

December 9, 2024  
Project No. 2407640

VIA EMAIL: [solly@southgatemetals.com](mailto:solly@southgatemetals.com)

1000330592 Ontario Inc  
186155 Grey Road 9  
Dundalk, Ontario N0C 1B0  
c/o Kristine Loft, Loft Planning Inc.

**Re: Slope Review**  
**112754 Grey Road 14, Southgate**  
**Township of Southgate**

Dear Solomon:

GEI Consultants Canada Ltd. has been retained by 1000330592 ONTARIO INC. to complete certain engineering services relating to a re-zoning application to allow for a building envelope to include a residence, barn and accessory buildings.

As part of the draft plan submission for the proposed development, Saugeen Valley Conservation Authority (SVCA) identified potential slope hazards on the site that require the review by geotechnical engineer and to comment on the condition of the slope and confirmation that the proposed development will not negatively impact the stability of the slope.

This letter report provides a review of the current slope conditions and comments on the proposed development.

### **Site Setting and Background**

The site is located within the Township of Southgate, along Grey Road 14. There is an existing entrance to the site from Grey Road 14, which is assumed to run in a north-south direction. The site is generally vacant, with some various temporary structures (i.e. Seacan, Recreational Trailer etc.) placed on the east side of the property. These items are considered within the "laydown" area. There is some fill stockpiled in the east area as well. To the west of the laydown area, there is a slope that is approximately 4m in height from review of available LIDAR information. There are two access routes down the slope to reach the west portions of the property.

The "Physiography of Southern Ontario", Chapman and Putnam, 1985, identifies the subject area as park of the Dundalk Till Plains physiographic region. The region is characterized by gently rolling till plains, with a surficial silt deposit. The site is close to the Horseshoe Moraines region to the north west, which is comprised of irregular, stony knobs and ridges which are composed mostly of till and with some sand

and gravel deposits (kames); and (b) the more or less pitted sand and gravel terraces and swampy valley floors.

There is a watercourse that runs in a northwest direction and is a tributary of the Saugeen River. The watercourse passes through a culvert on the property. The culvert provides a crossing for private laneway through the property. There is a ditch that runs alongside the private laneway, and feeds into the watercourse.

## **Slope Review**

The undersigned visited the site on October 17, 2024, to review the existing slope conditions. Based on a desktop review of the project area from available LIDAR information, the top of the slope is generally considered to be near elevation 479m and the bottom is 475m, with an overall height of 4m as discussed above. The slope is tilted at an inclination of near 7° at the south end, transitioning to near 12° at the north end. The steepest portions of the slope are 4 horizontal units to 1 vertical unit. A slope is generally considered stable at 3 horizontal units to 1 vertical unit, or an inclination of 18°

During the site visit, general measurements of the slope inclinations were taken and were generally consistent with the desktop review. The slope was well treed, with mainly coniferous tree growth. There was no evidence of active erosion or over steepened sections of the slope. Additionally, no seepage of groundwater was observed along the sections of the slope reviewed.

## **Slope Stability Rating**

Based on the above noted observations and slope measurements, the Slope Stability Rating Chart (Table 8.1) from the Ministry of Natural Resources (MNR) Geotechnical Principles for Stable Slopes Guidelines was used to evaluate the slope and determine the potential investigation requirements. The scoring of slope based on the parameters of the Chart is attached to this letter report. The total rating value was determined to be 18, which corresponds to a Low Potential for Slope Instability based on the existing conditions of the slope.

Based on the Saugeen Valley Conservation Authorities Environmental Planning and Regulations Policies Manual, there is no Stable Slope Allowance necessary, with the slope inclination flatter than 3 to 1 despite the slope height being greater than 2m.

## **Proposed Development**

The proposed development includes a single-family dwelling, barn and accessory buildings. The proposed horse barn and septic system for the residence are located along the slope, with sections of slope being filled. The proposed workshop and related out buildings located on the south side of the property will have a separate septic system located at the south end of the development area. The proposed foundation for the horse barn will be stepped down along the bottom of the existing slope to achieve proper frost cover, which is 1.2m for the area. To achieve the overall grading of the site, retaining walls will be required along the west boundary of the development area to avoid infill within the adjacent wetland area setbacks. Any general site grading should be completed at a 3 to 1 slope to existing grades where the setbacks allow.

## Closing

Based on the existing slope conditions, there is no Stable Slope Allowance setbacks required, and the proposed development is not expected to negatively impact the slope stability within the subject area.

It must be noted that ground movement along the edges any slopes due to surficial erosion, long term soil creep or shallow surficial slippage is likely to occur over the long-term as part of the naturally evolving slope.

We trust that this report is satisfactory for your use, if you have any questions, please feel free to contact me.

GEI CONSULTANTS CANADA LTD.



Ethan C.J. Webb, P.Eng.  
Project Designer

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## Appendices

Appendix A Slope Stability Rating Chart

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File No. 2407640

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112754 Grey Road 14, Southgate  
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## **Appendix A Slope Stability Rating Chart**

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Site Location: 112754 Grey Rd 14  
 Property Owner: 1000330592 Ontario Inc  
 Inspected By: E. Webb

File No: 2407640  
 Inspection Date: October 17, 2024  
 Weather: Sunny

			Rating Value
<b>1. SLOPE INSPECTION</b>			
	<i>Degrees</i>	<i>Horiz. : Vert.</i>	
a)	18 or less	3 : 1 or flatter	<input type="checkbox"/> 0
b)	18 to 26	2 : 1 to 3 : 1	6
c)	more than 26	steeper than 2 : 1	16
<b>2. SOIL STRATIGRAPHY</b>			
a)	Shale, Limestone, Granite (Bedrock)		0
b)	Sand, Gravel		6
c)	Glacial Till		9
d)	Clay, Silt		<input checked="" type="checkbox"/> 12
e)	Fill		16
f)	Leda Clay		24
<b>3. SEEPAGE FROM SLOPE FACE</b>			
a)	None or Near bottom only		<input type="checkbox"/> 0
b)	Near mid-slope only		6
c)	Near crest only or from several levels		12
<b>4. SLOPE HEIGHT</b>			
a)	2 metres or less		0
b)	2.1 to 5 metres		<input checked="" type="checkbox"/> 2
c)	5.1 to 10 metres		4
d)	Greater than 10 metres		8
<b>5. VEGETATION COVER ON SLOPE FACE</b>			
a)	Well vegetated; heavy shrubs or forested with mature trees		<input type="checkbox"/> 0
b)	Light vegetation; Mostly grass, weeds, occasional trees, shrubs		4
c)	No vegetation; bare		8
<b>6. TABLELAND DRAINAGE</b>			
a)	Tableland flat, no apparent drainage over slope		<input type="checkbox"/> 0
b)	Minor drainage over slope, no active erosion		2
c)	Drainage over slope, active erosion, gullies		4
<b>7. PROXIMITY OF WATERCOURSE TO SLOPE TOE</b>			
a)	15 metres or more from slope toe		<input type="checkbox"/> 0
b)	Less than 15 metres from slope toe		6
<b>8. PREVIOUS LANDSLIDE ACTIVITY</b>			
a)	No		<input type="checkbox"/> 0
b)	Yes		6
	<b>SLOPE INSTABILITY RATING</b>	<b>RATING VALUE TOTAL</b>	<b>INVESTIGATION REQUIREMENTS</b>
			<b>TOTAL</b>
			<b>18</b>
1.	Low potential	<24	Site inspection only, confirmation, report letter.
2.	Slight potential	25-35	Site inspection and surveying, preliminary study, detailed report.
3.	Moderate potential	>35	Boreholes, piezometers, lab tests, surveying, detailed report.
<b>NOTES:</b>	a) Choose only one from each category; compare total rating value with above requirements.		
	b) If there is a water body (stream, creek, river, pond, bay, lake) at the slope toe; the potential for toe erosion and undercutting should be evaluated in detail and, protection provided if required.		