1517/1/SWM/SWM Brief

November 20, 2023

Municipality of Central Elgin
450 Sunset Drive
St. Thomas, ON N5R 5V1

Re:

Block 33, Plan 33M-658
Robin Ridge Drive
Stormwater Drainage Brief

This brief has been prepared in support of the proposed development to be located on the northeast corner of Belmont Road at Robin Ridge Drive, within Robin Ridge Subdivision. The site occupies Block 33 of the development and is 0.58 ha in size. It is proposed to develop the site with 16 apartment units within 2 buildings, with driveway access off Robin Ridge Drive and a parking lot on the west side (see Figure 1). An open channel municipal drain crosses the site and conveys drainage to the east through the subdivision. The site had previously been proposed for development as a Church, which was not constructed. However, a CSP culvert was installed onsite to convey drainage past the proposed driveway for the development and a set of catchbasins installed near the south end of the site to convey post development drainage to the storm sewer on Robin Ridge Drive, which in turn conveys drainage downstream to the Stormwater Management Facility.

Existing Drainage

All runoff for the site is currently tributary to the Municipal Drain. The site is currently vacant and predominantly grass covered with some other sparse vegetation onsite including a cedar hedge on the east side of the site (See Figure 2). The existing runoff coefficient for the property is 0.20, resulting in an A x C value of 0.12 for calculating site runoff (see calculation on Figure 2).

Proposed Drainage

Robin Ridge Subdivision was developed to include stormwater infrastructure (storm sewers and SWM Facility – wet pond) to service the entire subdivision, including all 0.58ha of the proposed site. A review of the asbuilt drawings and Stormwater Management report shows that the storm infrastructure was designed to accept drainage from the site at a runoff coefficient of 0.65, resulting in a post development A x C value of 0.38 (0.58 ha x 0.65).

Grading for the proposed development dictates that a 0.32ha portion of the site will remain tributary to the Municipal Drain, with the remaining 0.26ha tributary to the storm sewer on Robin Ridge Drive and downstream SWM Facility.

The 0.32ha portion of the site tributary to the Municipal Drain will include the 2 apartment buildings and the majority of the landscape area for the development. Runoff will be conveyed overland to the drain. The apartment buildings and supporting infrastructure have an impervious area of 830m^2 (0.083ha). This results in a post development runoff coefficient of 0.38, giving an A x C value of 0.12 (see calculations on Figure 3). As this is equal to the existing condition, there are no stormwater management measures warranted for runoff to the Municipal Drain under post development conditions.

The 0.26ha area tributary to the existing storm sewer and SWM Facility will include the driveway, parking lot, and sidewalk; which is the majority of the site impervious area. The 0.26ha area has a runoff coefficient of 0.68, giving an A x C value of 0.18 (see calculation on Figure 3). As this is substantially less than the 0.38 utilized in the subdivision design for drainage from the site under post development conditions, there are no stormwater management measures warranted for runoff tributary to the subdivisions storm water infrastructure.

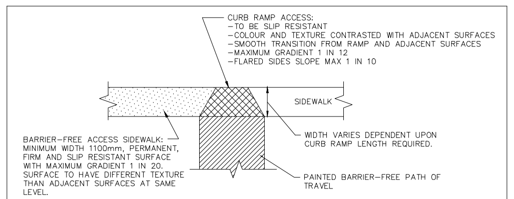
If you have any questions or concerns, please contact our office.

Archibald, Gray & McKay Engineering Ltd.

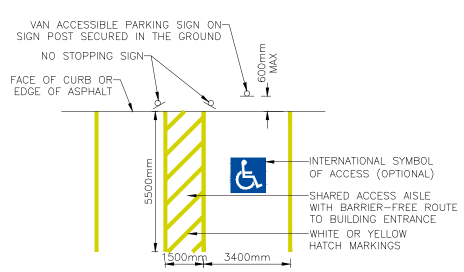
Steve Brown, P.Eng.
Manager of Engineering Services

NOTE: SITE LIGHTING TO BE MOUNTED ON THE BUILDING FACE, FRONT AND REAR

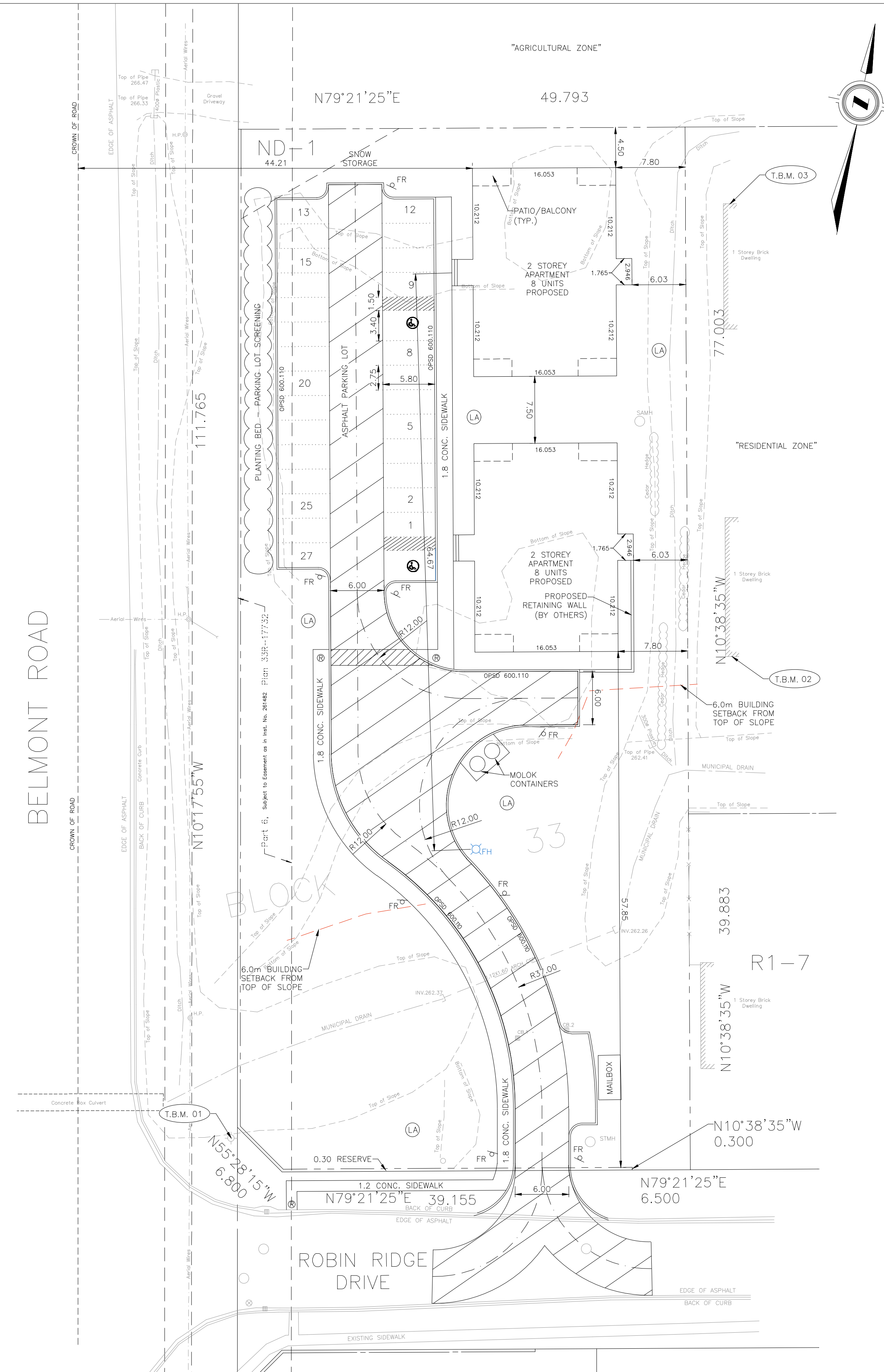
FIRE ROUTE SIGN



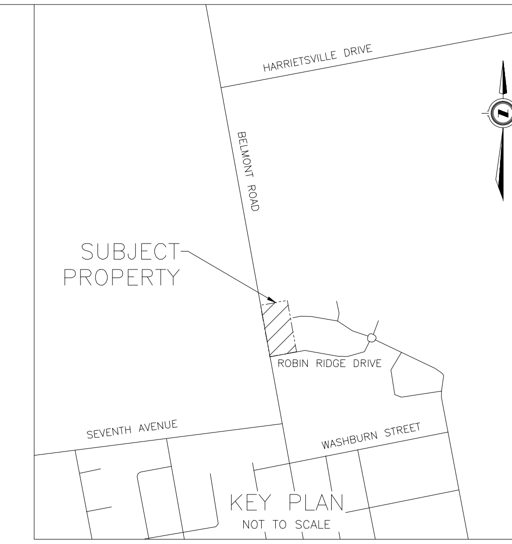
BARRIER–FREE ACCESS



PARKING SPACE FOR PERSONS WITH DISABILITIES TYPE A



SITE PLAN



KEY PLAN
NOT TO SCALE

SITE PLAN

OF ALL OF
BLOCK 33, CONCESSION 6
OF PART OF
LOT 24, CONCESSION 6
(GEOGRAPHIC TOWNSIP OF BELMOUNT)
IN THE
MUNICIPALITY OF CENTRAL ELGIN
COUNTY OF ELGIN

SITE DATA

1. GROSS SITE AREA: 5834.4 m^2 / 0.58 ha.
2. BUILDING AREAS: 771.1 m^2

ITEM	A	REQUIREMENTS	PROPOSED
3.	ZONES	RM–1	RM–1 (SPECIAL)
4.	PERMITTED USES	APARTMENTS	APARTMENTS
5.	LOT AREA (MINIMUM)	800.0 m^2	5834.4 m^2
6.	LOT FRONTAGE (MINIMUM)	20.0 m	50.45 m
7.	FRONT YARD DEPTH (MINIMUM)	6.0 m	57.85 m
8.	SETBACK FROM CENTRE–LINE OF BELMONT ROAD (MINIMUM)	26.0 m	44.22 m
9.	REAR YARD SETBACK (MINIMUM)	9.0 m	6.03 m
10.	INTERIOR SIDE YARD SETBACK (MINIMUM)	1.0 m	3.0 m
11.	EXTERIOR SIDE YARD SETBACK (MINIMUM)	6.0 m	4.50 m
12.	LANDSCAPED OPEN SPACE		55.8%
13.	LOT COVERAGE (%) MAXIMUM	50.0%	13.2%
14.	BUILDING HEIGHT (MAXIMUM)	9.0 m	T.B.D.
15.	NUMBER OF UNITS PER LOT (MAXIMUM)	5	16

1. NUMBER OF REQUIRED PARKING SPACES – MULTIPLE UNIT DWELLING = 1.25 SPACES PER DWELLING UNIT
   16 UNITS x 1.25 = 20 REQUIRED SPACES
   27 PROPOSED PARKING SPACES
2. ACCESSIBLE PARKING SPACES (MINIMUM) – 1% OF TOTAL REQUIRED PARKING SPACES
   20 SPACES x 1% = 0.2 ≈ 1.0 ACCESSIBLE SPACES REQUIRED
   2.0 PROPOSED ACCESSIBLE SPACES

LEGEND

- FR – FIRE ROUTE SIGN
- 6 METRE WIDE FIRE ROUTE ON 12.0m CENTRELINE RADIUS
- LA – PROPOSED LANDSCAPED AREA
- SIDEWALK RAMP
- FH – PROPOSED FIRE HYDRANT

SITE BENCHMARK:

- T.B.M. 01 – TOP SPINDLE OF FIRE HYDRANT Elevation=266.26m
- T.B.M. 02 – TOP OF FOUNDATION UNIT 14 Elevation=263.59m
- T.B.M. 03 – TOP OF FOUNDATION UNIT 1 Elevation=266.02m

METRIC

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

AS CONSTRUCTED SERVICES	COMPLETION			No.	REVISIONS	DATE	BY
		DESIGN	DTW/SPB				
		DRAWN	AGM				
		CHECKED	LRG/SPB				
		APPROVED	SPB				
		DATE	NOVEMBER 2023				

CONSULTANT OR DIVISION

AGM PLAN • SURVEY • ENGINEER
ARCHIBALD, GRAY & McKAY ENGINEERING LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca

ENGINEER'S STAMP

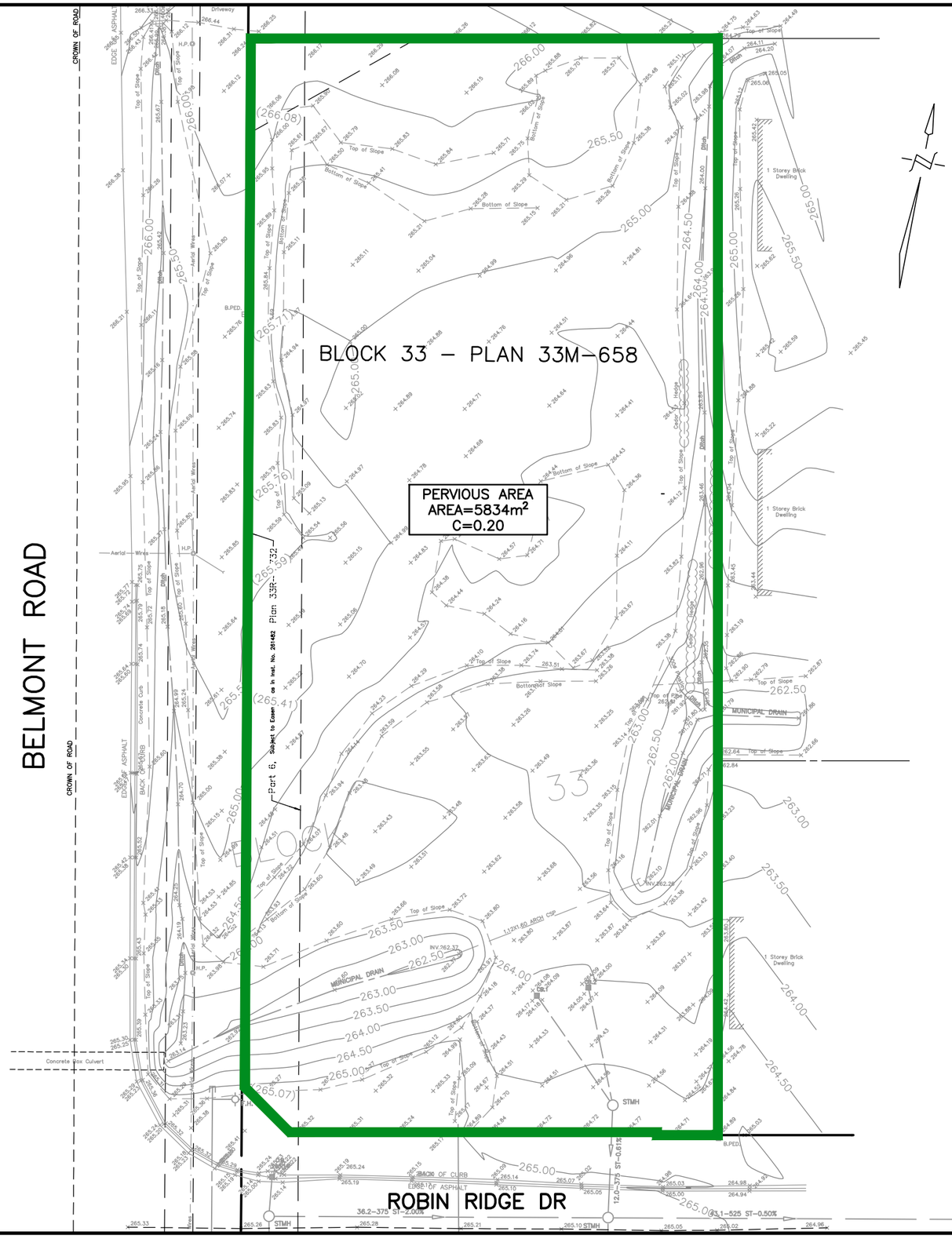
DOLMAGE DESIGN BUILD INC.

SCALE

TITLE
ROBIN RIDGE DRIVE
BLOCK 33, PLAN 33M–658
SITE PLAN

PROJECT No. 1517–1
SHEET No. 01
PLAN FILE No.

Plotted by Steve Brown 2023-11-19 15:30
Plot date: Nov 19, 2023 F:\Projects\B\Belmont(BEL)\BEL\BEL-M658\BEL-M658-01\BEL-M658-01-28\ENG 1517-1\CAD 2019\1517-1 Base.dwg



LEGEND

CATCHMENT BOUNDARY

A X C CALCULATION

AREA (A) = 5834m² (0.58 HA)

RUNOFF COEFFICIENT (C) = 0.20

A x C = 0.12

FIGURE 2

PREDEVELOPMENT RUNOFF

SCALE 1:300
DATE: NOVEMBER 2023

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LEGEND

- CATCHMENT BOUNDARY
- RUNOFF TO MUNICIPAL DRAIN
- RUNOFF TO EXISTING STORM INFRASTRUCTURE
- PROPOSED OVERLAND FLOW ROUTE

RUNOFF TO MUNICIPAL DRAIN

COMPOSITE RUNOFF CALCULATION

$$C_{COMPOSITE} = \frac{(AREA_{PERV} \times C_{PERV}) + (AREA_{IMP} \times C_{IMP})}{AREA_{TOTAL}}$$

$$C_{COMPOSITE} = \frac{(2410.0 \times 0.20) + (830.0 \times 0.90)}{(1080.0 + 2160.0)}$$

$$C_{COMPOSITE} = 0.38$$

A X C CALCULATION

AREA (A) = 3240m² (0.32 HA)

RUNOFF COEFFICIENT (C) = 0.38

A x C = 0.12

RUNOFF TO EXISTING STORM INFRASTRUCTURE

COMPOSITE RUNOFF CALCULATION

$$C_{COMPOSITE} = \frac{(AREA_{PERV} \times C_{PERV}) + (AREA_{IMP} \times C_{IMP})}{AREA_{TOTAL}}$$

$$C_{COMPOSITE} = \frac{(800.0 \times 0.20) + (1794.0 \times 0.90)}{(800.0 + 1794.0)}$$

$$C_{COMPOSITE} = 0.68$$

A X C CALCULATION

AREA (A) = 2594m² (0.26 HA)

RUNOFF COEFFICIENT (C) = 0.68

A x C = 0.18

FIGURE 3

POST DEVELOPMENT RUNOFF

SCALE 1:300
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