REPORT
PROJECT: 119385-5.2.2

SITE SERVICING STUDY

81 Slater Street

Prepared for Place Doree
by IBI Group

March 26, 2019

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APPENDICIES

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1 INTRODUCTION

1.1 Purpose

The purpose of this report is to outline the required municipal services, including water supply, stormwater management and wastewater disposal, needed to support the redevelopment of the subject property. The property is approximately 0.091 hectares in area and is located at 81 Slater Street in the City of Ottawa.

This Site Servicing Study, which also includes the Stormwater Management Plan, Watermain Analysis and Erosion and Sedimentation Control Plans, is being completed in support of the Site Plan Application.

1.2 Subject Site

The subject property is located at 81 Slater Street between Metcalfe Street and Elgin Street. The location plan is shown on **Figure 1.1**.

The subject property is zoned Mixed-Use Downtown Zone (MD S46). It is currently improved with a two-storey restaurant building, as well as a two-storey parking complex. These are attached to the Capital Hill hotel behind the property located at 88 Albert.

In terms of municipal services, both properties, 88 Albert and 81 Slater, are serviced with a common watermain and combined sewer from Slater Street. Bell and gas are also entering the properties from Slater Street. Rogers and hydro are entering the hotel from Albert Street, and feeding the restaurant/parking garage. **Figure 1.2** shows the existing municipal infrastructure to the buildings.

The proposed re-development includes replacing the restaurant/parking garage complex with a twenty-four storey mixed-use residential building. The existing hotel will remain unchanged and is not included in the re-development application.

The proposed mixed-use residential building will include 171 one-bedroom units, 25 two-bedroom units, 81 m^2 of ground floor retail, and 628 m^2 of amenity space. A total of 18 parking spaces are proposed, all of which will be accommodated on the ground floor and mezzanine levels. The proposed site plan is shown in **Figure 1.3**. Although the site plan covers 0.091 ha, the proposed building will cover an area of only 0.078 ha.

Site access to the existing two-storey parking lot is from a two-way drive aisle from Slater Street. Access to the proposed ground floor parking lot will be from a ground-level entrance directly off Slater Street, while the entrance for the mezzanine level will be through the 88 Albert Street hotel parking area. The main pedestrian accesses to the new mixed-use residential building will be from both Slater Street and the hotel.

1.3 Pre-Consultation

A pre-consultation meeting was held on December 19th, 2018 regarding the proposed construction at 81 Slater Street. The notes from that meeting are included in **Appendix A**.

IBI Group contacted the City of Ottawa to discuss and agree on relevant design criteria to be considered in this report. The criteria relate to water supply and sewage disposal. Attached in **Appendix A** is a copy of the e-mail correspondence.

1.4 Geotechnical Investigation

A geotechnical report is being prepared for the subject site.

The objective of the investigation report will include:

- Determination of the subsoil and groundwater conditions;
- Provision of geotechnical recommendations pertaining to the design and development of the subject site including construction considerations.

Among other items, the report will comment on the following:

- Site grading and grade raises;
- Foundation design;
- Pavement structure;
- Infrastructure construction;
- Groundwater control;
- Contamination/corrosive environment.

2 WATER SUPPLY

2.1 Existing Condition

The existing site, including the 88 Albert Street hotel, has access to two existing watermains:

- A 375 mm diameter main in Slater Street
- A 200 mm diameter main in Albert Street

The restaurant/parking complex and the adjacent hotel are both presently serviced from the Slater Street watermain. **Figure 1.2** shows the location of the existing watermain system adjacent to the subject property. The location of existing hydrants are also shown on this Figure. The existing hydrants are located within 45 metres of the property.

2.2 Design Criteria

The following design criteria, which were extracted from the City's Water Distribution Design Guidelines, were used to estimate the water demand requirements for the site:

- Average Daily Demand (ADD) = 350 l/cap/day
- Maximum Daily Demand (MDD) = 2.5 X ADD = 875 l/cap/day
- Peak Hourly Demand = 2.5 X MDD = 1925 l/s
- Fire Demand = 167 l/s (as per Fire Underwriters Survey)

Hydraulic Gradient:

- Minimum – max hour 276 kPa
- Minimum – max day and fire 140 kPa
- Maximum pressure 552 kPa

The following are the boundary conditions provided by the City for 200 mm diameter main on Fifth Avenue:

- Maximum Day plus Fire Flow 106.8 m
- Minimum HGL (Peak Hour) 107.0 m
- Maximum HGL 115.0 m

The population of the building was calculated using the City of Ottawa guidelines (1.4 ppu for one-bedroom units, 2.1 ppu for two-bedroom units). Based on a building of 196 units (171 1-bd, 25 2-bd), the expected water demand for the proposed development is:

- Average Daily Demand 1.18 l/s (102 m^3/d)
- Maximum Daily Demand 2.96 l/s
- Peak Hourly Demand 6.51 l/s

2.3 Hydraulic Analysis

The finished floor elevation for the new building will be approximately 68.80 meters. Under the Minimum HGL condition, the water pressure inside the building at the meter location is 375 kPa, which exceeds the minimum requirement of 276 kPa per the City guidelines. Because the pressure on the 24th floor of the building is less than the requirement of 276 kPa, a water pump will be required. Details of this system will be designed by the mechanical engineer.

Under the Maximum HGL condition the water pressure is 482 kPa at the basement level, which is less than the maximum allowed of 552 kPa per City guidelines. Therefore, pressure reducing valves are not required.

A required fire flow rate of 167 l/s (10,000 l/min) has been determined using the methodology from the Fire Underwriters Survey (FUS) 1999, a copy of the calculation is included in **Appendix B**. The 167 l/s fire flow was provided to the City in order to determine the HGL condition for the maximum day plus fire condition as discussed in **Section 2.2**. The Maximum Day plus Fire Flow pressure is 344 kPa, which exceeds the minimum of 140 kPa per City guidelines. Accordingly, there will be sufficient fire flow pressure available for the site.

The site survey identified a water standpost on Slater Street which services the existing restaurant/parking complex. During construction it is anticipated that the City will be notified to decommission the existing water service as per City regulations.

2.4 Proposed Water Plan

As noted above, both the Capital Hill hotel fronting Albert Street and the subject site are both presently serviced with a common water service from Slater Street. It is proposed to leave the existing water service as-is, but install a separate service to the new development on Slater Street.

Since the total basic day demand for this building exceeds 50 cubic metres per day, the building is proposed to be serviced with two laterals, separated with a valve, all in accordance with Section 4.3.1 of the City of Ottawa Water Distribution Design Guidelines. Two 200 mm diameter water services are proposed from the Slater Street watermain and will enter the new building near the proposed mechanical room. Each lateral will have a shutoff valve located near the property line. The two laterals will be connected via a tee in the building mechanical room from which a single service pipe will supply water to the building. The water meter will be installed on the single water service line in the mechanical room. The proposed watermain locations are shown on the Site Servicing Plan, Drawing 001 which is included in **Appendix C**.

3 WASTEWATER DISPOSAL

3.1 Existing Conditions

The site consists of an existing two-storey restaurant building which fronts Slater Street and a two-storey parking complex beside the restaurant that also fronts Slater Street. There is also an existing hotel behind the site that fronts Albert Street.

The hotel building, which is not part of the re-development and will remain as is, is serviced with water and sewer infrastructure from Slater Street. The restaurant/parking complex, which will be replaced, uses the same services. The location of the existing sanitary sewer is shown in **Figure 1.2**. A 1200 mm diameter sanitary sewer is located in Slater Street in front of the subject site.

Runoff from the sidewalk in front of the restaurant/parking complex sheet flows to Slater Street. Internal site runoff from the complex is captured and discharged to the existing sanitary sewer in Slater Street. Based on our calculations, which are included in a spreadsheet located in **Appendix D**, there is an existing peak wastewater flow of about 0.03 l/s from the restaurant/parking complex that is discharging to Slater Street.

3.2 Design Criteria

As previously mentioned, the current proposal is to improve the site with a 24-storey residential building containing 171 one bedroom units and 25 two bedroom units. Parking will be provided on the ground and mezzanine levels. IBI estimates that the peak wastewater flow from the proposed development will be 4.81 l/s. This is based on the following criteria:

Total # of one bedroom units	171
Total # of two bedroom units	25
Population density	
- One bedroom	1.4 ppu
- Two bedroom	1.8 ppu
Average Residential Flow	280 l/p/d
Residential Peaking Factor	Harmon Formula [max = 4.0, min. = 2.0]

The sanitary drainage area plan is shown in **Figure 3.1**, and together with the detailed sewer calculations, are both included in **Appendix D.**

3.3 Sewer Capacity Analysis

A sewer spreadsheet for both existing conditions and proposed conditions for wastewater and storm runoff quantities is included in **Appendix E**. The spreadsheet provides estimates of flow from the restaurant/parking complex to Slater Street. The hotel is also discharging to Slater Street. Since the re-development of the site does not include the hotel, the balance of this report will concentrate on the site runoff changes proposed by the re-development of the existing restaurant/parking complex.

The existing restaurant/parking complex discharges wastewater to the sewer in Slater Street at an estimated peak flow of 0.03 l/s. The proposed sanitary design flow from the new development is 4.76 l/s. The increase in sanitary flow is unsubstantial compared to the capacity of the 1200 mm diameter sanitary sewer in Slater Street.

3.4 Proposed Wastewater Plan

As previously noted, both the Capital Hill hotel fronting Albert Street and the subject site are both presently serviced with a common service lateral. It is proposed to leave the existing service lateral as-is and install a separate service to the new development on Slater Street.

It is proposed that a new 200 mm diameter sanitary service be connected to the existing 1200 mm diameter sanitary sewer in Slater Street. The service will enter the building just west of the storm manhole as shown on the Site Servicing Plan, Drawing 100 which is included in **Appendix C**.

As per City of Ottawa requirements, an access structure, or monitoring manhole, is to be included on the new sanitary service pipe.

4 STORMWATER

4.1 Existing Conditions

The subject site is situated at 81 Slater. The site is improved with a restaurant/parking complex and surrounding asphalt access and surface parking. Runoff from most of the site is collected in surface area drains which are routed to the existing sanitary sewer in Slater Street.

Runoff from the fronting sidewalks sheet flows directly to street catchbasins which are connected to the existing 375 mm diameter storm sewer in Slater Street. Based on the existing Storm Drainage Area Plan **Figure 4.1** which is included in **Appendix E**, the estimated existing storm runoff is 23.72 l/s.

The location of the existing storm sewer adjacent to the site is shown in **Figure 1.2**.

4.2 Design Criteria

The City of Ottawa has advised that the following stormwater criteria must be used to calculate the allowable release rate from the site:

Time of Concentration	10 min.
Average Runoff Coefficient:	0.50
Storm Event	1:5 yr. (i = 998.071/(Tc + 6.014)^0.814)

Based on these criteria, the restricted release rate from the site is 13.32 l/s. The allowable release rate calculation for the site is included on the storm sewer design sheet, found in **Appendix E**.

4.3 Sewer Capacity Analysis

As noted above, the storm sewer adjacent to the site which could provide an outlet for the proposed development is the 375 mm diameter storm sewer in Slater Street. Based on the criteria set by the City of Ottawa for storm runoff, the redeveloped site is restricted to discharge only 13.32 l/s.

Figure 4.2, the post development Drainage Area Plan and the associated flow spreadsheet are provided in **Appendix E**. The spreadsheet provides a summary of existing and proposed flow conditions for the redeveloped site based on the 100 year storm. There is currently about 23.72 l/s of storm water discharging to Slater Street. The new servicing proposal is to direct all runoff to the 375 mm storm sewer. Due to flow limitations for the site, only 13.32 l/s can discharge to that sewer. This total includes the 4.47 l/s of uncontrolled runoff from the sidewalk area, and the controlled release rate of 8.85 l/s from the proposed cistern. Therefore, since the new total release rate of 13.32 l/s is less than existing conditions for the site, there should be sufficient capacity in the 375 mm diameter storm sewer to handle the site runoff flows during the 100 year event. The post development flow calculations also include a 25% increase to the runoff coefficient to a maximum of 1.00.

4.4 Proposed Stormwater Plan

As mentioned previously, both the Capital Hill hotel fronting Albert Street and the subject site are both presently serviced with a common service lateral. It is proposed to leave the existing service as-is and install a separate storm service to the new development on Slater Street.

The design criteria for this site requires that post-development runoff not exceed the 1:5 year event based on an average runoff coefficient of 0.50 and a time of concentration of 10 minutes. Based on the total site area of 0.091 ha, the estimated allowable release rate is 13.32 l/s. The detailed calculations are included in the Sewer Calculation Sheet included in **Appendix E**. Based

on the 100 year uncontrolled post-development flows, the City of Ottawa's requirements cannot be met by the proposed development unless on-site storage is provided.

In an effort to determine the amount of required on-site storage, the site has been divided into three drainage areas (Areas A, B, and C). The location of these drainage areas is illustrated in **Figure 4.2**. The following sections provide a brief summary of the proposed quantity stormwater management plan for the site. Detailed calculations of the runoff rates for the various sub-catchment areas, together with the stormwater management schematic **(Figure 4.3)**, are included in **Appendix E**.

4.5 Area A – Building Roofs

Runoff from Area A would be released uncontrolled and routed to a cistern which is proposed to be located inside the new building. Area A covers 580 m^2 and the estimated uncontrolled 100 year release rate is 28.79 l/s at a runoff coefficient of 1.00.

4.6 Area B – 2nd Floor Amenity Deck

Runoff generated by Area B will be collected from two area drains, located in the outdoor amenity area and routed uncontrolled to a cistern which is proposed to be located inside the proposed building. The estimated uncontrolled release rate for the 240 m^2 Area B is 11.91 l/s at a runoff coefficient of 1.00.

4.7 Area C – Uncontrolled Flow to Slater

Runoff from Area E will be released uncontrolled and captured by the existing combined sewer adjacent to the site on Fourth Avenue. Area E covers 90 m^2 and the estimated uncontrolled 100 year release rate is 4.47 l/s at a runoff coefficient of 1.00.

4.8 Cistern Storage

The runoff generated by Areas A and B (total area 820 m^2) is proposed to discharge into and be attenuated in an under-ground cistern. Outflow from the cistern would be controlled with an orifice. The cistern release rate was calculated by determining the remaining allowable flow from the site using the following equation:

- $Q_{Cistern\ pipe} = Q_{max} - Q_{uncontrolled}$
- $Q_{Cistern\ pipe} = 13.32\ l/s - 4.47\ l/s = 8.85\ l/s$

To meet the allowable release rate for the redeveloped site, the required cistern volume for the 100 year storm event was determined to be 26.13 m^3. Detailed calculations are presented in **Appendix E**. The cistern orifice will be designed to restrict the release rate to 8.85 l/s. The attenuated flow will be discharged directly into the existing storm sewer system on Slater Street via a 250 mm diameter service lateral pipe.

The detailed minor stormwater plan for the subject site is indicated on the site servicing plan, Drawing 100. The plan shows area drains located in the 2nd floor outdoor amenity area. A 150 mm diameter outlet pipe from each floor drain is proposed to be directed internally to the basement level where the mechanical designer will complete the drainage pipe routing to the building cistern. The outlet from the cistern is proposed to be a 250 mm diameter service pipe at a 0.6% slope.

The final details of the cistern will be confirmed by the building's mechanical designer. However, it is expected that the cistern will operate by gravity with a direct piped connection from the bottom of the cistern to the existing storm sewer in Slater Street. There are no pumps proposed for the

cistern so power is not a requirement for the cistern operation. The cistern will most likely be fitted with an overflow mechanism to be routed to surface where water will eventually be captured by the street drainage system.

4.9 Stormwater Management Summary

The following is a summary of the various Stormwater Management calculations for the proposed residential building at 81 Slater Street:

- The maximum allowable release rate is 13.32 l/s based on a runoff coefficient of 0.50 and a time of concentration of 10 min. Cistern storage would be provided to meet the City of Ottawa requirement.
- The flow from Area A would discharge into the proposed cistern at a flow rate of 28.79 l/s.
- The flow from Area B would discharge into a proposed cistern at a flow rate of 11.91 l/s.
- The flow from Area C would discharge uncontrolled into the existing storm sewer in Slater Street at a flow rate of 4.47 l/s.
- The proposed cistern would provide 26.13 m^3 of storage and discharge into the existing storm sewer in Slater Street at a restricted flow rate of 8.85 l/s.

5 GRADING AND DRAINAGE

5.1 Grading and Drainage Plan

The existing site is improved with a two storey restaurant and a two storey parking garage. The existing buildings are presently set back +0.3 meters from the property line. A concrete sidewalk has been constructed between the buildings and the nearby curb. Runoff presently street flows across the sidewalk into nearby street catchbasins which are connected to the local storm sewer.

The new building will be set back about 3.2 meters from the property line and the area between it and the curb line is proposed to be completed with a new concrete surface. Because the new building will take up most of the site, the Grading and Drainage Plan includes only the proposed grades for the new sidewalk in front of the building. The proposed Grading and Drainage Plan, Drawing 200, is included in **Appendix F**.

6 SEDIMENT AND EROSION CONTROL PLAN

6.1 General

During construction, existing conveyance systems can be exposed to significant sediment loadings. Although construction is only a temporary situation, it is proposed to introduce a number of mitigative construction techniques to reduce unnecessary construction sediment loadings. These will include:

- Installation of filter cloths on open surface structures such as maintenance holes and catchbasins during building construction.
- Installation of silt fence on the site perimeter, where practical.

The proposed Erosion and Sedimentation Control Plan, Drawing 900, is included in **Appendix G**.

7 APPROVALS AND PERMIT REQUIREMENTS

7.1 City of Ottawa

The City of Ottawa reviews all development documents including this report. Upon completion, the City will approve the service connections and eventually issue a Commence Work Notification.

7.2 Province of Ontario

Since the proposed sewer discharge from the site will be directed to a separated sewer network, an Environmental Compliance Approval certificate may not be required. However, if it is required, the certificate will be issued by the provincial Ministry of Environment, Conservation and Parks.

7.3 Conservation Authority

There are no approvals required from any Conservation Authority for this project.

7.4 Federal Government

There are no approvals required from Federal Government agencies for this project.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusion

The municipal infrastructure needed to support the proposed development already exists in Slater Street, immediately adjacent to the property. The City has provided operating conditions for the existing 375 mm diameter watermain in Slater Street. Connection to the Slater Street watermain will provide the new building with a reliable water supply meeting the City of Ottawa design guidelines. The adjacent storm and sanitary sewers also have capacity to service the proposed development since it is likely there will be less total flow from the proposed development than from the current site due to on-site storage. Therefore, existing public services, including water supply and sewage disposal have spare capacity to service the subject site.

8.2 Recommendation

Based on the findings and conclusions of our investigation, IBI recommends that the Site Plan Approval not be withheld because of inadequacy of existing major municipal services. It is recommended that the City of Ottawa acknowledge that there is capacity in the existing municipal water and sewer infrastructure to support the proposed development at 81 Slater Street.

James I. Moffatt, P. Eng.
Associate

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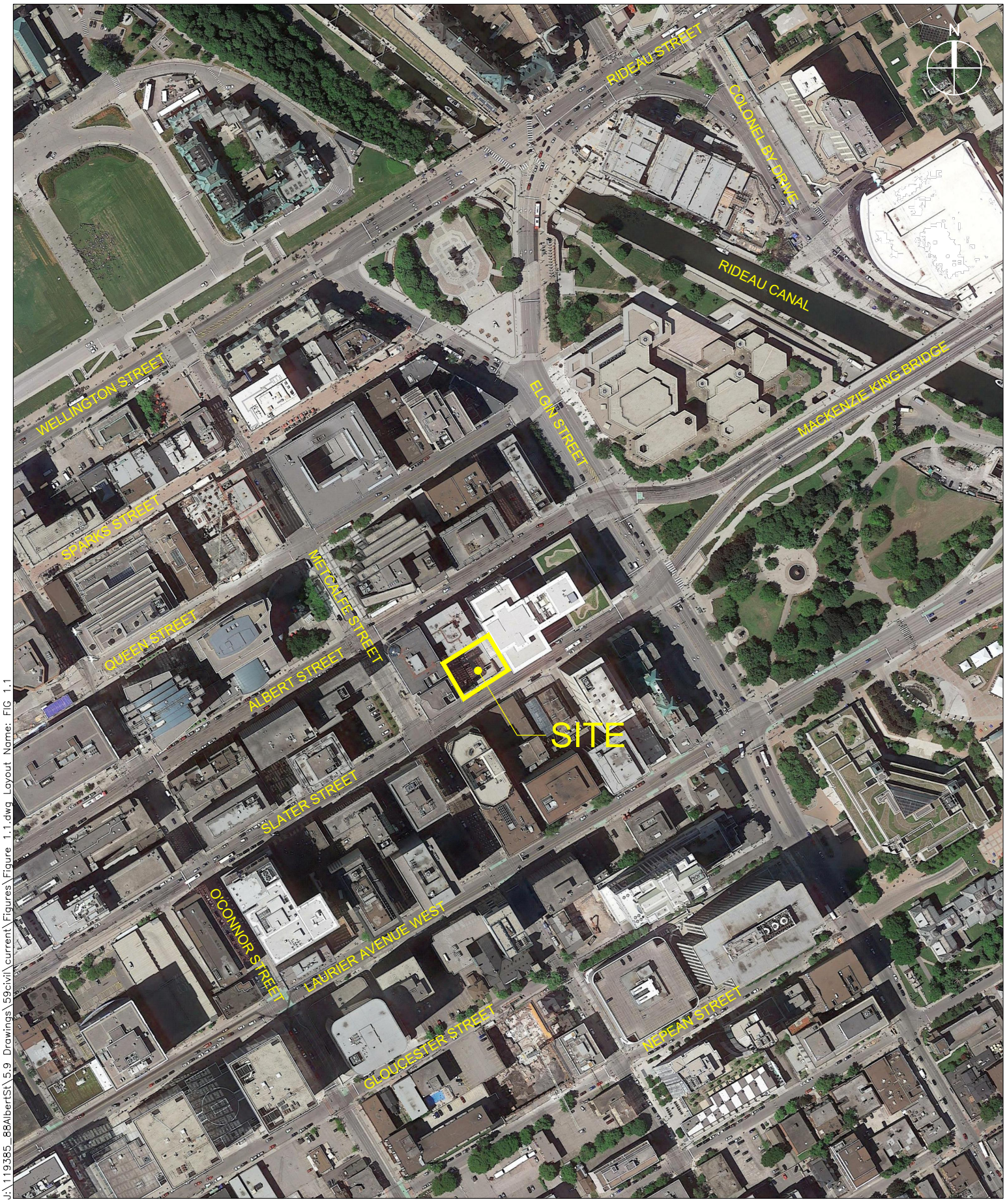


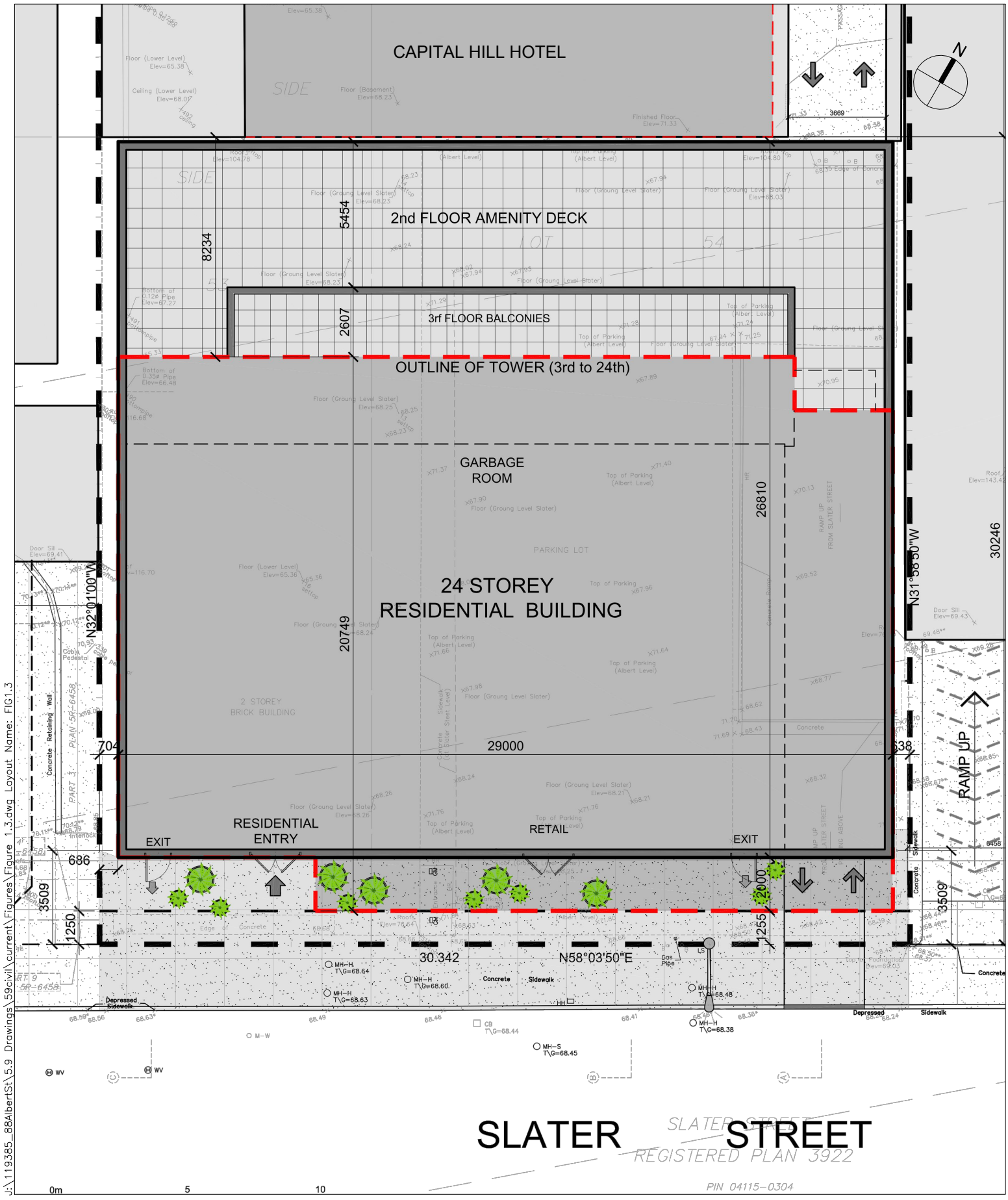
J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 1.1.dwg Layout Name: FIG 1.1

IBI

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	LOCATION PLAN	FIGURE 1.1

J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 1.2.dwg Layout Name: FIG1.2

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	EXISTING MUNICIPAL INFRASTRUCTURE	FIGURE 1.2



J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 1.3.dwg Layout Name: FIG1.3

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	SITE PLAN	FIGURE 1.3

APPENDIX A

- **December 19, 2018 Pre-consultation Meeting Notes**
- **February 25, 2019 Water Boundary Conditions E-mail from City**

From: Jim Moffatt
Sent: Wednesday, March 6, 2019 9:45 AM
To: Samantha Labadie
Subject: FW: Pre-consult follow up - 81 Slater Street
Attachments: image001.gif; Pre-application Consultation Servicing Memo.pdf; albert_slater_recplan_en.pdf; 81 Slater list of plans and studies.pdf

From: Marc-Andre Palerme [mailto:mpalerme@placedoree.com]
Sent: Tuesday, January 8, 2019 4:43 PM
To: Jim Moffatt <jmoffatt@IBIGroup.com>
Subject: Fwd: Pre-consult follow up - 81 Slater Street

Hi Jim,

Firstly, Happy New Year, hope you enjoyed some time off.

Please see below and attached notes from our pre-consult meeting for Slater St.
Can you please send us a revised Civil engineering proposal based on the pre-consult memo and notes, by Friday if possible.

Thanks, let me know if you have any questions

Marc

PLACE DORÉE
GESTION IMMOBILIÈRE

Marc Andre Palerme
*Gestion Immobiliere **P**lace **D**oree*
1 Westmount Square, Suite 350
Montreal, QC
H3Z 2P9
Cell (514) 867-0685
Bureau (514) 932-5355

Begin forwarded message:

> **From:** Bria Aird <aird@fotenn.com>
> **Date:** January 4, 2019 at 8:50:41 AM EST
> **To:** "kwaugh@princedev.com" <kwaugh@princedev.com>, "ron@placedoree.com" <ron@placedoree.com>, "DHook@IBIGroup.com" <DHook@IBIGroup.com>, Robert Verch <rverch@rlaarchitecture.ca>, Roderick Lahey <rlahey@rlaarchitecture.ca>

Cc: Jaime Posen <posen@fotenn.com>
Subject: FW: Pre-consult follow up - 81 Slater Street

Good morning,

We have received meeting minutes (below) and the plans and study list (attached) from the preconsultation for 88 Albert.

Jaime and I are setting up a meeting with Jenny and the community representative to finish the preconsult and I will forward a meeting invite for those who would also like to attend.

Best,

Bria Aird, M.Pl.

Planner

T 613.730.5709 ext. 224

From: Kluke, Jenny <jennifer.kluke@ottawa.ca>
Sent: January-03-19 4:29 PM
To: Bria Aird <aird@fotenn.com>; Jaime Posen <posen@fotenn.com>
Cc: Buchanan, Richard <Richard.Buchanan@ottawa.ca>; Dubyk, Wally <Wally.Dubyk@ottawa.ca>; Moise, Christopher <christopher.moise@ottawa.ca>
Subject: Pre-consult follow up - 81 Slater Street

Hi Bria,

Further to our meeting on December 19, 2018 regarding the proposal to construct a 24-storey residential use building at 81 Slater Street, please find below a summary of what was discussed.

Planning Considerations (Jenny Kluke)

- The property is designated as Central Area in the Official Plan.
- The property is zoned MD S46 (Mixed Use Downtown and is subject to Schedule 46 in the Zoning By-law)
- The property is within the Central Area Secondary Plan area
- Parkland fees will be required.
- The proposed development should take into consideration the Albert Slater Repurposing Plan (attached). Planned construction is expected to be in 2020 (+/-) depending on the location.
- As discussed in the meeting, while staff are happy that you are proposing a residential use building with limited parking, we have strong concerns with the lack of separation distance and the relationship between neighbouring buildings. Section 2.25 of the Urban Design Guidelines for High-rise Buildings states that proper separation distances are to be provided between towers to minimize shadow and wind impacts, and loss of skyviews, and allow natural light into interior spaces. The direction the City is moving in is to ensure there is a 7.5 metre setback from the side and rear lot lines above 6 storeys for new high rise buildings.

Urban Design Comments (Christopher Moise)

- As discussed at the pre-consultation, this proposal has many hurdles to overcome. The prospect of filling in every open space and access to light and sky in the downtown core is a growing issue. In 2018, the City developed guidelines to help guide new high-rise development and to offer clear strategies for mitigating the negative impacts when growth and development is left to market forces alone.
- This proposal will go before the City's Urban Design Review Panel with the hope of finding design solutions that work for both the owner and the neighbours and the public. The proponent should spend some concerted time studying the tall building guidelines to better understand the concerns at play, so that together we may guide the project toward mitigation of problems through creative design solutions.

Engineering Comments (Richard Buchanan)

- See attached comments

Transportation Considerations (Wally Dubyk)

- Slater Street is designated as an Arterial road within the City's Official Plan with a ROW protection limit, the maximum land requirement from property abutting existing ROW is 1.25 metres subject to widening/easement policy. The ROW limits are to be dimensioned and shown on the drawings.
- Widening/easement: Central Area – In Table 1, Urban Arterial and City Freeway Rights-of-way, certain streets in the Central Area of the city are identified as being subject to a widening/easement policy. In addition to any proposed right-of-way widening, a surface easement for the use of pedestrians will be required along the full length of property frontages. Unless otherwise determined by the City, this easement will generally consist of dimensions as described in this paragraph. The easement will have a height of 4.5 metres from finished grade surface. The width of this easement measured from the proposed right-of-way varies according to the design of the building. Where a building cantilevers over the easement, a width of 1.5 metres is required. Where columns support the part of a building built over the easement, the width required is 2.5 metres plus the width of the columns. Where a cantilevered building and a column-supported building are located adjacent to each other, there must be a clear passage for pedestrians of 1.5 metres in the easement where the buildings meet.
- Link to the above:

https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-7-annexes/annex-1-road-classification-and-rights-way

- The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.
- The concrete sidewalks should be 2.0 metres in width and be continuous and depressed through the proposed access (please refer to the City's sidewalk and curb standard drawing.
- No private approach shall be constructed within 0.3 metres of any adjacent property measured at the highway line, and at the curb line or roadway edge.
- The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.
- The proponent is to provide an access grade that does not exceed 2-6% within the private property for a minimum distance of 6.0 metres from the ROW limits. This is a critical safe distance to allow a driver to stop at the top of the ramp and have a good sight angle of pedestrians.

- The TIA Screening Form identified that Triggers have been met. Please proceed with the TIA Step 2 – Scoping Report.
- The Traffic Management Plan is to be submitted for approval in advance of the Site Plan application.

Centretown Citizens Community Association Representative

- Comments to be provided at a later date

Development Applications Required

To move forward with this proposal, a Site Plan Control, Manager Approval, Public Consultation Application will be required. Please review the fees associated with this here.

Attached is the *Applicant's Study and Plan Identification List*, which identifies the required studies and plans to support your application. For additional information on preparing studies and plans, please click on the following hyperlink: Guide to Preparing Studies and Plans.

As you may know, the property is in Ward 14-Somerset, with Councillor Catherine McKenney. It is in your best interest to initiate contact with close neighbours as well as the Councillor and Registered Community Groups. In addition, it may be beneficial to contact key technical agencies that may be involved in this file to discuss the proposal before submitting an application.

The above pre-consultation comments are valid for one year. If you submit a development application after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change.

Please do not hesitate to contact me if you have questions or require clarification on any of the above points.

Regards,

Jenny

Jenny Kluke MCIP, RPP

Planner

Development Review – Central Branch

Planning, Infrastructure and Economic Development Department

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West, Ottawa, ON K1P 1J1

613.580.2424 ext./poste 27184

E-mail: jenny.kluke@ottawa.ca

ottawa.ca/planning / ottawa.ca/urbanisme

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MEMO

Date: Dec 27, 2018

To / Destinataire	Jenny Kluke, Planner	
From / Expéditeur	Richard.Buchana, Project Manager, Infrastructure Approvals	
Subject / Objet	**Pre-Application Consultation** **88 Albert/81 Slater, Ward 14.** **Residential Expansion,** *Demolish the existing parking structure and develop a 24 storey residential building with 180 dwelling units.*	File No. PC2019-0330

Please note the following information regarding the engineering design submission for the above noted site:

1. The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications

2. Servicing and site works shall be in accordance with the following documents:

   - ⇨ Ottawa Sewer Design Guidelines (October 2012)
   - ⇨ Ottawa Design Guidelines – Water Distribution (2010)
   - ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
   - ⇨ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
   - ⇨ City of Ottawa Park and Pathway Development Manual (2012)
   - ⇨ City of Ottawa Accessibility Design Standards (2012)

- ⇨ Ottawa Standard Tender Documents (latest version)
- ⇨ Ontario Provincial Standards for Roads & Public Works (2013)

3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

4. The Stormwater Management Criteria, for the subject site, is to be based on the following:

   i. The 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.

   ii. For separated sewer system built pre-1970 the design of the storm sewers are based on a 2 year storm.

   iii. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).

   iv. A calculated time of concentration (Cannot be less than 10 minutes).

   v. Flows to the storm sewer in excess of the 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.

   vi. For a combined sewer system the maximum C= 0.4 or the pre-development C value, whichever is less. In the absence of other information the allowable release rate shall be based on a 2 year storm event.

   Note: There may be area specific SWM Criteria that may apply. Check for any related SWM &/or Sub-watershed studies that may have been completed.

5. Deep Services (Storm, Sanitary & Water Supply)

   i. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

   ii. Connections to trunk sewers and easement sewers are typically not permitted.

iii. *Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).*

iv. *Provide information on the type of connection permitted*

Sewer connections to be made above the springline of the sewermain as per:

a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*

b. Std Dwg S11 (For rigid main sewers) – *lateral must be less that 50% the diameter of the sewermain,*

c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less that 50% the diameter of the sewermain,*

d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

e. *No submerged outlet connections.*

v. *Single lot normally requires one service. Existing building facing Albert Street already has a connection. For redundancy purposes, the applicant will be permitted to have a water service off Slater street with the requirement of the existing building connecting to the internal plumbing in the new building.*

6. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:

i. Location of service

ii. Type of development and the amount of fire flow required (as per FUS, 1999).

iii. Average daily demand: ___ l/s.

iv. Maximum daily demand: ___l/s.

v. Maximum hourly daily demand: ___ l/s.

7. MOECC ECA Requirements

An MOECC Environmental Compliance Approval Municipal/Private Sewage Works) will be required for the proposed development. Please contact Ontario Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:

For I/C/I applications: Christina Des Rochers

(613) 521-3450, ext. 231

Christina.Desrochers@ontario.ca

8. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Should you have any questions or require additional information, please contact me directly at (613) 580-2424, x 27801 or by email at Richard.Buchanan@Ottawa.ca.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer to:

http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	5	1. Site Servicing Plan	2. Assessment of Adequacy of Public Services / Site Servicing Study / Brief	S	3
S	5	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S	3
		5. Composite Utility Plan	6. Groundwater Impact Study		
		7. Servicing Options Report	8. Wellhead Protection Study		
S	8	9. Community Transportation Study and / or Transportation Impact Study / Brief	10.Erosion and Sediment Control Plan / Brief	S	5
S	3	11.Storm water Management Report / Brief	12.Hydro geological and Terrain Analysis		
		13.Hydraulic Water main Analysis	14.Noise / Vibration Study	S	3
		15.Roadway Modification Design Plan	16.Confederation Line Proximity Study		

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
		17.Draft Plan of Subdivision	18.Plan Showing Layout of Parking Garage		
		19.Draft Plan of Condominium	20.Planning Rationale	S	3
S	8	21.Site Plan	22.Minimum Distance Separation (MDS)		
		23.Concept Plan Showing Proposed Land Uses and Landscaping	24.Agrology and Soil Capability Study		
		25.Concept Plan Showing Ultimate Use of Land	26.Cultural Heritage Impact Statement		
S	5	27.Landscape Plan	28.Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)		
S	2	29.Survey Plan	30.Shadow Analysis	S	3
S	5	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	Available online
S	3	33.Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	3	34.Phase 1 Environmental Site Assessment	35.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		
S	3	36.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37.Assessment of Landform Features		
		38.Record of Site Condition	39.Mineral Resource Impact Assessment		
		40.Tree Conservation Report	41.Environmental Impact Statement / Impact Assessment of Endangered Species		
		42.Mine Hazard Study / Abandoned Pit or Quarry Study	43.Integrated Environmental Review (Draft, as part of Planning Rationale)		

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
		44.	45.		

Meeting Date: December 19, 2018

Application Type: Site Plan Control, Manager Approval with Public Consultation

File Lead (Assigned Planner): Jenny Kluke

Infrastructure Approvals Project Manager: Richard Buchanan

Site Address (Municipal Address): 81 Slater Street

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5☐

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that proposal appears to meet the City's key land use policies and guidelines. **This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the*

From: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Sent: Tuesday, February 26, 2019 12:03 PM
To: Samantha Labadie
Cc: Mottalib, Abdul
Subject: RE: 81 Slater - Boundary Conditions

Hello Samantha,

Please note it should say zone 1W below, not 1E. Sorry for the typo

--

Thanks,

Mohammad Abdul Mottalib, P. Eng.

From: Mottalib, Abdul
Sent: February 25, 2019 2:09 PM
To: 'Samantha Labadie' <Samantha.Labadie@ibigroup.com>
Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: FW: 81 Slater - Boundary Conditions

Please see below as requested.

--

Thanks,

Mohammad Abdul Mottalib, P. Eng.

From: ……
Sent: February 25, 2019 12:55 PM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: RE: 81 Slater - Boundary Conditions

The following are boundary conditions, HGL, for hydraulic analysis at 81 Slater (zone 1E) assumed to be connected to the 381mm on Slater (see attached PDF for location).

Minimum HGL = 107.0m

Maximum HGL = 115.0m

MaxDay + FireFlow (167 L/s) = 106.8m

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.

From: Samantha Labadie <Samantha.Labadie@ibigroup.com>
Sent: February 20, 2019 4:29 PM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: 81 Slater - Boundary Conditions

Hi Abdul,

We are working on a new proposed 24-storey 196 unit residential building at 81 Slater Street, as shown on the attached, and are requesting watermain boundary conditions. Attached is a water demand calculation and FUS fire flow calculation summarized as follows:

Average day demand	1.18 L/s
Max day demand	2.96 L/s
Max hour demand	6.51 L/s
Fire flow	167 L/s

As the daily demand is more than 50 m3/day, we will provide two watermain tees with a valve in between. A peak sanitary flow of 4.76 L/s has been calculated.

Thank you,

Samantha Labadie

IBI GROUP
Suite 400, 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel +1 613 225 1311 ext 64062 fax +1 613 225 9868

APPENDIX B

- **Water Demand Calculation Sheet**

WATERMAIN DEMAND CALCULATION SHEET

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT : 81 Slater
LOCATION : City of Ottawa
DEVELOPER :

FILE: 119385-5.7.3
DATE PRINTED: 2019-02-20
DESIGN: 2019-02-20
PAGE : 1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND
	UNITS			POP'N	INDTRL	COMM.	RETAIL										
	1bd	2bd	TH		(ha.)	(ha.)	(m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/min)
BUILDING	171	25	0	292			81	1.18	0.00	**1.18**	2.96	0.00	**2.96**	6.50	0.01	**6.51**	**10,000**

ASSUMPTIONS

RESIDENTIAL DENSITIES

One-bedroom (1bd)	1.4	p / p / u
Two-bedroom (2bd)	2.1	p / p / u
Townhouse (TH)	2.7	p / p / u

AVG. DAILY DEMAND

Residential:	350	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	2,500	l / 1000m^2 / day

MAX. DAILY DEMAND

Residential:	875	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	3,750	l / 1000m^2 / day

MAX. HOURLY DEMAND

Residential:	1,925	l / cap / day
Industrial:		l / ha / day
Commercial:		l / ha / day
Retail:	6,750	l / 1000m^2 / day

FIRE FLOW

From FUS Calculation	16,000	l / min

Fire Flow Requirement from Fire Underwriters Survey - 81 Slater

Building

Floor Area (1 & 2)	1,370	m^2
50% Floor Area (3 to 8)	2,030	m^2
Total Floor Area	3,400	m^2

Area

1 & 2	3 to 8	
8369	6240	
6369	6240	
	6240	
	6240	
	6240	
	6240	
	6240	
14738	**43680**	sqft
1370	**4060**	sqm
	2030	sqm (50%)

F = 220C√A

C	0.6	C =	1.5	wood frame
A	3,400 m^2		1.0	ordinary
			0.8	non-combustible
F	7,697 l/min		0.6	fire-resistive
use	8,000 l/min			

Occupancy Adjustment

		-25%	non-combustible
		-15%	limited combustible
Use	-15%	0%	combustible
		+15%	free burning
Adjustment	-1200 l/min	+25%	rapid burning
Fire flow	6,800 l/min		

Sprinkler Adjustment

		-30%	system conforming to NFPA 13
		-50%	complete automatic system
Use	30%		
Adjustment	2040 l/min		

Exposure Adjustment

Building Face	Separation	Charge
north	0	25%
east	0.5	25%
south	24	10%
west	1	25%
Total (max 75%)		75%
Adjustment		5,100 l/min
Fire flow		9,860 l/min
Use		**10,000 l/min**
		167 l/s

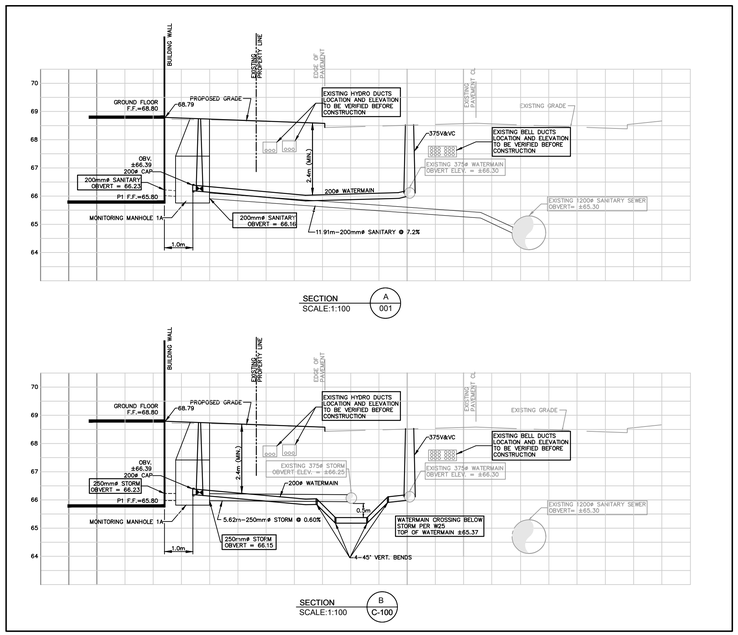
Separation	Charge
0 to 3m	+25%
3.1 to 10m	+20%
10.1 to 20m	+15%
20.1 to 30m	+10%
30.1 to 45m	+5%

APPENDIX C

- **Drawing 001 - Site Servicing Plan**

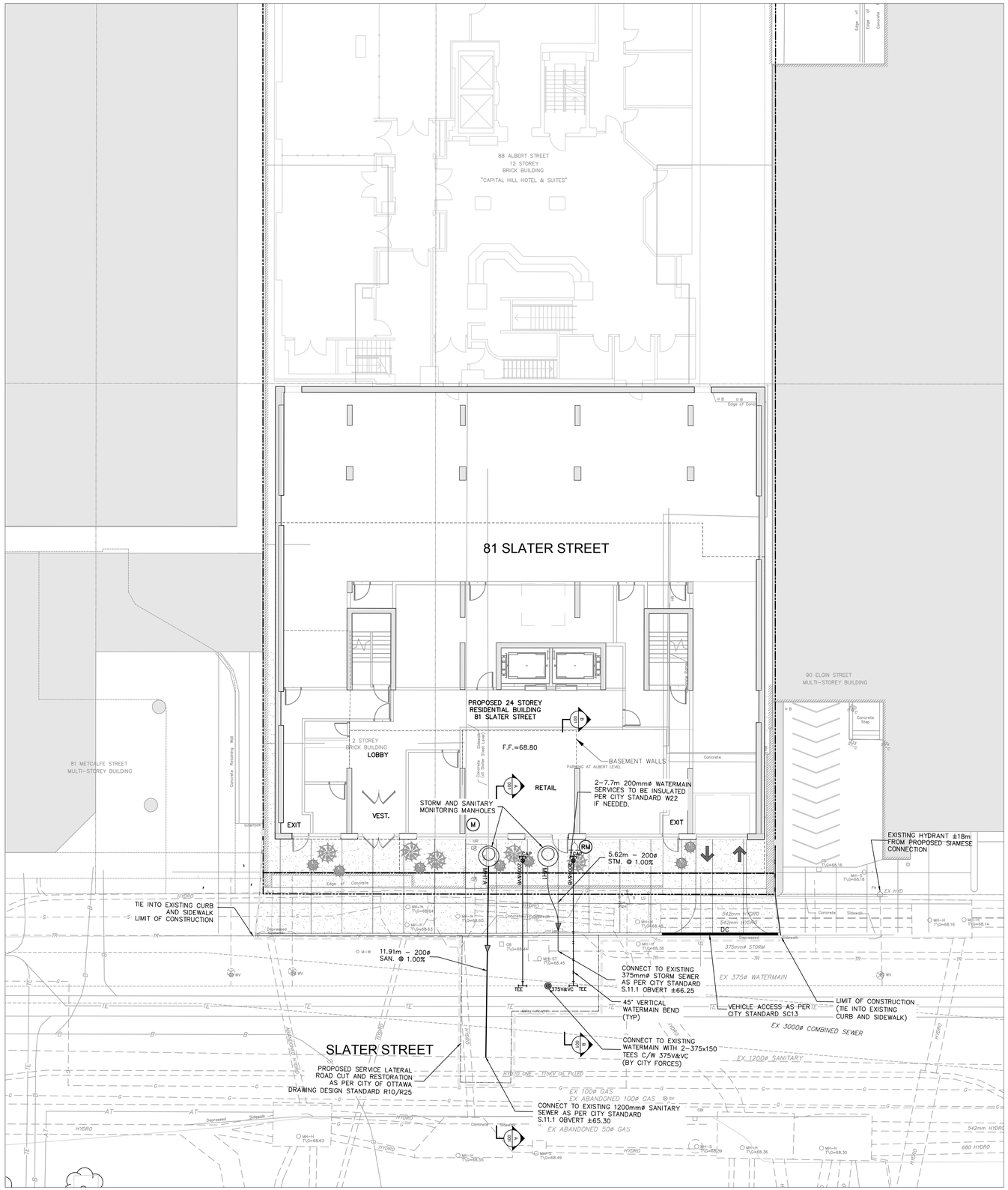
NOTES:

1. ALL WORKS TO BE COMPLETED AS PER CURRENT CITY OF OTTAWA STANDARDS AND ONTARIO PROVINCIAL STANDARDS AND SPECIFICATIONS.
2. SEWER LATERALS TO BE PVC DR 35.
3. USE COMMON TRENCH FOR ALL SERVICE LATERALS.
4. WATER SERVICES TO BE PVC. DR 18 CL150. MINIMUM COVER OF 2.4m FOR WATER SERVICE IS REQUIRED, USE THERMAL INSULATION AS PER CITY STANDARDS WHEN COVER IS LESS THAN 2.4m.
5. ALL SERVICE LATERAL AND SURFACE RESTORATION WORK IN ACCORDANCE WITH CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
6. FULL PORT BACKWATER VALVE IS REQUIRED ON BOTH THE SANITARY AND STORM SERVICE CONNECTIONS.
7. WATER SERVICE CHLORINATION AND TESTING TO BE COMPLETED BY CITY FORCES.
8. PROPOSED BUILDING INFORMATION TAKEN FROM RLA ARCHITECTS DRAWINGS.
9. AN EROSION AND SEDIMENTATION CONTROL PLAN WILL BE IMPLEMENTED ON THIS SITE. AS A MINIMUM THAT PLAN WILL INCLUDE A LIGHT DUTY SILT FENCE BARRIER TO OPSD STANDARD 219.110 SURROUNDING THE SITE WHERE PRACTICAL AND SILT SACKS FITTED UNDER EXISTING STREET CATCH BASINS.
10. ALL SHOWN UTILITIES ARE APPROXIMATE AND ARE TO BE FIELD VERIFIED BY CONTRACTOR, ANY DISCREPANCIES ARE TO BE REPORTED TO IBI GROUP PRIOR TO CONTRACTOR MOBILIZING TO SITE.
11. CONTRACTOR RESPONSIBLE TO SUPPORT EXISTING UTILITIES THAT MAY BE AFFECTED DURING CONSTRUCTION
12. EXISTING CURBS AND SIDEWALKS ARE TO BE REMOVED AND REPLACED AS NOTED ON THE DRAWINGS.
13. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, USING FILTER CLOTH UNDER THE GRATES OF CATCHBASINS AND MANHOLES AND INSTALLING SILT FENCES AND EFFECTIVE SEDIMENT TRAPS. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCIES.
14. BEARINGS SHOWN HEREON AND ELEVATIONS ARE INDICATED ON THE LOT SURVEY BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
15. FOR GEOTECHNICAL INFORMATION SEE PROPOSED MULTI–STOREY BUILDING, 81 SLATER STREET, OTTAWA, ONTARIO' BY XXXX.
16. CLAY SEAL TO BE INSTALLED IN SERVICE TRENCHES BETWEEN CONNECTION POINT AND CAP.
17. LANDSCAPING PLAN COMPLETED BY XXXXXX REFER TO LANDSCAPE PLANS FOR SURFACE FINISH BETWEEN CONCRETE SIDEWALK AND BUILDING.
18. THE EXISTING BUILDING IS TO BE DEMOLISHED. PRIOR TO DEMOLITION THE EXISTING BUILDING SERVICES ARE TO BE FIELD LOCATED AND PRESERVED.
19. PROPOSED SIAMESE CONNECTION IS ±18m FROM EXISTING HYDRANT
20. OUTLET PIPE FROM THE SITE AREA DRAIN TO BE DIRECTED INTO THE PARKING LEVEL. MECHANICAL DESIGNER TO DESIGN THE INTERNAL DRAINAGE PIPES TO THE CISTERN LOCATION. THE DRAIN IS TO BE EQUIVALENT TO HEAVY DUTY FLOOR DRAIN FIG. 2290 BY JAY R. SMITH MFG.CO.
21. MONITORING MANHOLES ARE TO BE INSTALLED ON THE SANITARY AND STORM SEWERS AT THE PROPERTY LINE. CONTRACTOR TO SUBMIT SHOP DRAWINGS FOR ENGINEERS REVIEW PRIOR TO CONSTRUCTION.
22. THE MECHANICAL ENGINEER IS TO CONNECT BOTH WATERMAINS IN THE MECHANICAL ROOM WITH A TEE AND CREATE ONE WATER SERVICE DESIGNED TO SERVICE THE BUILDING.
25. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THE CGVD28 GEODETIC DATUM.



LEGEND

	PROPERTY LINE		EXISTING TRAFFIC SIGN
F.F.= 80.50	FINISHED FLOOR ELEVATION	CB	EXISTING CATCH BASIN
DC	DEPRESSED CURB	MH	EXISTING COMBINED MANHOLE
M	WATER METER (SEE MECH. DRWG. FOR EXACT LOCATION)	375# STORM	EXISTING STORM SEWER
RM	REMOTE WATER METER (SEE MECH. DRWG. FOR EXACT LOCATION)	1200# SANITARY	EXISTING SANITARY SEWER
	SIAMESE CONNECTIONS (SEE MECH. DRWG. FOR EXACT LOCATION)	250# STORM	PROPOSED STORM SEWER
G G	PROPOSED GAS SERVICE	375# WATERMAIN	EXISTING WATERMAIN
H	EXISTING UNDERGROUND HYDRO	200# SANITARY	PROPOSED SANITARY SEWER
O/H	EXISTING OVERHEAD HYDRO	200# WATERMAIN	PROPOSED WATERMAIN
HM–H	EXISTING HYDRO MANHOLE	200V&VB	PROPOSED VALVE AND VALVE BOX
H/SL	EXISTING HYDRO AND LIGHT POLE	375&VC	PROPOSED VALVE AND VALVE CHAMBER
G	EXISTING GAS MAIN	FH	EXISTING FIRE HYDRANT
B	EXISTING BELL	SN	EXISTING SIGN
BMH	EXISTING BELL MANHOLE		EXISTING WATER VALVE
TMH	EXISTING TRAFFIC MANHOLE	SP	EXISTING WATER SERVICE STANDPOST
TL	EXISTING TRAFFIC LIGHT	WV	EXISTING VALVE BOX
	PROPOSED CONCRETE SIDEWALK		


88 ALBERT STREET
12 STOREY
BRICK BUILDING
"CAPITAL HILL HOTEL & SUITES"
81 SLATER STREET
90 ELGIN STREET
MULTI–STOREY BUILDING
81 METCALFE STREET
MULTI–STOREY BUILDING
PROPOSED 24 STOREY
RESIDENTIAL BUILDING
81 SLATER STREET
2 STOREY
BRICK BUILDING
LOBBY
F.F.=68.80
BASEMENT WALLS
RETAIL
VEST.
EXIT
STORM AND SANITARY
MONITORING MANHOLES
2–7.7m 200mm# WATERMAIN
SERVICES TO BE INSULATED
PER CITY STANDARD W22
IF NEEDED.
EXISTING HYDRANT ±18m
FROM PROPOSED SIAMESE
CONNECTION
TIE INTO EXISTING CURB
AND SIDEWALK
LIMIT OF CONSTRUCTION
5.62m – 200# STM. @ 1.00%
11.91m – 200# SAN. @ 1.00%
CONNECT TO EXISTING
375mm# STORM SEWER
AS PER CITY STANDARD
S.11.1 OBVERT ±66.25
45° VERTICAL
WATERMAIN BEND
(TYP)
CONNECT TO EXISTING
WATERMAIN WITH 2–375x150
TEES C/W 375V&VC
(BY CITY FORCES)
CONNECT TO EXISTING 1200mm# SANITARY
SEWER AS PER CITY STANDARD
S.11.1 OBVERT ±65.30
SLATER STREET
PROPOSED SERVICE LATERAL
ROAD CUT AND RESTORATION
AS PER CITY OF OTTAWA
DRAWING DESIGN STANDARD R10/R25
VEHICLE ACCESS AS PER
CITY STANDARD SC13
LIMIT OF CONSTRUCTION
(TIE INTO EXISTING
CURB AND SIDEWALK)
EX 375# WATERMAIN
EX 3000# COMBINED SEWER
EX 1200# SANITARY
EX 100# GAS
EX ABANDONED 100# GAS
EX ABANDONED 50# GAS
542mm HYDRO
680 HYDRO
375mm# STORM
Concrete Step
Edge of Concrete
Concrete Sidewalk
Depressed Sidewalk
Concrete Retaining Wall
Concrete (at Street Level)
Concrete (at Basement Level)
Edge of Pavement
Property Line
Easement
Parking at Albert Level
Basement Level
Ground Floor
Second Floor
Third Floor
Fourth Floor
Fifth Floor
Sixth Floor
Seventh Floor
Eighth Floor
Ninth Floor
Tenth Floor
Eleventh Floor
Twelfth Floor
Thirteenth Floor
Fourteenth Floor
Fifteenth Floor
Sixteenth Floor
Seventeenth Floor
Eighteenth Floor
Nineteenth Floor
Twentieth Floor
Twenty First Floor
Twenty Second Floor
Twenty Third Floor
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One Hundred Forty Eighth Floor
One Hundred Forty Ninth Floor
One Hundred Fiftieth Floor
One Hundred Fifty First Floor
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Seven Hundred Seventeen

APPENDIX D

- **Sanitary Sewer Design Sheet**
- **Figure 3.1 – Sanitary Drainage Area Plan**

IBI GROUP
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Ottawa, Ontario K1S 5N4 Canada
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ibigroup.com

SANITARY SEWER DESIGN SHEET

81 Slater
CITY OF OTTAWA

LOCATION				RESIDENTIAL									ICI AREAS							INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)				AREA w/o Units (Ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
													INSTITUTIONAL		RETAIL		INDUSTRIAL														
STREET	AREA ID	FROM MH	TO MH		1bd	2bd	TH		IND	CUM			IND	CUM	IND	CUM	IND	CUM		IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
SLATER	81 SLATER				171	25			292	292	4.00	4.73			0.01	0.01			0.00	0.09	0.09	0.03			4.76	91.49	12.90	200	7.15	2.821	86.74	94.80%
SLATER	EXISTING				0	0			0	0	4.00	0.00			0.03	0.03			0.00	0.09	0.09	0.03			0.03							

Design Parameters:

Residential			ICI Areas		
1bd	1.4	p/p/u	INST	28,000	L/Ha/day
2bd	2.1	p/p/u	RET	28,000	L/Ha/day
TH	2.7	p/p/u	IND	35,000	L/Ha/day
				17000	L/Ha/day

MOE Chart

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 350 L/day 300 L/day
3. Infiltration allowance: 0.28 L/s/Ha
4. Residential Peaking Factor:

Designed: SL

Checked: JM

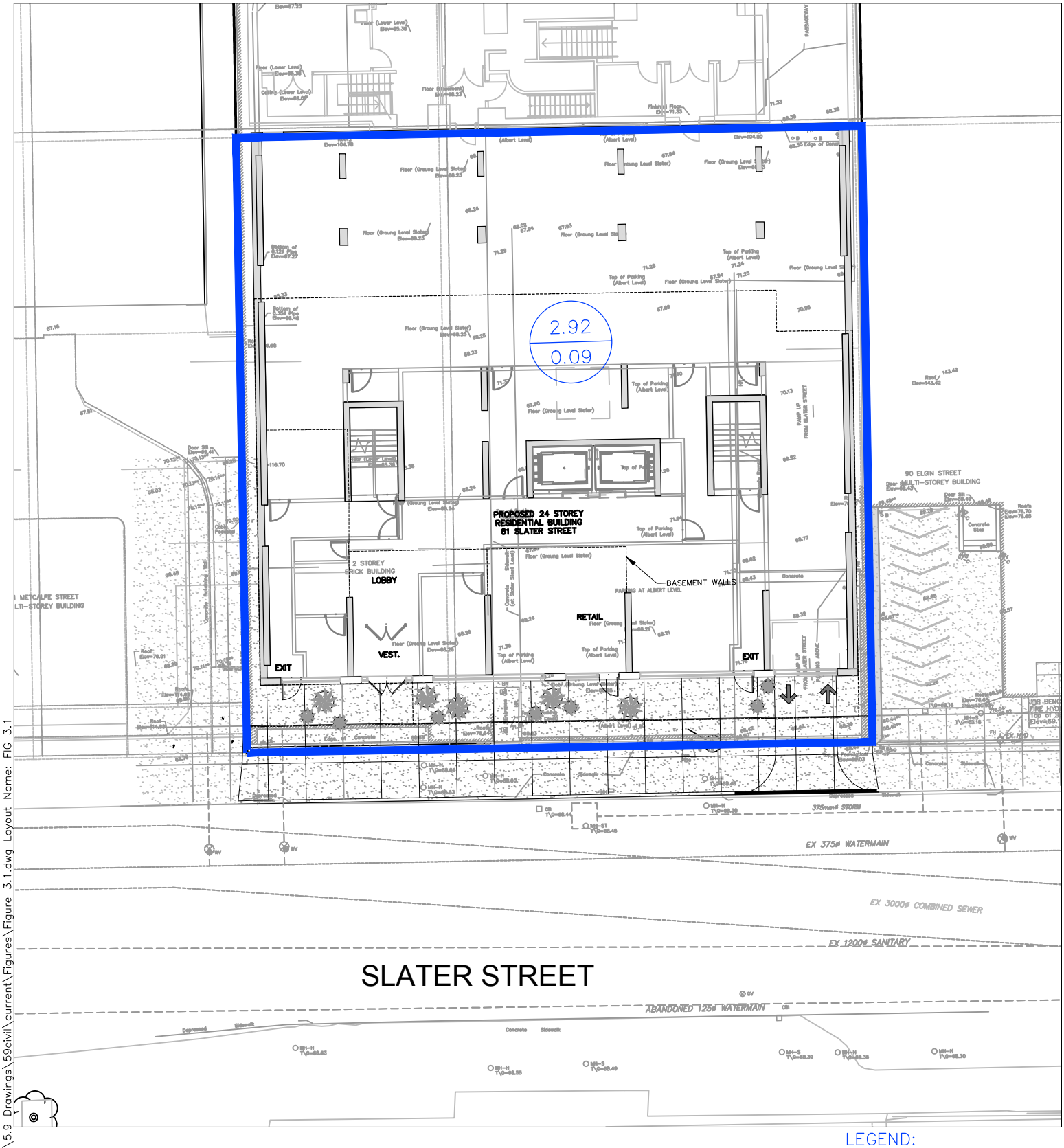
Dwg. Reference:

No.	Revision	Date
1.	Site Servicing Study Issued for Client Review	March 26, 2019

File Reference: 119385.5.7.1

Date: 2019-03-04

Sheet No: 1 of 1



J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 3.1.dwg Layout Name: FIG 3.1

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	PROPOSED SANITARY DRAINAGE AREA PLAN	FIGURE 3.1

APPENDIX E

- **Storm Sewer Design Sheet (Existing & Proposed Conditions)**
- **Figure 4.1 – Storm Drainage Area Plan – Existing Conditions**
- **Figure 4.2 – Storm Drainage Area Plan – Proposed Conditions**
- **Figure 4.3 – SWM Drainage Schematic**
- **Area A, B and C Drainage Calculations**
- **Cistern Size Calculation**

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ibigroup.com

STORM SEWER DESIGN SHEET

81 Slater
City of Ottawa

LOCATION	AREA (Ha)										RATIONAL DESIGN FLOW													SEWER DATA								
	C= 0.20	C= 0.25	C= 0.40	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.70	C= 0.80	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	(%)
Proposed Storm										0.09	0.23	0.23	10.00	0.10	10.10	76.81	104.19	122.14	178.56	17.49	23.72	27.81	40.65		23.72	48.06	5.60	250			0.60	0.948	24.33	50.63%
Proposed Sanitary																									4.76	91.49	12.90	200			7.15	2.821	86.73	94.80%
Total																									28.48								
Limit for Storm Flow; C=0.50, 5yr event				0.09							0.13	0.13	10.00	0.10	10.10	76.81	104.19	122.14	178.56	9.72	13.18	15.45	22.59		13.18								
Existing Storm										0.09	0.23	0.23	10.00	0.19	10.19	76.81	104.19	122.14	178.56	17.49	23.72	27.81	40.65		23.72								
Existing Sanitary																									0.03								

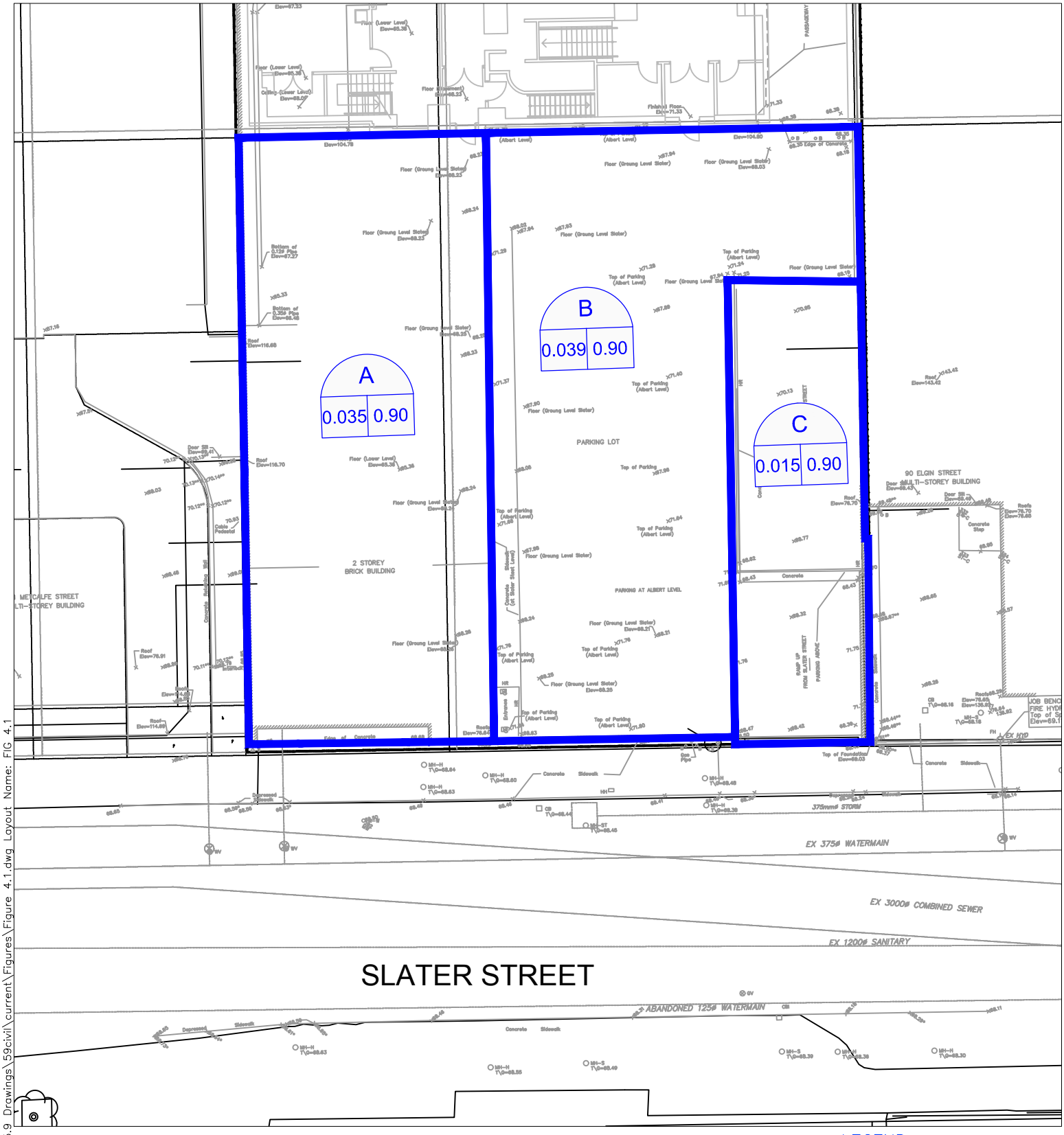
Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed: SEL
Checked: JIM
Dwg. Reference: N/A

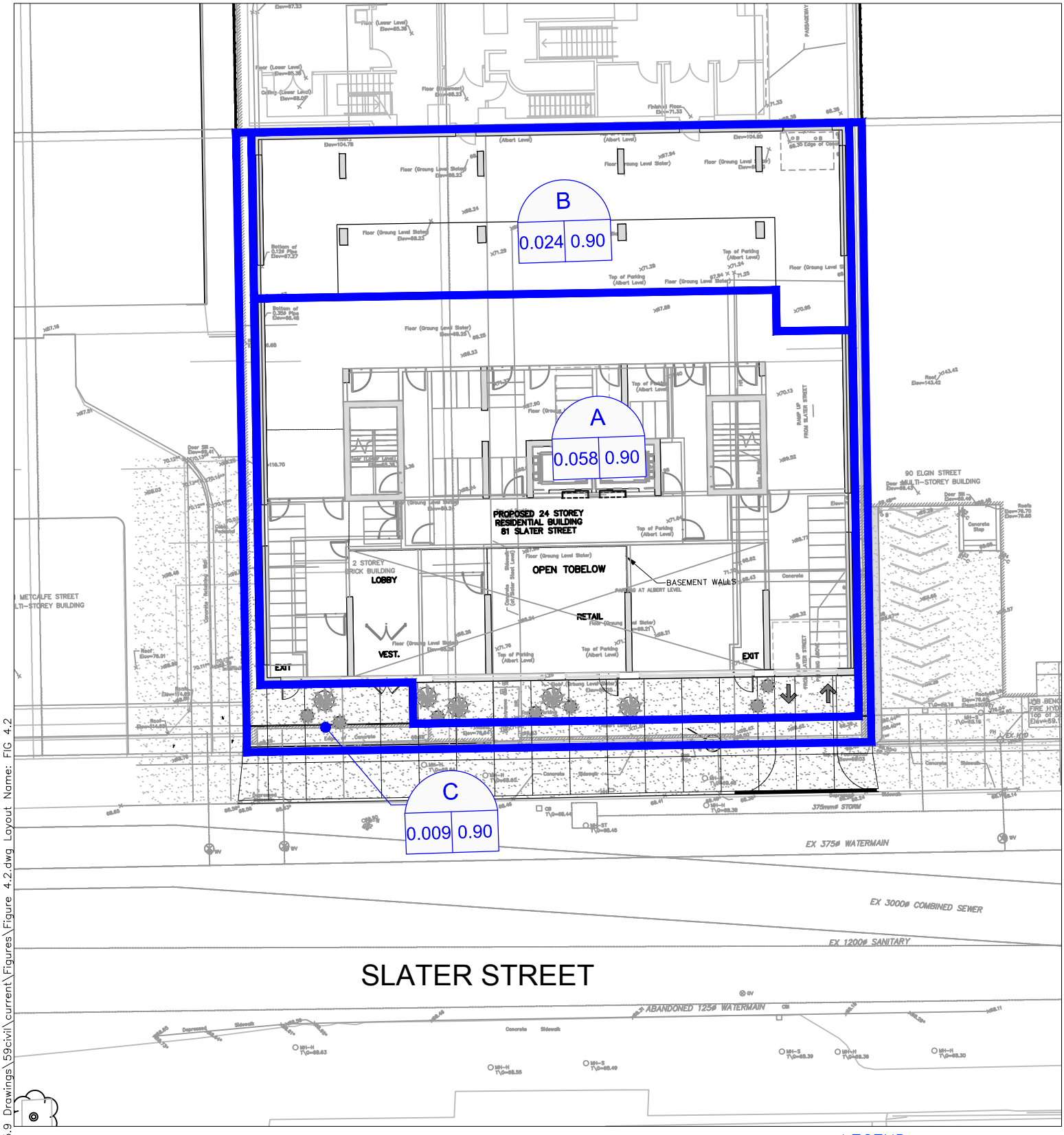
No.	Revision	Date
1.	Site Servicing Study Issued for Client Review	March 26, 2019

File Reference: 119385.5.7.1
Date: 2019-03-04
Sheet No: 1 of 1



J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 4.1.dwg Layout Name: FIG 4.1

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	EXISTING STORMWATER DRAINAGE AREA	FIGURE 4.1



LEGEND:

DRAINAGE AREA LIMITS

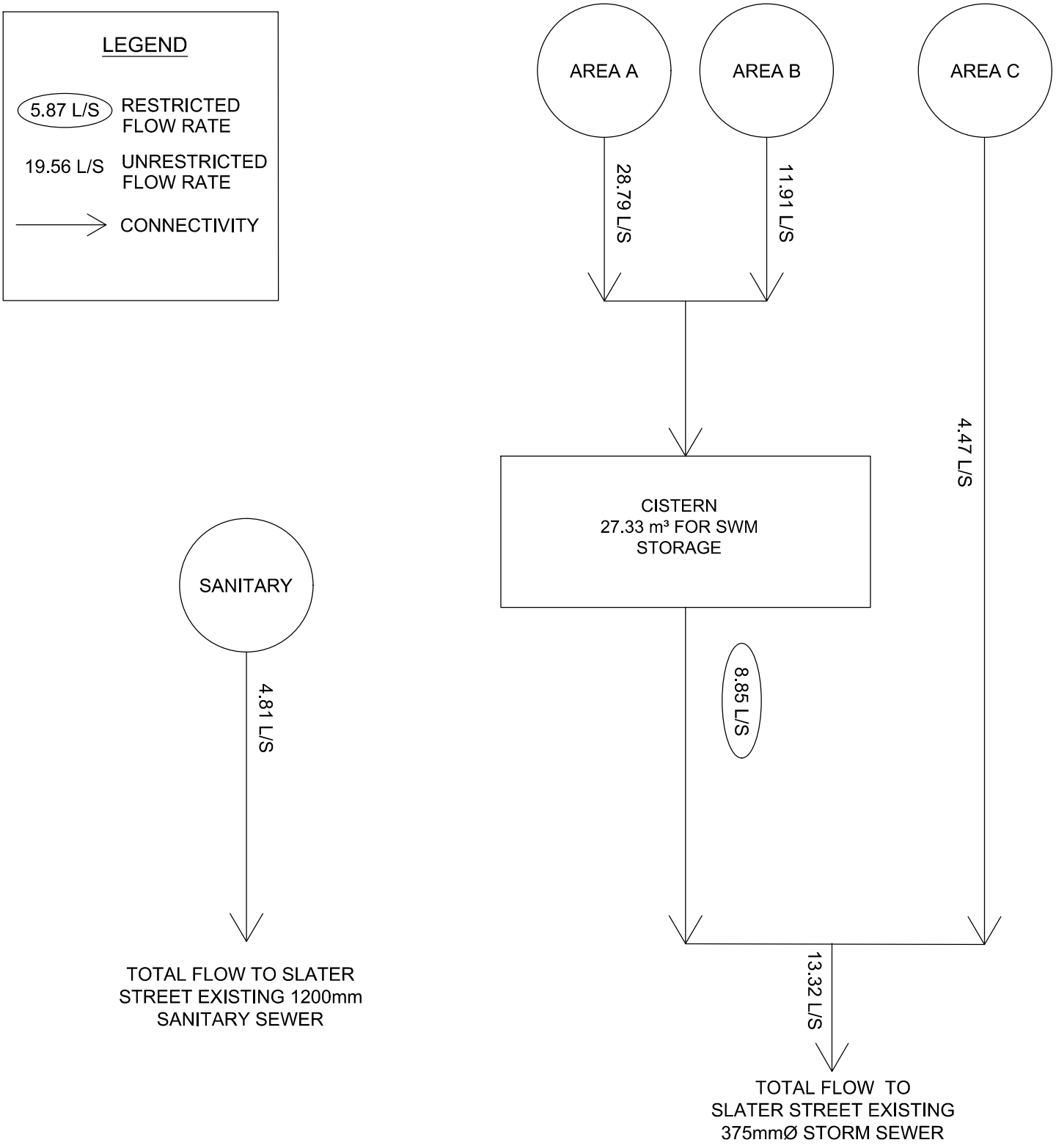
A — AREA ID
0.25 0.90 — RUNOFF COEFFICIENT
AREA IN HECTARES

J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 4.2.dwg Layout Name: FIG 4.2

IBI

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	PROPOSED STORMWATER DRAINAGE AREA	FIGURE 4.2

MAXIMUM SITE RUNOFF RATE = 16.61 L/S



J:\119385_88AlbertSt\5.9 Drawings\59civil\current\Figures\Figure 4.3.dwg Layout Name: FIG 4.3

Project Title	Drawing Title	Sheet No.
81 SLATER STREET	SWM DRAINAGE SCHEMATIC	FIGURE 4.3

Stormwater Management - Post-development Area A (All roofs)

Time of Concentration =	10 min	
Area =	580 m2	
Grass Area =	0 m2	C = 0.20
Shrub Area =	0 m2	C = 0.40
Asphalt Area =	580 m2	C = 0.90
Total =	580 m2	

Runoff Coefficient (C) = (0.20x0 + 0.40x0 + 0.90x580)/580

= 0.90

Runoff Coefficient (C) + 25% (Max 1.00)= 1.00

100-Year Storm Event, Tc = 20 min

Intensity, i_{100yr} = $1735.688/(Tc+6.014)^{0.82}$

= 178.56 mm/hr

Post Development Uncontrolled

$Q_{100yr\ u/c}$ = 2.78CiA

28.79 L/s

Stormwater Management - Post-development Area B (2nd Floor Amenity Deck)

Time of Concentration =	10 min	
Area =	240 m2	
Grass Area =	0 m2	C = 0.20
Shrub Area =	0 m2	C = 0.40
Asphalt Area =	240 m2	C = 0.90
Total =	240 m2	

Runoff Coefficient (C) = (0.20x0 + 0.40x0 + 0.90x240)/240

= 0.90

Runoff Coefficient (C) + 25% (Max 1.00)= 1.00

100-Year Storm Event, Tc = 20 min

Intensity, i_{100yr} = $1735.688/(Tc+6.014)^{0.82}$

= 178.56 mm/hr

Post Development Uncontrolled

$Q_{100yr\ u/c}$ = 2.78CiA

11.91 L/s

Stormwater Management - Post-development Area C (Uncontrolled Flow to Slater)

Time of Concentration =	10 min	
Area =	90 m2	
Grass Area =	0 m2	C = 0.20
Shrub Area =	0 m2	C = 0.40
Asphalt Area =	90 m2	C = 0.90
Total =	90 m2	

Runoff Coefficient (C) = (0.20x0 + 0.40x0 + 0.90x90)/90

= 0.90

Runoff Coefficient (C) + 25% (Max 1.00)= 1.00

100-Year Storm Event, Tc = 20 min

Intensity, i_{100yr} = $1735.688/(Tc+6.014)^{0.82}$

= 178.56 mm/hr

Post Development Uncontrolled

$Q_{100yr\ u/c}$ = 2.78CiA

4.47 L/s

Stormwater Management - Post-development Controlled 100 Year Flow

Controlled 100 Year Flow

Total Area = 910 m2
0.091 ha

Runoff Coefficient (C) = 1.00

Restricted Release Rate = $Q_{maxallowed} - Q_{uncontrolled}$
= 13.18 - 4.47
= 8.71 L/s

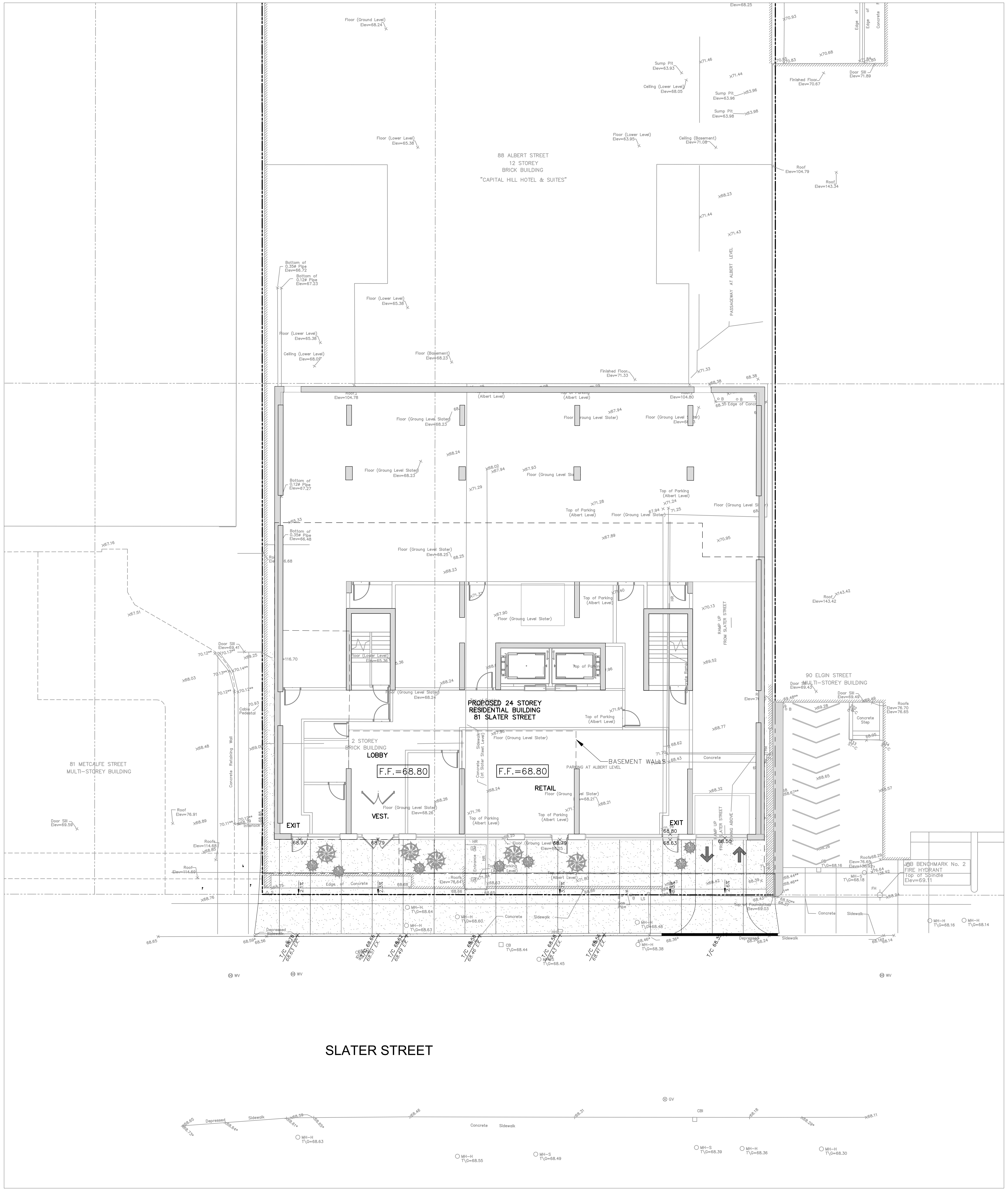
Tc Variable (min)	i (mm/hr)	Qp (L/s)	Qm (L/s)	Qp - Qm (L/s)	Volume (m3)
23	109.68	27.75	8.71	19.04	26.27
24	106.68	26.99	8.71	18.28	26.32
25	103.85	26.27	8.71	17.56	26.34
26	101.18	25.60	8.71	16.89	26.34
27	98.66	24.96	8.71	16.25	26.32
28	96.27	24.36	8.71	15.65	26.28
29	94.01	23.78	8.71	15.07	26.23

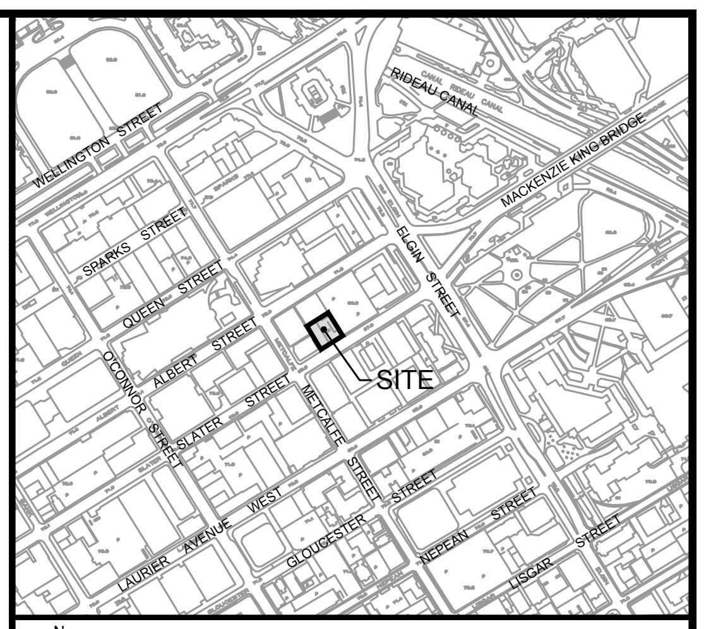
Cistern Volume = 26.34 m3

APPENDIX F

- **Drawing 200 – Proposed Grading and Drainage Plan**

J:\119385_88AlbertSt\5.9 Drawings\59civil\layouts\200 SITE GRADING AND DRAINAGE PLAN.dwg Layout Name: 200 SITE GRADING AND DRAINAGE PLAN Plot Style: AIA STANDARD COLOR-FULL.CTB Plot Scale: 1:25.4 Plotted At: 3/26/2019 8:21 AM





KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3			
2			
1	ISSUED FOR SPA	JIM	19:03:08

88 ALBERT STREET
HOLDINGS INC.

IBI GROUP
400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 fax 613 225 9868
ibigroup.com

Project Title
81 SLATER STREET

J. I. MOFFATT
2019/03/26

N

Drawing Title
SITE GRADING AND
DRAINAGE PLAN

Scale
1:125

Design SEL	Date MARCH 2019
Drawn DPS	Checked JIM
Project No. 119385	Drawing No. 200

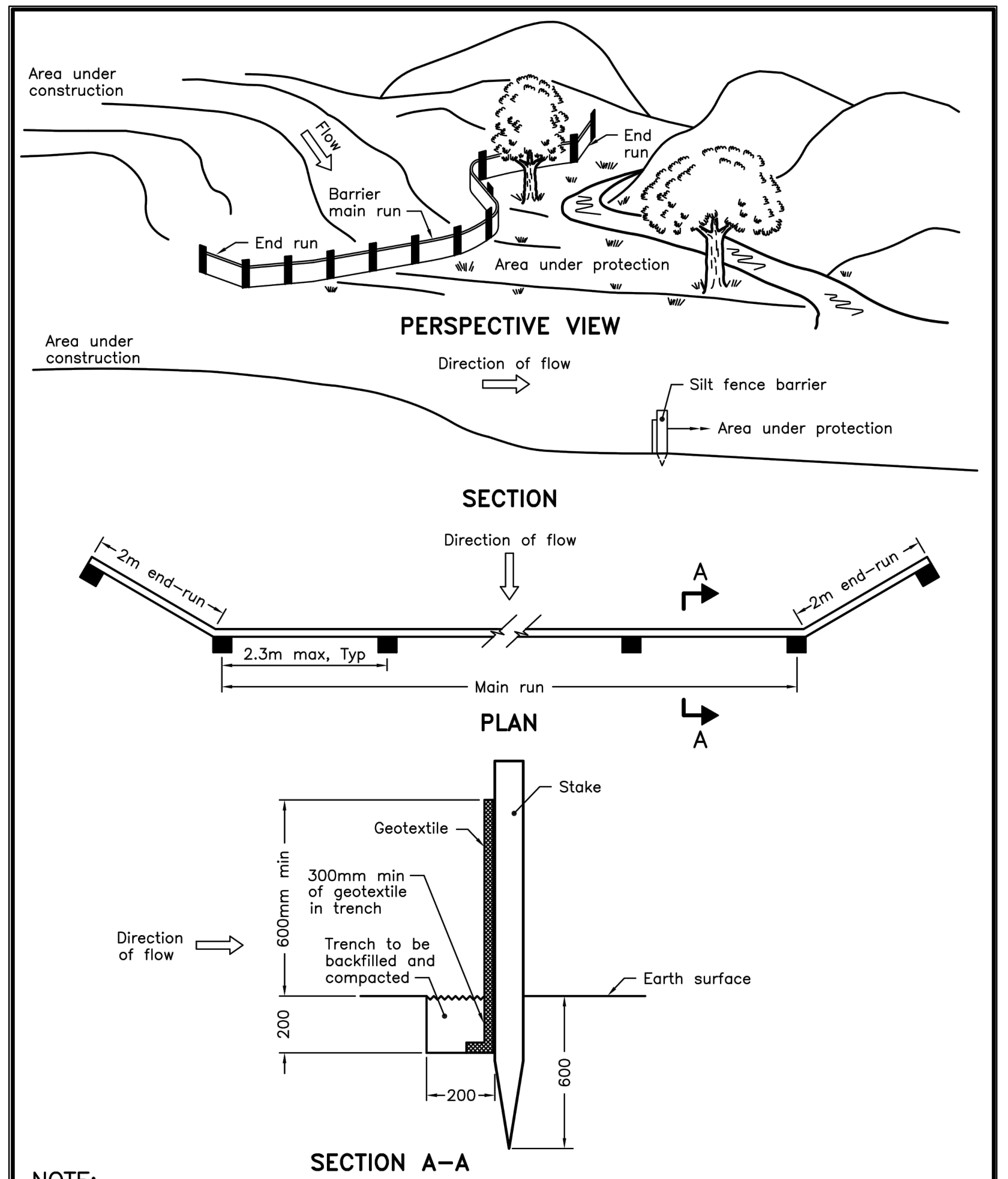
D07-12-1X-XXXX

#xxxxx

APPENDIX G

- **Drawing 900 - Erosion and Sedimentation Control Plan**

J:\119385_88AlbertSt\5.9 Drawings\59civil\layouts\900.dwg Layout Name: 900 SEDIMENT AND EROSION CONTROL PLAN Plot Style: AIA STANDARD-FULL.CTB Plot Scale: 1:25.4 Plotted At: 3/26/2019 8:22 AM Last Saved By: dsiurna Last Saved At: Mar. 26, 19

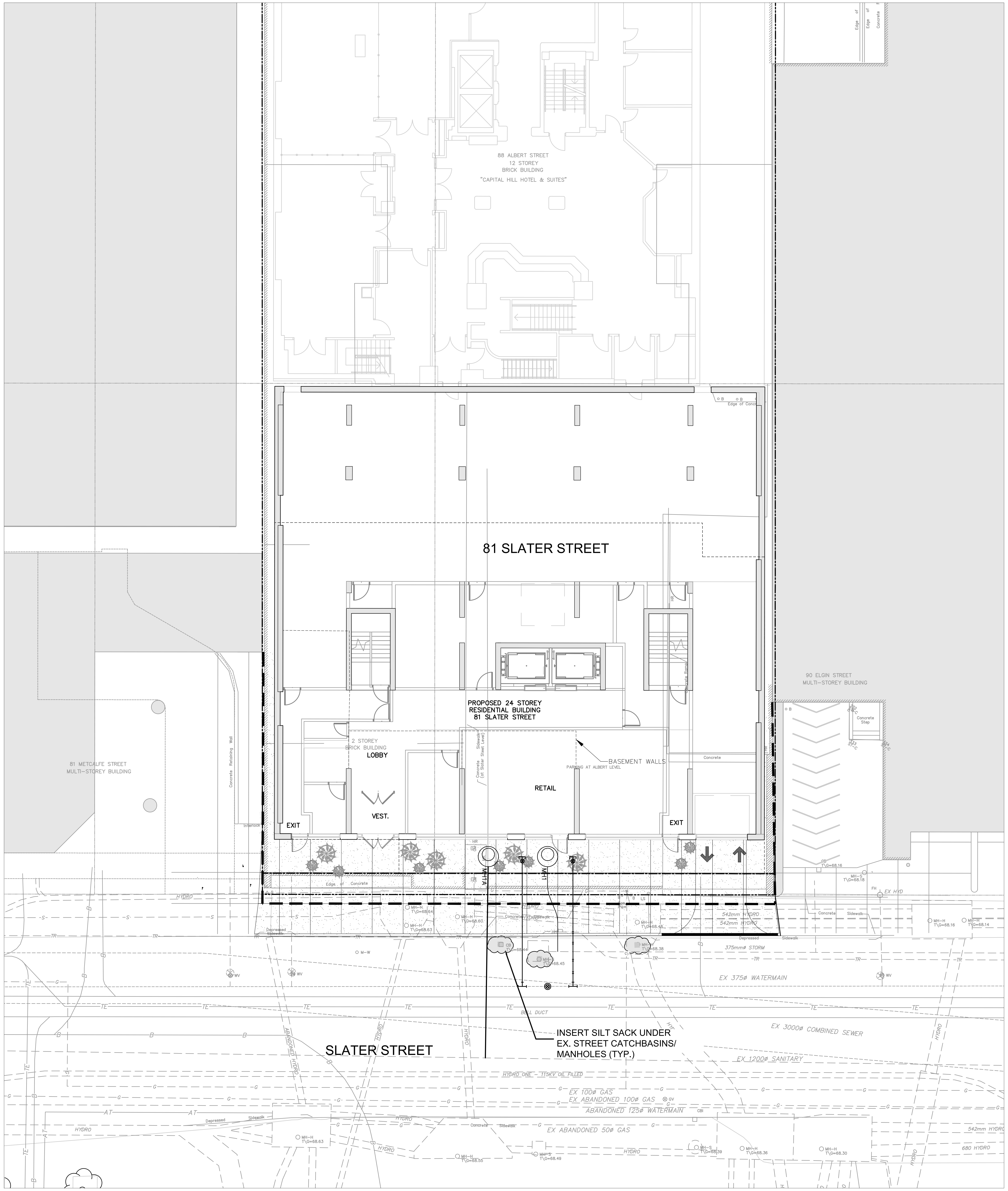


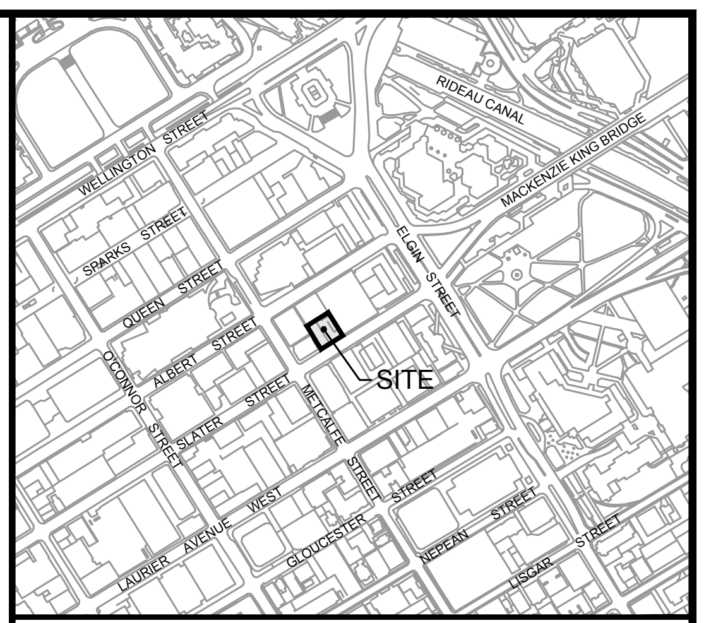
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING | Nov 2006 | Rev 1

**LIGHT-DUTY
SILT FENCE BARRIER**

OPSD 219.110





KEY PLAN
N.T.S.

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND ANY RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

LEGEND:

▬ ▬ ▬	LIGHT DUTY SILT FENCE PER OPSD 219.110
☁	INSTALL SILT SACK UNDER EXISTING CB/MH COVERS

No.	REVISIONS	By	Date
14			
13			
12			
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8			
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5			
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2			
1	ISSUED FOR SPA	JIM	19:03:26

88 ALBERT STREET
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Project Title
81 SLATER STREET

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2019/03/08
PROVINCE OF ONTARIO

N

Drawing Title
SEDIMENT AND EROSION CONTROL PLAN

Scale
1:125

Design SEL	Date MARCH 2019
Drawn DPS	Checked JIM
Project No. 119385	Drawing No. 900

D07-12-1X-XXXX

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