January 30, 2024

Project No.: 136-193-23

COWDEN WOODS DESIGN BUILDERS LTD
249 SAUNDERS ROAD
BARRIE, ON

To Whom It May Concern,

Gerrits Engineering Ltd. (GEL) has been retained by the COWDEN WOODS DESIGN BUILDERS LTD to prepare a Stormwater management brief for the new storage building at 199 Fourth Street, in the Town of Midland. The subject site is approximately 0.58 ha in area, storm flows are directed away from the existing building and generally slopes to the northeast. It is proposed to construct a new Storage building with a footprint of 374.7m^2 in the northeast corner of the lot. This letter will identify the existing & proposed conditions.

1. Supporting & Reference Documents

The following documents have been referenced in the preparation of this report:

- Ministry of the Environment, Stormwater Management Planning and Design Manual, March 2003
- Ontario Building Code (O.B.C.), 2012
- Town of Midland – Engineering Development Design Standards, December 2012

2. Storm Drainage and Stormwater Management

2.1. Existing Storm Drainage Conditions

Referencing the Town of Midland – Engineering Development Design Standards, we determine the runoff coefficient for the existing drainage conditions as follows:

Grass	=	674 m^2	R	=	0.25	AR	=	168.5
Concrete	=	232 m^2	R	=	0.95	AR	=	220.4
Building Roof	=	1539 m^2	R	=	0.95	AR	=	1462.1
Asphalt	=	3360 m^2	R	=	0.95	AR	=	3192.0
Gravel	=	0 m^2	R	=	0.75	AR	=	0.0
					Total	AR	=	5043.0

Site Area = 5804 m^2 ∑AR = 5043.0 m^2 Pre-Development Weighted R = 0.87

2.2. Proposed Drainage Conditions

The proposed Development will increase the imperviousness of the site. Using the proposed site statistics, the post-development weighted runoff coefficient, including external drainage areas, was determined as follows:

Grass	=	674 m^2	R	=	0.25	AR	=	168.5
Concrete	=	234 m^2	R	=	0.95	AR	=	222.3
Building Roof	=	1901 m^2	R	=	0.95	AR	=	1806.0
Asphalt	=	2995 m^2	R	=	0.95	AR	=	2845.3
Gravel	=	0 m^2	R	=	0.75	AR	=	0.0
					Total	AR	=	5042.1

Site Area = 5804 m^2 ∑AR = 5042.1 m^2 Post-Development Weighted R = 0.87

2.3.   Site Release Rates

The Modified Rational Method will be used to determine the existing and proposed release rates.

Catchment Area	= 0.58 ha
Runoff Coefficient	= 0.58 (existing condition)
	= 0.58 (proposed condition)
Time of Concentration (t_c)	= 10 minutes
Rainfall Intensity	= Town of Midland IDF Curve Parameters
Peaking Factor (C_i)	= 1.00 (2-10 year design periods)
	= 1.10 (25 year design period)
	= 1.20 (50 year design period)
	= 1.25 (100 year design period)
Peak Runoff Rate (Q_r)	= C x I x A x 360^{-1}

Applying the above results in the following release rates:

Table 1: Pre & Post Development Release Rates

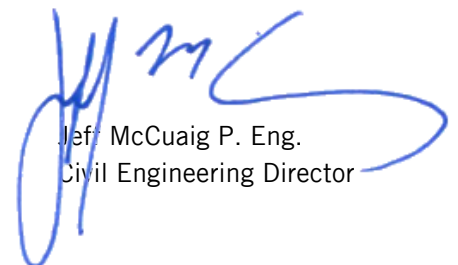|	2 year (m³/s)	5 year (m³/s)	10 year (m³/s)	25 year (m³/s)	50 year (m³/s)	100 year (m³/s)
Pre-Development	0.11	0.14	0.17	0.21	0.26	0.30
Post-Development	0.11	0.14	0.17	0.21	0.26	0.30

3. Conclusions

The analysis and design completed for the proposed building to the site indicates that no additional on-site controls are warranted. We have further calculated no change to the imperviousness from the proposed building addition by replacing asphalt surface. Given the nature of the site and no changes from the post to pre-condition, it is proposed that no further stormwater management efforts be taken at this time.

All of which is respectfully submitted,

Gerrits Engineering Ltd.

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Civil Engineering Design Manager

Jeff McCuaig P. Eng.
Civil Engineering Director