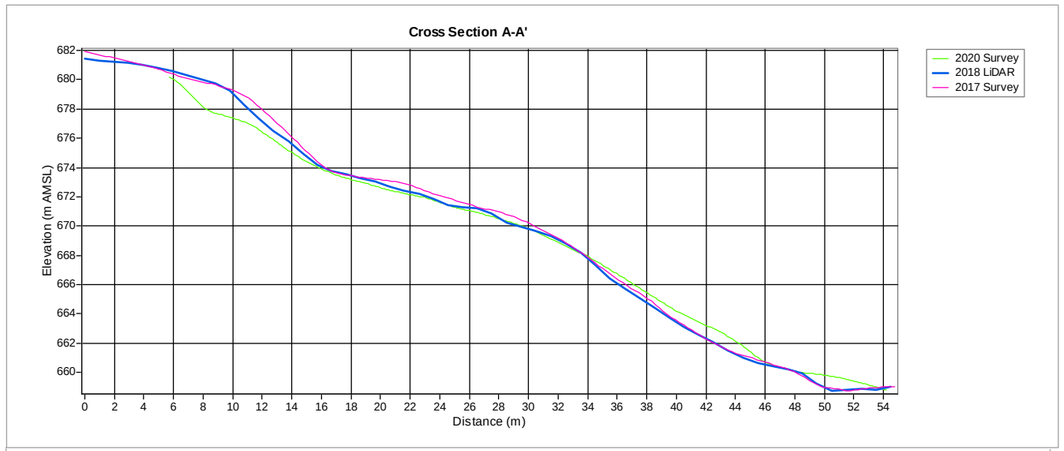


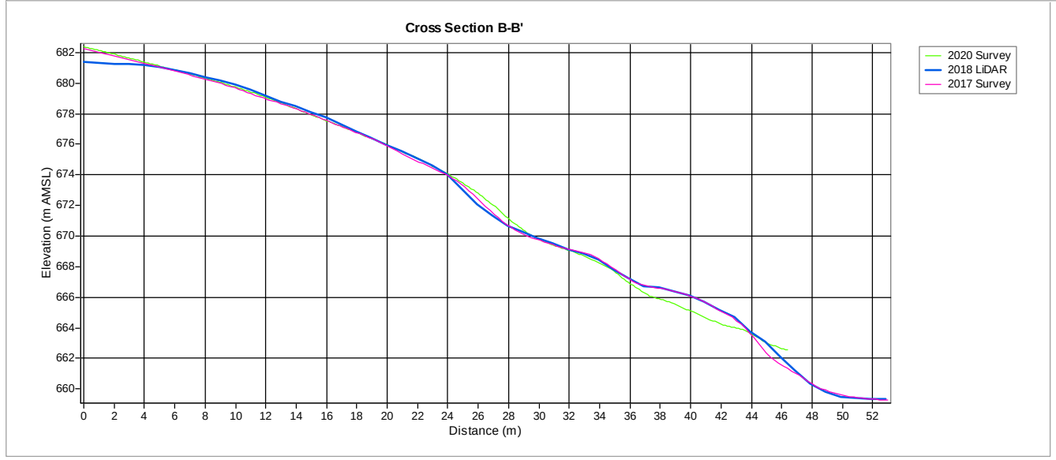


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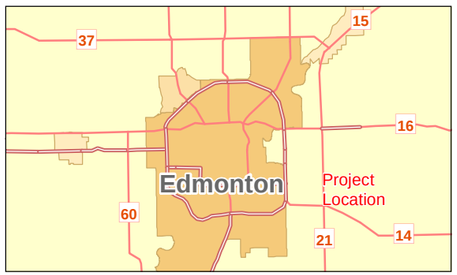
(At original document size of 11x17)
1:400

Stantec

Cross Section Location

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

***Notes***
1. Coordinate System: NAD 1983 3TM 114
2. Data Sources: Geogratis, ©Department of Natural Resources Canada, All rights reserved.
3. Imagery: City of Edmonton, 2019.
4. Survey data obtained on July 21, 2020 by CIMA+




*Project Location*
Edmonton, Alberta

Prepared by AK on 2021-09-03
Quality Review by LC on 2021-09-14
Independent Review by CM on 2021-09-14

*Client/Project* 123315222
Alberta Transportation
Geohazard Monitoring Program
NC79 Wedgewood Ravine Slides

*Figure No.*
**3**

*Title*
**Ground Profile of Section A and B**