PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

SERVICEABILITY REPORT

REPORT No. R-824-83A (REV. #1)

MARCH 2025

T.L. MAK ENGINEERING CONSULTANTS LTD.

AUGUST 2024

REFERENCE FILE NUMBER 824-83

Introduction

The developer of this property is proposing to redevelop the existing residential lot described as Lot 36 Registered Plan 114 City of Ottawa by constructing a six (6) storey residential apartment building plus a basement consisting of thirty (30)-units, including thirteen (2)-bedroom units, eleven (1)-bedroom units and six (6) studio units.

The municipal address of this property is referenced as 342 Roosevelt Avenue and it is located in the City Ward (15 - Kitchissippi). The site is situated on the west side of Roosevelt Avenue, south of Workmen Avenue and north of Richmond Road, see site plan and legal survey plan in Appendix A for details.

The area of this property is ±0.0647 hectares. In addition to the six (6) storey residential building, the other development features will comprise of an interlock paver access to the front entrance plus an interlock paver access to the waste storage and bike racks at the front (southeast) side of the building including access to the south building entrances along the south side yard and an amenity area is located at the north side yard including landscaped areas throughout the site, etc., to meet the City of Ottawa's site plan requirements.

A site geotechnical report was prepared by the owner's soils engineer Paterson Group entitled "Geotechnical Investigation – Proposed Residential Building" 342 Roosevelt Avenue (Project No. PG4210-LET.01) dated August 29, 2017 for this proposed development property.

This serviceability report will provide the City of Ottawa with our serviceability brief to address the proposed servicing scheme for this site.

Existing Site Conditions and Servicing

This property is presently occupied by a two (2) storey brick residential building. The existing house is located near the front centre on this property with an one (1) storey vinyl building addition to the south side of the existing house and asphalt parking area located along the front northeast corner of the property limit which currently provides vehicle access and parking for this lot. For additional details of the site's pre-development conditions, refer to the coloured Google Image (2020) and aerial photography from (GeoOttawa 2022) in Appendix B.

Approximately two thirds (2/3) of this site is currently permeable surface covered consisting of grass/landscaped areas with the remaining areas being roof area, asphalt laneway, asphalt walkway, covered frame steps and deck. Currently, most of the landscape areas are concentrated at the rear of lot and along the north side yard.

The topography of the land is found to be gently sloping and graded primarily to drain from rear to the front of the lot (south to north). The existing gradient of the property is sloping approximately 0.5% from back to front.

The existing house water and sanitary service lateral currently servicing the existing dwelling on 342 Roosevelt Avenue will be removed. The existing water services shall be blanked at the main and the existing house laterals shall be capped at the front property line for re-development of this lot.

As for the availability of underground municipal services, there are existing municipal services along Roosevelt Avenue in front of this property consisting of a 450mm diameter storm sewer, a 375mm diameter sanitary sewer, and a 150mm diameter watermain for development of this property. Refer to the City of Ottawa Roosevelt Avenue As-Built plan and profile drawings included in Appendix C for details.

Because the site will be connecting to and outletting into the separated Athlone Avenue storm sewer located within the Roosevelt Avenue road right of way in the City of Ottawa, therefore, the approval exemption under Ontario Regulations 525/98 would apply since storm water discharges from this site will outlet flow into a downstream storm sewer. Thus, an Environmental Compliance Approval (ECA) application will not be required to be submitted to the Ministry.

Proposed Residential Apartment Building Site

There are no requirements for vehicle access or parking for this site. Interlock pavers are proposed at the front and at the south side of the new building for pedestrian access to the waste disposal and bicycle parking located adjacent to the southeast quadrant of the new building.

A. Water Supply

The proposed building located within Pressure Zone 1W at 342 Roosevelt Avenue is a 6-storey multi-unit residential building, with a basement. The building comprises 30 units in total ranging from studio (bachelor) to 2-bedroom units. The breakdown of the units is listed in **Table 1**.

Table 1: Proposed Unit Counts

Unit	Unit Number
Studio	6
One Bedroom	11
Two Bedroom	13
Total	***30***

On average each floor covers an area of around 3,334 ft^2 (310 m^2) for a total gross floor area of 23,339 ft^2 (2,169 m^2). The building is to be serviced by the 150 mm diameter watermain along Roosevelt Avenue. The ground elevation along Roosevelt Avenue is approximately 66.9 m.

Demand Projections

The domestic demands were calculated using the City of Ottawa's Water Design Guidelines, where the residential consumption rate of 280 L/cap/d was used to estimate average day demands (AVDY). Persons per unit (PPU) for each unit were estimated based on the City of Ottawa's Water Design Guidelines. Total resident count for the proposed units was estimated at 53.

Following discussions with the City, peaking factors are to be estimated from Table 3-3 of the MECP Design Guidelines for Drinking-Water Systems, given that the proposed development population is less than 500 people. Maximum day (MXDY) demands were calculated by multiplying AVDY demands by a factor of 8.6. Peak hour (PKHR) demands were calculated by multiplying AVDY by a factor of 13.0. Table 2 shows the estimated domestic demands of the proposed building.

Table 2: Estimated Domestic Demand

Unit Type	Unit Counts	PPU	Population	Consumption	AVDY		MXDY		PKHR	
					L/d	L/s	L/d	L/s	L/d	L/s
Apartment, Bachelor	6	1.4	9	280	2,352	0.03	20,270	0.23	30,523	0.35
Apartment, 1-Bedroom	11	1.4	16		4,312	0.05	37,162	0.43	55,959	0.65
Apartment, 2-Bedroom	13	2.1	28		7,644	0.09	65,879	0.76	99,200	1.15
Total	***30***	-	***53***	-	***14,308***	***0.17***	***123,311***	***1.43***	***185,682***	***2.15***

As per the City of Ottawa's Water Design Guidelines (and Technical Bulletin IWSTB-2024-05), the Fire Underwriter Survey (FUS) method is to be used for fire flow requirements affecting municipal watermain sizing; with regards to fire protection on private property and not requiring new watermains, these are covered by the Ontario Building Code (OBC), using the OBC's Office of the Fire Marshal (OFM) method. If the required flow using the OBC/OFM method yields 9,000 L/min for the property, Technical Bulletin IWSTB-2024-05 specifies the FUS method to be used instead.

It is understood that the building will be of ordinary construction (min. 1-hour fire rated exterior walls). As a conservative approach, Type IV construction material classifications was assumed for the OBC calculations. The building will also be equipped with sprinklers. Based on the provided draft plans, the basement is more than 50% above ground level, hence the basement level was included in the proceeding fire flow calculations.

Based on the OBC/OFM fire flow calculations, a total of 9,000 L/min for a duration of minimum of 40 mins is required. As per Technical Bulletin IWSTB-2024-05, the FUS method should be used to calculate the required fire flow for the proposed property. The FUS calculation resulted in a total required fire flow of 8,000 L/min (133.5 L/s) for a duration of 2 hours. The fire flow requirement calculations are provided in the attached worksheet in Appendix D.

In summary, the estimated water demands for the proposed building are as follows:

- AVDY = 14,308 L/d (0.17 L/s)
- MXDY = 123,311 L/d (1.43 L/s);
- PKHR = 185,682 L/d (2.15 L/s); and,
- Fire Flow (FUS) = 8,000 L/min (133 L/s).

Details are provided in the attached under **FUS Fire Flow Calculations** (See Appendix D). **Figure 1** found in Appendix D provides separation distances from adjacent buildings. The proposed **Site Plan** attached in Appendix D was used to determine distances from the proposed building to the property lines.

Boundary Conditions

The hydraulic gradeline (HGL) boundary conditions for 342 Roosevelt Avenue, as presented in **Table 3**, were provided by the City on June 24, 2024 (see attached **Water Boundary Conditions Email** in Appendix D).

Table 3: Boundary Conditions

Demand Scenario	Head (m)	Flow (L/s)
Minimum HGL (Peak Hour)	108.7	
Maximum HGL (Average Day)	115.3	
Available Fire Flow @ Residual 20 psi		133.5

Hydraulic Analysis

Peak Hour & Average Day

During peak hour demands, the resulting minimum hydraulic gradeline of 108.7 m corresponds to a peak hour pressure of 410 kPa (59.5 psi). This value is above the minimum pressure objective of 276 kPa (40 psi) for residential buildings up to two storeys. Adding 5 psi [1] per floor above two stories, to account for headloss due to elevation and pipe losses, a minimum pressure of 413 kPa (60 psi) would be required for the sixth floor. The peak hour pressure at ground level is slightly below this objective but is still within reasonable range for peak hour conditions. As such, it is deemed acceptable.

During average day demands, the resulting maximum hydraulic gradeline of 115.3 m corresponds to a maximum pressure of 474 kPa (69 psi). This value is below the maximum pressure objective of 552 kPa (80 psi).

Supporting hydraulic calculations are attached in Appendix D.

[1] It is noted that the design of the building's plumbing system could have an impact on the anticipated pressures on the higher floors. While an allowance of 5 psi per floor is used to assess the need for additional pumping at the planning stage, the need for additional pumping within the building will need to be confirmed by the mechanical/plumbing designer of the building.

Maximum Day + Fire Flow

The reported available fire flow at a residual pressure of 20 psi is 133.5 L/s (8,010 L/min). This is greater than the RFF of 133 L/s or 8,000 L/min, as per FUS, and therefore considered acceptable. Hydrant coverage and classes in the vicinity of the proposed building are illustrated in **Figure 2** attached in Appendix D.

Based on Table 1 of Appendix I of the City of Ottawa Technical Bulletin ISTB-2018-02 and discussion with the City, as well as a desktop review (i.e., Google Street View) to confirm hydrant class, two (2) Class AA hydrants are located in the vicinity of the proposed building along Roosevelt Avenue. One (1) hydrant is located within 75 m, with a capacity contribution of up to 5,700 L/min. The other hydrant is located between 75 m and 150 m with a capacity contribution of up to 3,800 L/min. The combined hydrant flow coverage for 342 Roosevelt Avenue is therefore calculated at 9,500 L/min, which is above the FUS required fire flow of 8,000 L/min. A breakdown of the hydrant coverage is summarized in **Table 4** below.

Table 4: Fire Hydrant Coverage

Building	Fire Flow Demand (L/min)	Fire Hydrants					Combined Hydrant Flow Coverage (L/min)
		Hydrant Class	Within 75 m		Between 75 m and 150 m		
			Quantity	Max Contrib. to RFF	Quantity	Max Contrib. to RFF	
342 Roosevelt Avenue	8,000 L/min (FUS)	AA	1	5,700	1	3,800	9,500
		A					
		B					
		C					

In conclusion, based on boundary conditions provided, the local watermain network in the vicinity of the proposed building at 342 Roosevelt Avenue provides adequate fire flow capacity as per the Fire Underwriters Survey (FUS) method. Anticipated demand flows meet pressure objectives during average demand conditions, as per City of Ottawa's Drinking Water Design Guidelines. During peak hour conditions, anticipated minimum pressure at ground level meets pressure objectives for residential buildings up to two storeys. However, minimum peak hour

pressure is slightly below the objective when considering the 6th floor (accounting for additional headloss due to elevation and pipe losses using a rule of thumb value of 5 psi per floor). Nonetheless, minimum pressure is still within reasonable range at the 6th floor for peak hour conditions and is deemed acceptable. It is noted that the building's mechanical/plumbing designer will have to confirm at the design phase that additional pumping is not needed for higher-level floors based on plumbing design of the building.

B. Sanitary Flow

The peak sanitary flow for the 30 units, which comprise of thirteen (2)-bedroom, eleven (1)-bedroom and six studio apartment units, is estimated at Q = 0.59 L/s with an infiltration rate of 0.02 L/s. Refer to Appendix E sheet 1 of 1 regarding sanitary flow calculations. This flow will enter the existing 375mm diameter sanitary sewer on Roosevelt Avenue via the proposed 150mm diameter PVC sanitary service lateral from the six (6)-storey residential apartment building.

The existing peak sanitary flow of the site for single detached dwelling unit is Q = 0.06 L/s with an infiltration rate of 0.02 L/s. The net increase in flow from this proposed development is 0.53 L/s which is not expected to negatively impact the existing 375mm dia. sanitary sewer.

Waste water from the Roosevelt Avenue 375mm dia. sanitary sewer then in turn outlets north into the existing downstream 1500mm × 1500mm dia. West Nepean sanitary collector sewer located along the transitway corridor which further direct sewage flow eastward into the existing 1650mm dia. sanitary collector sewer located east of Island Park Drive.

C. Storm Flow

The storm-water outlet for the proposed development property will be the existing 450mm diameter concrete storm sewer located on Roosevelt Avenue. Stormwater attenuation on site will be accomplished by means of rooftop storage with controlled roof drains that regulate flow off site.

The building foundation weeping-tile drainage system shall have its own separate pipe for gravity flow where weeping-tile water is outletted via a 150mm diameter storm pipe to the existing 450mm diameter storm sewer. The storm-water outlet for the rooftop water from roof drains will be a separately designated proposed 150mm diameter PVC pipe that will also be outletted directly into the existing 450mm diameter storm sewer. The 150mm dia. roof water drain pipe will "wye" into the 150mm dia. weeping tile storm lateral on private property and outlet to the existing Roosevelt Avenue storm sewer.

Two (2) roof drains are proposed for this apartment building to restrict flow at a maximum flow rate of 0.95 L/s each or 2 x 0.95 L/s = 1.90 L/s into the Roosevelt Avenue storm sewer. The calculated net allowable controlled release rate from this site is estimated at 7.87 L/s.

Based on the residential site plan from the owner's architect, the average post-development runoff coefficient is estimated at C = 0.61 and A = 0.0647 hectares.

An estimation of the pre-development flow condition was carried out using the criteria accepted by the City of Ottawa. If post-development C valve exceeds the lesser of the C_{pre} = 0.42 or C_{allow} = 0.5 (max) then SWM is required. So from our calculations, the C_{pre} = 0.42 value will be used at t_c = 10 minutes for pre-development allowable flow calculation off-site.

The pre-development calculated flow rate into the 450mm dia. storm sewer for this residential area is the lesser of either the five (5)-year storm event where C_{allow} = 0.5 (max.) runoff value or the average C_{pre} value which is 0.42 using t_c = 10 minutes. Because this site C_{post} = 0.61 and C_{pre} = 0.42 then SWM measures are required.

Therefore, based on our calculation, on-site retention is required for this proposed development site, because the site post-development C value of 0.61 is greater than the C_{pre} = 0.42.

The storage volume for the five (5)-year and up to the 100-year storm event will be stored by means of flat rooftop at the top of the 6-storey apartment building. Also refer to the site storm drainage report (Report No. R-824-83) for further details.

Conclusion

At this proposed residential site and to develop this lot to house a (6)-storey 30 unit apartment building on a 0.0647 ha. parcel of land, the estimated allowable flow off-site is calculated at 7.87 L/s based on City of Ottawa Drainage and Stormwater Management (SWM) criteria of 5-year pre-development flow at C_{pre} = 0.42. For on-site SWM attenuation, the flat roof top of the proposed apartment building will be utilized and (2) controlled roof drains are incorporated each with a controlled maximum release rate of 0.95 L/s (15.0 U.S. gal/min.). The controlled flow from this site totals to 1.74 L/s for the 5-Year post development condition and 1.9 L/s for the 100-Year post development condition. The uncontrolled 5-year post development flow from the remainder of the site is estimated at 3.65 L/s and 7.30 L/s for the 100-year event respectively.

During the five (5)-year storm event for the flat rooftop storage, the ponding depth of rooftop area 1 and 2 is estimated at 120 mm at the drain and 0mm at the roof perimeter, assuming a 1.5% minimum roof pitch to the drain. The rooftop storage available at Roof Area 1 is 3.49 m^3

and the rooftop storage available at Roof Area 2 is 3.81 m^3, for a total of 7.30 m^3, which is greater than the required volume of 4.19 m^3.

During the 100-year storm event for the flat rooftop storage, the ponding depth of Roof Area 1 and 2 is estimated at 150 mm at the drain and 0mm at the roof perimeter, assuming a 1.5% minimum roof pitch to the drain. The rooftop storage available at Roof Area 1 is 7.12 m^3 and the rooftop storage available at Roof Area 2 is 7.42 m^3, for a total of 14.54 m^3, which is greater than the required volume of 10.34 m^3.

Therefore, by means of flat building rooftop storage and grading the site to the proposed grades as shown on the Proposed Grading and Servicing Plan and Proposed Rooftop Stormwater Management Plan Dwg. 824-83 G-1 and 824-83 SWM-1 respectively, the desirable five (5)-year storm and 100-year storm event detention volume of 7.30 m^3 and 14.54 m^3 respectively will be available on site.

Thus for this development site, the 5-year maximum post development flow draining off-site is the controlled roof top flow plus the uncontrolled flow from the remainder of the site totals to 5.39 L/s (1.74 L/s + 3.65 L /s) which is less than the allowable 7.87 L/s. For event up to and including 100 year, the estimated maximum post development flow draining off-site is 9.20 L/s (1.90 L/s + 7.30 L/s) which exceeds the site allowable of 7.87 L/s by 1.33 L/s for this site.

In comparing the pre-development flow of the current site conditions to the post development flow, the SWM regulated flow plus uncontrolled flow from the proposed site under the post development conditions at the 5-year event = 5.39 L/s and the 100 year event = 9.20 L/s where both of the post development flow events are less than current pre-development flow estimate for the site at 5-Year $_{Pre}$ = 7.87 L/s and 100-Year $_{Pre}$ = 15.73 L/s. Therefore with this proposed development, stormwater flow is improved from that of the existing condition.

The building weeping tile drainage will outlet via its separate 150mm diameter PVC storm lateral. The roof drains will be outletted also via a separate 150mm PVC storm lateral from the apartment building which "wye" into the proposed 150mm dia. weeping tile storm lateral, whereupon both laterals are outletting to the existing Roosevelt Avenue 450mm diameter storm sewer with only one (1) connection. The City of Ottawa recommends that pressurized drain pipe material be used in the building for the roof drain leader pipe in the event of surcharging on the City storm sewer system. Refer to the proposed site grading and servicing plan Dwg. 824-83 G-1 for details.

Erosion and Sediment Control

The contractor shall implement Best Management Practices to provide for protection of the receiving storm sewer during construction activities. These practices are required to ensure no sediment and/or associated pollutants are released to the receiving watercourse. These practices include installation of a "siltsack" catch basin sediment control device or equal in catch basins as recommended by manufacturer on-site and off-site within the Roosevelt Avenue road right of way adjacent to this property. Siltsack shall be inspected every 2 to 3 weeks and after major storm. The deposits will be disposed of as per the requirements of the contract. See Dwg. #824-83 ESC-1 for details.

Refer to Appendix F for the summary of the Development Servicing Study Checklist that is applicable to this development.

PREPARED BY T.L. MAK ENGINEERING CONSULTANTS LTD.

TONY L. MAK, P.ENG

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX A

SITE PLAN AND LEGAL SURVEY PLAN

UNIT COUNT

AMENITY SCH. (COMMUNAL)

AMENITY SCH. (PRIVATE)

GROSS FLOOR AREA

GFL INCL. BALCONIES (CITY OF OTTAWA)

RENTABLE AREA (RESIDENTIAL)

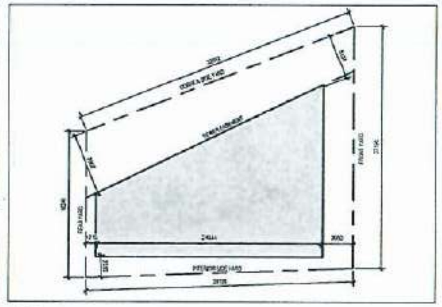
SITE PLAN NOTES

S1 SOFT LANDSCAPING
S2 INTERLOCKING [illegible]
S3 EXISTING STRUCTURE TO BE [illegible]
S4 EXISTING CHAIN LINK FENCE
S5 CONCRETE CURB
S6 DEPRESSED CURB

[illegible]
342 ROOSEVELT AVENUE
CITY OF OTTAWA

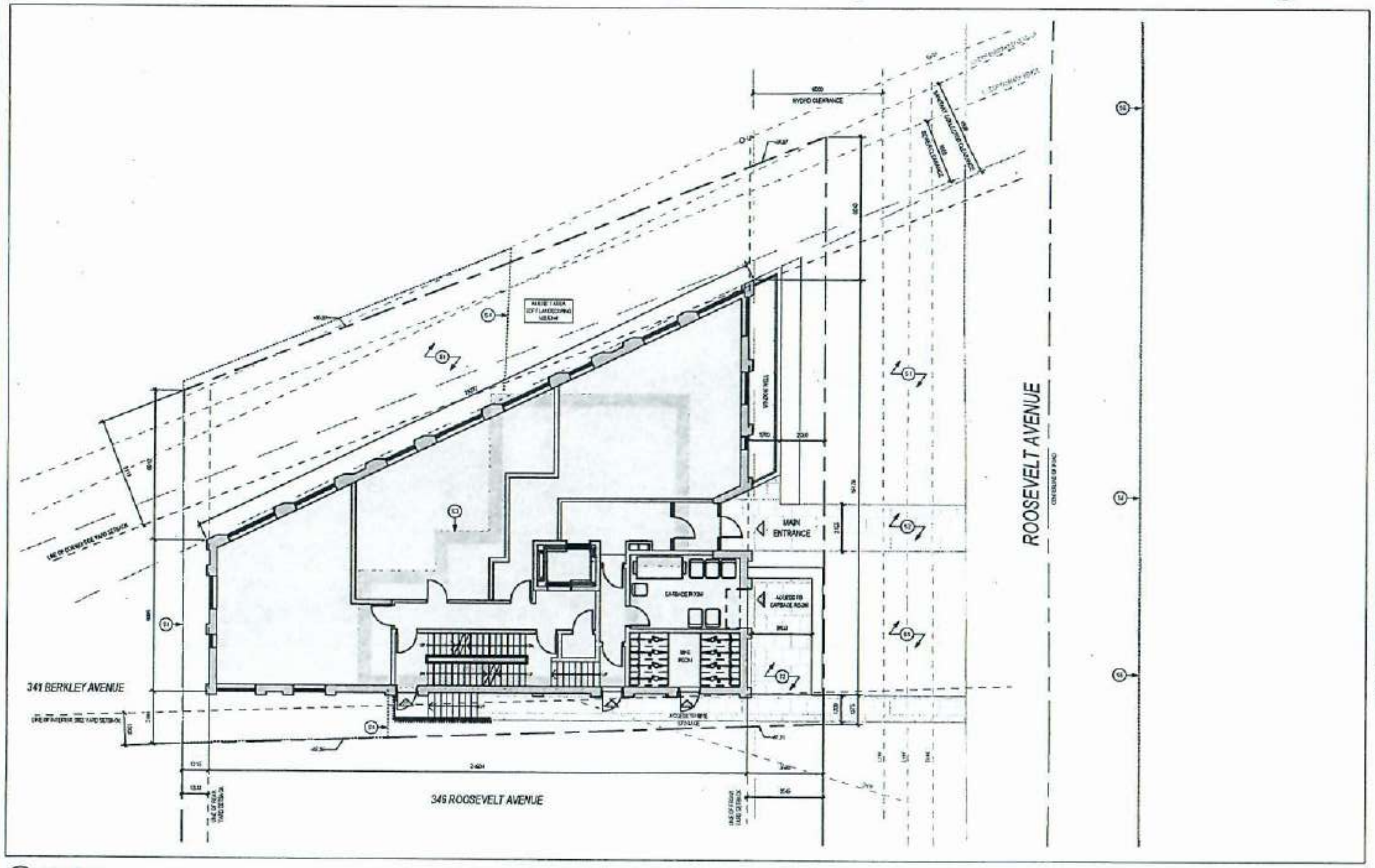
[illegible] LTD. 2024

6 SP-01 SURVEY INFO
SCALE: NTS



5 SP-01 SITE PLAN - SETBACKS
SCALE: 1:250

2 SP-01 LOCATION PLAN
SCALE: NTS



1 SP-01 SITE PLAN
SCALE: 1:100

Site Statistics	
Current Zoning Designation	[illegible]
Lot Width	[illegible]
Total Lot Area	[illegible]
Average Finished Grade	[illegible]
Gross Floor Area	[illegible]
Building Area	[illegible]
Floor Space Index	[illegible]

Proposed Development - 6 Storey Mid-Rise Apartment Building

No. of units: 20 Units

Zoning Mechanism	Required	Provided
Minimum Lot Width	[illegible]	[illegible]
Minimum Lot Area	[illegible]	[illegible]
Min. Front Yard Setback	[illegible]	[illegible]
Corner Side Yard Setback	[illegible]	[illegible]
Min. Interior Side Yard Setback	[illegible]	[illegible]
Min. Rear Yard Setback	[illegible]	[illegible]
Maximum Building Height	[illegible]	[illegible]
Parking Space Rates (Residents)	[illegible]	[illegible]
Minimum Visitor Parking Rates	[illegible]	[illegible]
Bicycle Parking Rates (Residents)	[illegible]	[illegible]
Landscaped Area	[illegible]	[illegible]
Total Amenity Area	[illegible]	[illegible]
Communal Amenity Area	[illegible]	[illegible]

3 SP-01 SITE PLAN STATISTICS
SCALE: NTS

SITE PLAN SYMBOLS LEGEND

- BUILDING ENTRANCE
- BUILDING EXIT
- BICYCLE PARKING
- PROPERTY LINE
- SETBACK LINE
- OVERHEAD WIRES
- INTERLOCKING STONE PAVERS
- EXISTING [illegible] POST
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT
- NEW STREET LIGHT
- STREET LIGHT TO BE REMOVED
- EXISTING STREET LIGHT TO REMAIN
- EXISTING UTILITY POLE TO REMAIN
- UTILITY POLE TO BE REMOVED/RELOCATED

4 SP-01 SITE PLAN SYMBOLS
SCALE: NTS

GENERAL ARCHITECTURAL NOTES

1 ISSUED FOR COORDINATION 2024-05-22
ISSUE RECORD

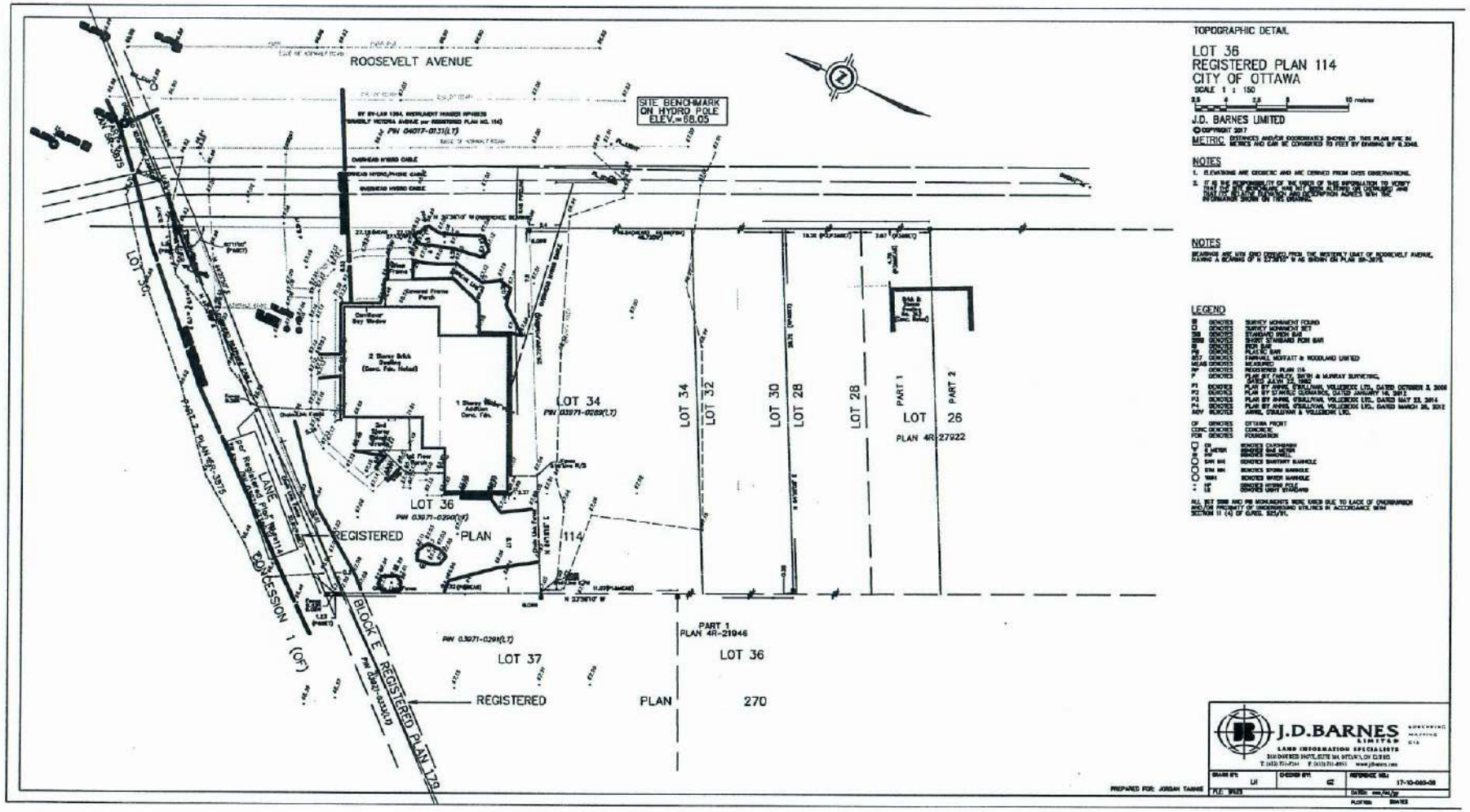
project1 studio
Project1 Studio Incorporated

342 ROOSEVELT
342 Roosevelt Avenue
Ottawa, ON K2A 1Z3

PROJ	SCALE	DRAWN	REVIEWED
2405	NOTED	NL	RMK

SITE PLAN

SP-01


ROOSEVELT AVENUE
SITE BENCHMARK
ON HYDRO POLE
ELEV.=68.05
LOT 30
LOT 34
LOT 32
LOT 30
LOT 28
LOT 28
PART 1
PART 2
LOT 26
PLAN 4R-27922
LOT 34
PIN 03971-0282(LT)
LOT 36
PIN 03971-0290(LT)
REGISTERED PLAN 114
LANE
PART 2 PLAN 4R-3975
CONCESSION 1 (OF)
BLOCK E REGISTERED PLAN 179
PIN 03971-0291(LT)
LOT 37
REGISTERED PLAN
PART 1
PLAN 4R-21946
LOT 36
270
TOPOGRAPHIC DETAIL
LOT 36
REGISTERED PLAN 114
CITY OF OTTAWA
SCALE 1 : 150
J.D. BARNES LIMITED
NOTES
NOTES
LEGEND
J.D.BARNES
LIMITED
LAND INFORMATION SPECIALISTS
PREPARED FOR: JORDAN TANNIS

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX B

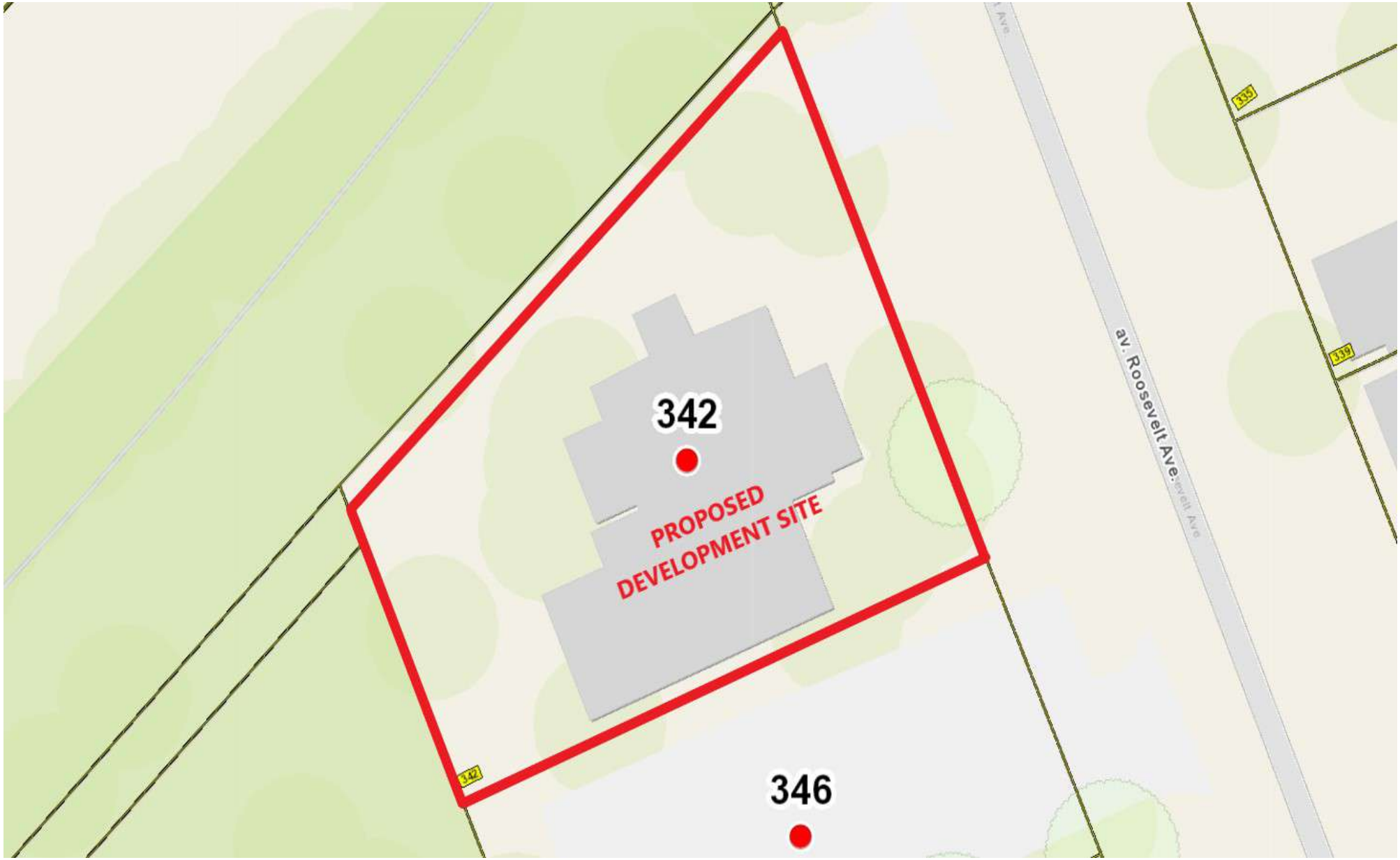
SITE PRE-DEVELOPMENT CONDITION

GOOGLE IMAGE (2020)

AND

AERIAL PHOTOGRAPHY 2022 (GEOOTTAWA)

2020


342
PROPOSED
DEVELOPMENT SITE
346
av. Roosevelt Ave.
335
339
342


342
PROPOSED
DEVELOPMENT SITE
346
av. Roosevelt Ave.
342
339
339

2022

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX C

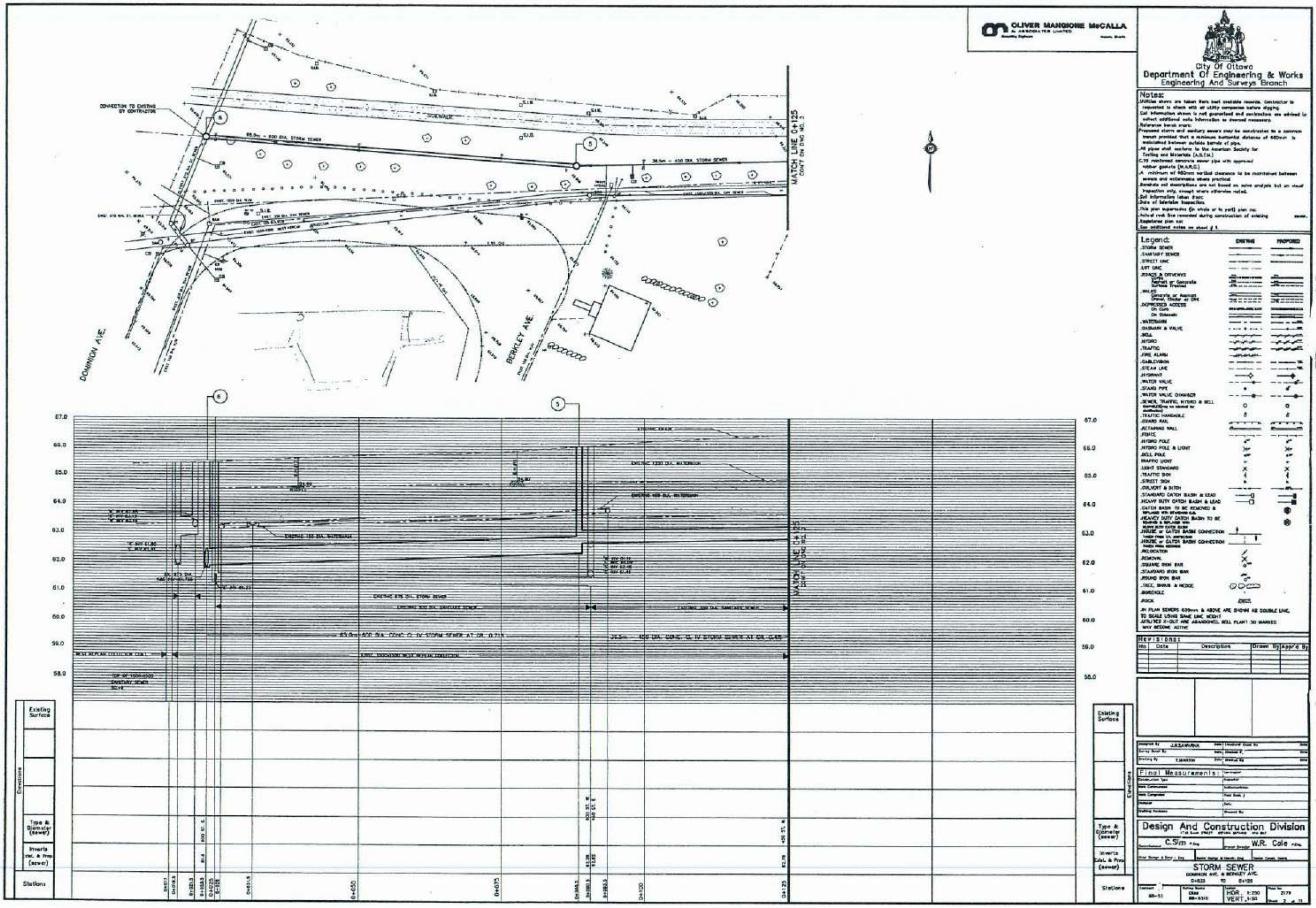
ROOSEVELT AVENUE

CITY OF OTTAWA

PLAN AND PROFILE

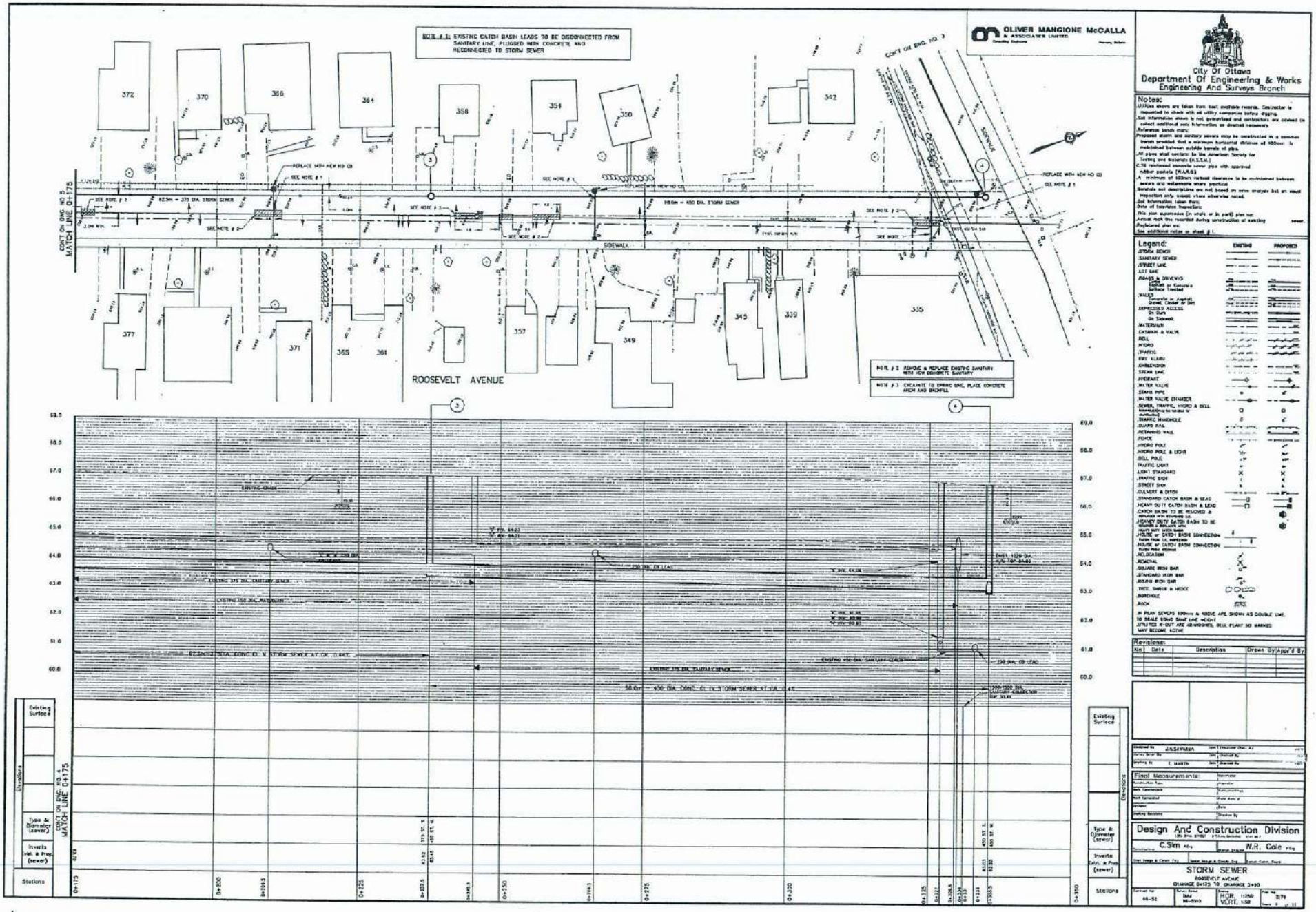
DRAWINGS

2179 2 of 3.1

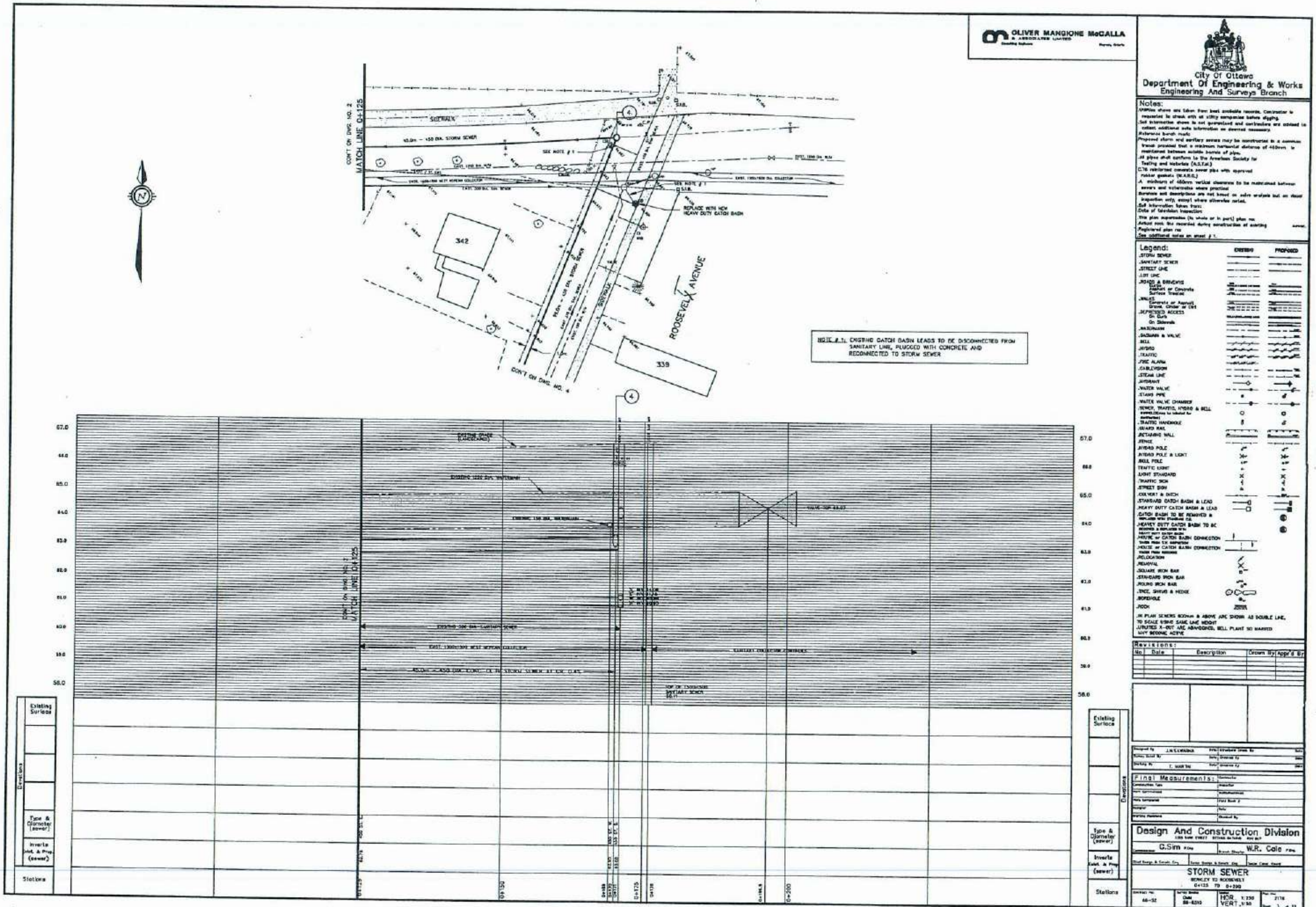


OLIVER MANGIONE McCALLA
City Of Ottawa
Department Of Engineering & Works
Engineering And Surveys Branch
Notes:
Legend:
Revisions:
Final Measurements:
MATCH LINE 0+125
CONT'D ON DWG NO. 3
CONNECTION TO EXISTING BY CONTRACTOR
SIDEWALK
DOMINION AVE.
BERKLEY AVE.
Existing Surface
Elevations
Type & Diameter (sewer)
Inverts (sewer)
Stations
0+050
0+075
0+100
0+125
Design And Construction Division
C.Sim
W.R. Cole
STORM SEWER
HOR. 1:250
VERT. 1:50

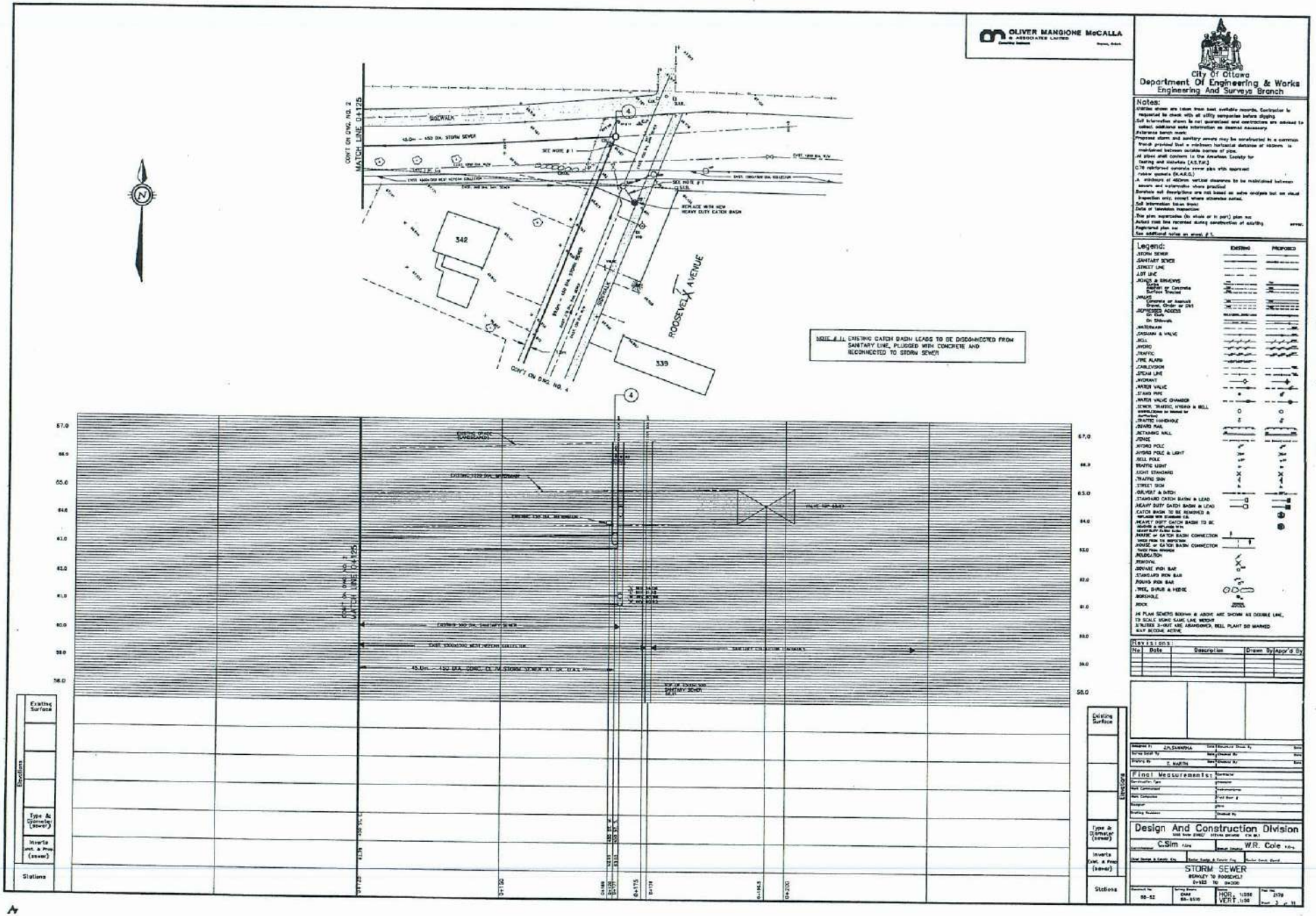
2171 4 of 11


NOTE # 1: EXISTING CATCH BASIN LEADS TO BE DISCONNECTED FROM SANITARY LINE, PLUGGED WITH CONCRETE AND RECONNECTED TO STORM SEWER
OLIVER MANGIONE McCALLA & ASSOCIATES LIMITED
City Of Ottawa
Department Of Engineering & Works
Engineering And Surveys Branch
CONT'D ON DWG. NO. 3
MATCH LINE 0+175
372
370
366
364
358
354
350
342
377
371
365
361
357
349
345
339
335
SIDEWALK
ROOSEVELT AVENUE
NOTE # 2: REMOVE & REPLACE EXISTING SANITARY WITH NEW CONCRETE SANITARY
NOTE # 3: EXCAVATE TO EMBED LINE, PLACE CONCRETE ARCH AND BACKFILL
Notes:
Legend:
EXISTING
PROPOSED
Revisions:
No. Date Description Drawn By Appr'd By
Design And Construction Division
C.Sim
W.R. Cole
STORM SEWER
ROOSEVELT AVENUE
DRAINAGE 0+125 TO DRAINAGE 2+30
HOR. 1:250
VERT. 1:50
Existing Surface
Invert Elev. & Prop. (sewer)
Type & Diameter (sewer)
Stations
CONT'D ON DWG. NO. 4
MATCH LINE 0+175
0+175
0+200
0+225
0+250
0+275
0+300
0+325
0+350
69.0
68.0
67.0
66.0
65.0
64.0
63.0
62.0
61.0
60.0

2179 3 of 11


OLIVER MANGIONE McCALLA & ASSOCIATES LIMITED
City Of Ottawa
Department Of Engineering & Works
Engineering And Surveys Branch
Notes:
Legend:
ROOSEVELT AVENUE
342
339
CON'T ON DWG. NO. 2
MATCH LINE 0+125
CON'T ON DWG. NO. 4
SIDEWALK
REPLACE WITH NEW HEAVY DUTY CATCH BASIN
NOTE # 1: EXISTING CATCH BASIN LEADS TO BE DISCONNECTED FROM SANITARY LINE, PLUGGED WITH CONCRETE AND RECONNECTED TO STORM SEWER
67.0
66.0
65.0
64.0
63.0
62.0
61.0
60.0
59.0
58.0
Existing Surface
Elevations
Type & Diameter (sewer)
Inverts Exist. & Prop. (sewer)
Stations
0+125
0+150
0+175
0+200
Revisions:
No. Date Description Drawn By Appr'd By
Final Measurements:
Design And Construction Division
C.Sim
W.R. Cole
STORM SEWER
HOR. 1:250
VERT. 1:50

2179 3 of 8 11


OLIVER MANGIONE McCALLA
& ASSOCIATES LIMITED
City Of Ottawa
Department Of Engineering & Works
Engineering And Surveys Branch
Notes:
Legend:
EXISTING
PROPOSED
CONT'D ON DWG. NO. 2
MATCH LINE 0+125
SIDEWALK
SEE NOTE # 1
REPLACE WITH NEW HEAVY DUTY CATCH BASIN
342
339
ROOSEVELT AVENUE
CONT'D ON DWG. NO. 4
NOTE # 1: EXISTING CATCH BASIN LEADS TO BE DISCONNECTED FROM SANITARY LINE, PLUGGED WITH CONCRETE AND RECONNECTED TO STORM SEWER
CONT'D ON DWG. NO. 2
MATCH LINE 0+125
Existing Surface
Elevations
Type & Diameter (sewer)
Inverts Invt. & Proj (sewer)
Stations
Revisions
No. Date Description Drawn By Appr'd By
Final Measurements:
Design And Construction Division
C.Sim
W.R. Cole
STORM SEWER
BEWLEY TO ROOSEVELT
0+123 TO 0+200
HOR. 1:250
VERT. 1:50
2179

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX D

CITY OF OTTAWA

- SITE PLAN AND ARCHITECTURAL DRAWINGS
- WATER BOUNDARY CONDITIONS E-MAIL
- FUS FIRE FLOW CALCULATIONS
- FUS EXPOSURE DISTANCES – FIGURE 1
- SUPPORTING HYDRAULIC CALCULATIONS
- HYDRANT SPACING – FIGURE 2

ATTACHMENT 1 : SITE PLAN AND ARCHITECTURAL DRAWINGS

UNIT COUNT

NAME	LVL 00	LVL 01	LVL 02	LVL 03	LVL 04	LVL 05	LVL 06	TOTAL COUNT	PERCENTAGE
1-BED	0	0	1	2	2	2	1	8	27%
1-BED + DEN	1	1	0	0	0	0	1	3	10%
2-BED	2	2	2	2	2	2	1	13	43%
STUDIO	0	0	2	1	1	1	1	6	20%
TOTAL	3	3	5	5	5	5	4	30	100%

AMENITY SCH. (COMMUNAL)

LEVEL	NAME	AREA	AREA (SF)
ENTRY LEVEL	AMENITY AREA	166.53 m²	1793 SF
TOTAL		166.53 m²	1793 SF

AMENITY SCH. (PRIVATE)

LEVEL	NAME	AREA	AREA (SF)
LEVEL 06	PVT BALCONY	5.21 m²	56 SF
LEVEL 06	PVT BALCONY	5.39 m²	58 SF
LEVEL 06	PVT BALCONY	5.39 m²	58 SF
LEVEL 06	PVT BALCONY	4.30 m²	46 SF
TOTAL		20.30 m²	218 SF

GROSS FLOOR AREA

LEVEL	AREA	AREA (SF)
LEVEL 00	302.15 m²	3252.36 SF
LEVEL 01	320.69 m²	3451.84 SF
LEVEL 02	323.61 m²	3483.27 SF
LEVEL 03	314.56 m²	3385.85 SF
LEVEL 04	314.56 m²	3385.85 SF
LEVEL 05	314.56 m²	3385.85 SF
LEVEL 06	278.16 m²	2994.05 SF
TOTAL	2168.27 m²	23339.08 SF

GFL INCL. BALCONIES (CITY OF OTTAWA)

LEVEL	AREA	AREA (SF)
LEVEL 01	320.69 m²	3451.84 SF
LEVEL 02	323.61 m²	3483.27 SF
LEVEL 03	314.56 m²	3385.85 SF
LEVEL 04	314.56 m²	3385.85 SF
LEVEL 05	314.56 m²	3385.85 SF
LEVEL 06	298.45 m²	3212.52 SF
TOTAL	1886.41 m²	20305.19 SF

RENTABLE AREA (RESIDENTIAL)

LEVEL	AREA	AREA (SF)
LEVEL 00	208.36 m²	2243 SF
LEVEL 01	210.24 m²	2263 SF
LEVEL 02	279.96 m²	3013 SF
LEVEL 03	271.77 m²	2925 SF
LEVEL 04	271.40 m²	2921 SF
LEVEL 05	271.40 m²	2921 SF
LEVEL 06	235.39 m²	2534 SF
TOTAL	1748.52 m²	18821 SF

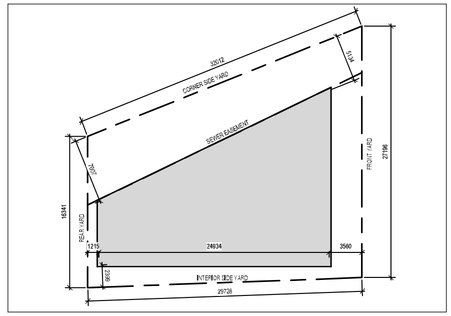
SITE PLAN NOTES

S1 SOFT LANDSCAPING
S2 INTERLOCKING STONE PAVERS
S3 EXISTING STRUCTURE TO BE DEMOLISHED
S4 EXISTING CHAINLINK FENCE
S5 CONCRETE CURB
S6 DEPRESSED CURB

SKETCH SHOWING SEWER EASEMENT
REQUIREMENTS
342 ROOSEVENT AVENUE
CITY OF OTTAWA

J.D BARNES LTD. 2024

6 SP-01 SURVEY INFO
SCALE: NTS



5 SP-01 SITE PLAN - SETBACKS
SCALE: 1 : 250

2 SP-01 LOCATION PLAN
SCALE: NTS

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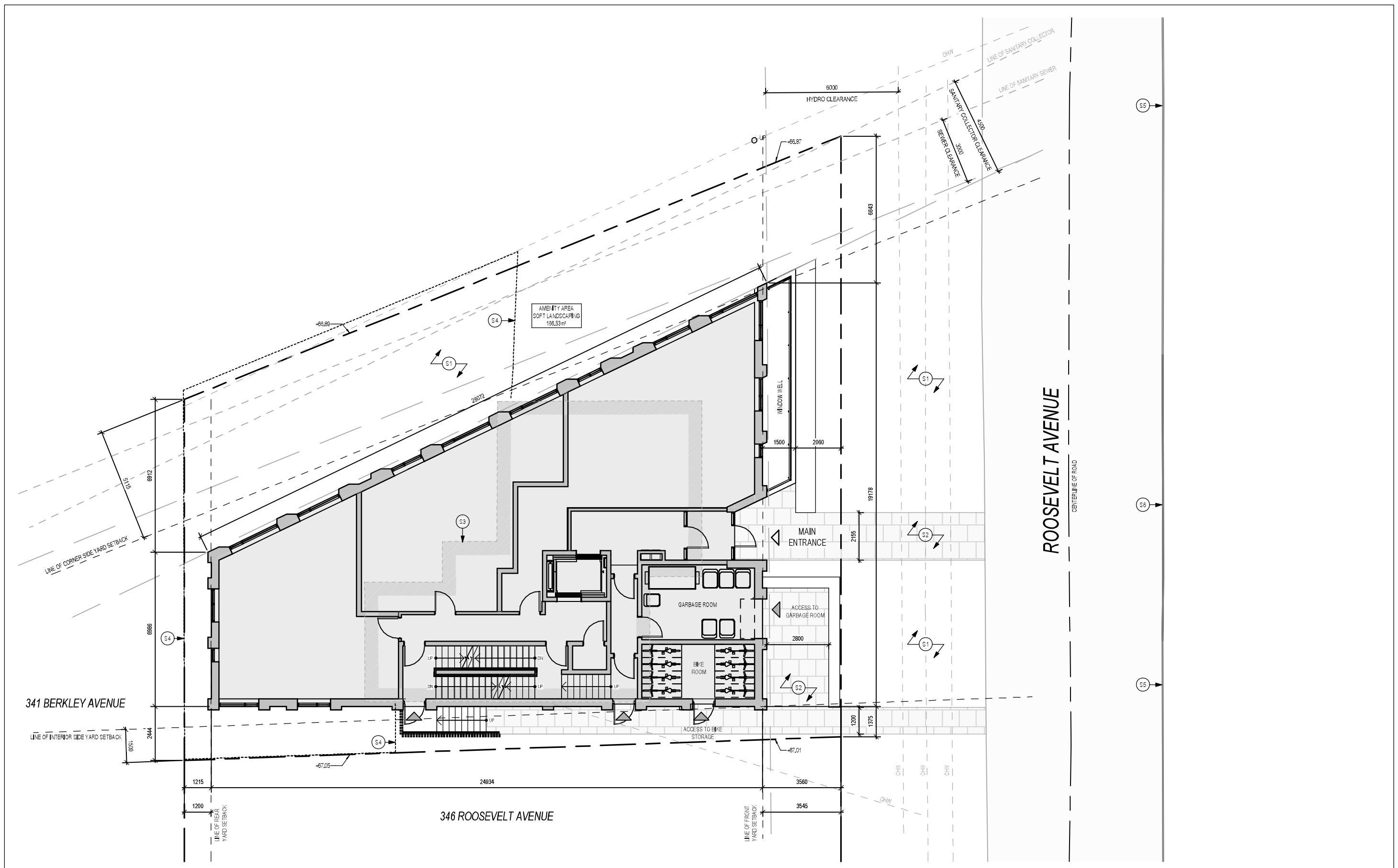


1 SP-01 SITE PLAN
SCALE: 1 : 100

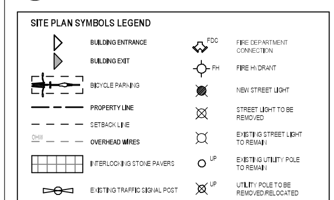
Site Statistics	
Current Zoning Designation:	R5B[1195] H(19)
Lot Width:	27.20m
Total Lot Area:	646.7m²
Average Existing Grade:	66.955m
Gross Floor Area:	2168.27m²
Building Area	320.69m²
Floor Space Index:	3.35

Proposed Development - 6 Storey Mid-Rise Apartment Building

No. of units 30 Units

Zoning Mechanism	Required	Provided
Minimum Lot Width *164A*	22.5m	27.20m
Minimum Lot Area *164A*	675m²	646.7m²
Min. Front Yard Setback *164A*	3.0m	3.545m
Corner Side Yard Setback *164A*	3.0m	5.115m
Min. Interior Side Yard Setback *164B*	1.5m	1.5m
Min. Rear Yard Setback *164B*	7.48m *(25% of the lot depth but need not exceed 7.5 m*	1.2m
Maximum Building Height *164B*	19.0m	19.795m
Parking Space Rates (Residents) *101 (Sch. 1A - Area X)*	9 Spaces *0 spaces for first 12 units - Section 101(3)(a)* *0.5 spaces / unit thereafter - Table 101(R11)*	0 Spaces
Minimum Visitor Parking Rates *102 (Sch. 1A - Area X)*	2 Spaces *0 spaces for first 12 units - Section 102(3)* *0.1 spaces / unit thereafter - Table 102*	0 Spaces
Bicycle Parking Rates (Residents) *Table 111A (Sch. 1 - Area X)*	15 Spaces *0.5 spaces / unit [111A(b)(i)]*	16 Spaces
Landscaped Area *163 (9)*	109.01m² *(minimum 30% of lot area)*	309.76m²
Total Amenity Area *Table 137(4)(II)*	180m² *6m² / unit for 30 units*	186.62m²
Communal Amenity Area *Table 137(4)(III)*	90m² *Min. 50% of Total Amenity Area*	166.53m²

3 SP-01 SITE PLAN STATISTICS
SCALE: NTS



4 SP-01 SITE PLAN SYMBOLS
SCALE: NTS

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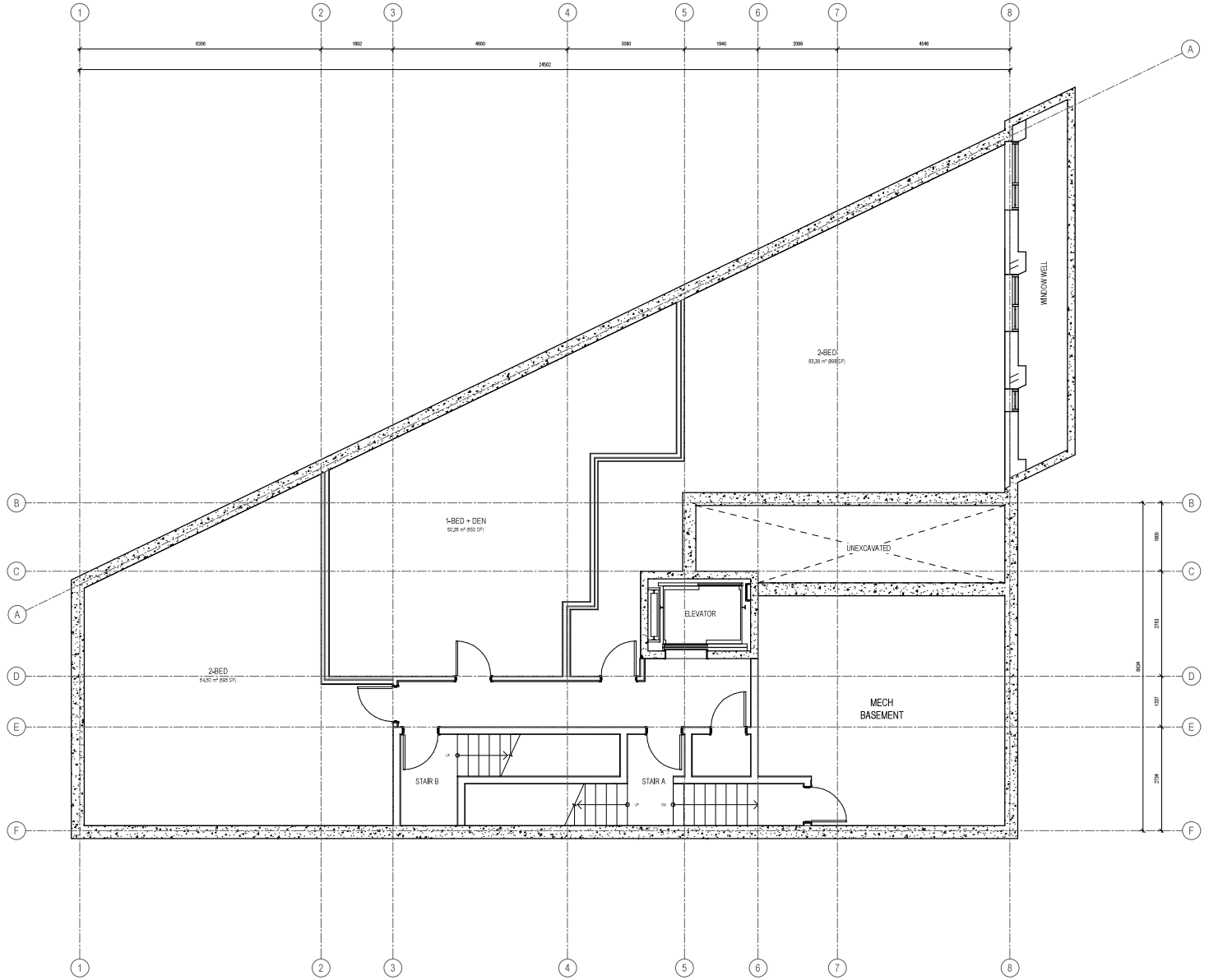
2405	NOTED	NL	RMK

SITE PLAN

SP-01



FLOOR/ROOF PLAN NOTES

P1 ROOF ACCESS HATCH

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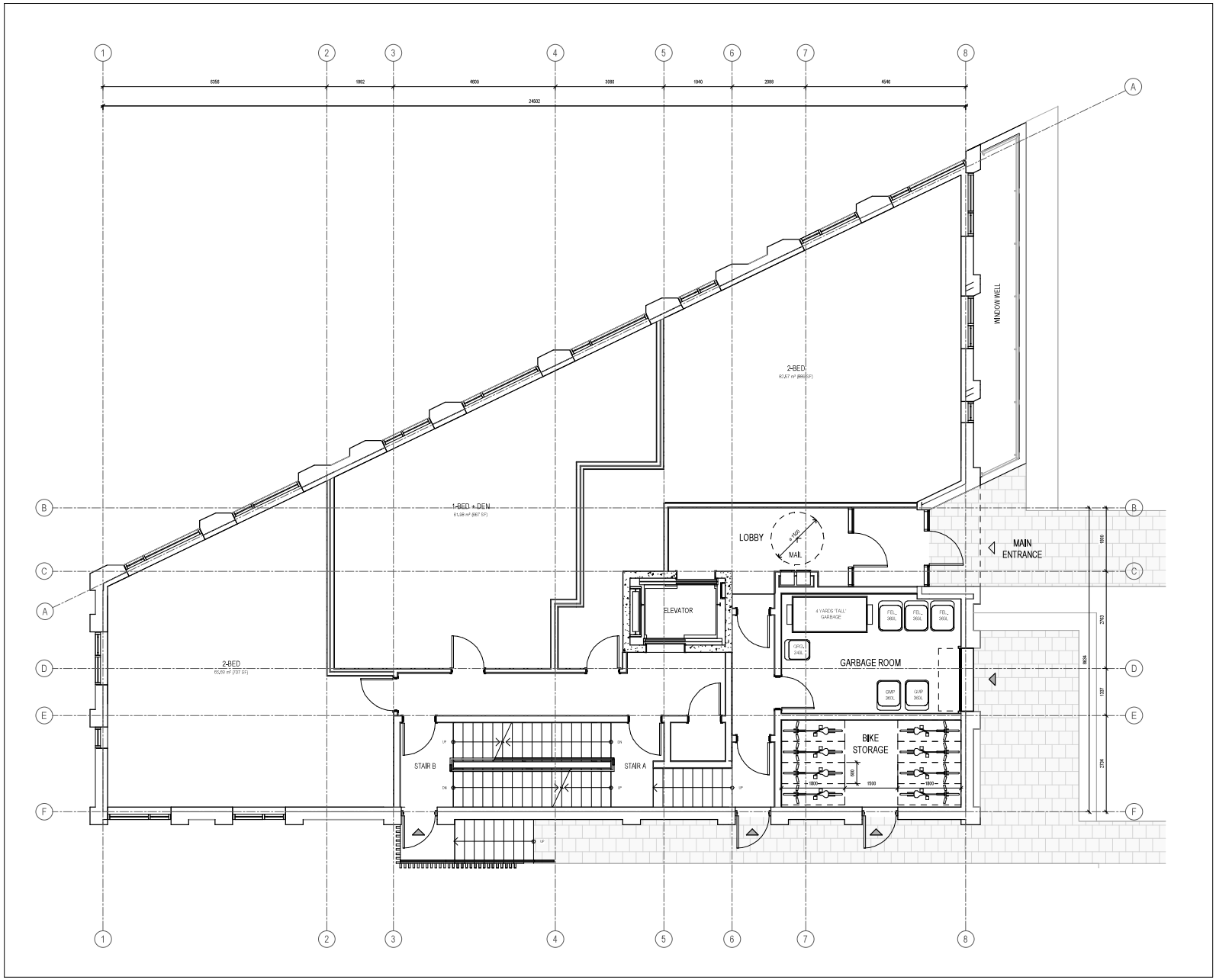
2405	NOTED	NL	RMK

FLOOR PLAN LEVEL 00 & MECH. BASEMENT

A100

1 / A100 FLOOR PLAN LEVEL 00 & MECH. BASEMENT
SCALE: 1 : 50



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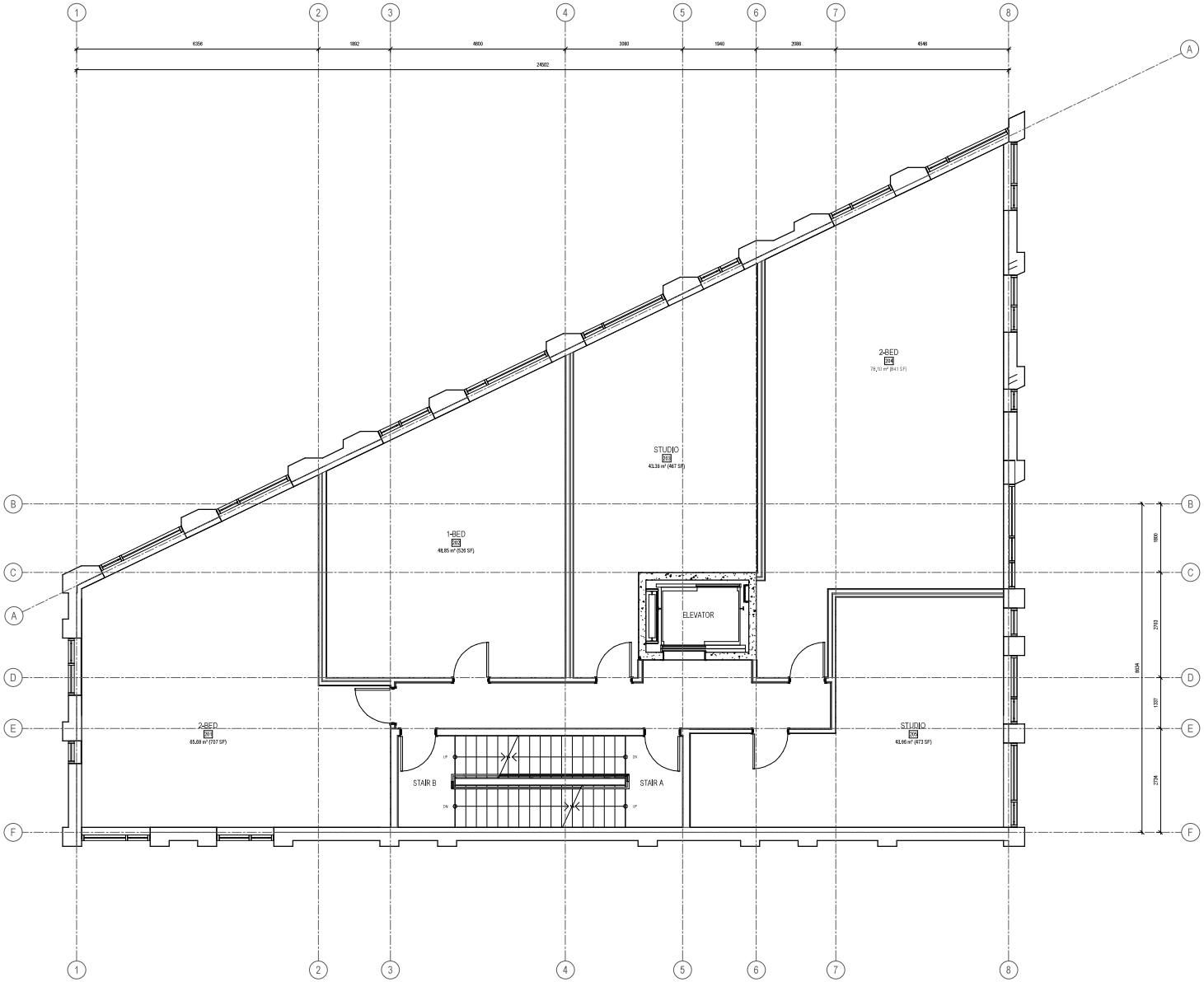
FLOOR PLAN ENTRY LEVEL & LEVEL 01

A101

1 / A101 FLOOR PLAN ENTRY LEVEL & LEVEL 01
SCALE: 1 : 50



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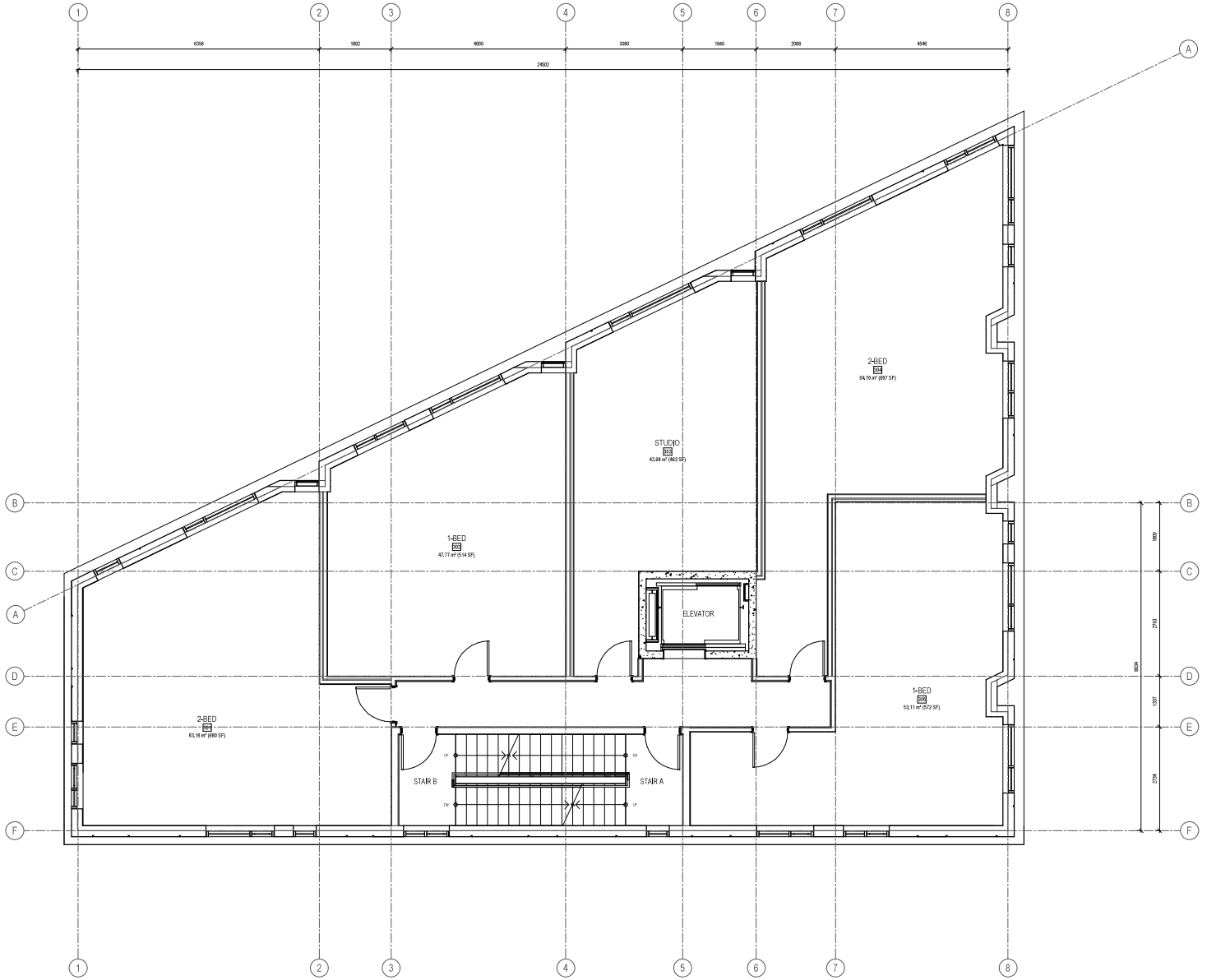
FLOOR PLAN LEVEL 02

A102

1 / A102 FLOOR PLAN LEVEL 02
SCALE: 1 : 50



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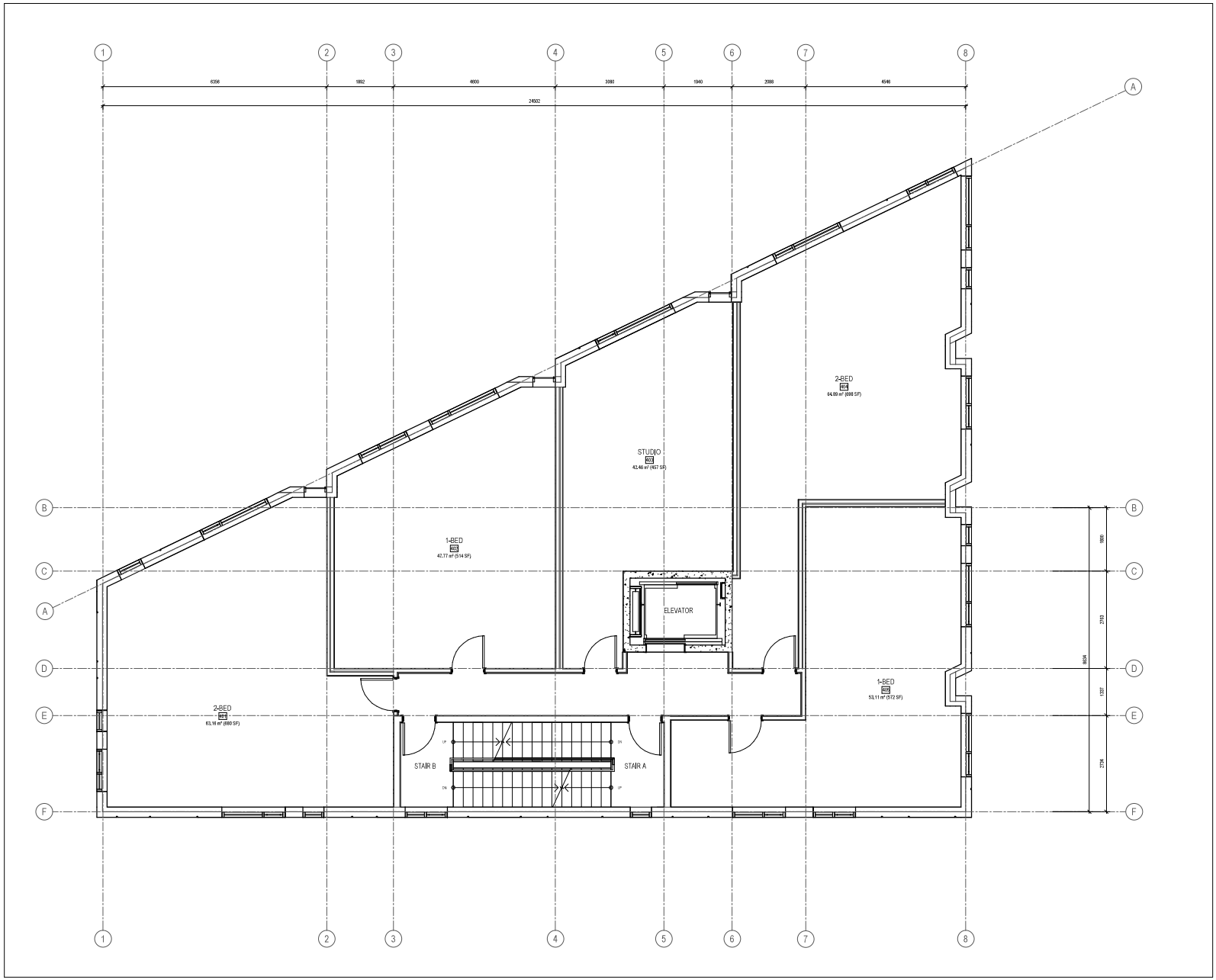
FLOOR PLAN LEVEL 03

A103

1 / A103 FLOOR PLAN LEVEL 03
SCALE: 1 : 50



1 FLOOR PLAN LEVEL 04
A104 SCALE: 1 : 50

FLOOR/ROOF PLAN NOTES

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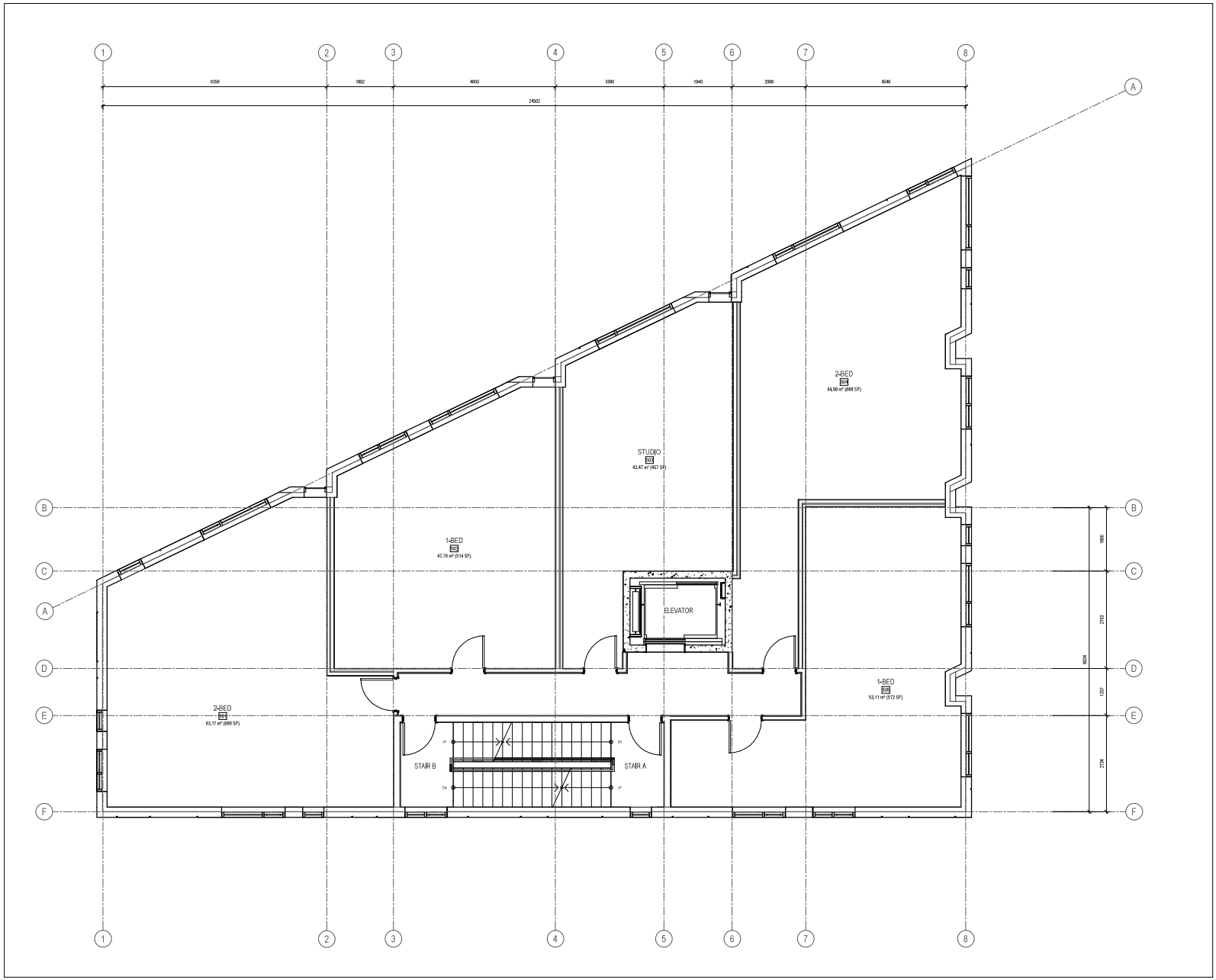
FLOOR PLAN LEVEL 04

A104



1 FLOOR PLAN LEVEL 05
A105 SCALE: 1 : 50

FLOOR/ROOF PLAN NOTES

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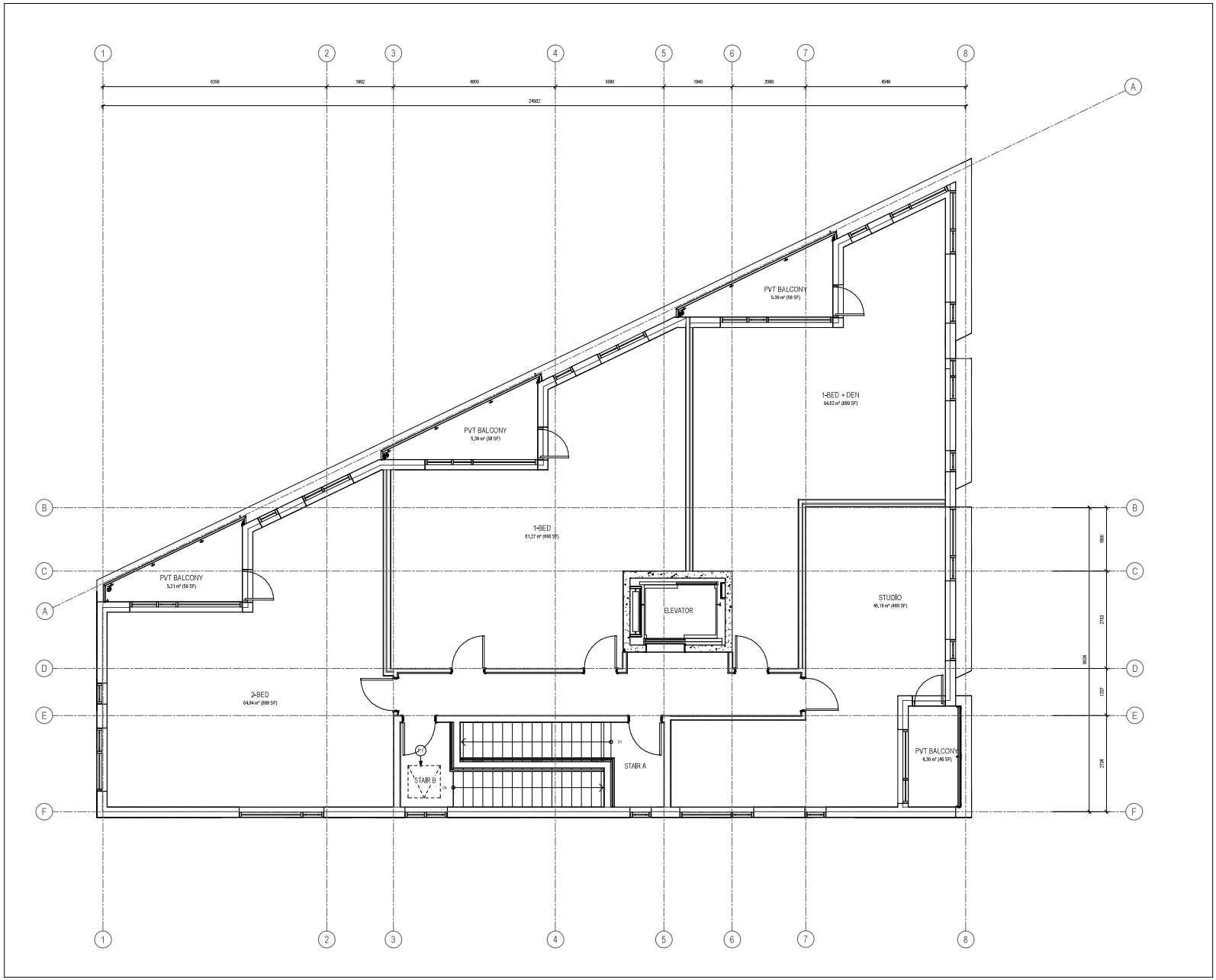
FLOOR PLAN LEVEL 05

A105



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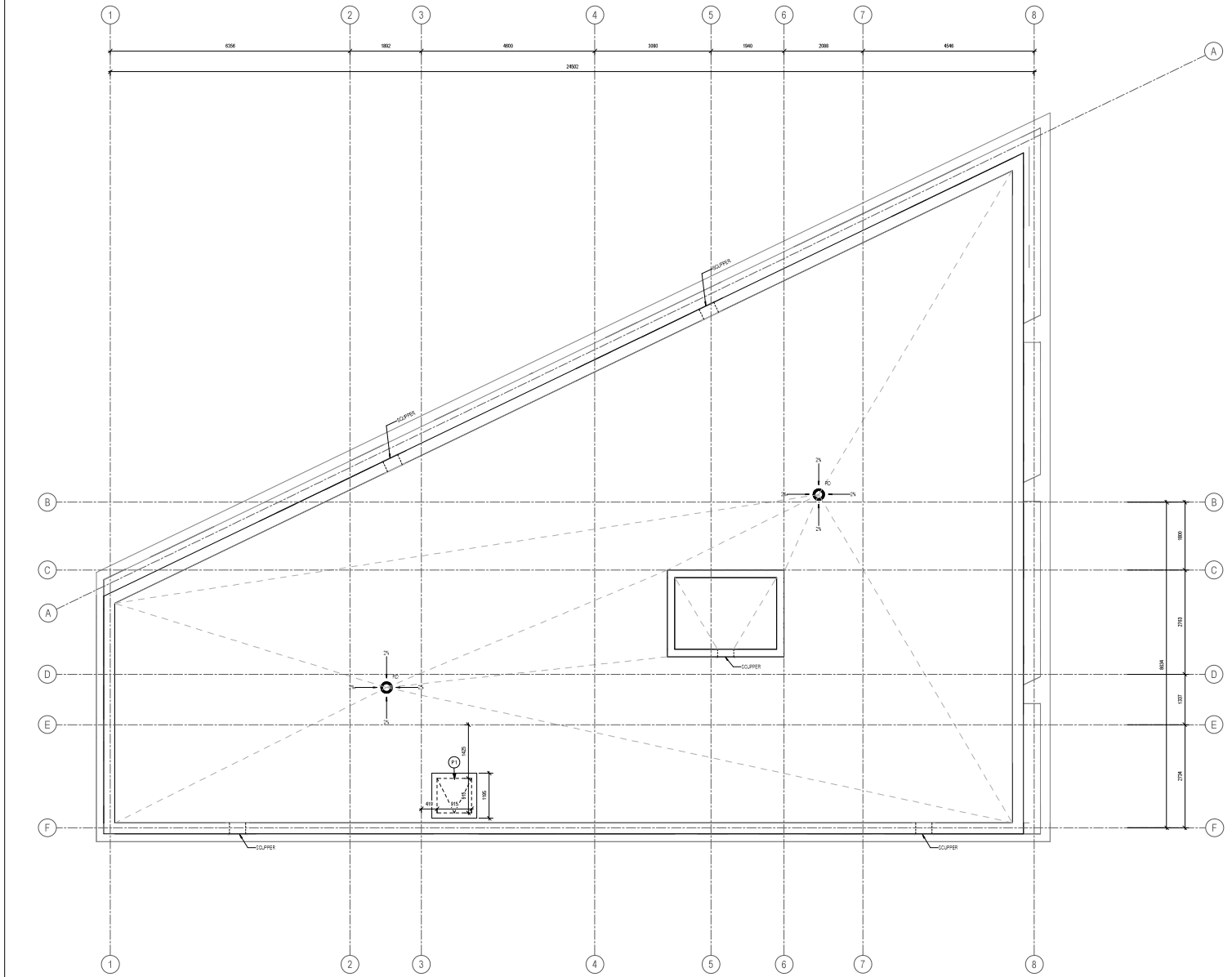
2405	NOTED	NL	RMK

FLOOR PLAN LEVEL 06

A106

1 / A106 FLOOR PLAN LEVEL 06
SCALE: 1 : 50



1 ROOF PLAN
A107 SCALE: 1 : 50

FLOOR/ROOF PLAN NOTES

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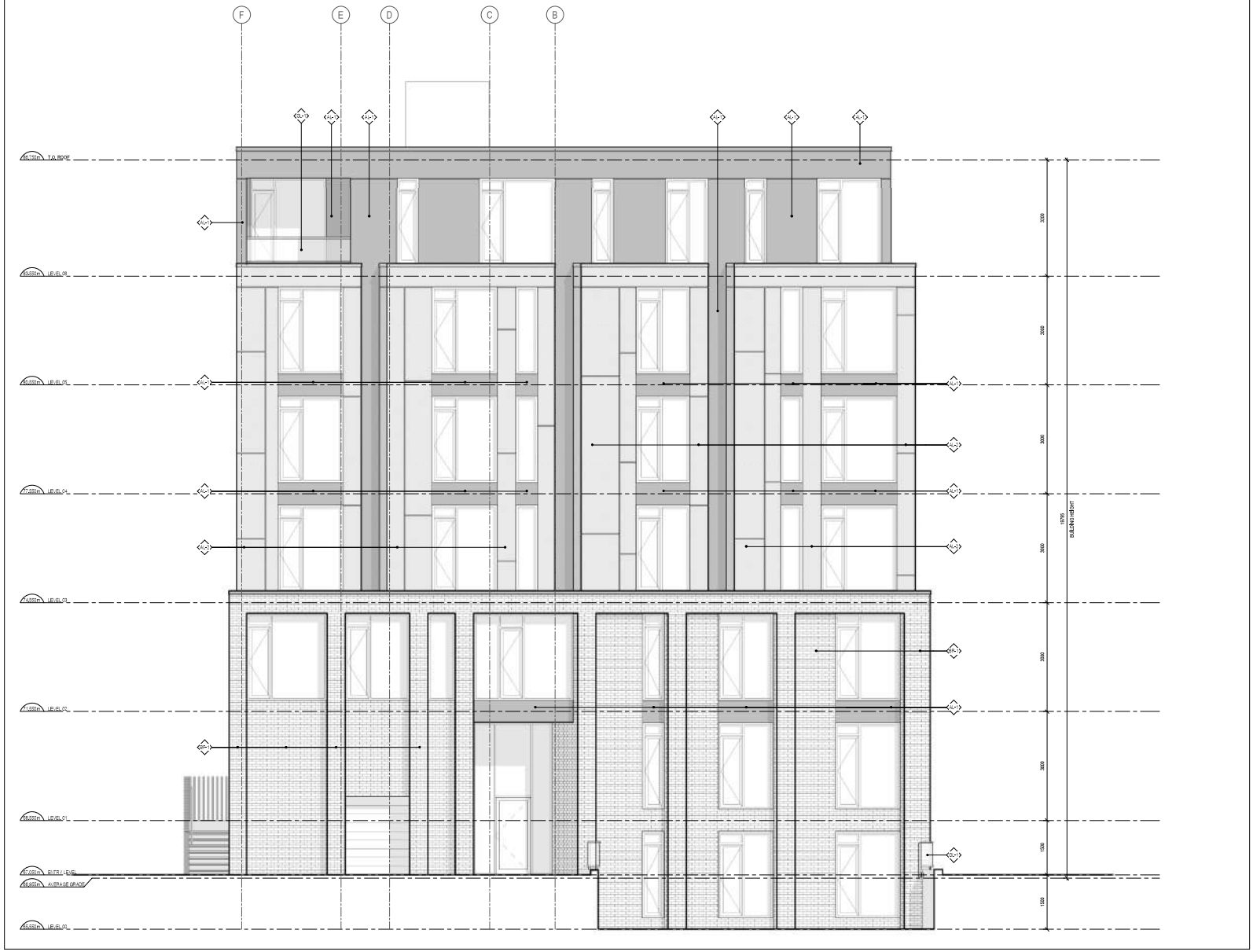
ROOF PLAN

A107



1 EAST ELEVATION
A201 SCALE: 1 : 50

CLADDING LEGEND:

- AL-1 ALUMINUM PANEL BLACK
- AL-2 ALUMINUM PANEL DARK GREY
- BRK-1 BRICK MASONRY BLACK
- GU-1 ALUMINUM AND GLASS RAILING

CLADDING LEGEND
SCALE: 1 : 100

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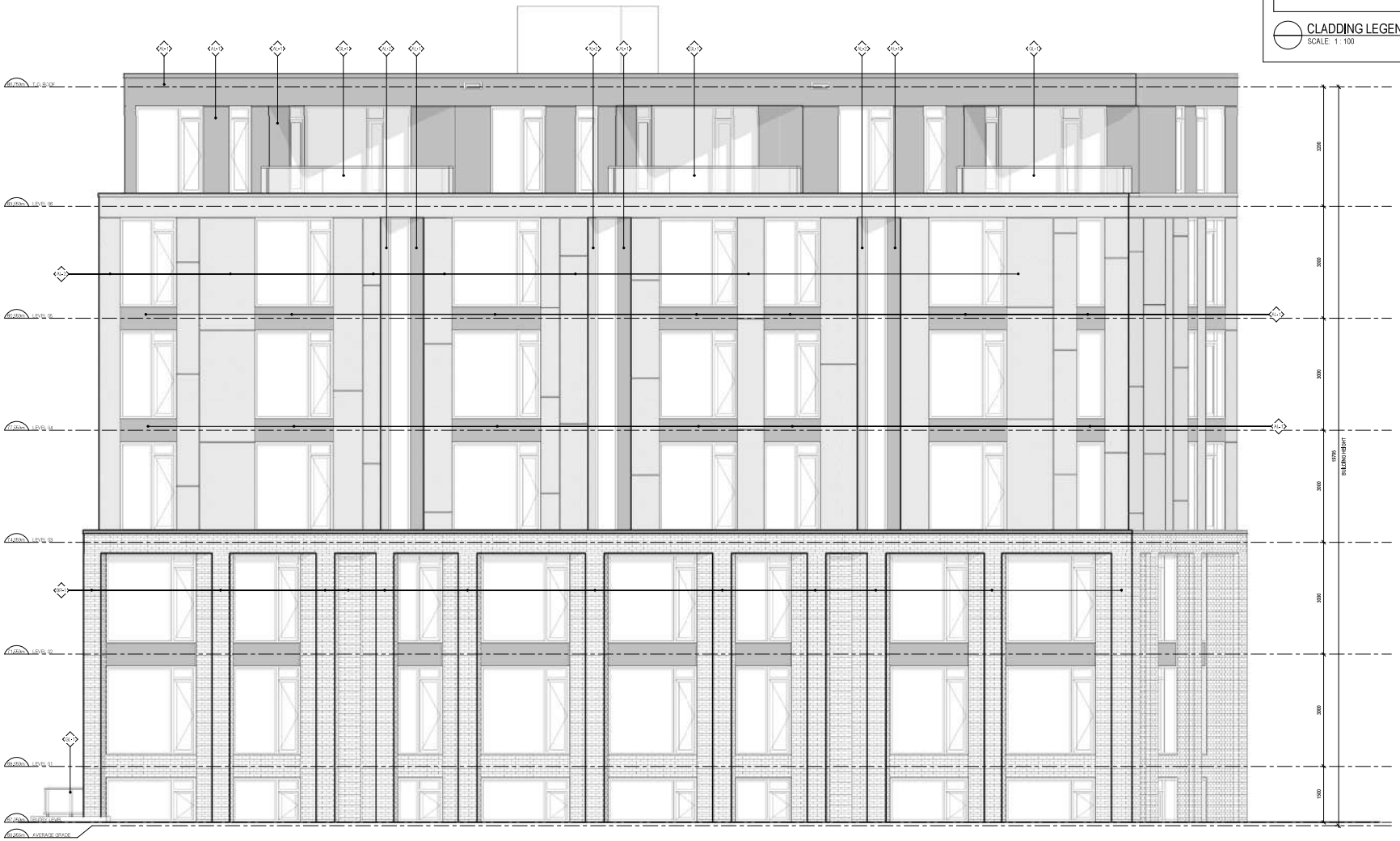
PROJ	SCALE	DRAWN	REVIEWED
2405	NOTED	NL	RMK

EAST ELEVATION

A201



1 NORTH ELEVATION
A202 SCALE: 1 : 50

GENERAL ARCHITECTURAL NOTES:

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4. The Architectural drawings are to be read in conjunction with all other Contract Documents including Project Manuals and the Structural, Mechanical and Electrical Drawings.
5. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
6. These documents are not to be used for construction unless specifically noted for such purpose.

1 ISSUED FOR COORDINATION 2024-05-22

ISSUE RECORD

project1 studio
Project1 Studio Incorporated
613.864.3939 | mail@project1studio.ca

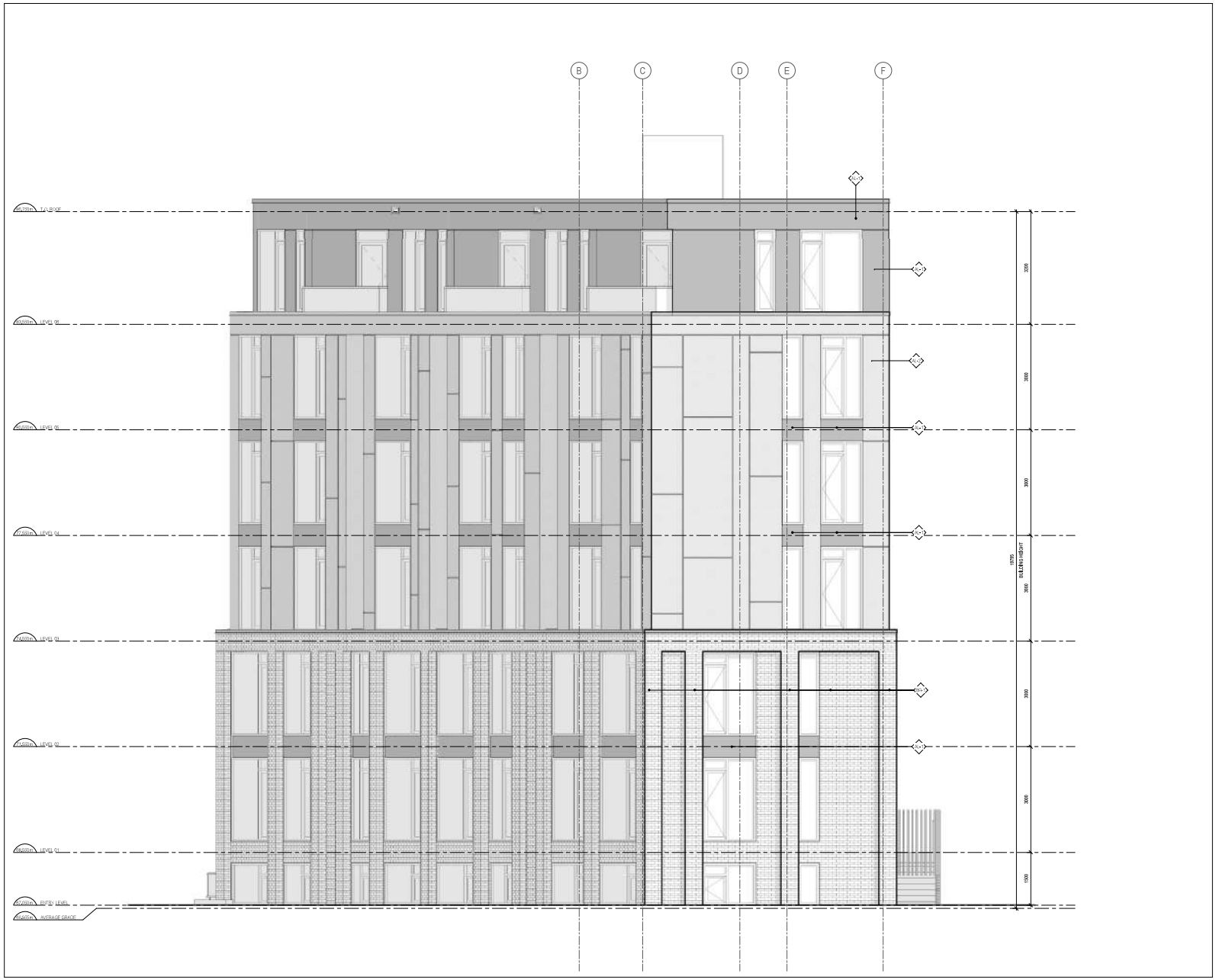
342 ROOSEVELT

342 Roosevelt Avenue
Ottawa, ON K2A 1Z3

PROJ	SCALE	DRAWN	REVIEWED
2405	NOTED	NL	RMK

NORTH ELEVATION

A202



1 / A203 WEST ELEVATION
SCALE: 1 : 50

CLADDING LEGEND:

- A1.1 ALUMINUM PANEL BLACK
- A1.2 ALUMINUM PANEL DARK GREY
- BRK-1 BRICK MASONRY BLACK
- A2.1 ALUMINUM AND GLASS RAILING

CLADDING LEGEND
SCALE: 1 : 100

GENERAL ARCHITECTURAL NOTES:

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342 ROOSEVELT

342 Roosevelt Avenue
Ottawa, ON K2A 1Z3

PROJ	SCALE	DRAWN	REVIEWED
2405	NOTED	NL	RMK

WEST ELEVATION

A203

1 SOUTH ELEVATION
A204 SCALE: 1 : 50

CLADDING LEGEND:

- 01.2 ALUMINUM PANEL BLACK
- 01.4 ALUMINUM PANEL DARK GREY
- 03.1 BRICK MASONRY BLACK
- 10.2 ALUMINUM AND GLASS RAILING

CLADDING LEGEND
SCALE: 1 : 100

GENERAL ARCHITECTURAL NOTES:

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6. These documents are not to be used for construction unless specifically noted for such purpose.

1	ISSUED FOR COORDINATION	2024-05-22

ISSUE RECORD

project1 studio
Project1 Studio Incorporated
613.864.3939 | mail@project1studio.ca

342 ROOSEVELT

342 Roosevelt Avenue
Ottawa, ON K2A 1Z3

PROJ	SCALE	DRAWN	REVIEWED
2405	NOTED	NL	RMK

SOUTH ELEVATION

A204

ATTACHMENT 2 : WATER BOUNDARY CONDITIONS E-MAIL

Mineault-Guitard, Alexandre

From: TL MaK <tlmakecl@bellnet.ca>
Sent: Monday, June 24, 2024 2:14 PM
To: Mineault-Guitard, Alexandre
Cc: Alemany, Kevin
Subject: RE: 342 Roosevelt Avenue - Water Boundary Conditions Request
Attachments: FUS_Calcs_342RooseveltAve_20240606.pdf; FUS_Exposure_Dist_342RooseveltAve_20240606.pdf; 342 Roosevelt Avenue June 2024.pdf

Hi Alex,

Attached please find the Water Boundary Conditions received from the City today for your calculation use.

Thank you,

Tony Mak

T.L. Mak Engineering Consultants Ltd.
1455 Youville Drive, Suite 218
Ottawa, ON. K1C 6Z7
Tel. 613-837-5516 | Fax: 613-837-5277
E-mail: tlmakecl@bellnet.ca

From: Wessel, Shawn [mailto:shawn.wessel@ottawa.ca]
Sent: June 24, 2024 12:30 PM
To: tlmakecl@bellnet.ca
Cc: Duquette, Vincent
Subject: 342 Roosevelt Avenue - Water Boundary Conditions Request

Good afternoon Tony.

Please find BC for this site, attached and below:

The following are boundary conditions, HGL, for hydraulic analysis at 342 Roosevelt Avenue (zone 1W) assumed to be connected to the 152mm watermain on Roosevelt Avenue (see attached PDF for location).

Minimum HGL: 108.7 m

Maximum HGL: 115.3 m

Available Fire Flow at 20 (psi): 133.5 L/s, assuming ground elevation of 66.9 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.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

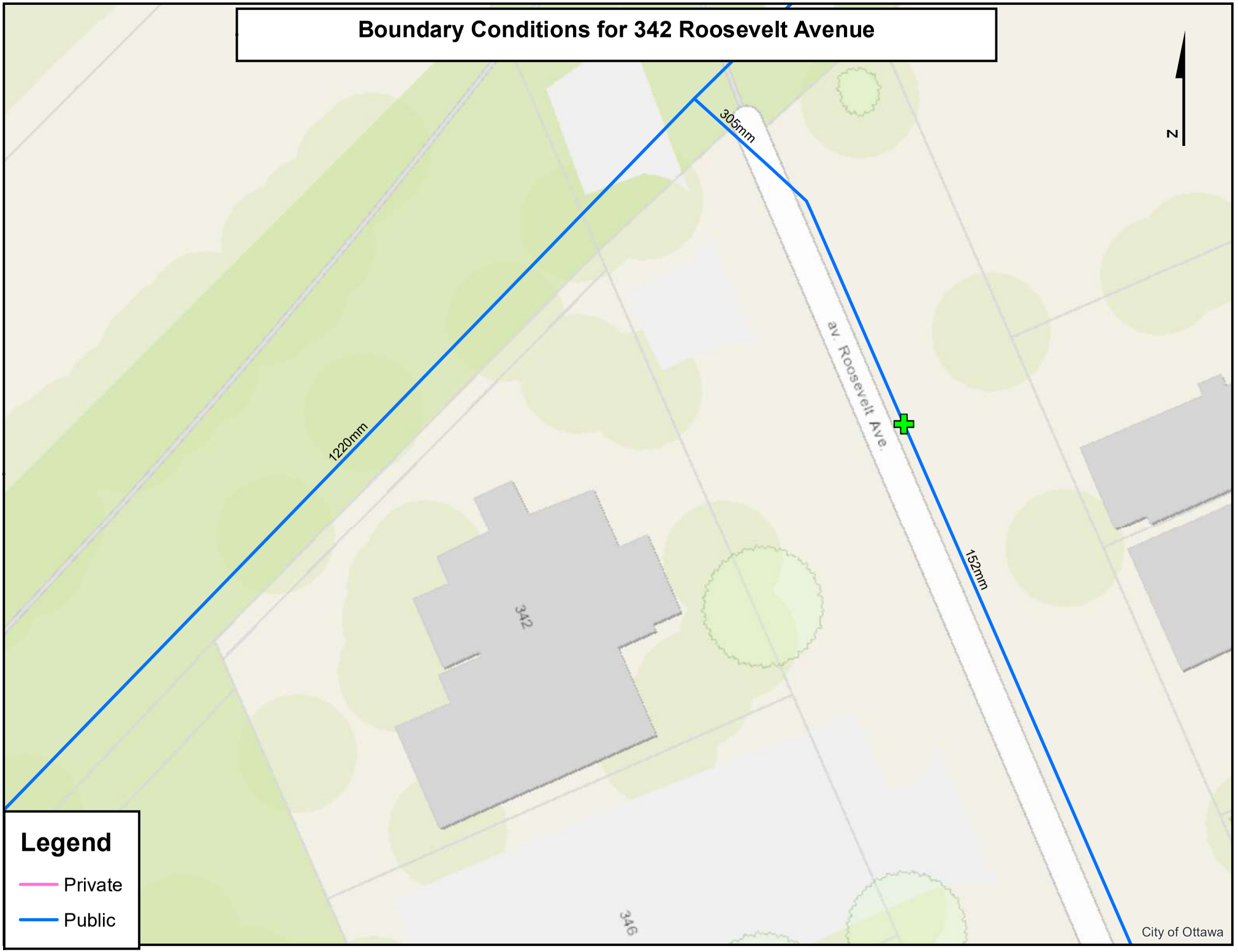
Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****


Boundary Conditions for 342 Roosevelt Avenue
N
305mm
av. Roosevelt Ave.
1220mm
152mm
342
346
Legend
Private
Public
City of Ottawa

ATTACHMENT 3 : FUS FIRE FLOW CALCULATIONS

Stantec

FUS Fire Flow Calculation - Long Method

Calculations based on: *"Water Supply for Public Fire Protection"* by Fire Underwriters' Survey, 2020

Stantec Project #: 163401084
Project Name: 342 Roosevelt Avenue
Date: March 12, 2025
Data inputted by: Hamidreza Mohabbat, MASc.
Data reviewed by: Alexandre Mineault-Guitard ing., P.Eng

Fire Flow Calculation #: 1
Building Type/Description/Name: Residential

Notes: *6-storey multiunity building, ordinary construction, basement is more than 50% above ground; Total gross floor area of 2,163 sqm. Equipped with a sprinkler system. Building setbacks per site plan, Separation distances to adjacent building per GeoOttawa.*

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)
1	Choose Frame Used for Construction of Unit	**Framing Material**						
		Coefficient related to type of construction (C)	Type V - Wood Frame	1.5	Type III - Ordinary construction	1	m	
			Type IV-A - Mass Timber	0.8				
			Type IV-B - Mass Timber	0.9				
			Type IV-C - Mass Timber	1				
			Type IV-D - Mass Timber	1.5				
			Type III - Ordinary construction	1				
			Type II - Non-combustible construction	0.8				
			Type I - Fire resistive construction	0.6				
2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	**Floor Space Area**						
		Type of Housing	Single Family	0	Other (Comm, Ind, Apt etc.)	30	Units	
			Townhouse - indicate # of units	0				
			Other (Comm, Ind, Apt etc.)	30				
2.2	# of Storeys	Number of Floors/Storeys in the Unit (do not include basement if 50% below grade):			7	7	Storeys	
3	Enter Ground Floor Area of One Unit	Average Floor Area (A) based on total floor area of all floors for one unit (non-fire resistive construction):			310 Square Metres (m2)	310	Area in Square Metres (m^2)	
3.1	Obtain Total Effective Building Area	Total Effective Building Area (# of Storeys x # of Units (if single family or townhouse) x Average Floor Area):			2,168	2168		
4	Obtain Required Fire Flow without Reductions	Required Fire Flow (without reductions or increases per FUS) ($F = 220 * C * \sqrt{A}$) Round to nearest 1,000 L/min						10,000
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	8,500
			Limited combustible	-0.15				
			Combustible	0				
			Free burning	0.15				
			Rapid burning	0.25				
5.2	Choose Reduction Due to Presence of Sprinklers	Sprinkler Reduction	Adequate Sprinkler conforms to NFPA13	-0.3	Adequate Sprinkler conforms to NFPA13	-0.3	N/A	-2,550
			None	0				
		Water Supply Credit	Water supply is standard for sprinkler and fire dept. hose line	-0.1	Water supply is standard for sprinkler and fire dept. hose line	-0.1	N/A	-850
			Water supply is not standard or N/A	0				
		Sprinkler Supervision Credit	Sprinkler system is fully supervised	-0.1	Sprinkler system is fully supervised	-0.1	N/A	-850
			Sprinkler not fully supervised or N/A	0				
5.3	Choose Presence of Sprinklers for Exposures within 30m	Sprinkler Conforms to NFPA13	Adequate sprinkler for exposures conforms to NFPA13		None for exposures	0	N/A	0
			None for exposures					
		Water Supply	Water supply is standard for sprinkler and fire dept. hose line of exposures		Water supply is not standard or N/A for exposures		N/A	
			Water supply is not standard or N/A for exposures					
		Sprinkler Supervision	Sprinkler system of exposures is fully supervised		Sprinkler not fully supervised or N/A for exposures		N/A	
			Sprinkler not fully supervised or N/A for exposures					
5.4	Choose Separation Distance Between Units	Exposure Distance Between Units	Front Yard	20.1 to 30.1m	0.1	0.4	m	3,400
			Right Side	10.1 to 20.0m	0.15			
			Rear Yard	10.1 to 20.0m	0.15			
			Left Side	30.1m or greater	0			
6	Obtain Required Fire Flow, Duration & Volume	*Total Required Fire Flow, rounded to nearest 1,000 L/min, with max/min limits applied:*						8,000
		Total Required Fire Flow (above) in L/s:						133
		Required Duration of Fire Flow (hrs)						2.00
		Required Volume of Fire Flow (m^3)						960

Fire Flow Calculations as per the Ontario Building Code (OBC)

Stantec

OFM Fire Flow Calculation

Calculations based on *Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code* by the Office of the Fire Marshal (OFM 1999)

Stantec Project #: 163401084
Project Name: 342 Roosevelt Avenue
Date: March 12, 2025
Data inputted by: Alexandre Mineault-Guitard ing., P.Eng
Data reviewed by: Alexandre Mineault-Guitard ing., P.Eng

Fire Flow Calculation #: 2
Building Type/Description/Name: Residential

Office of the Fire Marshal Determination of Required Fire Protection Water Supply							
Step	**Task**	**Term**	**Options**	**Multiplier Associated with Option**	**Choose:**	**Value Used**	**Unit**
1	**General Building Details**						
1.1	Enter Number of Storeys	Number of Floors/Storeys in the Unit (incl. basement):			7	7	Storeys
1.2	Choose Type of Housing (if TH, Enter Number of Units Per TH Block)	Type of Housing	Single Family	0	Other (Comm, Ind, Apt etc.)	30	Units
			Townhouse - indicate # of units	0			
			Other (Comm, Ind, Apt etc.)	30			
1.3	Choose Presence of Sprinklers	Sprinklers?			Yes	Yes	N/A
1.4	Choose Presence of Firewalls	Firewall separations?			None	None	N/A
1.5	Choose Presence of Stand-Pipe System	Stand-pipe system?			None	None	N/A
2	**Determining Water Supply Coefficient K**						
2.1	Choose Type of Construction	**Type of Construction**					
		Type of Construction	Non-combustible construction + fire separations + fire-resistance ratings in accordance with Section 3.2.2 of OBC	Type I	Type IV	N/A	N/A
			Non-combustible construction + fire separations + no fire-resistance rating	Type II			
			Combustible construction + fire separations + fire-resistance ratings in accordance with Section 3.2.2 of OBC	Type III			
			Combustible construction + fire separations + no fire-resistance rating	Type IV			
2.2	Choose Classification	**Building Classification**					
		Occupancy Classification (OBC)	A-2, B-1, B-2, B-3, C, D	23	C	A-2, B-1, B-2, B-3, C, D	N/A
			A-4, F-3	28			
			A-1, A-3	32			
			E, F-2	39			
			F-1	53			
2.3	Water Supply Coefficient (K)	Water Supply Coefficient K				23	N/A
3	**Determining Building Volume V**						
3.1	Enter Ground Floor Area of One Unit	**Floor Space Area**					
		Average Floor Area (A) :			310 Square Metres (m2)	310	Area in Square Meters (m^2)
3.2	Building Height (h)	**Building Height**					
		Bottom Elevation :			0.0 Meters (m)	21.2	Height in Meters (m)
		Top Elevation :			21.2 Meters (m)		
3.3	Building Volume (V)	Building Volume V = A * h				6,570	Volume in Meters Cube (m^3)
4	**Determining Spatial Coefficient S**						
4.1	Choose Exposure Distances from Building to Property Line	Exposure Distance from Building to Property Line in Meters (m)	North Side	5.1	0.49	1.49	Distance in Meters (m)
			Property Line to Street Centreline (Street Facing)	0			
			Total Exposure Distance	5.1			
			East Side	3.6	0.00		
			Property Line to Street Centreline (Street Facing)	10.9			
			Total Exposure Distance	14.5			
			South Side	1.5	0.50		
			Property Line to Street Centreline (Street Facing)	0			
			Total Exposure Distance	1.5			
			West Side	1.2	0.50		
			Property Line to Street Centreline (Street Facing)	0			
			Total Exposure Distance	1.2			
4.2	Total Spatial Coefficient	Total Spatial Coefficient $S_{tot} = 1 + \Sigma S_x$				2.00	N/A
5	**Determining Required Minimum Supply of Water Q and Fire Flow**						
5.1	Obtain Required Fire Volume, Flow & Duration	*Minimum Supply of Water, rounded to nearest 1,000 L; $Q = K*V*S_{tot}$*				302,000 L	
		Required Minimum Water Supply Flow Rate (L/min)				9,000 L/min	
		Required Minimum Water Supply Flow Rate (L/s)				150 L/s	
		Required Minimum Duration of Fire Flow (min)				40 min	

ATTACHMENT 4 : FIGURE 1 – FUS EXPOSURE DISTANCES

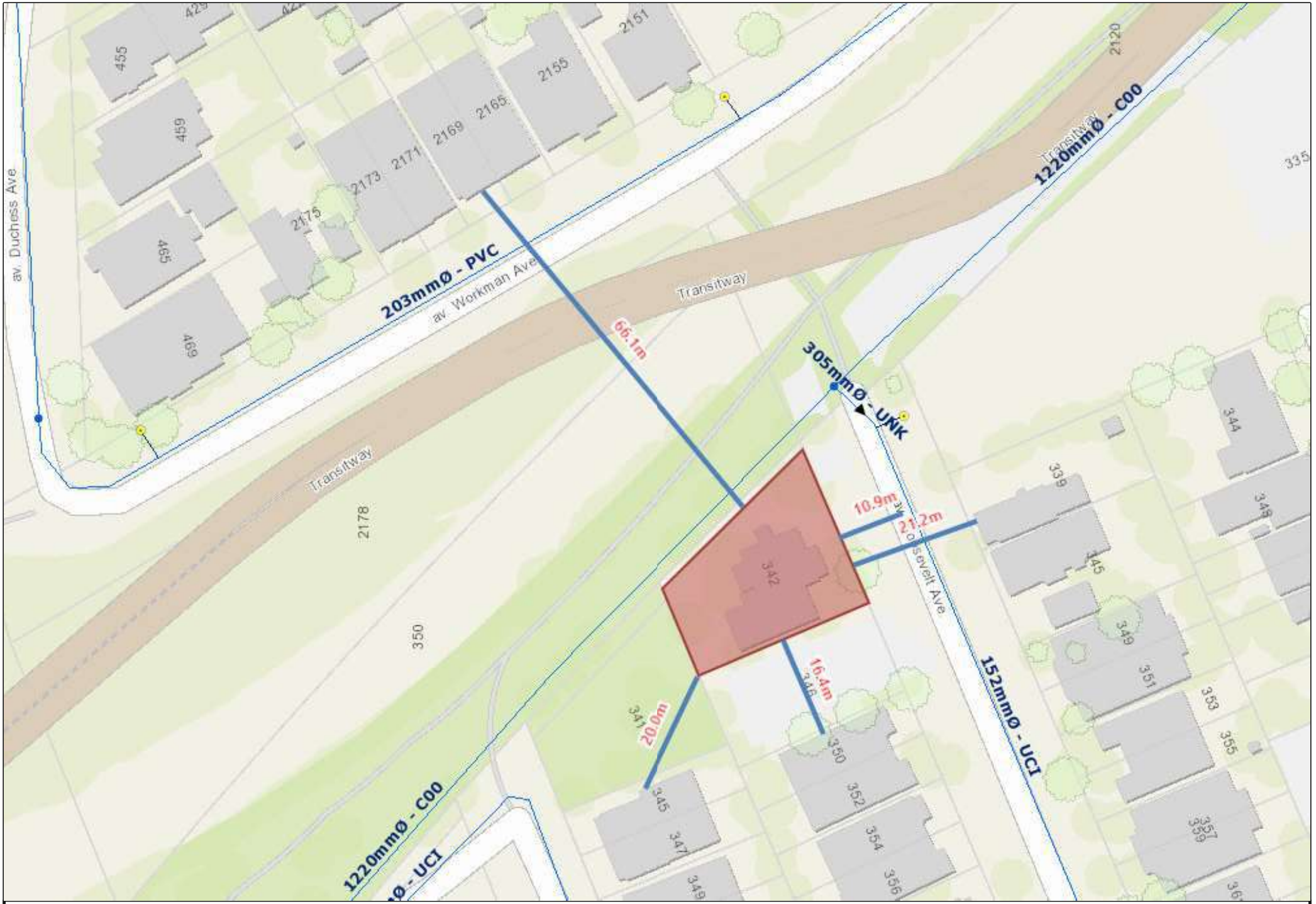


Figure 1: OBC and FUS Exposure Distances (Property Line to Adjacent Buildings)

Source: geoOttawa 2024; *Contains information licensed under the Open Government License – City of Ottawa.*

ATTACHMENT 5 : SUPPORTING HYDRAULIC CALCULATIONS

Stantec

Supporting Hydraulic Calculations

Stantec Project #: 163401084
Project Name: 342 Roosevelt Avenue
Date: March 12, 2025
Data inputted by: Hamidreza Mohabbat MASc.
Data reviewed by: Alexandre Mineault-Guitard ing., P.Eng

Boundary Conditions provided by the City:

Scenario 1: Peak Hour (Min HGL): 108.7 m;
Scenario 2: Average Day (Max HGL): 115.3 m; and
Scenario 3: Maximum Day plus Fire Flow: 81.2 m.

Sample Calculations

$HGL\ (m) = hp + hz$ *(1)*

where: hp = Pressure Head (m); and hz = Elevation Head (m), estimated from topography.

For Scenario 1, we have:

HGL(m) = 108.7 and hz (m) = 66.9.

Rearranging Equation 1, we can calculate the Pressure Head (hp) as follow:

$hp\ (m) = HGL - hz$

$\therefore$ hp = 108.7 - 66.9 m = 41.8 m.

To convert from Pressure Head (m) to a pressure value (kPa), the following equation can be used:

$P\ (kPa) = (\rho * g * hp) / 1000$ *(2)*

where: ρ = density of water = 1000 kg/m^3; and g = gravitational acceleration = 9.81 m/s^2.

Using Equation 2, we can calculate the Pressure Head (hp) as follow:

P (kPa) = (1000 * 9.81 * 41.8) / 1000

$\therefore$ P = 410 kPa.

Considering that 1 kPa = 0.145 psi, the pressure under Scenario 1 is equal to:

P = 59 psi.

Applying the same procedures, the pressures under Scenario 2 and Scenario 3 are calculated as follows:
Scenario 2: P = 69 psi; and Scenario 3: P = 20 psi.

To summarize:

Scenario 1: Minimum Pressure under Peak Hour Demand: 410 kPa (59 psi)
Scenario 2: Maximum Pressure under Average Day Demand: 474 kPa (69 psi)
Scenario 3: Minimum Pressure under Maximum Day + Fire Flow Demand: 140 kPa (20 psi)

ATTACHMENT 6 : FIGURE 2 – HYDRANT SPACING

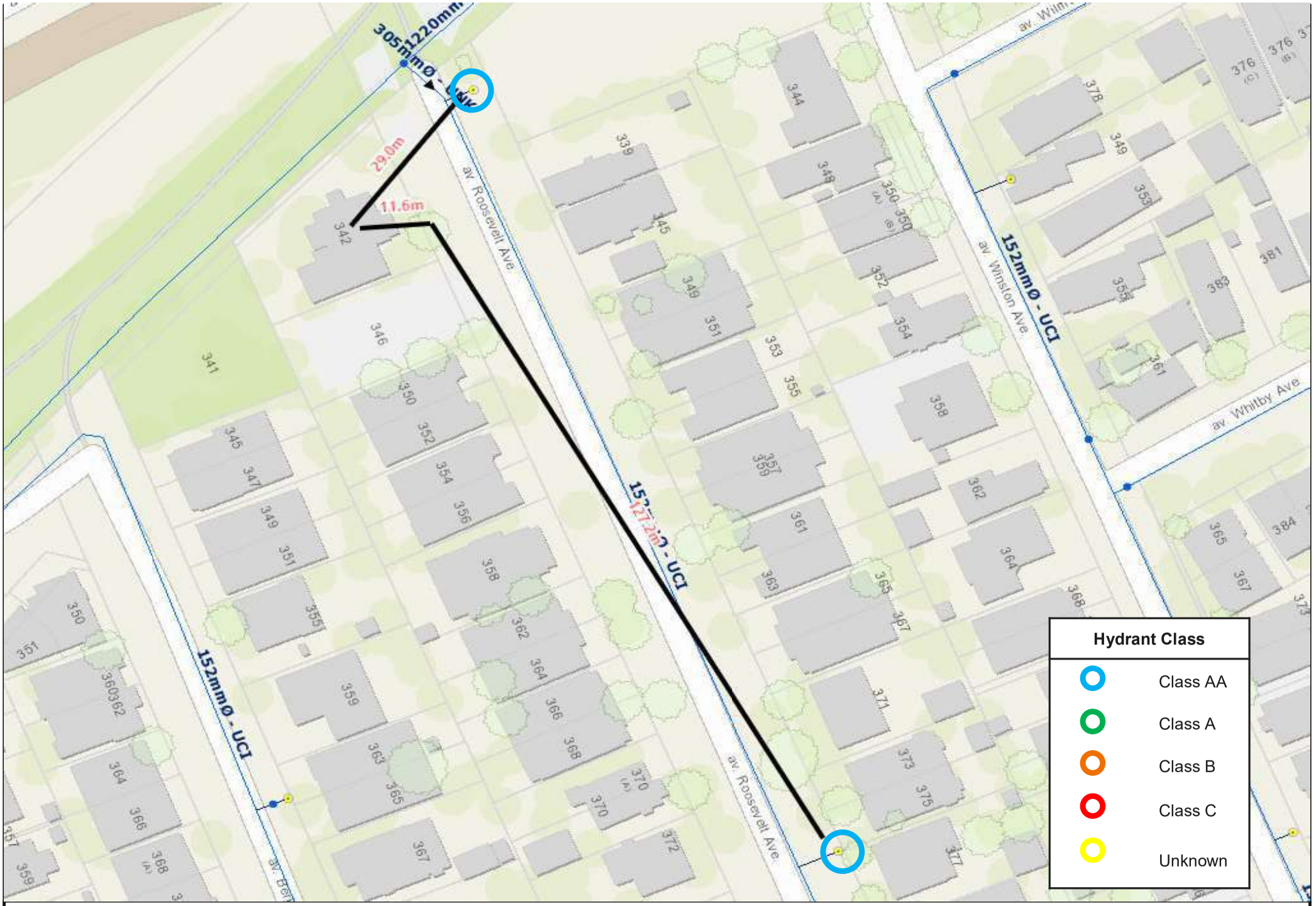


Figure 2: FUS Exposure Distances & Hydrant Spacing

Source: geoOttawa 2021; *Contains information licensed under the Open Government Licence – City of Ottawa.*

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX E

CITY OF OTTAWA

SANITARY SEWER DESIGN SHEET

SHEET No. 1 OF 1

SANITARY SEWER DESIGN SHEET

q = average daily per capita flow (280 L/cap. d)
I = unit of peak extraneous flow (0.33 L/ha. s)
M = peaking factor 4 (MAX)
Q (p) = peak population flow (L/s)
Q (i) = peak extraneous flow (L/s)
Q (d) = peak design flow

DENSITY
- 2 BEDROOM = 2.1 ppu
- 1 BEDROOM = 1.4 ppu
- STUDIO = 1.4 ppu

$M = 1 + \frac{14}{4 + \sqrt{P}} \times K$ where P population in 1000's K=0.8

$Q(p) = \frac{PqM}{86.4}$ (L/s)

Q(i) = IA (L/s) where A = area in hectares

Q(d) = Q(p) + Q(i) (L/s)

LOCATION			INDIVIDUAL		CUMULATIVE		Peaking factor M	Pop. flow Q(p) (L/s)	Peak extraneous flow Q(i) (L/s)	Peak design flow Q(d) (L/s)	PROPOSED SEWER						
STREET	FROM	TO	Pop.	Area A (hectares)	Pop.	Area A (hectares)					Length (m)	Pipe size (mm)	Type of pipe	Grade %	Capacity (L/s) n=0.013	Full flow velocity (m/s)	Actual velocity at Q(d)
342 ROOSEVELT AVENUE	SITE	EX. 375Ø SANITARY SEWER	51.1	0.07	51.1	0.07	3.45	0.57	0.02	0.59	15.0	150	PVC	1.0% (min)	19.8	1.12	

LICENSED PROFESSIONAL ENGINEER
08/30/24
TONY L-M MAK
PROVINCE OF ONTARIO

(FILE# 824-83)

DESIGN TLM	PROJECT 342 ROOSEVELT AVENUE
CHECKED TLM	PROPOSED SIX (6) STOREY APARTMENT
DATE AUGUST 2024	BUILDING SITE - CITY OF OTTAWA

SHEET No. 1 of 1

PROPOSED

SIX (6) STOREY APARTMENT BUILDING SITE

LOT 36

R-PLAN 114

342 ROOSEVELT AVENUE

CITY OF OTTAWA

APPENDIX F

DEVELOPMENT SERVICING STUDY CHECKLIST SUMMARY

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