
ALBERTA TRANSPORTATION LANDSLIDE RISK ASSESSMENT

SECTION A: GEOTECHNICAL FILE REVIEW

NORTH CENTRAL REGION

SITE NC83: West of Wildhay River

LEGAL LOCATION:	SE 8-53-27-W5M
NEAREST LANDMARK:	45.1 km NORTH WEST OF HINTON ALONG HIGHWAY 40, WEST OF WILDHAY RIVER
Highway Control Section:	HWY 40:30 km~37.368
Date of Initial Observation:	2016
Date of Last Inspection:	May 25, 2017
Last Inspected By:	Stantec Consulting Ltd. (Stantec)
Instruments Installed:	3 Slope Inclinometers (2017, 3 Vibrating Wire Piezometers (2017)
Instruments Operational:	3 Slope Inclinometers (2017, 3 Vibrating Wire Piezometers (2017)
Risk Assessment:	PF(9) · CF(2) = RL (18)
Last Updated:	June 2016 – Stantec Consulting Ltd.



December 14, 2017

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1. LOCATION

The site is located approximately 45.1 km North-West of Hinton along Highway 40, west of Wildhay River.

2. GENERAL DESCRIPTION OF SLOPE INSTABILITY

The areas of distress include slope movement along Highway 40 and cracking in the road surface. Slight toe bulging was observed along the south slope along with cracks with a vertical differential settlement of approximately up to 250 mm. Most of the cracks were obscured by vegetation in the slope. The road surface contains various longitudinal and transverse cracking along both the westbound and eastbound lanes. The pavement cracks have widths up to approximately 20 mm with no vertical differential and appears to be progressing into map cracking. The site appears to be fairly wet. Water was observed to be ponding along the north ditch of Highway 40. Furthermore, the slope was observed to be wet and spongy.

3. GEOLOGICAL/GEOTECHNICAL CONDITIONS

PHYSIOGRAPHIC REGION

Alberta North Central Region.

BEDROCK GEOLOGY

The site is located near a transition between the Paskapoo Formation and the Coalspur Formation. The Paskapoo Formation contains grey to greenish-grey mudstone and siltstone with pale grey, thick to thin-bedded sandstone. The Coalspur Formation is made up of thin to thick bedded sandstone, siltstone, mudstone and coal. Site location is outside of the Bedrock Topography maps but can expect elevation to be at least 1200 m.

SURFICIAL GEOLOGY

The site is in a moraine formation containing till composed of clay, silt, sand, and cobbles, as well as lenses of glaciolacustrine and glaciofluvial sediments.

SITE STRATIGRAPHY

Three (3) boreholes were advanced during a geotechnical investigation undertaken in November of 2017. The boreholes were drilled within the south side of the slope movement along Highway 40 to depths ranging from 15 m to 20 m below ground surface (bgs). The stratigraphy encountered generally consisted of a layer of gravel and clay fill (part of the road structure and slope) overlying a thick layer of medium plastic clay overlying sand and underlain by sandstone.



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HYDROGEOLOGY

There is no hydrogeology map available for this area at a sufficient scale to provide useful data.

4. CHRONOLOGY

GENERAL

No history to report.

5. GEOTECHNICAL INSTRUMENTATION

Three (3) slope inclinometers and three (3) vibrating wire piezometers were installed at the site to monitor ground movements and groundwater levels in 2017. The location of these instruments is shown on **Figure 1**.

6. REFERENCES

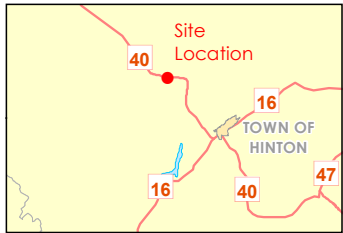
Fenton, M. M., Waters, E. J., Pawley, S. M., Atkinson, N., Utting, D. J., & Mckay, K. (2013). Surficial geology of Alberta. Alberta Geological Survey, AER/AGS Map, 601.

Prior, G. J., Hathway, B., Glombick, P. M., Pana, D. I., Banks, C. J., Hay, D. C., ... & Weiss, J. A. (2013). Bedrock geology of Alberta. Alberta Geological Survey, Map, 600, 2013-0813.

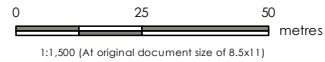
Stantec Consulting Ltd., June 8, 2016. "NC83 – West of Wildhay River, 2016 Inspection Report."



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 Reviewed by: MK



Borehole Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
3. Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geomatics, Aerogrid, IGP, IGP, swisstopo, and the GIS User Community

Project Location: SE 8-53-27 WSM, Yellowhead County, Alberta
 Prepared by MK on 2017-12-05
 Quality Review by CU on 2017-12-XX
 Approved by LC on 2017-12-XX

Client/Project: Alberta Transportation
 Factural Report
 NC83 – West of Wildhay River

Figure No. 1

Title: **Site Location Plan**

