Wilson-Ford Surveying and Engineering

Stormwater Management Report

Southbend Building Supply Inc.

311303 Highway 6
Mount Forest, ON N0G 2L0

Part Lot 28 Division 3, Concession 1 EGR
Geo. Township of Egremont
Township of Southgate
County of Grey

Prepared for:

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A Introduction and Overview

A.1 Overview and Purpose

A.1.1 This Report accompanies an engineering Plan dated November 26, 2025 prepared by Wilson-Ford Surveying & Engineering (*hereafter WFSE*), which had shown the proposed site works at a building supply yard and most importantly the location of a recently constructed retaining wall.

A.1.2 this Report has been requested by the Ministry of Transportation Ontario (MTO) due to the building of said retaining wall (shown in Figure 1) built along the frontage of the Subject Parcel, within the road allowance without authorisation or permitting.

A.1.3 the Subject Parcel is located at 311303 Highway 6 in Mount Forest or geographically known as Part of Lot 28 Division 3 in Concession 1 EGR of the former Township of Egremont, now the Township of Southgate.

Figure 1 - view of retaining wall with King's Highway 6 to the left

A.2 Information Sources

A.2.1 Underlying Plans and documents were compiled from either Service Ontario Land Registry (LRO), and previous plans prepared by WFSE.

A.2.2 Field work undertaken by WFSE was completed in 2025 between January and November.

A.3 Horizontal and Vertical Control

A.3.1 the field work represented on the plans prepared by WFSE utilised a geometric reference system established by NAD83(CSRS) v8, and a vertical datum established by the Canadian Geodetic Vertical Datum of 2013 (CGVD2013).

B Area of Focus

B.1 Subject Parcel

B.1.1 the entirety of the Subject Parcel is illustrated below in Figure 1, and designated as PIN 37288-0099 (LT). It is bounded to the south by the King's Highway 6 and agricultural lands to the west, north and east.

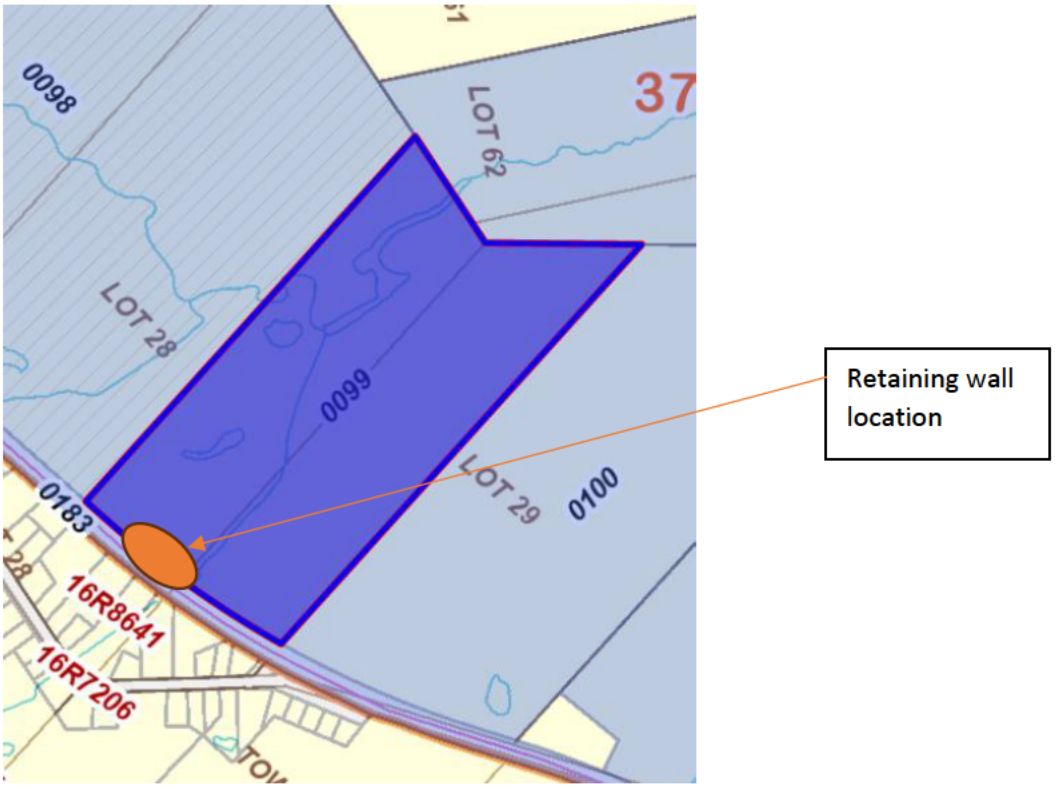

Figure 2 - portion of Block Map from LRO

B.1.2 as the only change within the MTO corridor has been the construction of the retaining wall, the scope of the stormwater report will be limited to the applicable catchment area that has been changed due to the wall.

B.2 Watershed Research

B.2.1 the entirety of the catchment area[1] is located at the upstream end of a watershed approximately 0.065 sq km in area or 6.5 ha as shown in Figure 3 below.

Figure 3 - overall watershed (from MOEE website)

B.2.2 the characteristics of the watershed do not change significantly as all that has occurred is the installation of a wall approximately 1.2 m in width and 126 m in length totally 0.015 ha +/-.

	Total area (ha)	Gravel and hardpacked area (ha)	Agricultural and grass area (ha)
Pre-wall	6.48	0.94	5.54
Post-wall	6.48	0.96	5.52

Table 1 - catchment area characteristics

As shown in Table 1 the watershed is comprised of two types of land use[2]: (1) agriculture and rural land ~ 85.4% and (2) gravel and hardpacked urban area ~ 14.6%.

- The hydrologic soil group for the portion of the catchment area that was disturbed by the retaining wall is "A"[3] or soils having low runoff potential and high infiltration rates

[1] As researched from Ministry of Environment and Energy (MOEE) website
[2] As researched from Ministry of Environment and Energy (MOEE) website
[3] As researched from Ontario Ministry of Agriculture, Food and Agribusiness (OMAFRA) website

C Hydrological Analyses

C.1 Approach

C.1.1 According to the MTO Drainage Management Manual the Subject Parcel is located in Zone 1, and therefore the historical storm, which represents a flood of magnitude exceeding all predated events, is Hurricane Hazel. For completeness, the 100-year event will also be calculated. The Regulatory flood will be taken to be the larger of the historical storm (Hurricane Hazel) or the 100-year storm.

C.1.2 Modelling of the results of the storm events noted above will be facilitated using software (Hydrocad) with the following inputs:

- The software will generate a synthetic design storm based on a rainfall distribution over either 24 or 48 hours using intensity-duration-frequency data from the MTO (Ministry of Transportation of Ontario) curve lookup. More specially the model applies methods from the Soil Conservation Service Type 2 design storm over a 24-hour period for the 100-year storm using MTO data, and tabulated data from the MTO for the Hurricane Hazel event on a rainfall distribution spanning 48 hours;
- The watershed itself will use two primary sub-catchments areas;
- Elevations onsite as well as various cross-section areas noted will be prepared from field data performed by WFSE staff;
- Parameters such as land use, SCS curve numbers and runoff coefficients in Table 3 below will be utilised:

Duration	5 min	10 min	15 min	30 min	1 hr	2 hr	6 hr	12 hr	24 hr
2-yr	131.8	81.2	61.1	37.7	23.2	14.3	6.6	4.1	2.5
5-yr	174.4	107.4	80.9	49.8	30.7	18.9	8.8	5.4	3.3
10-yr	202.8	124.9	94.1	58.0	35.7	22.0	10.2	6.3	3.9
25-yr	238.0	146.6	110.4	68.0	41.9	25.8	12.0	7.4	4.5
50-yr	264.7	163.0	122.8	75.6	46.6	28.7	13.3	8.2	5.1
100-yr	290.8	179.1	134.9	83.1	51.2	31.5	14.6	9.0	5.6

Table 2 - MTO IDF coefficients

Land use: watershed	Area pre/post (ha)	Area (%)	Hydrologic Soil Group	SCS Curve Number
Agriculture and grass	5.54 / 5.52	85.4	A	67
Urban gravel and hardpacked	0.94 / 0.96	14.6	A	76
Composite (weighted) average				68.30 pre 68.33 post

Table 3 – Model Parameters

C.2 Results

C.2.1 from Table 1 we note that the increase in the value of the SCS curve number is rather minimal ~ 0.04%, which would suggest that the increase in runoff from the site due to the installation of the retaining wall will be minimal as well.

C.2.2 inputting the runoff coefficients from the MTO IDF website from Table 2 above into a synthetic storm event (SCS Type 2) over 24 hours the following values, both prior to the installation of the wall, and following are realised:

Duration	Pre-wall (cu m/sec)	Post-wall (cu m/sec)
2-yr	0.0375	0.0375
5-yr	0.1002	0.1002
10-yr	0.1577	0.1577
25-yr	0.2272	0.2272
50-yr	0.2949	0.2949
100-yr	0.3583	0.3583

Table 4 – calculated runoff values both pre and post wall installation

C.2.3 As can be seen in Table 4 no increase in runoff was determined after the installation of the retaining wall in any rainfall event spanning from 2 years to 100 years in duration.

C.2.4 inputting the runoff coefficients from the MTO Hurricane Hazel event in Table 5 below over 48 hours into a synthetic storm event (SCS Type 2), with no areal reduction factor, the following values, both prior to the installation of the wall, and following are realised:

	Depth (mm)
First 36 hours	73
37th hour	6
38th hour	4
39th hour	6
40th hour	13
41st hour	17
42nd hour	13
43rd hour	23
44th hour	13
45th hour	13
46th hour	53
47th hour	38
48th hour	13
Total depth (mm)	**285**

Table 5 - Hurricane Hazel parameters

Event	Pre-wall runoff (cu m/sec)	Post-wall runoff (cu m/sec)
Hurricane Hazel 48-hr	0.6823	0.6823

Figure 6 - Hurricane Hazel runoff

C.2.5 As can be seen in Table 6 no increase in runoff was determined after the installation of the retaining wall in a Hurricane Hazel event.

D Conclusions

D.1 Results

D.1.1 the installation of the retaining wall has been determined to cause no additional runoff when analysed against either a synthetic rainstorm of frequency between 2 to 100 years, or a historic (Hurricane Hazel) event. This is primarily due to the relatively small area of the wall.

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