ADEQUACEY OF PUBLIC SERVICING REPORT

2345 - 2351 Mer Bleue Road, Ottawa

Prepared by

EAU Structural & Environmental Services

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Revision 0
February , 2022

1 Project Description:

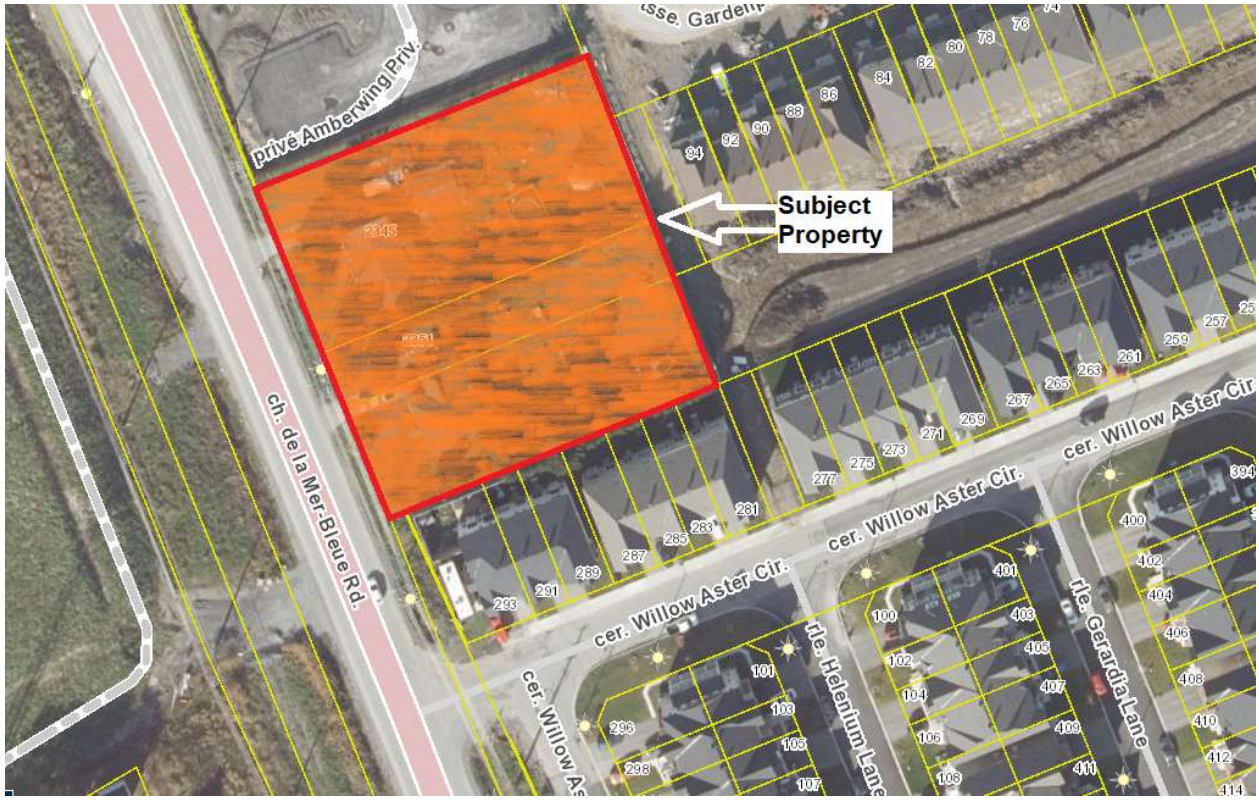
1.1. Introduction:

Property at 2345 - 2351 Mer Bleue Road is located close to intersection of Mer Bleue Road and Willow Aster Circle. Total of 3 lots merges 0.37 hectare in over-all.
Based on architectural drawings, two low rise apartment buildings will be constructed in merged lots. Currently, two lots contain existing one story buildings built in circa 1970. Property at 2345 - 2351 Mer Bleue is currently DR Zoning. For the purpose of low high rise building which is the intent of this development application, change of zoning might be required.

This report will address the servicing (water, sanitary) requirements associated with the proposed development located 2345 - 2351 Mer Bleue within the City of Ottawa. This report is prepared in response to the request from City of Ottawa Planning department.

1.2. Existing Conditions:

The property measure a total area of approximately 0.37 hectare. The site is fronting 406mm diameter PVC water main. There is no sanitary or storm main fronting this property. A 200mm diameter PVC sanitary main flowing on the rear of the property on Gardenpost Terrace. This sanitary main has been installed for a development by Minto Corporation on the west of 2345 - 2351 Mer Bleue . There is also a 1050mm diameter concrete storm main running adjacent north of 2345 - 2351 Mer Bleue.



1.3. Guidelines, Previous Studies, And Reports

The following studies were utilized in the preparation of this report:

- Ottawa Sewer Design Guidelines,
  City of Ottawa, SDG002, October 2012.
  (City Standards)
  - Technical Bulletin ISTB-2018-01
    City of Ottawa, March 21, 2018.
    (ISTB-2018-01)
  - Technical Bulletin ISTB-2018-04
    City of Ottawa, June 27, 2018.
    (ISTB-2018-04)

- Ottawa Design Guidelines Water Distribution
  City of Ottawa, July 2010.
  (Water Supply Guidelines)
  - Technical Bulletin ISD-2010-2
    City of Ottawa, December 15, 2010.
    (ISD-2010-2)
  - Technical Bulletin ISDTB-2014-02
    City of Ottawa, May 27, 2014.
    (ISDTB-2014-02)
  - Technical Bulletin ISTB-2018-02
    City of Ottawa, March 21, 2018.
    (ISTB-2018-02)

- Design Guidelines for Sewage Works,
  Ministry of the Environment, 2008.
  (MOE Design Guidelines)

- Stormwater Planning and Design Manual,
  Ministry of the Environment, March 2003.
  (SWMP Design Manual)

- Ontario Building Code Compendium
  Ministry of Municipal Affairs and Housing Building Development Branch,
  January 1, 2012 Update. (OBC)

- Minto Communities Inc.
  Stormwater Management and Site Servicing Design Brief
  Avalon Encore – Stage 6
  March 16, 2018 Revision 1

1. Water Supply

Residential Water Demand:

The water demand is calculated based on the City of Ottawa Water Distribution Design Guidelines as follows:

Demand Type	Amount	Units
Commercial and Institutional		
- Shopping Centres	2500	L/(1000m^2/d)
- Hospitals	900	L/(bed/day)
- Schools	70	L/(Student/d)
- Trailer Parks no Hook-Ups	340	L/(space/d)
- Trailer Parks with Hook-Ups	800	L/(space/d)
- Campgrounds	225	L/(campsite/d)
- Mobile Home Parks	1000	L/(Space/d)
- Motels	150	L/(bed-space/d)
- Hotels	225	L/(bed-space/d)
- Tourist Commercial	28,000	L/gross ha/d
- Other Commercial	28,000	L/gross ha/d
Maximum Daily Demand		
Residential	2.5 x avg. day	L/c/d
Industrial	1.5 x avg. day	L/gross ha/d
Commercial	1.5 x avg. day	L/gross ha/d
Institutional	1.5 x avg. day	L/gross ha/d
Maximum Hour Demand		
Residential	2.2 x avg. day	L/c/d
Industrial	1.8 x avg. day	L/gross ha/d
Commercial	1.8 x avg. day	L/gross ha/d
Institutional	1.8 x avg. day	L/gross ha/d

■ Residential occupancy = 1.4 persons per one bedroom apartment and 2.1 persons per 2 bedroom apartment and 3.1 persons per 3 bedroom apartment
 15 x 2 bedroom units x 2.1 pers./unit = 31.5 persons

Total occupancy = 31.5 persons rounded up to 32 persons

Residential Average Daily Demand = 280 L/c/d.
 Average daily demand of 280 L/c/day x 32 persons =8960 Liters/day or 0.10 L/s
 Maximum daily demand (factor of 2.5) is 0.10 L/s x 2.5 = 0.25 L/s
 Peak hourly demand (factor of 2.2) = 0.25 L/s x 2.2 = 0.55 L/s

Fire Fighting Requirement
Based on Fire Underwriter Survey Method

Fire flow protection requirements were calculated as per the Fire Underwriter's Survey (FUS).

Note that the type of construction as “non- combustible construction” was confirmed by the architect involved in this development.

An estimate of the fire flow required is as follows:

Step 1:

$F = 220C\sqrt{A}$

F = fire flow in liters per minute
C = co-efficient related to type of construction.
= 0.8 for non-combustible construction
A = total floor area in square meters for the two building

$F = 220 \times 0.8 \times \sqrt{1633} = 7112$ L/min

Step 2:

Reductions or increase due to occupancy = low hazard occupancy = -15%

$F = 7112 - 0.15 \times 7112 = 6045$ L/min

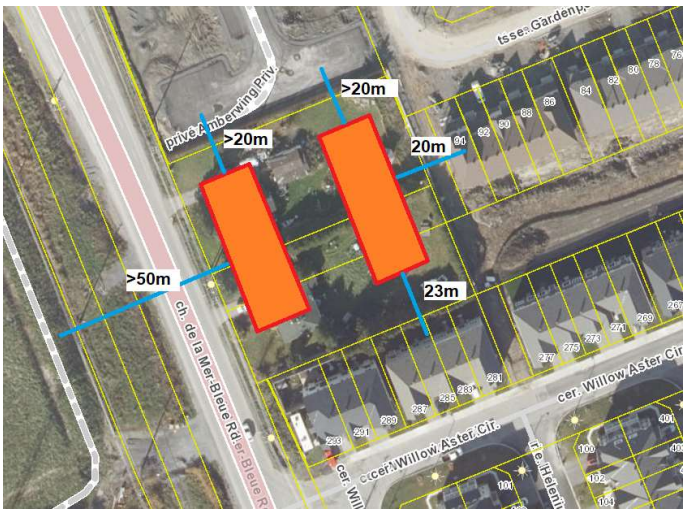
Step 3:

Reduction for automatic sprinkler protection
= no sprinkler system
= no change

Step 4:

Charge for structures exposed within 45 meters of separation.

Side	Separation (m)	Charge %
North	30	10
South	30	10
East	30	10
West	30	10
Total Charge not to exceed 75%		40



Total Charge not to exceed 40%.
= 0.40 x 6045
= 2418 L/min

Total Required Fire Flow rounded to the nearest 1000 L/min

F = 6045 + 2418
=8463 rounded to nearest 8000 L/min
= 8,000 L/min
= 133 L/s

Required duration 2.5 hours. Refer to appendix for fire hydrant coverage.

Please provide us water boundary condition to include in our next revision.

2. Sanitary Sewage

The sanitary flow is calculated based on the City of Ottawa sewer Design Guidelines as follow:

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	280 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0 Harmon Correction Factor 0.8
Commercial Floor/Amenity Space	2.5 L/m^2/d
Commercial Peaking Factor*	1.0
Infiltration and Inflow Allowance	0.05 L/s/ha (Dry) 0.28 L/s/ha (Wet) 0.33 L/s/ha (Total)
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} A R^{2/3} S^{1/2}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s

2.1. Sanitary Sewage Calculation

Design Flows

Residential flow:
- 15 x 2 bedroom units x 2.1 pers./unit = 31.5 persons

Total occupancy = 31.5 persons rounded up to 32 persons
Q Domestic = 32 x 280 L/person/day x (1/86,400 sec/day) = 0.10 L/sec

Peaking Factor = 1 + 14/(4 + (13/ 1000)^0.5) = 4.40 *use 4 maximum

Q Peak Domestic = 0.10 L/sec x 4.0 = 0.4 L/sec

Infiltration

Q Infiltration = 0.20 L/S/Gross hectare x 0.37 ha = 0.074 L/sec

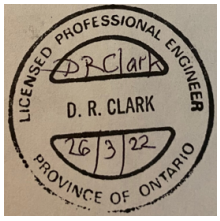
Total Peak Sanitary Flow = 0.4 + 0.074 = 0.47 L/sec

The Ontario Building Code specifies minimum pipe size and maximum hydraulic loading for sanitary sewer pipe. OBC 7.4.10.8 (2) states "Horizontal sanitary drainage pipe shall be designed to carry no more than 65% of its full capacity." A 200 mm diameter sanitary service with a minimum slope of 1.0% has a capacity of 34 Litres per second therefore this pipe is more than adequate.

The maximum peak sanitary flows for the site is 0.47 L/s. Since 0.47 L/s is much less than 0.65 x34 = 22.1 L/s, therefore, the 200mm would be proper size for each building.

Sewage discharges will be domestic in type and in compliance with the City of Ottawa Sewer Use By-law. As per Site Servicing Design Brief prepared for Avalon Encore Subdivision – Stage 6, dated March 16, 2018 Revision 1, existing 300 mm diameter sanitary sewer located on Décoeur Drive (from MH6170 to MH5050) will convey a peak design flow of 27.50 l/s which will generate a remaining capacity of approximately 36%. The total flow from Stage 6 will be conveyed into the existing 450 mm diameter sanitary sewer on Décoeur Drive (from MH5050 to MH5051) which will results in a peak design flow of 44.07 l/s which will generate a remaining capacity of 55%. The peak sanitary flow from the proposed development is less than 10 percent of the capacity of the existing sanitary. As such the proposed increase in sanitary flow as a result of the construction of the proposed development is negligible and there is sufficient available capacity for the proposed development.

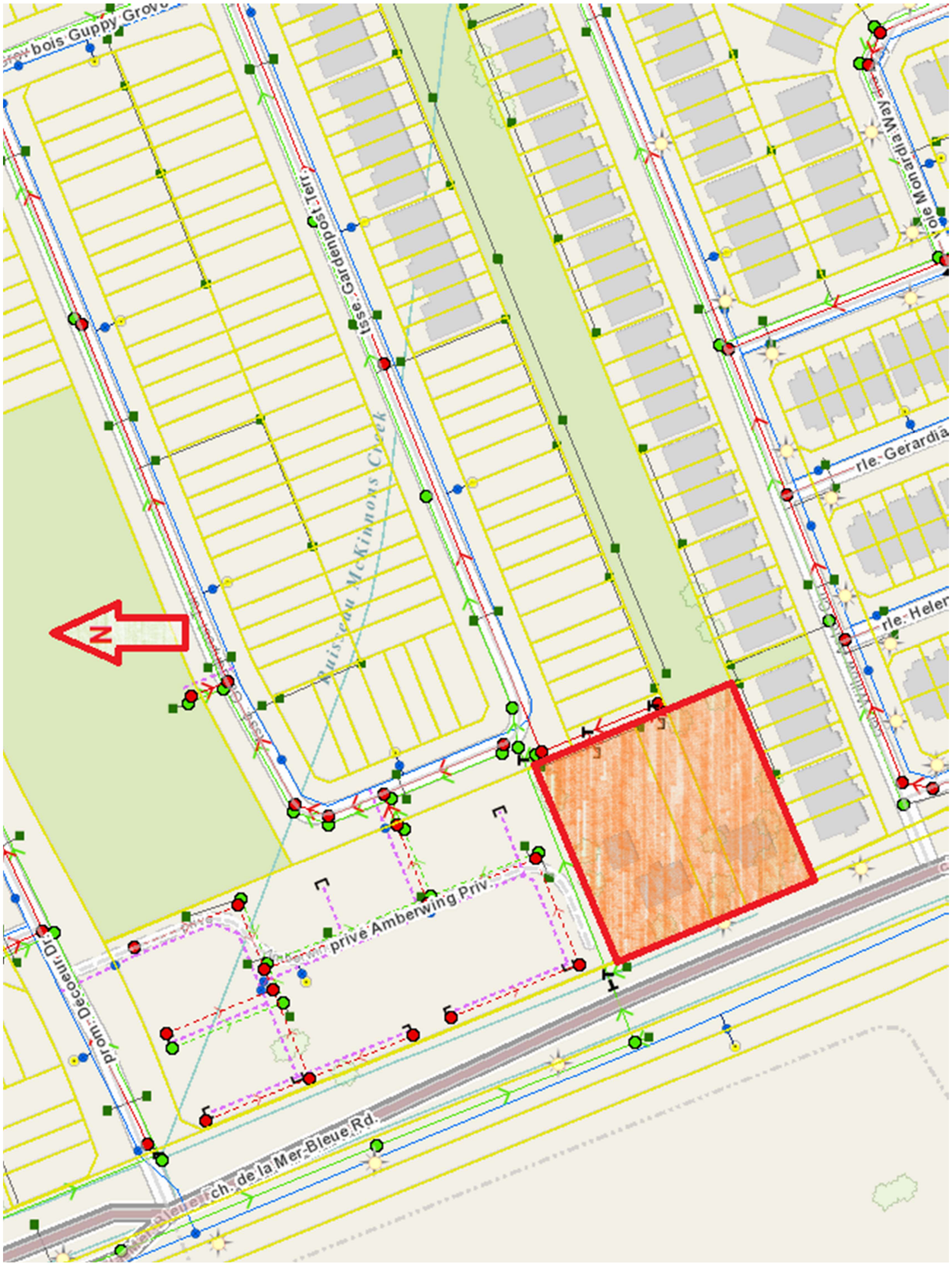
Should you have any questions or comments, please feel free to contact undersigned.



Yours truly,
Derrick R. Clark, P. Eng.

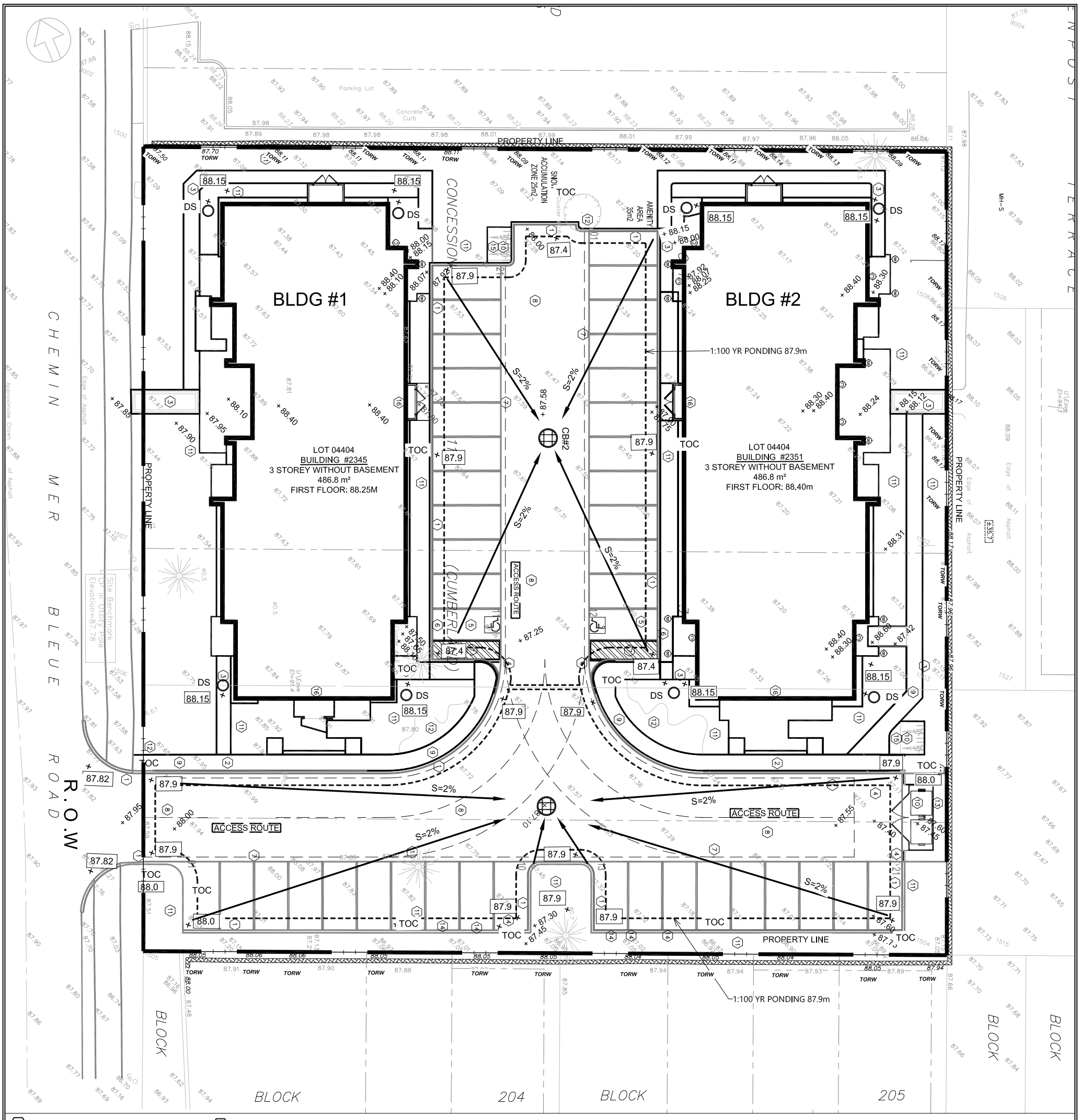
APPENDIX A:

GeoOttawa Map


bois Guppy Grove
Isse. Gardenpost Terr.
Ruisseau McKinnons Creek
Voie Monardia Way
rle. Gerardia
rle. Helen
N
prive Amberwing Priv.
prom. Decoeur Dr.
ch. de la Mer-Bleue Rd.

APPENDIX C:

Drawings



1 CONCRETE CURB
2 CONCRETE WALKWAY
3 INTERLOCK SIDEWALK
4 DEPRESSED SIDEWALK
5 PARKING SPACE FOR DISABLED
6 MUNICIPAL SIGN FOR DISABLED PARKING
7 PAINT MARKS
8 ASPHALT
9 CONCRETE PAVEMENT
10 SLAB ON GROUND CONCRETE
11 GRASS
12 LANDSCAPED AREA
13 1.8M HEIGHT TRASH ENCLOSURE
14 VISITOR PARKING SIGN
15 8 OUTDOOR BICYCLE STALLS
16 WALL MOUNTED LIGHTING ON BUILDING

CONSTRUCTION NOTES:

1) Metric Note:
Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

2) Hard Surface Areas:
All proposed hard surface areas are to be permeable as per City of Ottawa Std. Dwg. SC27.

3) No proposed alterations to grade on or beyond property line.

4) Grading between 2%-7% or terrace to 3H:1V max.

5) Trees to be protected before and during construction.

6) Downspouts (DS) within 1.5m of property line. Must be equipped with splash pad.

7) TOC or top of curb is as shown, curb detail to be as per conc barrier curb OPSD 600.110 drawing

NOTES & LEGEND

	Denotes	
65.00 / 65.00	"	Location of Existing Elevations / Location of Proposed Elevations
TOC	"	Top of Concrete Curb = 88.0
	"	Property Line (LL)
	"	1:100 YR Ponding
	"	Proposed Building
	"	Existing Deciduous Tree
	"	Existing Coniferous Tree
	"	Proposed Tree
Gv	"	Gravel
Pv	"	Paved
Gr	"	Grass
As	"	Asphalt

KEY PLAN

PROFESSIONAL ENGINEER — D. R. CLARK — PROVINCE OF ONTARIO

0m 5m 10m 20m 30metres

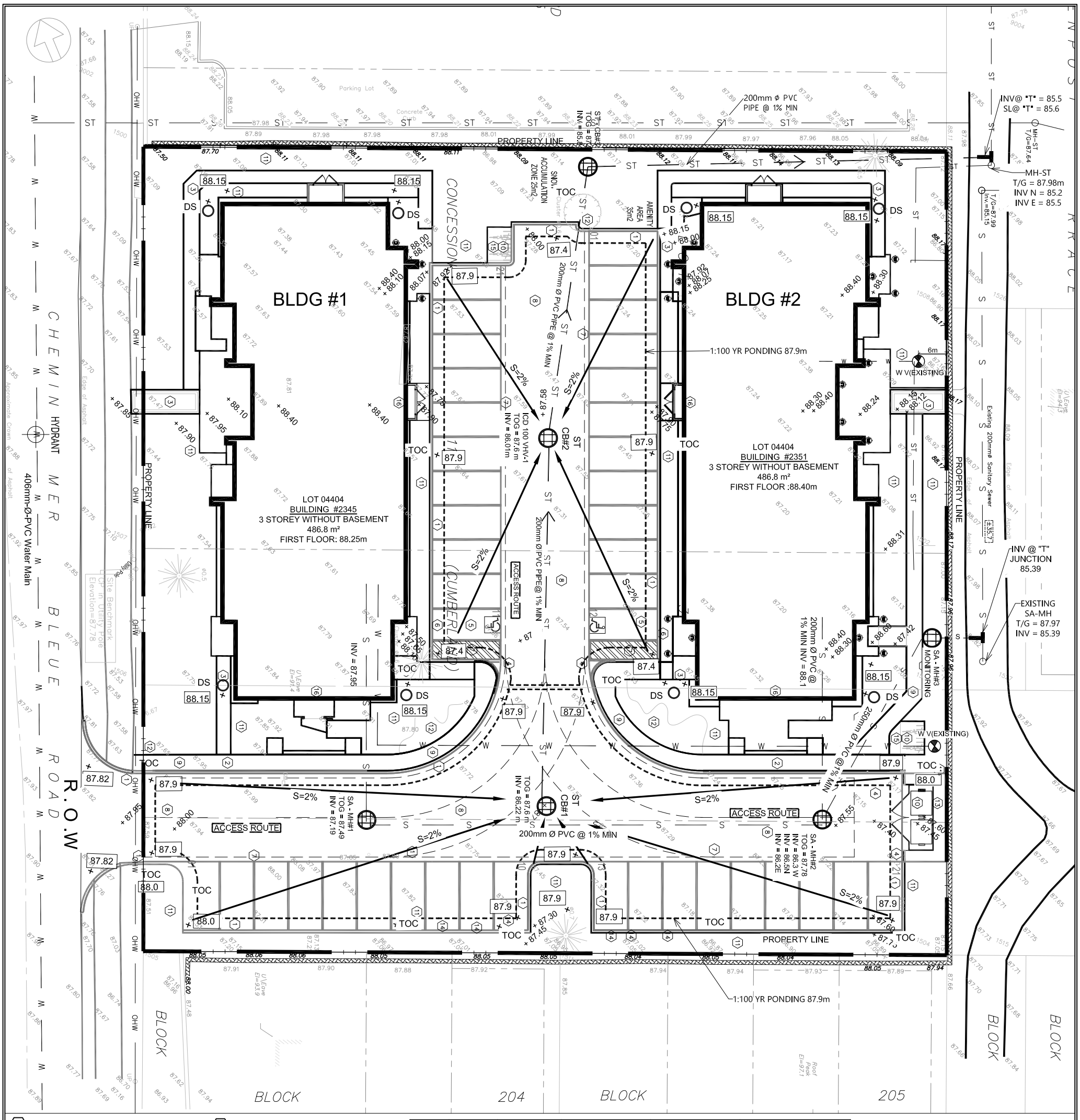
EAU STRUCTURAL & ENVIRONMENTAL SERVICES
Structural Environmental Services
Ottawa, ON
K1Y 4P9
Tel. : 613- 869- 0523

No.	Revision	Date
1	For Review	NOV. 10, 2021

GRADING & DRAINAGE PLAN
2345 MER-BLEUE RD ORLÉANS,
ORLÉANS, ON K4A 3T9

Drawn by: M.Y	Checked By: D.R.C.
Date:NOV 10, 2021	Scale: 1:300

Plan number: C1



1. CONCRETE CURB
2. CONCRETE WALKWAY
3. INTERLOCK SIDEWALK
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5. PARKING SPACE FOR DISABLED
6. MUNICIPAL SIGN FOR DISABLED PARKING
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12. LANDSCAPED AREA
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14. VISITOR PARKING SIGN
15. 8 OUTDOOR BICYCLE STALLS
16. WALL MOUNTED LIGHTING ON BUILDING

CONSTRUCTION NOTES:

1) Metric Note:
Distances and coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

2) Servicing to Be:
-50mm Ø soft copper, type K water service complete with curb stop located 300mm outside the property line within the boulevard.
(Water service to have more than 2.4m of cover or insulated as per City of Ottawa Standard W22)

-Min. cover to services 2.4m or insulation as per City of Ottawa drawing S14, S14.1, S14.2

3) Hard Surface Areas:
All proposed hard surface areas are to be permeable as per City of Ottawa Std. Dwg. SC27.

4) Trees to be protected before and during construction.

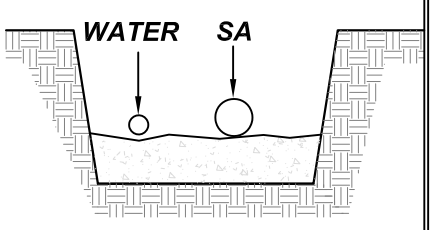
5) Downspouts (DS) within 1.5m of property line. Must be equipped with splash pad.

6) TOC or top of curb is as shown, curb detail to be as per conc barrier curb OPSD 600.110 drawing

7) Existing water lateral to be blocked at main. Existing sanitary to be blocked at property line.

MAIN	DIA (mm)	LENGTH (m)	UP-STREAM INVERT (m)	SL LEVELS (m)	DOWN-STREAM INVERT(m)
SA	200 PVC	36	85.39	85.49	85.15

ST-CB#1	STANDARD	CB	1.2X1.2 OR EQUIV CIRC
ST-CB#2	STANDARD	CB	1.2X1.2 OR EQUIV CIRC
ST-CB#3	STANDARD	CB	1.2X1.2 OR EQUIV CIRC
SA-MH#1	STANDARD	MH	1.2X1.2 OR EQUIV CIRC
SA-MH#2	STANDARD	MH	1.2X1.2 OR EQUIV CIRC
SA-MH#3	STANDARD	MONITORING MH	1.2X1.2 OR EQUIV CIRC



NOTES & LEGEND

ST	Denotes	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Pipe
OHW	"	Overhead Wires
65.00	"	Location of Existing Elevations
65.00	"	Location of Proposed Elevations
TOC	"	Top of Concrete Curb = 88.0
	"	Property Line (LL)
	"	1:100 YR Ponding
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LICENSED PROFESSIONAL ENGINEER
D. R. CLARK
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SERVICING PLAN
2345 MER-BLEUE RD ORLÉANS,
ORLÉANS, ON K4A 3T9

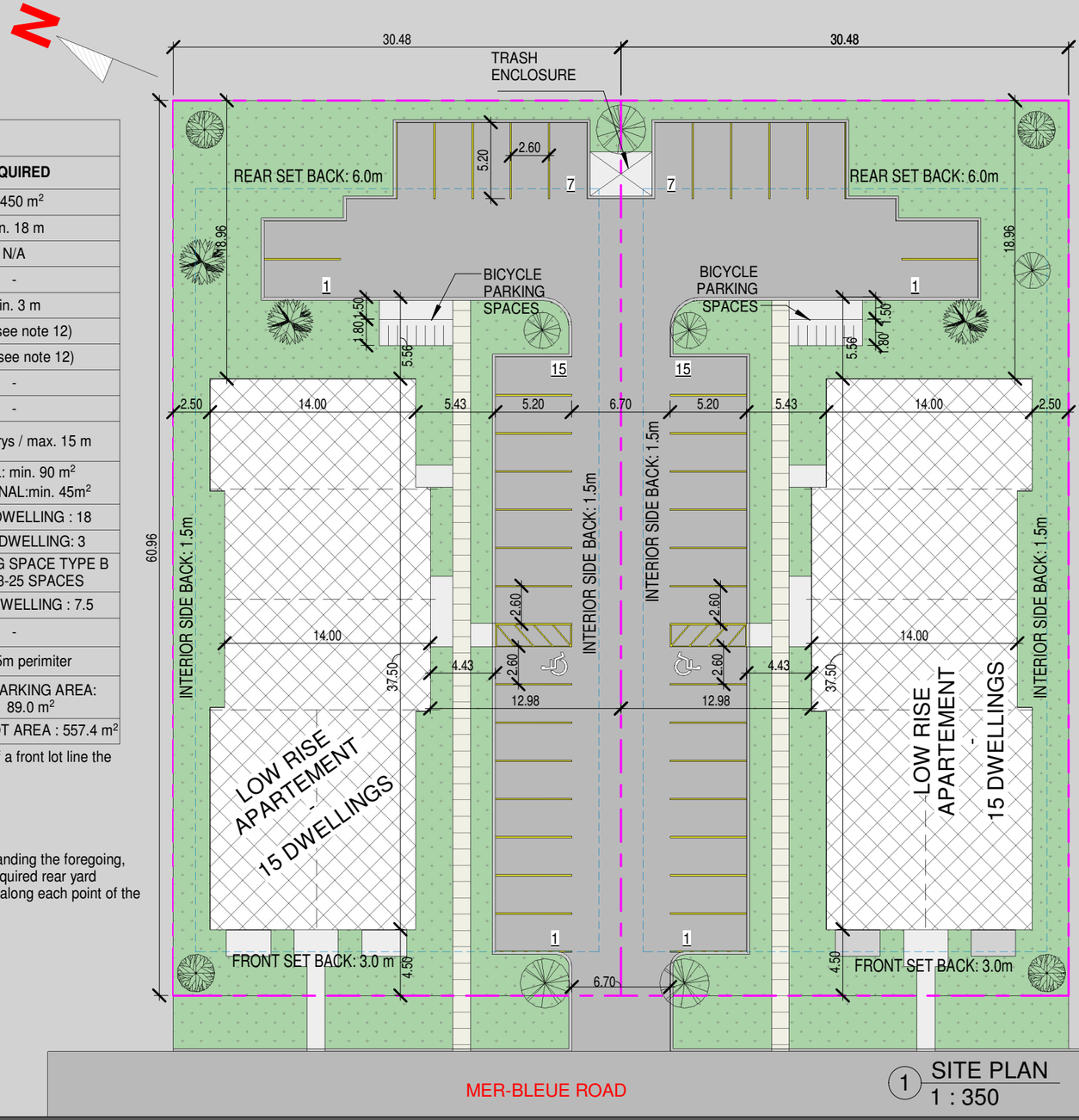
Drawn by: M.Y | Checked By: D.R.C.
Date:NOV 10, 2021 | Scale: 1:300

Plan number: C3

CURRENT ZONING BY LAW R4-Z (By-law 2020-290)		
DESCRIPTION	**PROPOSED**	**REQUIRED**
LOT AREA	1858.1 m^2	min. 450 m^2
LOT FRONTAGE	30.46m	min. 18 m
LOT DEPTH	60.96 m	N/A
NUMBER OF DWELLING UNITS	15	-
FRONT SET BACK	4.5m	min. 3 m
INTERIOR SIDE YARD SETBACK	2.5m / 4.5m	1.5m (see note 12)
REAR SET BACK	18.96m	6.0 m (see note 12)
BUILDING AREA	544.25 m^2	-
GROSS FLOOR AREA	1633 m^2	-
BUILDING HEIGHT	3 storys / 10.95m	Max. 4storys / max. 15 m
AMENITY AREA: 6m^2 PER DWELLING Communal Amenity area : 50% of total amenity area	Total: 274m^2 Com.: 137m^2	TOTAL: min. 90 m^2 COMMUNAL:min. 45m^2
Min. PARKING SPACE	18	1.2 PER DWELLING : 18
Min. VISITOR PARKING	3	0.2 PER DWELLING: 3
Min. ACCESSIBLE PARKING	1	1 PARKING SPACE TYPE B FOR 13-25 SPACES
BICYCLE PARKING SPACE REQUIRED	8	0.5 PER DWELLING : 7.5
TOTAL PARKING LOT AREA	590 m^2	-
MIN. LANDSCAPING BUFFER	min. 1.5m	min.1.5m perimiter
LANDSCAPING PROVIDE FOR THE PARKING LOTS	202 m^2	15% OF PARKING AREA: 89.0 m^2
TOTAL SOFT & HARD LANDSCAPED AREA	+/- 700 m^2	30% OF LOT AREA : 557.4 m^2

12: Interior Side Yard Setback: For any part of a building located within 21 metres of a front lot line the minimum required interior side yard setback is as follows:
(a) Where the building wall is equal to or less than 11 m in height: 1.5 m
(b) Where the building wall is greater than 11 m in height: 3 m
In all other circumstances the minimum required interior side yard setback is 6 m.

Rear Yard Setback: The minimum required rear yard setback is 6 metres. Notwithstanding the foregoing, where the rear lot line abuts the interior side lot line of an abutting lot, the minimum required rear yard setback is equal to the minimum required interior side yard setback of the abutting lot along each point of the shared lot line.(By-law 2010-354) (By-law 2013-320)



1 SITE PLAN
1 : 350

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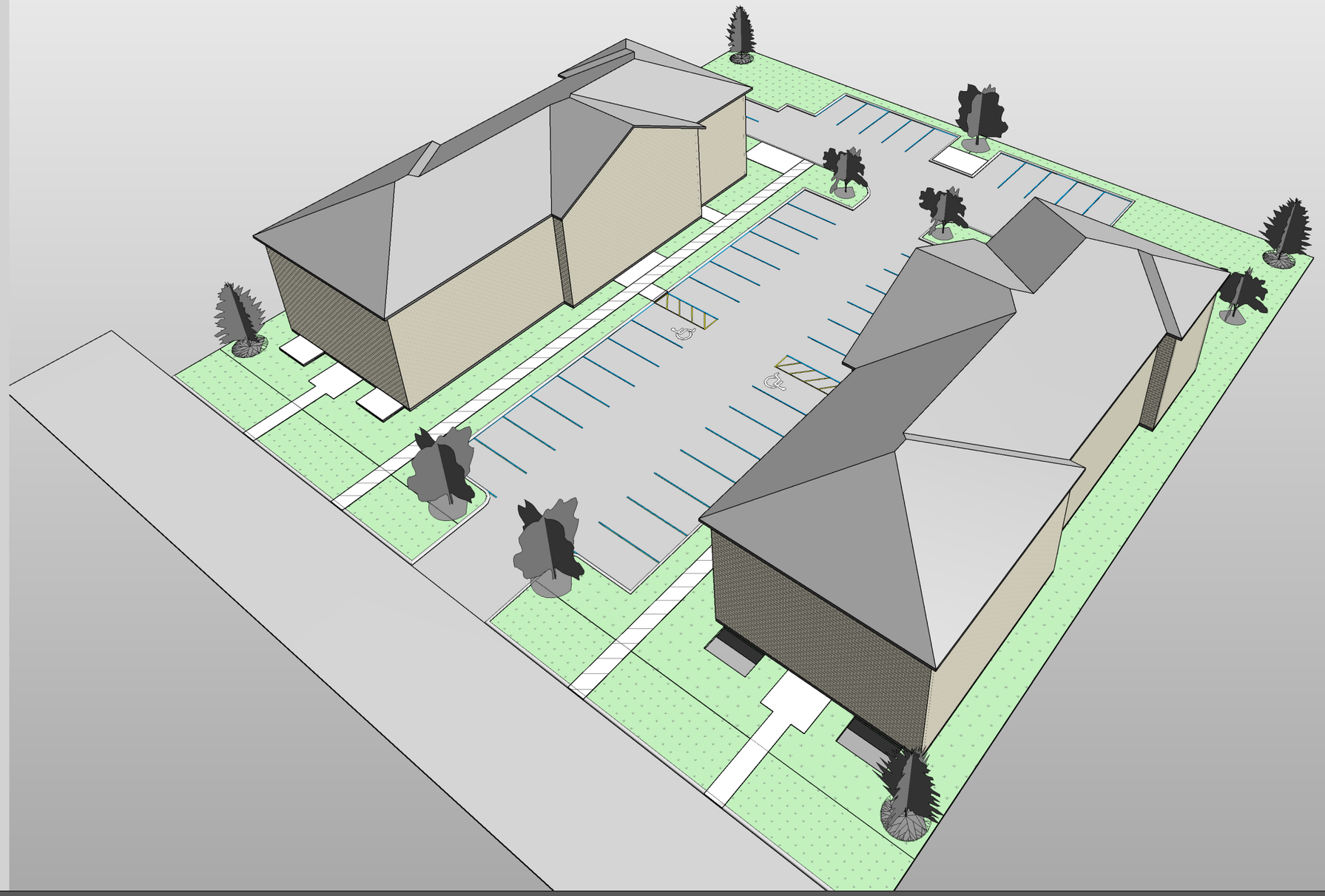
pierretabetarchitecte@gmail.com

APPARTMENTS BUILDINGS

2345-2351 MER-BLEUE ROAD, OTTAWA, ON.
Date: 01-04-2021



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APPARTMENTS BUILDINGS

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Date: 01-04-2021