817 Roseview Avenue Ottawa

Assessment of Adequacy of Public Services

Project # CW-04-21

Prepared for:

OWNER

By:

Arch-Nova Design Inc.

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1. Introduction

The subject property is located at 817 Roseview Avenue, Ottawa. The proposed work comprises of a 4-storey+basement apartment building. For the purpose of this report the site is considered to run east-west.

Currently the property is used as a single house property with a garage at rear. Adjacent properties are residential with a municipal park on its east side.

The area is serviced by municipal water (200 mm, 200 mm sanitary sewer and 1050 mm storm sewer. The street in front of the property is at elevation between 65.69 and 65.83 m.a.s.l.

817 Roseview Avenue, Ottawa: Location

2. Public Services Capacity

This section of the report will analyze existing municipal services and the potential impact of the proposed building at 817 Roseview Avenue on the existing service capacity.

2.1 Water Supply

[1]The following are boundary conditions, HGL, for a hydraulic analysis at 817 Roseview Avenue, connecting to the 203 mm watermain:

[1] City of Ottawa boundary condition information is based on current operation of the city water distribution system (also see Appendix A for complete correspondence information)

Max Day + FF = 101.3 m assuming a fire flow of 150 L/s

Minimum HGL = 107.4 m

Maximum HGL = 115.6 m, the estimated ground elevation is 65.75 m,

Table 1 presents the City of Ottawa design criteria based on MOE Guidelines.

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	280 L/d/P
Residential Maximum Daily Demand	9.5 x Average Daily *
Residential Maximum Hourly	1.5 x Maximum Daily *
Commercial Demand	2.5 L / m2 /d
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain to finished grade
During Peak Hourly Demand operating pressure must remain within	275kPa and 552kPa (40-80 psi; 28-56m)
During fire flow operating pressure must not drop below	140kPa (20 psi; 14 m)
* Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.	

Table 1: Water Supply Design Criteria

Current water consumption is **0.16 l/sec** and expected consumption for the new development is **1.65 L/sec)** for peak period. The fire flow for residential spaces was estimated to be 7,000 l/min (117 l/sec) (FUS). Calculation based on the boundary conditions issued by the City By confirmed that the pressure and required flow are in the prescribed ranges (Table1. , Table 2.)

The table below summarizes the pressure for the designed parameters:

Design Parameter	Anticipated Demand[1] (L/min)	Boundary Condition[2,3] (m)
Average Daily Demand	0.12	49.85
Max Day + Fire Flow	7,001.10	35.55
Peak Hour	1.65	41.65

1) Water demand calculation per Water Supply Guidelines. See Appendix B for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa. See Appendix B for correspondence with the City.
3) estimated ground elevation **65.75 m**

Table 2: Water Demand and Boundary Conditions

2.2 Water Supply for Proposed Development

The new building will comprise of 24 apartments with central mechanical room. Peak flow requirement is calculated to be **1.65 l/sec.** A 11.0 m 50 mm diameter water lateral is proposed and it will serve for only domestic use. Total pressure loss at the building connection is calculated to be 2.0 kPa. Linear loss inside the building is estimated to 108 kPa. Top elevation of the building is at 79,81 m.a.s.l. The water pressure at the top level will be 27.69 m (270kPa) which is sufficient (10 m/98.04 kPa minimum required) pressure at the top floor of proposed building.

2.3 Fire Flow

The OBC fire flow calculation will be used as the flow demand is less than 9,000 l/min.

the Fire flow based on OBC calculation is 6,597 l/min (109.96 l/sec). As the proposed building is higher than 3 floors a sprinkler system will be installed. Calculation for the sprinkler will be part of the mechanical design.

Fire protection will be provided from the nearest hydrant (52.9 m) at pressure of 101.3 m and it can reach the top of the building (79.81 m). The second nearest hydrant is located south from the property at 125 m distance. Both hydrants have blue cap markings (Class AA) and in accordance with Table

18.5.4.3 of ISTB-2018-02 they have combined capacity of 9,463 l/min which is sufficient for the fire protection of the proposed building.

817 Roseview Avenue: hydrant 1 (Carling Ave.) location and distance

817 Roseview Avenue: hydrant 2 (Michele Dr.) location and distance

2.4 Sanitary Sewer

Current outflow for the existing building is 0.0787 **l/sec** (peak flow+wet weather).

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Average Daily Demand	280 L/d/Cap*
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0
Commercial Space	5L/m2/day
Infiltration and Inflow Allowance	0.33 L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = (1/n)AR^{2/3}S^{1/2}$
Minimum Sewer Size	200mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6m/s
Maximum Full Flowing Velocity	3.0m/s
* Daily consumption rate to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, "Arch-Nova" is proposing for a deviation from the Water Supply Guidelines	

Table 3: Wastewater Design Criteria

Existing municipal sewer 200 mm has a capacity of 21.96 l/sec for 0.4% slope and 80% respectively.

Detailed calculation of flow is presented in Appendix A.

2.5 Sanitary Sewer for Proposed Development

The new building will comprise of 24 apartments. Peak flow plus wet weather outflow is calculated to be **0.46 l/sec.** This is an increase of 0.38 l/sec or 2.0% of the receiving pipe's capacity. City of Ottawa did not provide any information of residual capacity of receiving pipe so it was considered that the flow capacity is at its 50% for the peak time and that the increase can be absorbed.

Proposed 150 mm sanitary lateral will provide required outflow capacity where minimum self-cleansing velocity is 0.6 m/sec. at 3.5% slope. This will provide

required velocity and capacity. Detailed calculation of flow is presented in Appendix A.

3. Stormwater

3.1 Existing Site Stormwater Services

Currently the property is draining toward east and west (street). No other storm water services (i.e. storage, ponds) are on the property.

Surface Type	ID	Area (ha)	Percent of total Area	C	A X C (ha)
Green Area/Yard	A1	0.09400	83.2%	0.30	0.028
Driveway	A2	0.00400	3.5%	0.80	0.003
Pathway	A3	0.00200	1.8%	0.40	0.001
House	A4	0.0100	8.8%	0.95	0.010
Deck	A5	0.0030	2.7%	0.40	0.001
TOTAL		0.1130	100.0%		0.043
Weighted C =					0.38

Table 4: Current Drainage Areas

Entire site drains uncontrolled over surface and calculated C=0.38 is used for the calculation for the post development calculation.

A municipal stormwater service 1050 mm is provided on Roseview Avenue. Also, along the south border of the property there is an easement for the 675 storm drainage pipe from the adjacent municipal park (east).

3.2 Stormwater for Proposed Development

The proposed 4-storey building and the parking and driveway will cover the most of the property so the outflow excess will be controlled on the site. The flat roof will be used as an amenity space for residents and the roof storage is not practical for this reason. In order to match the post-development 100 year runoff to the predevelopment 5-year runoff an underground storage is proposed at rear open parking. Calculated storage capacity is 38.33 m^3. Proposed type of storage is “Stormtech” however, any similar system should be considered. The roof outflow will be routed toward the parking and then together with the parking runoff will be routed to the storage over CBMH1. The

inlet control device (ICD) has to provide 2.46 l/sec. The manufacturer of the storage facility will provide the type and model that is their design for particular facility or an ICD that can operate under required conditions and its compatible with the storage.

Proposed stormwater storage can provide quantity and quality control capacity. At the time of preparation of this report Rideau Valley Conservation Authorities (RVCA) did not respond to our request to determine if the quality control is required so it was assumed that no quality control is required.

The drainage system comprises of weeping tiles around the building and connected to the municipal receiving pipe.

Instead the existing culvert a new culvert 300 mm is proposed to be installed under the entrance ramp from Roseview Avenue. Inlet and outlet inverts will match the invert elevations of existing culverts north and south from the location. The rest of the swale will be reinstated. Details are shown on the plan.

Existing catch basin will be relocated between existing culvert on south and the new one under the access driveway. The top of grate of the CB will be at elevation of obvert of the culvert. Its function will be to collect excess of water in case that the culvert becomes clogged.

Detailed calculation is provided in Appendix A.

3.3 Proposed Grading

As the largest part of the property is to be covered with the building and parking-driveway area, the grading is proposed to provide the stormwater routing to the underground storage. The east border along the parking will be edged with a concrete curb so the spillover to adjacent properties will be prevented. The driveway along the building will be partially sloped toward entrance and toward the rear parking and CBMH1. The asphalt edge within the easement will be at the level of grassed area.

The rest of the property will be edged with a concrete curb placed at 10 cm distance from inside of the property line (to maintain the property line elevation unchanged).

Emergency overflow can be only achieved at the rear parking toward existing catch basin at the north-east corner of the property. Also, the manhole at the east entrance to the easement is collecting runoff from the public park area at rear into 675 mm pipe under the easement. This is a current situation with the rear of the site as well as the adjacent properties and it will be maintained in the future.

During the design, the City's representatives informed engineers about a depression and occasional ponding in the park and along the south-east edge of the property (noted on the plan) which partially drains over the property toward the CB at the north-east corner. In order to divert the runoff from the south edge and allow it to reach the CB, the narrow strip along the east property line will be maintained at the existing grade along the property line.

Existing drainage swale along the street is to be maintained including a portion that is going to be restored after construction of the new entrance and culvert.

4. Conclusion and Recommendation

4.1 Water Supply

Current water consumption is **0.16 l/sec** and expected consumption for the new development is **1.65 L/sec)** for peak period. The fire flow for residential spaces was estimated to be 7,000 l/min (117 l/sec) (FUS). Calculation based on the boundary conditions issued by the City By confirmed that the pressure and required flow are in the prescribed ranges (Table1. , Table 2.)

4.2 Fire Flow

The fire flow based on OBC calculation is 6,597 l/min (109.96 l/sec).

Fire protection will be provided from the nearest hydrant (52.9 m) at pressure of 101.3 m and it can reach the top of the building (79.81 m). The second

nearest hydrant is located south from the property at 125 m distance. Both hydrants have blue cap markings (Class AA) and in accordance with Table 18.5.4.3 of ISTB-2018-02 they have combined capacity of 9,463 l/min which is sufficient for the fire protection of the proposed building.

4.3 Sanitary Sewer

Proposed 150 mm sanitary lateral will provide required outflow capacity where minimum self-cleansing velocity is below 0.6 m/sec. at 3.5% slope. This will provide required velocity and capacity.

City of Ottawa did not provide any information on residual capacity of receiving pipe so it was considered that the flow capacity is at its 50% for the peak time and that the increase can be absorbed.

4.4 Stormwater

The proposed 4-storey building and the parking and driveway will cover the most of the property so the outflow excess will be controlled on the site. Drainage area and a storm calculation sheets (pre and post-development) are shown in Appendix A[2].

Proposed type of storage is “Stormtech” however, any similar system should be considered. The roof outflow will be routed toward the parking and then together with the parking runoff will be routed to the storage over CBMH1. The inlet control device (ICD) has to provide 2.46 l/sec. The manufacturer of the storage facility will provide the type and model that is their design for particular facility or an ICD that can operate under required conditions and its compatible with the storage.

[2] Post Development calculation:

4.5 Grading

As the largest part of the property is to be covered with the building and parking-driveway area, the grading is proposed to provide the stormwater routing to the underground storage as well as to prevent spill over to and from adjacent properties.

Existing drainage swale along the street is to be maintained including a portion that is going to be restored after construction of the new entrance and culvert.

Based on the information provided by the City of Ottawa, the existing municipal services are adequate and will not be overloaded after the construction of the buildings at 817 Roseview Avenue.

Prepared by:

Zoran Mrdja, P.Eng.

June 2022
Revised February 2023

LICENSED PROFESSIONAL ENGINEER
Z. MRDJA
PROVINCE OF ONTARIO

Professional Engineers Ontario

Authorized by Professional Engineers of Ontario to provide professional services to public

Appendix A: Calculations

SITE PLAN OF SURVEY PLAN, PART 1 PLAN OF PART OF LOT 1 REGISTERED PLAN 523, CITY OF OTTAWA

ZONING: AM[2181] H(11)
ARTERIAL MAINSTREET ZONE (SECTIONS 185 AND 186) CITY OF OTTAWA;
URBAN EXCEPTION 2181, MAXIMUM HEIGHT 11.0 m

PROPOSED BUILDING TYPE: 4 STOREY, LOW RISE RENTAL BUILDING
24 RESIDENTIAL RENTAL UNITS

LOT DEPTH: 55.67m (182.64')

ADJACENT ZONING:
NORTH: AM10
SOUTH: R1GG
WEST SIDE: AM10
EAST SIDE: L1

SCHEDULE 1 AREA: AREA 'C'
SCHEDULE 1A AREA: AREA 'C'

LOT INFO

P. STANDARD	817 ROSEVIEW REQUIRED	817 ROSEVIEW PROPOSED	EXISTING SINGLE	NOTES
LOT WIDTH:	n/a	20.12m	20.12m	
LOT AREA:	n/a	1100m2	1100m2	
HEIGHT:	11.0m	14.32m	~6.0m	Minor ZBLA
FRONT YARD:	3.0m	3.05m	7.7m	
CORNER YARD:	n/a	n/a	n/a	
REAR YARD:	7.5m	13.65m	37.3m	
INTERIOR YARD:	0.0m com. zones 7.5m res. zones	1.22m 7.52m	4.0m	
AMENITY AREA:	144m2	212.5m2	n/a	
PARKING SPACES:	29 res. 5 visitor	15 0	1 0	Minor ZBLA Minor ZBLA
BIKE SPACES:	12	20	0	
M.L.C.:	NO MAX.			

BUILDING AREAS

BASEMENT FL. GFA:	-	115.7m2	-	
FIRST FL. GFA:	-	180.3m2	-	
SECOND FL. GFA:	-	39 2	-	
THIRD FL. GFA:	-	39 2	-	
FOURTH FL. GFA:	-	29 2	-	
STORAGE:	-	57	-	
GARAGE/CARPORT:	-	16 2	-	
EXITS/CORR. (ALL FLOORS):	-	290.2m2	-	
TOTAL GFA:	-	1374.1m2	-	
TOTAL ALL AREAS:	-	1742.5m2	-	NOT INCL. CARPORTS

update

PROPOSED SITE DEVELOPMENT INFO.

NEW GROSS FLOOR AREA:	1374.1m2	-	
EX. GROSS FLOOR AREA:	0.0m2	144m2	EX. DEMO'D
NUMBER OF UNITS:	20	SINGLE	
PROPOSED STOREYS:	4	1	
BUILDING COVERAGE:	4	-	
SOFT LANDSCAPING CVG.:	1	-	
HARD LANDSCAPING CVG.:	1	-	
DECKS/PORCH/STEPS:	0.0%	-	
ASPHALT CVG.:	42.5%	-	
OTHER:	2.4%	-	

update

SURVEY INFO.

SURVEY INFO TAKEN FROM
SURVEYOR'S REAL PROPERTY REPORT
PART 1 - PLAN OF PART OF
LOT 1, REGISTERED PLAN 523, CITY OF OTTAWA
PREPARED BY:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD
MAY 20, 2021

SITE LEGEND

- EX. TREE TO BE REMOVED
- NEW CONIFEROUS TREE
- DENOTES SOFT LANDSCAPING
- DENOTES HARD LANDSCAPING
- EXISTING BUILDING FOOTPRINT
- PROPOSED RIVERSTONE
- PROPOSED ASPHALT DRIVEWAY
- PROPOSED WOOD DECKS/ BALCONIES
- CAR PARKING SPACE (ASPHALT)
- BYCYCLE PARKING (ASPAHLT)
- WASTE COLLECTION AREA
- SNOW STORAGE AREA
- PROPOSED/EXISTING ENTRY/EXIT
- PF — TEMPORARY PROTECTION FENCE
- U.P. EX. UTILITY POLE
- EX. CHAINED LINK/BOARD FENCE
- PROPERTY LINE
- MOTION SENSING EXT. LIGHTS

WASTE COLLECTION LEGEND

GB	3YD + 2YD GARBAGE CONTAINERS
BB	2YD FIBRE CONTAINER
B	2YDY GML CONTAINER
G	240L ORGANICS
	PRIVATE COLLECTION

SITE NOTES

NEW ROOF DOWN SPOUTS SHALL NOT BE DIRECTED TOWARDS THE ADJACENT PROPERTIES

EXCAVATED MATERIAL TO BE REMOVED FROM PROPERTY

ALL GRADE TO SLOPE 2% AWAY FROM FOUNDATION WALL

ALL MEASUREMENTS ARE METRIC (ACCOMPANYING IMPERIAL MEAS. MAY APPEAR)

EXISTING GRADING AND DRAINAGE PATTERNS NOT TO BE ALTERED UNLESS OTHERWISE NOTED BY THE CIVIL ENGINEER

SNOW ACCUMULATION TO BE REMOVED OFF SITE IMMEDIATELY AS NEEDED

EXISTING PLANTING MATERIAL

CODE	COMMON NAME	QTY.	SIZE (DIA.)	CONDITION/NOTES
DECIDOUS TREES				
CONIFEROUS TREES				
SHRUBS				

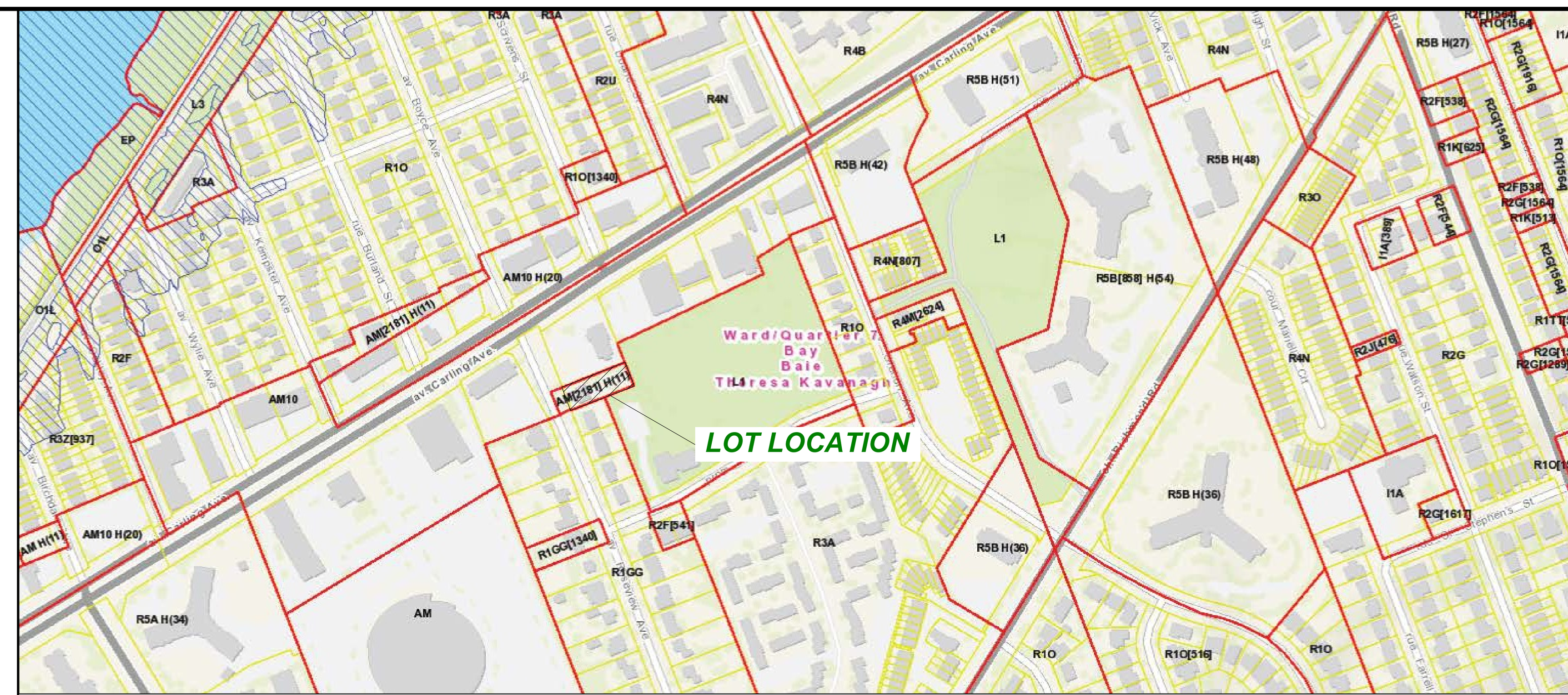
NEW PLANTING MATERIAL

CODE	COMMON NAME	QTY.	SIZE (DIA.)	CONDITION/NOTES
DECIDOUS TREES				
DT1	RED MAPLE	2	50mm Cal.	
CONIFEROUS TREES				
SHRUBS				

TREE CONSERVATION NOTES

1. ERECT A FENCE AT THE CRITICAL ROOT ZONE (CRZ1) OF TREES;
2. DO NOT PLACE ANY MATERIAL OR EQUIPMENT WITHIN THE CRZ OF THE TREE;
3. DO NOT ATTACH ANY SIGNS, NOTICES OR POSTERS TO ANY TREE;
4. DO NOT RAISE OR LOWER THE EXISTING GRADE WITHIN THE CRZ WITHOUT APPROVAL;
5. TUNNEL OR BORE WHEN DIGGING WITHIN THE CRZ OF A TREE;
6. DO NOT DAMAGE THE ROOT SYSTEM, TRUNK OR BRANCHES OF ANY TREE;
7. ENSURE THAT EXHAUST FUMES FROM ALL EQUIPMENT ARE NOT DIRECTED TOWARDS ANY TREE'S CANOPY.

* THE CRITICAL ROOT ZONE (CRZ) IS ESTABLISHED AS BEING 10 CENTIMETRES FROM THE TRUNK OF A TREE FOR EVERY CENTIMETRE OF TRUNK DIAMETER AT BREAST HEIGHT (DBH). THE CRZ IS CALCULATED AS DBH X 10 CM.
* TREE PROTECTION FENCE (PF) TO BE ERECTED BEFORE AND REMAIN UNTIL BUILDING CONSTRUCTION HAS COMPLETED AND TO CONSIST OF 1.8m HIGH PLYWOOD HOARDING (SEE DIAGRAM BELOW).



3/A1 KEY PLAN & CONTEXT
SCALE NO SCALE

SITE PREPARATIONS:

- EXAMINE SITE, AND ENSURE THAT EACH SECTION PERFORMING WORK RELATED TO SITE CONDITIONS HAS EXAMINED IT, SO THAT ALL ARE FULLY INFORMED ON ALL PARTICULARS WHICH AFFECT THE PROJECT WORK IN ORDER THAT CONSTRUCTION PROCEEDS COMPETENTLY AND EXPEDITIOUSLY

- WHERE DIMENSIONS ARE REQUIRED FOR PROPER FABRICATION, VERIFY DIMENSIONS OF COMPLETED WORK IN PLACE BEFORE FABRICATION AND INSTALLATION. VERIFY THAT PREVIOUSLY EXECUTED WORK AND SURFACES ARE SATISFACTORY FOR INSTALLATION OR APPLICATION, OR BOTH, AND THAT PERFORMANCE OF SUBSEQUENT WORK WILL NOT BE ADVERSELY AFFECTED

- PROTECT ADJACENT PRIVATE AND PUBLIC PROPERTY FROM DAMAGE AND, IF DAMAGED, MAKE GOOD IMMEDIATELY. MAKE GOOD PRIVATE PROPERTY TO MATCH IN ALL DETAILS ITS ORIGINAL CONDITION IN MATERIAL AND FINISHES AS APPROVED, AND PUBLIC PROPERTY IN ACCORDANCE WITH REQUIREMENTS SPECIFIED AND/OR INSTRUCTED BY ITS OWNER OR AS DIRECTED BY THE CONSULTANTS

- PREVENT SPREAD OF DUST BEYOND THE CONSTRUCTION SITE BY WETTING, OR BY OTHER APPROVED MEANS, AS REQUIRED OR AS DIRECTED BY THE CONTRACTOR AND AUTHORITIES HAVING JURISDICTION

- VERIFY LOCATION OF AND LIMITATIONS IMPOSED BY, EXISTING MECHANICAL, ELECTRICAL, TELEPHONE AND SIMILAR SERVICES, AND PROTECT THEM FROM DAMAGE. IF NECESSARY, RELOCATE ACTIVE SERVICES TO ENSURE THAT THEY FUNCTION CONTINOUSLY WHEREVER POSSIBLE

- CAP OFF AND REMOVE UNUSED UTILITY SERVICES ENCOUNTERED DURING WORK AFTER APPROVAL IS GIVEN BY THE UTILITIES CONCERNED OR JURISDICTIONAL AUTHORITIES, WHICH EVER MAY APPLY. RELOCATION, REMOVAL AND INSTALLATION OF EXISTING UTILITY SERVICES SHALL BE PERFORMED ONLY BY THE APPLICABLE UTILITY, AND OF OTHER SERVICES BY LICENSED PROFESSIONALS.

- ENSURE THAT PRECAUTIONS ARE TAKEN TO PREVENT LEAKAGE AND SPILLAGE FROM PLUBMING AND MECHANICAL WORK THAT MAY DAMAGE ADJACENT FINISHES

GENERAL CONSTRUCTION NOTES

ALL DESIGN AND CONSTRUCTION SHALL CONFORM TO O.B.C. 2012 REQUIREMENTS.

INTERIOR SPACES DESIGN & MATERIALS

1. ALL CLOSETS TO RECEIVE 1 ROD AND 2 SHELVES, UNLESS OTHERWISE NOTED.
2. INSTALL GALVANIZED METAL PAN & DRAIN AT ALL CLOTHES WASHING MACHINE LOCATIONS.

WINDOWS AND DOORS

1. DOORS, INCLUDING SLIDING DOORS THAT OPEN MORE THAT (600MM) 24" ABOVE GROUND OR A LANDING SHALL HAVE A RESTRICTED OPENING OR BE PROVIDED WITH GUARDS (9.8.8.1 (4))
2. PROVISIONS FOR RESISTANCE TO FORCED ENTRY SHALL BE PROVIDED IN CONFORMACE TO 9.7.5.2 AND 9.7.5.3 OF THE O.B.C.
3. EXCEPT WHERE A DOOR ON THE SAME FLOOR LEVEL AS THE BEDROOM PROVIDES DIRECT ACCESS TO THE EXTERIOR, EVERY FLOOR LEVEL CONTAINING A BEDROOM IN A SUITE SHALL BE PROVIDED WITH AT LEAST ONE OUTSIDE WINDOW THAT CAN BE OPENED FROM THE INSIDE WITHOUT USE OF TOOLS AND SUCH WINDOW SHALL PROVIDE AN INDIVIDUAL, UNOBSTRUCTED PORTION HAVING A MINIMUM AREA OF 0.35 M2 WITH NO DIMENSION LESS THAN (380MM) 15", AND BE ABLE TO MAINTAIN THE REQ'D OPENING w/o ADDITIONAL SUPPORT (9.9.10)

STAIRS, RAMPS, HANDRAILS & GUARDS

INTERIOR PRIVATE STAIR	INTERIOR PUBLIC STAIR
RISERS 7 7/8" MAX. - 4 7/8" MIN.	RISERS 7" MAX. - 4 15/16" MIN.
RUN 8 1/4" MIN. - 14" MAX.	RUN 11" MIN. - - MAX.
TREAD 9 1/4" MIN. - 14" MAX.	TREAD 11" MIN. - -" MAX.
NOSING 1"	NOSING 0"

MINIMUM HEADROOM CLEARANCE OF (1.95M) 6'-5" STAIRS.

EXTERIOR PRIVATE STAIR
RISERS 7 7/8" MAX.
RUN 9" MIN.
TREAD 10" MIN.
NOSING 1"
MIN. HEADROOM CLEARANCE TO BE 6'-5" ABOVE NOSING.

1. AT LEAST ONE HANDRAIL SHALL BE CONTINUOUS. (9.8.7.2.)
2. HANDRAILS TO BE (865MM TO 965MM) 34" TO 38" ABOVE NOSING.
3. AN EXTERIOR GUARD MUST BE A MINIMUM HEIGHT OF (900MM) 2'11" IF THE WALKING SURFACE IS LESS THAN (1800MM) 5'11" ABOVE THE ADJACENT GRADE, OTHERWISE THE HEIGHT MUST BE A MINIMUM OF (1 070MM) 42". ALL REQUIRED GUARDS WITHIN DWELLING UNITS MUST BE A MINIMUM OF (900MM) 2'11".
4. GUARDS ARE REQUIRED ON DECKS AND OTHER WALKING SURFACES THAT EXTEND TO (600MM) 23 5/8" ABOVE GRADE AND SHALL CONFORM TO THE LOADING CRITERIA IN PART 4 OF THE O.B.C. OR BE CONSTRUCTED AS SET OUT IN THE O.B.C. SUPPLEMENTARY GUIDELINES PART 7 (9.8.8.8). FOR METAL GUARDS, SUPPLIERS SHOP DRAWINGS MUST BE CERTIFIED FOR DESIGN INSTALLATION CONFORMING TO O.B.C. PART 4 and 9.8.8.2.
5. A LANDING SHALL BE PROVIDED AT THE TOP OF ALL EXTERIOR STAIRS THAT CONTAIN MORE THAN 3 RISERS (9.8.6.2(3)).

INTERIOR STAIR
ALL STAIR GUARDS TO BE 3'-0" ABOVE NOSING.
ALL LANDING GUARDS TO BE 3'-0" ABOVE FINISHED FLOOR.
MAXIMUM VERTICAL SPAGING BETWEEN BALUSTERS IS 4".

EXTERIOR STAIR
TO COMPLY TO O.B.C 9.8.8 FOR RESISTANCE TO LOADING AND NEWEL ANCHORAGE.
ALL STAIR GUARDS TO BE 3'-0" ABOVE NOSING.
ALL LANDING AND BALCONY GUARDS TO BE 3'-6" ABOVE FINISHED SURFACE.
NO CLIMBABLE ELEMENTS BETWEEN 4" AND 3 '-0" ABOVE FLOOR FINISH.
HAND RAILS TO COMPLY w/ O.B.C. 9.8.7.

FIRE PROTECTION

1. SUPPLY AND INSTALL SMOKE AND CARBON MONOXIDE DETECTORS AS PER 2012 O.B.C. REQUIREMENTS. CONFIRM FINAL LOCATIONS WITH DESIGNER ON SITE. 9.10.19.3. & 9.33.4.
2. SMOKE ALARMS SHALL BE PROVIDED ON ALL LEVELS AND IN EACH SLEEPING ROOM AND INTERCONNECTED (AC, NOT BATTERY) (9.10.19)
3. EMPTY
4. CARBON MONOXIDE DETECTOR SHALL BE INSTALLED ADJACENT TO EACH SLEEPING AREA (9.33.4.1., 9.33.4.2 & 9.33.4.3 OR AS PER A.REG. 283/01)
5. THE CONSTRUCTION BETWEEN THE GARAGE AND THE DWELLING UNIT SHALL PROVIDE AN EFFECTIVE BARRIER AGAINST GAS AND EXHAUST FUMES AND THE DOOR BETWEEN THE GARAGE AND THE DWELLING UNIT SHALL BE TIGHT FITTING, WEATHERSTRIPPED, AND HAVE A SELF CLOSING DEVICE (9.10.9.16)
6. PROVIDE FIRE BLOCKS AS PER O.B.C. 9.10.16.

DRAINAGE

1. WINDOW WELLS SHALL BE DRAINED TO THE FOOTING LEVEL OR OTHER SUITABLE LOCATION (9.14.6.3.)
2. DRAINAGE LAYER SHALL BE INSTALLED ADJACENT TO THE EXTERIOR SURFACE OF A FOUNDATION WALL WHERE THE INSULATION EXTENDS TO MORE THAN (900MM) 2'11" BELOW THE ADJACENT EXTERIOR GROUND LEVEL. (9.14.2.1)

FOUNDATIONS & CONCRETE

1. MINIMUM FOOTING DEPTH FOR FOUNDATION WALL (1524MM) 5'0" BELOW GRADE AND FOR SONOTUBES OR CONCRETE PIERS (1828MM) 6'0" BELOW GRADE TO PROVIDE ADEQUATE FROST PROTECTION OR PROVIDE P. ENG SOILS REPORT STATING OTHERWISE.
- PROVIDE P. ENG SOILS REPORT TO CONFIRM SOILS BEARING CAPACITY DESIGN OF PLANS HAVE BEEN DESIGNED TO A MINIMUM OF 75 KPA.
2. PROVIDE 1/2" DEEP SAW CUT AT ALL CONCRETE SLABS TO MAX. AREA OF 300 SQ. FT.

MASONRY VENEER:

1. 9.20.9.5 - MASONRY VENEER TIES ARE REQUIRED TO HAVE A MAXIMUM VERTICAL SPACING OF (400MM) 16" AND A MAXIMUM HORIZONTAL SPACING OF (800MM) 32".
2. 9.20.13 - FLASHING ON MASONRY WALLS MUST BE INSTALLED BENEATH JOINTED MASONRY SILLS, OVER THE BACK AND TOP OF PARAPET WALLS, OVER THE HEADS OF GLASS BLOCK PANELS, AND BENEATH WEEP HOLES, AND OVER THE HEADS OF DOORS AND WINDOWS IF THE DISTANCE BETWEEN THE TOP OF THE OPENING AND THE BOTTOM OF THE EAVE EXCEEDS 1/4 OF THE EAVE OVERHANG.
3. 9.20.13.3 - THROUGH WALL FLASHING SHALL BE PROVIDED IN MASONRY VENEER WALL IN SUCH THAT, ANY MOISTURE THAT ACCUMULATES IN THE AIR SPACE, WILL BE DIRECTED TO THE EXTERIOR OF THE BUILDING.
4. 9.20.13.8 - WEEP HOLES MUST NOT BE SPACED MORE THAN (800MM) 2'7" APART AND BE PROVIDED AT THE BOTTOM OF EVERY CAVITY IN MASONRY VENEER.
5. STEEL ANGLE LINTELS SUPPORTING MASONRY SHALL BE PRIME PAINTED. (9.20.5.2(5)).
6. FLASHING SHALL BE INSTALLED BEHIND SHEATHING MEMBRANE, (9.20.13.3 TO 9.20.13.6). FLASHING MUST BE INSTALLED WHERE SLOPING SURFACES INTERSECT TO FORM A VALLEY, INTERSECTION OF ROOF WALLS AND SHINGLED FLOORS, AND AT CHIMNEY AND CHIMNEY SADDLE INTERSECTIONS. (9.26.4.)

FIREPLACES

1. FIREPLACE, FIREPLACE INSERT, WOODSTOVE, AND/OR CHIMNEY TO BE ULC LISTED AND INSTALLED AS PER MANUFACTURERS' SPECIFICATIONS.

WOOD FRAME CONSTRUCTION

1. MOISTURE BARRIER SHALL BE PROVIDED IN ALL AREAS WHERE WOOD IS IN CONTACT WITH CONCRETE OR UNIT MASONRY LOCATED BELOW GRADE (9.23.2.3)
2. SUPPORT OF WALLS WITH ADDITIONAL BLOCKING OR JOISTS AS PER 9.23.9.8.
3. WHERE THE TOP OF THE FOUNDATION WALL IS LEVEL, THE JUNCTION BETWEEN THE SILL PLATE AND THE FOUNDATION IS TO BE CAULKED OR THE SILL PLATE IS TO BE PLACED ON A LAYER OF MINERAL WOOL NOT LESS THAN (25MM) 1" THICK. (9.23.7.2)

ROOF FRAMING & COMPONENTS

1. TRUSS AND FLOOR SYSTEM SUPPLIER TO PROVIDE SHOP DWG'S STAMPED BY PROFFESIONAL ENGINEER FOR APPROVAL BY DESIGNER PRIOR TO FABRICATION.
CONTRACTOR SHALL PROVIDE SHOP DRAWINGS TO INSPECTOR BEFORE ERECTION OF TRUSSES.
2. FINAL ROOF/ GIRDER TRUSS LAYOUT BY SUPPLIER MAY REQUIRE MODIFICATIONS TO FRAMING INDICATED.
3. ADD INSULATION DEPRESSORS AT EACH TRUSS SPACE WHERE NECESSARY TO MAINTAIN MINIMUM 2 1/2" AIR SPACE ABOVE INSULATION.
4. LOCATE ALL PLUMBING STACKS AND VENTS ON REAR ROOF.
5. ROOF VENTS ARE TO BE UNIFORM ON OPPOSITE SIDES OF THE BUILDING WITH NOT LESS THA 25% AT THE TOP AND NOT LESS THAN 25% AT THE BOTTOM. (9.19.1.2.) ROOF VENT AREA MUST BE A MINIMUM OF 1/300 OF THE INSULATED CEILING AREA. IF ROOF SLOPE IS LESS THAN 1 IN 6, THE AREA IS 1/150 OF THE INSULATED CEILING AREA.
6. EAVE PROTECTION REQUIRED ON SHINGLE, SHAKE, OR TILE ROOFS EXTENDING FROM THE EDGE OF THE ROOF A MINIMUM OF (900MM) 2'11" UP THE ROOF SLOPE TO A LINE NOT LESS THAN (300MM) 11 3/4" INSIDE THE INNER FACE OF THE EXTERIOR WALL. (9.26.5).

CLADDING & COMPONENTS

1. RUN FLASHING UP WALL 6" MINIMUM AT BACKSIDE OF AIR BARRIER, TAPE JOINT.
2. AIR BARRIERS ARE TO BE CONTINUOUS. (9.25.3.3)

MECHANICAL

1. ALL WORK TO BE DONE IN ACCORDANCE WITH ASHRAE STANDARDS

ELECTRICAL

1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE ELECTRICAL SAFETY CODE.
2. PROVIDE EXT. LIGHT AT ALL EXTERIOR DOORS
3. FIXTURES TO BE SPECIFIED.

PLUMBING

1. THE CONSTRUCTION OF THE PLUMBING SYSTEM SHALL CONFORM TO PART 7 OF THE O.B.C. (9.31.2.1.)
2. SERVICE WATER HEATERS SHALL BE ANCHORED TO THE STRUCTURE TO PREVENT OVERTURNING.
3. IT IS RECOMMENDED THAT BASEMENT FLOOR DRAINS AND OTHER BASEMENT FITTINGS BE PROVIDED WITH APPROPRIATE CHECK DEVICES TO PREVENT AGAINST BACK FLOW FROM STREET SEWERS. (7.4.6.4).

TRIM

AS PER CLASSIC HARDWOODS OR EQUAL
TYPICAL: MITRE ALL CORNERS AND RETURNS.
CAULK ALL GAPS W/ LATEX CAULKING.
BASEBOARD: 3/4" X 4-1/2" POPLAR.
SHOE MOLDING 3/4", 1/4 ROUND POPLAR.
WINDOH AND JAMB CASINGS: 3/4" X 3-1/2".
WINDOW AND DOOR HEAD CASINGS: 3/4" X 3-1/2" POPLAR.
WINDOW SILL: EXTENDED STOOL; MITRE ALL RETURNS.
WINDOW SILL CASINGS: 3/4" X 3-1/2" POPLAR, MITRE END RETURNS.

KITCHEN

1. PROVIDE WATER PROOF WALL FINISH AS PER 9.29.2 OF 2012 O.B.C.
2. PROVIDE WATER RESISTENT FLOORING AS PER 9.30.1 OF 2012 O.B.C.
3. PROVIDE FIRE PROTECTION AROUND COOKTOPS AS PER 9.10.22 OF 2012 O.B.C.

BATH ROOM

1. WATERPROOF WALL FINISH REQUIRED AROUND ALL SHOWERS AND TUBS AS PER 9.29.2. MOISTURE RESISTANT BACKING REQUIRED AS PER 9.29.10.4. (1)
- MIN. 5'-11" ABOVE FLOOR OF SHOWERS
- MIN. 3'-11" ABOVE RIM OF TUBS w/ A SHOWER
- MIN. 15 3/4" ABOVE RIM OF TUBS w/o A SHOWER
2. ALL PLUMBING FIX. TO BE CAN/USA-B45.0 CERT. WITH MAX FLUSH CYCLE OF 4.8L
3. WATER RESISTANT FLOORING IN BATHROOM AS PER 9.30.1.2.(1)
4. TEMP. CONTROL VALVE REQ' D TO PREVENT WATER TO EXCEED 45'C
5. REPLACE 1/2" GYPSUM BD. WITH CEMENTITIOUS BOARD AT ALL SHOWERS, SHOWER-TUB WALLS & SHOWER WINDOW SILLS AND JAMBS
6. REPLACE 1/2" GYPSUM BD. WITH WATER RESISTANT GYPSUM BD. AT BATHTUB & SURROUNDS.
7. PROVIDE BATHROOMS WITH EXHAUST FAN WITH DUCT TERMINATING OUTSIDE OF BUILDING.

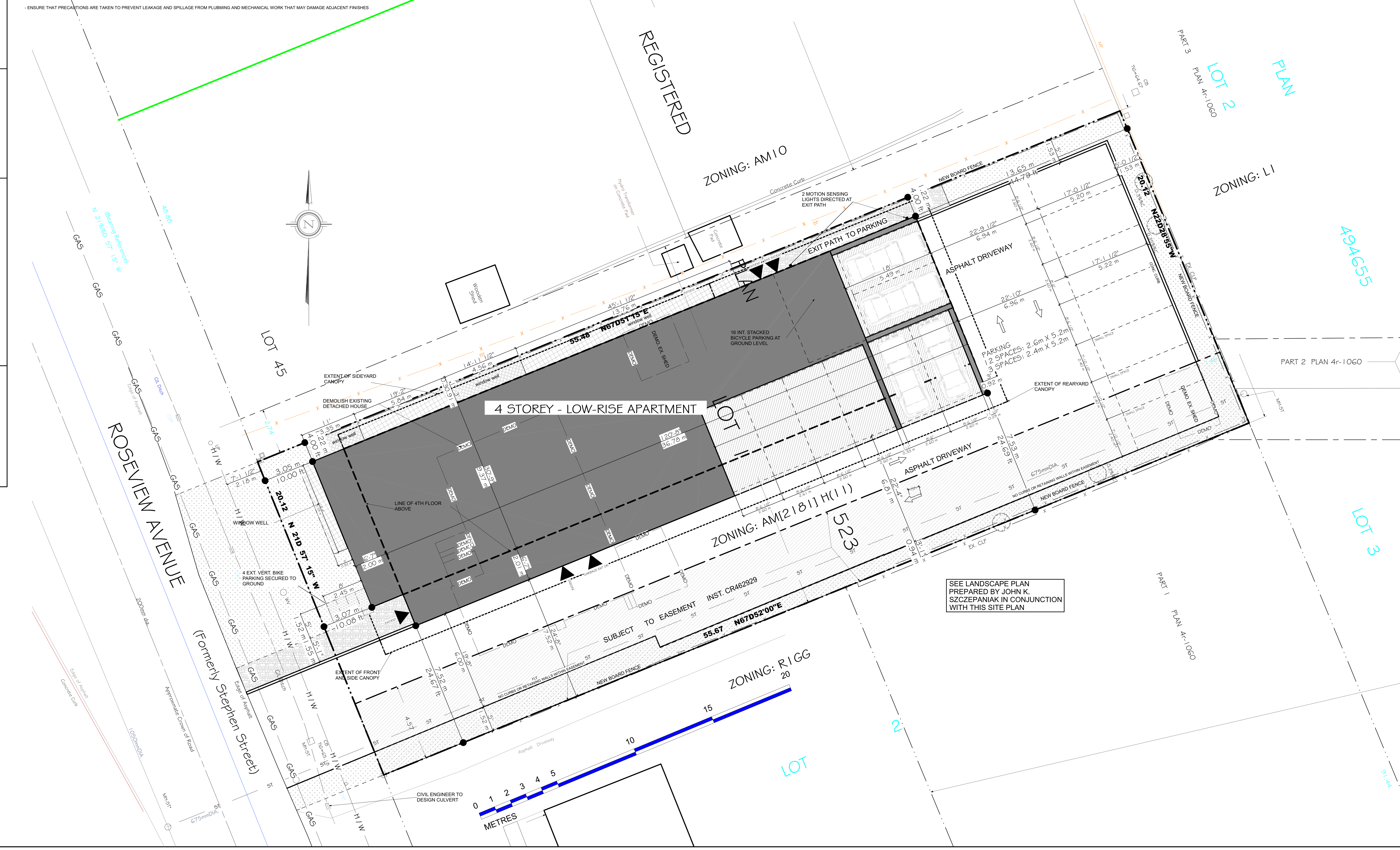
MAIN BATHROOM

1. STUD WALL REINFORCEMENT FOR FUTURE GRAB BARS FOR W.C./TUB/SHOWER AS PER 9.5.2.3.

CERAMIC FLOORING

1. SUB. FLOOR FOR CERAMIC AS PER 9.30.6. 2012 O.B.C.
2. FINISHED FLOORING IN BATHROOMS, KITCHEN, LAUNDRY ROOMS, GENERAL STORAGE AREAS AND ENTRANCES SHALL BE WATER RESISTANT (9.30.1.2)
3. CERAMIC TILE SUBSTRATE AS PER 9.30.6.

ALL APPLIANCES TO BE ULC LISTED, AND INSTALLED AS PER MANUFACTURERS' SPECIFICATIONS.



SEE LANDSCAPE PLAN PREPARED BY JOHN K. SZCZEPANIAK IN CONJUNCTION WITH THIS SITE PLAN

1/A1 SITE PLAN
SCALE 3/32" = 1'-0"

unPoised Architecture INC

UNPOISED ARCHITECTURE INC.
5-16 SWEETLAND AVE.
OTTAWA, ON. K1N-7T6

AZUL DESIGNS

OTTAWA, ON. K1H-7G2

The undersigned has reviewed and takes responsibility for this design, and has the qualifications and meets the requirements set out in the Ontario Building Code to be a designer.

RESPONSIBILITIES:

DO NOT SCALE DRAWINGS

ALL DESIGN AND CONSTRUCTION TO BE IN ACCORDANCE WITH THE ONTARIO BUILDING CODE 2006

ALL CONTRACTORS MUST WORK IN ACCORDANCE WITH ALL LAWS, REGULATIONS AND BYLAWS HAVING JURISDICTION

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND REPORT ALL ERRORS AND OMISSIONS TO THE ARCHITECT/DESIGNER

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GENERAL NOTES:

817 ROSEVIEW AVENUE

SCOPE OF WORK: NEW 4 STOREY LOW RISE RENTAL BUILDING - 24 UNITS

OWNER/DEVELOPER:
FARES ELSABBAGH
1886 MERIVALE RD.
OTTAWA, ON.
K2G 1E6

ARCHITECT/DESIGNER:
UNPOISED ARCHITECTURE INC./AZUL DESIGNS
5-16 SWEETLAND AVE.
OTTAWA, ON.
K1N-7T6

APPLICANT/PLANNER:
WSP CANADA INC.
2611 QUEENSVIEW DR. SUITE 300
OTTAWA, ON.
K2B-8K2

CIVIL ENGINEER:
ARCH-NOVA
45 BANNER ROAD
OTTAWA, ON.
K2H-8X5

LANDSCAPING:
JOHN K. SZCZEPANIAK
P.O. Box 4207, Station 'E'
OTTAWA, ON.
K1S 5B2

SURVEYOR:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD
14 CONCOURSE GATE • SUITE 500
OTTAWA, ON.
K2E-7S6

CONSULTANTS:

STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

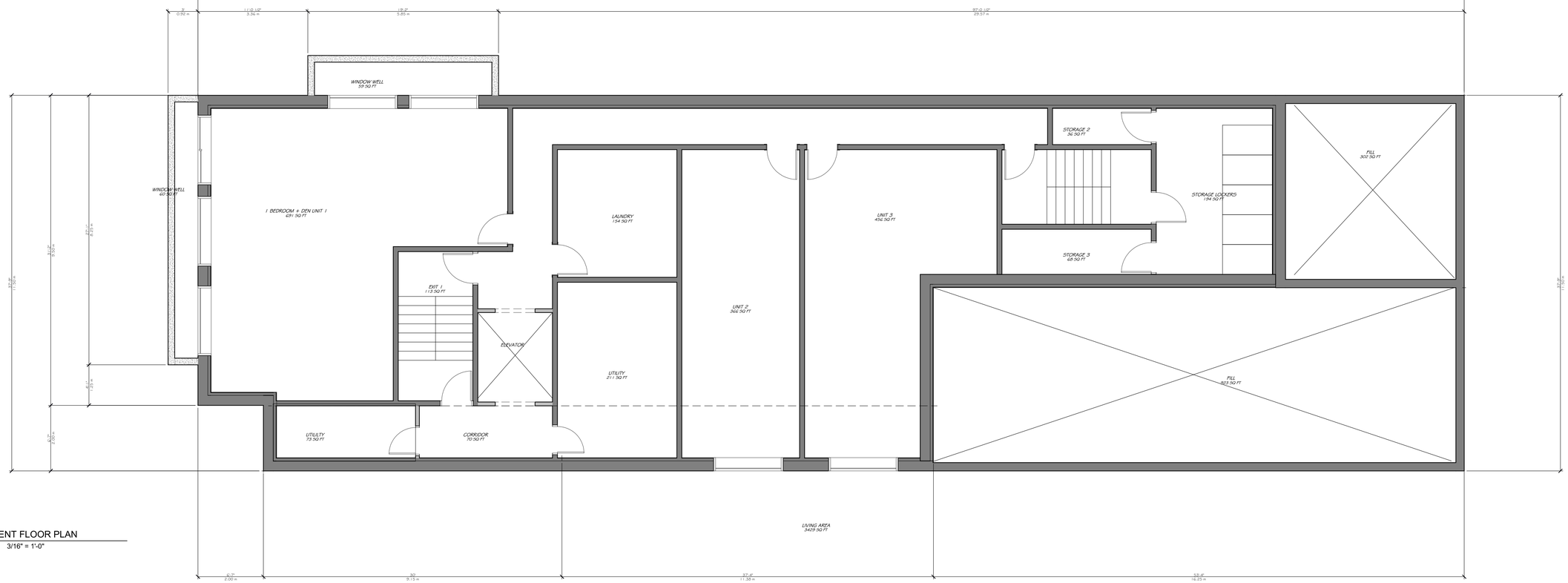
NO.	REVISION/ISSUE	DATE (M/D/Y)
4	REVISED SITE PLAN	05/30/22
3	REVISED SITE PLAN	09/08/21
2	REVISED SITE PLAN	07/12/21
1	PRELIMINARIES	02/10/21

PROJECT: **817 ROSEVIEW AVENUE**
817 ROSEVIEW AVE.
OTTAWA, ON K2B 6J3
613-000-0000

DRAWING NAME: SITE PLAN

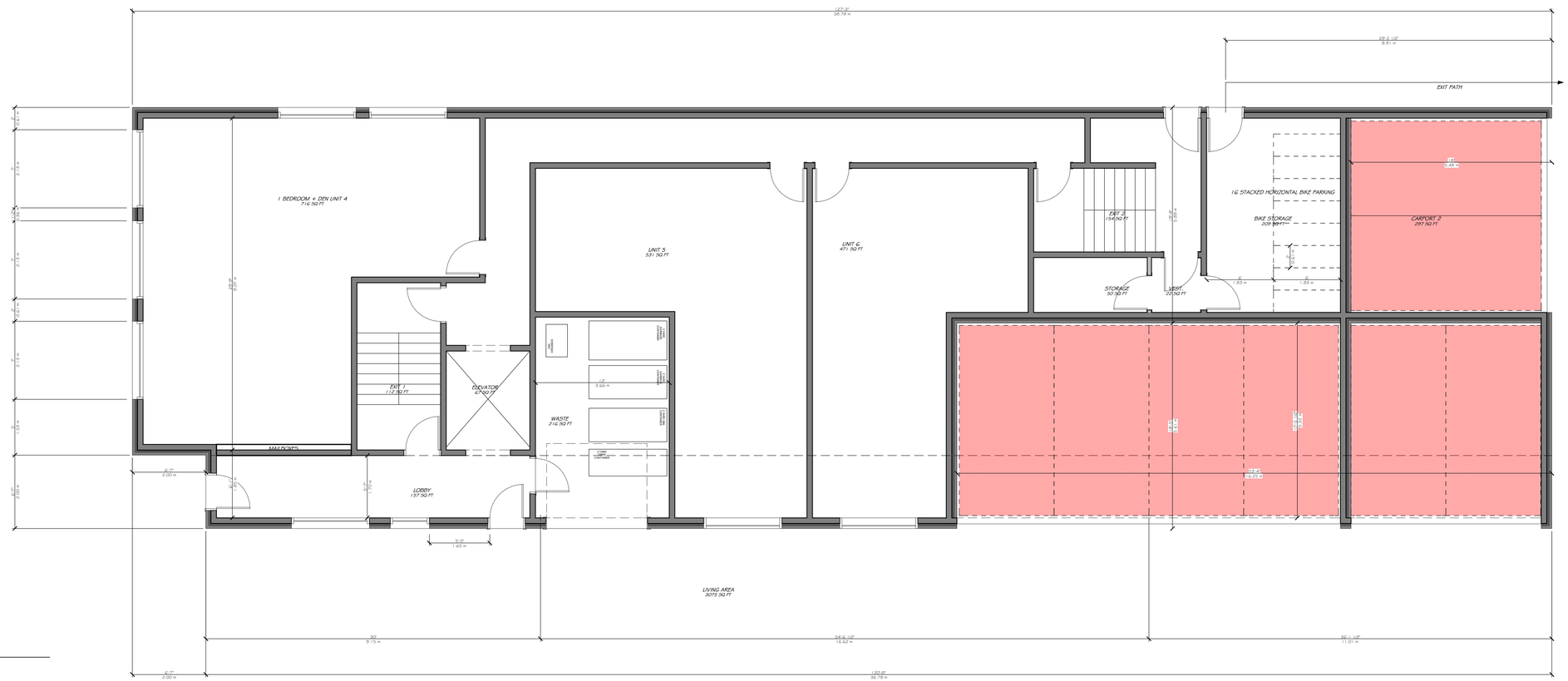
DRAWN BY: ---
DATE: FEB. 10, 2021
SCALE: AS NOTED
SHEET: A1
#18620

FILE NUMBER: D07-12-21-0165



1 A2 BASEMENT FLOOR PLAN

SCALE 3/16" = 1'-0"



2 A2 FIRST FLOOR PLAN

SCALE 3/16" = 1'-0"

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AZUL DESIGNS

OTTAWA, ON. K1H-7G2

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GENERAL NOTES:

817 ROSEVIEW AVENUE

SCOPE OF WORK: NEW 4 STOREY LOW RISE RENTAL BUILDING - 24 UNITS

OWNER/DEVELOPER:
FARES ELSABBAGH
1398 MERIVALE RD.
OTTAWA, ON.
K2G 1E8

ARCHITECT/DESIGNER:
UNPOISED ARCHITECTURE INC./AZUL DESIGNS
5-16 SWEETLAND AVE.
OTTAWA, ON.
K1N-7T6

APPLICANT/PLANNER:
NEP CANADA INC.
1600 CARLING AVENUE DR. SUITE 300
OTTAWA, ON.
K2B-8K2

CIVIL ENGINEER:
ARCH-NOVA
65 BANNER ROAD
OTTAWA, ON.
K2H-8A5

LANDSCAPING:
DESIGN TEAM GREENSPANAK
P.O. Box 4207, Station "E"
OTTAWA, ON.
K1S 5E2

SURVEYOR:
AWWS, O'SULLIVAN, VOLLEBEKK LTD
14 CONCOURSE GATE - SUITE 500
OTTAWA, ON.
K2E-7S6

CONSULTANTS:

STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

NO.	REVISION/ISSUE	DATE (M/D/Y)
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1	PRELIMINARIES	02/10/21

PROJECT: **817 ROSEVIEW AVENUE**
817 ROSEVIEW AVE.
OTTAWA, ON K2B 6J3
613-000-0000

DRAWING NAME: FLOOR PLANS

DRAWN BY: ---

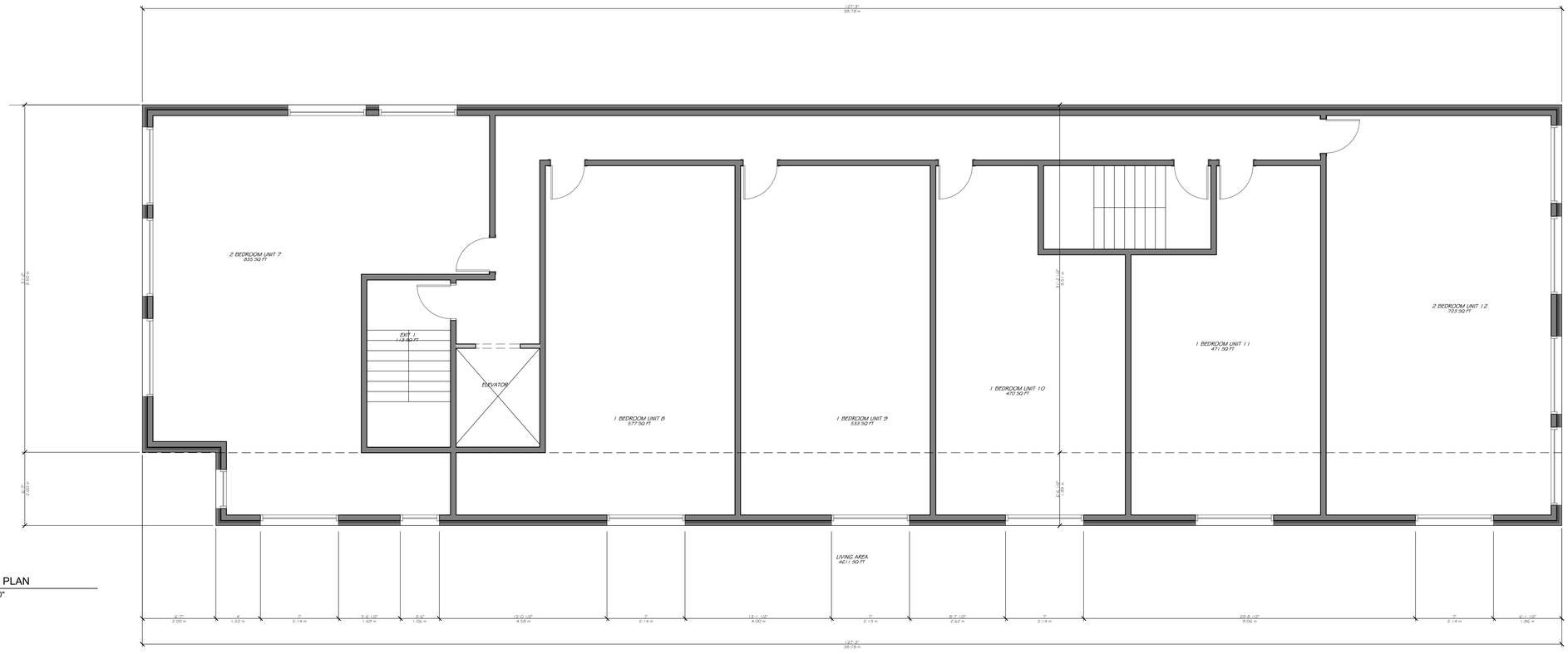
DATE: FEB. 10, 2021

SCALE: AS NOTED

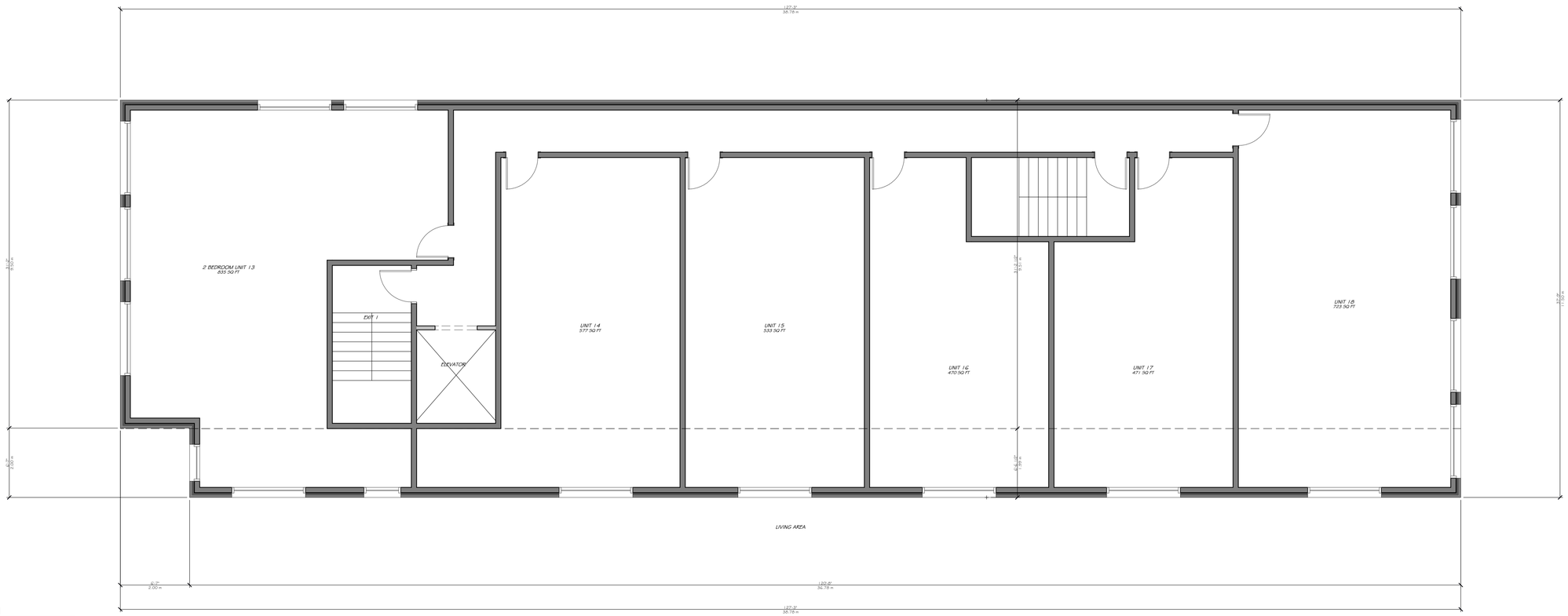
SHEET: A2

#18620

FILE NUMBER: D07-12-21-0165



1 A3 SECOND FLOOR PLAN
SCALE 3/16" = 1'-0"



2 A3 THIRD FLOOR PLAN
SCALE 3/16" = 1'-0"

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817 ROSEVIEW AVENUE

SCOPE OF WORK: NEW 4 STOREY LOW RISE RENTAL BUILDING - 24 UNITS

OWNER/DEVELOPER:
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1886 MERIVALE RD.
OTTAWA, ON.
K2G 1E6

ARCHITECT/DESIGNER:
UNPOISED ARCHITECTURE INC./AZUL DESIGNS
5-16 SWEETLAND AVE.
OTTAWA, ON.
K1N-7T6

APPLICANT/PLANNER:
WSP CANADA INC.
2611 QUEENSVIEW DR. SUITE 300
OTTAWA, ON.
K2B-8K2

CIVIL ENGINEER:
ARCH-NOVA
45 BANNER ROAD
OTTAWA, ON.
K2H-6K5

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STRUCTURAL - TBD
MECHANICAL - TBD
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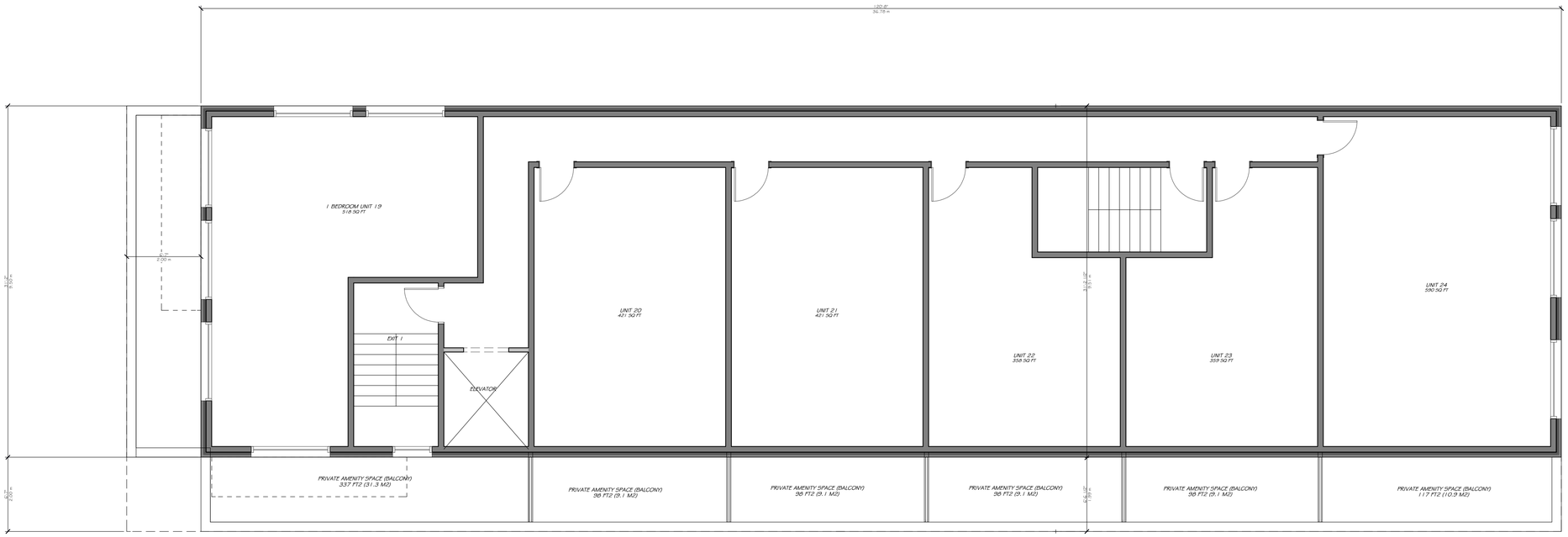
1	PRELIMINARIES	02/10/21

PROJECT: **817 ROSEVIEW AVENUE**
817 ROSEVIEW AVE.
OTTAWA, ON K2B 6J3
613-000-0000

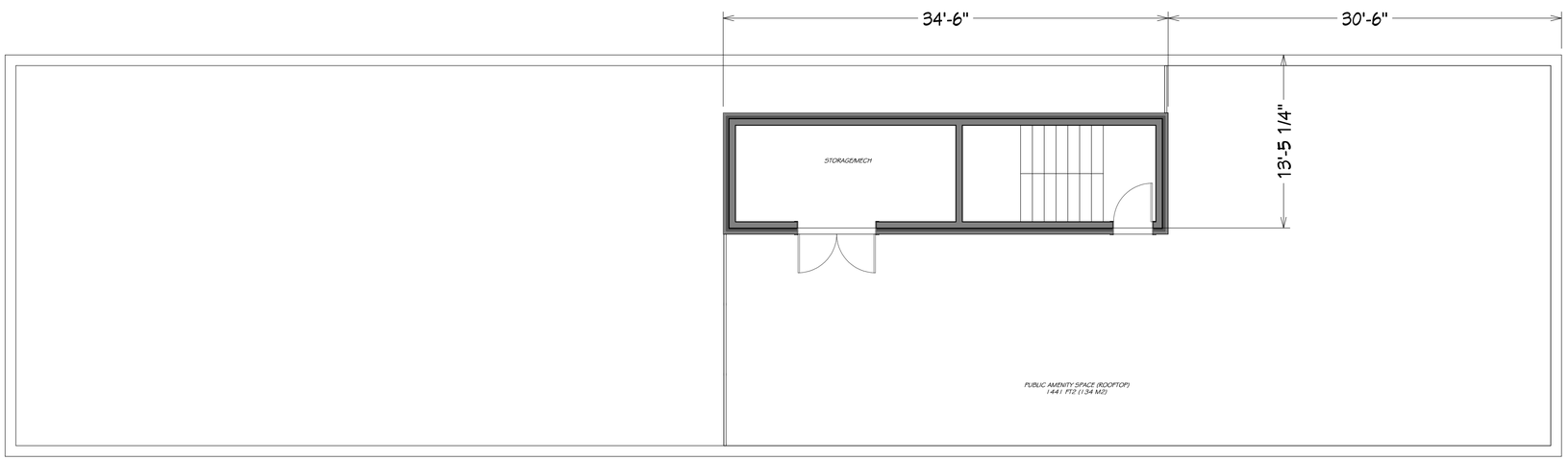
DRAWING NAME: FLOOR PLANS

DRAWN BY: ---
DATE: FEB. 10, 2021
SCALE: AS NOTED
SHEET: A3
#18620

FILE NUMBER: D07-12-21-0165



1 / A4 FOURTH FLOOR PLAN
SCALE 3/16" = 1'-0"



2 / A4 ROOF PLAN
SCALE 3/16" = 1'-0"

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5-16 SWEETLAND AVE.
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AZUL DESIGNS

OTTAWA, ON. K1H-7G2

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GENERAL NOTES:

817 ROSEVIEW AVENUE

SCOPE OF WORK: NEW 4 STOREY LOW RISE RENTAL BUILDING - 24 UNITS

OWNER/DEVELOPER:
FARES ELSAEBAGH
1386 MERIVALE RD.
OTTAWA, ON.
K2G 1E8

ARCHITECT/DESIGNER:
UNPOISED ARCHITECTURE INC./AZUL DESIGNS
5-16 SWEETLAND AVE.
OTTAWA, ON.
K1N-7T6

APPLICANT/PLANNER:
NEP CANADA INC.
1565 CARLING AVENUE DR. SUITE 300
OTTAWA, ON.
K2B-8K2

CIVIL ENGINEER:
ARCH-NOVA
65 BANNER ROAD
OTTAWA, ON.
K2H-8A5

LANDSCAPING:
DAVID SCHWARTZSPANAK
P.O. Box 4207, Station "E"
OTTAWA, ON.
K1S 5E2

SURVEYOR:
AWWS, O'SULLIVAN, VOLLEBEKK LTD
14 CONCOURSE GATE - SUITE 500
OTTAWA, ON.
K2E-7S6

CONSULTANTS:

STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

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1	PRELIMINARIES	02/10/21

PROJECT: **817 ROSEVIEW AVENUE**
817 ROSEVIEW AVE.
OTTAWA, ON K2B 6J3
613-000-0000

DRAWING NAME: PLANS

DRAWN BY: ---
DATE: FEB. 10, 2021
SCALE: AS NOTED
SHEET: A4
#18620

FILE NUMBER: D07-12-21-0165

Water Supply Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	350 L/d/P
Residential Maximum Daily Demand	9.5 x Average Daily *
Residential Maximum Hourly	1.5 x Maximum Daily *
Commercial Demand	2.5 L / m2 /d
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain to finished grade
must remain within	275kPa and 552kPa (40-80 psi; 28-56m)
During fire flow operating pressure must not drop below	140kPa (20 psi; 14 m)
* Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.	

817 Roseview Ave, Ottawa
Current

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	1	3
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4	0	0
1 Bedroom	1.4	0	0
2 Bedroom	2.1	0	0
3 Bedroom	3.1		0
4 Bedroom	4.2	0	0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/sec	m^3/d	L/sec	m^3/d	L/sec
Total Domestic Demand	3	0.95	0.01	9.04	0.10	13.57	0.16

Institutional / Commercial / Industrial Demand

				Avg. Daily		Max Day		Peak Hour	
Property Type	**Unit Rate**		**Units**	m^3/d	L/sec	m^3/d	L/sec	m^3/d	L/sec
Commercial floor space	2.5	$L/m^2/d$	0	0.00	0.00	0.00	0.00	0.00	0.00
Office	75.0	$L/9.3m^2/d$	0.0	0.00	0.000	0.00	0.0000	0.00	0.0000
Restaurant*	125.0	L/seat/d							
Industrial -Light	35,000.0	L/gross ha/d							
Industrial -Heavy	55,000.0	L/gross ha/d							
Total I/C/I Demand				0.00	0.00	0.00	0.00	0.00	0.00

Total Demand	0.95	0.01	9.04	0.10	13.57	0.16

* Estimated number of seats at 1seat per $9.3m^2$

Water Demand and Boundary Conditions

Proposed Conditions

Design Parameter	Anticipated Demand[1] (L/sec)	Boundary Condition[2] (kPa)
Average Daily Demand	0.01	
Max Day + Fire Flow	9,000.10	
Peak Hour	0.16	

[1)] Water demand calculation per Water Supply Guidelines. See Appendix B for detailed calculations.

[2)] Boundary conditions supplied by the City of Ottawa. See Appendix B for correspondence with the City.

Wastewater Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Average Daily Demand	280 L/cap/day
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0
Correction Factor (City of Ottawa Tech.Bulletin ISTB-2018-0	0.8
Commercial Space	28,000 L/ha/day
Infiltration and Inflow Allowance	0.33L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = (1/n)AR^{2/3}S^{1/2}$
Minimum Sewer Size	200mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6m/s
Maximum Full Flowing Velocity	3.0m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, November 2012.	

817 Roseview Ave, Ottawa
Current

Sanitary Sewer Post Development Outflow

Site Area		**0.110 ha**
Extraneous Flow Allowances		
	Infiltration / Inflow	**0.0363 L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	**Pop**
Single Family	3.4	1	3.4
Semi-detached and duplex	2.7		0
Duplex	2.3		0
Townhouse	2.7		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	0	0
2 Bedroom	2.1	0	0
3 Bedroom	3.1	0	0
4 Bedroom	4.2	0	0
		Total Population	**3.4**
		Average Domestic Flow	**0.01 L/s**
		Peaking Factor	**3.8**
		Peak Domestic Flow	**0.04 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**	**No. of Units**	**Avg Wastewater (L/s)**
Commercial	28,000 L/gross ha/d	0	0.0000
Office	75 L/9.3m2/d	0	0.0000
Institutional	28,000 L/gross ha/d	0	0.00
Industrial - Light	35,000 L/gross ha/d	0	0.00
Industrial - Heavy	55,000 L/gross ha/d	0	0.00
		Average I/C/I Flow	**0.0000**
		Peak Institutional / Commercial Flow*	**0.0000**
		Peak Industrial Flow**	**0.0000**
		Peak I/C/I Flow	**0.0000**

Total Estimated Average Dry Weather Flow Rate	**0.0110**
Total Estimated Peak Dry Weather Flow Rate	**0.0424**
Total Estimated Peak Wet Weather Flow Rate	**0.0787**

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**Use Apendix 4B diagram

Water Supply Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	280 L/d/P
Residential Maximum Daily Demand	9.5 x Average Daily *
Residential Maximum Hourly	1.5 x Maximum Daily *
Commercial Demand	2.5 L / m2 /d
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Watermain Size	150mm diameter
Minimum Depth of Cover	2.4m from top of watermain to finished grade
During Peak Hourly Demand operating pressure must remain within	275kPa and 552kPa (40-80 psi; 28-56m)
During fire flow operating pressure must not drop below	140kPa (20 psi; 14 m)
* Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.	

817 Roseview Ave, Ottawa
New

Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	0	0
Semi-detached	2.7		0
Townhouse	2.7		0
Apartment			0
Bachelor	1.4	0	0
1 Bedroom	1.4	21	29
2 Bedroom	2.1	3	6
3 Bedroom	3.1		0
4 Bedroom	4.2	0	0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m^3/d	L/sec	m^3/d	L/sec	m^3/d	L/sec
Total Domestic Demand	36	10.00	0.12	94.96	1.10	142.44	1.65

Institutional / Commercial / Industrial Demand

				Avg. Daily		Max Day		Peak Hour	
Property Type	**Unit Rate**		**Units**	m^3/d	L/sec	m^3/d	L/sec	m^3/d	L/sec
Commercial floor space	2.5	$L/m^2/d$	0	0.00	0.00	0.00	0.00	0.00	0.00
Office	75.0	$L/9.3m^2/d$	0	0.00	0.00	0.00	0.00	0.00	0.00
Restaurant*	125.0	L/seat/d							
Industrial -Light	35,000.0	L/gross ha/d							
Industrial -Heavy	55,000.0	L/gross ha/d							
			Total I/C/I Demand	0.00	0.00	0.00	0.00	0.00	0.00

Total Demand	10.00	0.12	94.96	1.10	142.44	1.649

* Estimated number of seats at 1seat per $9.3m^2$

Proposed Conditions

Design Parameter	Anticipated Demand[1] (L/min)	Boundary Condition[2] (m)
Average Daily Demand	0.12	49.85
Max Day + Fire Flow	7,001.10	35.55
Peak Hour	1.65	41.65

1) Water demand calculation per Water Supply Guidelines. See Appendix B for detailed calculations.

2) Boundary conditions supplied by the City of Ottawa. See Appendix B for correspondence with the City.

3) estimated ground elevation **65.75 m**

Wastewater Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Average Daily Demand	280 L/cap/day
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0
Correction Factor (City of Ottawa Tech.Bulletin ISTB-2018-0	0.8
Commercial Space	28,000 L/ha/day
Infiltration and Inflow Allowance	0.33L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = (1/n)AR^{2/3}S^{1/2}$
Minimum Sewer Size	200mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6m/s
Maximum Full Flowing Velocity	3.0m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, November 2012.	

817 Roseview Ave, Ottawa
New

Sanitary Sewer Post Development Outflow

Site Area	**0.110 ha**
Extraneous Flow Allowances	
Infiltration / Inflow	**0.0363 L/s**

Domestic Contributions

Unit Type	Unit Rate	Units	**Pop**
Single Family	3.4	0	0
Semi-detached and duplex	2.7		0
Duplex	2.3		0
Townhouse	2.7		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	21	29.4
2 Bedroom	2.1	3	6.3
3 Bedroom	3.1	0	0
4 Bedroom	4.2	0	0
		Total Population	**35.7**
		Average Domestic Flow	**0.12 L/s**
		Peaking Factor	**4.0**
		Peak Domestic Flow	**0.46 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**	**No. of Units**	**Avg Wastewater (L/s)**
Commercial	28,000 L/gross ha/d	0	0.0000
Office	75 L/9.3m2/d	0	0.00
Institutional	28,000 L/gross ha/d	0	0.00
Industrial - Light	35,000 L/gross ha/d	0	0.00
Industrial - Heavy	55,000 L/gross ha/d	0	0.00
		Average I/C/I Flow	**0.0000**
		Peak Institutional / Commercial Flow*	**0.0000**
		Peak Industrial Flow**	**0.0000**
		Peak I/C/I Flow	**0.0000**

Total Estimated Average Dry Weather Flow Rate	**0.1157**
Total Estimated Peak Dry Weather Flow Rate	**0.4571**
Total Estimated Peak Wet Weather Flow Rate	**0.4934**

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**Use Apendix 4B diagram

Fire Flow Calculation Ontario Building Code 2006 (Appendix A)

Project: 817 Roseview Ave, Ottawa

Date: **February 23, 2023**
Data input by: Zoran Mrdja, P.Eng.

Type of Construction	Building Clasification	Water Supply Coefficient (K)
Non-combustable construction, or a heavy timber conforming to article 3.1.4.6	A-2; B1-; B-2; B-3 C; D	16

		Total Building Volume (V)(m3)
Building Height (incl.Basement)	15.85	7,068.62
Building Width	11.50	
Building Length	38.78	

Side	Exposure Distance (m)	Spatial Coefficient	Total Spatial Coefficient S_{tot}*
North	1.00	0.5	1.75
East	13.00	0	
South	7.60	0.25	
West	13.00	0	
	Total Volume of Water Required Q**	**197,921.49**	
	Minimum Required Fire Flow (L/min) ***	**6,597.38**	
	Minimum Required Fire Flow (L/s) ***	**109.96**	

Note:
* $S_{tot}= 1+(S_{side1}+S_{side2}+S_{side3}+S_{side4})$
** $V=KVS_{tot}$
*** Flow=Q/30 (min) for min. duration of 30 min

Summary:
2. Nearest fire hydrant distance 52.8m;

FUS Fire Flow Calculations

Project: 817 Roseview, Ottawa

Calculations Based on 1999 Publication "Water Supply for Public

Fire Protection " by Fire Underwriters' Survey (FUS)

Fire Flow Calculation #: 1

Date: **2023-02-23**

Building Type/Description/Name: Apartment building

Data input by: Zoran Mrdja, P.Eng.

Table A: Fire Underwriters Survey Determination of Required Fire Flow - Long Method

Step	Task	Term	Options	Multiplier Associated with Option	Choose:	Value Used	Unit	Total Fire Flow (L/min)
		Framing Material						
1	Choose Frame Used for Construction of Unit	Coefficient related to type of construction (C)	Wood Frame	1.50	Ordinary Construction	1.00		
			Ordinary construction	1.00				
			Non-combustible construction	0.80				
			Fire resistive construction (< 2 hrs)	0.70				
			Fire resistive construction (> 2 hrs)	0.60				
		Floor Space Area						
2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	Type of Housing	Single Family	1	Other (Comm, ind)	4	Units	
			Townhouse - indicate # of units	1				
			Other (Comm, Ind, etc.)	1				
2.2	# of Storeys	Number of Floors/ Storeys in the Unit (do not include basement):			4	4	Storeys	
3	Enter Ground Floor Area of One Unit	Enter Ground Floor Area (A) of One Unit Only :			366	1010	Area in Square Meters (m2)	
		Measurement Units	Square Feet (ft2)	0.093	Square Metres (m2)			
			Square Metres (m2)	253				
			Hectares (ha)	10000				
4	Obtain Required Fire Flow without Reductions	Required Fire Flow(without reductions or increases per FUS) (F = 220 * C * √A) Round to nearest 1000L/min						6,992
5	Apply Factors Affecting Burning	Reductions/Increases Due to Factors Affecting Burning						
5.1	Choose Combustibility of Building Contents	Occupancy content hazard reduction or surcharge	Non-combustible	-0.25	Limited combustible	-0.15	N/A	-1,049
			Limited combustible	-0.15				
			Combustible	0.00				
			Free burning	0.15				
			Rapid burning	0.25				
5.2	Choose Reduction Due to Presence of Sprinklers	Sprinkler reduction	Complete Automatic Sprinkler Protection	-0.3	Complete Automatic Sprinkler Protection	-0.30	N/A	-2,098
			None	0				
5.3	Choose Separation Distance Between Units	Exposure Distance Between Units	North Side	3.1-10 m	0.20	0.45	m	
			East Side	30.1-45 m	0.05			
			South Side	10.1-20 m	0.15			
			West Side	30.1-45 m	0.05			3,146
6	Obtain Required Fire Flow, Duration & Volume	Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:						7,000
		Total Required Fire Flow (above) in L/s:						117
		Required Duration of Fire Flow (hrs)						2.00
		Required Volume of Fire Flow (m^3)						840

Note: The most current FUS document should be referenced before design to ensure that the above figures are consistent with the intent of the Guideline

Legend	
	Drop down menu - choose option, or enter value.
	No Information, No input required.

Note:

The most current FUS document should be referenced before design to ensure that the above figures are consistent with the intent of the Guideline.

Nearest fire hydrant distance 52.8m;

Pressure Drop Online-Calculator

Calculation output

Flow medium:	Water 20 °C / liquid
Volume flow::	1.5 l/s
Weight density:	998.206 kg/m³
Dynamic Viscosity:	1001.61 10-6 kg/ms
Element of pipe:	circular
Dimensions of element:	Diameter of pipe D: 25 mm Length of pipe L: 30 m
Velocity of flow:	3.06 m/s
Reynolds number:	76135
Velocity of flow 2:	-
Reynolds number 2:	-
Flow:	turbulent
Absolute roughness:	.0015 mm
Pipe friction number:	0.02
Resistance coefficient:	23.19
Resist.coeff.branching pipe:	-
Press.drop branch.pipe:	-
Pressure drop:	1080.98 mbar 1.08 bar

Note: The pressure drop was calculated by the online calculator of www.pressure-drop.com. We can not warrant the correctness of this software. The software is produced carefully. But no computer software is without bugs. Therefore the calculations are your own risk.
****

Do you know our software SF Pressure Drop 10.x for Excel?
Information: www.pressure-drop.com
****

Pressure Drop Online-Calculator

Calculation output

Flow medium:	Water 20 °C / liquid
Volume flow::	1.552 l/s
Weight density:	998.206 kg/m³
Dynamic Viscosity:	1001.61 10-6 kg/ms
Element of pipe:	circular
Dimensions of element:	Diameter of pipe D: 50 mm Length of pipe L: 11 m
Velocity of flow:	0.79 m/s
Reynolds number:	39387
Velocity of flow 2:	-
Reynolds number 2:	-
Flow:	turbulent
Absolute roughness:	.0015 mm
Pipe friction number:	0.02
Resistance coefficient:	4.87
Resist.coeff.branching pipe:	-
Press.drop branch.pipe:	-
Pressure drop:	15.19 mbar 0.02 bar

Note: The pressure drop was calculated by the online calculator of www.pressure-drop.com. We can not warrant the correctness of this software. The software is produced carefully. But no computer software is without bugs. Therefore the calculations are your own risk.
****

Do you know our software SF Pressure Drop 10.x for Excel?
Information: www.pressure-drop.com
****

Manning Formula Uniform Pipe Flow at Given Slope and Depth

817 Roseview Avenue: 150 mm PVC at 3.5% slope

Inputs:

Pipe Diameter, d_o	150.0000	mm
Manning Roughness, n	0.0130	
Pressure slope (possibly equal to pipe slope), S_o	3.5000	% slope
Percent of (or ratio to) full depth (100% or 1 if flowing full)	9.0000	%

Results:

Flow, Q	0.4765	l/s
Velocity, v	0.6049	m/s
Velocity head, hv	0.0187	m
Flow Area, A	0.0008	m^2
Wetted Perimeter, P	0.0914	m
Hydraulic Radius	0.0086	m
Top Width, T	0.0859	m
Froude Number, F	2.02	
Shear Stress (tractive force), τ	4.6333	N/m^2

Project Number: CW-04-21 817 Roeseview Avenue, Ottawa

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PRE-DEVELOPMENT

The pre-development time of concentration is 10 minutes

where:

$I_5 = 998.071 / (Tc + 6.053)^{0.814}$ $I_{100} = 1735.688 / (Tc + 6.014)^{0.820}$

I_5 = 104.2 mm/hr I_{100} = **178.6 mm/hr**

Surface Type	ID	Area (ha)	Percent of total Area	C	A X C (ha)
Green Area/Yard	A1	0.09400	83.2%	0.30	0.028
Driveway	A2	0.00400	3.5%	0.80	0.003
Pathway	A3	0.00200	1.8%	0.40	0.001
House	A4	0.0100	8.8%	0.95	0.010
Deck	A5	0.0030	2.7%	0.40	0.001
TOTAL		0.1130	100.0%		0.043
Weighted C =					0.38

$Q_{5pre} = (2.78)*(C)*(I_5)*(A)$

Q_{5pre} = 2.78 x 0.38 x 104.2 x 0.1130

Q_{5pre} = 12.44 L/s

$Q_{100pre} = (2.78)*(C)*(I_{100})*(A)$

Q_{100pre} = 2.78 x 0.48 x 178.6 x 0.1130

Q_{100pre} = 26.65 L/s

0.38 Actual C factor

POST-DEVELOPMENT (UNCONTROLLED RUNOFF)

The post-development time of concentration is 10 minutes

where:

$I_5 = 998.071 / (Tc + 6.053)^{0.814}$ $I_{100} = 1735.688 / (Tc + 6.014)^{0.820}$

I_5 = 104.2 mm/hr I_{100} = **178.6 mm/hr**

Surface Type	ID	Area (ha)	Percent of total Area	C	A X C (ha)
Driveway	A2	0.0131	50.2%	0.90	0.012
Yard/Sod	A3	0.0120	46.0%	0.25	0.003
Pathway	A4	0.0010	3.8%	0.50	0.001
TOTAL		0.0261	100.0%		0.015
Weighted C =					0.59

$Q_{5post} = (2.78)*(C)*(I_5)*(A)$

Q_{5post} = 2.78 x 0.59 x 104.2 x 0.0261

Q_{5post} = 4.46 L/s

$Q_{100post} = (2.78)*(C)*(I_{100})*(A)$

$Q_{100post}$ = 2.78 x 0.74 x 178.6 x 0.0261

$Q_{100post}$ = 9.56 L/s

0.59 Actual C factor

100-year runoff increased for 25%;

Project Number: CW-04-21 817 Roeseview Avenue, Ottawa

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PRE-DEVELOPMENT

The pre-development time of concentration is 10 minutes

where:

$I_5 = 998.071 / (Tc + 6.053)^{0.814}$ $I_{100} = 1735.688 / (Tc + 6.014)^{0.820}$

I_5 = 104.2 mm/hr I_{100} = **178.6 mm/hr**

Surface Type	ID	Area (ha)	Percent of total Area	C	A X C (ha)
		0.00000	0.0%	0.95	0.000
		0.00000	0.0%	0.95	0.000
		0.00000	0.0%	0.70	0.000
TOTAL		0.0000	0.0%		0.000
Weighted C =					0.00

$Q_{5pre} = (2.78)*(C)*(I_5)*(A)$

Q_{5pre} = 2.78 x 0.00 x 104.2 x 0.0000

Q_{5pre} = 0.00 L/s

$Q_{100pre} = (2.78)*(C)*(I_{100})*(A)$

Q_{100pre} = 2.78 x 0.00 x 178.6 x 0.0000

Q_{100pre} = 0.00 L/s

POST-DEVELOPMENT (CONTROLLED RUNOFF)

The post-development time of concentration is 10 minutes

where:

$I_5 = 998.071 / (Tc + 6.053)^{0.814}$ $I_{100} = 1735.688 / (Tc + 6.014)^{0.820}$

I_5 = 104.2 mm/hr I_{100} = **178.6 mm/hr**

Surface Type	ID	Area (ha)	Percent of total Area	C	A X C (ha)
Building	**A1**	0.04600	52.9%	0.95	0.044
Parking	**A5**	0.04100	47.1%	0.90	0.037
TOTAL		0.08700	0.0%		0.081
Weighted C =					0.93

Actual C factor

$Q_{5post} = (2.78)*(C)*(I_5)*(A)$

Q_{5post} = 2.78 x 0.93 x 104.2 x 0.0870

Q_{5post} = 23.44 L/s

$Q_{100post} = (2.78)*(C)*(I_{100})*(A)$

$Q_{100post}$ = 2.78 x 1.00 x 178.6 x 0.0870

$Q_{100post}$ = 43.20 L/s

ALLOWABLE RUNOFF

Predevelopment Runoff:		
Uncontrolled Runoff		
5-year	12.44	l/sec
100-year	26.65	l/sec
Controlled Runoff:		
5-year	0.00	l/sec
100-year	0.00	l/sec

Postdevelopment Runoff:		
Uncontrolled Runoff		
5-year	4.46	l/sec
100-year	9.56	l/sec
Controlled Runoff:		
5-year	23.44	l/sec
100-year	43.20	l/sec

Controlled allowable runoff		
	2.88	**l/sec**

Storage Volumes (5-Year Storm)

Project : 817 Roeseview Avenue, Ottawa

Tc = 10 (mins)
C_{AVG} = 0.93 (dimmensionless)
Area = 0.0870 (hectares)
Storm = 5 (year)
Release Rate = 2.88 (L/sec)
Time Interval = 30 (mins)

Duration (min)	Rainfall Intensity (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
1	204	4.6	2.88		
31	53	11.8	2.88	8.94	16.62
61	33	7.3	2.88	4.41	16.14
91	24	5.4	2.88	2.52	13.73
121	19	4.3	2.88	1.45	10.55
151	16	3.6	2.88	0.77	6.94
181	14	3.2	2.88	0.28	3.06
211	13	2.8	2.88	-0.08	-1.00
241	11	2.5	2.88	-0.36	-5.19
271	10	2.3	2.88	-0.58	-9.49
301	9	2.1	2.88	-0.77	-13.88
331	9	2.0	2.88	-0.92	-18.32
361	8	1.8	2.88	-1.05	-22.83
391	8	1.7	2.88	-1.17	-27.38
421	7	1.6	2.88	-1.27	-31.98
451	7	1.5	2.88	-1.35	-36.61
481	6	1.5	2.88	-1.43	-41.27
511	6	1.4	2.88	-1.50	-45.95
541	6	1.3	2.88	-1.56	-50.67
571	6	1.3	2.88	-1.62	-55.40
601	5	1.2	2.88	-1.67	-60.15
631	5	1.2	2.88	-1.71	-64.93
661	5	1.1	2.88	-1.76	-69.71
691	5	1.1	2.88	-1.80	-74.52
721	5	1.0	2.88	-1.83	-79.33
751	5	1.0	2.88	-1.87	-84.16
781	4	1.0	2.88	-1.90	-89.00
811	4	1.0	2.88	-1.93	-93.86

Notes

1) For a storm duration that is less than the time of concentration the peak flow is equal to the product of 2.78CIA and the ratio of the storm duration to the time of concentration.

2) Rainfall Intensity, I = 998.071 / (Tc + 6.053)^0.814 (5 year, City of Ottawa)
3) Peak Flow = Duration/Tc x 2.78 x C x I x A (Duration < Tc)
4) Peak Flow = 2.78 x C x I x A (Duration > Tc)
5) Storage = Duration x Storage Rate

Storage Volumes (100-Year Storm)

Tc = 10 (mins)
C_{AVG} = 1.00 (dimmensionless)
Area = 0.0870 (hectares)
Storm = 100 (year)
Release Rate = 2.88 (L/sec)
Time Interval = 60 (mins)

Duration (min)	Rainfall Intensity (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
1	351	8.5	2.88		
61	55	13.4	2.88	10.47	38.33
121	33	7.9	2.88	5.02	36.47
181	24	5.8	2.88	2.87	31.21
241	19	4.6	2.88	1.70	24.58
301	16	3.8	2.88	0.95	17.19
361	14	3.3	2.88	0.43	9.31
421	12	2.9	2.88	0.04	1.09
481	11	2.6	2.88	-0.26	-7.38
541	10	2.4	2.88	-0.49	-16.05
601	9	2.2	2.88	-0.69	-24.87
661	8	2.0	2.88	-0.85	-33.82
721	8	1.9	2.88	-0.99	-42.87
781	7	1.8	2.88	-1.11	-52.02
841	7	1.7	2.88	-1.21	-61.24
901	7	1.6	2.88	-1.30	-70.53
961	6	1.5	2.88	-1.39	-79.88
1021	6	1.4	2.88	-1.46	-89.28
1081	6	1.4	2.88	-1.52	-98.73
1141	5	1.3	2.88	-1.58	-108.22
1201	5	1.2	2.88	-1.63	-117.75
1261	5	1.2	2.88	-1.68	-127.31
1321	5	1.2	2.88	-1.73	-136.91
1381	5	1.1	2.88	-1.77	-146.53
1441	4	1.1	2.88	-1.81	-156.18
1501	4	1.0	2.88	-1.84	-165.86
1561	4	1.0	2.88	-1.87	-175.56
1621	4	1.0	2.88	-1.90	-185.28

Notes

1) For a storm duration that is less than the time of concentration the peak flow is equal to the product of 2.78CIA and the ratio of the storm duration to the time of concentration.

2) Rainfall Intensity, I = 1735.688 / (Tc + 6.014)^0.820 (100 year, City of Ottawa)
3) Peak Flow = Duration/Tc x 2.78 x C x I x A (Duration < Tc)
4) Peak Flow = 2.78 x C x I x A (Duration > Tc)
5) Storage = Duration x Storage Rate

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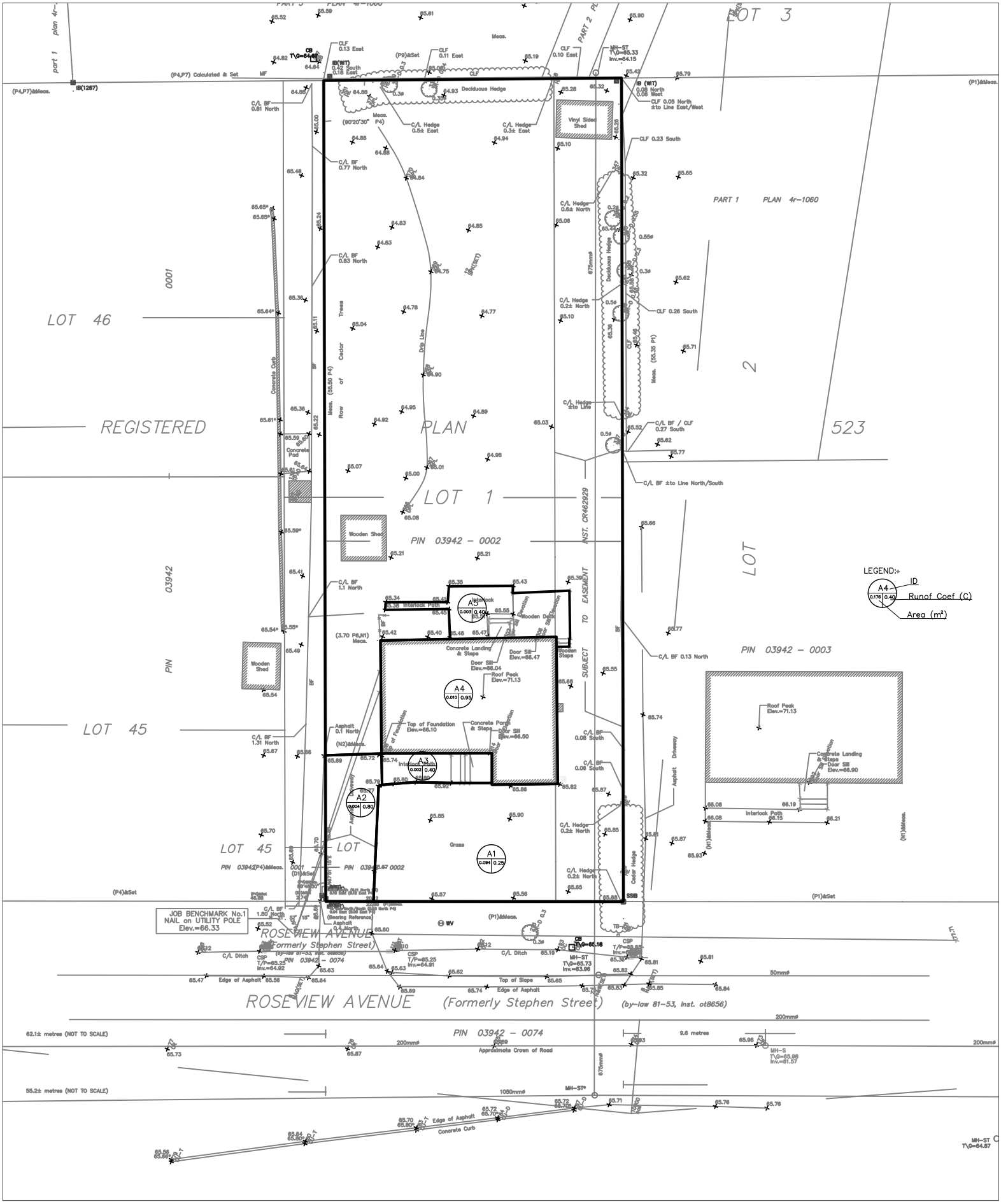
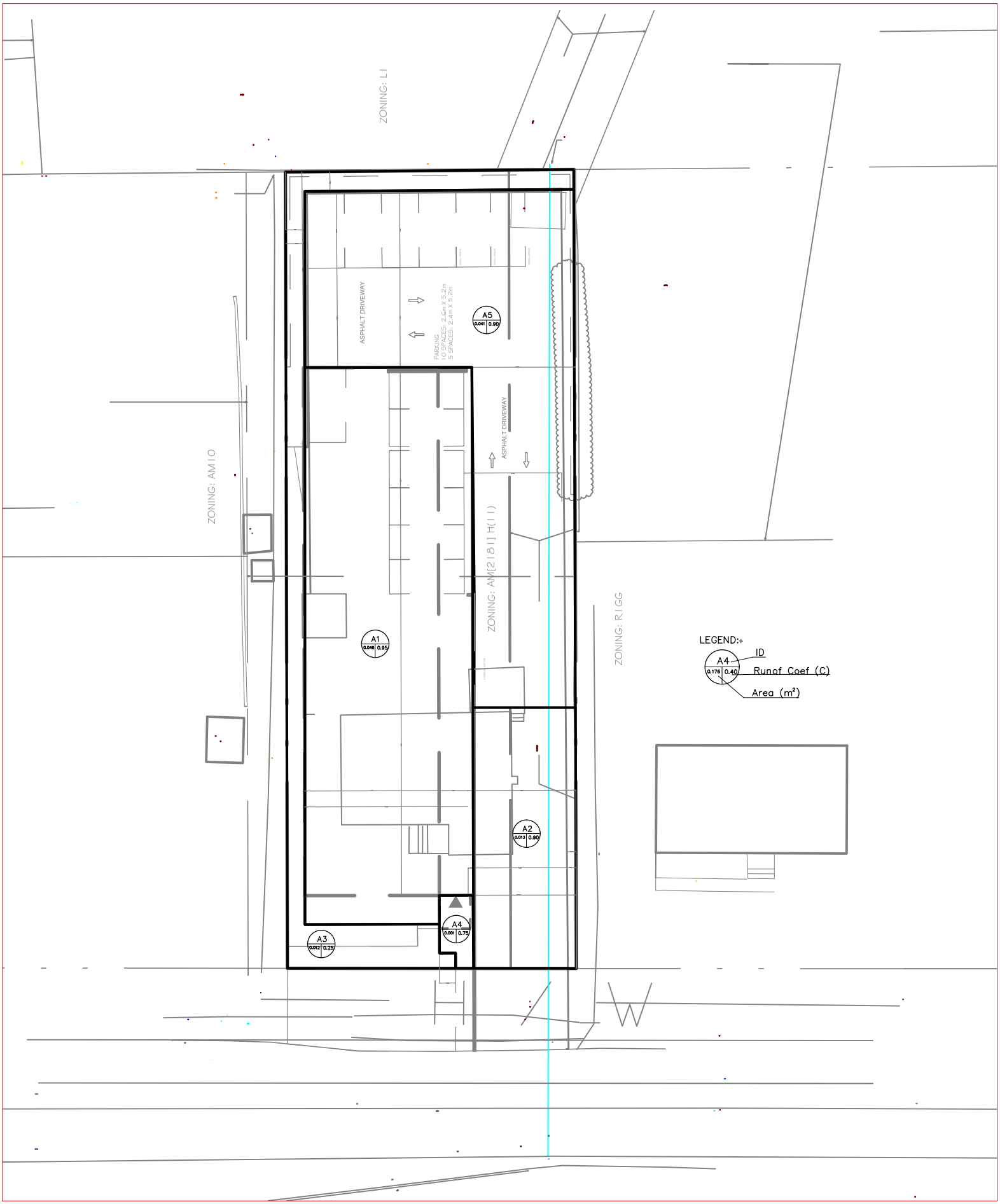


817 ROSEVIEW AVE.
SWM PREDEVELOPMENT

ARCH-NOVA Design Inc.
45 Banner Road NEPEAN ON K2H 8X5
613-702-3403 contact@archnova.ca



817 ROSEVIEW AVE.
SWM POSTDEVELOPMENT

ARCH-NOVA Design Inc.

45 Banner Road NEPEAN ON K2H 8X5
613-702-3403 contact@archnova.ca

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER	
ADS SALES REP	
PROJECT NO.	

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH INSTALLATION INSTRUCTIONS VISIT OUR APP

ROSEVIEW

OTTAWA, ON, CANADA

MC-4500 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH MC-4500.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101.
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED, TESTED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 75 mm (3").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF MC-4500 CHAMBER SYSTEM

1. STORMTECH MC-4500 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 230 mm (9") SPACING BETWEEN THE CHAMBER ROWS.
7. INLET AND OUTLET MANIFOLDS MUST BE INSERTED A MINIMUM OF 300 mm (12") INTO CHAMBER END CAPS.
8. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE WELL GRADED BETWEEN ¾" AND 2" (20-50 mm).
9. STONE SHALL BE BROUGHT UP EVENLY AROUND CHAMBERS SO AS NOT TO DISTORT THE CHAMBER SHAPE. STONE DEPTHS SHOULD NEVER DIFFER BY MORE THAN 300 mm (12") BETWEEN ADJACENT CHAMBER ROWS.
10. STONE MUST BE PLACED ON THE TOP CENTER OF THE CHAMBER TO ANCHOR THE CHAMBERS IN PLACE AND PRESERVE ROW SPACING.
11. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIAL BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
12. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH MC-4500 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
2. THE USE OF EQUIPMENT OVER MC-4500 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADER, DUMP TRUCK, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH MC-3500/MC-4500 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY USING THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-888-892-2694 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

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PROPOSED LAYOUT

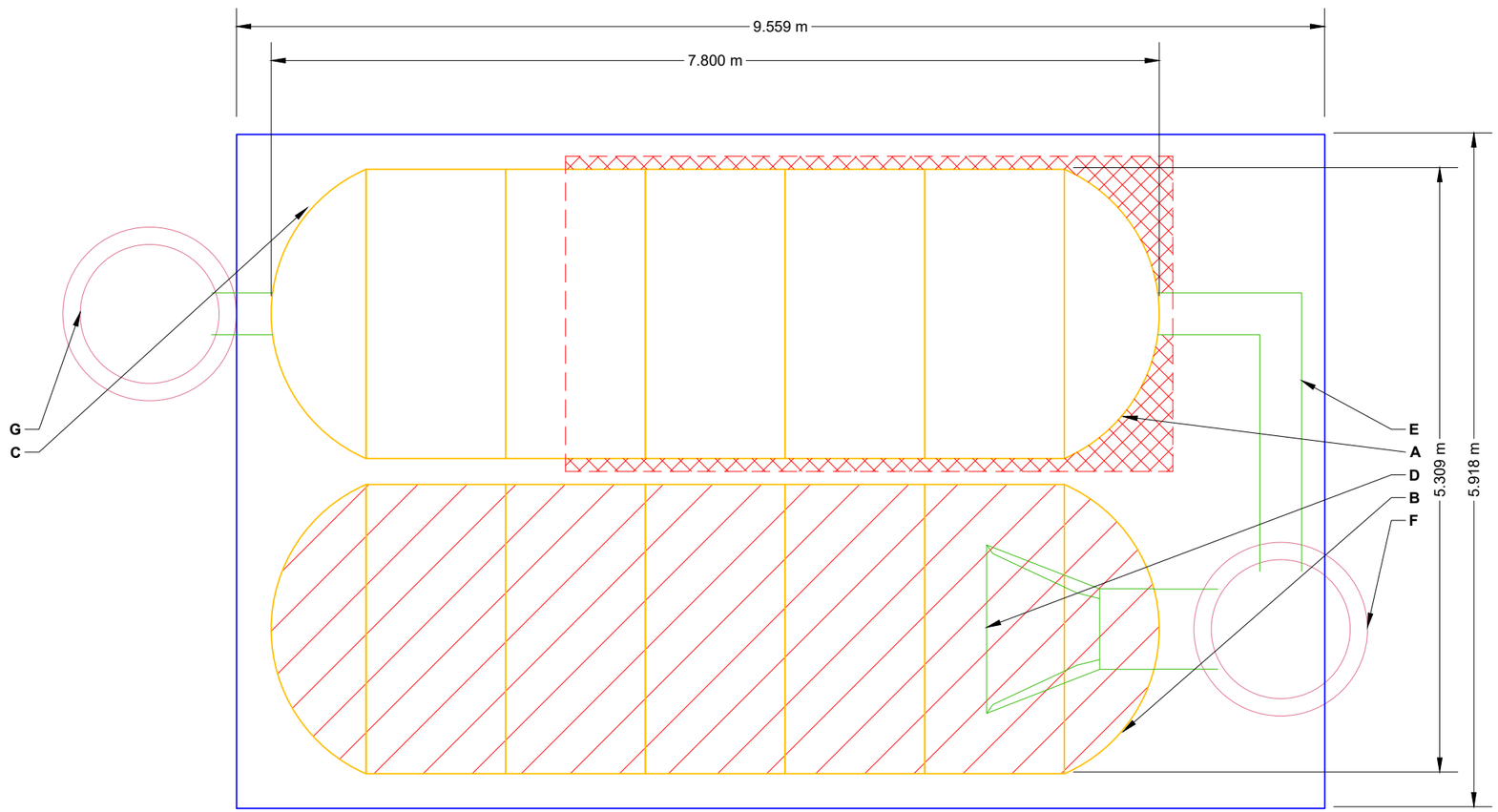
10	STORMTECH MC-4500 CHAMBERS
4	STORMTECH MC-4500 END CAPS
305	STONE ABOVE (mm)
229	STONE BELOW (mm)
10	STONE VOID
42.8	INSTALLED SYSTEM VOLUME (m^3) (PERIMETER STONE INCLUDED) (COVER STONE INCLUDED) (BASE STONE INCLUDED)
56.6	SYSTEM AREA (m^2)
31.0	SYSTEM PERIMETER (m)
145	THERMOPLASTIC LINER (m^2) (20% OVERAGE)

CONCEPTUAL ELEVATIONS

MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED):	3.886
MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC):	2.515
MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC):	2.362
MINIMUM ALLOWABLE GRADE (TOP OF RIGID CONCRETE PAVEMENT):	2.362
MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT):	2.362
TOP OF STONE:	2.057
TOP OF MC-4500 CHAMBER:	1.753
300 mm x 300 mm TOP MANIFOLD INVERT:	1.135
600 mm ISOLATOR ROW PLUS INVERT:	0.286
300 mm BOTTOM CONNECTION INVERT:	0.268
BOTTOM OF MC-4500 CHAMBER:	0.229
BOTTOM OF STONE:	0.000

*INVERT ABOVE BASE OF CHAMBER

PART TYPE	ITEM ON LAYOUT	DESCRIPTION	INVERT*	MAX FLOW
PREFABRICATED END CAP	A	300 mm TOP PARTIAL CUT END CAP, PART#: MC4500IEPP12T / TYP OF ALL 300 mm TOP CONNECTIONS	907 mm	
PREFABRICATED END CAP	B	600 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP24B / TYP OF ALL 600 mm BOTTOM CONNECTIONS AND ISOLATOR PLUS ROWS	57 mm	
PREFABRICATED END CAP	C	300 mm BOTTOM PARTIAL CUT END CAP, PART#: MC4500IEPP12B / TYP OF ALL 300 mm BOTTOM CONNECTIONS	39 mm	
FLAMP	D	INSTALL FLAMP ON 600 mm ACCESS PIPE / PART#: MC450024RAMP		
MANIFOLD	E	300 mm x 300 mm TOP MANIFOLD, ADS N-12	907 mm	
CONCRETE STRUCTURE	F	(DESIGN BY ENGINEER / PROVIDED BY OTHERS)		70 L/s IN
CONCRETE STRUCTURE	G	OCS (DESIGN BY ENGINEER / PROVIDED BY OTHERS)		57 L/s OUT



ISOLATOR ROW PLUS (SEE DETAIL)

PLACE MINIMUM 5.334 m OF ADSPLUS175 WOVEN GEOTEXTILE OVER BEDDING STONE AND UNDERNEATH CHAMBER FEET FOR SCOUR PROTECTION AT ALL CHAMBER INLET ROWS

THERMOPLASTIC LINER (SEE TECH NOTE #6.50 PROVIDED BY OTHERS / DESIGN BY OTHERS)

NOTES

- MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECH NOTE #6.32 FOR MANIFOLD SIZING GUIDANCE.
- DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
- THE SITE DESIGN ENGINEER MUST REVIEW ELEVATIONS AND IF NECESSARY ADJUST GRADING TO ENSURE THE CHAMBER COVER REQUIREMENTS ARE MET.
- THIS CHAMBER SYSTEM WAS DESIGNED WITHOUT SITE-SPECIFIC INFORMATION ON SOIL CONDITIONS OR BEARING CAPACITY. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF THE SOIL AND PROVIDING THE BEARING CAPACITY OF THE INSITU SOILS. THE BASE STONE DEPTH MAY BE INCREASED OR DECREASED ONCE THIS INFORMATION IS PROVIDED.
- **NOT FOR CONSTRUCTION:** THIS LAYOUT IS FOR DIMENSIONAL PURPOSES ONLY TO PROVE CONCEPT & THE REQUIRED STORAGE VOLUME CAN BE ACHIEVED ON SITE.

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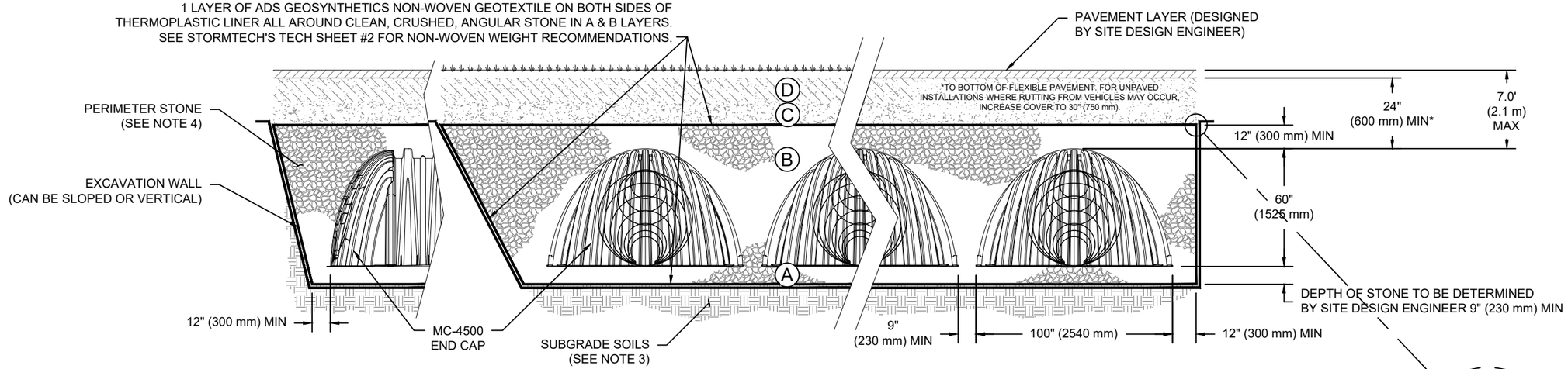
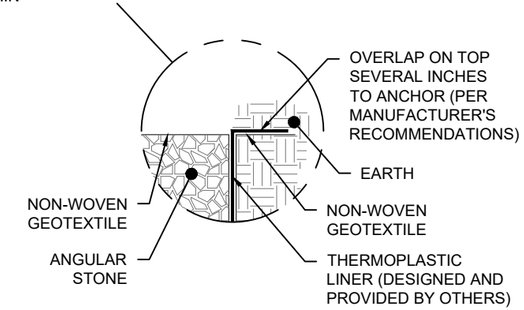
ACCEPTABLE FILL MATERIALS: STORMTECH MC-4500 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 24" (600 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 24" (600 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 12" (300 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS.
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE	AASHTO M43[1] 3, 4	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 9" (230 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.





THERMOPLASTIC LINER DETAIL

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" CHAMBER CLASSIFICATION 60x101
2. MC-4500 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 3".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 450 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

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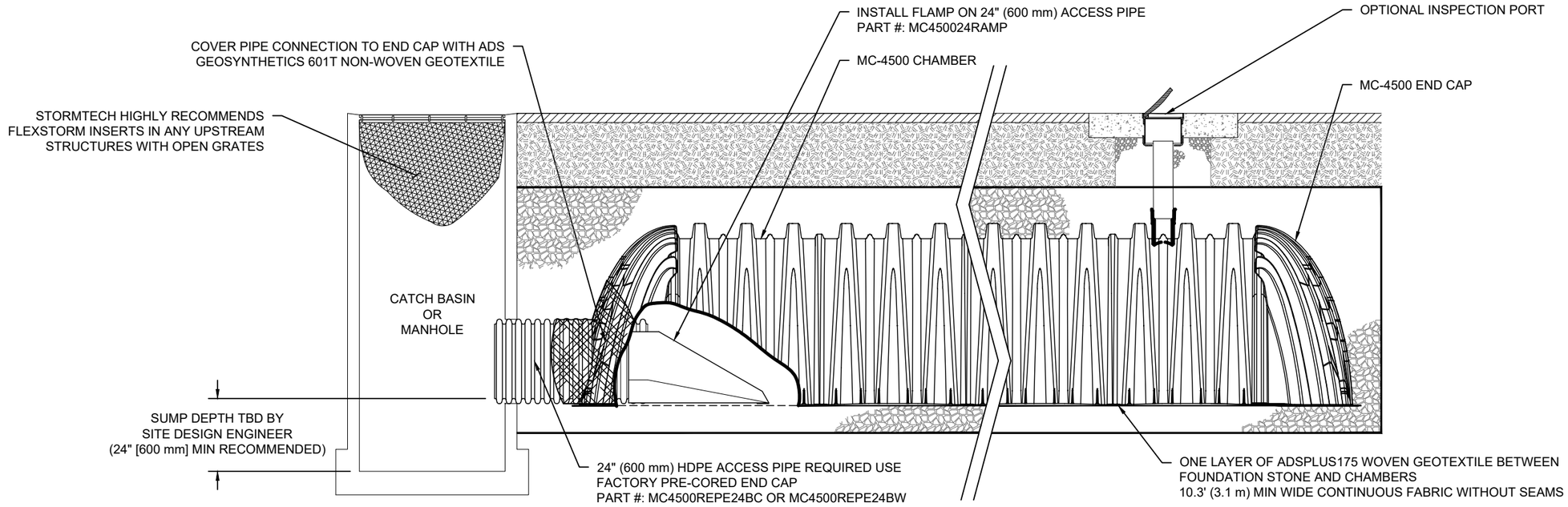

MC-4500 ISOLATOR ROW PLUS DETAIL

NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.

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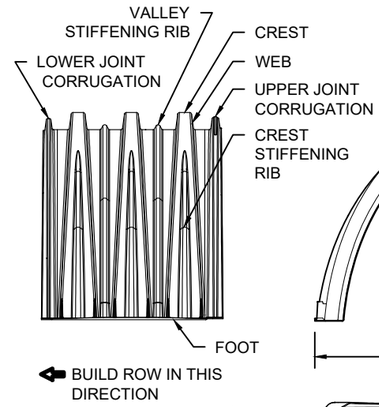
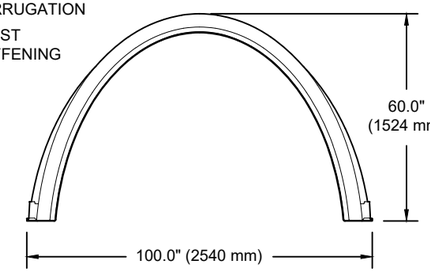
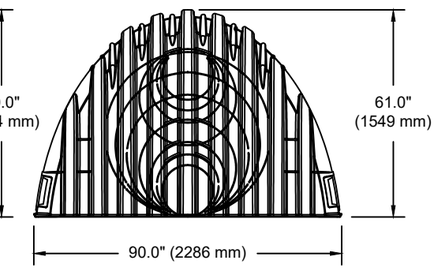
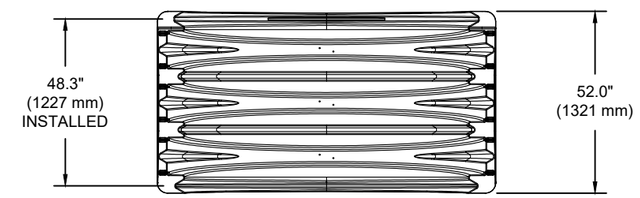
MC-4500 TECHNICAL SPECIFICATION

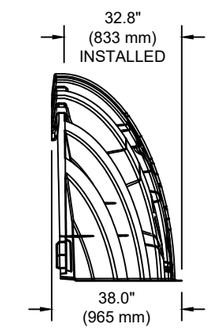
NTS











NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	100.0" X 60.0" X 48.3"	(2540 mm X 1524 mm X 1227 mm)
CHAMBER STORAGE	106.5 CUBIC FEET	(3.01 m³)
MINIMUM INSTALLED STORAGE*	162.6 CUBIC FEET	(4.60 m³)
WEIGHT (NOMINAL)	125.0 lbs.	(56.7 kg)

NOMINAL END CAP SPECIFICATIONS

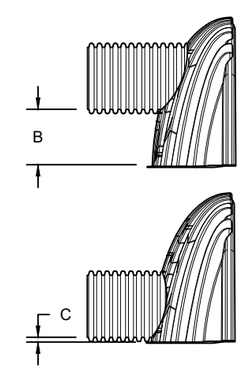
SIZE (W X H X INSTALLED LENGTH)	90.0" X 61.0" X 32.8"	(2286 mm X 1549 mm X 833 mm)
END CAP STORAGE	39.5 CUBIC FEET	(1.12 m³)
MINIMUM INSTALLED STORAGE*	115.3 CUBIC FEET	(3.26 m³)
WEIGHT (NOMINAL)	90 lbs.	(40.8 kg)

*ASSUMES 12" (305 mm) STONE ABOVE, 9" (229 mm) STONE FOUNDATION AND BETWEEN CHAMBERS, 12" (305 mm) STONE PERIMETER IN FRONT OF END CAPS AND 40% STONE POROSITY.

PARTIAL CUT HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "B"
PARTIAL CUT HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "T"
END CAPS WITH A PREFABRICATED WELDED STUB END WITH "W"

PART #	STUB	B	C
MC4500IEPP06T	6" (150 mm)	42.54" (1081 mm)	---
MC4500IEPP06B		---	0.86" (22 mm)
MC4500IEPP08T	8" (200 mm)	40.50" (1029 mm)	---
MC4500IEPP08B		---	1.01" (26 mm)
MC4500IEPP10T	10" (250 mm)	38.37" (975 mm)	---
MC4500IEPP10B		---	1.33" (34 mm)
MC4500IEPP12T	12" (300 mm)	35.69" (907 mm)	---
MC4500IEPP12B		---	1.55" (39 mm)
MC4500IEPP15T	15" (375 mm)	32.72" (831 mm)	---
MC4500IEPP15B		---	1.70" (43 mm)
MC4500IEPP18T	18" (450 mm)	29.36" (746 mm)	---
MC4500IEPP18TW			
MC4500IEPP18B		---	1.97" (50 mm)
MC4500IEPP18BW			
MC4500IEPP24T	24" (600 mm)	23.05" (585 mm)	---
MC4500IEPP24TW			
MC4500IEPP24B		---	2.26" (57 mm)
MC4500IEPP24BW			
MC4500IEPP30BW	30" (750 mm)	---	2.95" (75 mm)
MC4500IEPP36BW	36" (900 mm)	---	3.25" (83 mm)
MC4500IEPP42BW	42" (1050 mm)	---	3.55" (90 mm)

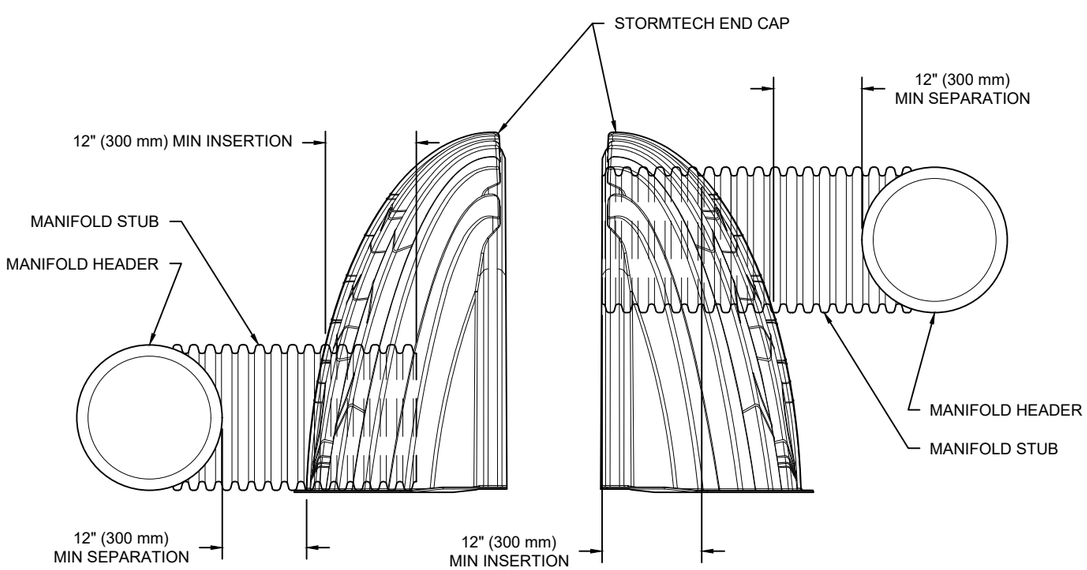
NOTE: ALL DIMENSIONS ARE NOMINAL



CUSTOM PARTIAL CUT INVERTS ARE AVAILABLE UPON REQUEST. INVENTORIED MANIFOLDS INCLUDE 12-24" (300-600 mm) SIZE ON SIZE AND 15-48" (375-1200 mm) ECCENTRIC MANIFOLDS. CUSTOM INVERT LOCATIONS ON THE MC-4500 END CAP CUT IN THE FIELD ARE NOT RECOMMENDED FOR PIPE SIZES GREATER THAN 10" (250 mm). THE INVERT LOCATION IN COLUMN 'B' ARE THE HIGHEST POSSIBLE FOR THE PIPE SIZE.

MC-SERIES END CAP INSERTION DETAIL

NTS



NOTE: MANIFOLD STUB MUST BE LAID HORIZONTAL FOR A PROPER FIT IN END CAP OPENING.

ROSEVIEW
OTTAWA, ON, CANADA

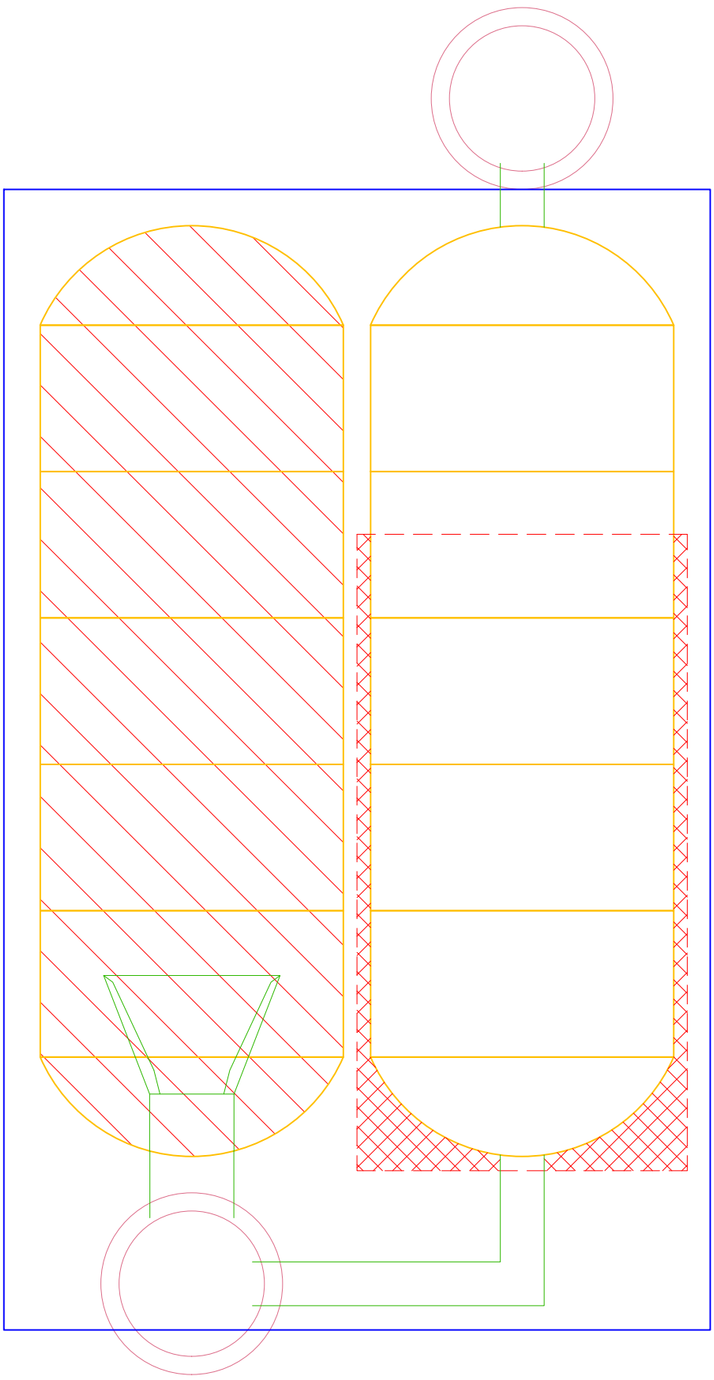
DATE:
DRAWN: ZM
PROJECT #:
CHECKED: N/A

DATE	DRW	CHK	DESCRIPTION

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026
1-800-733-7473

StormTech®
Chamber System
888-892-2694 | WWW.STORMTECH.COM

THIS DRAWING HAS BEEN PREPARED BASED ON INFORMATION PROVIDED TO ADS UNDER THE DIRECTION OF THE SITE DESIGN ENGINEER OR OTHER PROJECT REPRESENTATIVE. THE SITE DESIGN ENGINEER SHALL REVIEW THIS DRAWING PRIOR TO CONSTRUCTION. IT IS THE ULTIMATE RESPONSIBILITY OF THE SITE DESIGN ENGINEER TO ENSURE THAT THE PRODUCT(S) DEPICTED AND ALL ASSOCIATED DETAILS MEET ALL APPLICABLE LAWS, REGULATIONS, AND PROJECT REQUIREMENTS.



R O S E V I E W A V E.

ROSEVIEW

PENNY DRIVE

RICHMOND RD.

MICHELE DR

BOYCE AVE

CARLING AVE

PL No L-32

PL No L-32-b

PL No G-32-f

NOT CONSTRUCTED (SEE G.32-f)

TO BE ABANDONED

NOTES:
ELEVATIONS FOR LINE, SURVEY BY P.J.T. PARTY ON 21/2/63 DATE OF 8/2/63

NOTES
RED D PLAN No 225
BITER ALONG CARLING AVENUE TO BE LOWERED AND REMOVED FROM ROSEVIEW TO EXISTING CULVERT AT SURVEYS.

NOT TO SCALE

30" ST 204.75
42" ST 203.0
15 DROP PIPE
27" STORM GR 3.5 %
209.93 36" PIPE GOING NORTH TO BE PLUGGED

FINAL MEASURMENT		
ROSEVIEW AVE FROM CARLING AVE		FOR STORM SEWER TO PENNY DR
WORK START	MAY, 1972	DESIGNER K SPERO
WORK COMP	MAY, 1972	INSPECTOR N. DUBROY
FINAL MEAS	MAY, 1972	CONTRACTOR GRANT
FIELD BOOKS		INSTMAN D MACNAB
DESIGN		APPROVED BY D SMALL
CONSTR 3606		CONTRACT NO.
FINAL MEAS 3606		FINAL MEAS. FOLDER 1194
TO ORIGINAL K TO EG		OCT 16, 1974

ROSEVIEW AVENUE
S/LIMIT LOT 1 TO CARLING AVE
STORM SEWER

DRAWN BY	P Chanik
CHECKED BY	K K S
CHECKED BY	
DATE	5/11/73

F. E. AYERS P. Eng.
PROF. ENGINEER OF ONTARIO

NOTE. ALL STORM SEWERS TO BE CONSTRUCTED WITH APPROVED RUBBER GASKETS
ST SEWER CONST 10' W/OF EXIST SAN SEWER

PROFILE FOR LANE. SEE PLAN D-38-M

PROFILE AFTER CONSTRUCTION

PIPE LOW TO GET UNDER HSE SERVICE NO. 962

STANDARD CONCRETE CRADLE AS PER SPEC. 300-14

EXISTING 42" CL III C-76 A S T M (REVISED TO DATE) CONCRETE PIPE STORM SEWER
GR 0.20 %

EXIST 50"X31" STORM SEWER

EXISTING 30" CL. III C-76 A S T M (REVISED TO DATE) CONCRETE PIPE STORM SEWER
GR 13%

EXISTING 30" CL III C-76 A S T M (REVISED TO DATE) CONC PIPE STORM SEWER
GR 0.78 % GR 0.85 % GR 0.96%

EXISTING 24" CL III C-76 A S T M (REVISED TO DATE) CONC PIPE STORM SEWER
PROP GR 1.0%

8" CLASS 2400 ASBESTOS CEMENT PIPE SANITARY SEWER (VITRIFIED PIPE CAN BE USED)
GRADE 1 IN 85.25 OR 1.29%

8" CLASS 2400 ASBESTOS CEMENT PIPE SANITARY SEWER (VITRIFIED PIPE CAN BE USED)
GRADE 1 IN 103.93 OR 0.97%

8" CLASS 2400 ASBESTOS CEMENT PIPE SANITARY SEWER (VITRIFIED PIPE CAN BE USED)
GRADIENT = 0.4% OR 1 IN 250.

30" REINF CONC A.S.T.M. C76-61 CL II STORM SEWER
GR = 1 in 250 or .4%

ROAD GRADE
SURFACE
INVERT
STATION

DESIGNED BY	DATE
ROAD GRADE	NOV 10 1962
STORM SEWER	
SAN SEWER F Chanik	APRIL 5, 1962

REVISIONS

DATE	DESCRIPTION	DRN BY	CHK'D BY

CITY OF OTTAWA
PLANNING AND WORKS DEPARTMENT
SEWERAGE AND DRAINAGE BRANCH

ROSEVIEW AVE.
CARLING AVE TO PENNY DR

DRAWN BY	SCALES
CHECKED BY	HOR 1"=40' VER 1"=6'
DATE	PLAN
SURVEY BOOK	L-32

L32-1

REVISIONS / RÉVISIONS	DATE	BY
REDRAWN FROM VOIDED UTILITY PLAN G-C-15	AUG. 2007	OK
HYDRO,BELL,ENBRIDGE,ROGERS, CITY SEWER, WATER, TRAFFIC, SL COMPILED/DIGITIZED FROM UTILITY/CITY DATA	OCT 2013	ZB

LEGEND

- Water Valve, Valve Chamber, Fire Hydrant
- Sewer Manhole, Catch Basin Manhole
- Catch Basin / Drainage, Wing Wall, Head Wall
- Pole, Pole w/ light, Decorative, Lawn Light
- Power Supply, Panel, Pedestal, Transformer, Tower, Regulator (P/S, PNL, GR)
- Amp, Hand Hole, Vault, Gas Valve
- OC Transpo: Bus Shelter-No Power, Energized, Isolated (BUS, BUS, BUS)
- Streetscape: Planter Box, Grate Square, Eng. Soil (TGS)
- Traffic Connect Box / Disconnect Box, SL Disconnect (TCB, TDB, SDB)
- Red Light Hand Hole, Red Light Camera (THH)
- Scada: Hand Hole, Monitoring Panel
- Reducer
- Pipe, Duct, Conduit, Lateral
- Culvert
- Abandoned
- Capped
- Buried Cable
- Property Line
- Install Year (2015)

TELECOM GLOSSARY

A	Allstream	P	Primus
AT	Atria	P2P	Canadian P2P Fibre
B	Bell	R	Rogers
BH	Birch Hill	S	Sprint
F	Fibre Noir	SL	Street Lighting
G	Globility	T	Traffic
GT	Group Telecom	TO	Telecom Ottawa
H	Hydro Ottawa	TU	Telus
H1	Hydro One	V	Videotron
L / L3	Level 3	Z	Zayo

GLOSSARY - OTHER

DD	Dept. of Defence	PED	Pedestal (owner unknown)
MH	Manhole (owner unknown)	PW	Public Works
O/OC	OCTranspo	UP	Utility Pole (owner unknown)
SCD	Scada		

CAUTION/ATTENTION

Although utility locations are established using the best available information, they cannot be guaranteed.
Property lines were compiled from plans and documents recorded in the Land Registry System and are for indexing purposes only.

Bien que l'emplacement des services publics soient établis en utilisant la meilleure information disponible, ils ne peuvent pas être garantis.
Des lignes de propriété ont été compilées en utilisant des plans et des documents enregistrés dans le système de cadastre et sont pour l'indexation seulement.

Ottawa

Right of Way, Heritage, and Urban Design Services /
Gestionnaire, Services des emprises, du patrimoine, et du design urbain
Planning, Infrastructure and Economic Development Department /
Direction generale de la planification, de l'infrastructure et du developpement economique
100 Constellation Cres., 6th Floor East / 6ème Étage Est, Ottawa, ON K2G 6J8

OTTAWA UTILITY COORDINATING COMMITTEE
CENTRAL REGISTRY
COMITÉ DE COORDINATION DES SERVICES PUBLICS D'OTTAWA
ENREGISTREMENT CENTRAL

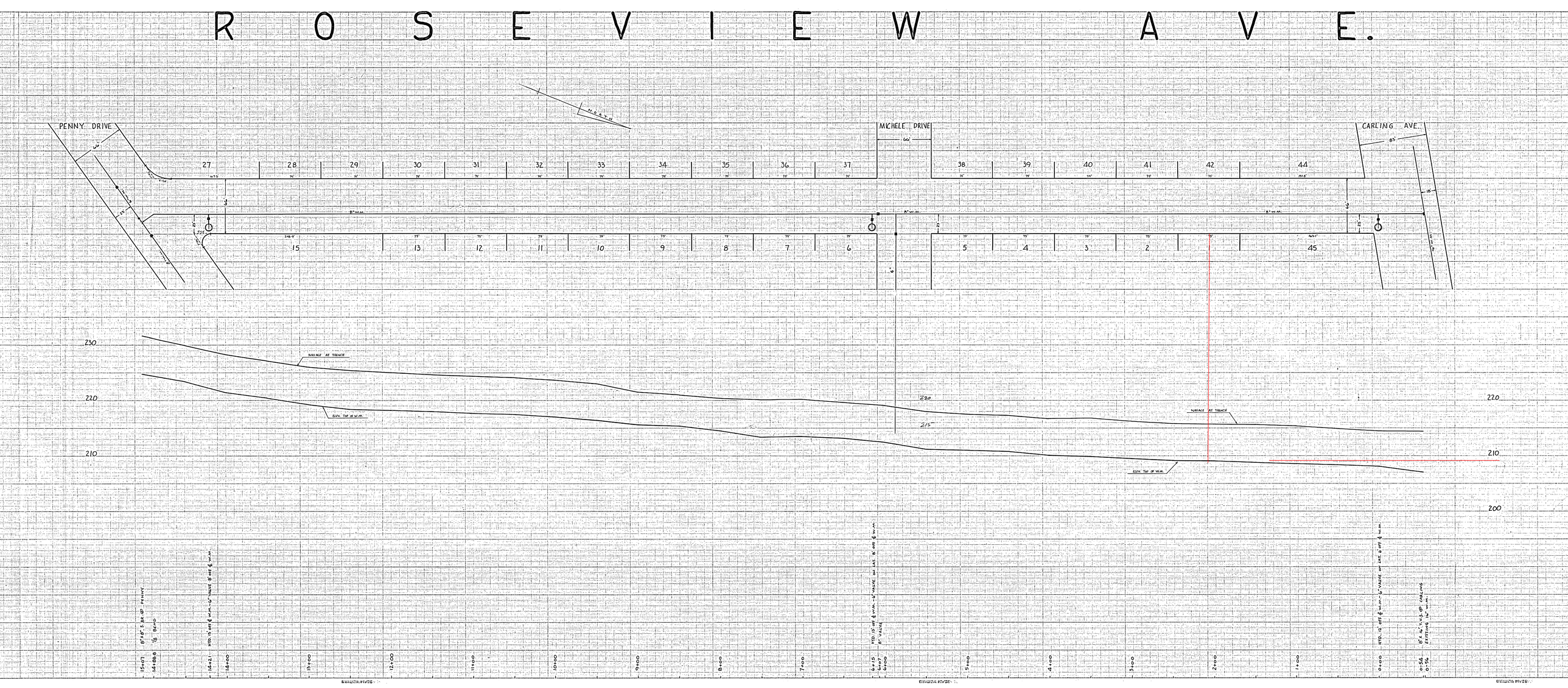
UTILITY COORDINATING COMMITTEE — UCC — Ottawa — CCSP — COMITÉ DE COORDINATION DES SERVICES PUBLICS

PRODUCED BY: GIS & DATA MANAGEMENT BRANCH
INFORMATION CENTRE UNIT

SCALE: 1:250

SHEET NUMBER
G-C-15

R O S E V I E W A V E.



6178

Appendix B: Correspondence

File No.: PC2021-0100
Date: April 19, 2021

ADDRESS: 817 Roseview Avenue
Pre-Consultation Meeting Minutes
Meeting Date: April 1, 2021

Attendee	Role	Organization
Lisa Stern	Planner	City of Ottawa
Patrick McMahon	Transportation Project Manager	
Abi Dieme	Infrastructure Project Manager	
Randolph Wang	Urban Designer	
Mark Richardson	Planning Forester	
Fernando Matos	Applicant	
Fares Elsabbagh	Property Owner	Canadian General Contractors

Comments from the Applicant:

1. Propose to develop a 4 storey, 20 unit rental apartment buildings with 15 parking spaces and a 14m height.
2. Looking to partner with Ottawa Community Housing for the provision of affordable housing on the site.
3. A storm water easement runs along the southern side of the site. Would need permission from the easement holder (City) to permit driveway or plantings on the easement. Landscaping will be limited in this area.

Planning Comments:

1. The application form, timeline and fees can be found here.
2. The subject lands are designated Arterial Mainstreet in the City's Official Plan and are zoned AM[2181]H(11).
3. A complex site plan application and rezoning will be required to increase the height permission on the property beyond 11m and to facilitate the 37% reduction in parking.
4. A Planning Rationale should be provided which discusses the desirability of the proposed intensification and compatibility with the existing R1 zoned properties to the south.
5. A rationale for the proposed reduction in parking should be provided.
6. Please note that accessible parking spaces must be provided, please also review the minimum size requirements for each parking space.
7. The location of the proposed rooftop amenity should be examined to limit noise and overlook on the adjacent properties.
8. Please examine the opportunity for increased landscaping on the property. The easement which runs along the south side of the site may limit significant landscaping. Landscaping should be discussed in the Urban Design Brief and Planning Rationale.
9. Cash-in-lieu of parkland and associated appraisal fee will be required as a condition of approval as per the Parkland Dedication Bylaw. The rate for an apartment is the value of 10% of the land area of the site being developed. If they can demonstrate that CILP was previously paid, the amount of CILP to be paid will be adjusted.
10. Please consult with the Ward Councillor prior to submission.

Urban Design

1. A Design Brief is required as part of the submission package. The Terms of Reference of the Design Brief is attached for convenience.
    a. Please conduct a thorough streetscape character study of Roseview. The study should include qualitative and quantitative analysis of elements such as pattern of front yard setback, building elevations, pattern of fenestration, proportion of soft landscaping vs hard surfaces, and tree canopies, etc.
    b. Please show the proposed development in both existing and planned context. The planned context can be illustrated through the interpretation of the zoning envelope.
2. With respect to the design concept presented at the meeting:
    a. The proposed front yard appears to be too narrow. The front yard should be consistent with the rest of the street.
    b. It is important to maintain a continuous tree canopy. The proposed narrow front yard, combined with the window wells that are likely be to installed for the basement units, may limit the opportunity for landscape and tree planting.
    c. The proposed driveway shown on the circulated rendering appears to be very wide. However, this may simply be a rendering error.
    d. An additional 2m building step back could be an effective strategy to mitigate massing. However, given that buildings along Roseview are one to two storeys in height, it may be more appropriate to maintain a one and half storey volume (basement + ground floor) at the front and step all floors above back.
    e. The intent to decorate the building with cornice lines is appreciated. However, it appears that the two cornice lines shown are too heavy and unnecessarily exaggerate the effects of height. A subtle expression will be more conducive.
    f. A good study of the fenestration pattern along the Roseview will help with the design of a more compatible building.
    g. Please be mindful of the potential privacy concerns of the abutting property owners, particularly with respect to their enjoyment in the backyard. A careful view analysis of the rooftop amenity space can help identify potential issues and develop proper design strategies.
    h. Please explore opportunities for landscaping, particularly canopy trees, in the rear yard.
    i. The narrow interior side yard on the north side could potentially make the installation and maintenance of the basement light wells difficult.

<u>Transportation:</u>

1. No TIA is required.
2. Site triangles at the following locations on the final plan will be required:
    a. Local Road to Local Road: 3 metres x 3 metres
3. Ensure that corner clearance is met.
4. Noise Impact Studies required for the following:
    a. Road (within 100m of Carling Avenue)
    b. Stationary
5. On the site plan:
    a. Show all details of the roads including adjacent accesses abutting the site up to and including the opposite curb.
    b. Turning templates will be required for all accesses showing the largest vehicle to access the site; turning movements should also be provided to ensure that all vehicles can access the northernmost parking spaces without excessive maneuvers.

    c. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible.
    d. Show lane/aisle widths.
6. As the site proposed is residential, AODA legislation applies for all areas accessible to the public (i.e. outdoor pathways, parking, etc.). Consider using the City's Accessibility Design Standards.
7. Given the lower parking provisions, parking spillover is likely in this context given that Carling Avenue is not a transit priority corridor in this area. To help justify this lower parking rate and auto driver mode share, consider:
    a. Reviewing the City's TDM Checklists and implementing at least all required strategies;
    b. Providing an introductory PRESTO passes per unit to encourage transit use; and
    c. Providing surface level bicycle parking for visitors, and at least one bicycle parking space per unit given that Carling Avenue is a spine route.

Engineering:
Please see attached memo.

Planning Forestry:
TCR requirements:

1. a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. an approved TCR is a requirement of Site Plan approval.
2. As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
4. the TCR must list all trees on site by species, diameter and health condition
5. please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
6. the TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
8. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
        a. the location of tree protection fencing must be shown on a plan
        b. show the critical root zone of the retained trees
        c. if excavation will occur within the critical root zone, please show the limits of excavation
9. the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

10. For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

LP tree planting requirements:
For additional information on the following please contact tracy.smith@Ottawa.ca

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

- Please ensure adequate soil volumes are met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

Sensitive Marine Clay

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.
Please contact me at Lisa.Stern@ottawa.ca or at 613-580-2424 extension 21108 if you have any questions.

Development Review – Pre-application consultation Checklist (Municipal Servicing)

Date: 2021-Apr-01

Site Location: 817 Roseview Avenue

Type of Development: ☒ **Residential** (☐ **townhomes,** ☐ **stacked,** ☐ **singles,** ☐ **apartments),**
☐ **Office Space,** ☐ **Commercial,** ☐ **Retail,** ☐ **Institutional,** ☐ **Industrial,**
Other: N/A

Owner/Agent: Fernando Matos
Assigned Planner: Lisa Stern
Attendees: Lisa Stern, Randolph Wang, Mark Richardson, Patrick Mahon, Fernando Matos, Fares Elsabbagh, Abibatou Dieme

---

Infrastructure Information – All existing and proposed utilities (municipal pipes) must be shown on the servicing plans

Water:
District Plan No. 1W
Verify with ROW Approvals Unit if frontage charges apply ($190.00 per metre) ☐ **Yes** ☒ **No**

Connection point: 203mm CI watermain on Roseview Avenue

Submission documents must address/discuss:

Boundary conditions (civil consultant must request boundary conditions from the City's assigned Project Manager, Development Review)
Water boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide all the following information:
Location of service (show on a plan or map)
Type of development and the amount of fire flow required (as per FUS, 1999).
Average daily demand: ___ l/s.
Maximum daily demand: ___l/s.
Maximum hourly daily demand: ___ l/s.
Supporting Calculations of the required fire flow and all domestic demands listed above
Fire protection (Fire demand, Hydrant Locations)
a water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)

Development Review – Pre-application consultation Checklist (Municipal Servicing)

Sanitary Sewers (size and location of connection): 200mm AC sanitary sewer on Roseview Avenue

Is a monitoring manhole required on private property? ☒ **Yes** ☐ **No**

Storm Sewers (size and location of connection)**:** 1050mm Concrete storm sewer on Roseview Ave
The 675mm concrete sewer is shallow which makes gravity connection would be challenging.

Storm Water Management:

a) Quality Control:
Rideau Valley Conservation Authority to establish if quality control is required for this project and provide criteria.

b) Quantity Control:

- Design storm for receiving sewer: 5-year design storm
- Runoff coefficient (C): C=0.5 or C=pre-development, whichever is less
- Time of concentration (Tc): To be calculated, min Tc=10mins
- Allowable flow rate: Control the 100-year event to the 5-year event

Are there any Capital Works Projects scheduled that will impact the application? ☐ **Yes** ☒ **No**
No moratoriums.

Additional Notes

- Extent of the storm sewer easement to be confirmed
- Easement to be shown on all plans being submitted. No works are permitted within an easement unless written authorization is provided by the easement holder. Permission from City of Ottawa Asset Management Branch to be coordinated with the project manager.

Development Review – Pre-application consultation Checklist (Municipal Servicing)

- Existing ditch to be maintained. Culvert to be installed underneath the entranceway

---

Refer to following list of required supporting plans and studies required for the infrastructure component of your submission

- Site Plan application
    1. Grade Control and Drainage Plan
    2. Site Servicing Plan
    3. Site Servicing Study
    4. Stormwater Management Report
    5. Erosion and Sediment Control Plan
    6. Geotechnical Study

For information on preparing required studies and plans refer to:
http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

zoran@archnova.ca

From: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Sent: July 22, 2021 2:17 PM
To: zoran@archnova.ca
Subject: RE: 817 Roseview Avenue: boundary conditions
Attachments: 817 Roseview Avenue July 2021.pdf

Good afternoon Zoran,

The following are boundary conditions, HGL, for hydraulic analysis at 817 Roseview Avenue (zone 1W) assumed to be connected to the 203 mm watermain on Roseview Avenue (see attached PDF for location).

Minimum HGL: 107.4 m

Maximum HGL: 115.6 m

Max Day + Fire Flow (150 L/s): 101.3 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Regards,
Abi

From: zoran@archnova.ca <zoran@archnova.ca>
Sent: July 20, 2021 11:17 AM
To: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Subject: RE: 817 Roseview Avenue: boundary conditions

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hello Abi,

The service connection can be wherever along the front of the property. It is sufficient and precise enough for the model.

Regards,

Zoran

From: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Sent: July 20, 2021 10:47 AM
To: zoran@archnova.ca
Subject: RE: 817 Roseview Avenue: boundary conditions

Hi Zoran,

We'd need a screenshot of the anticipated location of water service connection for this development for the boundary conditions. I am satisfied with the additional information provided in your previous email.

Regards,
Abi

From: zoran@archnova.ca <zoran@archnova.ca>
Sent: July 16, 2021 10:57 AM
To: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Subject: RE: 817 Roseview Avenue: boundary conditions

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Attached is the City services plan for 817 Roseview.

Regards,

Zoran Mrdja, P.Eng., FEC
Durk0Qryd Ghvljq Lqf1
613-818-3884

From: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Sent: July 15, 2021 12:06 PM
To: zoran@archnova.ca
Subject: RE: 817 Roseview Avenue: boundary conditions

Good afternoon,

I would need a GeoOttawa based image of the proposed water service connection at the watermain. According to the site plan submitted, the total ground floor area excluding basement area is greater than provided in the calculations which is affecting the final fire flow provided. Please revise the calculations.

Regards,
Abi

From: zoran@archnova.ca <zoran@archnova.ca>
Sent: July 07, 2021 11:11 AM
To: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Subject: 817 Roseview Avenue: boundary conditions

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Could you please provide the boundary conditions for the location of 135 Sweetland Avenue, Ottawa?
Following are the initial information:

1. Type of development: 4storey+basement, 20 units building.
2. Fire flow required: 150 l/sec (FUS); 72.26 (OBC); nearest hydrant distance 52.80 m
3. Average Daily Demand: 0.11 l/sec
4. Maximum Hourly Demand: 1.03 l/Sec
5. Maximum Daily Demand: 1.55 l/sec

Attached are calculation sheets, image of nearest hydrant distance (from Geoottawa) and the site plan of proposed development.
Regards,

Zoran Mrdja, P.Eng., FEC
DufkOQryd Ghvljq Lqf1
613-818-3884

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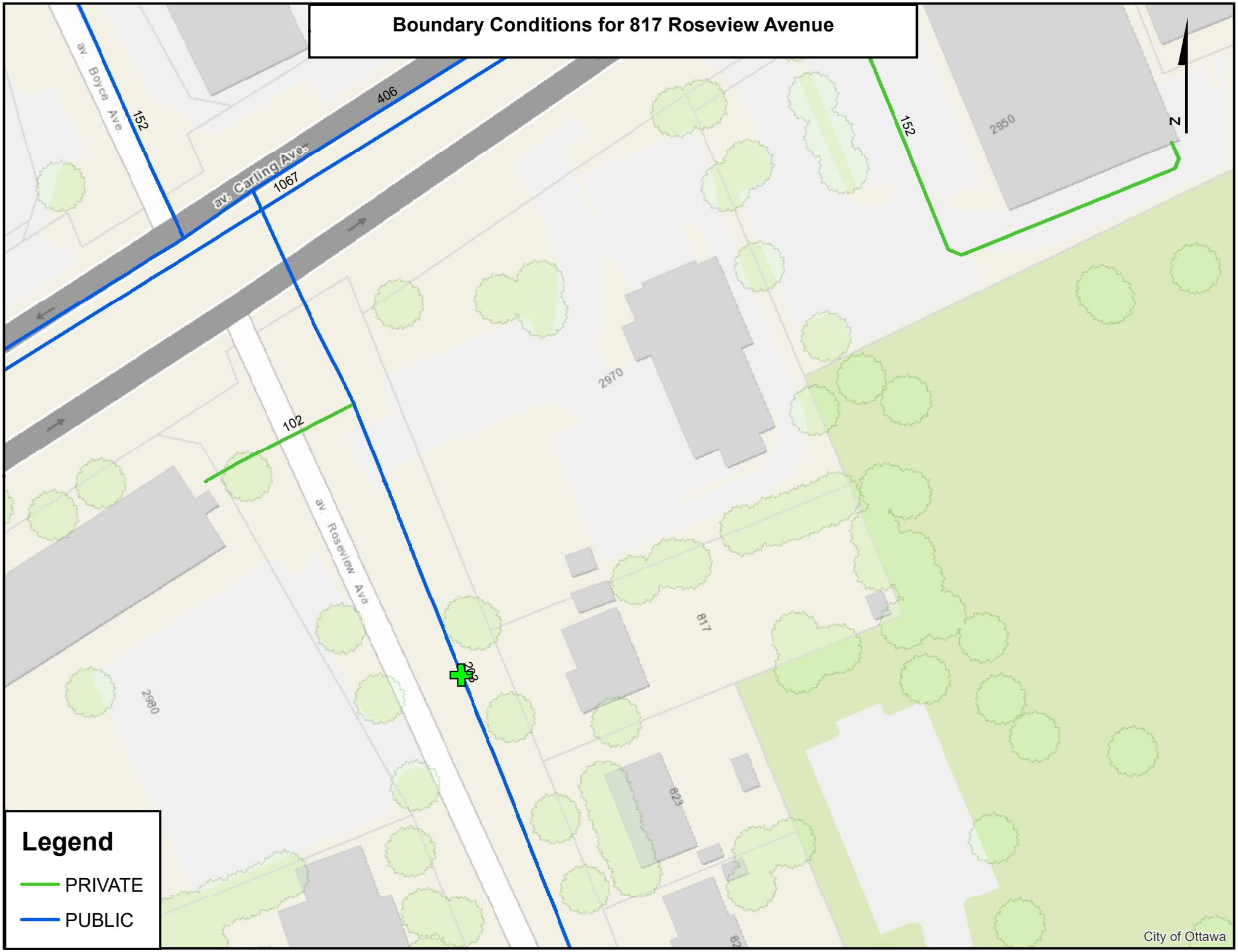
Boundary Conditions for 817 Roseview Avenue



Appendix C: Guidelines, Existing Reports, Studies and References

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

- **Ottawa Sewer Design Guidelines**,

  City of Ottawa, SDG002, October 2012, amended 2019 & 2020. (City Standards)

  - Technical Bulletin ISTB-2018-01, City of Ottawa, March 21, 2018.
  - Technical Bulletin ISTB-2018-03, City of Ottawa, March 21, 2018.

- **Ottawa Design Guidelines – Water Distribution**

  City of Ottawa, July 2010., (Water Supply Guidelines)

  - Technical Bulletin ISD-2010-2, City of Ottawa, December 15, 2010.
  - Technical Bulletin ISDTB-2014-02, City of Ottawa, May 27, 2014.
  - Technical Bulletin ISDTB-2018-02, City of Ottawa, March 21, 2018.

- **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, 2010 Update.(OBC)

- **Water Supply for Public Fire Protection**

  Fire Underwriters Survey, 1999., (FUS)

- **NFPA 13 – Standard for the Installation of Sprinkler Systems**

  National Fire Protection Association, 2016., (NFPA Standards)

Servicing study guidelines for development applications

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

- ☐ Executive Summary (for larger reports only).
- ☐ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☐ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☐ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.
- ☐ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☐ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).
- ☐ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
- ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
- ☐ Proposed phasing of the development, if applicable.

☐ Reference to geotechnical studies and recommendations concerning servicing.

☒ All preliminary and formal site plan submissions should have the following information:
- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

☐ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☐ Identification of system constraints
☒ Identify boundary conditions
☒ Confirmation of adequate domestic supply and pressure
☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.
☐ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
☐ Address reliability requirements such as appropriate location of shut-off valves
☐ Check on the necessity of a pressure zone boundary modification.
☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

- ☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.
- ☐ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

- ☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).
- ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.
- ☒ Description of existing sanitary sewer available for discharge of wastewater from proposed development.
- ☒ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)
- ☒ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix ‘C’) format.
- ☐ Description of proposed sewer network including sewers, pumping stations, and forcemains.
- ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).
- ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.
- ☐ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

- ☐ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)
- ☒ Analysis of available capacity in existing public infrastructure.
- ☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.
- ☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.
- ☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.
- ☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.
- ☐ Set-back from private sewage disposal systems.
- ☐ Watercourse and hazard lands setbacks.
- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.
- ☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
- ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
- ☒ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.
- ☐ Any proposed diversion of drainage catchment areas from one outlet to another.
- ☐ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
- ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.
- ☐ Identification of potential impacts to receiving watercourses
- ☐ Identification of municipal drains and related approval requirements.
- ☒ Descriptions of how the conveyance and storage capacity will be achieved for the development.
- ☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.

- ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- ☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.
- ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

- ☐ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.
- ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.
- ☐ Changes to Municipal Drains.
- ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

4.6 Conclusion Checklist

- ☒ Clearly stated conclusions and recommendations
- ☒ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.
- ☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario