PEACE REGION
(GRANDE PRAIRIE DISTRICT – SOUTH) GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME:	HIGHWAY & KM:	PREVIOUS INSPECTION DATE:	INSPECTION DATE:
GP042 Wanyandie Creek Embankment Slide **GP050 Bin Wall Slide**	40:36, 37.524 & 37.917	**GP042:** May 28, 2019 **GP050:** May 28, 2017	**June 2, 2025**

LEGAL DESCRIPTION:	NAD 83 COORDINATES: UTM	Northing	Easting	RISK ASSESSMENT:
NE 16-59-06-W6M	11	5996900	379900	**GP042:** PF: 9 CF: 2 TOTAL: 18
SE 21-59-06-W6M	11	5997170	380027	**GP050:** PF: 1 CF: 5 TOTAL: 5

AVERAGE ANNUAL DAILY TRAFFIC (AADT):	CONTRACT MAINTENANCE AREA (CMA):
401 (north) & 408 (south) (Reference No. 60403650, 2024)	504

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
Operable: Six slope inclinometers (SIs), nine vibrating wire piezometers (VWPs), one shape accelerometer (SAA), and seven vibrating wire load cells installed in 2020 and 2022 at the GP042 and GP050 sites. Inoperable: Two SIs, fifteen VWPs, and six standpipes (SPs) installed in 2020 and 2022. LAST READING DATE: June 4, 2025	Chris Gräpel (KCB) Courtney Mulhall (KCB) Babatunde Awokunle (TEC) Rocky Wang (TEC)

PRIMARY SITE ISSUE: A series of landslides and slope failures on east (downslope) and west (upslope) sides of Hwy 40:36. Some of which have been repaired. Seepage and high groundwater levels appear to exacerbate slide movements. These sites are located along the west valley slope of the Smoky River.

APPROXIMATE DIMENSIONS: Entire site is approximately 700 m long.

DATE OF ANY REMEDIAL ACTION: Uknown – construction of binwall and installation of subdrains in the backslope with manholes and outfalls. 2021 to 2023 (Contract No. CON0022001) – repairs completed as described below.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	None observed at time of 2025 inspection.		X
Slope Movement	X		Some shallow slumping and toe rolls on highway backslope where recently repaired. Slide on east side of highway near south side of site continues to retrogress towards highway.	X	
Erosion		X	None observed at time of 2025 inspection.		X
Seepage	X		Some seepage from rock slope on west side of highway at north end of site. Seepage previously observed at several locations around site.		X
Culvert Distress		X	None observed at time of 2025 inspection.		X

COMMENTS

Previous Remedial Actions:

Repair work completed between 2021 and 2023 included (see attached record drawing for the repairs prepared by Thurber Engineering Ltd.):

- excavating and reconstructing the slope on the east side of the highway impacted by the slide near the south end of the site with granular fill, a shear key, and a buried perforated pipe subdrains;
- installing three drilled cast-in-place concrete pile walls on the east side of the highway (Photos 2, and 8 through 10), with concrete walers and buried perforated pipe subdrains that discharge into riprap-lined swales, as follows:
    - pile wall 1 (73 piles, 1.2 m diameter, 13.5 m to 17.5 m deep) installed south of the existing binwall with tie-back anchors along the south half of the wall,
    - pile wall 2 (83 piles, 1.5 m diameter, 12.4 m deep) installed downslope of the existing binwall, and
    - pile wall 3 (37 piles, 1.2 m diameter, 13.9 m deep) installed north of the existing binwall;
- flattening the backslope on the west side of the highway and constructing finger drains, French drains, and swales on the backslope;
- installing a subdrain with two 1.2-m-diameter corrugated steel pipe (CSP) manholes in the west highway ditch; and
- installing a 1-m-diameter CSP culvert below the highway with a riprap-lined swale on either end.

Visual Observations:

- Slide on the east side of the highway near the south end of the site continues to retrogress towards the highway (Photos 1, 6, and 7, WP048). At the time of the 2025 inspection, the slide scarp was approximately 15 m from the guardrail and 3.5 m below edge of pavement. The slide scarp is unvegetated, indicating recent movement.
- Small shallow slumping/slope failures and toe rolls observed on backslope along west side of the highway (Photos 3, 4, and 12).
- Low area beneath the south pile wall on the east side of the highway, where there is a second row of anchors, is damp (Photos 3 and 10). Low area could have been excavated to provide access for installation of the lower row of anchors.
- Backslope on west side of the highway near the north end of the site consists of bedrock with a thin cover of soil (Photos 5 and 13). The soil is slumping because of saturation from seepage.
- Vegetation is beginning to re-establish where repairs were recently completed. Some trees growing through binwall (Photo 9).

Maintenance/Repair/Monitoring Recommendations:

- Designers should review the monitoring data and reports for the sites to verify the repairs, including the pile walls, are performing as expected.

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation and Economic Corridors (Client) (Client) for the specific application to the Peace Region (Grande Prairie District – South) Geohazard Risk Management Program (Contract No. CON0022166), and it may not be relied upon by any other party without KCB's written consent.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

1. The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.
2. The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
3. The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
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5. This report is electronically signed and sealed and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.

Courtney Mulhall, M.Sc., P.Eng.
Geotechnical Engineer

PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 15 Oct. 2025

PERMIT NUMBER: P009196
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Legend

- GPS Waypoint (June 02, 2025)
- Slope Inclinometer (TH-DS#, SI22-W#, SAA22-P#)
- Standpipe Piezometer (TH20-B#, TH20-D#)
- Vibrating Wire Piezometer (VW)

Metres
0 250

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 11N
3. IMAGE SOURCE: 2025 MICROSOFT CORPORATION, 2025 MAXAR, CNES
4. STRIKETHROUGH INDICATES INSTRUMENT IS INOPERABLE. INSTRUMENT LOCATIONS APPROXIMATE. INSTRUMENTS INOPERABLE PRIOR TO 2021 MAY NOT BE SHOWN.

CLIENT: Alberta

Klohn Crippen Berger

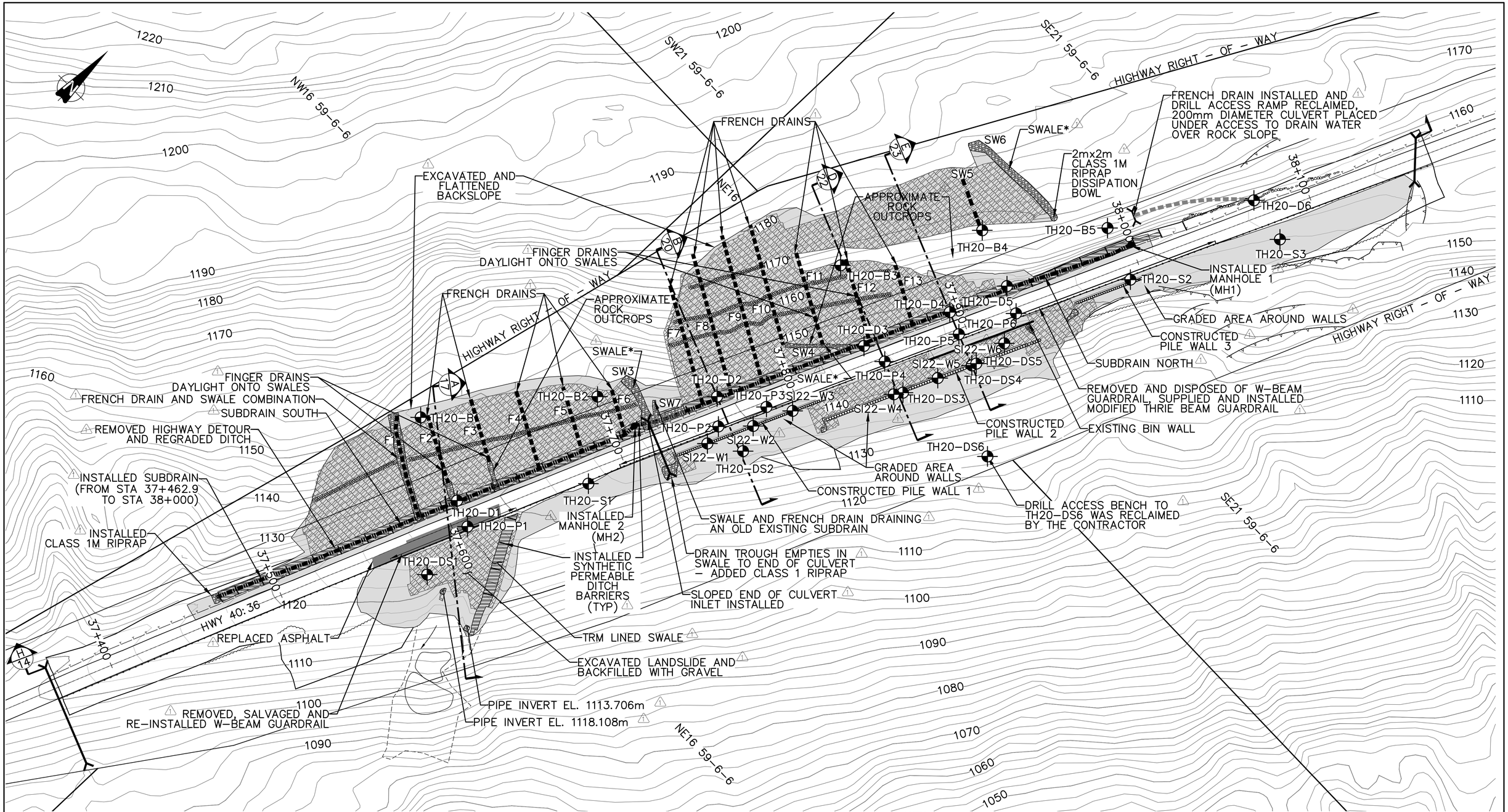
PROJECT: PEACE REGION (GRANDE PRAIRIE DISTRICT-SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
GP042 - Wanyandie Creek Embankment Slide
Hwy 40:36, km 37.524

SCALE	PROJECT No.	FIG No.
1:3,000	A05116A01	1

Last updated on *Thursday, July 10, 2025* by *HMarandiyan*
File: "Z:\AIEDM\A05116A01 ABT Grande Prairie South GRMP\400 Drawings\GIS\MXD\2024\Section C\ABT_GPSouth_SectionC_241202\ABT_GPSouth_SectionC_241202.aprx"

DRAWING 22001-202102-RD-C011
HIGHWAY 40:36
CONTRACT 22001
DESCRIPTION SITE PLAN SHOWING OVERALL AS-BUILTS
PHOTO
DATE
BY
SURVEYED
DEPARTMENT BAR CODE



LEGEND

- APPROXIMATE TEST HOLE LOCATION
- HIGHWAY 40:36
- LANDSLIDE SCARP CRACK
- GUARD RAIL
- BURIED COMMUNICATION CABLE
- GROUND SURFACE CONTOUR IN METRES (CONTOUR INTERVAL = 2m)
- TREE LINE
- CENTERLINE OF SUBDRAIN
- STRAW ROLL
- EROSION CONTROL BLANKET
- TRM AREA
- ROCK ARMOUR (CLASS 1M RIPRAP)
- * REFER TO SECTION Z ON DWG. 22001-202102-RD-C018 FOR SWALE DETAIL.

NOTES:

1. BASE PLAN PROVIDED BY WSP, SITE SURVEYED ON JUNE 26, 2020.
2. NAD83 UTM 11 COORDINATE SYSTEM.
3. GROUND SURFACE CONTOURS OUTSIDE SURVEY LIMITS FROM 2005 LIDAR.
4. GREY GRADED AREAS SHOW AS-BUILT GROUND SURFACE CONTOURS AS SURVEYED BY WSP IN 2022/2023.

0 10 20 30 40 50m
SCALE: 1:1000

THIS RECORD DRAWING INDICATES THAT THE CONSTRUCTED PROJECT SUBSTANTIALLY COMPLIES WITH THE DESIGN DRAWINGS AND ALL APPROPRIATE CONTRACT PLANS AND SPECIFICATIONS

CONSULTANT
THURBER ENGINEERING LTD.
29190

DESIGNER
ORIGINAL DESIGN COMPLETED BY:
NICOLE WILDER
2021-03-18
THURBER ENGINEERING LTD.

FIELD REVIEW ENGINEER
DATE

REV	DATE	REVISION	BY
5			
4			
3			
2			
1	2023-09-20	RECORD DRAWINGS	NPW

Alberta Transportation

HWY 40:36 KM 37.4 TO 38.2
LANDSLIDE REPAIRS (GP042)
SITE PLAN SHOWING OVERALL AS-BUILTS

DATE	LOCATION	SITE	CONTRACT	HIGHWAY	SHEET	DRAWING
2023-09-20	NE16/SE21-59-6-W6M	GP042	22001	40:36	11 OF 34	22001-202102-RD-C011 1

Inspection Photographs

Photo 1 **Overview of GP042 and GP050 sites on Hwy 40:36. UAV photo taken June 2, 2025, facing north from south end of site.**

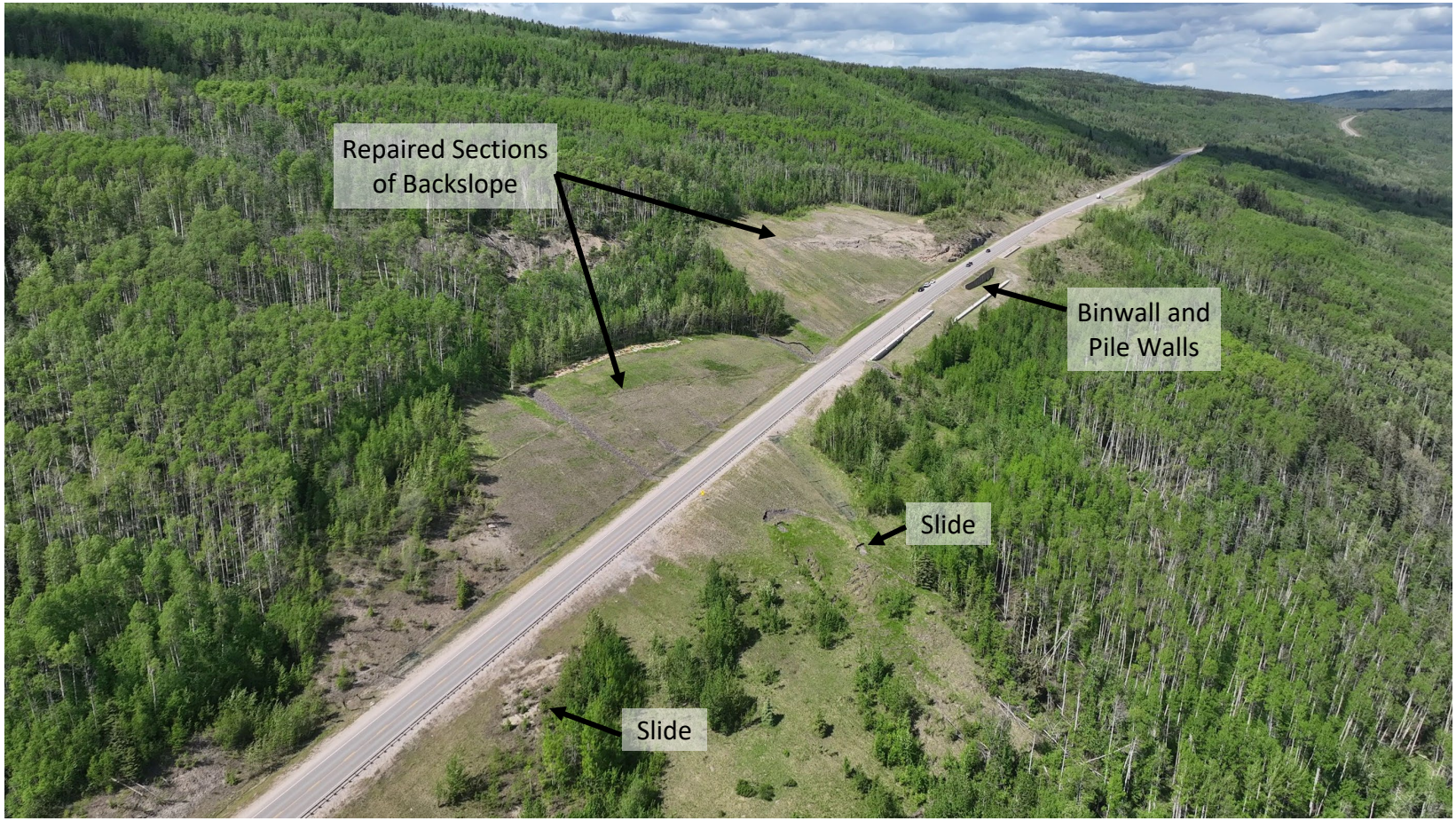


Photo 2 **South portion of site. Note slides on east (downslope) side of Hwy 40:36. UAV photo taken June 2, 2025, facing northeast.**

Photo 3 **Middle portion of site. Note low wet area in front of south pile wall on east (downslope) side of Hwy 40:36, and slumping and toe rolls on west (upslope) side of Hwy 40:36. UAV photo taken June 2, 2025, facing northwest.**

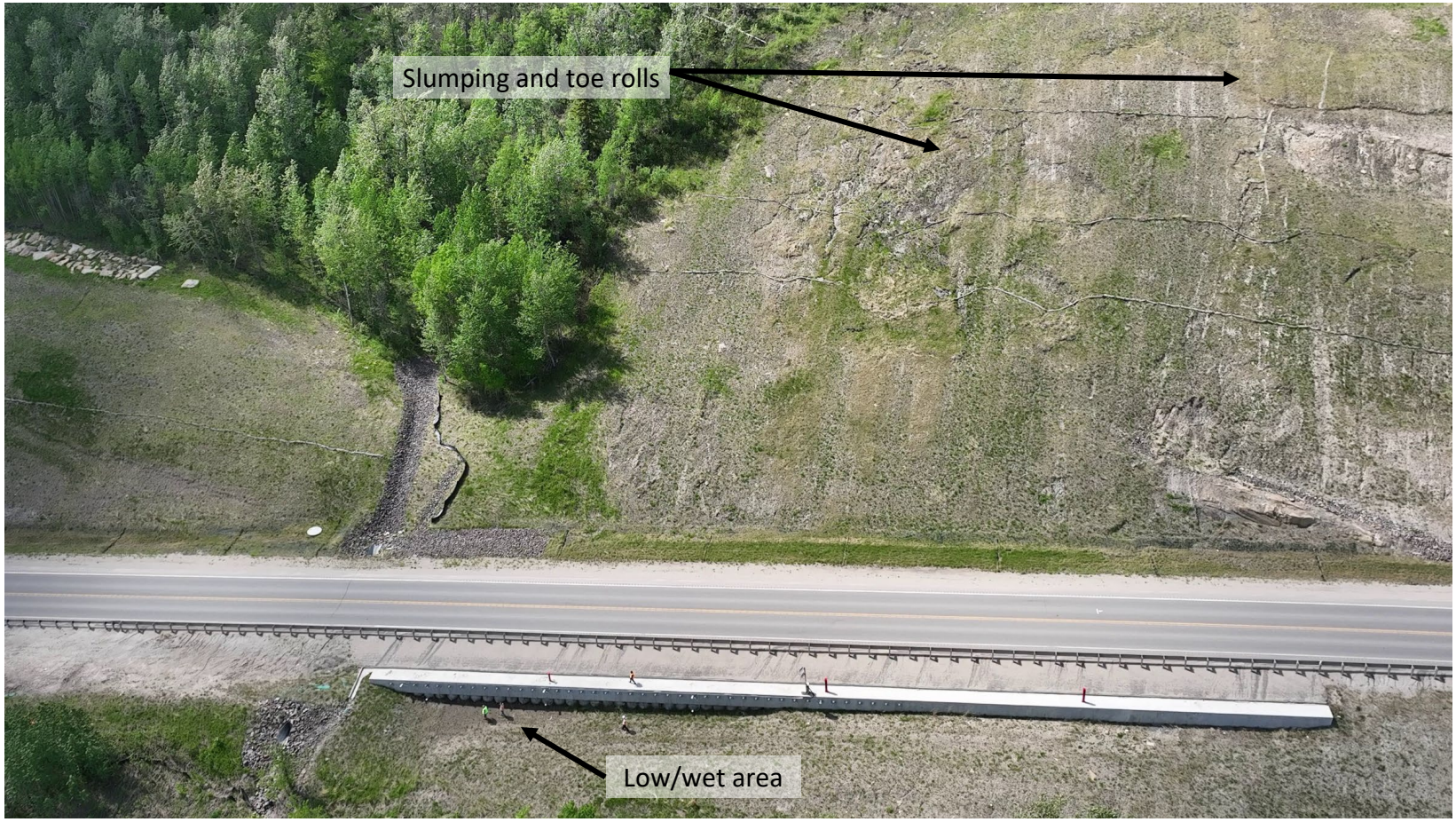


Photo 4 **North portion of site. Note binwall and three pile walls on east (downslope) side of Hwy 40:36, and slumping and toe rolls on west (upslope) side of Hwy 40:36. UAV photo taken June 2, 2025, facing northwest.**

Photo 5 **Overview of GP042 and GP050 sites on Hwy 40:36. Note rock slope on west (upslope) side of Hwy 40:36. UAV photo taken June 2, 2025, facing southwest from north end of site.**

Photo 6 **Slide on east (downslope) side of Hwy 40:36. Photo taken June 2, 2025, facing northeast.**

Photo 7 **Slide scarp on east (downslope) side of Hwy 40:36. Note slide scarp is unvegetated indicating recent movement. Photo taken June 2, 2025, facing southwest.**

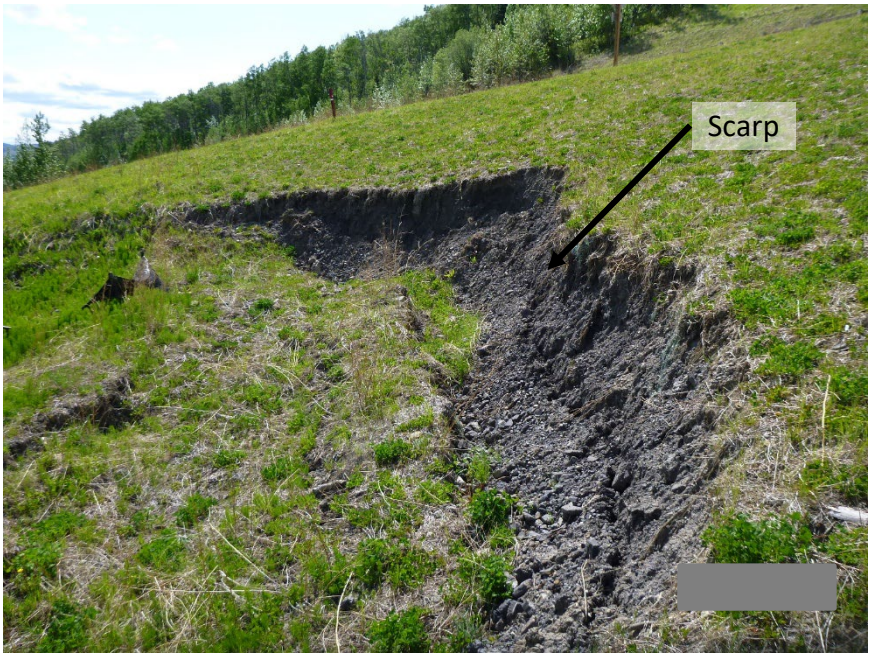


Photo 8 **North pile wall on east (downslope) side of Hwy 40:36. Photo taken June 2, 2025, facing north.**

Photo 9 **Binwall and middle pile wall on east (downslope) side of Hwy 40:36. Photo taken June 2, 2025, facing north.**

Photo 10 **South pile wall on east (downslope) side of Hwy 40:36. Note low wet area in front of pile wall where there is a second row of anchors. Photos taken June 2, 2025, facing north and southwest.**

Photo 11 **Pavement surface of Hwy 40:36. Photos taken June 2, 2025, facing southwest and northwest, respectively.**

Photo 12 **Backslope and ditch on west (upslope) side of Hwy 40:36. Photos taken June 2, 2025, facing southwest and northwest, respectively.**

Photo 13 **Rock slope along west (upslope) side of Hwy 40:36. Note thin cover of soil over bedrock, which is slumping likely due to saturation. Photo taken June 2, 2025, facing north.**