File: 137175 – 6.04-03

Design Brief
4840 Bank Street

Prepared for Pathways South Regional Inc.
by IBI Group
JUNE 2022

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1 INTRODUCTION

1.1 Scope

IBI Group has been retained by Pathways South Regional Inc. to prepare the necessary engineering plans, specifications and documents to support a proposed Site Plan Application for the subject lands in accordance with the policies set out by the Planning and Development Branch of the City of Ottawa. This Brief will present a detailed servicing scheme to support development of the property, and will include sections that will review water supply, wastewater disposal, minor and major stormwater management along with erosion and sediment control.

1.2 Subject Site

The Block 204 Pathways South Apartments site is part of the Pathways South subdivision. It's eastern limit abuts Bank Street and is immediately south of the Home Hardware Site (4836 Bank Street). An undeveloped property is south of the site and a mid use residential development is located west of the site. The proposed development is approximately 1.55 hectares in size. Refer to **Figure 1.1** for more information regarding the site location.

The subject property is presently unimproved and is covered with trees and sporadic bushes. The proposed re-development of the site will include three new four storey apartment buildings each with 60 units; one vehicular access; dedicated surface parking spaces; an amenity space and landscaped areas. A current concept of the envisioned development is shown on **Figure 1.2**.

1.3 Previous Studies

Design of this project has been undertaken in accordance with the following reports:

- **2016 Updated Serviceability Report (Class EA OPA 76 Areas 8a, 9a & 9b) Leitrim Development Area (IBI Group, September 2016)** – The report is an update to an earlier servicing report completed in 2007. The updated report was needed to review the impacts on existing major infrastructure by developing an additional 87 ha in the LDA. IN 2012, under OPA 76, the City of Ottawa increased its urban envelope by over 900 ha including expansion areas 8a, 9a, and 9b in the LDA. The subject site is included in the OPA 76 Expansion Area. The report included a high level review of the development requirements of the subject site. The design of the subject site is based on the report recommendations.
- **Design Brief Pathways at Findlay Creek 4800 Bank Street (Remer Lands) Phase 1 (IBI Group July 2017)** – The report provides detail design criteria for adjacent developments including the subject site and identifies capacity for a water supply and both storm and sanitary sewers for the subject site.
- **Design Brief Bank Street Development 4836 Bank Street (IBI Group April 2019)** – The report covered development of the adjacent and downstream Home Hardware (HH) development. The HH site provides municipal servicing capacity for the subject site.

1.4 Pre-Consultation

A pre-consultation meeting with the Owner and City Staff was held on January 12, 2022. Attached in **Appendix A** is a copy of the meeting notes from that meeting. Some of the items discussed during the meeting dealt with the following subjects:

- Official Plan & Zoning
- Infrastructure/Servicing
- Planning

- Urban Design
- Parks
- Environment
- Transportation
- Forestry
- SNCA
- Waste Collection

1.5 Geotechnical Investigation

A geotechnical report entitled “Geotechnical Investigation, Proposed Multi-Storey Buildings, Idone South Apartments, 4840 Bank Street, Ottawa, Ontario” dated May 20, 2022 by Paterson Group has been prepared for the subject site.

The objective of the investigation report 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 comments on the following:

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

The report concludes that the subject site is considered suitable for the proposed development

2 WATER SUPPLY

2.1 Existing Conditions

As previously noted, the 1.55 hectare Block 204 site is located west of Bank Street and south of the Home Hardware site. There is an existing 200 mm dia watermain along the south side of the Home Hardware site adjacent to the subject site. That watermain falls within the City of Ottawa's pressure district Zone 4C and will provide the water requirements to the site.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the development using consumption rates from Table 4.2 of the Ottawa Design Guidelines – Water Distribution. The proposed development will include three four storey apartment buildings (buildings A, B and C), with each containing 60 apartments. Per unit population density and consumption rates are taken from Tables 4.1 and 4.2 at the Ottawa Design Guidelines – Water Distribution and are summarized as follows:

- Residential Average Day Demand 280 l/cap/day
- Residential Peak Daily Demand 700 l/cap/day
- Residential Peak Hour Demand 1540 l/cap/day

A watermain demand calculation sheet is included in **Appendix B** and the total water demands are summarized as follows:

- Average Day 1.05 l/s
- Maximum Day 2.63 l/s
- Peak Hour 5.78 l/s

2.2.2 System Pressure

The Ottawa Design Guidelines – Water Distribution (WDG001), July 2010, City of Ottawa, Clause 4.2.2 states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 480 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in Clause 4.2.2 of the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls will be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rates

The subject site plan will contain three apartment buildings. Calculations using the Fire Underwriting Survey (FUS) method were conducted to determine the fire flow requirement for the site for Building A, as its proximity to other buildings makes it the most vulnerable from a fire hazard perspective. The FUS method considers building floor area, type of building construction, type of occupancy, availability of sprinkler systems and separations from adjacent buildings. Without detailed architectural drawings for the building, the building construction is assumed to be non-combustible as defined by the FUS. As we do nothave details of the sprinkler systems at this time, a reduction of 30% has been assumed in accordance with the FUS. No reduction or increase has been required for the occupany as is common with commercial buildings. The boundary conditions in regards to Max Day + Fire scenario under existing conditions are restrictive, and will require a firewall in each building as a result. Results of the calculations show a fire demand of 8,000 l/min (150.0 l/s) for Building A. A copy of the FUS calculation is included in **Appendix B**.

2.2.4 Boundary Conditions

The City of Ottawa has provided hydraulic boundary conditions at two locations, one at the existing main on Dun Skipper Drive at the entrance to the site and the other is on the existing Bank Street main at the Bank Street entrance. Boundary conditions have been supplied for the 2019 existing conditions and for the future SUC zone reconfiguration. The existing condition Max HGL is used for the basic day analysis to determine the maximum pressure as it represents the highest HGL elevation. For the peak hour and max day plus fire analysis the existing conditions is again used in the analysis as these represent the lowest HGL elevations. The boundary conditions are included in **Appendix B** and are summarized as follows;

SCENARIO	CONDITION 1 DUN SKIPPER DRIVE	CONDITION 2 BANK STREET
Max HGL (Basic Day)	154.6m	154.6m
Peak Hour	143.7m	143.7m
Max Day + Fire (13,000 l/min)	122.3m	121.3m

2.2.5 Hydraulic Model

A computer model for the site has been developed using the Infowater 12.4 program by Innovyze. The model includes the propsed and existing watermains on Bank Street and Dun Skipper Drive and the boundary conditions provided by the City.

2.3 Proposed Water Plan

2.3.1 Modelling Results

The site will be serviced by two connections to the existing 400 mm watermains on Dun Skipper Drive and Bank Street. All watermains are 200 mm diameter. Results of the hydraulic analysis for the Site is included in **Appendix B** and is summarized as follows:

SCENARIO	Pressure (kPa)
Basic Day (Max HGL) Pressure (kPa)	506.6 – 526.2
Maximum Day plus Fire Flow	140.4-205.4

Design Fire Flow of 8,000 l/s @ 140 kPa (kPa)	
Peak Hour Pressure (kPa)	399.7 – 412.4

A comparison of the results and design criteria is summarized as follows:

Maximum Pressure	Under Basic Day there are no nodes in which the pressure exceeds 552 kPa (80 psi), thus no pressure reducing control is required. There is also no area where the pressure exceeds the maximum level of 689 kPa (100 psi) in unoccupied areas.
Minimum Pressure	The lowest minimum pressure during peak hour conditions is 399.7 kPa which exceeds the minimum 276 kPa (40 psi) requirement.
Fire Flow	The minimum design fireflow under maximum day conditions with minimum system pressure of 140 kPa (20psi) is 300 l/s which exceeds the requirement of 150.0 l/s.

2.3.2 Watermain Layout

In order to provide additional reliability to the system in case of a watermain break, two connections to the adjacent private watermain system are proposed. The proposed water plan is shown on Drawing 137175 C-001, the General Plan of Services, a copy of which is included in **Appendix F**. An accompanying Drawing C-010, Details and Notes is also included in **Appendix F**. Since the average daily water demand for each proposed apartment building is less than 50,000 m^3/day, only one 200 mm dia water service is proposed for each building. The proposed fire hydrant layout also includes an unobstructed path of no more than 45m between the hydrant and Siamese connections as required by the Ontario Building Code.

3 WASTEWATER DISPOSAL

3.1 Existing Conditions

The Block 204 Pathways South Apartment site at 4840 Bank Street is located within the Leitrim Development Area where sanitary flows ultimately outlet to the Leitrim Sanitary Pumping Station. As part of the adjacent downstream developments, the outlet sanitary sewer design for the subject site was completed. Those sewers were designed as per the recommendations of the 2016 Updated Serviceability Report. In particular, a proposed 200 mm diameter sanitary sewer in the adjacent Home Hardware (HH) development has been designed to service the subject site.

A highlighted copy of the sanitary sewer design sheet from the Home Hardware design, together with the related Sanitary Drainage Area Plan (drawing 119351-400) are included in **Appendix C**. The Home Hardware sanitary sewer design assumed the subject site would develop as a commercial site and based on the commercial design criteria, estimated the wastewater flow from Block 204 would be approximately 1.25 l/s. However the HH site is being phased and the section of sanitary sewer in that site which is needed to service the subject site has not yet been installed. Consequently, development of the subject site will likely include construction of some sanitary sewers on the HH site.

3.2 Design Criteria

The sanitary sewers for the subject site will be based on the City of Ottawa design criteria. It should be noted that the sanitary sewer design for this study incorporates the latest City of Ottawa design parameters identified in Technical Bulletin ISTB-2018-01. Some of the key criteria will include the following:

- Residential flow 280 l/p/d
- Unit Population 1.8 ppu
- Peaking factor Modified Harmon Formula
- Infiltration allowance 0.33 l/s/ha
- Velocities 0.60 m/s min. to 3.0 m/s max.

3.3 Recommended Wastewater Plan

The on-site sanitary system will consist of a network of 200mm sewers installed at normal depth and slope and will provide a single service connection to each apartment building. The sewers have been designed using the criteria noted above in Section 3.2 and outlet via a connection to the sanitary sewer at MH1A located north of Building A near the Home Hardware site. A copy of the sanitary drainage area plan 137175 C-400 and the sanitary sewer design sheet can be found in **Appendix C.** Please refer to the site servicing plan 137175 C-001, which is located in **Appendix F**, for further details.

Based on the proposed residential land use for Blcok 204, the calculated wastewater flow is estimated to be 4.13 l/s or about 2.9 l/s more than calculated in the downstream Home Hardware design. However, based on the sanitary design sheet from that site, the downstream wastewater system has more than sufficient available capacity to accommodate the proposed residential land use.

As noted previously, development of Block 204 will also include construction of some 200 mm dia sanitary sewers on the Home Hardware property. For reference a highlighted copy of drawing 119351-001, General Plan of Services from the Home Hardware site is included in **Appendix F**. The sanitary sewer system between MH4A and 1A will need to be construcated on the Home Hardware site to complete the wastewater servicing for the subject site.

4 SITE STORMWATER MANAGEMENT

4.1 Existing Conditions

Development of the downstream Home Hardware site (4836 Bank Street) included oversized storm sewers and minor storm sewer capacity for Block 204. The minor storm sewer design of the downstream development included a 600 mm dia storm sewer which is proposed to terminate near Building A at MH1. For reference, a highlighted copy of the Home Hardware site storm sewer design sheet together with a copy of drawing 119351-500, the associated Storm Drainage Area Plan are included in **Appendix D**. Based upon a review of the Home Hardware storm sewer design sheet, the calculated minor storm flow from the subject is about 249 l/s (3.29 A.C x 75.75 mm/hr).

However, development of the Home Hardware site will be phased and to date only the first phase of that property, which does not include the 600 mm dia storm sewer, has been constructed. The timing of the Phase 2 construction is unknown at this time. Consequently the development of the subject site may have to include construction of the oversized storm sewer in the Home Hardware site.

4.2 Phasing

Development of the subject site will be completed in one phase..

4.3 Design Criteria

The design of the minor storm sewer system in the downstream Home Hardware site included sewer capacity for the subject site, all in accordance with the recommondations from the 2016 Updated Serviceability Report. Based on the storm sewer design sheet for the Home Hardware site, a minor storm flow allowance of about 249 l/s was provided for the subject site. Please refer to the Home Hardware Storm Sewer Design Sheet located in **Appendix D**. Also in keeping with the recommendations from previous designs and reports, the 1:100 year storm event wil be self-contained with no overflow to adjacent properties. The emergency overflow for events greater than the 1:100 year event (stress test) will be towards Bank Street.

The stormwater system was designed following the principles of dual drainage, making accommodations for both major and minor flow.

Some of the key criteria include the following:

• Design Storm	1:2 year return (Ottawa)
• Rational Method Sewer Sizing	1:2 year return (Ottawa)
• Initial Time of Concentration	10 minutes
• Runoff Coefficients	
- Landscaped Areas	C = 0.20
- Asphalt/Concrete	C = 0.90
- Roof	C = 0.90
• Pipe Velocities	0.80 m/s to 6.0 m/s
• Minimum Pipe Size	250 mm diameter (200 mm CB Leads)

4.4 Proposed Minor System

Using the criteria identified in Section 4.3, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated Storm Sewer Drainage Area plan (drawing 137175 C-500) are both included in **Appendix D**. The General Plan of Services, drawing 137175 C-001, depicting all on-site storm sewers can be found in **Appendix F**. Based on the Block 204 storm sewer design sheet, the calculated minor storm flow from the subject site will be 211.82 which is less than the provided capacity of 249 l/s.

The proposed minor storm sewers will range in size between 300 mm diameter and 525 mm diameter. Catchbasin lead pipes will mostly be 200 mm diameter with the exception of the CB9 lead pipe which will be 300 mm dia. The minor storm sewer outlet will be via the 600 mm dia sewer at MH1 located just north of Building A. That 600 mm pipe, and other downstream sewers on the Home Hardware site, have not yet been constructed. For reference, a marked copy of drawing 119351-001, Site Servicing Plan is included in **Appendix D**. That plan has been highlighted to show the downstream sewers on the Home Hardware property that will need to be constructed to service Block 204.

The existing downstream sewers in the Home Hardware site eventually outlet to the Findlay Creek Village SWMF. That facility provides 80% TSS removal, so no additional on-site stormwater quality control is required within the subject lands.

4.5 Stormwater Management

The subject site will be limited to a release rate established using the criteria described in section 4.3. This will be achieved through a combination of inlet control devices (ICD's) at inlet locations and surface storage.

Flows generated that are in excess of the site's allowable release rate will be stored on site in strategic surface storage areas or by the use of roof top storage and gradually released into the minor system so as not to exceed the site's allocation.

The maximum surface retention depth located within the developed areas will be limited to a maximum of 300mm during a 1:100 year event as shown on the drawings 137175 C-200, Site Grading Plan and 137175 C-600 Ponding Plan, both of which are located in **Appendix F.**

Overland flow routes will be provided in the grading to permit emergency overland flow, in excess of the 100 year event, from the site.

At the extremities of the site, north and east of Building A as well as south of buildings B and C, the opportunity to store runoff is limited due to grading constraints and building geometry, this area will flow uncontrolled to Bank Sreet. These uncontrolled areas – 0.17 hectares in total, have an average C value of 0.30. Based on 1:100 year storm uncontrolled flows, the uncontrolled areas generate 26.81 l/s runoff (refer to Section 4.6 for the calculation).

The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site. Please refer to the SWM calculations in **Appendix E**.

4.6 Inlet Controls

During the stormwater management analysis for the downstream Home Hardware site, it was discussed that between that property and Block 204 a total release rate of 760 l/s was included in the earlier design of the Pathway subdivision The Home Hardware allowable release rate calculation was estimated to be 468.42 l/s. In accordance with that calculation, the allowable release rate for Block 204 is 291.58 l/s (i.e. 760-468.42=291.58). For reference a copy of the relevant calculation from the 2020 Home Hardware report section 4.6 Inlet Controls is included in **Appendix E**.

As noted in Section 4.5, a small portion of the site will be left to discharge to the Bank Street boulevard at an uncontrolled rate.

Based on a 1:100 year event, the flow from the 0.17 Ha uncontrolled areas can be determined as:

$\mathbf{Q_{uncontrolled}}$	$= \mathbf{2.78} \times \mathbf{C} \times \mathbf{i_{100yr}} \times \mathbf{A}$ where:
C	= Average runoff coefficient of uncontrolled area = 0.30
$\mathbf{i_{100yr}}$	= Intensity of 100-year storm event (mm/hr)
	$= 1735.688 \times (T_c + 6.014)^{0.820} = 178.56$ mm/hr; where $T_c = 10$ minutes
A	= Uncontrolled Area = 0.17 Ha

Therefore, the uncontrolled release rate can be determined as:

$$\mathbf{Q_{uncontrolled}} = \mathbf{2.78} \times \mathbf{C} \times \mathbf{i_{100yr}} \times \mathbf{A}$$
$$= 2.78 \times 0.30 \times 178.56 \times 0.17$$
$$= \mathbf{25.32\ L/s}$$

The maximum allowable release rate from the remainder of the site can then be determined as:

$$\mathbf{Q_{max\ allowable}} = \mathbf{Q_{restricted} - Q_{uncontrolled}}$$
$$= 291.58\ L/s - 25.32\ L/s$$
$$= \mathbf{266.27\ L/s}$$

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen for the design. The design of the inlet control devices is unique to each drainage area and is determined based on a number of factors, including hydraulic head and allowable release rate. The inlet control devices were sized according to the manufacturer's design charts. The restrictions will cause the on-site catchbasins and manholes to surcharge, generating surface ponding in the parking and landscaped areas. Ponding locations and elevations are summarized on the Ponding Plan drawing, 137175 C-600, which is included in **Appendix F**.

4.7 On-Site Detention

Any excess storm water up to the 100-year event is to be stored on-site in order to not surcharge the downstream municipal storm sewer system. Detention will be provided in parking and landscape areas and building rooftops, where feasible. As previously noted, the volume of storage is dependent on the characteristics of each individual drainage area and the ICD's were chosen accordingly. It should be noted that 0.30m of vertical separation has been provided from all maximum ponding elevations to lowest building openings.

4.7.1 Site Inlet Control

The following Table summarizes the on-site storage requirements during both the 1:5-year and 1:100-year events.

DRAINAGE AREA(s)	TRIBUTARY AREA	AVAILABLE STORAGE (M^3)	100-YEAR STORM		5-YEAR STORM	
			RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)	RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)
MH5A	0.11	17.12	12.00	22.49	12.00	5.67
MH5	0.08	28.66	6.00	26.76	6.00	11.69
MH3	0.07	56.01	6.00	21.39	6.00	6.33
MH3A	0.08	24.85	8.00	22.64	8.00	6.37
MH3B	0.07	21.56	6.00	21.39	6.00	6.61
MH3C	0.09	53.05	6.00	26.78	6.00	11.16
CBMH2	0.03	2.64	12.00	2.47	12.00	0.19
MH1	0.16	1.73	80.00	8.81	80.00	0.00
MH3D	0.11	10.79	65.00	11.13	65.00	0.00
MH4	0.04	1.75	23.00	1.59	23.00	0.00
RYCB1	0.05	3.38	6.00	1.52	6.00	0.08
TOTAL	**0.89**	**221.54**	**230.00**	**166.97**	**230.00**	**48.10**

In most instances within the parking lot, drainage areas meet the required storage volume with surface ponds and underground in structure/pipe storage which retain the stormwater and discharge at the restricted flow rate to the sewer system. Where the surface storage is insufficient (drainage areas MH5A, MH1, and MH3D), the downstream drainage area has capacity to store the overflow. Refer to the SWM calculations in **Appendix E** for detailed storage information and Drawing 137175 C-600, Ponding Plan located in **Appendix F**. The calculations have been done with the requirement of restricting rooftop flows as well. Rooftop water storage requirements are detailed in Section 4.7.2.

4.7.2 Roof Inlet Controls

The proposed buildings will have roof inlet controls that help to control the amount of stormwater being released into the system. The restricted flow rate for the proposed building is shown below.

ICD AREA	TRIBUTARY AREA	100-YEAR STORM		5-YEAR STORM	
		RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)	RESTRICTED FLOW (L/S)	REQUIRED STORAGE (M^3)
Bldg A	0.15	12.00	47.36	12.00	17.47
Bldg B	0.15	12.00	47.36	12.00	17.47
Bldg C	0.15	12.00	47.36	12.00	17.47
TOTAL	**0.45**	**36.00**	**142.08**	**36.00**	**52.41**

4.7.3 Overall Release Rate

As noted above, the site uses new inlet control devices to restrict the 100 year storm event to the criteria approved by the City of Ottawa. Restricted stormwater will be contained onsite by utilizing surface ponding, in structure/pipe and rooftop storage. In the 100 year event, there will be no off-site overflow.

The sum of restrictions on the site, rooftops and uncontrolled flows is 291.32 l/s (230.00 l/s + 36.00 l/s + 25.32 l/s), which is less than the allowable release of 291.58 l/s noted in section 4.6.

5 SEDIMENT AND EROSION CONTROL PLAN

5.1 General

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

- Until the local storm sewer is constructed, groundwater in trenches will be pumped into a filter mechanism prior to release to the environment. One half diameter bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewers.
- Seepage barriers will be constructed in any temporary drainage ditches (where applicable);
- Sediment capture filter socks will remain on open surface structures such as maintenance holes and catchbasins until these structures are commissioned and put into use.
- Silt fence on the site perimeter will be installed.

5.2 Trench Dewatering

Any trench dewatering using pumps will be discharged into a filter trap made up of geotextile filters and straw bales similar in design to the OPSD 219.240 Dewatering Trap. These will be constructed in a bowl shape with the fabric forming the bottom and the straw bales forming the sides. Any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filters as needed, including sediment removal and disposal and material replacement as needed. It should be noted that that the contractor will be responsible for the design and management of the trap(s).

5.3 Bulkhead Barriers

To further reduce downstream sediment loading, ½ diameter bulkheads will be constructed over the lower half of the outletting sewers during construction. These bulkheads will trap any sediment laden flows, thus preventing any construction-related contamination into existing sewers. The bulkheads will be inspected and maintained including periodic sediment removal as needed.

5.4 Seepage Barriers

In order to further reduce sediment loading to the surrounding area such as the Bank Street roadside ditch, seepage barriers will be installed on any surface water courses at appropriate locations that may become evident during construction. These barriers will be Light Duty Straw Bale Barriers per OPSD 219.100 and Heavy Duty Silt Fence Barriers per OPSD 219.130; locations are shown on the Erosion and Sedimentation Control Plan drawing 137175 C-900, included in **Appendix F**. They are typically made of layers of straw bales or geotextile fabric staked in place. All seepage barriers will be inspected and maintained as needed.

5.5 Surface Structure Filters

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Until streets are asphalted and curbed, all catchbasins and manholes will be constructed with sediment capture inserts or equivalent located between the structure frame and cover. These will stay in place and be maintained during construction and build until it is appropriate to remove same.

6 APROVALS AND CITY REQUIREMENTS

6.1 City of Ottawa

The City of Ottawa reviews all development documents including this report and working drawings. Upon completion, the City will approve the local watermains under Permit No. 008-202, submit the sewer ECA application to the province, and eventually issue a Commence Work Notification.

6.2 Province of Ontario

The Ministry of Environment, Conservation and Parks (MECP) will approve the local sewers under Section 53 of the Ontario Water Resources Act and issue an Environmental Compliance Approval. The Ministry will also issue a Permit to Take Water.

6.3 Conservation Authority

The South Nation Conservation will be contacted to determine permitting requirements.

6.4 Federal Government

There are no required permits, authorizations or approvals needed expressly for this development from the federal government.

7 CONCLUSIONS & RECOMMENDATIONS

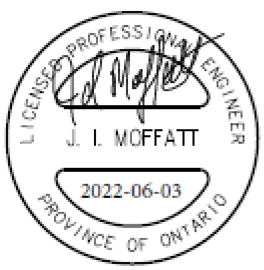
7.1 Conclusions

This report and the accompanying working drawings clearly indicate that the proposed development meets the requirements of the stakeholder regulators, including the City of Ottawa, provincial MECP and SNC. The proposed development is in general conformance with the recommendations of both the Pathways Phase 1 design and the design of the downstream Home Hardware site.

There is a reliable water supply available adjacent to the proposed development; a wastewater outlet is available adjacent to the site, local storm sewers have been installed adjacent to the site and an expansion to the existing Findlay Creek Village Stormwater Facility has been constructed to collect and treat runoff from the subject site.

7.2 Recommendations

It is recommended that the regulators review this submission with an aim of providing the requisite approvals to permit the owners to proceed to the construction stage of the subject site.



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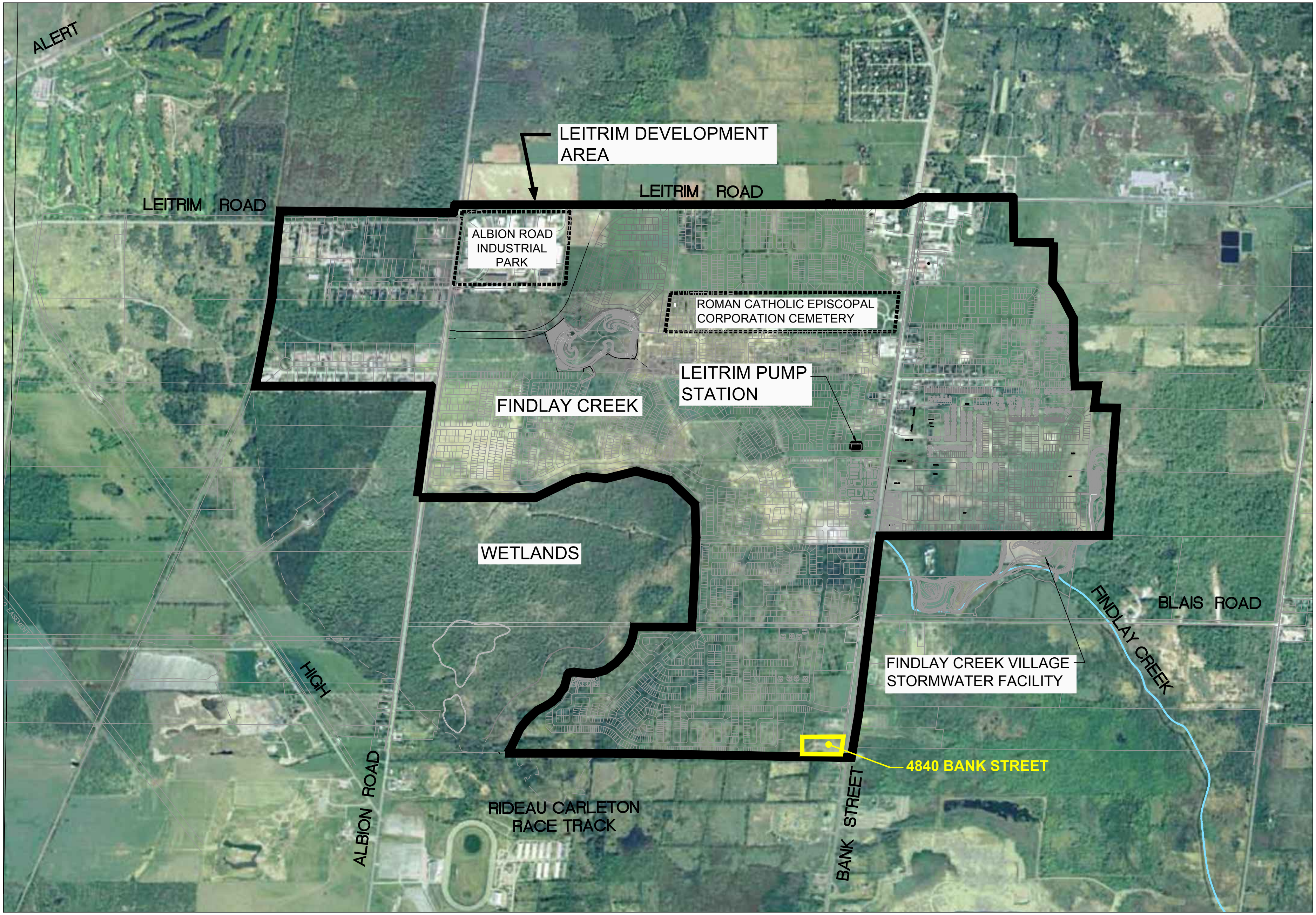
Associate

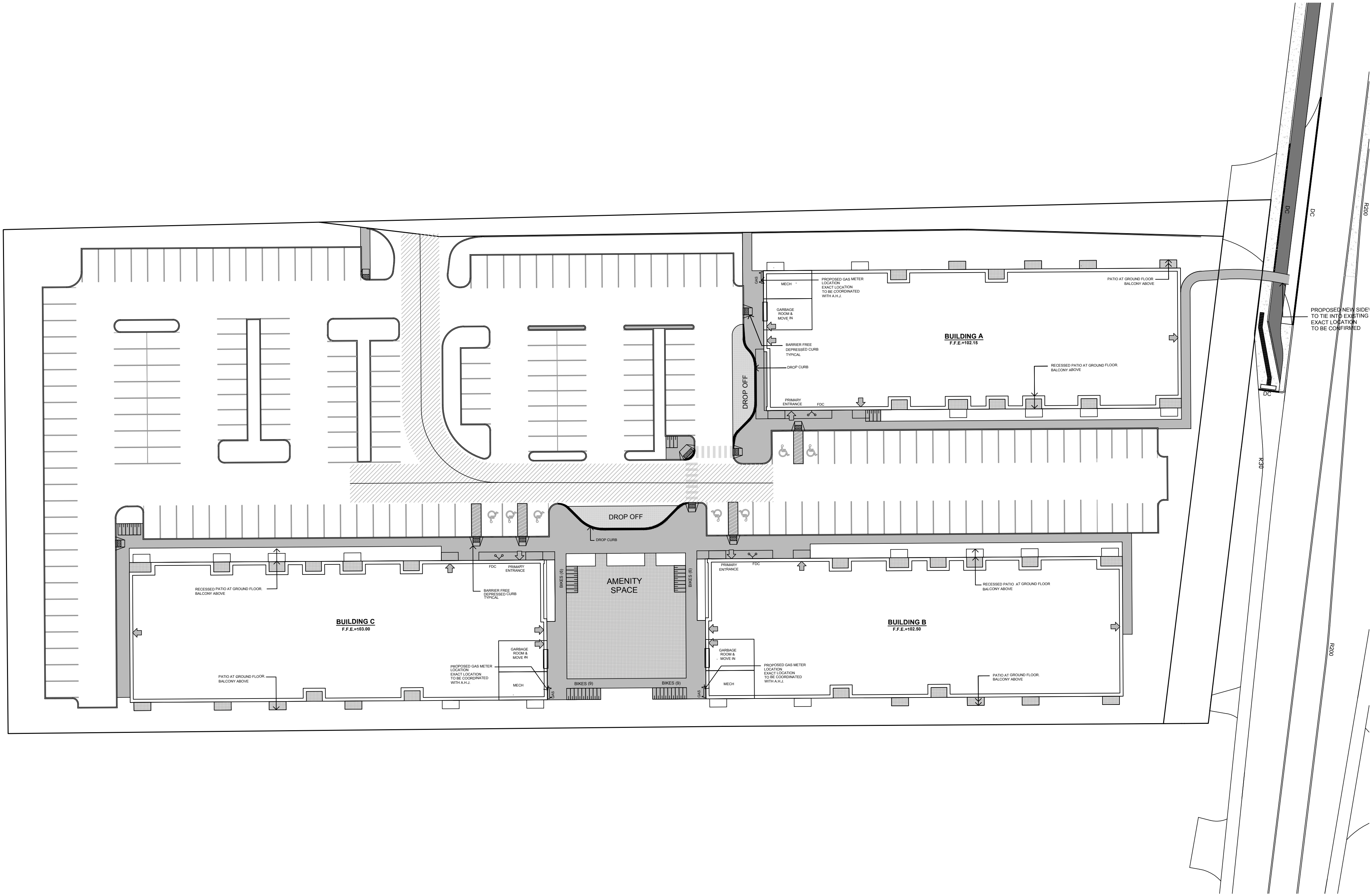
Samantha E. Labadie, P.Eng.,
Civil Engineer

"137175 Pathways South Block 204 - Internal Documents\6.0_Technical\6.04_Civil\03_Reports/ CTR-Design Brief-2020-05-27"



J:\137175_Pathways_Sou\7.0_Production\7.03_Design\04_Civil_LAND\Design Brief\FIGURE 1.1 Site Location.dwg Layout Name: FIGURE 1.1

IBI	Scale	Project Title	Drawing Title	Sheet No.
	N.T.S.	4840 BANK STREET	LOCATION PLAN	FIGURE 1.1



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Scale	Project Title	Drawing Title	Sheet No.
N.T.S.	4840 BANK STREET	SITE PLAN	FIGURE 1.2

APPENDIX A

- **City Pre-Consultation Meeting Notes (January 12 2022)**

<u>4840 Bank Street</u>

Meeting Summary Notes
Jan 12, 2022, Online Teams Meeting

Attendees:

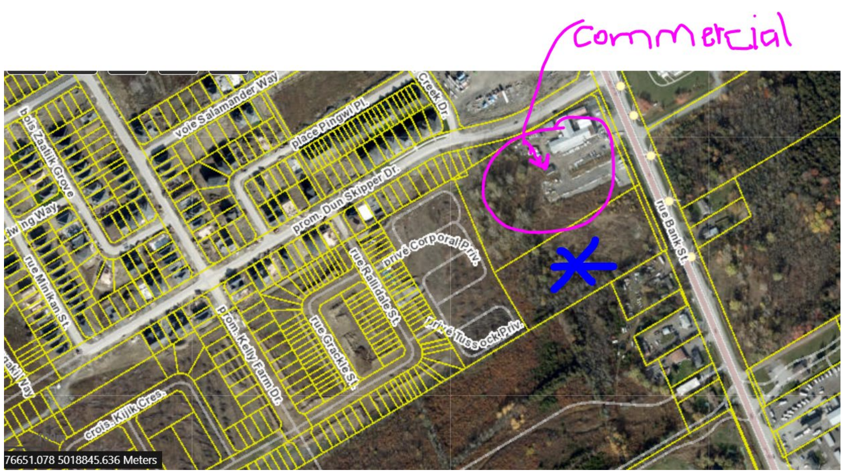
- Kelly Rhodenizer, Regional Group
- Nikita Jariwala, Regional Group
- Erin O'Connor – Regional Group;
- James Ireland (Novatech)
- David Hook – IBI, traffic
- Doug Cave (Jim Moffat) IBI, Civic
- Tyler Cassidy, Kelsey Charie (Project Manager, EIT, City of Ottawa)
- Christopher Moise (Urban Designer, Architect, City of Ottawa)
- Mark Richardson, Planning Forester
- James Holland, SNCA
- Burl Walker, Parks
- Tracey Scaramozzino (File Lead, Planner, City of Ottawa)

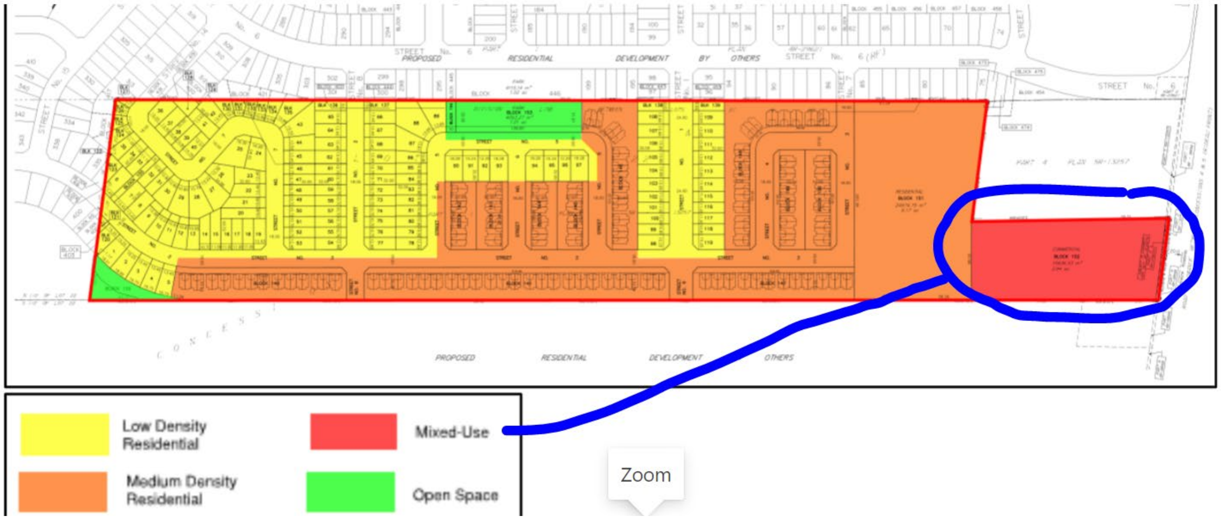
Not in Attendance:

- Matthew Hayley, Environmental Planner
- Mike Giampa (Transportation Project Manager, City of Ottawa)

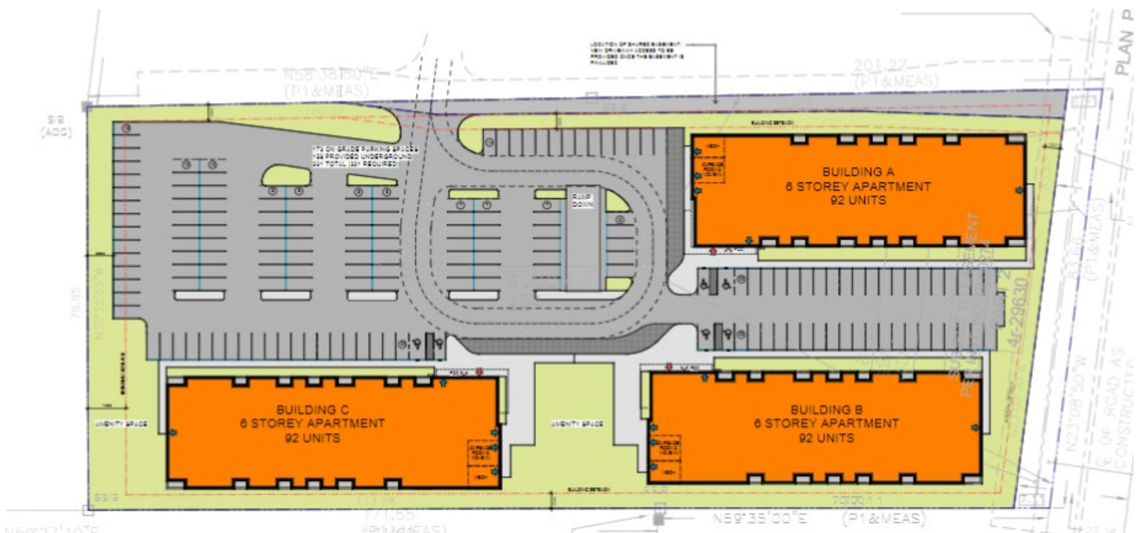
Issue of Discussion:

- PUD Site Plan for 3, 6-storey rental apts, 92-units each; Total of 276 d/u; 173 parking at grade and 158 parking u/g
- Similar Product to a recently approved site plan at 2045, 2055, 2065 Portobello Blvd, Orleans.
- Within Idone Plan of Subdivision D07-16-17-0006





Planning Rationale from the Ione Draft Plan of Subdivision



Proposal

Elevations from 2045, 2055, 2065 Portobello Blvd, Orleans – similar to current proposal

1. **Current Official Plan**
    1. General urban, Developing Community/Expansion Area

2. **Draft Official Plan**
    1. Suburban Transect, Hub and Evolving n'hood designation

3. **Zoning Information**
    1. GM (with R5 to west, GM to north and rural to the south)
    2. Clarification that this site falls is in Area D of the parking schedule and tenant parking is required at 1 space/du.

Table 101- Minimum parking space rates R12 to R21 (By-law 2016-249)

Row	I Land Use	II Area X and Y on Schedule 1A	III Area B on Schedule 1A	IV Area C on Schedule 1A	V Area D on Schedule 1A
R12	Dwellin Mid-high Rise Apartme	0.5 per dwelling unit	0.5 per dwelling unit	1.2 per dwelling unit	1 per dwelling unit
R13	[reserved]				

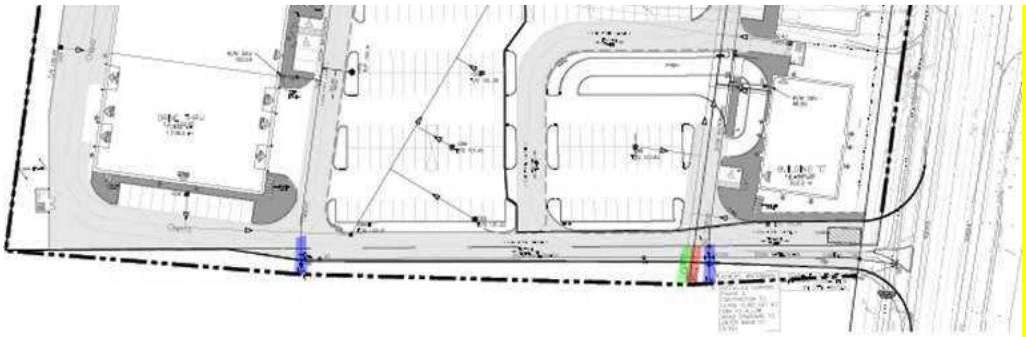
4. **Infrastructure/Servicing (Tyler Cassidy):**

1. The Servicing Study Guidelines for Development Applications are available at the following address:
https://ottawa.ca/en/city-hall/planning-and-development/how-developproperty/development-application-review-process-2/guide-preparing-studies-and-plans
2. Servicing and site works shall be in accordance with the following documents:
   - Ottawa Sewer Design Guidelines (October 2012) and all the Technical Bulletins including, Technical Bulletin PIEDTB-2016-01 and ISTB-2018-01
   - Ottawa Design Guidelines – Water Distribution (2010) and Technical Bulletins ISD-2010-2, ISDTB-2014-02 and ISTB-2018-02
   - 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 background studies"
   - 2016 Updated Servicability Report (Class EA OPA 76 Areas 8a, 9a & 9b) Leitrim Development Area (IBI Group, September 2016)
   - Design Brief, Pathways at Findlay Creek, 4800 Bank Street (Remer Lands) Phase 1 (IBI Group July 2017)
   - Design Brief, Bank Street Development, 4836 Bank Street (IBI Group April 2019).

<u>The Stormwater Management Criteria is as follows</u>:

a. Allowable release rate of 291.58 L/s for the site.
b. Flows to the storm sewer in excess of the 2-year storm release rate, up to and including
c. the 100-year storm event, must be detained on site
d. Ensure no overland flow for all storms up to and including the 100-year event.
e. The 2-yr storm or 5-yr storm event using the IDF information derived from the
f. Meteorological Services of Canada rainfall data, taken from the Ottawa Macdonald Cartier International Airport, collected 1966 to 1997.
g. A calculated time of concentration (Cannot be less than 10 minutes).
h. Quality control requirements to be provided by Rideau Valley Conservation Authority (RVCA). Note that Quality Control for the site is provided by the Findlay Creek Stormwater Management Facility.

5. Deep Services



i. A plan view of the approximate services may be seen above. Services should ideally be grouped in a common trench to minimize the number of road cuts. The sizing of available future services is:

a. Connections (4836 Bank Street):

i. MH1 w/ 600 mm dia. STM (Conc.)

ii. 203 mm dia. Watermain (PVC)

iii. MH1A 200 mm dia. SAN (PVC)

ii. 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.

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. Please note that coordination for servicing is required with the Owner of 4836 Bank Street to ensure that planned services are available for the site's designated outlet once development begins.

6. Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission. 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(s)
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.
vi. Hydrant location and spacing to meet City's Water Design guidelines.
vii. Water supply redundancy will be required for more than 50 m3/day water demand.

7. 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.
8. If applicable, MECP ECA Requirements –
All development applications should be considered for an Environmental Compliance Approval (ECA) by the Ministry of the Environment, Conservation, and Parks (MECP);
   a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant then determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If the consultant it is still unclear or there is a difference of opinion only then will the City PM approach the MECP.
   b. **In our opinion, the stormwater works for 4840 Bank Street are covered under existing ECA NUMBER 7857-BQ3J3V dated June 17, 2020 for 4836 Bank Street. However, please have your consultant review the ECA requirements and determine if one if required.**

6. Initial Planning Comments

1. This site was intended to be mixed-use as per the draft plan of subdivision. Why is it now being developed for residential only?
2. Provide street trees at ROW and ample landscaping around property line
3. What is view like on north side of site – abutting the commercial site?
4. Show elevations vis a vis the current and future development on abutting properties.
5. Show some uses in the amenity area – to give an idea of how they might be used and to give us a better understanding of their sizes.
6. Show surrounding uses in grey-ed out lines – especially the full access to the site.
7. Glad to see garbage is inside
8. Appreciate that a lot of the parking is u/g
9. Where is bike parking?
10. Will the site be fenced?
11. Ensure ped access to and through the site. – How does it interact with abutting sites?

12. Keep bird-safe principles in mind – in terms of glazing on corners, use of decals etc.
13. Please consider using a variety of Local, Native, Non-invasive species;
14. Speak to Councillor Darouze and relevant community associations.

7. Urban Design Comments (Christopher Moise):

Comments

- This proposal is not within the City's Design Priority Areas and does not need to attend the City's UDRP. Staff will be responsible for evaluating the proposal and providing design direction;
- If the decision has been made not to develop a mixed use project what are some of the intents that are being left out of the proposal and how can this project accommodate them?
    - Access from Bank street: Vehicles and pedestrians;
    - Buildings that support the public right of way: Buildings that provide a frontage and entrances facing Bank;
        - Create an urban street edge. Landscaping and primary entrances facing Bank Street;
        - Can the Bank Street treatment be designed to act as building front and not side yard condition?
    - Can surface parking be screened and separated from Bank Street with strategic landscaping?
    - We recommend a sidewalk on the Bank Street frontage that would help provide pedestrian connectivity to parks and commercial sites to the north on Bank Street;
    - Would a pedestrian connection to the properties to the west be beneficial?
    - How does the massing relate to the surrounding properties? Please illustrate the massing on the site with dimensions and illustrating transition if necessary;
    - Since there will be residents without cars will there be additional pedestrian connection to Bank street (bus network, etc.);
    - Trees: Are there trees on the site that can be preserved? Ie in the amenity space or around the perimeter of the site?
    - Landscaping: We recommend consideration for trees and screening elements be illustrated on the landscaping plan, detailing amenity spaces and public street frontages;
- We recommend the buildings fronting Bank street provide additional ground floor height to accommodate future commercial uses if possible;
- A scoped Design Brief is a required submittal (and separate from any UDRP submission) for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided.
    - We would like to see the massing on the site as well as the elevations for the buildings;

8. Parks (Burl Walker):

1. The applicant is proposing to develop three 6-storey rental apartment buildings with a total of 276 apartment dwelling units. The total site area is shown as 15,344 sq. m on the Site Plan. The property is described as Block 204 on Plan 4M-1653 within the Pathways at Findlay Creek South subdivision.

2. Condition C.13(a) to Schedule “H” of the Pathways at Findlay Creek South Phase 1 subdivision agreement describes the parkland dedication calculations for the subdivision. The calculations were based on the development of 100% commercial uses on Block 204. A combination of parkland conveyance and cash-in-lieu of parkland dedication was provided at the time of registration of the subdivision agreement. As per subsection 13(1)(b) of the Parkland Dedication By-law, parkland dedication will be required for the proposed development since land that was originally proposed for commercial purposes is now proposed for residential use.

3. This area of Leitrim is serviced by three parks – Salamander Park, Miikana Park and Dun Skipper Park. Salamander Park is currently under construction. Miikana Park is in the detail design phase with construction anticipated to commence this year. The Dun Skipper Park project was recently initiated. Salamander Park and Dun Skipper Park are located approximately 400m from the site, while Miikana Park is about 900m from the site. Additional parkland conveyance is not needed for this area. Cash-in-lieu of parkland dedication will be required as a condition of site plan approval.

4. The following is a draft cash-in-lieu of parkland dedication condition based on the provisions of the current Parkland Dedication By-law:

   The Owner agrees to provide cash-in-lieu of parkland dedication on the subject lands within Ward 20 such value of the land to be determined by the City's Realty Services Branch, to the satisfaction of the General Manager, Recreation, Cultural and Facility Services. The Owner further agrees to pay for the cost of the appraisal inclusive of HST. In accordance with the Planning Act and the City of Ottawa Parkland Dedication By-law, a land area of 0.121 ha has been calculated for the cash-in-lieu of parkland dedication requirement has been calculated as follows:

Land Use	*Proposed Dwelling Units*	*Land Area*	*Cash-in-lieu of Parkland Dedication Rate*	*Parkland Dedication Requirement*
Apartment	*276*	*1.534 ha (area of site being developed)*	*1 ha per 500 dwelling units to a maximum of 10% of the area of the site being developed*	*0.153 ha*
Commercial (credit for previous parkland dedication at the time of registration of the Phase 1 subdivision agreement)		*1.594 ha (gross land area including Street Widening Block 212 on Plan 4M-1653 adjacent to Block 204)*	*2% of gross land area*	*(0.032 ha)*
Net Parkland Dedication Requirement				*0.121 ha*

The cash-in-lieu of parkland dedication shall be directed 60% towards the Ward 20 cash-in-lieu of parkland reserve (Account 830309) and 40% towards the City-wide cash-in-lieu of parkland reserve (Account 830015).

5. The City will be replacing the Parkland Dedication By-law prior to September 18, 2022. If the new Parkland Dedication By-law comes into force during the Site Plan Control application process, the final cash-in-lieu of parkland dedication requirement will be determined based on the provisions of the new Parkland Dedication By-law and the applicable subsections of the Planning Act.

6. Consider how residents from the development will access the parks in the neighbourhood. Provide for connections to the future sidewalk on the west side of Bank Street adjacent to the site. Pedestrian linkages to the abutting commercial site to the north should also be provided to support pedestrian access through the commercial site to reach the sidewalks on Dun Skipper Drive, which connect to Dun Skipper Park and Miikana Park.

9. Trees (Mark Richardson):

TCR requirements:

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
   a. an approved TCR is a requirement of Site Plan approval.
   b. The TCR may be combined with the LP or EIS provided all information is supplied
2. Any removal of privately-owned trees 10cm or larger in diameter, or City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The TCR must document all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
4. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
5. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
6. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
7. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
8. For more information on the TCR requirements or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

LP tree planting requirements:

For additional information on the following please contact tracy.smith@Ottawa.ca

Minimum Setbacks

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

Tree specifications

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

Hard surface planting

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

Soil Volume

- Please ensure adequate soil volumes are met:

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

Conifer	25	15

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

Sensitive Marine Clay

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

10. Environment (Matthew Hayley):

1. Urban Heat Island
   Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.
2. Bird Safe
   Given the height of the proposal (mid to high rise) the proposal will need to review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans .
3. Surface Water
   Setback may be required for the wetlands as per the OP and an EIS is required to determine appropriate setback. See OPs. 4.9.3, 6f for more details.

11. Conservation Authority (James Holland, SNCA)

Natural Heritage

- The CA's mapping does not identify natural heritage features for the site.

Stormwater Design

- If stormwater management is being directed to approved municipal infrastructure, the Conservation Authority does not complete a technical review of the design. If there is uncontrolled drainage or flows to a watercourse, a technical review may be completed. This will be determined during the first review.
- The stormwater quality control should achieve an 80% TSS removal. The design should include best management practices for sediment and erosion control.

CA Regulations

- Any interference with a watercourse may require a permit under O. Reg. 170/06, and restrictions may apply. This will be determined during the first review.

12. Transportation (Mike Giampa)

1. A TIA is warranted, please proceed to scoping.
2. The application will not be deemed complete until the submission of the draft step 2-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
3. Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.
4. Synchro files are required at Step 4.
5. ROW protection on Bank Street is 44.5 m (to be confirmed with the approved Bank Street EA).
6. A Road Noise Impact Study is required
7. Clear throat requirements as per TAC guidelines- this applies to existing and proposed accesses.
8. Bank Street widening (Leitrim to Dunskipper) is tentatively scheduled to begin in 2023.

13. Waste Collection

1. Please see City's Waste Management Guidelines for multi-unit residential: http://ottawa.ca/calendar/ottawa/citycouncil/pec/2012/11-13/Solid%20Waste%20Collection%20Guidelines%20-%20Doc%201.pdf

14. General Information

1. Ensure that all plans and studies are prepared as per City guidelines – as available online:

https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans

APPENDIX B

- **Watermain Demand Calculation Sheets**
- **FUS Calculation**
- **Boundary Conditions from the City of Ottawa**
- **Hydraulic Analysis**

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT :	Pathways Block 204 Apartments	FILE:	137175.6.04
LOCATION :	4840 Bank Street	DATE PRINTED:	02-Jun-22
DEVELOPER :	Regional Group	DESIGN:	SEL
		PAGE :	1 OF 1

NODE	RESIDENTIAL				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY `			FIRE DEMAND (l/s)
	UNITS			POP'N	INDTRL	INST.	COMM.										
	SF	TH	APT		(ha.)	(ha.)	(m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	
Site			180	324				1.05	0.00	1.05	2.63	0.00	2.63	5.78	0.00	5.78	150.0

ASSUMPTIONS

RESIDENTIAL DENSITIES

Single Family	3.4	persons/unit
Townhouse	2.7	persons/unit
Apartment	1.8	persons/unit

AVG. DAILY DEMAND

Residential 280 l / cap / day

MAX. DAILY DEMAND

Residential 700 l / cap / day

MAX. HOURLY DEMAND

Residential 1,540 l / cap / day

FIRE FLOW

Residential 9,000 l / min

Fire Flow Requirement from Fire Underwriters Survey

Building 'A' - 4 Storey Residential

Building Floor Area *inlcudes Firewall

Floors 1-4	2,911	m^2
Total	2,911	m^2

Fire Flow

$F = 220C\sqrt{A}$

C	0.8		C =	1.5	wood frame
A	2,911	m^2		1.0	ordinary
				0.8	non-combustile
F	9,496	l/min		0.6	fire-resistive
Use	9,000	l/min			

Occupancy Adjustment

			-25%	non-combustile
			-15%	limited combustile
Use	-15%		0%	combustile
			+15%	free burning
Adjustment	-1350	l/min	+25%	rapid burning
Fire flow	7,650	l/min		

Sprinkler Adjustment

			-30%	system conforming to NFPA 13
			-50%	complete automatic system
Use	-30%			
Adjustment	-2295	l/min		

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall Length	Stories	L*H Factor	Exposure Charge *
north	19.9	19	1	19	10%
east	Firewall				10%
south	24.7	66	4	264	10%
west	>45				0%
Total					30%

Adjustment 2,295 l/min

Required Fire Flow

Total adjustments	-	l/min
Fire flow	7,650	l/min
Use	**8,000**	**l/min**
	133.3	**l/s**

Boundary Conditions
4840 Bank Street

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	63	1.05
Maximum Daily Demand	158	2.63
Peak Hour	347	5.78
Fire Flow Demand #1	13,000	216.67

Location

Results – Existing Conditions

Connection 1 – Dun Skipper Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.6	77.5
Peak Hour	143.7	62.0
Max Day plus Fire 1	122.3	31.6

Ground Elevation = 100.1 m

Connection 2 – Bank St.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.6	78.4
Peak Hour	143.7	62.8
Max Day plus Fire 1	121.3	31.0

Ground Elevation = 99.5 m

Results – SUC Zone Reconfiguration

Connection 1 – Dun Skipper Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.9	69.4
Peak Hour	145.0	63.8
Max Day plus Fire 1	139.1	55.4

Ground Elevation = 100.1 m

Connection 2 – Bank St.

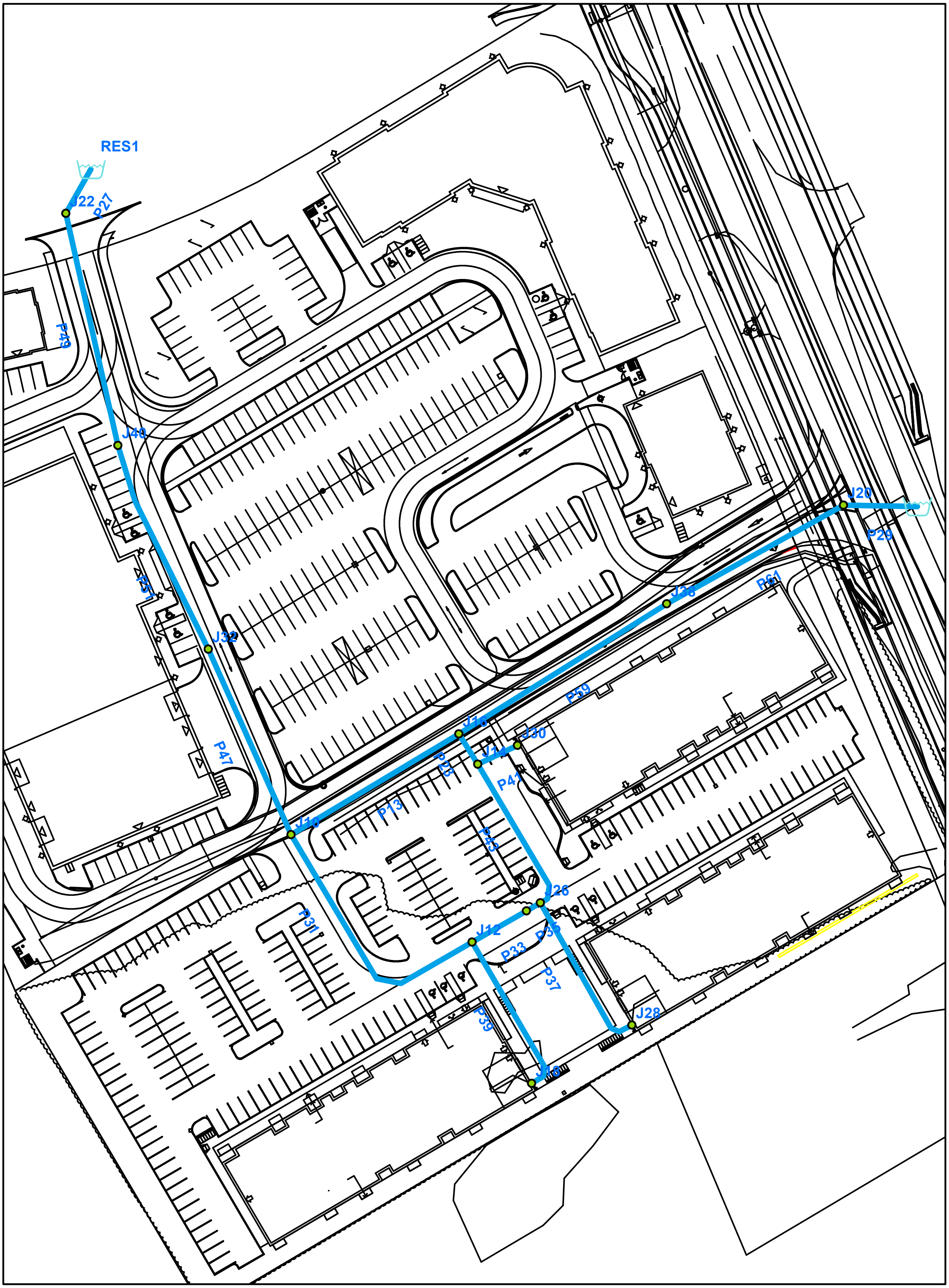
Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	148.9	70.3
Peak Hour	144.6	64.1
Max Day plus Fire 1	137.2	53.6

Ground Elevation = 99.5 m

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

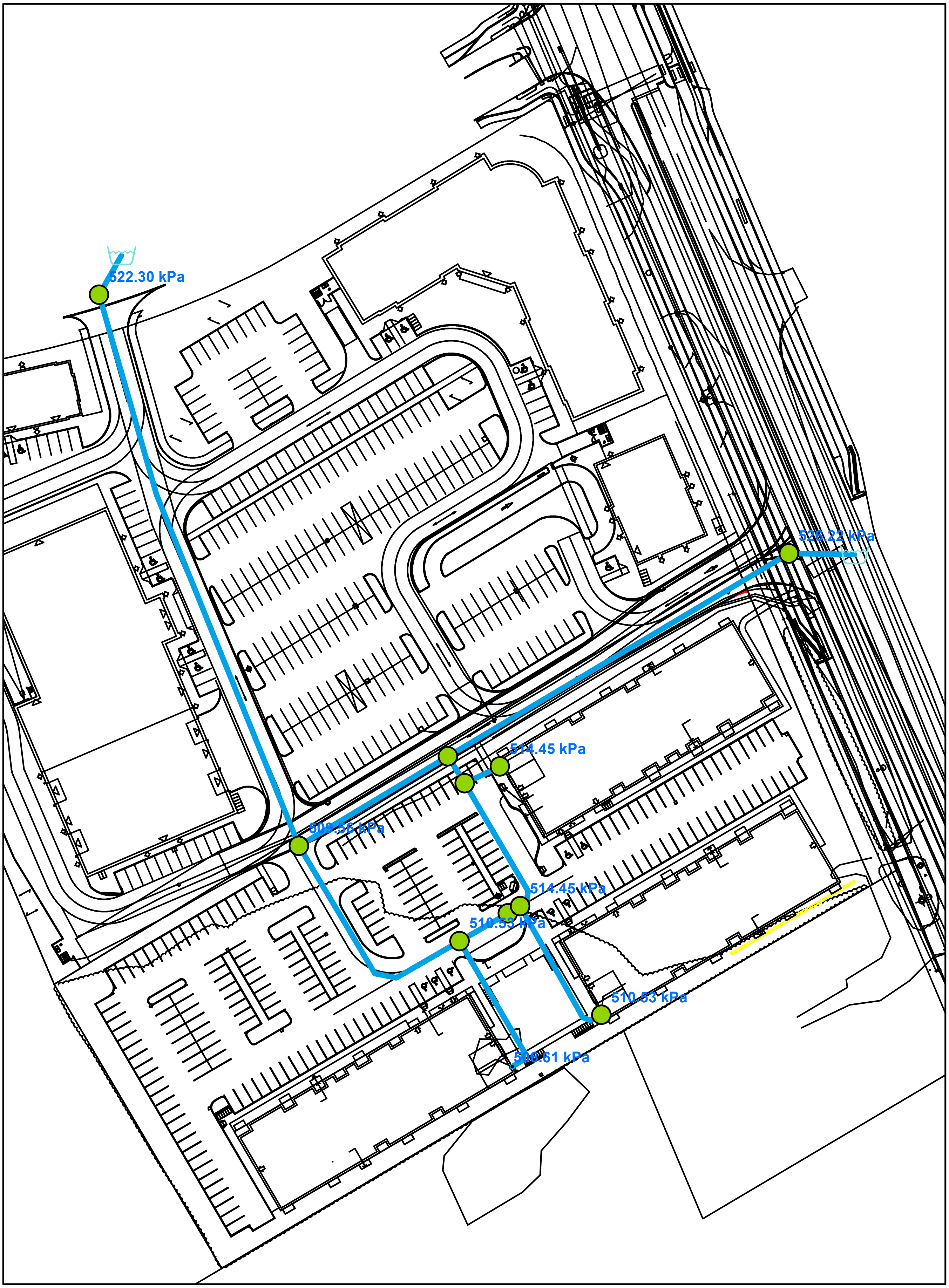
Overall Plan - Node and Pipe IDs



Avg Day - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	102.60	154.60	509.56
2	☐	J12	0.00	102.50	154.60	510.53
3	☐	J14	0.00	101.90	154.60	516.41
4	☐	J16	0.00	101.60	154.60	519.35
5	☐	J18	0.35	102.90	154.60	506.61
6	☐	J20	0.00	100.90	154.60	526.22
7	☐	J22	0.00	101.30	154.60	522.30
8	☐	J24	0.00	102.10	154.60	514.45
9	☐	J26	0.00	102.10	154.60	514.45
10	☐	J28	0.35	102.50	154.60	510.53
11	☐	J30	0.35	102.10	154.60	514.45

Avg Day - Junction Pressure



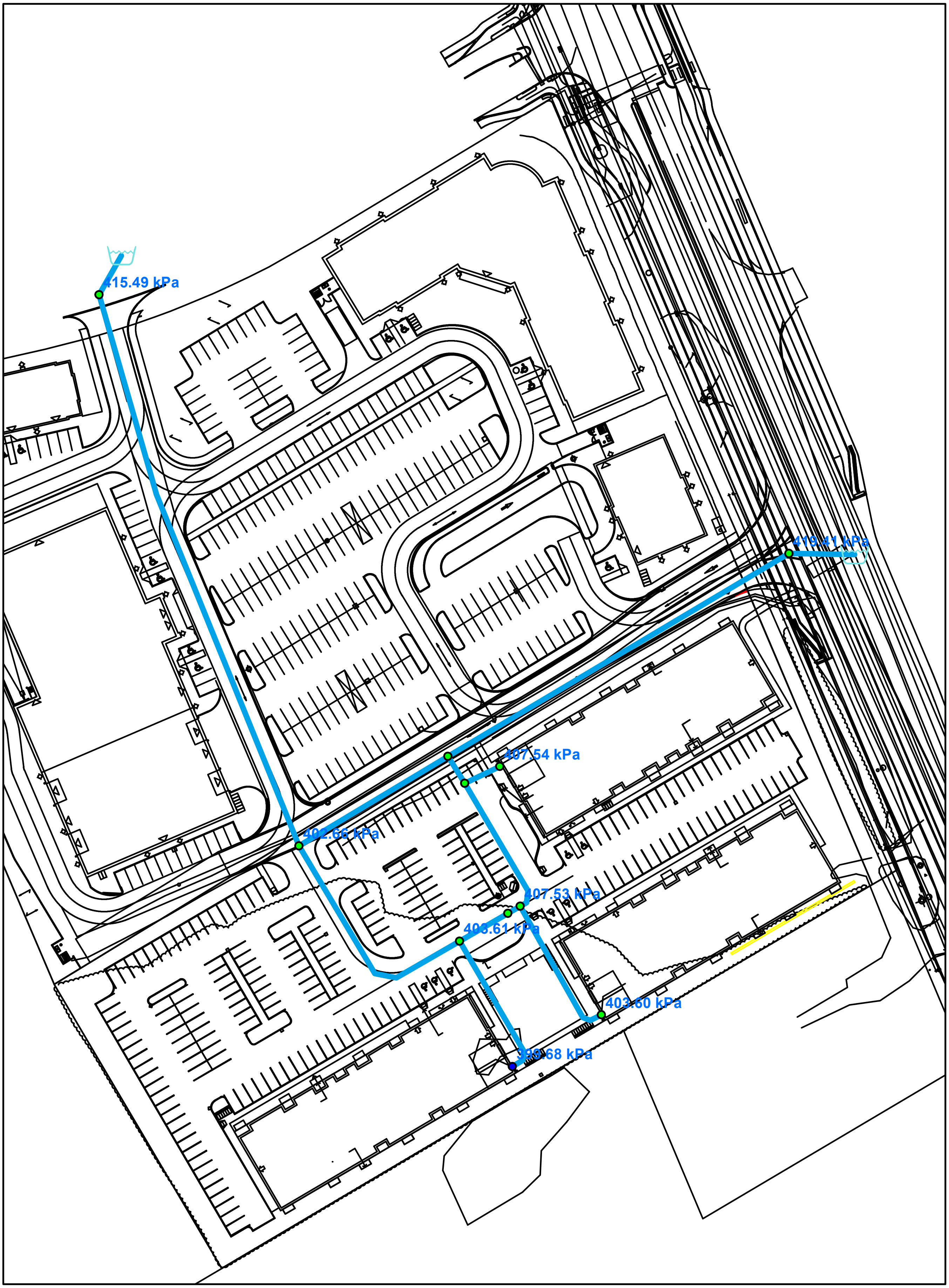
Peak Hour - Junction Report

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	102.60	143.69	402.66
2	☐	J12	0.00	102.50	143.69	403.61
3	☐	J14	0.00	101.90	143.69	409.50
4	☐	J16	0.00	101.60	143.69	412.45
5	☐	J18	1.93	102.90	143.69	399.68
6	☐	J20	0.00	100.90	143.70	419.41
7	☐	J22	0.00	101.30	143.70	415.49
8	☐	J24	0.00	102.10	143.69	407.53
9	☐	J26	0.00	102.10	143.69	407.53
10	☐	J28	1.93	102.50	143.69	403.60
11	☐	J30	1.93	102.10	143.69	407.54

Peak Hour - Pipe Report

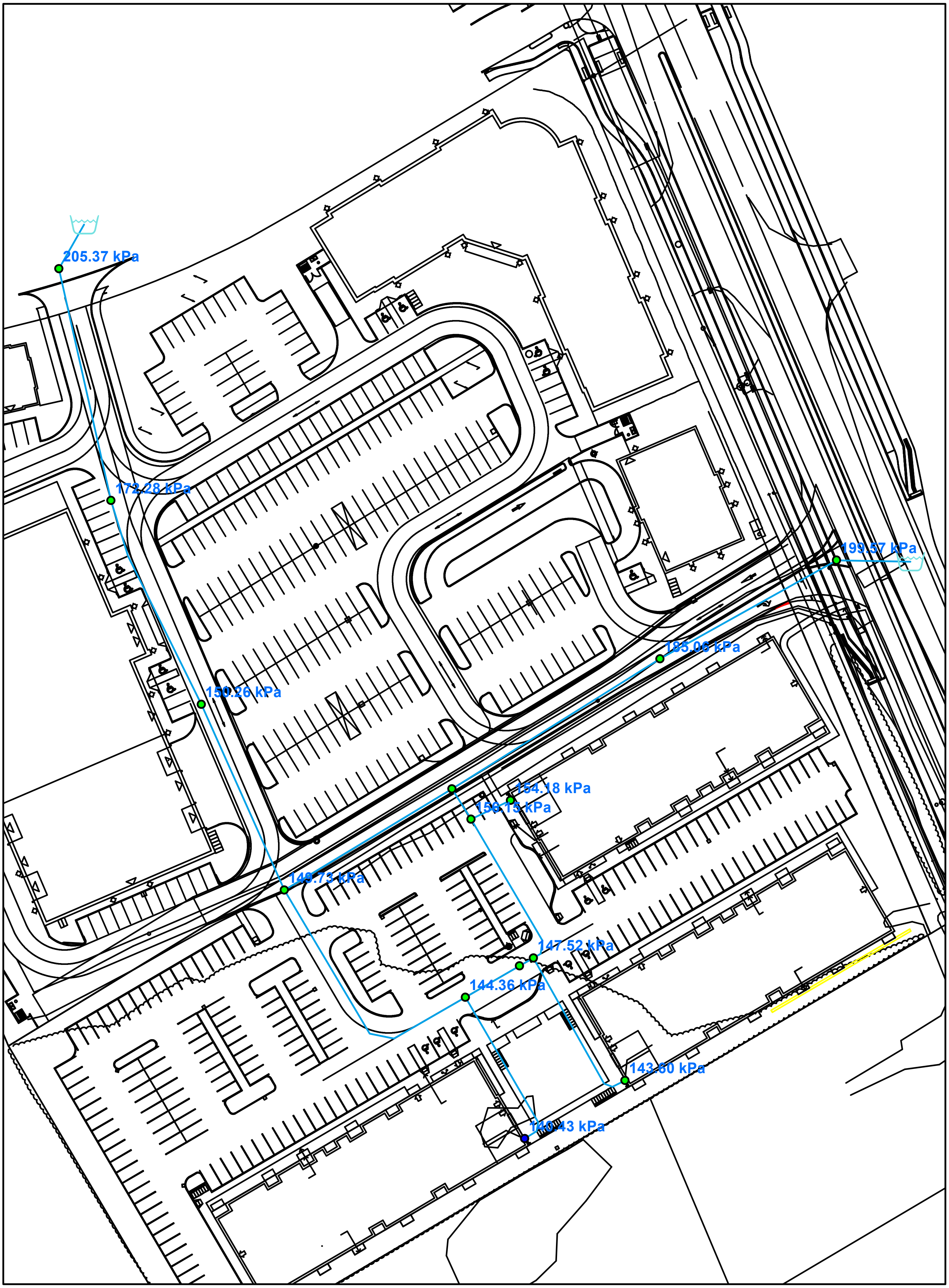
		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P11	J22	J10	142.33	204.00	110.00	2.58	0.08	0.01	0.07	Open	0
2	☐	P13	J10	J16	42.13	204.00	110.00	0.57	0.02	0.00	0.00	Open	0
3	☐	P15	J16	J20	96.34	204.00	110.00	-3.21	0.10	0.01	0.10	Open	0
4	☐	P23	J14	J16	7.68	204.00	110.00	-3.78	0.12	0.00	0.13	Open	0
5	☐	P27	J22	RES1	1.00	204.00	110.00	-2.58	0.08	0.00	0.07	Open	0
6	☐	P29	J20	RES2	1.00	204.00	110.00	-3.21	0.10	0.00	0.10	Open	0
7	☐	P31	J10	J12	59.08	204.00	110.00	2.01	0.06	0.00	0.04	Open	0
8	☐	P33	J12	J24	13.52	204.00	110.00	0.08	0.00	0.00	0.00	Open	0
9	☐	P35	J24	J26	3.45	204.00	110.00	0.08	0.00	0.00	0.00	Open	0
10	☐	P37	J26	J28	35.95	204.00	110.00	1.93	0.06	0.00	0.04	Open	0
11	☐	P39	J12	J18	36.09	204.00	110.00	1.93	0.06	0.00	0.04	Open	0
12	☐	P41	J14	J30	9.48	204.00	110.00	1.93	0.06	0.00	0.04	Open	0
13	☐	P43	J14	J26	34.96	204.00	110.00	1.85	0.06	0.00	0.04	Open	0

Peak Hour - Junction Pressure



		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	102.60	117.88	149.73
2	☐	J12	0.00	102.50	117.23	144.36
3	☐	J14	0.00	101.90	117.83	156.15
4	☐	J16	0.00	101.60	117.99	160.59
5	☐	J18	0.88	102.90	117.23	140.43
6	☐	J20	0.00	100.90	121.27	199.57
7	☐	J22	0.00	101.30	122.26	205.37
8	☐	J24	95.00	102.10	117.09	146.88
9	☐	J26	0.00	102.10	117.15	147.52
10	☐	J28	0.88	102.50	117.15	143.60
11	☐	J30	0.88	102.10	117.83	154.18
12	☐	J32	63.00	102.70	118.03	150.26
13	☐	J38	0.00	100.90	119.78	185.06
14	☐	J40	0.00	102.50	120.08	172.28

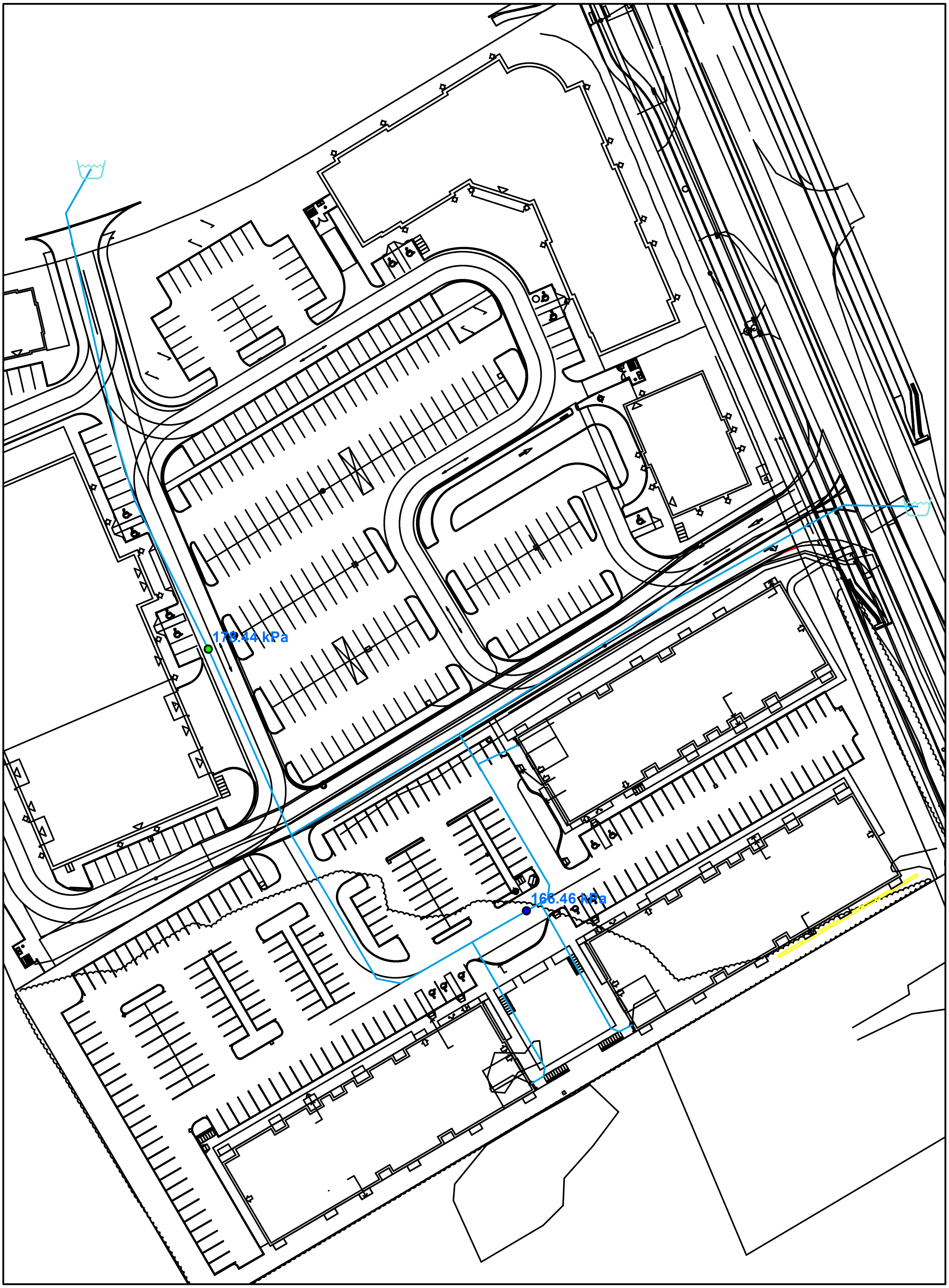
Max Day + Fire - Junction Pressures



Max Day + Fire - Fireflow Report

		ID	Total Demand (L/s)	Hydrant Available Flow (L/s)	Critical Node ID for Design Run	Critical Node Pressure at Available Flow (kPa)	Critical Node Pressure at Fire Demand (kPa)	Critical Pressure for Design Run (kPa)	Hydrant Design Flow (L/s)	Hydrant Pressure at Design Flow (kPa)
1	☐	J24	95.00	140.47	J24	139.96	166.46	139.96	140.47	139.96
2	☐	J32	63.00	160.96	J32	139.96	178.44	139.96	160.96	139.96

Max Day + Fire - Residual Hydrant Pressures



APPENDIX C

- **Home Hardware Sanitary Sewer Design Sheet**
- **Drawing 119351-400 – Home Hardware Sanitary Drainage Area Plan**
- **Sanitary Sewer Design Sheet**
- **Drawing 137175 C-400 – Sanitary Drainage Area Plan**

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SANITARY SEWER DESIGN SHEET

4836 Bank Street
CITY OF OTTAWA
Home Hardware

LOCATION: STREET	LOCATION: AREA ID	LOCATION: FROM MH	LOCATION: TO MH	RESIDENTIAL: AREA w/ Units (Ha)	RESIDENTIAL: UNIT TYPES SF	RESIDENTIAL: UNIT TYPES SD	RESIDENTIAL: UNIT TYPES TH	RESIDENTIAL: UNIT TYPES APT	RESIDENTIAL: AREA w/o Units (Ha)	RESIDENTIAL: POPULATION IND	RESIDENTIAL: POPULATION CUM	RESIDENTIAL: RES PEAK FACTOR	RESIDENTIAL: PEAK FLOW (L/s)	ICI AREAS: AREA (Ha) INSTITUTIONAL IND	ICI AREAS: AREA (Ha) INSTITUTIONAL CUM	ICI AREAS: AREA (Ha) COMMERCIAL IND	ICI AREAS: AREA (Ha) COMMERCIAL CUM	ICI AREAS: AREA (Ha) INDUSTRIAL IND	ICI AREAS: AREA (Ha) INDUSTRIAL CUM	ICI AREAS: ICI PEAK FACTOR	ICI AREAS: PEAK FLOW (L/s)	INFILTRATION ALLOWANCE: AREA (Ha) IND	INFILTRATION ALLOWANCE: AREA (Ha) CUM	INFILTRATION ALLOWANCE: FLOW (L/s)	FIXED FLOW (L/s) IND	FIXED FLOW (L/s) CUM	TOTAL FLOW (L/s)	PROPOSED SEWER DESIGN: CAPACITY (L/s)	PROPOSED SEWER DESIGN: LENGTH (m)	PROPOSED SEWER DESIGN: DIA (mm)	PROPOSED SEWER DESIGN: SLOPE (%)	PROPOSED SEWER DESIGN: VELOCITY (full) (m/s)	PROPOSED SEWER DESIGN: AVAILABLE CAPACITY L/s	PROPOSED SEWER DESIGN: AVAILABLE CAPACITY (%)
		BLDG D	MH7A-MH5A							0.0	0.0	3.80	0.00			0.05	0.05			1.50	0.02	0.05	0.05	0.02	0.00	0.00	0.04	34.22	11.10	200	1.00	1.055	34.18	99.88%
		BLDG A	MH7A-MH5A							0.0	0.0	3.80	0.00			0.30	0.30			1.50	0.15	0.30	0.30	0.10	0.00	0.00	0.24	34.22	14.61	200	1.00	1.055	33.97	99.28%
		MH7A	MH5A							0.0	0.0	3.80	0.00			1.01	1.01			1.50	0.49	1.01	1.01	0.33	0.00	0.00	0.82	27.59	32.62	200	0.65	0.851	26.76	97.01%
		BLDG C	MH1A-MH2A							0.0	0.0	3.80	0.00			0.06	0.06			1.50	0.03	0.06	0.06	0.02	0.00	0.00	0.05	34.22	12.70	200	1.00	1.055	34.17	99.86%
Idone Commercial		MH1A	MH2A							0.0	0.0	3.80	0.00			2.35	2.35			1.50	1.14	2.35	2.35	0.78	0.00	0.00	1.92	20.24	83.16	200	0.35	0.624	18.32	90.53%
		BLDG B	MH2A-MH3A							0.0	0.0	3.80	0.00			0.22	0.22			1.50	0.11	0.22	0.22	0.07	0.00	0.00	0.18	34.22	17.46	200	1.00	1.055	34.04	99.48%
		MH2A	MH3A							0.0	0.0	3.80	0.00			0.37	2.72			1.50	1.32	0.37	2.72	0.90	0.00	0.00	2.22	20.24	12.25	200	0.35	0.624	18.02	89.03%
		MH3A	MH4A							0.0	0.0	3.80	0.00			0.15	2.87			1.50	1.40	0.15	2.87	0.95	0.00	0.00	2.34	20.24	68.50	200	0.35	0.624	17.90	88.43%
		MH4A	MH5A							0.0	0.0	3.80	0.00			0.02	2.89			1.50	1.40	0.02	2.89	0.95	0.00	0.00	2.36	20.24	14.90	200	0.35	0.624	17.88	88.35%
		MH5A	MH6A							0.0	0.0	3.80	0.00			0.17	4.07			1.50	1.98	0.17	4.07	1.34	0.00	0.00	3.32	20.24	33.69	200	0.35	0.624	16.92	83.59%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	
APT	1.8	p/p/u	COM	28,000	L/Ha/day	
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
				17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area,
   1.5 if greater than 20%, otherwise 1.0

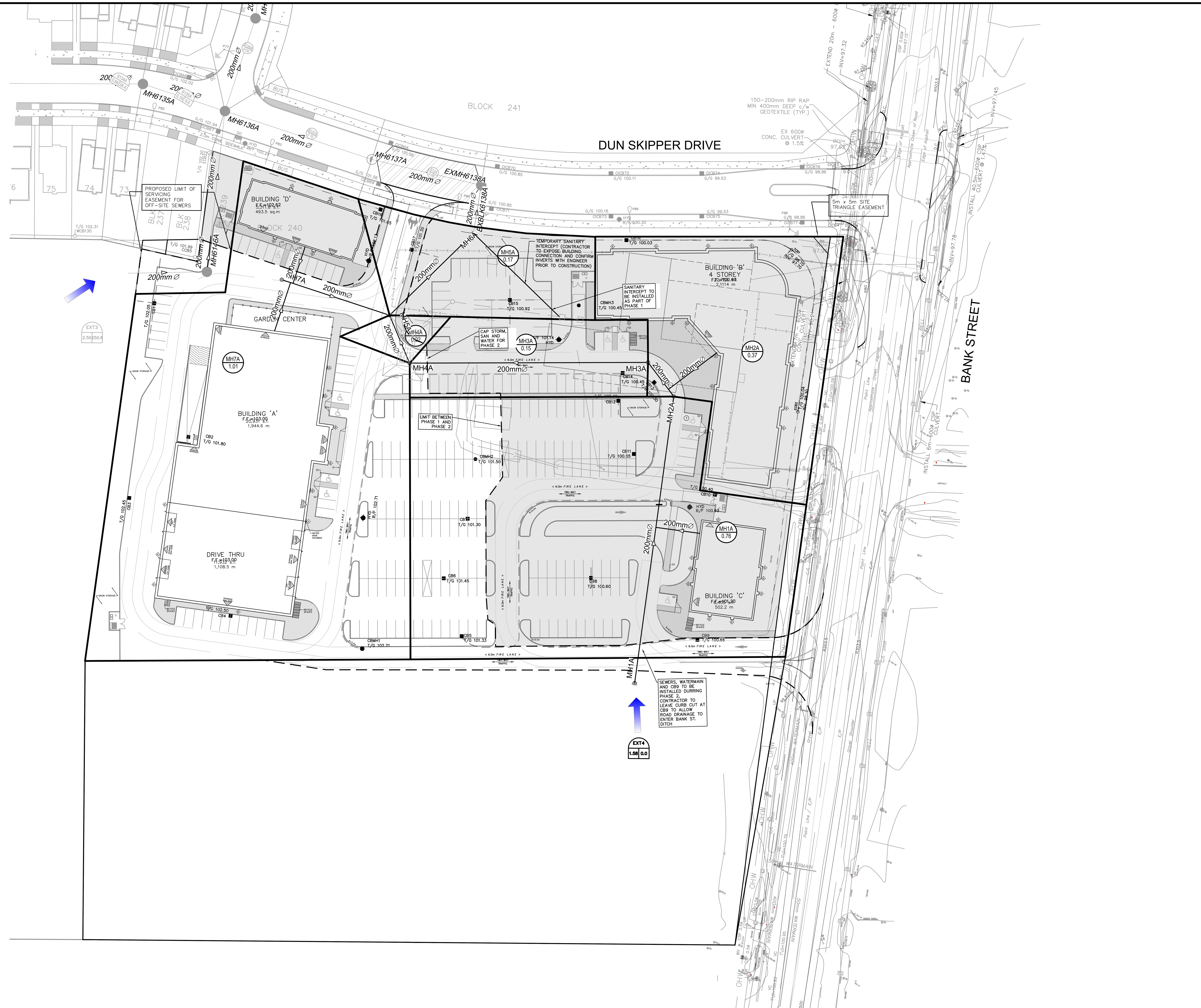
Designed: SEL

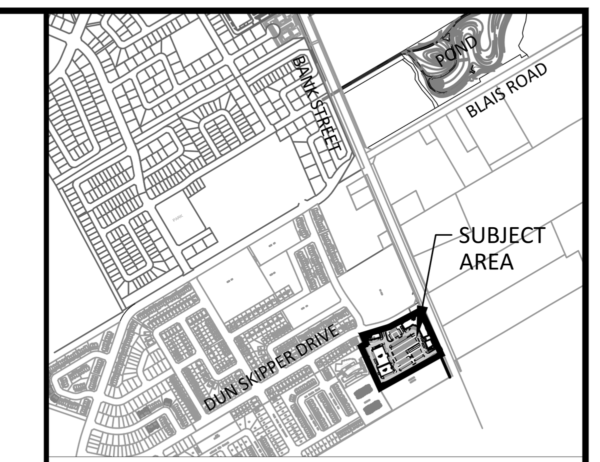
Checked: JIM

Dwg. Reference: 119351-501

No.	Revision	Date
1.	Report Name (Master Servicing Study, Adequacy of Public Services, Servicing Brief, ect) - Submission No. 1	2019-03-30

File Reference:	Date:	Sheet No:
119351.5.7.1	2019-03-30	1 of 1





KEY PLAN
(NTS)

NOTES:
1. SEE DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR H.A. KEN SHIPMAN SURVEYING LTD.

LEGEND :
6115A — EXISTING AREA NUMBER
0.81 | 43.2 — EXISTING POPULATION / EXISTING AREA IN HECTARES
FUTURE FLOW DIRECTION
MH2A — EXISTING AREA NUMBER
0.37 — EXISTING AREA IN HECTARES
MH2A — AREA NUMBER
0.37 — AREA IN HECTARES

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5	ADD PHASING	JIM	2020:06:23
4	REVISED AS PER CITY COMMENTS	JIM	2020:04:20
3	REVISED AS PER CITY COMMENTS	JIM	2019:12:09
2	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	JIM	2019:10:11
1	ISSUED FOR SPA	JIM	2019:04:15

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Project Title
BANK STREET DEVELOPMENT
4836 BANK STREET

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2020/06/23
PROVINCE OF ONTARIO

Drawing Title
SANITARY DRAINAGE AREA PLAN

Scale
1 : 500

Design SEL	Date FEB. 2019
Drawn DPS	Checked JIM
Project No. 119351	Drawing No. 400

D07-12-19-0092

#17977

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Ottawa, Ontario K1S 5N4 Canada
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SANITARY SEWER DESIGN SHEET

4840 Bank Street
CITY OF OTTAWA
Block 204 Pathways South Apartments

LOCATION				RESIDENTIAL										ICI AREAS							
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		RES PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)
														INSTITUTIONAL		COMMERCIAL		INDUSTRIAL			
STREET	AREA ID	FROM MH	TO MH		SF	SD	TH	APT		IND	CUM			IND	CUM	IND	CUM	IND	CUM		
		MH 5A	MH 3A	0.42				60		108.0	108.0	3.59	1.26								
		MH 4A	MH 3A	0.28				60		108.0	108.0	3.59	1.26								
		MH 3A	MH 2A	0.52				0		0.0	216.0	3.51	2.46								
		MH 2A	MH 1A	0.00				0		0.0	216.0	3.51	2.46								
		MH 1A	Out	0.32				60		108.0	324.0	3.45	3.62								

LOCATION		INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
		AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
FROM MH	TO MH	IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
MH 5A	MH 3A	0.42	0.42	0.14			1.39	20.24	59.14	200	0.35	0.624	18.85	93.11%
MH 4A	MH 3A	0.28	0.28	0.09			1.35	26.50	31.52	200	0.60	0.817	25.16	94.91%
MH 3A	MH 2A	0.52	1.22	0.40			2.86	24.19	38.66	200	0.50	0.746	21.34	88.19%
MH 2A	MH 1A	0.00	1.22	0.40			2.86	34.22	44.18	200	1.00	1.055	31.36	91.65%
MH 1A	Out	0.32	1.54	0.51			4.13	20.24	0.00	200	0.35	0.624	16.11	79.59%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u	INST	28,000	L/Ha/day	
TH/SD	2.7	p/p/u	COM	28,000	L/Ha/day	
APT	1.8	p/p/u				
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
				17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 200 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+(P/1000)^0.5))0.8
   where K = 0.8 Correction Factor
5. Commercial and Institutional Peak Factors based on total area, 1.5 if greater than 20%, otherwise 1.0

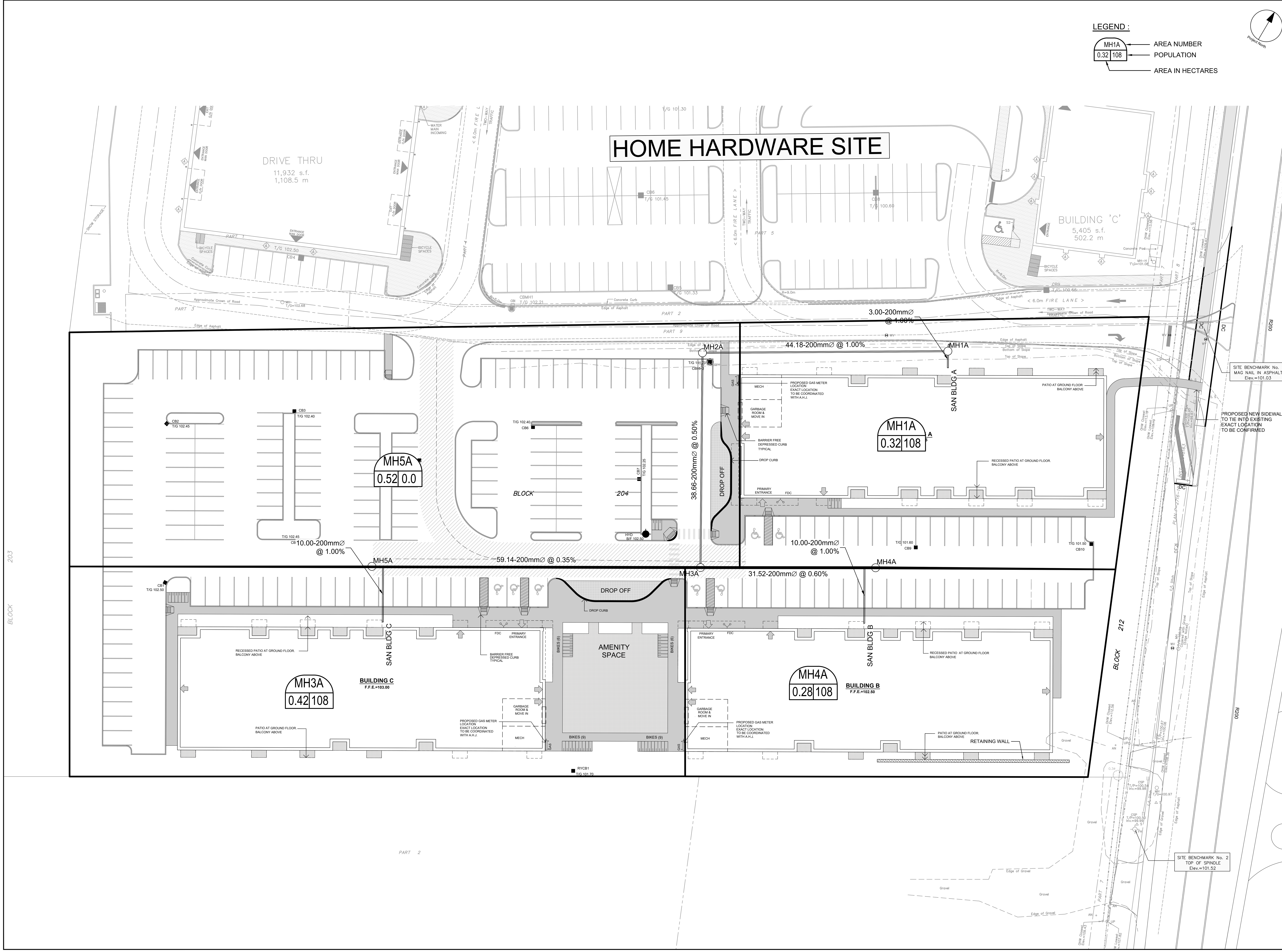
Designed: SEL

Checked: JIM

Dwg. Reference: 137175-400

No.	Revision	Date
1.	Submission No. 1 For City Approval	2022-06-03

File Reference:	Date:	Sheet No:
137175.6-0.6-04.04.Sanitary	2022-04-30	1 of 1



CLIENT

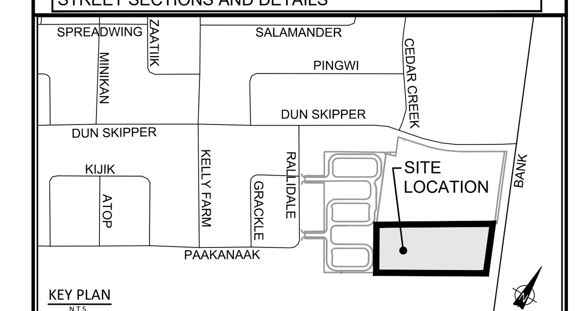
PATHWAYS SOUTH REGIONAL INC.

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
2		
3		
4		
5		
6		
7		
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



CONSULTANTS

1:300

SEAL

J. I. MOFFATT
2022/06/03
PROVINCE OF ONTARIO

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

PROJECT

4840 BANK STREET

PROJECT NO:
137175

DRAWN BY:	CHECKED BY:
M.M.	S.E.L.
PROJECT MGR:	APPROVED BY:
D.C.	J.I.M.

SHEET TITLE

SANITARY DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-400	1

CITY PLAN No. xxxxx

SCALE CHECK 1 in 10mm

CITY FILE No. D07-xx-xx-xxxx

File Location: J:\137175_Pathways_Sou\7.0_Production\7.03_Design\04_Civil\Sheets\C-400 SAN DRAINAGE AREA PLAN.dwg Last Saved: June 2, 2022, by mmilne Plotted: Friday, June 3, 2022 8:39:26 AM by Marian Milne

APPENDIX D

- **Home Hardware Storm Sewer Design Sheet**
- **Drawing 119351-500 – Home Hardware Storm Drainage Area Plan**
- **Storm Sewer Design Sheet**
- **Drawing 137175 C-500 – Storm Drainage Area Plan**
- **Highlighted Drawing 119351 001 Home Hardware Site Servicing Plan**

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STORM SEWER DESIGN SHEET

4836 Bank Street
City of Ottawa
Home Hardware

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW															SEWER DATA								
																															PIPE SIZE (mm)					AVAIL CAP (2yr)	
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.30	C= 0.40	C= 0.50	C= 0.55	C= 0.65	C= 0.70	C= 0.75	C= 0.90	C= 1.00	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)	DIA	W	H	SLOPE (%)	VELOCITY (m/s)	(L/s)	(%)
		CB3	MH9-MH8								0.12			0.25	0.25	10.00	0.11	10.11	76.81	104.19	122.14	178.56	19.22	26.07	30.56	44.68		19.22	34.22	6.73	200			1.00	1.055	15.00	43.84%
		CB2	MH9-MH8									0.02		0.05	0.05	10.00	0.12	10.12	76.81	104.19	122.14	178.56	3.84	5.21	6.11	8.94		3.84	34.22	7.69	200			1.00	1.055	30.37	88.77%
		MH9	MH8											0.00	0.30	10.12	0.64	10.76	76.34	103.56	121.39	177.46	22.92	31.09	36.45	53.28		22.92	158.41	53.17	375			0.75	1.389	135.48	85.53%
		CB1	MH8-MH7								0.17			0.35	0.35	10.00	0.17	10.17	76.81	104.19	122.14	178.56	27.22	36.93	43.29	63.29		27.22	34.22	10.80	200			1.00	1.055	6.99	20.44%
		MH8	MH7											0.00	0.65	10.76	0.41	11.17	74.01	100.35	117.61	171.90	48.45	65.70	77.00	112.54		48.45	53.73	26.20	250			0.75	1.060	5.28	9.82%
		BLDG D	MH7-MH5									0.05		0.13	0.13	10.00	0.20	10.20	76.81	104.19	122.14	178.56	9.61	13.03	15.28	22.34		9.61	34.22	12.60	200			1.00	1.055	24.61	71.92%
		BLDG A	MH7-MH5									0.30		0.75	0.75	10.00	0.18	10.18	76.81	104.19	122.14	178.56	57.65	78.21	91.68	134.03		57.65	62.04	12.97	250			1.00	1.224	4.39	7.07%
		MH7	MH5											0.00	1.53	11.17	0.46	11.63	72.58	98.39	115.31	168.52	111.08	150.57	176.46	257.90		111.08	230.39	38.63	450			0.60	1.403	119.31	51.79%
		CB4	MH10-CBMH1									0.03		0.08	0.08	10.00	0.12	10.12	76.81	104.19	122.14	178.56	5.76	7.82	9.17	13.40		5.76	34.22	7.78	200			1.00	1.055	28.45	83.15%
		MH10	CBMH1											0.00	0.08	10.12	0.73	10.85	76.34	103.55	121.38	177.44	5.73	7.77	9.11	13.32		5.73	48.06	41.57	250			0.60	0.948	42.33	88.08%
		CB5	CBMH1-CBMH2									0.06		0.15	0.15	10.00	0.36	10.36	76.81	104.19	122.14	178.56	11.53	15.64	18.34	26.81		11.53	34.22	22.72	200			1.00	1.055	22.69	66.30%
		CB6	CBMH1-CBMH2									0.07		0.18	0.18	10.00	0.15	10.15	76.81	104.19	122.14	178.56	13.45	18.25	21.39	31.27		13.45	34.22	9.78	200			1.00	1.055	20.76	60.69%
		CB7	CBMH1-CBMH2									0.08		0.20	0.20	10.00	0.15	10.15	76.81	104.19	122.14	178.56	15.37	20.86	24.45	35.74		15.37	34.22	9.59	200			1.00	1.055	18.84	55.07%
		CBMH1	CBMH2									0.08		0.20	0.80	10.85	0.80	11.66	73.68	99.89	117.07	171.12	58.99	79.98	93.73	137.00		58.99	66.53	63.40	250			1.15	1.313	7.54	11.33%
		CBMH2	MH4											0.00	0.80	11.66	0.68	12.33	70.98	96.18	112.71	164.70	56.83	77.01	90.24	131.87		56.83	59.68	33.14	300			0.35	0.818	2.86	4.79%
		CB9	MH1-MH2									0.15		0.38	0.38	10.00	0.28	10.28	76.81	104.19	122.14	178.56	28.82	39.10	45.84	67.01		28.82	34.22	17.68	200			1.00	1.055	5.39	15.76%
		CB8	MH1-MH2									0.17		0.43	0.43	10.00	0.24	10.24	76.81	104.19	122.14	178.56	32.67	44.32	51.95	75.95		32.67	34.22	14.99	200			1.00	1.055	1.55	4.53%
		BLDG C	MH1-MH2									0.05		0.13	0.13	10.00	0.22	10.22	76.81	104.19	122.14	178.56	9.61	13.03	15.28	22.34		9.61	34.22	14.20	200			1.00	1.055	24.61	71.92%
		CB10	MH1-MH2									0.13		0.33	0.33	10.00	0.27	10.27	76.81	104.19	122.14	178.56	24.98	33.89	39.73	58.08		24.98	34.22	17.04	200			1.00	1.055	9.23	26.99%
		CB11	MH1-MH2									0.03		0.08	0.08	10.00	0.11	10.11	76.81	104.19	122.14	178.56	5.76	7.82	9.17	13.40		5.76	34.22	6.75	200			1.00	1.055	28.45	83.15%
		CB12	CB13									0.06		0.15	0.15	10.00	0.18	10.18	76.81	104.19	122.14	178.56	11.53	15.64	18.34	26.81		11.53	34.22	11.50	200			1.00	1.055	22.69	66.30%
Idone Commercial		MH1	MH2								1.58			3.29	4.77	10.28	0.87	11.15	75.75	102.74	120.43	176.05	361.36	490.12	574.51	839.82		361.36	452.94	81.04	600			0.50	1.552	91.59	20.22%
		CB13	MH2-MH3									0.18		0.45	0.45	10.00	0.01	10.01	76.81	104.19	122.14	178.56	34.59	46.92	55.01	80.42		34.59	40.49	1.00	200			1.40	1.248	5.90	14.56%
		BLDG B	MH2-MH3									0.22		0.55	0.55	10.00	0.26	10.26	76.81	104.19	122.14	178.56	42.28	57.35	67.23	98.29		42.28	62.04	19.00	250			1.00	1.224	19.76	31.85%
		MH2	MH3											0.00	5.77	11.15	0.14	11.29	72.66	98.49	115.42	168.69	419.32	568.41	666.14	973.56		419.32	480.32	10.88	675			0.30	1.300	61.00	12.70%
		CB14	MH3-MH4									0.15		0.38	0.38	10.00	0.03	10.03	76.81	104.19	122.14	178.56	28.82	39.10	45.84	67.01		28.82	34.22	1.63	200			1.00	1.055	5.39	15.76%
		CB15	CBMH3								0.09			0.19	0.19	10.00	0.31	10.31	76.81	104.19	122.14	178.56	14.41	19.55	22.92	33.51		14.41	34.22	19.85	200			1.00	1.055	19.80	57.88%
		CB18	MH11		0.16									0.13	0.13	10.00	0.27	10.27	76.81	104.19	122.14	178.56	10.25	13.90	16.30	23.83		10.25	27.59	13.80	200			0.65	0.851	17.34	62.85%
		MH11	CBMH3											0.00	0.13	10.27	0.34	10.61	75.78	102.79	120.48	176.12	10.11	13.72	16.08	23.50		10.11	27.59	17.50	200			0.65	0.851	17.47	63.34%
		CBMH3	MH3-MH4						0.02					0.04	0.36	10.31	0.35	10.67	75.62	102.57	120.22	175.74	27.01	36.64	42.95	62.78		27.01	27.59	17.94	200			0.65	0.851	0.57	2.07%
		MH3	MH4											0.00	6.50	11.29	1.01	12.30	72.19	97.84	114.66	167.58	469.49	636.36	745.75	1,089.88		469.49	519.40	69.31	750			0.20	1.139	49.91	9.61%
		MH4	MH5											0.00	7.30	12.30	0.20	12.51	68.96	93.42	109.46	159.93	503.74	682.38	799.52	1,168.19		503.74	580.71	15.46	750			0.25	1.273	76.96	13.25%
		CB17	MH5-MH12									0.09		0.23	0.23	10.00	0.04	10.04	76.81	104.19	122.14	178.56	17.29	23.46	27.50	40.21		17.29	34.22	2.55	200			1.00	1.055	16.92	49.45%
		CB16	MH5-MH12		0.01									0.01	0.01	10.00	0.14	10.14	76.81	104.19	122.14	178.56	0.64	0.87	1.02	1.49		0.64	34.22	9.09	200			1.00	1.055	33.58	98.13%
		MH5	MH12											0.00	9.07	12.51	0.34	12.85	68.36	92.59	108.48	158.49	619.90	839.64	983.73	1,437.28		619.90	687.10	31.13	750			0.35	1.507	67.20	9.78%
		MH12	EX 1350 SEWER											0.00	9.07	12.85	0.17	13.02	67.36	91.21	106.86	156.12	610.81	827.17	969.05	1,415.73		610.81	687.10	15.71	750			0.35	1.507	76.29	11.10%

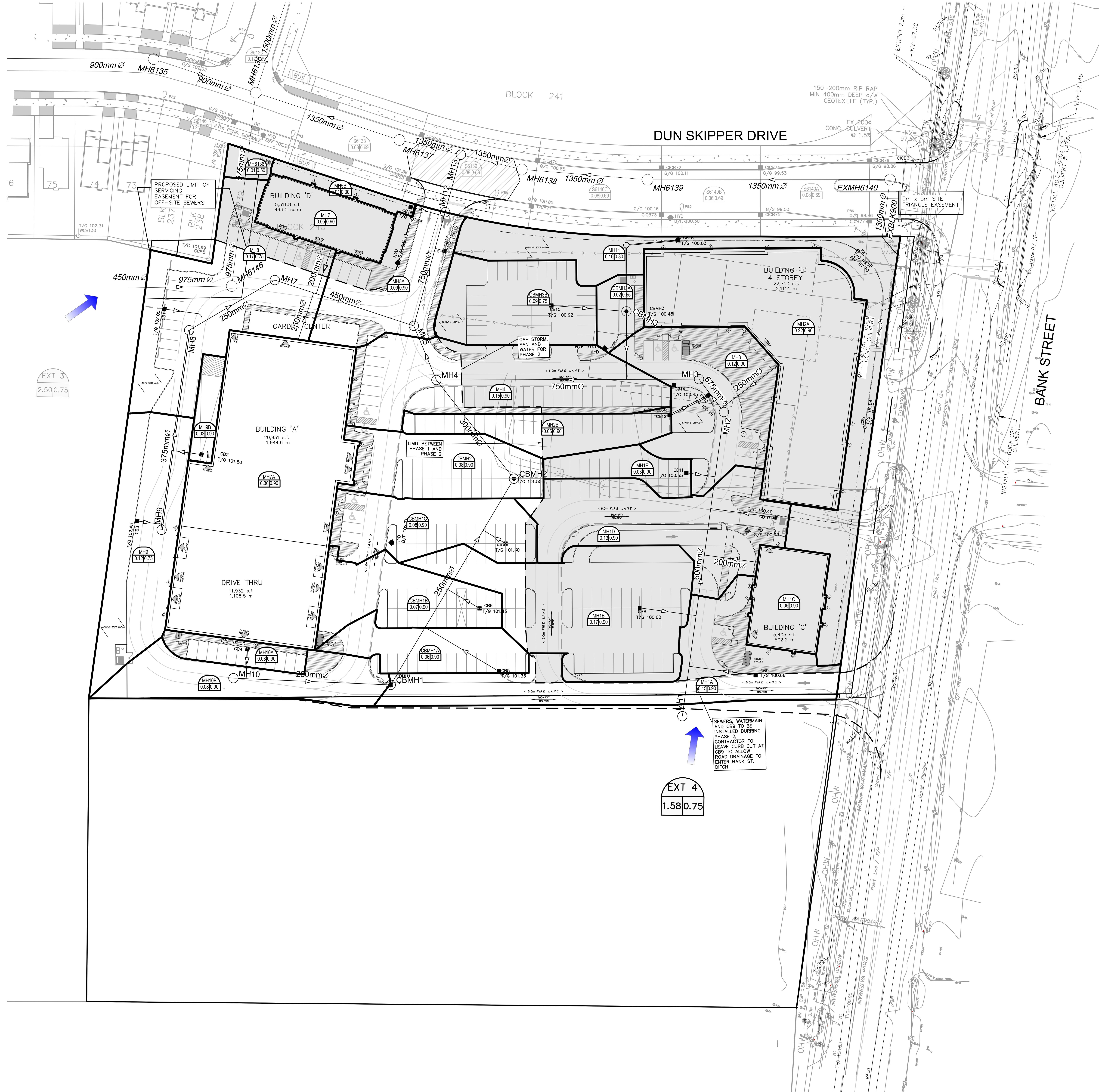
Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820]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

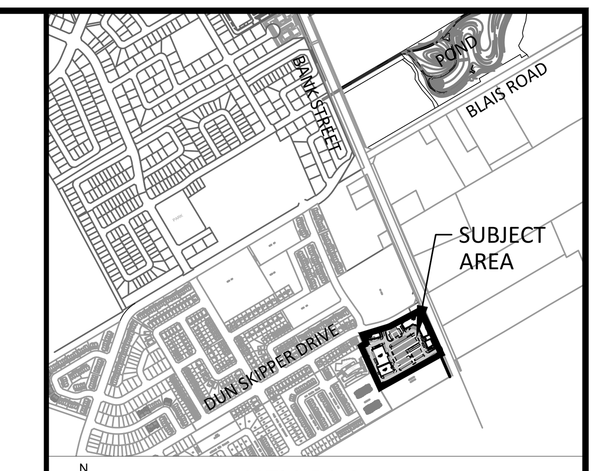
Notes:
1. Mannings coefficient (n) = 0.013

Designed: JEB
Checked: JIM
Dwg. Reference: 119351-500

No.	Revision	Date
1.	- Submission No. 1	2019-03-30
2.	Revised per City Comments	2020-04-20

File Reference:	Date:	Sheet No:
119351.5.7.1	2019-03-30	1 of 1





KEY PLAN
(NTS)

NOTES:

1. SEE DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR H.A. KEN SHIPMAN SURVEYING LTD.

LEGEND:

DRAINAGE AREA LIMITS

XX / 0.01 / 0.30 — AREA ID, RUNOFF COEFFICIENT, AREA IN HECTARES

XX / 0.01 / 0.30 — EXISTING AREA ID, EXISTING RUNOFF COEFFICIENT, EXISTING AREA IN HECTARES

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4	ADD PHASING	JIM	2020:06:23
3	REVISED AS PER CITY COMMENTS	JIM	2019:12:09
2	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	JIM	2019:10:11
1	ISSUED FOR SPA	JIM	2019:04:15

APPROVED ☐ REFUSED ☐

THIS____DAY OF ____________ , 20_____

DON HERWEYER, MCIP, RPP
MANAGER, DEVELOPMENT REVIEW - SOUTH
PLANNING, INFRASTRUCTURE & ECONOMIC DEVELOPMENT DEPARTMENT, CITY OF OTTAWA

IBI

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

Project Title

BANK STREET DEVELOPMENT

4836 BANK STREET

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2020/06/23
PROVINCE OF ONTARIO

N

Drawing Title

STORM DRAINAGE AREA PLAN

Scale
1 : 500

Design: SEL	Date: FEB. 2019
Drawn: DPS	Checked: JIM
Project No.: 119351	Drawing No.: 500

D07-12-19-0092

#17977

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1.34 1.51

STORM SEWER DESIGN SHEET

4840 Bank Street
City of Ottawa
Block 204 Pathways South Apartments

LOCATION				AREA (Ha)									
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.67	C= 0.70	C= 0.80	C= 0.82	C= 0.87	C= 0.88	C= 0.89	C= 0.90	C= 1.00
	CB1 to CB6, Bldg C,RYCB1	MH5	MHMH3	0.05	0.11	0.08	0.15	0.07	0.09			0.15	
	CB9,CB10,Bldg B	MH4	MH3				0.04	0.11				0.15	
	CB7	MH3	CBMH2								0.03		
	CBMH2, Bldg A	CBMH2	MH1							0.16		0.15	

	RATIONAL DESIGN FLOW														
AREA ID	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)
CB1 to CB6, Bldg C,RYCB1	1.47	1.47	10.00	1.31	11.31	76.81	104.19	122.14	178.56	113.25	153.63	180.10	263.29		113.25
CB9,CB10,Bldg B	0.72	0.72	10.00	0.98	10.98	76.81	104.19	122.14	178.56	54.92	74.50	87.33	127.67		54.92
CB7	0.07	2.26	11.31	0.69	12.00	72.12	97.76	114.56	167.43	163.27	221.30	259.34	379.02		163.27
CBMH2, Bldg A	0.77	3.03	12.00	0.13	12.13	69.90	94.70	110.96	162.14	211.82	286.98	336.27	491.35		211.82

	SEWER DATA								
AREA ID	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	(%)
CB1 to CB6, Bldg C,RYCB1	141.68	97.50	375			0.60	1.243	28.43	20.07%
CB9,CB10,Bldg B	78.14	63.00	300			0.60	1.071	23.23	29.72%
CB7	210.32	53.17	450			0.50	1.281	47.05	22.37%
CBMH2, Bldg A	317.25	10.80	525			0.50	1.420	105.43	33.23%

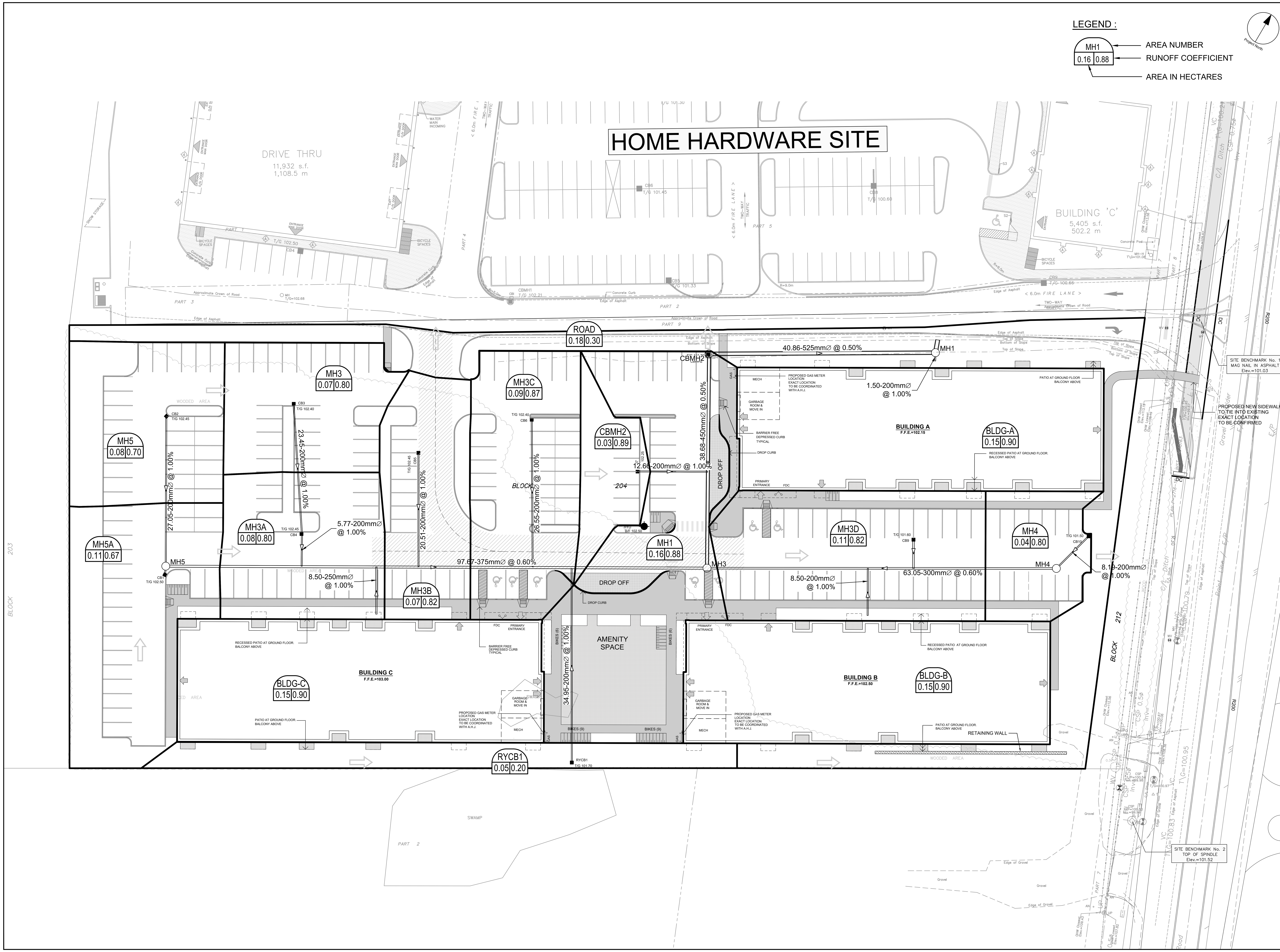
Definitions:
Q = 2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 732.951 / (TC+6.199)^0.810] 2 YEAR
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820]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

Notes:
1. Mannings coefficient (n) = 0.013

Designed: SL
Checked: JIM
Dwg. Reference: 137175-500

No.	Revision	Date
1.	Submission No. 1 For City Comments	2022-06-03

File Reference:	Date:	Sheet No:
137175.6-0.6.04.04.Storm	2022-04-30	1 of 1



CLIENT

PATHWAYS SOUTH REGIONAL INC.

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
2		
3		
4		
5		
6		
7		
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

KEY PLAN

CONSULTANTS

1:300

SEAL

J. I. MOFFATT
2022/06/03
LICENSED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

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

PROJECT

4840 BANK STREET

PROJECT NO: 137175	
DRAWN BY: M.M.	CHECKED BY: S.E.L.
PROJECT MGR: D.C.	APPROVED BY: J.I.M.

SHEET TITLE

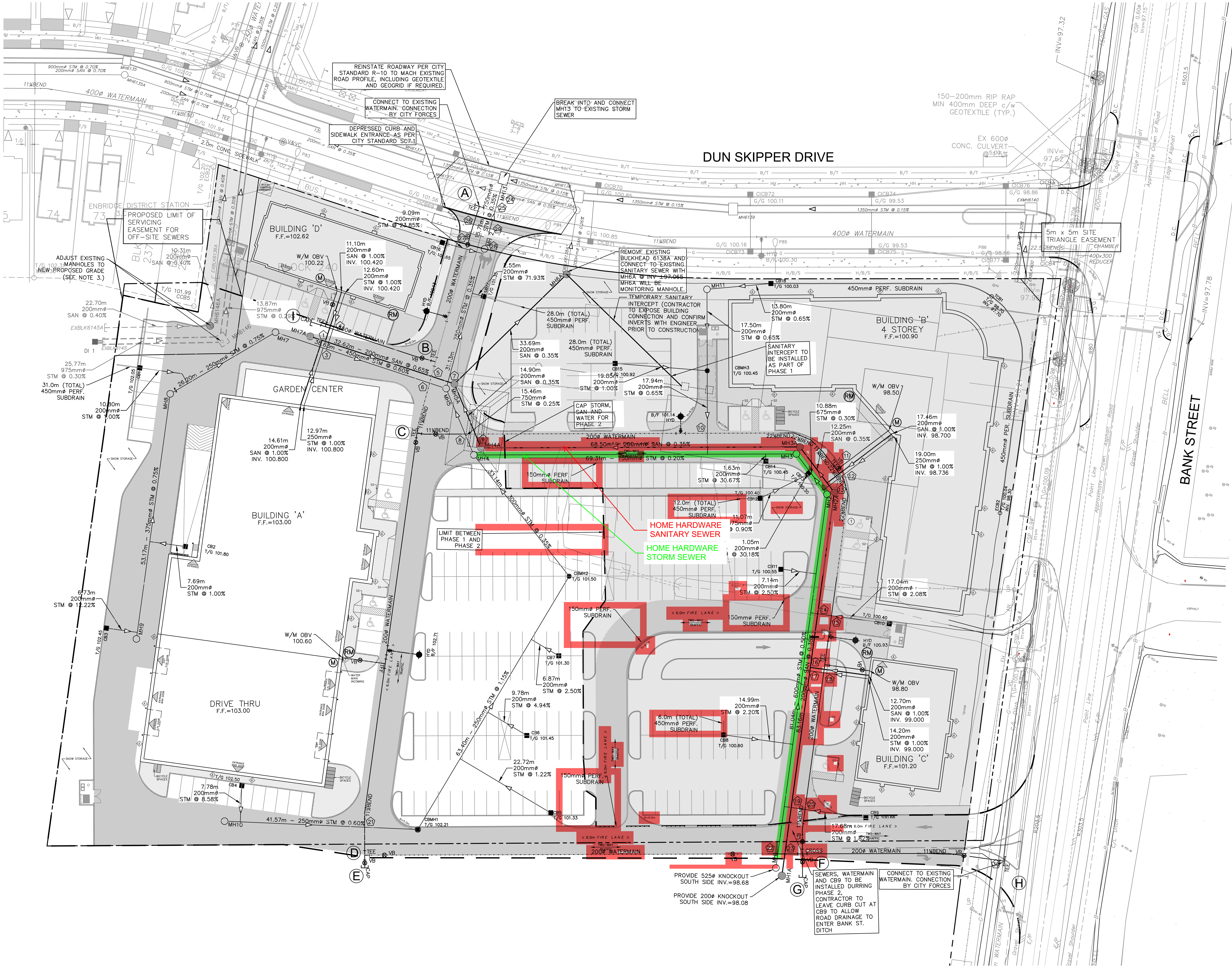
STORM DRAINAGE AREA PLAN

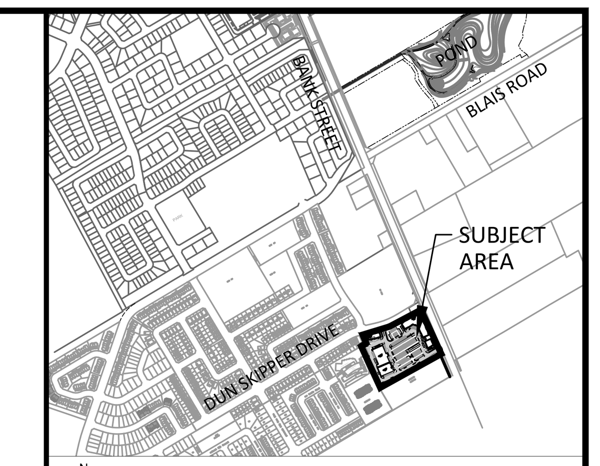
SHEET NUMBER	ISSUE
C-500	1

Plotted: Friday, June 3, 2022 by Marian Milne

CITY FILE No. D07-xx-xx-xxxx

CITY PLAN No. xxxxx





KEY PLAN
(NTS)

NOTES:

1. SEE DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.

2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR H.A. KEN SHIPMAN SURVEYING LTD.

3.0 EXISTING SANITARY MANHOLE - MH6146A AS-BUILT F/C = 102.019 TO BE ADJUSTED TO ±102.160
EXISTING STORM MANHOLE - MH61646 AS-BUILT F/C = 102.018 TO BE ADJUSTED TO ±102.24.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8	ADD PHASING	JIM	2020:06:23
7	REVISED AS PER CITY COMMENTS	JIM	2020:04:20
6	REVISED AS PER CITY COMMENTS	JIM	2020:04:02
5	ISSUED FOR TENDER	JIM	2020:03:18
4	REVISED AS PER CITY COMMENTS	JIM	2020:03:13
3	REVISED AS PER CITY COMMENTS	JIM	2019:12:09
2	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	JIM	2019:10:11
1	ISSUED FOR SPA	JIM	2019:04:15

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

Project Title

BANK STREET DEVELOPMENT
4836 BANK STREET

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2020/06/23
PROVINCE OF ONTARIO

Drawing Title

SITE SERVICING PLAN

Scale
1 : 400

Design: SEL	Date: FEB. 2019
Drawn: DPS	Checked: JIM
Project No.: 119351	Drawing No.: 001

D07-12-19-0092

#17977

APPENDIX E

- Home Hardware Inlet Controls Calculations
- Stormwater Management Calculations

- Asphalt/Concrete	C = 0.90
- Roof	C = 0.90
• Pipe Velocities	0.80 m/s to 6.0 m/s
• Minimum Pipe Size	250 mm diameter (200 mm CB Leads)

4.4 Proposed Minor System

Using the criteria identified in Section 4.3, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated Storm Sewer Drainage Area plan (drawing 119351-500) are both included in **Appendix D**. The Site Servicing Plan, depicting all on-site storm sewers can be found in **Appendix G**.

The proposed minor storm sewer will range in size between 200 mm diameter and 750 mm diameter. Catchbasin lead pipes will mostly be 200 mm diameter with some 250 mm diameter exceptions. The minor storm sewer outlet will be via the 750 mm diameter pipe which is proposed to connect to the existing 1350 mm diameter storm sewer in Dun Skipper Drive. The existing 1350 mm diameter storm sewer behind building B will be terminated with a manhole and will receive some minor storm flow from the landscaped areas behind Building B. The proposed design has also provided minor storm sewer capacity for the future Idone commercial site near MH1.

The 1350 mm diameter storm sewer in Dun Skipper Drive ultimatly outlets to the Findlay Creek Village SWMF. This facility provides 80% TSS removal, as such no additional on-site stormwater quality control is required withn the subject lands.

4.5 Stormwater Management

The subject site will be limited to a release rate established using the criteria described in section 4.2. This will be achieved through a combination of inlet control devices (ICD's) at inlet locations and surface storage.

Flows generated that are in excess of the site's allowable release rate will be stored on site in strategic surface storage areas or by the use of roof top storage and gradually released into the minor system so as not to exceed the site's allocation.

The maximum surface retention depth located within the developed areas will be limited to 300mm during a 1:100 year event as shown on the ponding and grading plans located in **Appendix G.**

Overland flow routes will be provided in the grading to permit emergency overland flow, in excess of the 100 year event, from the site.

At a single location within the site, west of building D, the opportunity to store runoff is limited due to grading constraints and building geometry, this area will flow uncontrolled to the Dun Skipper right-of-way. This uncontrolled areas – 0.01 hectares in total, have an average C value of 0.6250. Based on 1:100 year storm uncontrolled flows, the uncontrolled areas generate 3.10 l/s runoff (refer to Section 4.6 for the calculation).

The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site. Please refer to the SWM calculations in **Appendix E**.

4.6 Inlet Controls

The allowable release rate for the 2.49 Ha site can be calculated as follows:

$Q_{allowable}$ = 760 L/s as per IBI Pathways Phase 1 Report – EXT 4 drainage area
Area Total EXT4 = 4.04 Ha

Subject lands share = 62% of EXT4 release rate (2.5 Ha / 4.04 Ha = 0.62)

$Q_{\text{Subject Lands}}$ = 468.42 L/s

As noted in Section 4.5, a small portion of the site just west of Building D will be left to discharge to the Dun Skipper Drive boulevard at an uncontrolled rate.

Based on a 1:100 year event, the flow from the 0.01 Ha uncontrolled areas can be determined as:

$Q_{\text{uncontrolled}}$ = $\mathbf{2.78} \times \mathbf{C} \times \mathbf{i_{100yr}} \times \mathbf{A}$ where:

C = Average runoff coefficient of uncontrolled area = 0.625

i_{100yr} = Intensity of 100-year storm event (mm/hr)

= $1735.688 \times (T_c + 6.014)^{0.820}$ = 178.56 mm/hr; where T_c = 10 minutes

A = Uncontrolled Area = 0.01 Ha

Therefore, the uncontrolled release rate can be determined as:

$Q_{\text{uncontrolled}}$ = $\mathbf{2.78} \times \mathbf{C} \times \mathbf{i_{100yr}} \times \mathbf{A}$

= $2.78 \times 0.625 \times 178.56 \times 0.01$

= **3.10 L/s**

The maximum allowable release rate from the remainder of the site can then be determined as:

$Q_{\text{max allowable}}$ = $Q_{\text{restricted}} - Q_{\text{uncontrolled}}$

= 468.42 L/s – 3.10 L/s

= **465.31 L/s**

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen for the design. The design of the inlet control devices is unique to each drainage area and is determined based on a number of factors, including hydraulic head and allowable release rate. The inlet control devices were sized according to the manufacturer's design charts. The restrictions will cause the on-site catchbasins and manholes to surcharge, generating surface ponding in the parking and landscaped areas. Ponding locations and elevations are summarized on drawing 119351-600, Ponding Plan 119351-600 which is included in **Appendix G**.

4.7 On-Site Detention

Any excess storm water up to the 100-year event is to be stored on-site in order to not surcharge the downstream municipal storm sewer system. Detention will be provided in parking and landscape areas and building rooftops, where feasible. As previously noted, the volume of storage is dependent on the characteristics of each individual drainage area and the ICD's were chosen accordingly. It should be noted that 0.30m of vertical separation has been provided from all maximum ponding elevations to lowest building openings.

4.7.1 Site Inlet Control

The following Table summarizes the on-site storage requirements during both the 1:5-year and 1:100-year events.

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT: Pathways Blk 204
DATE: 2022-05-31
FILE: 137175.6.04.04
REV #: 1
DESIGNED BY: SEL
CHECKED BY: JIM

STORMWATER MANAGEMENT

Formulas and Descriptions

i_{2yr} = 1:2 year Intensity = 732.951 / $(T_c+6.199)^{0.810}$
i_{5yr} = 1:5 year Intensity = 998.071 / $(T_c+6.053)^{0.814}$
i_{100yr} = 1:100 year Intensity = 1735.688 / $(T_c+6.014)^{0.820}$
T_c = Time of Concentration (min)
C = Average Runoff Coefficient
A = Area (Ha)
Q = Flow = 2.78CiA (L/s)

Maximum Allowable Release Rate

Restricted Flowrate
Taken from City of Ottawa approved Design Brief "Pathways at Findlay Creek" (D07-16-13-0023) drainage area EXT 4

EXT 4 Release Rate	760.00 L/s
Area EXT 4 $_{TOTAL}$ =	4.04 Ha
Area Subject Lands	1.55 Ha
Perscentage Share of release rate	38%

Q_{TOTAL} =	291.58 L/s

Uncontrolled Release ($Q_{uncontrolled}$ = 2.78*C*i_{100yr}*$A_{uncontrolled}$)

C =	0.3
T_c =	10 min
i_{100yr} =	178.56 mm/hr
$A_{uncontrolled}$ =	0.17 Ha

$Q_{uncontrolled}$ =	25.32 L/s

Maximum Allowable Release Rate ($Q_{max\ allowable}$ = $Q_{restricted}$ - $Q_{uncontrolled}$)

$Q_{max\ allowable}$ =	266.27 L/s

MODIFIED RATIONAL METHOD (100-Year & 5-Year Ponding)

Drainage Area	*BLDG-C*				
Area (Ha)	0.150				
C =	1.00	Restricted Flow Q_r (L/s)=		12.00	
100-Year Ponding					
T_c Variable (min)	***i_{100yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{100yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 100yr (m^3)***
27	98.66	41.14	12.00	29.14	47.21
29	94.01	39.20	12.00	27.20	47.33
30	91.87	38.31	12.00	26.31	**47.36**
31	89.83	37.46	12.00	25.46	47.35
33	86.03	35.88	12.00	23.88	47.27

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	47.36	48.00	0	0.00

overflows to: MH5A

Drainage Area	*BLDG-C*				
Area (Ha)	0.150				
C =	0.90	Restricted Flow Q_r (L/s)=		12.00	
5-Year Ponding					
T_c Variable (min)	***i_{5yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{5yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 5yr (m^3)***
13	90.63	34.01	12.00	22.01	17.17
15	83.56	31.36	12.00	19.36	17.42
16	80.46	30.20	12.00	18.20	**17.47**
17	77.61	29.13	12.00	17.13	17.47
19	72.53	27.22	12.00	15.22	17.35

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	17.47	48.00	0.00	0.00

overflows to: MH5A

Drainage Area	*MH5A*				
Area (Ha)	0.110				
C =	0.84	Restricted Flow Q_r (L/s)=		12.00	
100-Year Ponding					
T_c Variable (min)	***i_{100yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{100yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 100yr (m^3)***
16	137.55	35.23	12.00	23.23	22.30
18	128.08	32.80	12.00	20.80	22.47
19	123.87	31.72	12.00	19.72	**22.49**
20	119.95	30.72	12.00	18.72	22.46
22	112.88	28.91	12.00	16.91	22.32

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	22.49	17.12	0.00	5.37

overflows to: MH5, MH3A

Drainage Area	*MH5A*				
Area (Ha)	0.110				
C =	0.67	Restricted Flow Q_r (L/s)=		12.00	
5-Year Ponding					
T_c Variable (min)	***i_{5yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{5yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 5yr (m^3)***
6	131.57	26.96	12.00	14.96	5.38
8	116.11	23.79	12.00	11.79	5.66
9	109.79	22.50	12.00	10.50	**5.67**
10	104.19	21.35	12.00	9.35	5.61
12	94.70	19.40	12.00	7.40	5.33

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
0.00	5.67	17.12	0.00	0.00

overflows to: MH5, MH3A

Drainage Area	*MH5*				
Area (Ha)	0.08				
C =	0.88	Restricted Flow Q_r (L/s)=		6.00	
100-Year Ponding					
T_c Variable (min)	***i_{100yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{100yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 100yr (m^3)***
25	103.85	20.21	6.00	14.21	21.31
27	98.66	19.20	6.00	13.20	21.38
28	96.27	18.74	6.00	12.74	**21.39**
29	94.01	18.30	6.00	12.30	21.39
31	89.83	17.48	6.00	11.48	21.35

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
5.37	26.76	28.66	0.00	0.00

overflows to: MH3

Drainage Area	*MH5*				
Area (Ha)	0.08				
C =	0.70	Restricted Flow Q_r (L/s)=		6.00	
5-Year Ponding					
T_c Variable (min)	***i_{5yr} (mm/hour)***	***Peak Flow Q_p=2.78xCi_{5yr}A (L/s)***	***Q_r (L/s)***	***Q_p-Q_r (L/s)***	***Volume 5yr (m^3)***
10	104.19	16.22	6.00	10.22	6.13
12	94.70	14.74	6.00	8.74	6.29
13	90.63	14.11	6.00	8.11	**6.33**
14	86.93	13.53	6.00	7.53	6.33
16	80.46	12.53	6.00	6.53	6.26

Storage (m^3)				
Overflow	**Required**	**Surface**	**Sub-surface**	**Balance**
5.37	11.69	28.66	0.00	0.00

overflows to: MH3

Drainage Area	MH3				
Area (Ha)	0.07				
C =	1.00	Restricted Flow Q_r (L/s)=		6.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
25	103.85	20.21	6.00	14.21	21.31
27	98.66	19.20	6.00	13.20	21.38
28	96.27	18.74	6.00	12.74	**21.39**
29	94.01	18.30	6.00	12.30	21.39
31	89.83	17.48	6.00	11.48	21.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	21.39	56.01	0.00	0.00

overflows to: MH3B

Drainage Area	MH3				
Area (Ha)	0.07				
C =	0.80	Restricted Flow Q_r (L/s)=		6.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
10	104.19	16.22	6.00	10.22	6.13
12	94.70	14.74	6.00	8.74	6.29
13	90.63	14.11	6.00	8.11	**6.33**
14	86.93	13.53	6.00	7.53	6.33
16	80.46	12.53	6.00	6.53	6.26

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	6.33	56.01	0.00	0.00

overflows to: MH3B

Drainage Area	MH3A				
Area (Ha)	0.080				
C =	1.00	Restricted Flow Q_r (L/s)=		8.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
21	116.30	25.86	8.00	17.86	22.51
23	109.68	24.39	8.00	16.39	22.62
24	106.68	23.72	8.00	15.72	**22.64**
25	103.85	23.10	8.00	15.10	22.64
27	98.66	21.94	8.00	13.94	22.59

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	22.64	24.85	0.00	0.00

overflows to: MH3B

Drainage Area	MH3A				
Area (Ha)	0.080				
C =	0.80	Restricted Flow Q_r (L/s)=		8.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
9	109.79	19.53	8.00	11.53	6.23
11	99.19	17.65	8.00	9.65	6.37
12	94.70	16.85	8.00	8.85	**6.37**
13	90.63	16.12	8.00	8.12	6.34
15	83.56	14.87	8.00	6.87	6.18

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	6.37	24.85	0.00	0.00

overflows to: MH3B

Drainage Area	MH3B				
Area (Ha)	0.070				
C =	1.00	Restricted Flow Q_r (L/s)=		6.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
25	103.85	20.21	6.00	14.21	21.31
27	98.66	19.20	6.00	13.20	21.38
28	96.27	18.74	6.00	12.74	**21.39**
29	94.01	18.30	6.00	12.30	21.39
31	89.83	17.48	6.00	11.48	21.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	21.39	21.56	0	0.00

overflows to: out

Drainage Area	MH3B				
Area (Ha)	0.070				
C =	0.82	Restricted Flow Q_r (L/s)=		6.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
11	99.19	15.83	6.00	9.83	6.49
13	90.63	14.46	6.00	8.46	6.60
14	86.93	13.87	6.00	7.87	**6.61**
15	83.56	13.33	6.00	7.33	6.60
17	77.61	12.38	6.00	6.38	6.51

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	6.61	21.56	0.00	0.00

overflows to: out

Drainage Area	MH3C				
Area (Ha)	0.090				
C =	1.00	Restricted Flow Q_r (L/s)=		6.00	
100-Year Ponding					
T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
12	162.13	40.57	6.00	34.57	24.89
14	148.72	37.21	6.00	31.21	26.22
15	142.89	35.75	6.00	29.75	**26.78**
16	137.55	34.41	6.00	28.41	27.28
18	128.08	32.05	6.00	26.05	28.13

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	26.78	53.05	0	0.00

overflows to: CBMH2

Drainage Area	MH3C				
Area (Ha)	0.090				
C =	0.87	Restricted Flow Q_r (L/s)=		6.00	
5-Year Ponding					
T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
16	80.46	17.51	6.00	11.51	11.05
18	74.97	16.32	6.00	10.32	11.14
19	72.53	15.79	6.00	9.79	**11.16**
20	70.25	15.29	6.00	9.29	11.15
22	66.15	14.40	6.00	8.40	11.09

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	11.16	53.05	0.00	0.00

overflows to: CBMH2

Drainage Area	CBMH2		
Area (Ha)	0.030		
C =	1.00	Restricted Flow Q_r (L/s)=	12.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
3	286.05	23.86	12.00	11.86	2.13
4	262.41	21.88	12.00	9.88	2.37
5	242.70	20.24	12.00	8.24	**2.47**
6	226.01	18.85	12.00	6.85	2.47
8	199.20	16.61	12.00	4.61	2.21

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.47	2.64	0.00	0.00

overflows to: MH1

Drainage Area	CBMH2		
Area (Ha)	0.030		
C =	0.89	Restricted Flow Q_r (L/s)=	12.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-1	266.98	19.82	12.00	7.82	-0.47
1	203.51	15.11	12.00	3.11	0.19
2	182.69	13.56	12.00	1.56	**0.19**
3	166.09	12.33	12.00	0.33	0.06
5	141.18	10.48	12.00	-1.52	-0.46

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.19	2.64	0.00	0.00

overflows to: MH1

Drainage Area	BLDG-B		
Area (Ha)	0.150		
C =	1.00	Restricted Flow Q_r (L/s)=	12.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
28	96.27	40.15	12.00	28.15	47.29
29	94.01	39.20	12.00	27.20	47.33
30	91.87	38.31	12.00	26.31	**47.36**
31	89.83	37.46	12.00	25.46	47.35
33	86.03	35.88	12.00	23.88	47.27

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	47.36	48.00	0.00	0.00

overflows to: MH1

Drainage Area	BLDG-B		
Area (Ha)	0.150		
C =	0.90	Restricted Flow Q_r (L/s)=	12.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
13	90.63	34.01	12.00	22.01	17.17
15	83.56	31.36	12.00	19.36	17.42
16	80.46	30.20	12.00	18.20	**17.47**
17	77.61	29.13	12.00	17.13	17.47
19	72.53	27.22	12.00	15.22	17.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	17.47	48.00	0	0.00

overflows to: MH1

Drainage Area	BLDG-A		
Area (Ha)	0.150		
C =	1.00	Restricted Flow Q_r (L/s)=	12.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
27	98.66	41.14	12.00	29.14	47.21
29	94.01	39.20	12.00	27.20	47.33
30	91.87	38.31	12.00	26.31	**47.36**
31	89.83	37.46	12.00	25.46	47.35
33	86.03	35.88	12.00	23.88	47.27

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	47.36	48.00	0.00	0.00

overflows to: MH1

Drainage Area	BLDG-A		
Area (Ha)	0.150		
C =	0.90	Restricted Flow Q_r (L/s)=	12.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
13	90.63	34.01	12.00	22.01	17.17
15	83.56	31.36	12.00	19.36	17.42
16	80.46	30.20	12.00	18.20	**17.47**
17	77.61	29.13	12.00	17.13	17.47
19	72.53	27.22	12.00	15.22	17.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	17.47	48.00	0	0.00

Drainage Area	MH1		
Area (Ha)	0.160		
C =	1.00	Restricted Flow Q_r (L/s)=	80.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
1	351.38	156.29	80.00	76.29	4.58
3	286.05	127.23	80.00	47.23	8.50
4	262.41	116.72	80.00	36.72	**8.81**
5	242.70	107.95	80.00	27.95	8.39
7	211.67	94.15	80.00	14.15	5.94

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	8.81	1.73	0.00	7.08

overflows to: MH3D

Drainage Area	MH1		
Area (Ha)	0.160		
C =	0.88	Restricted Flow Q_r (L/s)=	80.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{5yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-3	402.34	157.49	80.00	77.49	-13.95
-1	266.98	104.50	80.00	24.50	-1.47
0	230.48	90.22	80.00	10.22	**0.00**
1	203.51	79.66	80.00	-0.34	-0.02
3	166.09	65.01	80.00	-14.99	-2.70

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	1.73	0	0.00

overflows to: MH3D

Drainage Area	MH3D		
Area (Ha)	0.110		
C =	1.00	Restricted Flow Q_r (L/s)=	65.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
0	398.62	121.90	65.00	56.90	0.00
2	315.00	96.33	65.00	31.33	3.76
3	286.05	87.47	65.00	22.47	**4.05**
4	262.41	80.24	65.00	15.24	3.66
6	226.01	69.11	65.00	4.11	1.48

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
7.08	11.13	10.79	0.00	0.34

overflows to: MH4

Drainage Area	MH3D		
Area (Ha)	0.110		
C =	0.82	Restricted Flow Q_r (L/s)=	65.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-3	402.34	100.89	65.00	35.89	-6.46
-1	266.98	66.95	65.00	1.95	-0.12
0	230.48	57.79	65.00	-7.21	**0.00**
1	203.51	51.03	65.00	-13.97	-0.84
3	166.09	41.65	65.00	-23.35	-4.20

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	10.79	0	0.00

overflows to: MH4

Drainage Area	MH4		
Area (Ha)	0.040		
C =	1.00	Restricted Flow Q_r (L/s)=	25.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
0	398.62	44.33	25.00	19.33	0.00
2	315.00	35.03	25.00	10.03	1.20
3	286.05	31.81	25.00	6.81	**1.23**
4	262.41	29.18	25.00	4.18	1.00
6	226.01	25.13	25.00	0.13	0.05

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.34	1.56	1.75	0.00	0.00

overflows to: out

Drainage Area	MH4		
Area (Ha)	0.040		
C =	0.80	Restricted Flow Q_r (L/s)=	25.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-3	402.34	35.79	25.00	10.79	-1.94
-1	266.98	23.75	25.00	-1.25	0.07
0	230.48	20.50	25.00	-4.50	**0.00**
1	203.51	18.10	25.00	-6.90	-0.41
3	166.09	14.77	25.00	-10.23	-1.84

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	1.75	0	0.00

overflows to: out

Drainage Area	RYCB1		
Area (Ha)	0.050		
C =	0.33	Restricted Flow Q_r (L/s)=	6.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
3	286.05	12.92	6.00	6.92	1.25
5	242.70	10.96	6.00	4.96	1.49
6	226.01	10.21	6.00	4.21	**1.52**
7	211.67	9.56	6.00	3.56	1.50
9	188.25	8.50	6.00	2.50	1.35

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.52	3.38	0.00	0.00

overflows to: out

Drainage Area	RYCB1		
Area (Ha)	0.050		
C =	0.26	Restricted Flow Q_r (L/s)=	6.00

5-Year Ponding

T_c Variable (min)	i_{5yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{5yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 5yr (m^3)
-2	319.47	11.55	6.00	5.55	-0.67
0	230.48	8.33	6.00	2.33	0.00
1	203.51	7.35	6.00	1.35	**0.08**
2	182.69	6.60	6.00	0.60	0.07
4	152.51	5.51	6.00	-0.49	-0.12

Storage (m^3)

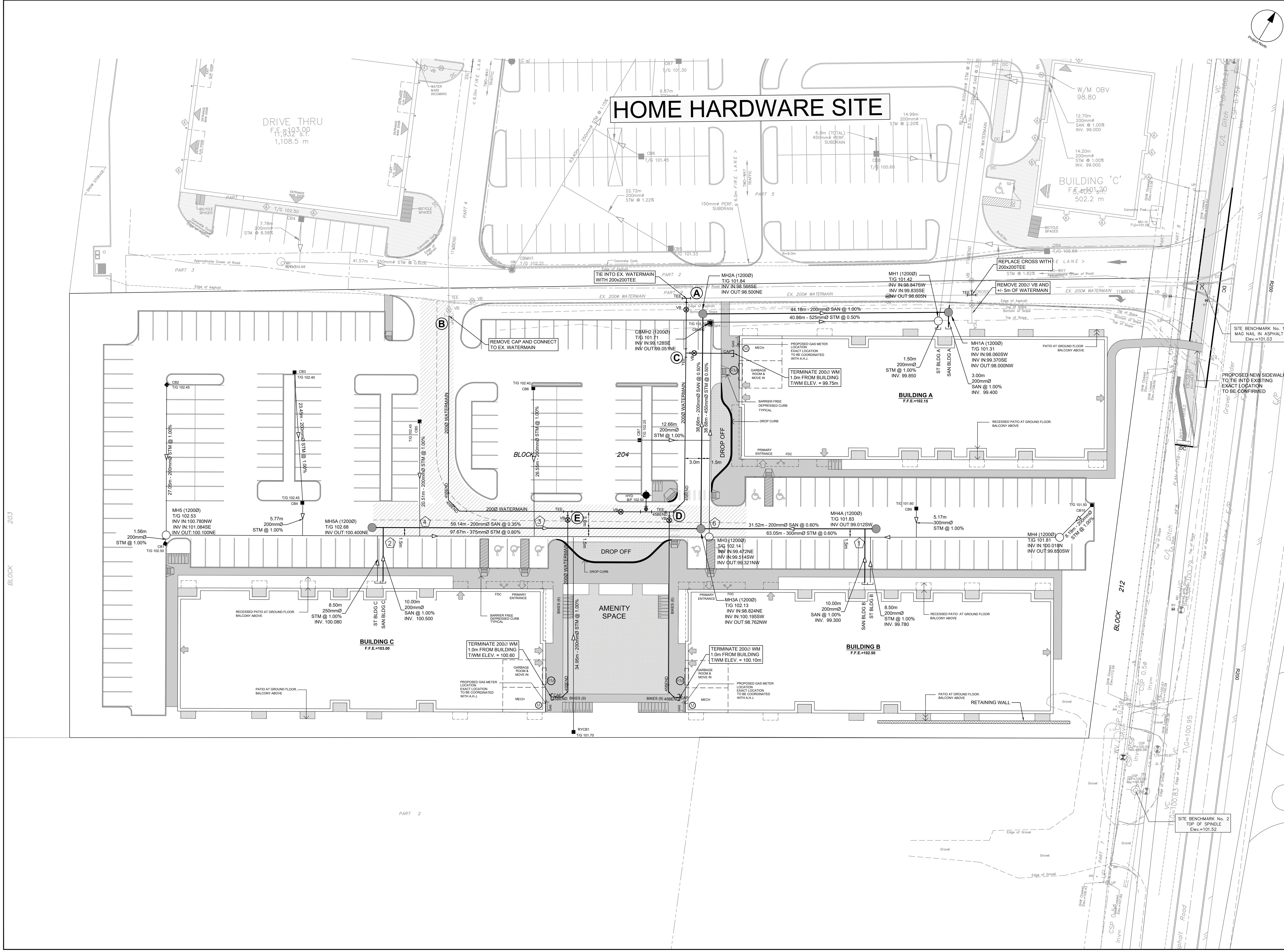
Overflow	Required	Surface	Sub-surface	Balance
0.00	0.08	3.38	0	0.00

overflows to: out

Drainage Area	Tributary Area	Restr Flow	Req Storage	Avail Storage
BLDG-A	0.15	12.00	47.36	48.00
MH5A	0.11	12.00	22.49	17.12
MH5	0.08	6.00	26.76	28.66
MH3	0.07	6.00	21.39	56.01
MH3A	0.08	8.00	22.64	24.85
MH3B	0.07	6.00	21.39	21.56
MH3C	0.09	6.00	26.78	53.05
CBMH2	0.03	12.00	2.47	2.64
BLDG-B	0.15	12.00	47.36	48.00
BLDG-A	0.15	12.00	47.36	48.00
MH1	0.16	80.00	8.81	1.73
MH3D	0.11	65.00	11.13	10.79
MH4	0.04	23.00	1.59	1.75
RYCB1	0.05	6.00	1.52	3.38
	1.34	**266.00**	**309.05**	**365.54**

APPENDIX F

- **Drawing 137175-001 – Site Servicing Plan**
- **Drawing 137175-010 – Details and Notes**
- **Drawing 137175-200 – Site Grading Plan**
- **Drawing 137175-600 – Ponding Plan**
- **Drawing 137175-900 – Erosion and Sedimentation Control Plan**



CLIENT

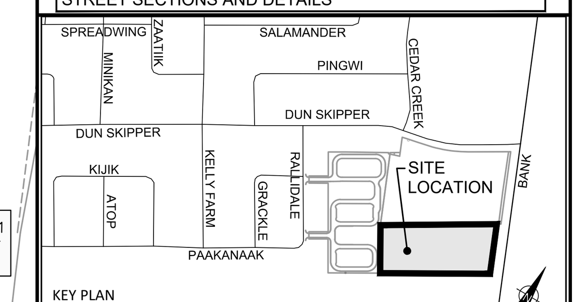
PATHWAYS SOUTH REGIONAL INC.

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
2		
3		
4		
5		
6		
7		
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN

CONSULTANTS

SEAL

J. I. MOFFATT
2022/06/03
PROVINCE OF ONTARIO

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

PROJECT

4840 BANK STREET

PROJECT NO:	
137175	
DRAWN BY: M.M.	CHECKED BY: S.E.L.
PROJECT MGR: D.C.	APPROVED BY: J.I.M.

SHEET TITLE

GENERAL PLAN OF SERVICES

SHEET NUMBER	ISSUE
C-001	1

CITY FILE No. D07-xx-xx-xxxx

CITY PLAN No. xxxxx

DRAWING NOTES

1.0 GENERAL

1.1 CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

1.2 DO NOT SCALE DRAWINGS.

1.3 CONTRACTOR TO REPORT ALL DISCOVERIES OF ERRORS, OMISSIONS OR DISCREPANCIES TO THE ARCHITECT OR DESIGN ENGINEER AS APPLICABLE.

1.4 USE ONLY THE LATEST REVISED DRAWINGS OR THOSE THAT ARE MARKED "ISSUED FOR CONSTRUCTION".

1.5 ALL CONSTRUCTION SHALL COMPLY WITH CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.

1.6 THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELEVANT DRAWINGS AND SPECIFICATIONS.

1.7 FOR LEGAL SURVEY INFORMATION REFER TO REGISTERED PLAN.

1.8 REFER TO SITE PLAN BY CHAMBERLAIN ARCHITECT SERVICES LIMITED.

1.09 CONTRACTOR TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES AS IDENTIFIED IN THE EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.). DURING ALL PHASES OF THE SITE PREPARATION AND CONSTRUCTION THE MEASURES ARE TO BE MAINTAINED TO THE SATISFACTION OF THE ENGINEER AND CITY OF OTTAWA IN ACCORDANCE WITH THE BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL. SHOULD ANY ADDITIONAL MEASURES BE REQUIRED TO ADDRESS FIELD CONDITIONS THEY SHALL BE INSTALLED AS DIRECTED BY THE ENGINEER OR THE CITY OF OTTAWA. SUCH ADDITIONAL MEASURES MAY INCLUDE BUT NOT BE LIMITED TO INSTALLATION OF FILTER CLOTHS ACROSS MANHOLE AND CATCHBASIN LIDS TO PREVENT SEDIMENT FROM ENTERING THE STRUCTURE AND INSTALLATION AND MAINTENANCE OF A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.

1.10 ALL IRON WORK ELEVATIONS SHOWN ARE APPROXIMATE AND ARE SUBJECT TO MINOR ADJUSTMENTS AS DETERMINED BY THE ENGINEER.

1.11 ALL CONCRETE CURBS AND SIDEWALKS TO CONFORM TO CITY STANDARDS SC1.1 AND SC1.4. ALL ONSITE CURBS TO BE BARRIER TYPE, WITH DEPRESSIONS AS NOTED.

1.12 ALL CONCRETE SHALL BE "NORMAL PORTLAND CEMENT" IN ACCORDANCE WITH O.P.S.S. 1350 AND SHALL ACHIEVE A MINIMUM STRENGTH OF 30MPa AT 28 DAYS.

1.13 ALL CONSTRUCTION TRAFFIC TO ACCESS SITE FROM BANK STREET.

1.14 FOR GEOTECHNICAL REPORT SEE GEOTECHNICAL INVESTIGATION PROPOSED MULTI-STOREY BUILDINGS IDONE SOUTH APARTMENTS 4840 BANK STREET, OTTAWA, ON, REPORT No. PG6255 BY PATERSON GROUP DATED MAY 20, 2022.

1.15 CONTRACTOR TO PROTECT EXISTING INFRASTRUCTURE AND PROPERTY SUCH AS TREES, PARKING METERS, SIDEWALKS, CURBS, ASPHALT, AND STREET SIGNS FROM DAMAGE DURING CONSTRUCTION. CONTRACTOR TO PAY THE COST TO REINSTATE OR REPLACE ANY DAMAGED INFRASTRUCTURE OR PROPERTY TO THE SATISFACTION OF THE CITY.

1.16 THE POSITION OF POLE LINES, CONDUITS, WATERMAIN, SEWERS, AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK THE CONTRACTOR SHALL INFORM ITSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, SHALL PROTECT ALL UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

1.17 CONTRACTOR TO SUPPLY SUITABLE FILL MATERIAL WHERE REQUIRED TO ROUGH GRADE THE SITE. ALL IMPORTED FILL MATERIAL TO BE CERTIFIED AS ACCEPTABLE BY THE GEOTECHNICAL ENGINEER.

1.18 CONTRACTOR TO HAUL EXCESS MATERIAL OFFSITE AS NECESSARY TO GRADE SITE TO MEET THE PROPOSED GRADES. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY ENGINEER. ENGINEER TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.

1.19 FILL MATERIAL WITHIN THE PARKING LOT AND BUILDING PAD AREAS, AND SUPPORTING BUILDING FOUNDATIONS SHALL BE COMPACTED TO 98% STANDARD MODIFIED PROCTOR DENSITY AND TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER.

1.20 ALL COMPACTION METHODS TO BE PERFORMED TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER TO INCLUDE BUT NOT BE LIMITED TO THE THICKNESS OF LIFTS, AND COMPACTION EQUIPMENT USED.

1.21 ALL DISTURBED BOULEVARDS TO BE REINSTATED WITH SOD ON 100mm TOPSOIL.

1.22 UTILITY DUCTS TO BE INSTALLED PRIOR TO ROAD BASE CONSTRUCTION.

1.23 CLAY DIKES TO BE INSTALLED WHERE INDICATED ON THE DRAWINGS OR AS APPROVED AND DIRECTED BY THE GEOTECHNICAL ENGINEER ALL IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.

1.24 ALL UTILITY BOXES (i.e. PEDESTALS, TRANSFORMERS, ETC) ARE TO BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF OTTAWA'S "GUIDELINES FOR UTILITY PEDESTALS WITHIN THE ROAD RIGHT OF WAY"

1.25 FOR SITE BENCH MARK SEE SURVEY BY ANNIS O'SULLIVAN, VOLLEBEKK LTD. JOB No. 20749-22 REGIONAL BLK 204 4M-1653 T DI.

2.0 SANITARY

2.1 ALL SANITARY SEWER MAINS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ONLY FACTORY FITTINGS TO BE USED. SEWER TO BE INSTALLED AS PER OSPD 1005.01. SANITARY SEWER MATERIALS TO BE:
200mmØ AND SMALLER - PVC DR 35

2.2 ALL SANITARY MAINTENANCE HOLES TO BE 1.2m DIAMETER AS PER CITY OF OTTAWA STANDARDS COMPLETE WITH BENCHING, RUNGS, FRAME AND COVER, DROP PIPES AND LANDINGS WHERE NEEDED.

2.3 SANITARY MANHOLE COVERS TO BE CITY OF OTTAWA STD. S25 (MOD. OPSD. 401.020). SANITARY MANHOLE COVER TO BE CLOSED COVER TYPE, AS PER CITY STANDARD S24.

2.4 SANITARY SEWER LEAKAGE TEST AND CCTV INSPECTION SHALL BE COMPLETED AS PER CITY SPECIFICATIONS PRIOR TO INSTALLATION OF BASE COURSE ASPHALT.

2.5 ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

2.6 CONNECTION TO THE EXISTING SANITARY SEWER TO BE INCLUDED IN THE COST FOR SANITARY SEWER INSTALLATION. THIS INCLUDES REINSTATEMENT OF ROAD CUTS TO CITY STANDARDS.

3.0 STORM

3.1 ALL STORM SEWERS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ALL STORM SEWERS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. ONLY FACTORY FITTINGS TO BE USED. STORM SEWER MATERIALS TO BE : 375mmØ AND SMALLER - PVC DR 35
450mmØ AND LARGER - 100-D REINFORCED CONCRETE.

3.2 ALL STORM MAINTENANCE HOLES TO BE SIZED IN ACCORDANCE WITH THE PLANS AND AS PER CITY OF OTTAWA STANDARDS COMPLETE WITH BENCHING, RUNGS, AND FRAME AND COVER.

3.3 STORM MH COVERS TO BE OPEN TYPE, AS PER CITY STANDARD S24, FRAMES TO BE PER CITY OF OTTAWA STD. S25. CONTRACTOR TO INSTALL FILTER FABRIC UNDER STORM MH COVER UNTIL SODDING IS COMPLETE.

3.4 STORM MAINTENANCE HOLES TO BE OPSD, SIZE AS SPECIFIED, TAPER TOP.

3.5 ALL CATCH BASINS TO BE AS PER OPSD 705.010, FRAME & FISH TYPE GRATE AS PER CITY OF OTTAWA STD. S19.1.

3.6 150mm DIAMETER SOCK-WRAPPED PERFORATED PVC SUBDRAINS TO BE INSTALLED AT THE LIMIT OF THE HEAVY DUTY ROAD STRUCTURE WHERE IT MEETS THE LIGHT DUTY ROAD STRUCTURE AND AT ALL CB'S IN HEAVY DUTY ROADS AS IDENTIFIED ON PLAN. SUBDRAINS TO DISCHARGE TO CB'S AS SHOWN.

3.7 ANY STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

3.8 CONNECTION TO THE EXISTING STORM SEWER TO BE INCLUDED IN THE COST FOR STORM SEWER INSTALLATION. THIS INCLUDES REINSTATEMENT OF ROAD CUT TO CITY STANDARDS.

3.9 CONTRACTOR TO PROVIDE IPEX-TEMPEST MHF ICD'S SHOP DRAWINGS, OR EQUIVALENT, FOR ENGINEERS REVIEW PRIOR TO ORDERING ICD'S.

4.0 WATER

4.1 ALL WATERMAINS TO BE PVC DR 18, WITH MINIMUM COVER OF 2.4m AND INSTALLED PER CITY OF OTTAWA STANDARDS W17. ALL DOMESTIC WATER SERVICES ARE TO BE 200mmØ.

4.2 THRUST BLOCKS TO BE INSTALLED AT ALL BENDS, TEES, AND CAPS ALL TO CITY STANDARDS W25.3 AND W25.4.

4.3 CONTRACTOR TO CONDUCT PRESSURE AND LEAKAGE TESTING OF ALL WATERMAINS AND DISINFECT AND CHLORINATE ALL WATERMAINS TO THE SATISFACTION OF M.O.E. AND THE CITY OF OTTAWA.

4.4 TRACER WIRE TO BE INSTALLED ALONG THE FULL LENGTH OF WATERMAIN AND ATTACHED TO EACH MAIN STOP AS PER CITY OF OTTAWA STANDARD W36.

4.5 ALL COMPONENTS OF THE WATER DISTRIBUTION SYSTEM SHALL BE CATHODICALLY PROTECTED AS PER CITY OF OTTAWA STANDARD W40.

4.6 ALL VALVES & VALVE BOXES AND CHAMBERS, HYDRANTS, AND HYDRANT VALVES AND ASSEMBLIES SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARDS W19 & W24.

4.7 ANY WATERMAIN WITH LESS THAN 2.4m COVER REQUIRES THERMAL INSULATION AS PER CITY OF OTTAWA STANDARD W22, OR AS APPROVED BY THE ENGINEER.

4.8 CONTRACTOR IS RESPONSIBLE FOR ACQUIRING THE WATER PERMIT FROM THE CITY OF OTTAWA AND PAYMENT OF ANY FEES ASSOCIATED WITH SECURING THE WATER PERMIT. OWNER IS RESPONSIBLE FOR REIMBURSING THE CONTRACTOR FOR THE ACTUAL COST OF ACQUIRING THE WATER PERMIT.

4.9 CONNECTION TO EXISTING WATERMAIN TO BE INCLUDED IN THE COST FOR THE WATERMAIN INSTALLATION. THIS COST INCLUDES REINSTATEMENT OF ROAD CUTS TO CITY STANDARD R10.

5.0 PARKING LOT AND WORK IN PUBLIC RIGHTS OF WAY

5.1 CONTRACTOR TO REINSTATE ROAD CUTS PER CITY OF OTTAWA STANDARD R-10.

5.2 THE CONTRACTOR SHALL PREPARE A TRAFFIC MANAGEMENT PLAN FOR REVIEW AND APPROVAL BY THE CITY OF OTTAWA. CONTRACTOR TO MAINTAIN TRAFFIC FLOW DURING THE ENTIRE CONSTRUCTION PERIOD. MAINTENANCE OF ROAD CUTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. PROVISION OF FLAGMEN, DETOURS AS NECESSARY, BARRICADES AND SIGNS TO THE FULL SATISFACTION OF THE ENGINEER AND ROAD AUTHORITY SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

5.3 CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.

5.4 FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.

5.5 CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOETCHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF GRANULAR B MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

5.6 GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL ENGINEER OF GRANULAR B PLACEMENT.

5.7 CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOETCHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF GRANULAR A MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

5.8 ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL ENGINEER OF GRANULAR A PLACEMENT.

5.9 CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. CONTRACTOR TO PROVIDE ENGINEER WITH SAMPLES OF ASPHALT MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL ENGINEER THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.

5.10 CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE ENGINEER WITH VERIFICATION PRIOR TO PLACEMENT.

5.11 DITCHES DISTURBED DURING CULVERT INSTALLATION AND GRADING OPERATIONS ARE TO BE REINSTATED TO THEIR ORIGINAL CONDITION AND FLOWLINE GRADES.

5.13 ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY ENGINEER. ENGINEER TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.

5.14 PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESSES) FOR HEAVY DUTY AND LIGHT DUTY AREAS TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT AND SHOWN ON THE PLANS.

CATCHBASIN DATA TABLE

STRUCTURE ID	STORM AREA ID	STRUCTURE	FRAME & COVER	ELEVATION			OUTLET PIPE		INLET CONTROL DEVICE		
				TOP OF GRATE	INVERT INLET	INVERT OUTLET	DIAMETER (mm)	TYPE	HEAD (m)	FLOW (l/s)	ICD TYPE
CB1	MH5A	OPSD 705.010	S19	102.50		101.10	200	PVC DR35	1.650	12.00	IPEX MHF
CB2	MH5	OPSD 705.010	S19	102.45		101.05	200	PVC DR35	1.650	6.00	IPEX LMF
CB3	MH3	OPSD 705.010	S19	102.40		101.00	200	PVC DR35	1.650	6.00	IPEX LMF
CB4	MH3A	OPSD 705.010	S19	102.45	100.77	100.75	200	PVC DR35	1.650	8.00	IPEX MHF
CB5	MH3B	OPSD 705.010	S19	102.45		101.05	200	PVC DR35	1.650	6.00	IPEX LMF
CB6	MH3C	OPSD 705.010	S19	102.40		101.00	200	PVC DR35	1.650	6.00	IPEX LMF
CB7	CBMH2	OPSD 705.010	S19	102.25		100.85	200	PVC DR35	1.650	12.00	IPEX MHF
CB9	MH3D	OPSD 705.010	S19	101.60		100.10	300	PVC DR35	1.650	65.00	IPEX MHF
CB10	MH4	OPSD 705.010	S19	101.50		100.10	200	PVC DR35	1.650	25.00	IPEX MHF
RYCB1	RYCB1	OPSD 705.010	S19	101.70		100.30	200	PVC DR35	1.400	6.00	IPEX LMF

WATERMAIN SCHEDULE

	Station	Description	Finished Grade	Top of Waterain	As Built Waterain
A	0+000.00	TEE	101.700	99.300	
	0+002.00	VB	101.830	99.430	
C	0+009.85	TEE	101.940	99.540	
	0+036.47	45° BEND	102.070	99.670	
	0+039.30	45° BEND	102.070	99.670	
D	0+040.02	TEE	102.080	99.680	
	0+044.20	HYDRANT	102.250	99.850	
	0+048.75	VB	102.440	100.040	
E	0+058.28	TEE	102.670	100.270	
	0+077.76	45° BEND	102.680	100.280	
	0+080.59	45° BEND	102.660	100.260	
B	0+113.70	EX CAP	102.580	100.180	
C	0+000	TEE	101.940	99.940	
	0+001.5	VB	101.870	99.870	
	0+008.6	BLDG A	102.150	99.750	
D	0+000	TEE	102.080	99.680	
	0+001.5	VB	102.090	99.690	
	0+032.38	45° BEND	102.450	100.050	
	0+033.79	45° BEND	102.460	100.060	
	0+034.80	BLDG B	102.450	100.050	
E	0+000	TEE	102.670	100.270	
	0+001.5	VB	102.700	100.300	
	0+032.38	45° BEND	102.800	100.400	
	0+033.79	45° BEND	102.800	100.400	
	0+036.10	BLDG C	103.000	100.600	

Pipe Interference Table

Crossing No.	PIPE 1	PIPE 2	Clearance
1	STM Bottom 99.631	SAN Top 99.421	0.210
2	SAN Bottom 100.409	STM Top 100.252	0.157
3	STM Bottom 100.743	SAN Top 100.505	0.238
4	STM Bottom 100.853	SAN Top 100.576	0.277
5	STM Bottom 100.732	SAN Top 98.888	1.844
6	STM Bottom 99.230	SAN Top 99.039	0.191

PAVEMENT STRUCTURE:

LIGHT WEIGHT AREAS:

50mm - SUPERPAVE 12.5 ASPHALTIC CONCRETE
150mm - OPSS GRANULAR "A" CRUSHED STONE
300mm - OPSS GRANULAR "B" TYPE II

HEAVY DUTY AREAS

40mm - SUPERPAVE 12.5 ASPHALTIC CONCRETE
50mm - SUPERPAVE 19.0 ASPHALTIC CONCRETE
150mm - OPSS GRANULAR "A" CRUSHED STONE
450mm - OPSS GRANULAR "B" TYPE II

LEGEND:

MH3A	EXISTING SANITARY MANHOLE
MH3	EXISTING STORM MANHOLE
CB T/G 99.76	EXISTING STREET CATCHBASIN
CICB G/G 99.76	EXISTING CURB INLET CATCHBASIN
V&VB	EXISTING VALVE AND VALVE BOX
V&C	EXISTING VALVE AND CHAMBER
HYD B/F 100.56	EXISTING HYDRANT
	EXISTING BARRIER CURB
D.C.	EXISTING DEPRESSED BARRIER CURB
	EXISTING CONCRETE SIDEWALK
	SIAMESE CONNECTION (IF REQUIRED)
M	METER
RM	REMOTE METER
PRV	PRESSURE REDUCING VALVE
	PIPE CROSSING IDENTIFICATION
	HEAVY DUTY ASPHALT / FIRE ROUTE
	PROPERTY LINE
MH3A	SANITARY MANHOLE
MH3	STORM MANHOLE
CB T/G 99.76	CATCHBASIN c/w TOP OF GRATE
RYCB T/G 99.76	REAR YARD CATCHBASIN c/w GUTTER GRADE
ECB T/G 100.25	REAR YARD "END" CATCHBASIN C/W TOP OF GRATE 300Ø)
CBMH T/G 101.55	CATCHBASIN MANHOLE c/w TOP OF GRATE
V&VB	VALVE AND VALVE BOX
V&C	VALVE AND CHAMBER
HYD B/F 100.56	HYDRANT c/w BOTTOM OF FLANGE ELEVATION
D.C.	DEPRESSED BARRIER CURB AS PER SC1.1
	BARRIER CURB AND GUTTER AS PER SC1.2
	MOUNTABLE CURB AS PER SC1.3
	PROPOSED CONCRETE SIDEWALK
200mmø SAN	SANITARY SEWER & FLOW DIRECTION
825mmø STM	STORM SEWER & FLOW DIRECTION
200ø WATERMAIN	WATERMAIN
	PROPOSED SWALE C/W FLOW DIRECTION
0.5%	PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE
1.3%	SLOPE C/W FLOW DIRECTION
	MAJOR OVERLAND FLOW ROUTE
×104.62	PROPOSED SPOT GRADE
×104.40 (S)	PROPOSED SWALE GRADE
×104.50 (S)HP	PROPOSED SWALE HIGH POINT
104.60 103.59	LOT CORNER GRADE C/W EXISTING GROUND
86.45 EX ×	TIE INTO EXISTING GRADE
96.79	FULL STATIC PONDING GRADE
	RETAINING WALL
105.30 T/W	TOP OF RETAINING WALL
103.50 B/W	PROPOSED BOTTOM OF RETAINING WALL
	TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
F.F.E.=106.30	PROPOSED BUILDING FINISHED FLOOR ELEVATION
U.S.F.=104.30	PROPOSED UNDERSIDE OF FOOTING ELEVATION

CLIENT

PATHWAYS SOUTH REGIONAL INC.

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
2		
3		
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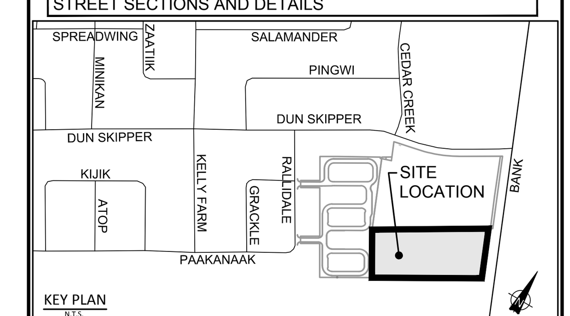
5		
6		
7		
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN
N.T.S.

CONSULTANTS

SEAL

IBI

IBI GROUP
400 – 333 Preston Street
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PROJECT

4840 BANK STREET

PROJECT NO: 137175

DRAWN BY: M.M.	CHECKED BY: S.E.L.
PROJECT MGR: D.C.	APPROVED BY: J.I.M.

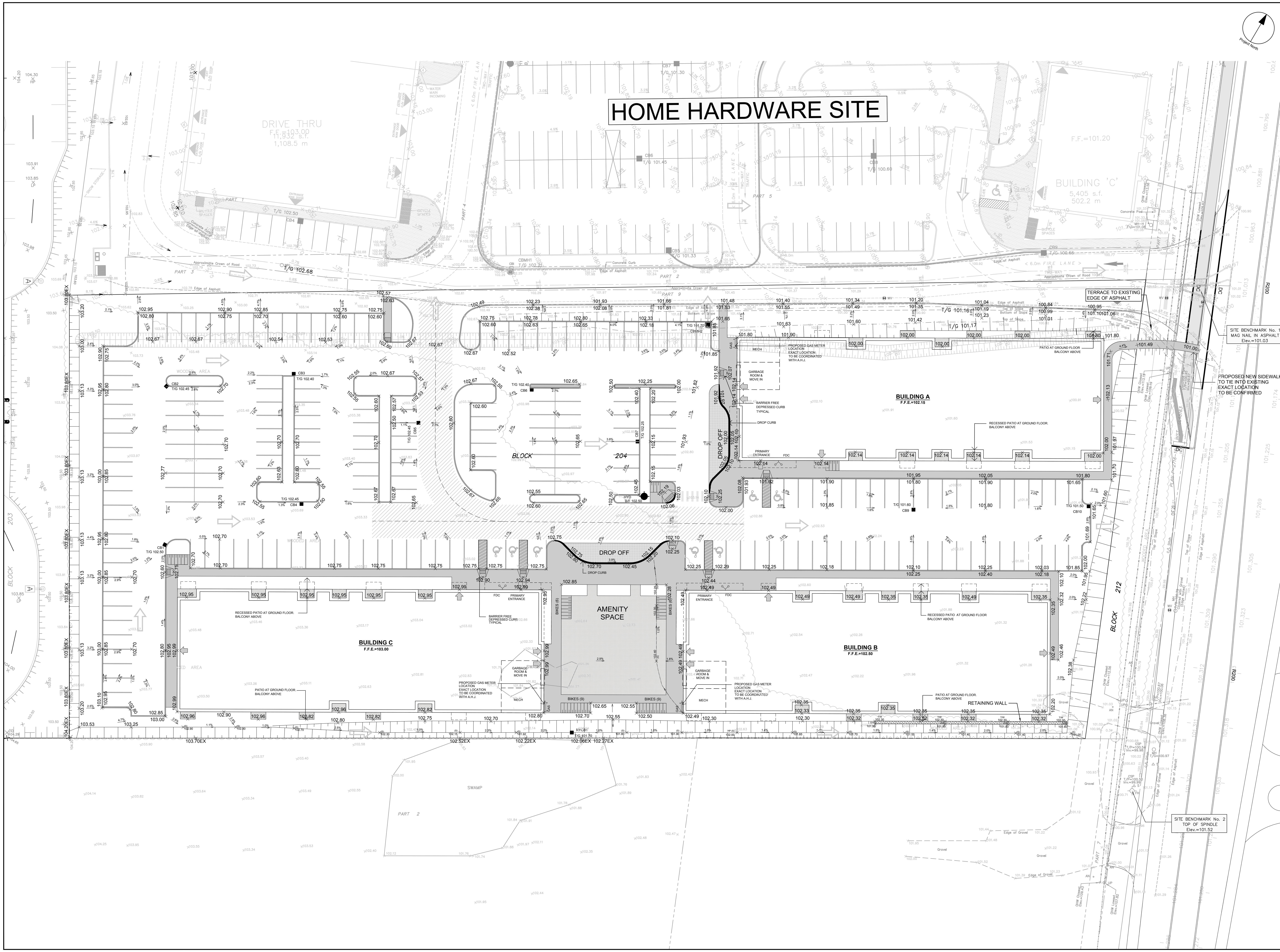
SHEET TITLE

NOTES LEGEND CB DATA

SHEET NUMBER C-010 | ISSUE 1

CITY FILE No. D07-xx-xx-xxxx

CITY PLAN No. xxxxx



CLIENT

PATHWAYS SOUTH REGIONAL GROUP

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR CLIENT REVIEW	2022-05-19
2	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
3		
4		
5		
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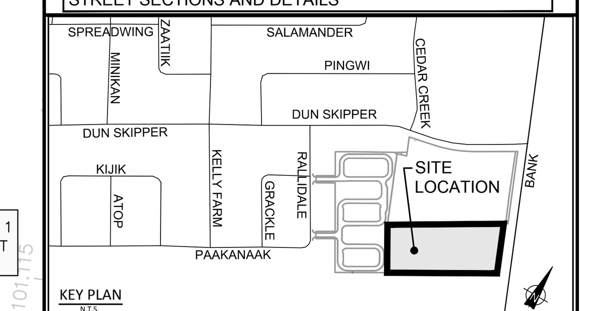
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN
N.T.S.

CONSULTANTS

1:300

SEAL

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2022/06/03
PROVINCE OF ONTARIO

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

PROJECT

4840 BANK STREET

PROJECT NO:
137175

DRAWN BY:	CHECKED BY:
M.M.	**S.E.L.**
PROJECT MGR:	APPROVED BY:
D.C.	**J.I.M.**

SHEET TITLE

SITE GRADING PLAN

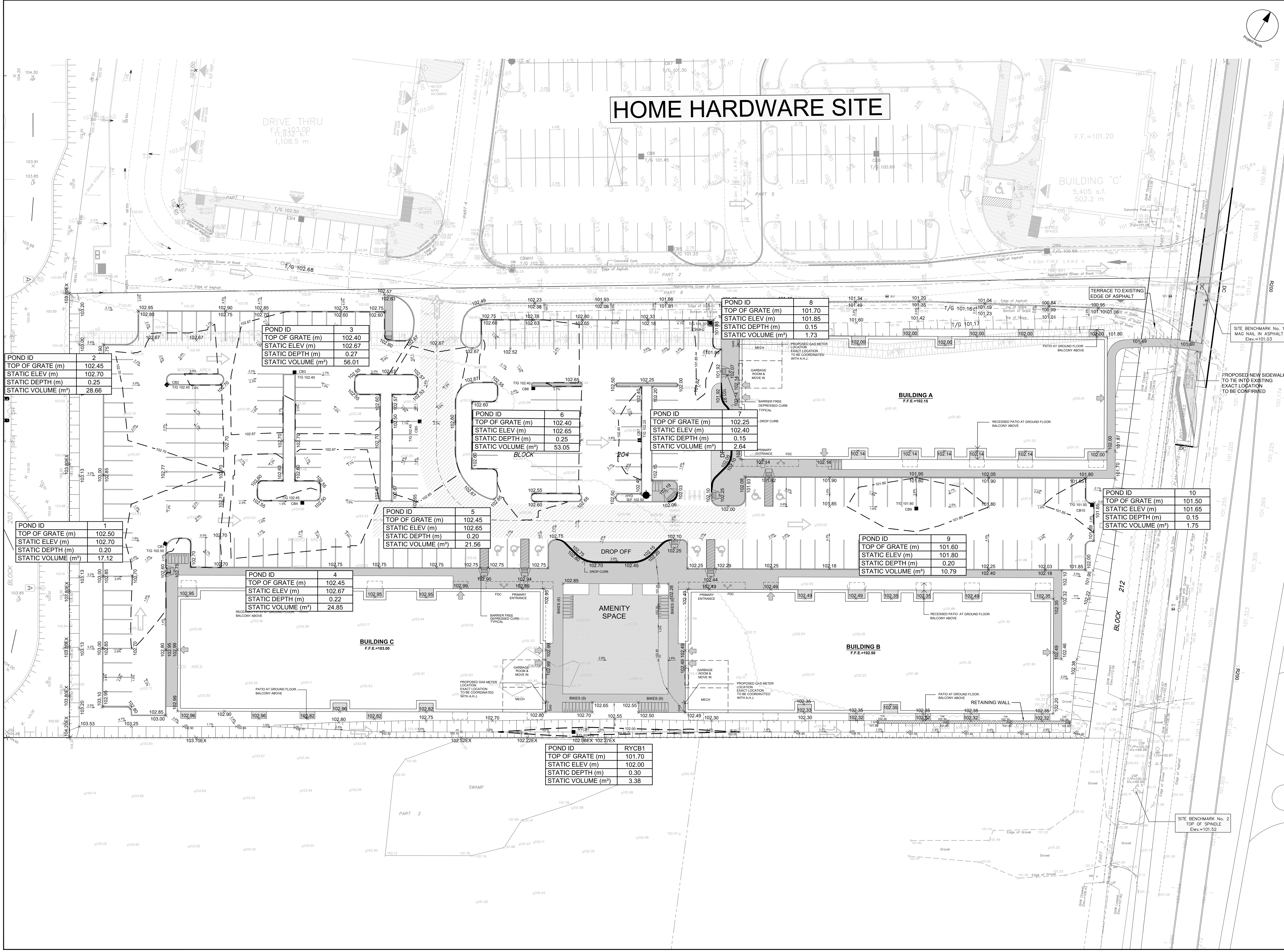
SHEET NUMBER	ISSUE
C-200	1

CITY PLAN No. xxxxx

CITY FILE No. D07-XX-XX-XXXX

SCALE CHECK 1 in 10mm

File Location: J:\137175_Pathways_Sou\7.0_Production\7.03_Design\04_Civil\Sheets\C-200 SITE GRADING PLAN.dwg Last Saved: June 2, 2022 by mmilne Plotted: Friday, June 3, 2022 10:35:47 AM by Mariah Milne



POND ID	1
TOP OF GRATE (m)	102.50
STATIC ELEV (m)	102.70
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	17.12

POND ID	2
TOP OF GRATE (m)	102.45
STATIC ELEV (m)	102.70
STATIC DEPTH (m)	0.25
STATIC VOLUME (m³)	28.66

POND ID	3
TOP OF GRATE (m)	102.40
STATIC ELEV (m)	102.67
STATIC DEPTH (m)	0.27
STATIC VOLUME (m³)	56.01

POND ID	4
TOP OF GRATE (m)	102.45
STATIC ELEV (m)	102.67
STATIC DEPTH (m)	0.22
STATIC VOLUME (m³)	24.85

POND ID	5
TOP OF GRATE (m)	102.45
STATIC ELEV (m)	102.65
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	21.56

POND ID	6
TOP OF GRATE (m)	102.40
STATIC ELEV (m)	102.65
STATIC DEPTH (m)	0.25
STATIC VOLUME (m³)	53.05

POND ID	7
TOP OF GRATE (m)	102.25
STATIC ELEV (m)	102.40
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	2.64

POND ID	8
TOP OF GRATE (m)	101.70
STATIC ELEV (m)	101.85
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	1.73

POND ID	9
TOP OF GRATE (m)	101.60
STATIC ELEV (m)	101.80
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	10.79

POND ID	10
TOP OF GRATE (m)	101.50
STATIC ELEV (m)	101.65
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	1.75

POND ID	RYCB1
TOP OF GRATE (m)	101.70
STATIC ELEV (m)	102.00
STATIC DEPTH (m)	0.30
STATIC VOLUME (m³)	3.38

CLIENT

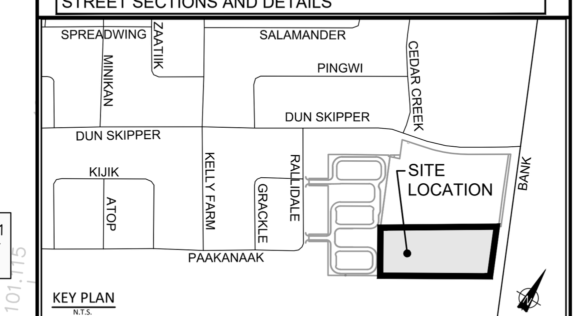
PATHWAYS SOUTH REGIONAL GROUP

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

No.	DESCRIPTION	DATE
1	SUBMISSION NO. 1 FOR CITY REVIEW	2022-06-03
2		
3		
4		
5		
6		
7		
8		

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS

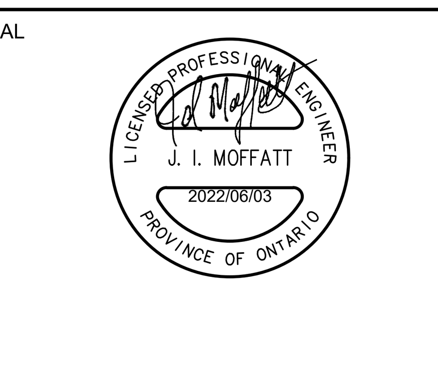


KEY PLAN
N.T.S.

CONSULTANTS

1:300

SEAL



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

PROJECT

4840 BANK STREET

PROJECT NO:	
137175	
DRAWN BY: M.M.	CHECKED BY: S.E.L.
PROJECT MGR: D.C.	APPROVED BY: J.I.M.

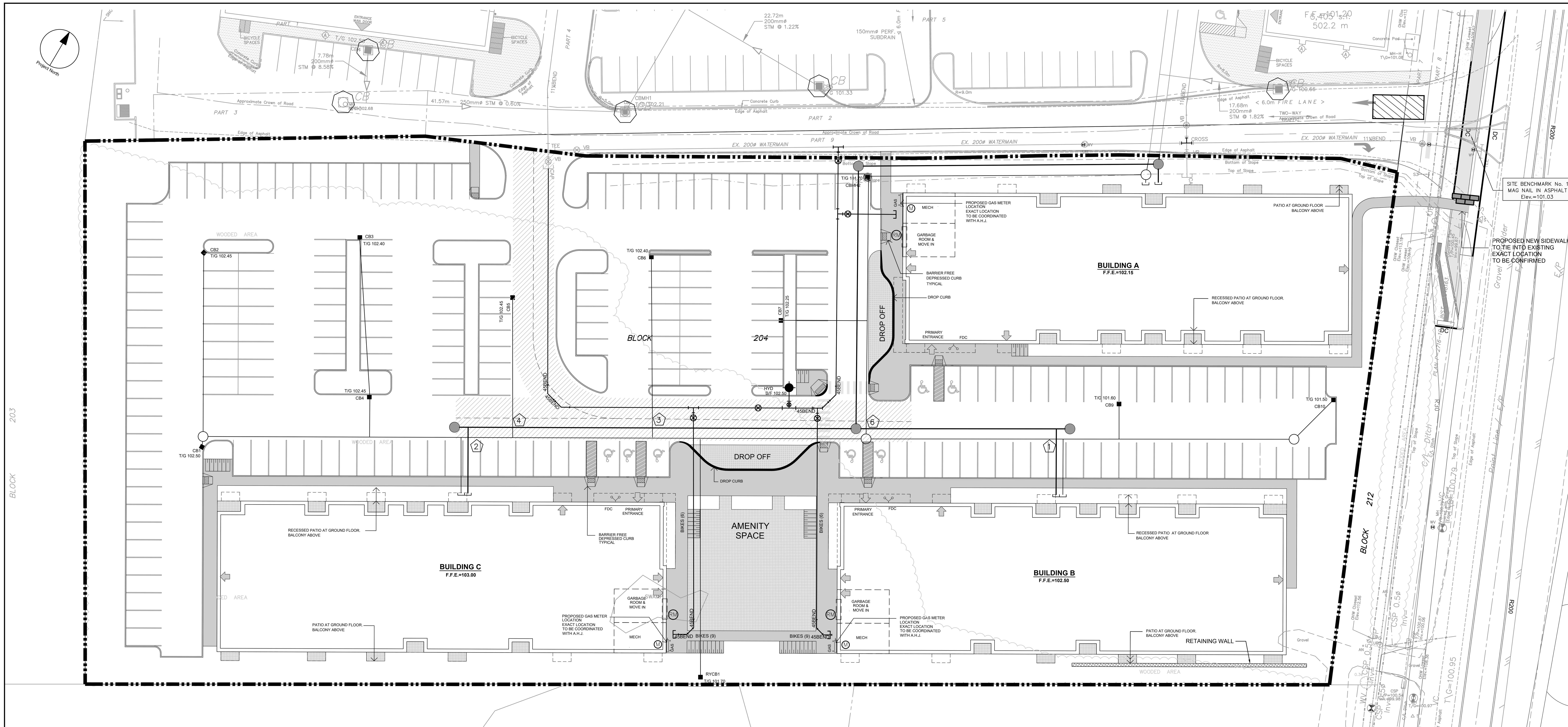
SHEET TITLE

PONDING PLAN

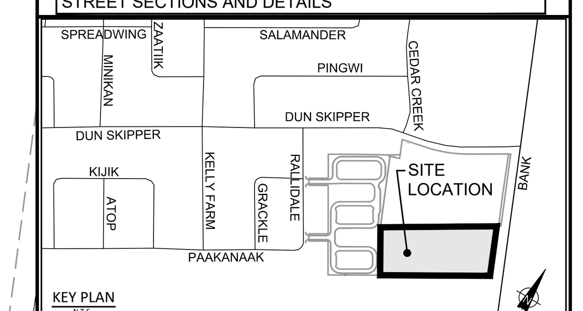
SHEET NUMBER	ISSUE
C-600	1

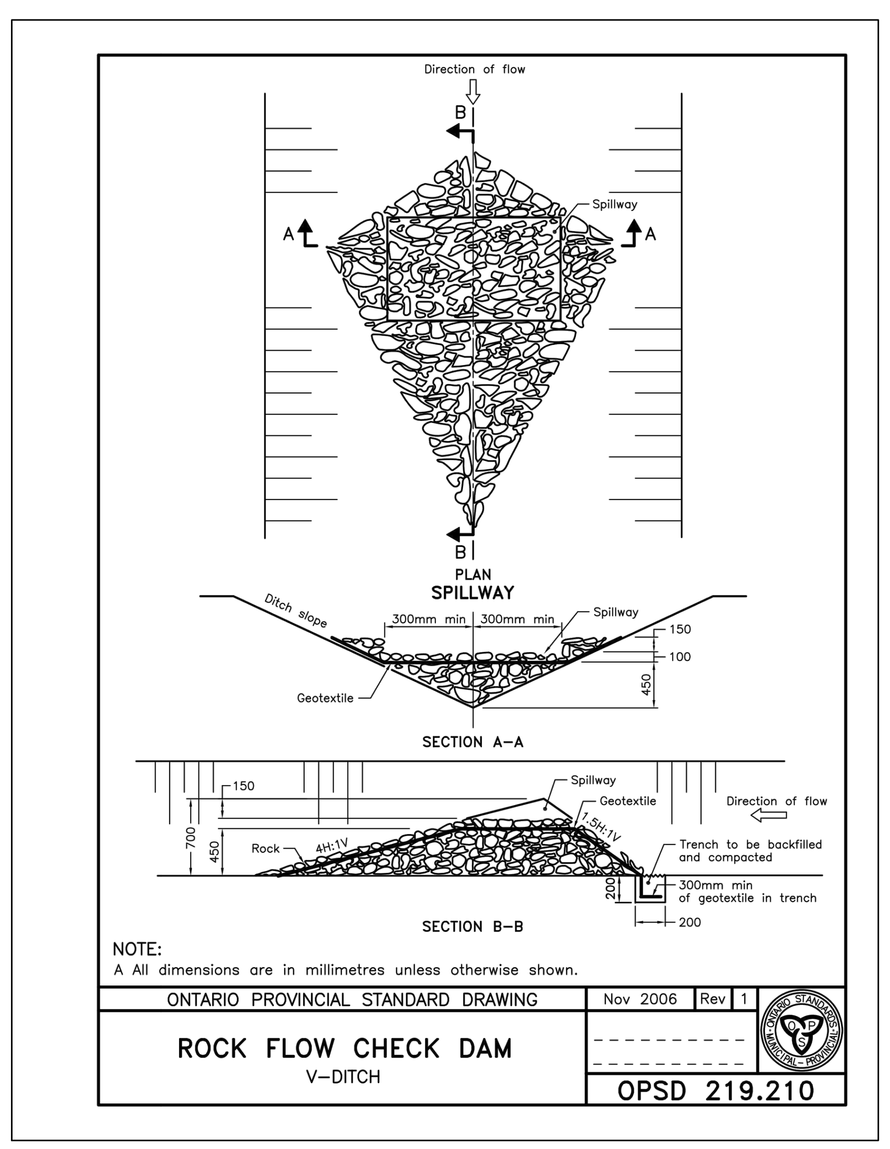
CITY FILE No. D07-xx-xx-xxxx

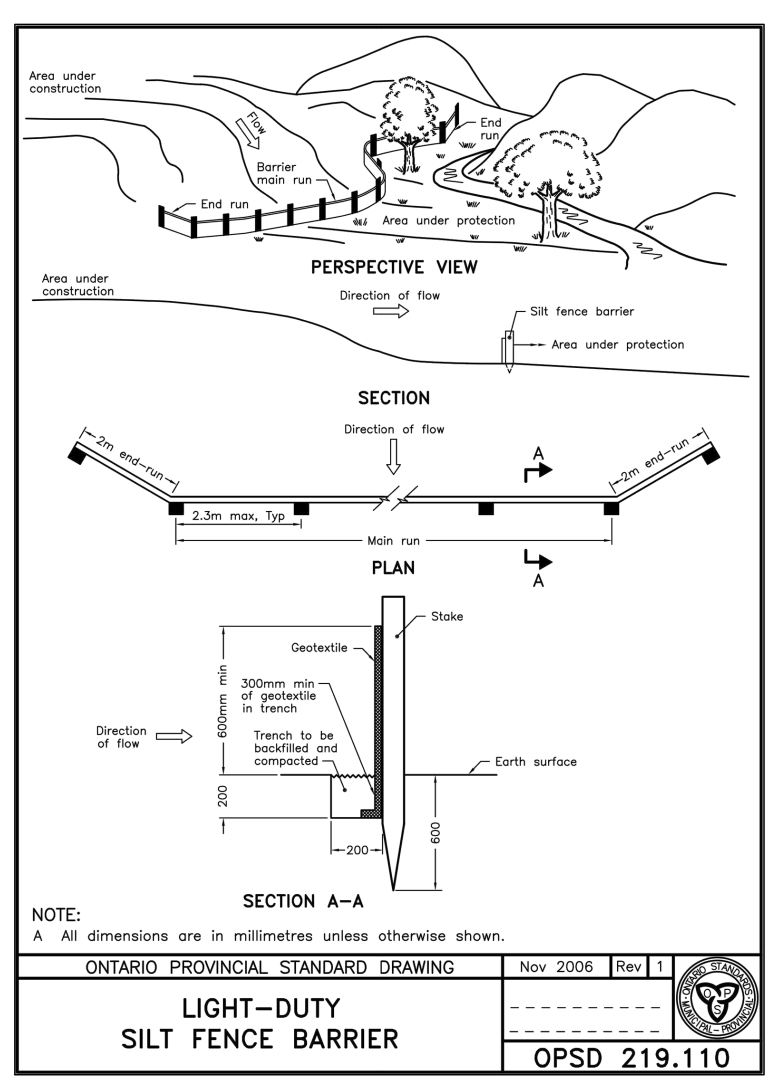
CITY PLAN No. xxxxx

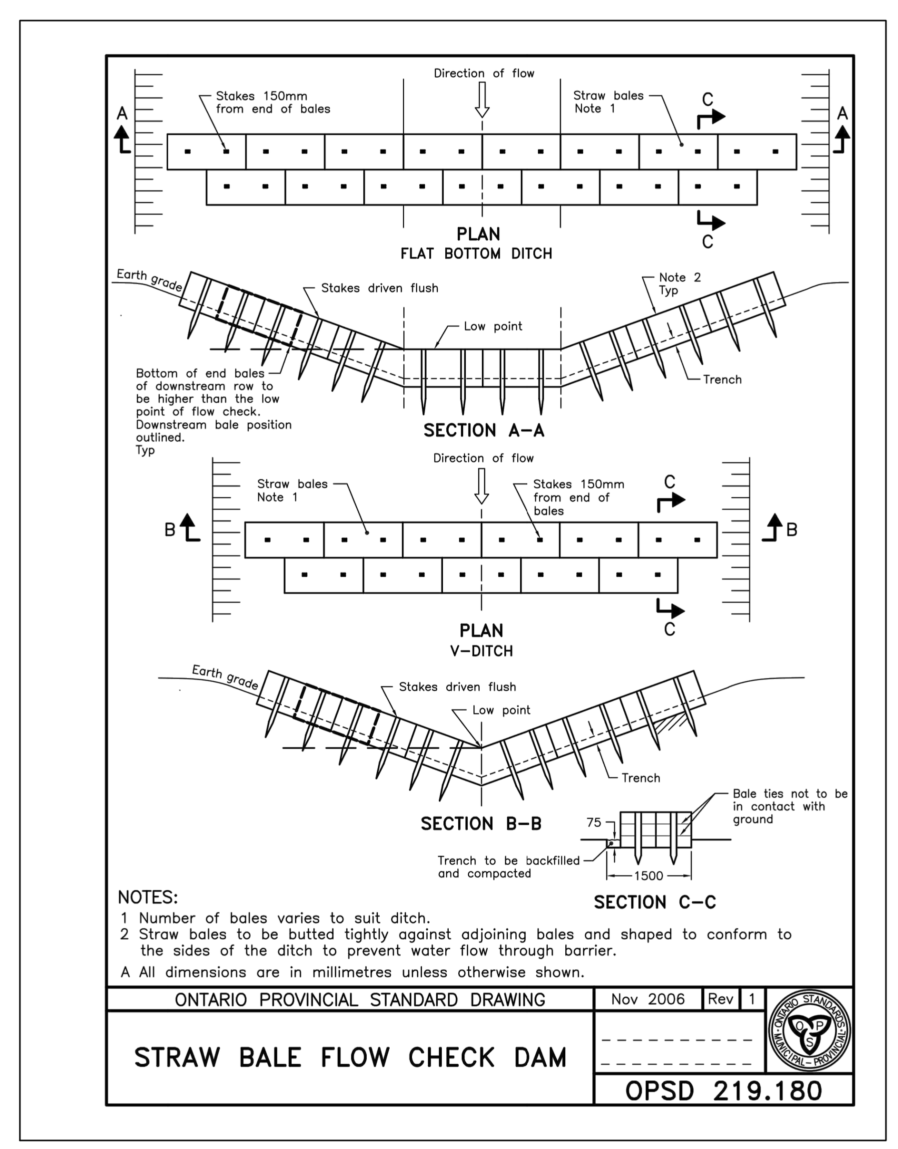


SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS









LEGEND :

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- ROCK CHECK DAM AS PER OPSD-219.210
- SILT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH (15.0 × 7.0)

NOTES:

1. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
2. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
3. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
4. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
5. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT.
6. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE 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.

CLIENT

PATHWAYS SOUTH REGIONAL INC.

1737 WOODWARD DRIVE, OTTAWA, ON

ISSUES

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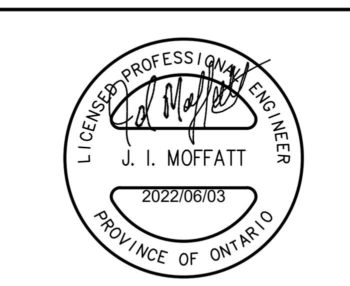
SEAL



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PROJECT
4840 BANK STREET

PROJECT NO: 137175

DRAWN BY:	CHECKED BY:
M.M.	**S.E.L.**
PROJECT MGR:	APPROVED BY:
D.C.	**J.I.M.**

SHEET TITLE
SEDIMENT AND EROSION CONTROL PLAN

SHEET NUMBER C-900 | ISSUE 1

CITY PLAN No. xxxxx

CITY FILE No. D07-XX-XX-XXXX

SCALE CHECK 1 in 10mm

File Location: J:\137175_Pathways_Sou\7.0_Production\7.03_Design\04_Civil\Sheets\C-900 SEDIMENT AND EROSION.dwg