File: 136063.6.04.03

Design Brief Crown Pointe Commercial Phase 3 920 Watters Road

Development Application File No. **D07-07-12-21-0183**

Prepared for Crown Pointe Co-Tenancy
C/O Taggart Realty Management
by IBI Group
Revised April 19, 2022

Table of Contents

1 INTRODUCTION 1
1.1 Scope 1
1.2 Subject Site 1
1.3 Previous Studies 1
1.4 Pre-consultation 1
1.5 Geotechnical Considerations 1
2 WATER SUPPLY 2
2.1 Existing Conditions 2
2.2 Design Criteria 2
2.2.1 Water Demands 2
2.2.2 System Pressure 2
2.2.3 Fire Flow Rates 3
2.2.4 Boundary Conditions 3
2.2.5 Hydraulic Model 3
2.3 Proposed Water Plan 3
2.3.1 Modeling Results 3
2.3.2 Watermain Layout 4
3 WASTEWATER DISPOSAL 5
3.1 Existing Conditions 5
3.2 Design Criteria 5
3.3 Recommended Wastewater Plan 5
4 SITE STORMWATER MANAGEMENT 6
4.1 Existing Conditions 6
4.2 Design Criteria 6
4.3 Proposed Minor System 7
4.4 Stormwater Management 7

Table of Contents (continued)

4.5 On-Site Detention 7
4.6 Inlet Controls – Tributary to Crown Pointe Center 8
4.6.1 Site Inlet Control 8
4.6.2 Roof Inlet Controls 8
4.6.3 Overall Release Rate 9
4.7 Inlet Controls – Tributary to Crown Pointe Subdivision Phase 3 9
4.7.1 Site Inlet Control 10
4.7.2 Roof Inlet Controls 10
4.7.3 Overall Release Rate 10

5 SEDIMENT AND EROSION CONTROL PLAN 11
5.1 General 11
5.2 Trench Dewatering 11
5.3 Bulkhead Barriers 11
5.4 Seepage Barriers 11
5.5 Surface Structure Filters 12

6 CONCLUSION 13

List of Figures

Figure 1 Location Plan
Figure 2 Site Plan
Figure 3 Existing Conditions

Table of Contents (continued)

List of Appendices

Appendix A Watermain Boundary Condition
Watermain Demand Calculation Sheet
Fire Flow Calculations
Water Model Schematic and Results

Appendix B Sanitary Drainage Area Plan Drawing No 136063-C-400
Sanitary Sewer Design Sheet
Crown Pointe Center – Stantec Report

Appendix C Storm Drainage Area Plan Drawing No. 163063-C-500
Storm Sewer Design Sheet
Stormwater Management Calculations
Crown Pointe Center – Stantec Report
Crown Pointe Subdivision Sewer Design Sheet
Crown Pointe Subdivision Drainage Area Plan
Inlet Control Devices Flow Curves
Flow Control Roof Drainage Declaration
Cardinal Creek SWM Facility MOE ECA
OGS

Appendix D Erosion and Sediment Control Plan Drawing No. 136063-C-900

Appendix E Pre-Consultation Meeting Minutes with City

Appendix F 163063-C-001 – General Plan of Services
163063-C-010 – General Notes, Legend and CB Data Table
163063-C-200 – Grading Plan

1 INTRODUCTION

1.1 Scope

IBI Group has been retained by Crown Pointe Co-Tenancy to prepare the necessary engineering plans, specifications and documents to support the 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 on water supply, wastewater management, minor and major stormwater management along with erosion and sediment control.

1.2 Subject Site

The subject property is located at the southwest corner of the Watters Road and Trim Road intersection. The proposed Crown Pointe development is approximately 1.6 hectares in size and is bounded by the existing commercial and residential to the south and west, Watters Road to the north, and Trim Road to the east. Please refer to **Figure 1** for more information regarding the site location.

The Crown Pointe project will consist of the construction of 2 commercial building pads along with vehicular access routes, dedicated parking space and landscaping areas. A current plan of the proposed development is shown on **Figure 2**. Two earlier phases of the commercial plaza were previously constructed, please refer to **Figure 3** for the current extent of the existing plaza.

1.3 Previous Studies

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

- Crown Point Phase 3 – Stormwater Drainage Report prepared by Cumming Cockburn Limited, May 1996
- Crown Pointe Center – Servicing Report prepared by Stantec, June 2004

1.4 Pre-consultation

A pre-consultation with the City was held on October 6, 2020 regarding the proposed development. Notes from this meeting may be found in **Appendix E**. There was no servicing, grading or stormwater management notes which deviated from the standard City of Ottawa comments.

1.5 Geotechnical Considerations

The following geotechnical investigation report has been prepared by Paterson Group Inc:

- Report No. PG4655-1 dated October 17, 2018 for the subject site;

Generally, the original grade is relatively flat, sloping from south to north. The subsurface profile encountered at the test hole locations consists of fill, followed by very stiff to stiff silty clay. Based on the testing results, the permissible grade raise varies between 2.0m and 2.5m depending on proximity to proposed buildings.

2 WATER SUPPLY

2.1 Existing Conditions

As previously noted, the 1.6-hectare Crown Pointe site is located south of Watters Road and west of Trim Road. The subject site is flanked on both the north and east sides by existing watermains. An existing 406mm diameter watermain is located within the Watters Road right of way and a 203mm watermain goes through the site to service existing commercial buildings. Both watermains fall within the City of Ottawa's pressure district **Zone 2E** which will provide the water supply to the site.

2.2 Design Criteria

2.2.1 Water Demands

Water demands have been calculated for the full development. 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:

- Commercial retail 2,500 l/1000m^3/day
- ICI Peak Daily Demand 3,750 l/1000m^3/day
- ICI Peak Hour Demand 6,750 l/1000m^3/day

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

- Average Day 0.10 l/s
- Maximum Day 0.15 l/s
- Peak Hour 0.27 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 Crown Pointe site plan contains two commercial building pads. Calculations using the Fire Underwriting Survey (FUS) method were conducted to determine the fire flow requirement for the site. Results of the analysis provides a maximum fire flow rate of 8,000 l/min or 133.3l/s is required which is used in the hydraulic analysis. A copy of the FUS calculations are included in **Appendix A**.

2.2.4 Boundary Conditions

The City of Ottawa has provided a hydraulic boundary condition on Watters Road and at the Watters Road and Montcrest Drive intersection, where the two watermain connections to the site will occur. A copy of the boundary conditions including a location figure can be found in **Appendix A** and summarized as follows:

Table 2. 1 Hydraulic Boundary Conditions at Watters Road (Northern Connection)

	RIVERSIDE DRIVE.
Max HGL (Basic Day)	130.2 m
Min HGL (Peak Hour)	126.0 m
Max Day + Fire Flow (133.3 l/s Fire Flow)	128.0 m

Table 2. 2 Hydraulic Boundary Conditions at Montcrest Drive/Watters Road (Southern Connection)

	RIVERSIDE DRIVE.
Max HGL (Basic Day)	130.2 m
Min HGL (Peak Hour)	126.0 m
Max Day + Fire Flow (133.3 l/s Fire Flow)	127.7 m

2.2.5 Hydraulic Model

A computer model for the subject development has been developed using the H20 MAP Version 6.0 program produced by MWH Soft Inc. The model includes the existing watermain and boundary condition on Riverside Drive.

2.3 Proposed Water Plan

2.3.1 Modeling Results

The hydraulic model was run under basic day, maximum day with fire flows and under peak hour conditions. Water pipes are sized to provide sufficient pressure and to deliver the required fire flows. During the design stage all mains are tested at the minimum 150 mm diameter size, while the pressure criteria is met with the minimum sized mains the fire flow requirement is not achieved at all locations. The main sizes are increased in an iterative process until the fire flow results are sufficient.

Results of the hydraulic model are include in **Appendix A** and summarized as follows:

Scenario	
Basic Day (Max HGL) Pressure Range	414.3 to 423.3 kPa
Peak Hour (Min HGL) Pressure Range	373.3 to 382.2 kPa
Min Design Fire Flow @ 140 kPa and 133.3 L/s	430.1 L/s

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

Maximum Pressure	All nodes have basic day pressures under 552 kPa, therefore pressure reducing control are not required for this development.
Minimum Pressure	All nodes are above the minimum pressure of 276 kPa
Fire Flow	The FUS fire demand of 133.3 l/s is met at all fire nodes.

2.3.2 Watermain Layout

In order to provide additional reliability to the system in case of a watermain break, two connections to the City's watermain system are proposed. One proposed connection to the existing 406mm watermain within the Watters Road right of way and the other proposed connection to the 203mm watermain within the existing commercial property. All watermains on-site are 200mm diameter as required to meet the fire flow criteria.

3 WASTEWATER DISPOSAL

3.1 Existing Conditions

An existing 750mm diameter concrete sanitary collector sewer exists within an easement through the north-east quadrant of subject property. This sewer will not be impacted by the proposed development and no connections are proposed to this sewer. The development of Phase 1 of the Crown Point Plaza in 2004 consisted of a network on on-site sanitary sewers along with a connection to an existing public sewer at the Watters – Montcrest intersection. As part of the Phase 2 development a 200mm diameter sanitary stub was left at the western limit of the Phase 3 lands to service the remaining parcel of property. Please see an excerpt from this report confirming said stub's capacity, located in **Appendix B**.

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:

- Commercial/Institutional flow 28,000 l/ha/d
- Peaking factor 1.5 if ICI in contributing area >20%
  1.0 if ICI in contributing area <20%
- 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 PVC sewers installed at normal depth and slope and will provide a single service connection to each commercial building pad. The sewers have been designed using the criteria noted above in section 3.2 and outlet via a connection to the existing sanitary sewer stub on the western limit of the site as described above in section 3.1. A copy of the sanitary drainage area plan 136063-C-400 and the sanitary sewer design sheet can be found in **Appendix B.** Please refer to the site servicing plan 136063-C-001 for further details.

As noted in section 3.1 the sanitary sewer stub left to service the subject lands assumed a flow of 3.83 L/s. The detailed analysis of the flows from the subject lands found on the sanitary sewer design sheet estimates a maximum flow of 1.23 L/s which is less than the stub capacity.

4 SITE STORMWATER MANAGEMENT

4.1 Existing Conditions

An existing 1350mm diameter concrete storm sewer exists within an easement through the north-east quadrant of subject property. This sewer will not be impacted by the proposed development and no connections are proposed to this sewer.

The development of Phase 2 of the Crown Point Center in 2004 consisted of a network on on-site storm sewers along with a connection to an existing public sewer at the Watters – Montcrest intersection. As part of the Phase 2 development a 375mm diameter storm stub was left at the western limit of the Phase 2 lands to service a portion of the subject property.

In addition, as part of the Crown Pointe Phase 3 residential development located to the south of the property, a 750mm diameter storm was installed to provide an outlet for the entire commercial property.

4.2 Design Criteria

As previously noted, the 2004 Stantec report for Phase 2 of the Crown Point Center left a storm sewer stub to service Phase 3 of the development. As part of their report a stormwater flow allocation for the subject lands of 76.6 L/s was specified. For reference the Phase 3 lands in the Stantec report are identified as “Future Esso Tiger Express” An excerpt from the Stantec report confirming the above can be found in **Appendix C.** These future lands in the Stantec report are identified as being 0.74 Ha in size.

The current Phase 3 site plan consists of 1.6 Ha of proposed development, the increase is due to the realignment of Trim Road. With Trim Road shifting northward the former Trim ROW was purchased and has been added to Taggart Realty’s Crown Pointe Commercial Center. This results in an increase to the Phase 3 lands of 0.86 Ha.

The subject lands will have two storm outlets, both connections will be to existing sewers that were designed and installed to service the subject lands. The western third of the subject lands will drain west to the existing 375mm storm stub installed during Phase 2 construction of the Crown Pointe Center.

The eastern two-thirds of the subject site will drain south to the existing 750mm storm stub located along the southern property line located behind the existing retail plaza.

It should be noted, the 750mm storm stub was designed by Cumming Cockburn Limited (CCL) in 1996 as part of the Crown Point Phase 3 subdivision and sized to accommodate 3.22 Ha of commercial development with a peak flow of 550.5 l/s. This flow allocation has not yet been utilized in support of previous sub-phases of the Crown Pointe Commercial Center development and as such remains available for use during the Phase 3 development.

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
- Initial Time of Concentration 10 minutes

- Runoff Coefficients
  - Landscaped Areas — C = 0.30
  - 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)

4.3 Proposed Minor System

Using the criteria identified in Section 4.2, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated storm sewer drainage area plan is included in **Appendix C**. The general plan of services, depicting all on-site storm sewers can be found in **Appendix F**.

4.4 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. 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 certain locations within the site, the opportunity to store runoff is limited due to grading constraints and building geometry. These locations are generally located at the perimeter of the site where it is necessary to tie into public boulevards and adjacent properties or in areas where ponding stormwater is undesirable. These "uncontrolled" areas – 0.22 hectares in total, have a C value of 0.30. Based on 1:100-year storm uncontrolled flows, the uncontrolled areas generate 50.26 l/s runoff (refer to Section 4.5 for calculation). It should also be noted that the loading ramp has been carried with a 100-year flow to eliminate and water accumulating within the depressed ramp.

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 C**.

4.5 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 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.

Additionally, ICDs have been sized to ensure there is no ponding in customer parking lot areas during the 2-year storm event.

Based on the flow allowance at the various inlet locations, a combination of various sizes of inlet control devices (ICDs) were chosen in the design. The design of the inlet control devices is unique to each drainage area and is determined based on several 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 Grading Plan 163063-C-200, and included in **Appendix F**.

4.6 Inlet Controls – Tributary to Crown Pointe Center

The allowable release rate for the western third of the site as identified in the Stantec report is as follows:

$\mathbf{Q_{allowable}}$ = 76.6 L/s

No uncontrolled flows have been subtracted from this release rate; uncontrolled flows are accounted for in the southern outlet quantified below.

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

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

= 76.6 L/s – 0 L/s

= **76.6 L/s**

4.6.1 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)
RAMP	0.5	0.0	22.34	0	22.34	0
CB1&CB2	0.12	74.01	29	18.34	29	4.03
TOTAL	**0.17**	**74.01**	**51.34**	**18.34**	**51.34**	**18.34**

The total required storage is met with surface ponds which retain the stormwater and discharge at the restricted flow rate to the sewer system.

4.6.2 Roof Inlet Controls

The proposed building 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)
FOOD	0.30	25.0	92.80	25.0	27.72
TOTAL	**0.30**	**25.0**	**92.80**	**25.0**	**27.72**

4.6.3 Overall Release Rate

As demonstrated 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 and rooftop storage. In the 100-year event, there will be no overflow off-site from restricted areas.

The sum of restrictions on the site, rooftops and uncontrolled flows is (51.34 l/s + 25.0 l/s + 0.0) 76.34 l/s, which is less than the allowable release of 76.60 l/s noted in section 4.6.

4.7 Inlet Controls – Tributary to Crown Pointe Subdivision Phase 3

The allowable release rate for the eastern two thirds of the site as identified in the CCL report is as follows:

$\mathbf{Q_{allowable}}$ = 550.5 L/s

As noted in Section 4.4, a portion of the site will be left to discharge to the sewers or right-of-ways at an uncontrolled rate.

Based on a 1:100-year event, the flow from the 0.26 Ha uncontrolled area can be determined as:

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

C = Average runoff coefficient of uncontrolled area = 0.488 (increased by 25%)

$\mathbf{i_{100yr}}$ = 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 = 0.26 Ha

Therefore, the uncontrolled release rate can be determined as:

$\mathbf{Q_{uncontrolled}}$ = **2.78** x **C** x $\mathbf{i_{100yr}}$ x **A**

= 2.78 x 0.488 x 178.56 x 0.26

= **53.24 L/s**

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

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

= 550.5 L/s – 53.24 L/s

= **497.26 L/s**

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)
CB9	0.12	8.27	30	17.34	30	2.57
CB6	0.33	41.91	100	38.29	100	6.22
CB5	0.11	48.85	25	17.76	25	4.07
CB3	0.19	16.34	55	23.59	55	3.52
CB4	0.12	17.21	45	10.30	45	1.18
CB8	0.03	0.02	20	0.07	20	0.00
TOTAL	**0.90**	**132.60**	**275**	**107.35**	**275**	**17.56**

The total required storage is met with surface ponds which retain the stormwater and discharge at the restricted flow rate to the sewer system.

4.7.2 Roof Inlet Controls

The proposed building will have not roof inlet controls, the flow has been accounted for as uncontrolled in the stormwater management calculations in section 4.7

4.7.3 Overall Release Rate

As demonstrated 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 and rooftop storage. In the 100-year event, there will be no overflow off-site from restricted areas.

The sum of restrictions on the site and uncontrolled flows is (275 l/s + 53.24) 328.24 l/s, which is less than the allowable release of 525.50 l/s noted in section 4.7.

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 several 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. bulkhead barriers will be installed at the nearest downstream manhole in each sewer which connects to an existing downstream sewer;
- 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; and
- 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, a ½ diameter bulkhead will be constructed over the lower half of the outletting sewer 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 stormwater management facility, 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 Sediment and Erosion Control Plan included in **Appendix D**. 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 the parking lot is 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.

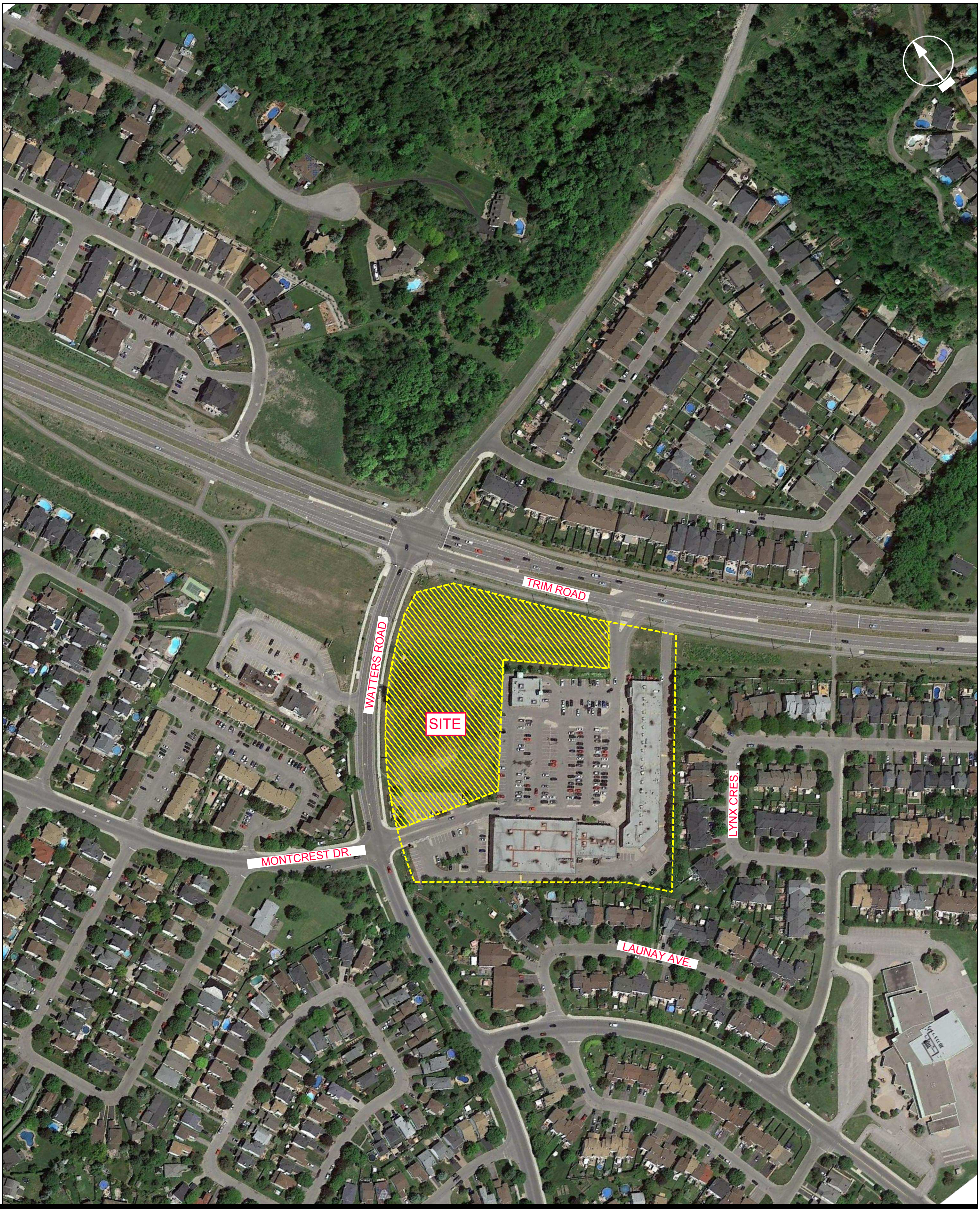
6 CONCLUSION

This report has illustrated that the proposed Crown Pointe Plaza – Phase 3 development can be serviced via existing municipal services. The water network will be extended to provide necessary service. All sanitary and storm sewer designs for this development will be completed in conformance with City of Ottawa standards while acknowledging downstream constraints. By limiting flow into the minor storm sewer system as per the applicable local stormwater management criteria and allowing for excess surface storage on-site, all stormwater management requirements will be met. Adherence to the Sediment and Erosion Control Plan during construction will minimize harmful impacts on surface water.

Based on the information provided within this report, the plans prepared for the subject development can be serviced to meet City of Ottawa requirements.

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
19-04-2022
PROVINCE OF ONTARIO

Terry Brule, P. Eng.
Associate Director



J:\136063_Crown_Pointe\7.0_Production\7.03_Design\04_Civil_LAND\Figures\FIGURES 1.dwg Layout Name: FIGURE 1

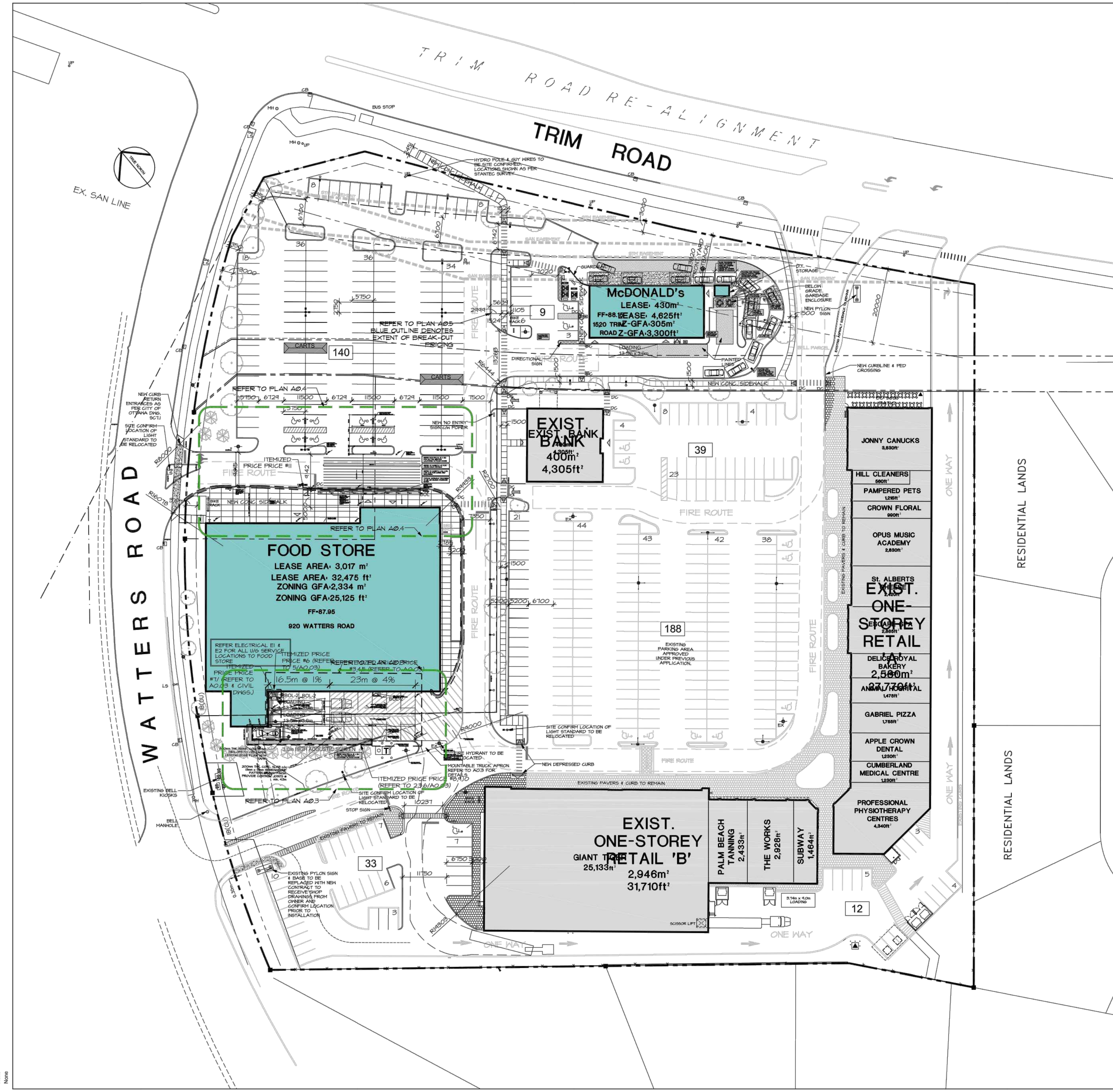
Last Saved By: DDORE Last Saved At: Oct. 27, 21

IBI

900 WATTERS ROAD
CROWN POINTE COMMERCIAL
PHASE 3

LOCATION PLAN

FIGURE 1



ZONING MECHANISM	REQUIRED GM15 H(8)	REQUIRED GM[1362] H(18.5)	PROVIDED	COMPLIANCE
MIN. LOT AREA	NO MIN.	2.4ha	4.15ha	YES
MIN. LOT WIDTH	NO MIN.	NO MIN.	168m	YES
MINIMUM SETBACKS	FRONT YARD: 3m CORNER SIDE: 3m	FRONT YARD: 20m INTERIOR SIDE: 9m REAR YARD: 9m	DRIVE-THRU'S: FRONT YARD: 13.62m SIDE/REAR: >9m FOOD STORE: FRONT: >3m CORNER: 3m	NO YES YES YES
MAX. BUILDING HEIGHT	8m	18.5m	5.6m (FOOD STORE) 5.5m (DRIVE-THRU)	YES YES
MAX. FLOOR SPACE INDEX	2	2	0.2	YES
GROSS LEASABLE FLOOR AREA	N/A	MIN: 3,000 sq.m. MAX: 10,000 sq.m.		YES
MINIMUM WIDTH OF LANDSCAPE AREA	3m	3m	>3m	YES
LANDSCAPE AREA %	15%	15%	NEW SITE AREA: 16,744 sq.m. NEW LANDSCAPE AREA: 3,293 sq.m. (19.6%)	YES
MINIMUM PARKING AREA C ON SCHEDULE 1A 3.6/100sq.m. OF GROSS LEASABLE FLOOR AREA	338 SPACES		431 SPACES (REFER TO TABLE BELOW)	YES
PARKING SPACE DIMENSIONS	WIDTH: 2.6m MIN TO 3.1 MAX LENGTH: 5.2m MIN.		2.75m X 5.75m	YES
AISLE AND DRIVEWAY PROVISIONS	MINIMUM DRIVEWAY WIDTH: 6m MINIMUM AISLE WIDTH: 6.7m		>6.7m	YES
BARRIER-FREE PARKING	400-499 PROVIDED SPACES: 5 SPACES		18 SPACES	YES
MINIMUM BICYCLE PARKING 1/500sq.m. OF GROSS FLOOR AREA	19		24 SPACES	YES
LOADING SPACES	RETAIL FOOD STORE: 1 SPACE RESTAURANT: NONE REQUIRED		2 SPACES	YES
OUTDOOR REFUSE COLLECTION	MIN. 9m FROM LOT LINE ABUTTING A PUBLIC STREET MIN. 3m FROM ANY OTHER LOT LINE SCREENED WITH A 2m HIGH OPAQUE SCREEN		SATISFIES ALL REQUIREMENTS	YES
PROVISIONS FOR DRIVE-THROUGH OPERATIONS	RESTAURANT WITH ORDER BOARD: LEADING TO AN LEAVING USE: 7 QUEING SPACES BEFORE/AT ORDER BOARD AND A MINIMUM TOTAL OF 11 SPACES		LEADING TO: 9 SPACES LEAVING: 7 SPACES	YES
	QUEING SPACES MUST BE 3m WIDE BY 5.7m LONG		3m X 5.7m	YES
	NO PART OF THE DRIVE-THROUGH MAY BE LOCATED WITHIN 3m OF A LONG LINE ABUTTING A RESIDENTIAL ZONE		N/A	YES

NEW AREA SUMMARY:

	ZONING GFA	LEASE AREA
FOOD STORE:	2334 sq.m. (25,123 sq.ft.)	3,017 sq.m. (32,475 sq.ft.)
DRIVE THRU:	305 sq.m. (3,283 sq.ft.)	430 sq.m. (4,625 sq.ft.)
TOTAL	2639 sq.m. (28,405 sq.ft.)	3,447 sq.m. (37,100 sq.ft.)

NEW PARKING SUMMARY:

	CITY REQ'	LEASE REQ'
REQUIRED PARKING	3.6/100 sq.m. =124 spots	4.0/1000 sq.ft. =148 spots
PROVIDED PARKING	4.5/100 sq.m. =153 spots	4.2/1000 sq.ft. =152spots
ADDITIONAL	29 spots	4 spots

3 / A0.1 TYP. TWSI DETAIL
SCALE 1:100

LEGEND:
- B.F. PARKING STALL c/w BF. SIGNAGE
- DEPRESSED CURB c/w TWSI
- 150mm DIA., 6mm THK. GALV. STEEL BOLLARD (MIN. 1.5m HIGH & 1.5m BELOW GRADE) Refer to Sobey Dwg "1-08 & 2-18"
- 300mm DIA., 6mm THK. GALV. STEEL BOLLARD (MIN. 1.5m HIGH & 1.5m BELOW GRADE)
- PRECAST CONCRETE PAVING
- CAST IN PLACE CONCRETE SIDEWALK/ REFER TO GEOTECH. REPORT
- PAINTED LINE STOP BAR
- ROLLED CONCRETE CURB
- SITE SIGNAGE
- PAINTED LINES
- BIKE RACK (4/RACK)
- EXTERIOR LIGHTING/ REFER TO ELEC. DWGS. FOR TYPES
- CONCRETE CURB

no.	date	revision
09	Mar 14, 2022	ALTERNATE PEDESTRIAN ROUTE
08	Feb. 25, 2022	ISSUED FOR TENDER
07	Feb. 04, 2022	RE-SUBMISSION FOR SPA
06	Jan. 20, 2022	ISSUED FOR TENANT REVIEW
05	Dec. 20, 2021	MINOR VARIANCE COMMENTS
04	Dec. 17, 2021	ISSUED FOR 90% DRAWINGS
03	Nov. 18, 2021	ISSUED FOR 60% DRAWINGS

It is the responsibility of the appropriate contractor to check and verify all dimensions on site and report all errors and/or omissions to the architect.

All contractors must comply with all pertinent codes and by-laws.

Do not scale drawings.

This drawing may not be used for construction until signed.

ONTARIO ASSOCIATION OF ARCHITECTS
BARRY J. HOBIN
LICENCE 3049

Hobin Architecture Incorporated
63 Pamilla Street
Ottawa, Ontario
Canada K1S 3K7
T: 613-238-7200
F: 613-235-2005
E: mail@hobinarc.com
hobinarc.com
HOBIN ARCHITECTURE

PROJECT/LOCATION: CROWN POINTE RETAIL

DRAWING TITLE: NEW WORK SITE PLAN

DRAWN BY: SL | DATE: 18/10/09 | SCALE: 1:500

PROJECT: 1613

DRAWING NO.: A0.1

REVISION NO.: #18633

D07-12-21-0183

J:\136063_Crown_Pointe\7.0_Production\7.03_Design\04_Civil_LAND\Figures\FIGURES 2.dwg Layout Name: FIGURE 2

Last Saved By: DDORE Last Saved At: Apr. 19, 22

IBI

Scale: N.T.S.

Project Title: 900 WATTERS ROAD CROWN POINTE COMMERCIAL PHASE 3

Drawing Title: SITE PLAN

Sheet No.: FIGURE 2

J:\136063_Crown_Pointe\7.0_Production\7.03_Design\04_Civil_LAND\Figures\FIGURES 3.dwg Layout Name: FIGURE 3

Last Saved By: DDORE Last Saved At: Oct. 27, 21

Scale	Project Title	Drawing Title	Sheet No.
1:1000	900 WATTERS ROAD CROWN POINTE COMMERCIAL PHASE 3	EXISTING CONDITIONS	FIGURE 3

IBI

APPENDIX A

Boundary Conditions
920 Watters Road

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	6	0.10
Maximum Daily Demand	9	0.15
Peak Hour	16	0.27
Fire Flow Demand #1	8,000	133.33

Location

Results

Connection 1 – Watters Rd.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.2	61.4
Peak Hour	126.0	55.4
Max Day plus Fire 1	128.0	58.1

Ground Elevation = 87.0 m

Connection 2 – Moncrest Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.2	60.3
Peak Hour	126.0	54.3
Max Day plus Fire 1	127.7	56.8

Ground Elevation = 87.8 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.

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : Crown Pointe Phase 3
LOCATION : 920 Watters Road
DEVELOPER : TRM

FILE: 136036.6.04
DATE PRINTED: 22-Oct-21
DESIGN: SEL

NODE	RESIDENTIAL UNITS				NON-RESIDENTIAL			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY			FIRE DEMAND
	SF	TH	MD	POP'N	INDTRL (ha.)	INST. (ha.)	COMM. (m^2)	Res.	Non-res.	Total	Res.	Non-res.	Total	Res.	Non-res.	Total	(l/s)
Food Store				0			3,017	0.00	0.09	0.09	0.00	0.13	0.13	0.00	0.24	0.24	133.3
Restaurant				0			443	0.00	0.01	0.01	0.00	0.02	0.02	0.00	0.03	0.03	

ASSUMPTIONS

RESIDENTIAL DENSITIES

Single Family	3.4	persons/unit
Townhouse	2.7	persons/unit
Medium Density	1.8	persons/unit

AVG. DAILY DEMAND

Residential	280	l / cap / day
ICI	2,500	l / 1000 sq. m / day

MAX. DAILY DEMAND

Residential	700	l / cap / day
ICI	3,750	l / 1000 sq. m./ day

MAX. HOURLY DEMAND

Residential	1,540	l / cap / day
ICI	6,750	l / 1000 sq. m / day

FIRE FLOW

Site	8,000	l / min

Fire Flow Requirement from Fire Underwriters Survey

Food Store - 1 Storey

Building Floor Area

Floor 1	3,017	m^2
Total	3,017	m^2

Fire Flow

F = 220C√A

C	0.8		C =	1.5	wood frame
A	3,017	m^2		1.0	ordinary
				0.8	non-combustile
F	9,667	l/min		0.6	fire-resistive
Use	10,000	l/min			

Occupancy Adjustment

			-25%	non-combustile
			-15%	limited combustile
Use	0%		0%	combustile
			+15%	free burning
Adjustment	0	l/min	+25%	rapid burning
Fire flow	10,000	l/min		

Sprinkler Adjustment

			-30%	system conforming to NFPA 13
			-50%	complete automatic system
Use	-30%			
Adjustment	-3000	l/min		

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>45				0%
east	25	Blank Wall			0%
south	28	88	1	88	8%
west	43	33	2	66	5%
Total					13%

Adjustment 1,300 l/min

Required Fire Flow

Total adjustments	(1,700)	l/min
Fire flow	8,300	l/min
Use	**8,000**	**l/min**
	133.3	**l/s**

Fire Flow Requirement from Fire Underwriters Survey

Restaurant - 1 Storey

Building Floor Area

Floor 1	443	m^2
Total	443	m^2

Fire Flow

F = 220C√A

C	0.8		C =	1.5	wood frame
A	443	m^2		1.0	ordinary
				0.8	non-combustile
F	3,704	l/min		0.6	fire-resistive
Use	4,000	l/min			

Occupancy Adjustment

			-25%	non-combustile
			-15%	limited combustile
Use	0%		0%	combustile
			+15%	free burning
Adjustment	0	l/min	+25%	rapid burning
Fire flow	4,000	l/min		

Sprinkler Adjustment

			-30%	system conforming to NFPA 13
			-50%	complete automatic system
Use	-30%			
Adjustment	-1200	l/min		

Exposure Adjustment

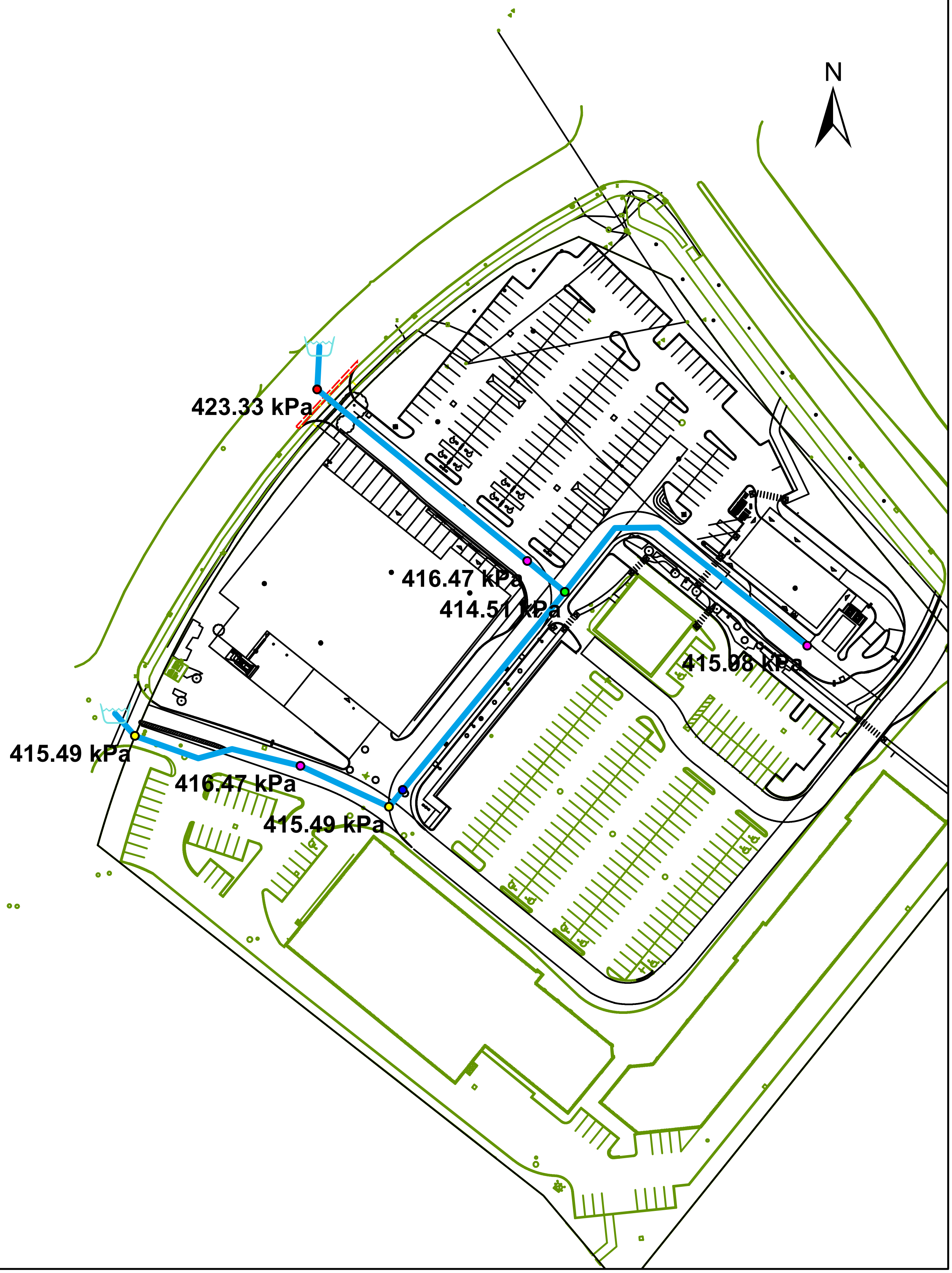
Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>45				0%
east	>45				0%
south	43	106	1	106	5%
west	19	20	1	20	10%
Total					15%

Adjustment 600 l/min

Required Fire Flow

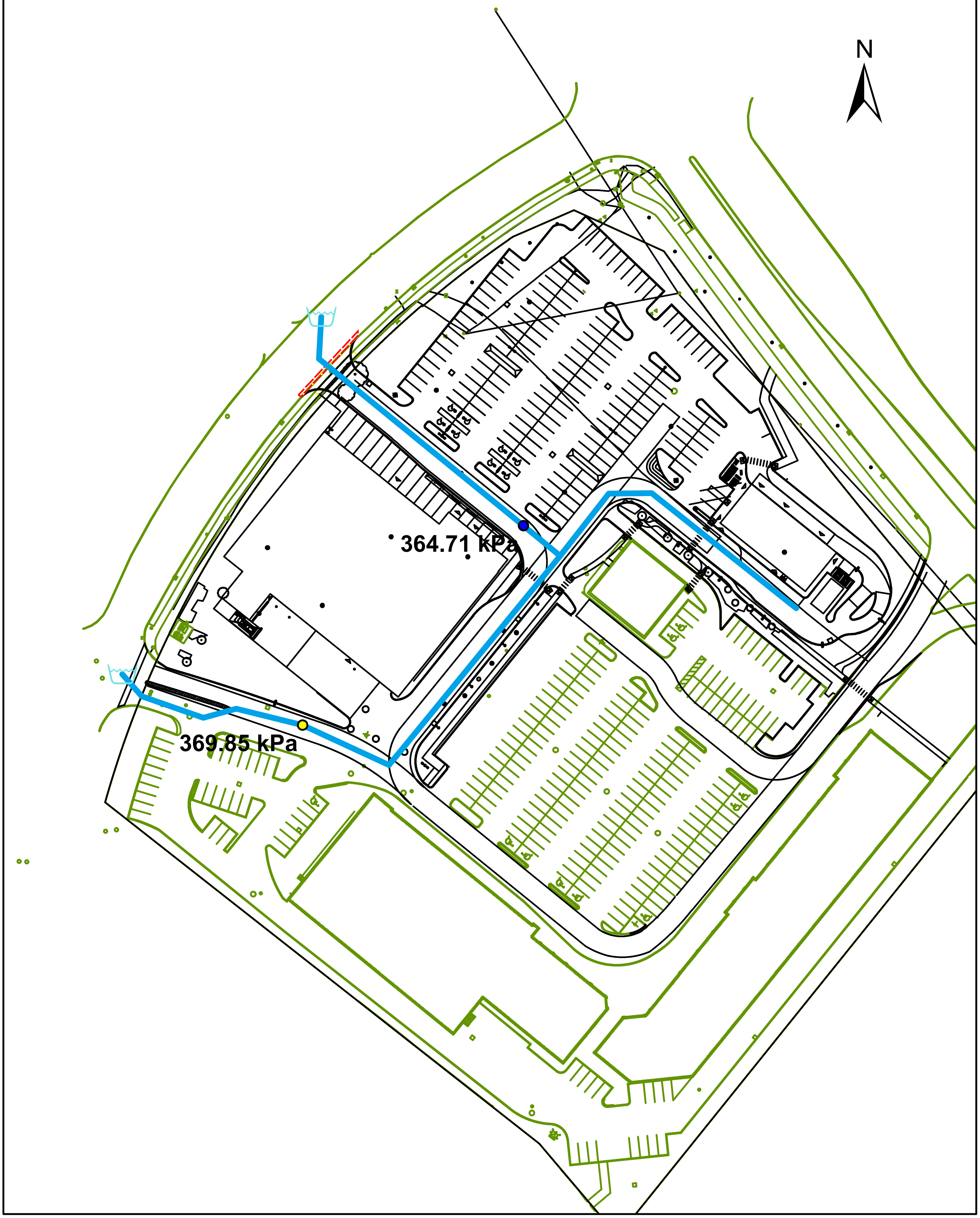
Total adjustments	(600)	l/min
Fire flow	3,400	l/min
Use	**3,000**	**l/min**
	50.0	**l/s**

Crown Pointe - Average Day - Pressure at Junctions



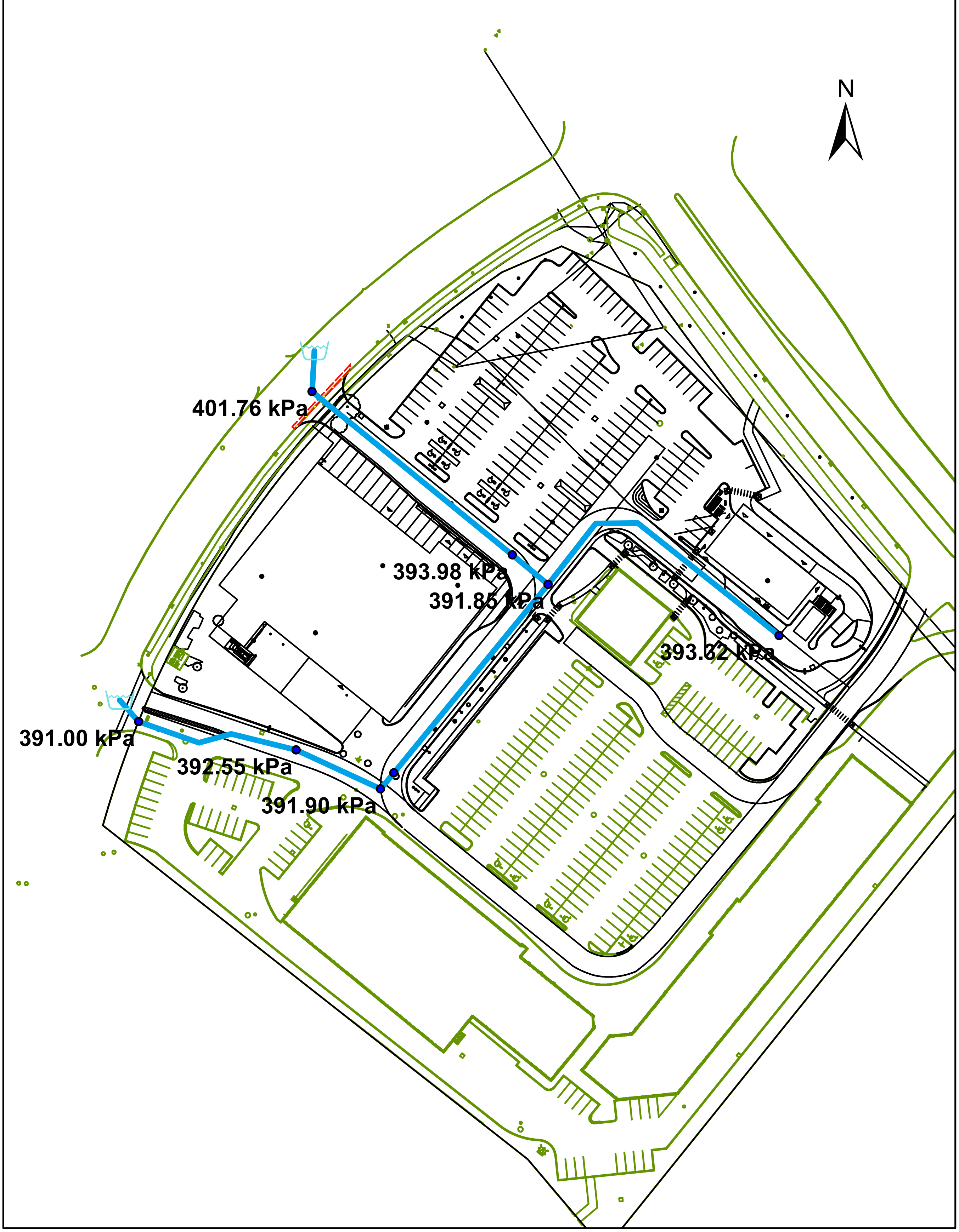
		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	87.80	130.20	415.49
2	☐	J12	0.00	87.00	130.20	423.33
3	☐	J14	0.00	87.90	130.20	414.51
4	☐	J16	0.01	87.75	130.20	415.98
5	☐	J18	0.09	87.92	130.20	414.31
6	☐	J22	0.00	87.70	130.20	416.47
7	☐	J24	0.00	87.80	130.20	415.49
8	☐	J25	0.00	87.70	130.20	416.47

Crown Pointe - Max Day + Fire 133.3 - Residual Pressure at Hydrants



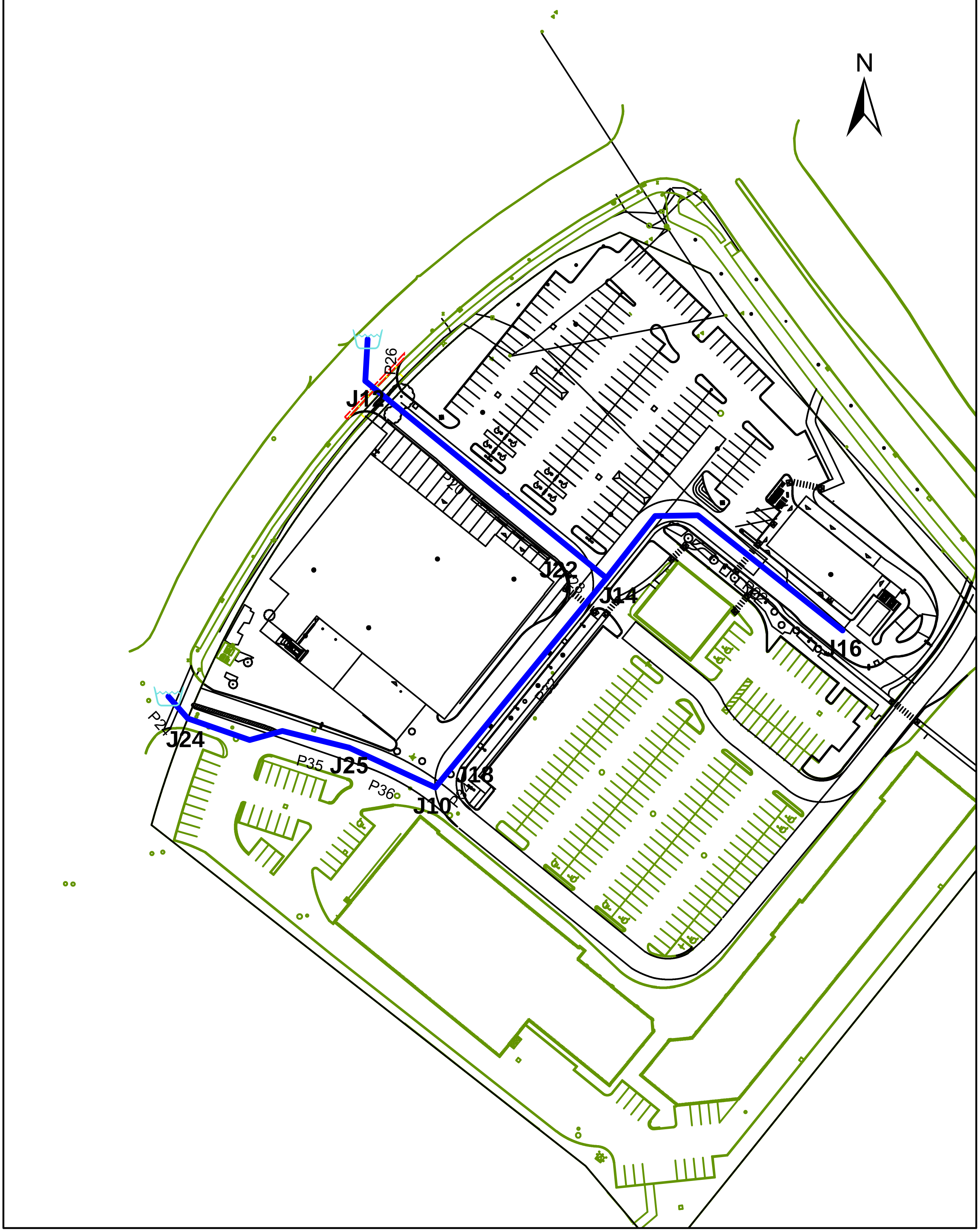
		ID	Total Demand (L/s)	Hydrant Available Flow (L/s)	Critical Node ID for Design Run	Critical Node Pressure at Available Flow (kPa)	Critical Node Pressure at Fire Demand (kPa)	Critical Pressure for Design Run (kPa)	Hydrant Design Flow (L/s)	Hydrant Pressure at Design Flow (kPa)
1	☐	J22	133.30	430.09	J22	139.96	364.71	139.96	430.09	139.96
2	☐	J25	133.30	486.29	J25	139.96	369.85	139.96	486.29	139.96

Crown Pointe - Max Day + Fire 133.3 - Pressure at Junctions

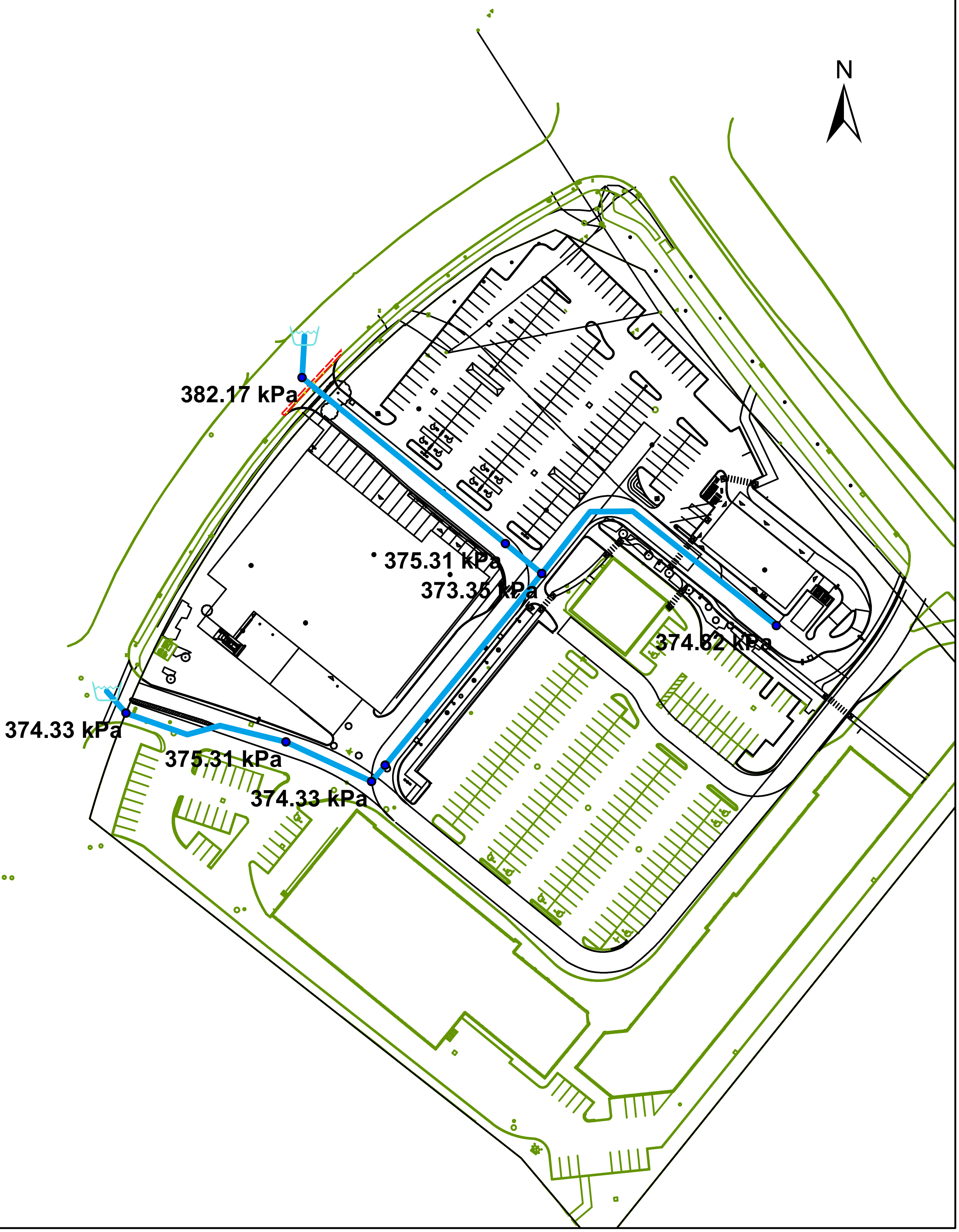


		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	87.80	127.79	391.90
2	☐	J12	0.00	87.00	128.00	401.76
3	☐	J14	0.00	87.90	127.89	391.85
4	☐	J16	0.02	87.75	127.89	393.32
5	☐	J18	0.13	87.92	127.80	390.79
6	☐	J22	0.00	87.70	127.90	393.98
7	☐	J24	0.00	87.80	127.70	391.00
8	☐	J25	0.00	87.70	127.76	392.55

Node & Pipe Identification

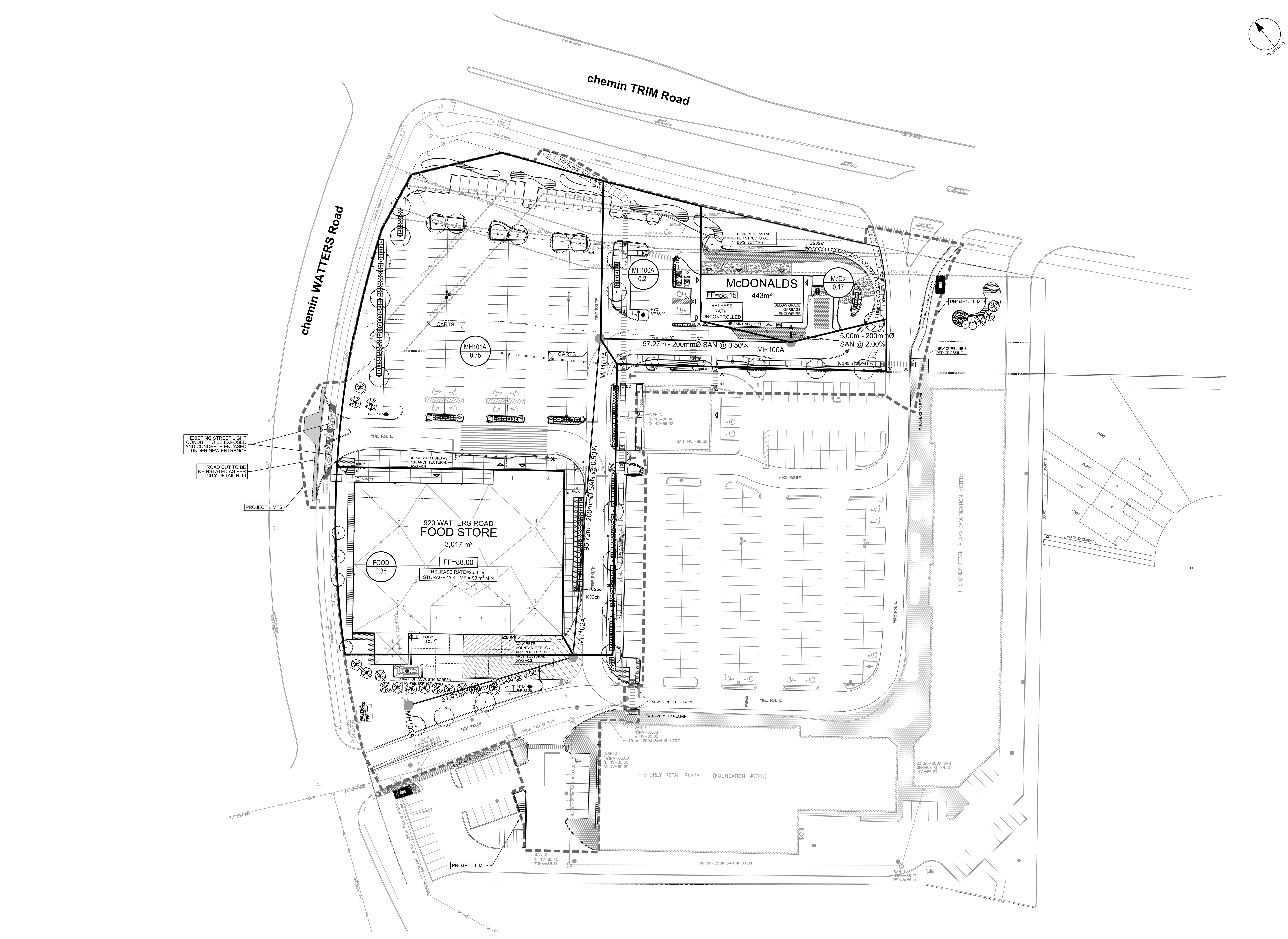


Crown Pointe - Peak Hour - Pressure at Junctions



		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J10	0.00	87.80	126.00	374.33
2	☐	J12	0.00	87.00	126.00	382.17
3	☐	J14	0.00	87.90	126.00	373.35
4	☐	J16	0.03	87.75	126.00	374.82
5	☐	J18	0.24	87.92	126.00	373.15
6	☐	J22	0.00	87.70	126.00	375.31
7	☐	J24	0.00	87.80	126.00	374.33
8	☐	J25	0.00	87.70	126.00	375.31

APPENDIX B



CLIENT

CROWN POINTE Co-TENANCY

C/O
TAGGART REALTY MANAGEMENT

225 METCALFE STREET, OTTAWA, On
K2P 1P9

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2021-10-28
2	REVISED PER CITY COMMENTS	2022-02-03
3	REVISED PER CITY COMMENTS AND NEW SITE PLAN	2022-04-19

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

KEY PLAN

CONSULTANTS

SEAL

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2022-04-19
PROVINCE OF ONTARIO

IBI GROUP
Suite 400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT

CROWN POINTE
900 WATTERS ROAD
CROWN POINTE COMMERCIAL
PHASE 3

PROJECT NO:
136063

DRAWN BY:	CHECKED BY:
D.D.	J.B.
PROJECT MGR:	APPROVED BY:
T.R.B.	----

SHEET TITLE

SANITARY DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-400	3

CITY PLAN No. 18633

CITY FILE No. D07-12-21-0183

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

SANITARY SEWER DESIGN SHEET

Crown Point - Phase 3
CITY OF OTTAWA
Taggart Realty Management

LOCATION: STREET	LOCATION: AREA ID	LOCATION: FROM MH	LOCATION: TO MH	RESIDENTIAL: AREA w/ Units (Ha)	RESIDENTIAL: UNIT TYPES SF	UNIT TYPES SD	UNIT TYPES TH	UNIT TYPES APT	RESIDENTIAL: AREA w/o Units (Ha)	POPULATION IND	POPULATION CUM	RES PEAK FACTOR	PEAK FLOW (L/s)	ICI AREAS: AREA (Ha) INSTITUTIONAL IND	INSTITUTIONAL CUM	COMMERCIAL IND	COMMERCIAL CUM	INDUSTRIAL IND	INDUSTRIAL CUM	ICI PEAK FACTOR	PEAK FLOW (L/s)	INFILTRATION ALLOWANCE: AREA (Ha) IND	AREA (Ha) CUM	FLOW (L/s)	FIXED FLOW (L/s) IND	FIXED FLOW (L/s) CUM	TOTAL FLOW (L/s)	PROPOSED SEWER DESIGN: CAPACITY (L/s)	LENGTH (m)	DIA (mm)	SLOPE (%)	VELOCITY (full) (m/s)	AVAILABLE CAPACITY L/s	AVAILABLE CAPACITY (%)
Site	McDs	BLDG	MH100A							0.0	0.0	3.80	0.00	0.00	0.00	0.17	0.17	0.00	0.00	1.50	0.08	0.17	0.17	0.06	0.00	0.00	0.14	48.39	6.00	200	2.00	1.492	48.25	99.71%
Site	MH100A	MH100A	MH101A							0.0	0.0	3.80	0.00	0.00	0.00	0.21	0.38	0.00	0.00	1.50	0.18	0.21	0.38	0.13	0.00	0.00	0.31	24.19	57.27	200	0.50	0.746	23.88	98.72%
Site	MH101A	MH101A	MH102A							0.0	0.0	3.80	0.00	0.00	0.00	0.75	1.13	0.00	0.00	1.50	0.55	0.75	1.13	0.37	0.00	0.00	0.92	24.19	95.72	200	0.50	0.746	23.27	96.19%
Site	FOOD	MH102A	MH103A							0.0	0.0	3.80	0.00	0.00	0.00	0.38	1.51	0.00	0.00	1.50	0.73	0.38	1.51	0.50	0.00	0.00	1.23	24.19	51.41	200	0.50	0.746	22.96	94.91%

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	IND	35,000	L/Ha/day	MOE Chart
Other	60	p/p/Ha		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: JEB

Checked: TRB

Dwg. Reference: 136063

No.	Revision	Date
1.	Issued for Site Plan Application	2021-10-28

File Reference: 136063.6.04_04 | **Date:** 2021-10-27 | **Sheet No:** 1 of 1

1.0 INTRODUCTION

Stantec Consulting Limited has been retained by Taggart Realty Management to complete a serviceability analysis to support the draft plan circulation of a proposed 3.21 hectare development in the City of Ottawa formerly the City of Cumberland. The development is bounded by Watters Road to the north and Trim Road to the east. The Intent of this report is to provide an overview of servicing to allow the circulation of the Draft plan for this development.

Two reports were utilized in the overview, the Approved Cumming Cockburn Ltd. Crown Pointe Subdivision Stormwater Management Report dated April 22, 1993 and the Sanitary Sewer Study for Crown Pointe Subdivision by CCL dated June 1993.

2.0 SANITARY SEWER

An existing trunk sanitary sewer is located at the intersection of Watters Road and Montcrest Drive. A site servicing drawing (including a Cummings Cockburn Limited report) contained as an appendix to this report, depict the design of this trunk sewer that will provide an outlet for the proposed development.

The design sheets for this outlet sewer are also included in the CCL report. The trunk sewer, 375mm in diameter at the outlet has a capacity of over 91.4 l/s; the tributary area used in the design is 31.25 ha including the proposed Commercial site of 3.2 ha. The calculation sheets assumed a population of 2280 people for the existing/proposed site area.

The proposed draft plan only includes the Taggart Development of 2.47ha but a stubbed 250mm diameter sanitary sewer is provided for the future Esso Tiger Express of 0.74ha. Future flows were tabulated using the City guidelines as follows: commercial flow=0.60 l/s/ha; Industrial flow=0.40 l/s/ha; commercial and industrial peak factor of 1.5 and 2.4 respectively. This would generate a flow of approximately 3.83 l/s approximately including for infiltration at 0.28 l/s/ha.

The invert of the existing trunk sewer is 82.12m downstream of the proposed development, which has sufficient depth to provide a gravity outlet for the entire development. It is therefore concluded that the extension of this sewer to the commercial property will provide the sanitary outlet for the site. Drawing SP-1 depicts the existing sewer and the proposed sewer network to service the site.

3.0 WATER DISTRIBUTION

The development falls within the City of Ottawa's 2E High Pressure zone. With the existing watermains in close proximity to the site water supply to the development is not seen to be a constraint. The Primary water feed for the development will be an existing 300mm watermain located at the intersection of Watters Road and Montcrest Drive. The water distribution system will comprise of a 200 mm diameter P.V.C. pipe complete with valves, fire hydrants and services to the three buildings including a stubbed 200mm diameter for the future Esso Tiger Express site.

APPENDIX C

4.0 STORMWATER MANAGEMENT REQUIREMENTS

The property is currently undeveloped and most of the site generally sheet drains towards the east. Stormwater will be restricted to ensure that the peak rate of runoff from the site does not exceed the allowable release flow after development.

The City of Ottawa requires that the peak rate of site runoff for a 1:5 and 1:100 year rainfall events not exceed the approved 5 year release rate for the site, as outlined in the approved CCL Stormwater Management Report (April 22, 1993, see Appendix B). Stormwater may be detained, if necessary, to ensure that the allowable release rate is not exceeded. Therefore, stormwater management facilities are designed to accommodate such an events. In the unlikely event that the capacity of this system is exceeded, runoff will be directed to Watters and Trim Road.

In general, the runoff is currently to the east and to the existing tributary to the Cardinal Creek. However, when the recommendations in the City's study are implemented, both minor and major storm sewer systems will be diverted so that these flows outlet to the quality/quantity ponds to be constructed on the Cardinal Creek by others to the south of Watters Road extension.

3.0 STORMWATER MANAGEMENT CALCULATIONS

Since the new construction will be in an area of the site that is currently undeveloped, the overall impervious level for the site, and its corresponding peak rate of runoff, could possibly increase after development. As a result, stormwater quantity management is required to reduce the peak flow rate from the site to existing levels.

3.1 Allowable Release Rate

As stated in the CCL approved report Table 1, the Commercial Block's allowable 5-year peak flow release rate is **333.90** L/s for the entire 3.21ha site to the existing 900mm dia. sewer on Watters Road. (see Appendix B for release rate breakdown calculations).

This development comprises of 2.47ha and is subject of this report. Therefore, the release rate is weighted as follows:

Taggart Development 2.47ha (77%)	=	**257.30 L/s**
Future Esso Tiger Express 0.74ha (23%)	=	**76.60 L/s**

Allocation for Phase 3 lands

CUMMING COCKBURN LIMITED
1770 WOODWARD DRIVE
OTTAWA ONTARIO
K2C 0P8

Flow Allocation

STORM SEWER DESIGN SHEET

CROWN POINTE
TOWNSHIP OF CUMBERLAND
CROWN POINTE DEVELOPMENT INC

PAGE 2 OF 2
DATE: 30-May-96
DESG : AES
REV NO 1 APRIL 30, 96
REV NO 2 MAY 15, 96

LOCATION			AREA (Ha)						RAINFALL					SEWER DATA						
STREET	FROM MH	TO MH	C= 0.20	C= 0.45	C= 0.50	C= 0.60	INDIV. 2.78AC	ACCUM. 2.78AC	T.C.	TIME IN PIPE	TOTAL	I (mm/Hr)	PK. FLOW (l/s)	LENGTH (M)	PIPE (mm)	PIPE TYPE	SLOPE (%)	CAP. (l/s)	VEL. (M/s)	REMARKS
PHASE 1A TEMPO STREET	1	2				0.24	0.40	0.40	10.00	1.08	11.08	101.2	40.5	49.0	300	CONC	0.30	55.2	0.76	15
LYNX CRESCENT	4	3				0.16	0.27	0.27	10.00	0.28	10.28	101.2	27.3	12.5	300	CONC	0.30	55.2	0.76	28
LYNX CRESCENT	3	2				0.42	0.70	0.97	10.28	1.12	11.39	99.7	96.7	59.0	375	CONC	0.30	100.2	0.88	4
LYNX CRESCENT	4	5				0.39	0.65	0.65	10.00	1.00	11.00	101.2	65.8	58.5	300	CONC	0.50	71.4	0.98	6
COMMERCIAL	EXT	5			***3.22		6.27	6.27	13.00	0.62	13.62	87.8	550.5	47.0	750	CONC	0.25	580.5	1.27	30
LYNX CRESCENT	5	6				0.20	0.33	7.25	13.62	0.14	13.75	85.6	620.6	12.5	750	CONC	0.35	687.2	1.51	67
LYNX CRESCENT	6	7				0.57	0.95	8.20	13.75	0.66	14.42	85.1	697.8	64.0	750	CONC	0.40	734.7	1.61	37
PHASE 1B ALINE AVENUE	10	9		0.19			0.24	0.24	10.00	0.26	10.26	101.2	24.3	12.0	300	CONC	0.30	55.2	0.76	31
ALINE AVENUE	9	8		0.71			0.89	1.13	10.26	1.15	11.41	99.8	112.8	74.0	375	CONC	0.45	122.7	1.08	10
ALINE AVENUE	8	7		0.61			0.76	1.89	11.41	1.03	12.44	94.3	178.2	75.0	450	CONC	0.45	199.5	1.22	21
ALINE AVENUE	10	11		0.26			0.33	0.33	10.00	0.92	10.92	101.2	33.4	48.5	300	CONC	0.40	63.8	0.87	30
ALINE AVENUE	11	12		0.28			0.35	0.68	10.92	0.77	11.70	96.6	65.7	47.0	375	CONC	0.40	115.7	1.02	50
STREET 3	12	2				1.12	1.87	46.13	23.02	1.15	24.17	62.8	2897.0	137.5	1350	CONC	0.28	2946.3	1.99	49
LYNX CRESCENT	2	7				0.15	0.25	47.75	24.17	0.69	24.86	61.0	2912.8	83.0	1350	CONC	0.28	2946.3	1.99	34
LYNX CRESCENT	7	25			3.45		4.80	62.64	24.86	1.13	25.99	59.9	3752.1	140.0	1500	CONC	0.26	3761.4	2.06	9
WATTERS RD EX	*66*	*67*	*May 93*	*93 ccl*	*stm ds*	*n 3766*	0.00	*33.41*	*23.33*	*0.39*	*23.72*	*62.3*	*2081.4*	*42.5*	*1200*	CONC	*0.27*	*2113.1*	*1.81*	32
WRIGHT FARM	67	25			4.63		6.44	39.85	23.72	3.21	26.94	61.7	2458.7	325.0	1350	CONC	0.20	2489.7	1.69	31
WRIGHT FARM	25	26			1.26		1.75	104.24	26.94	1.07	28.01	57.0	5941.7	128.0	1950	CONC	0.17	6122.5	1.99	181
WRIGHT FARM	26	out			3.33		4.63	108.87	28.01	0.80	28.81	55.6	6053.2	95.0	1950	CONC	0.17	6122.5	1.99	69

C=0.7 for commercial blk

Q = 2.78AIC WHERE
Q = Peak Flow in Litres per Second (L/S)
A = Area in Hectares (Ha)
I = Rainfall Intensity in Millimeters per Hour (mm/Hr)
C = Runoff Coefficient
RAINFALL INTENSITY; I=879/(TC^0.77+2.8)

NO.	REVISIONS	DATE	INITIAL
6.	GENERAL REVISIONS TO WRIGHT FARM PROPERTY	96/08/01	
5.	SIDEWALK ADDED ON ST. No. 3, NEW UNITS BLK A8	96/07/02	
4.	REVISED AS PER NEW LEGAL	96/06/27	
3.	REVISED AS PER NEW LEGAL & TOWNSHIP	96/06/19	
2.	GENERAL REVISIONS	96/05/30	
1.	REVISED AS PER TOWNSHIP	96/04/22	

CROWN POINTE DEVELOPMENT INC.

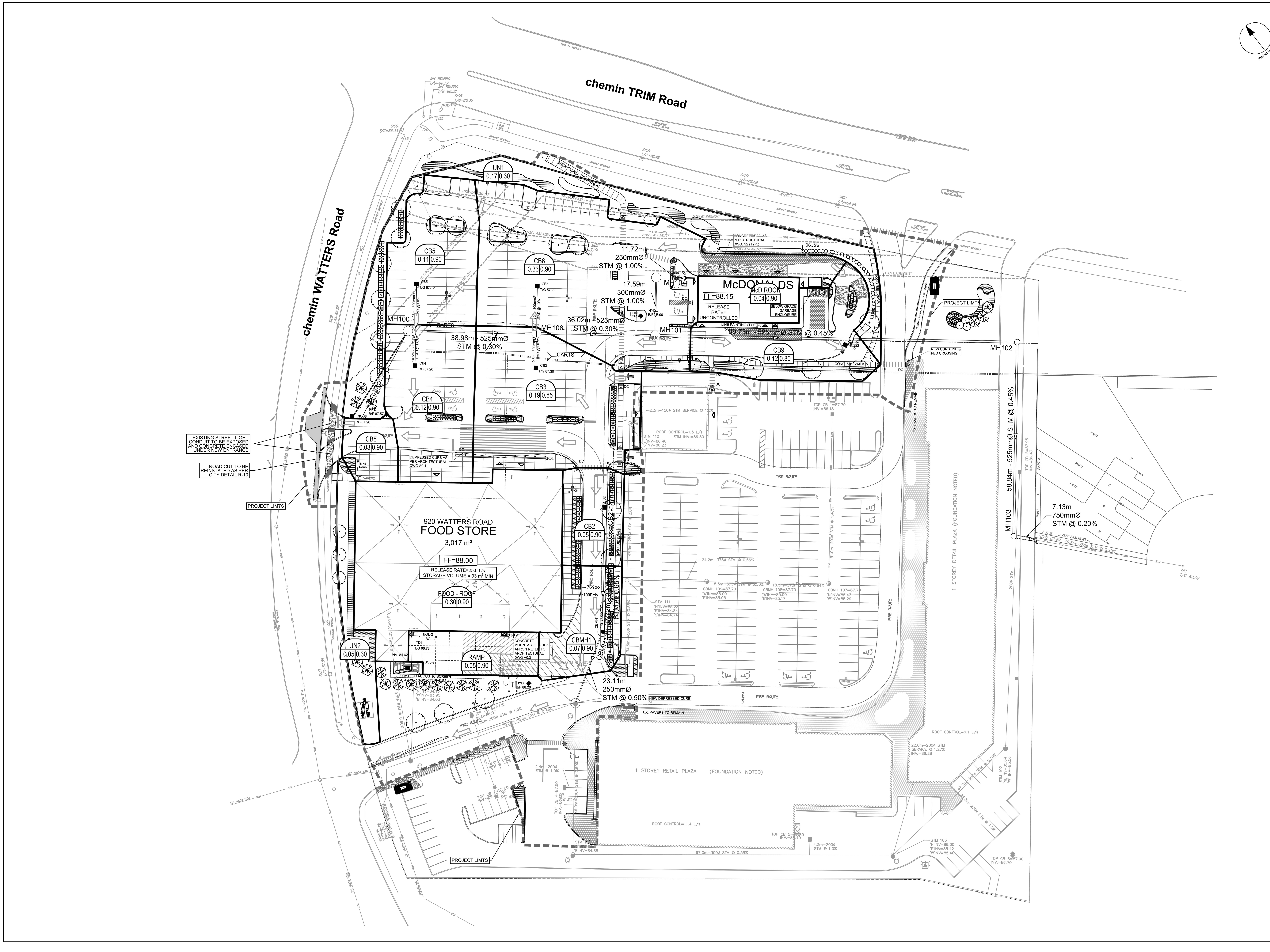
TOWNSHIP OF CUMBERLAND

CROWN POINTE PHASE IA – IB

DRAINAGE AREA PLAN

CCL Cumming Cockburn Limited
Consulting Engineers, Planners, and Environmental Scientists

SCALE 1:1000
DRAWN BY M.M./CAD
DESIGN A.E.S. CHECKED C.C.L.
DATE MARCH 1996
FIELD BOOK
DRWG No. 3015-LD-500A



CLIENT

CROWN POINTE Co-TENANCY

C/O
TAGGART REALTY MANAGEMENT

225 METCALFE STREET, OTTAWA, On
K2P 1P9

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2021-10-28
2	REVISED PER CITY COMMENTS	2022-02-03
3	REVISED PER CITY COMMENTS AND NEW SITE PLAN	2022-04-19

NOT FOR CONSTRUCTION

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

KEY PLAN

CONSULTANTS

SEAL

LICENSED PROFESSIONAL ENGINEER T. R. BRULE 2022-04-19 PROVINCE OF ONTARIO

IBI GROUP
Suite 400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT

CROWN POINTE
900 WATTERS ROAD
CROWN POINTE COMMERCIAL
PHASE 3

PROJECT NO: 136063

DRAWN BY:	CHECKED BY:
D.D.	J.B.
PROJECT MGR:	APPROVED BY:
T.R.B.	----

SHEET TITLE

STORM DRAINAGE AREA PLAN

SHEET NUMBER	ISSUE
C-500	3

CITY FILE No. D07-12-21-0183

CITY PLAN No. 18633

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

STORM SEWER DESIGN SHEET

Crown Point - Phase 3
City of Ottawa
Taggart Realty Management

LOCATION: STREET	LOCATION: AREA ID	LOCATION: FROM	LOCATION: TO	AREA (Ha) C= 0.20	C= 0.25	C= 0.40	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.80	C= 0.85	C= 0.90	RATIONAL DESIGN FLOW: 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 IND	FIXED FLOW CUM	DESIGN FLOW (L/s)	ICD FLOW	SEWER DATA: CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
Site	CB2	CB2	CBMH1										0.05	0.13	0.13	10.00	0.74	10.74	76.81	104.19	122.14	178.56	9.61	13.03	15.28	22.34	0.00	0.00	9.61		27.59	37.72	200			0.65	0.851	17.98	65.17%
Site	CB1	CBMH1	EXSTM105										0.07	0.18	0.30	10.74	0.44	11.18	74.08	100.44	117.73	172.07	22.24	30.16	35.35	51.66	0.00	0.00	22.24		43.87	23.11	250			0.50	0.866	21.63	49.30%
Site	FOOD-ROOF	BLDG	Stub										0.30	0.75	1.05	10.00	0.01	10.01	76.81	104.19	122.14	178.56	80.71	109.49	128.35	187.64	0.00	0.00	80.71		141.68	1.00	375			0.60	1.243	60.97	43.03%
Site	RAMP	RAMP	Stub										0.05	0.13	0.13	10.00	0.12	10.12	76.81	104.19	122.14	178.56	9.61	13.03	15.28	*22.34*	0.00	0.00	*22.34*		34.22	7.32	200			1.00	1.055	11.88	34.72%
Site		Stub	EXSTM106											0.00	1.05	10.12	0.41	10.52	76.36	103.59	121.43	177.51	80.25	108.85	127.60	186.53	0.00	0.00											
Site		Stub	EXSTM106											0.00	0.13	10.12	0.41	10.52	76.36	103.59	121.43	177.51	9.55	12.96	15.19	*22.21*	0.00	0.00	102.45		141.68	30.24	375			0.60	1.243	39.23	27.69%
Site	CICB8	MH100	MH108										0.03	0.08	0.08	10.00	0.47	10.47	76.81	104.19	122.14	178.56	5.76	7.82	9.17	13.40	0.00	0.00	5.76	20.00	34.22	30.00	200			1.00	1.055	28.45	83.15%
Site	CB4, CB5	MH100	MH108										0.23	0.58	0.65	10.47	0.59	11.06	75.03	101.75	119.27	174.34	48.81	66.19	77.59	113.41	0.00	0.00	48.81	90.00	245.74	38.98	525			0.30	1.100	196.93	80.14%
Site	CB3, CB6	MH108	MH101									0.19	0.33	1.27	1.93	11.06	0.55	11.61	72.95	98.89	115.89	169.38	140.43	190.37	223.11	326.08	0.00	0.00	140.43	245.00	245.74	36.02	525			0.30	1.100	105.31	42.85%
Site	McD ROOF	BLDG	MH104										0.04	0.10	0.10	10.00	0.17	10.17	76.81	104.19	122.14	178.56	7.69	10.43	12.22	17.87	0.00	0.00	7.69	17.87	62.04	12.72	250			1.00	1.224	54.35	87.61%
Site		MH104	MH101											0.00	0.10	10.17	0.24	10.41	76.15	103.29	121.07	176.99	7.62	10.34	12.12	17.71	0.00	0.00	7.62	17.71	62.04	17.59	250			1.00	1.224	54.42	87.72%
Site	CB9	MH101	MH102								0.12			0.27	2.29	11.61	1.36	12.97	71.13	96.39	112.95	165.07	163.04	220.94	258.90	378.35	0.00	0.00	163.04	292.71	300.97	109.73	525			0.45	1.347	137.93	45.83%
Site		MH102	MH103											0.00	2.29	12.97	0.71	13.67	67.02	90.75	106.32	155.32	153.62	208.01	243.69	356.01	0.00	0.00	153.62	292.71	300.97	57.09	525			0.45	1.347	147.35	48.96%
Site		MH103	Stub											0.00	2.29	13.67	0.14	13.81	65.08	88.10	103.19	150.73	149.18	201.93	236.53	345.50	0.00	0.00	149.18	292.71	367.27	6.59	750			0.10	0.805	218.09	59.38%
											0.12	0.19	1.10																										
													1.41	1.37																									

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: TRB
Dwg. Reference: 136063

No.	Revision	Date
1.	Issued for Site Plan Application	2021-10-27
2.	Revised per City comments	2022-02-03
3	Revised per City comments	2022-04-19

File Reference:	Date:	Sheet No:
136063.6.04_04	2021-10-27	1 of 1

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

PROJECT:	Crowns Point
DATE:	2022-04-19
FILE:	136063.6.04_04
REV #:	-
DESIGNED BY:	JEB
CHECKED BY:	TRB

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)

Calculations below are for the portion of subject lands which are tributary to an existing 750mm diameter storm stub along south east proerty line of subjet lands outletting towards. Lynx Crescent.

The restricted flow rate is taken from CCL report Crown Pointe Ph 3 3015-LD and is identified as 3.22Ha COMMERCIAL block with 550.5 L/s peak flow. Design sheet and drainage area plan are attached.

Maximum Allowable Release Rate

Restricted Flowrate

$Q_{restricted}$ = 550.50 L/s

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

C =	0.4875	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.22	Ha

$Q_{uncontrolled}$ = 53.24 L/s

Uncontrolled Average C

ID	Area (Ha.)	C	Weight	Weighted C
UN1	0.17	0.3	0.65	0.20
UN2	0.05	0.3	0.19	0.06
McDs Roof	0.04	0.9	0.15	0.14
	0.26		1.00	**0.39**

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

$Q_{max\ allowable}$ = 497.26 L/s

MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area	CB9		
Area (Ha)	0.120		
C =	1.00	Restricted Flow Q_r (L/s)=	30.00

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)
2	315.00	105.09	30.00	75.09	9.01
7	211.67	70.61	30.00	40.61	17.06
12	162.13	54.09	30.00	24.09	**17.34**
17	132.63	44.24	30.00	14.24	14.53
22	112.88	37.66	30.00	7.66	10.11

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	17.34	8.27	0	9.07

overflows to: CB6

Drainage Area	CB9		
Area (Ha)	0.120		
C =	0.80	Restricted Flow Q_r (L/s)=	30.00

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)
0	230.48	61.51	30.00	31.51	0.00
2	182.69	48.76	30.00	18.76	2.25
4	152.51	40.70	30.00	10.70	**2.57**
6	131.57	35.11	30.00	5.11	1.84
8	116.11	30.99	30.00	0.99	0.47

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.57	8.27	0	0.00

overflows to: CB6

Drainage Area	CB9		
Area (Ha)	0.120		
C =	0.80	Restricted Flow Q_r (L/s)=	30.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
0	167.22	44.63	30.00	14.63	0.00
1	148.14	39.54	30.00	9.54	0.57
2	133.33	35.58	30.00	5.58	**0.67**
3	121.46	32.42	30.00	2.42	0.43
4	111.72	29.82	30.00	-0.18	-0.04

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.67	67.50	0	0.00

overflows to: CB6

Drainage Area	CB6		
Area (Ha)	0.330		
C =	1.00	Restricted Flow Q_r (L/s)=	100.00

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	365.69	100.00	265.69	0.00
5	242.70	222.66	100.00	122.66	36.80
10	178.56	163.81	100.00	63.81	**38.29**
15	142.89	131.09	100.00	31.09	27.98
20	119.95	110.04	100.00	10.04	12.05

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
9.07	47.36	41.91	0	5.45

overflows to: CB5

Drainage Area	CB6		
Area (Ha)	0.330		
C =	0.90	Restricted Flow Q_r (L/s)=	100.00

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)
0	230.48	190.30	100.00	90.30	0.00
2	182.69	150.84	100.00	50.84	6.10
4	152.51	125.92	100.00	25.92	**6.22**
6	131.57	108.63	100.00	8.63	3.11
8	116.11	95.87	100.00	-4.13	-1.98

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	6.22	41.91	0	0.00

overflows to: CB5

Drainage Area	CB6		
Area (Ha)	0.330		
C =	0.90	Restricted Flow Q_r (L/s)=	100.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-1	192.83	159.21	100.00	59.21	-3.55
0	167.22	138.07	100.00	38.07	0.00
1	148.14	122.32	100.00	22.32	**1.34**
2	133.33	110.09	100.00	10.09	1.21
3	121.46	100.29	100.00	0.29	0.05

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.34	185.63	0	0.00

overflows to: CB5

Drainage Area	CB5		
Area (Ha)	0.110		
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	121.90	25.00	96.90	0.00
5	242.70	74.22	25.00	49.22	14.77
10	178.56	54.60	25.00	29.60	**17.76**
15	142.89	43.70	25.00	18.70	16.83
20	119.95	36.68	25.00	11.68	14.02

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
5.45	23.21	48.85	0	0.00

overflows to: offsite

Drainage Area	CB5		
Area (Ha)	0.110		
C =	0.90	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)
0	230.48	63.43	25.00	38.43	0.00
2	182.69	50.28	25.00	25.28	3.03
4	152.51	41.97	25.00	16.97	**4.07**
6	131.57	36.21	25.00	11.21	4.04
8	116.11	31.96	25.00	6.96	3.34

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.07	48.85	0	0.00

overflows to: offsite

Drainage Area	CB5		
Area (Ha)	0.110		
C =	0.90	Restricted Flow Q_r (L/s)=	25.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p=2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
1	148.14	40.77	25.00	15.77	0.95
2	133.33	36.70	25.00	11.70	1.40
3	121.46	33.43	25.00	8.43	**1.52**
4	111.72	30.75	25.00	5.75	1.38
5	103.57	28.50	25.00	3.50	1.05

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.52	61.88	0	0.00

overflows to: offsite

Drainage Area	CB3		
Area (Ha)	0.190		
C =	1.00	Restricted Flow Q_r (L/s)=	55.00

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	210.55	55.00	155.55	0.00
5	242.70	128.20	55.00	73.20	21.96
10	178.56	94.31	55.00	39.31	**23.59**
15	142.89	75.48	55.00	20.48	18.43
20	119.95	63.36	55.00	8.36	10.03

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	23.59	16.34	0	7.25

overflows to: CB4

Drainage Area	CB3		
Area (Ha)	0.190		
C =	0.85	Restricted Flow Q_r (L/s)=	55.00

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	119.86	55.00	64.86	-3.89
1	203.51	91.37	55.00	36.37	2.18
3	166.09	74.57	55.00	19.57	**3.52**
5	141.18	63.38	55.00	8.38	2.52
7	123.30	55.36	55.00	0.36	0.15

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	3.52	16.34	0	0.00

overflows to: CB4

Drainage Area	CB3		
Area (Ha)	0.190		
C =	0.85	Restricted Flow Q_r (L/s)=	55.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-1	192.83	86.58	55.00	31.58	-1.89
0	167.22	75.08	55.00	20.08	0.00
1	148.14	66.51	55.00	11.51	**0.69**
2	133.33	59.86	55.00	4.86	0.58
3	121.46	54.53	55.00	-0.47	-0.08

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.69	106.88	0	0.00

overflows to: CB4

Drainage Area	CB4		
Area (Ha)	0.120		
C =	1.00	Restricted Flow Q_r (L/s)=	45.00

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)
-2	555.31	185.25	45.00	140.25	-16.83
3	286.05	95.43	45.00	50.43	9.08
8	199.20	66.45	45.00	21.45	**10.30**
13	155.11	51.74	45.00	6.74	5.26
18	128.08	42.73	45.00	-2.27	-2.45

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
7.25	17.55	17.21	0	0.34

overflows to: CB8

Drainage Area	CB4		
Area (Ha)	0.120		
C =	0.90	Restricted Flow Q_r (L/s)=	45.00

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	95.92	45.00	50.92	-6.11
0	230.48	69.20	45.00	24.20	0.00
2	182.69	54.85	45.00	9.85	**1.18**
4	152.51	45.79	45.00	0.79	0.19
6	131.57	39.50	45.00	-5.50	-1.98

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.18	17.21	0	0.00

overflows to: CB8

Drainage Area	CB4		
Area (Ha)	0.120		
C =	0.90	Restricted Flow Q_r (L/s)=	45.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-2	229.26	68.83	45.00	23.83	-2.86
-1	192.83	57.90	45.00	12.90	-0.77
0	167.22	50.21	45.00	5.21	**0.00**
1	148.14	44.48	45.00	-0.52	-0.03
2	133.33	40.03	45.00	-4.97	-0.60

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	67.50	0	0.00

overflows to: CB8

Drainage Area	CBMH 8		
Area (Ha)	0.030		
C =	1.00	Restricted Flow Q_r (L/s)=	20.00

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)
-5	1716.01	143.12	20.00	123.12	-36.93
0	398.62	33.24	20.00	13.24	0.00
5	242.70	20.24	20.00	0.24	**0.07**
10	178.56	14.89	20.00	-5.11	-3.06
15	142.89	11.92	20.00	-8.08	-7.27

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.07	0.02	0	0.05

overflows to: offsite

Drainage Area	CBMH 8		
Area (Ha)	0.030		
C =	0.90	Restricted Flow Q_r (L/s)=	20.00

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)
-5	956.98	71.83	20.00	51.83	-15.55
-3	402.34	30.20	20.00	10.20	-1.84
-1	266.98	20.04	20.00	0.04	**0.00**
1	203.51	15.28	20.00	-4.72	-0.28
3	166.09	12.47	20.00	-7.53	-1.36

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	0.02	0	0.00

overflows to: offsite

Drainage Area	CBMH 8		
Area (Ha)	0.030		
C =	0.90	Restricted Flow Q_r (L/s)=	20.00

2-Year Ponding					
T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-4	387.14	29.06	20.00	9.06	-2.17
-3	285.77	21.45	20.00	1.45	-0.26
-2	229.26	17.21	20.00	-2.79	**0.34**
-1	192.83	14.47	20.00	-5.53	0.33
0	167.22	12.55	20.00	-7.45	0.00

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.34	16.88	0	0.00

overflows to: offsite

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

PROJECT:	Crowns Point
DATE:	2021-10-27
FILE:	136063.6.04_04
REV #:	-
DESIGNED BY:	JEB
CHECKED BY:	TRB

STORMWATER MANAGEMENT

Calculations below are for the portion of subject lands which are tributary to the existing Crown Point Commercial Plaza storm sewer system

The restricted flow rate is taken from Stantec report Crown Pointe Center 604-00200 and is identified as "Future Esso Tiger Express" 76.6 L/s peak flow. Supporting documents are attached.

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

$Q_{restricted}$ =	76.60	L/s

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

C =	0	
T_c =	10	min
i_{100yr} =	178.56	mm/hr
$A_{uncontrolled}$ =	0.00	Ha
$Q_{uncontrolled}$ =	0.00	L/s

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

$Q_{max\ allowable}$ =	76.60	L/s

MODIFIED RATIONAL METHOD (100-Year, 5-Year & 2-Year Ponding)

Drainage Area FOOD-ROOF

Area (Ha) 0.300
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)
17	132.63	110.61	25.00	85.61	87.32
22	112.88	94.14	25.00	69.14	91.27
27	98.66	82.28	25.00	57.28	**92.80**
32	87.89	73.30	25.00	48.30	92.73
37	79.42	66.23	25.00	41.23	91.54

Storage (m^3)

Overflow	Required	Roof	Sub-surface	Balance
0.00	92.80	95.00	0	0.00

overflows to: N/A

Drainage Area FOOD-ROOF

Area (Ha) 0.300
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)
10	104.19	69.52	25.00	44.52	26.71
12	94.70	63.18	25.00	38.18	27.49
14	86.93	58.00	25.00	33.00	**27.72**
16	80.46	53.68	25.00	28.68	27.54
18	74.97	50.02	25.00	25.02	27.02

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	27.72	95.00	0	0.00

overflows to: N/A

Drainage Area FOOD-ROOF

Area (Ha) 0.300
C = 0.80
Restricted Flow Q_r (L/s)= 25.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
8	85.46	57.02	25.00	32.02	15.37
9	80.87	53.96	25.00	28.96	15.64
10	76.81	51.24	25.00	26.24	**15.75**
11	73.17	48.82	25.00	23.82	15.72
12	69.89	46.63	25.00	21.63	15.58

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	15.75	168.75	0	0.00

overflows to: N/A

Drainage Area RAMP

*100 year flow from storm design sheet

Area (Ha) 0.050
C = 1.00
Restricted Flow Q_r (L/s)= 22.34*

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	702.38	97.63	22.34	75.29	-13.55
2	315.00	43.79	22.34	21.45	2.57
7	211.67	29.42	22.34	7.08	**2.97**
12	162.13	22.54	22.34	0.20	0.14
17	132.63	18.44	22.34	-3.90	-3.98

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	2.97	0.00	0	0.00

overflows to: N/A

Drainage Area RAMP

Area (Ha) 0.050
C = 0.90
Restricted Flow Q_r (L/s)= 22.34*

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	39.97	22.34	17.63	-2.12
0	230.48	28.83	22.34	6.49	0.00
2	182.69	22.85	22.34	0.51	**0.06**
4	152.51	19.08	22.34	-3.26	-0.78
6	131.57	16.46	22.34	-5.88	-2.12

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.06	0.00	0	0.00

overflows to: N/A

Drainage Area RAMP

Area (Ha) 0.050
C = 0.90
Restricted Flow Q_r (L/s)= 22.34*

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-2	229.26	28.68	22.34	6.34	-0.76
-1	192.83	24.12	22.34	1.78	-0.11
0	167.22	20.92	22.34	-1.42	**0.00**
1	148.14	18.53	22.34	-3.81	-0.23
2	133.33	16.68	22.34	-5.66	-0.68

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	0.00	28.13	0	0.00

overflows to: N/A

Drainage Area CB1&CB2

Area (Ha) 0.120
C = 1.00
Restricted Flow Q_r (L/s)= 29.00

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	132.98	29.00	103.98	0.00
5	242.70	80.97	29.00	51.97	15.59
10	178.56	59.57	29.00	30.57	**18.34**
15	142.89	47.67	29.00	18.67	16.80
20	119.95	40.02	29.00	11.02	13.22

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	18.34	74.01	0	0.00

overflows to: EX Road

Drainage Area CB1&CB2

Area (Ha) 0.120
C = 0.90
Restricted Flow Q_r (L/s)= 29.00

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)
0	230.48	69.20	29.00	40.20	0.00
2	182.69	54.85	29.00	25.85	3.10
4	152.51	45.79	29.00	16.79	**4.03**
6	131.57	39.50	29.00	10.50	3.78
8	116.11	34.86	29.00	5.86	2.81

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	4.03	74.01	0	0.00

overflows to: EX Road

Drainage Area CB1&CB2

Area (Ha) 0.120
C = 0.90
Restricted Flow Q_r (L/s)= 29.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
1	148.14	44.48	29.00	15.48	0.93
2	133.33	40.03	29.00	11.03	1.32
3	121.46	36.47	29.00	7.47	**1.34**
4	111.72	33.54	29.00	4.54	1.09
5	103.57	31.10	29.00	2.10	0.63

Storage (m^3)

Overflow	Required	Surface	Sub-surface	Balance
0.00	1.34	67.50	0	0.00

overflows to: EX Road

FLOW CONTROL ROOF DRAINAGE DECLARATION

THIS FORM TO BE COMPLETED BY THE MECHANICAL AND STRUCTURAL ENGINEERS RESPONSIBLE FOR DESIGN

Permit Application No.

Project Name:
Trim & Watters Freshco

Building Location:	Municipality:
900 Watter Road, Orleans, Ottawa	City of Ottawa

The roof drainage system has been designed in accordance with the following criteria: (please check one of the following).

M1. ☐ Conventionally drained roof (no flow control roof drains used).

M2. ☑ Flow control roof drains meeting the following conditions have been incorporated in this design:

(a) the maximum drain down time does not exceed 24h,
(b) one or more scuppers are installed so that the maximum depth of water on the roof cannot exceed 150mm,
(c) drains are located not more than 15m from the edge of roof and not more than 30m from adjacent drains, and
(d) there is at least one drain for each 900 sq.m.

M3. ☐ A flow control drainage system that does not meet the minimum drainage criteria described in M2 has been incorporated in this design.

PROFESSIONAL SEAL APPLIED BY:

Practitioner's Name:
John Yeung

Firm:
SNC Lavalin Inc.

Phone #:
416-200-4717

City: Toronto
Province: Ontario

Mechanical Engineer's Seal

S1. ☑ The design parameters incorporated into the overall structural design are consistent with the information provided by the Mechanical Engineer in M2. Loads due to rain are not considered to act simultaneously with loads due to snow as per Sentence 4.1.7.3 (3) OBC.

S2. ☐ The structure has been designed incorporating the additional structural loading due to rain acting simultaneously with the snow load. The design parameters are consistent with the control flow drainage system designed by the mechanical engineer.

PROFESSIONAL SEAL APPLIED BY:

Practitioner's Name:
Geoffrey Dahmer

Firm:
MTE Consultants Inc.

Phone #:
(519) 743-6500

City: Kitchener
Province: Ontario

Structural Engineer's Seal

Chart 1: LMF 14 Preset Flow Curves

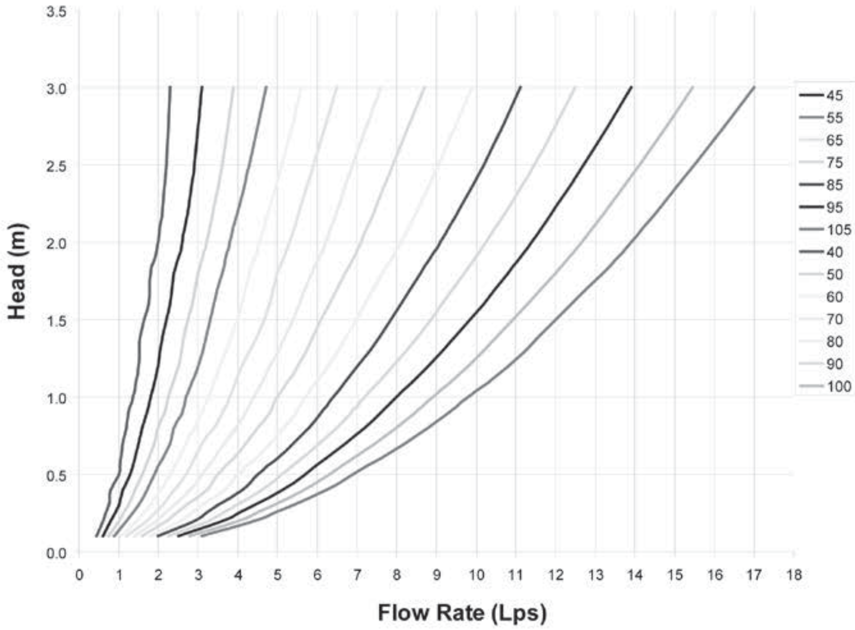
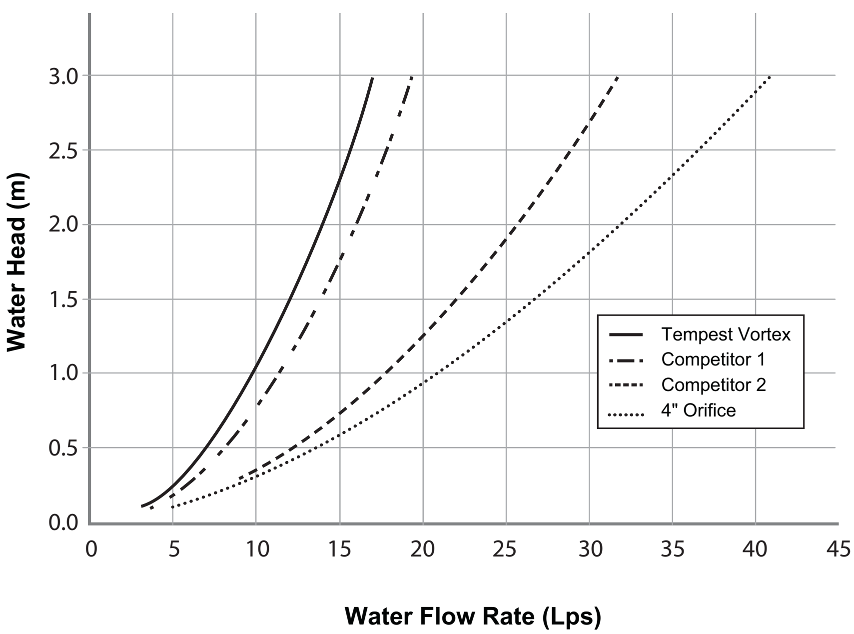


Chart 2: LMF Flow vs. ICD Alternatives



NOTE: Do not use or test the products in this manual with compressed air or other gases including air-over-water-boosters

Cardinal Creek SWF

L07-03-COFA Vol: 9

(SWF-1926)

Ministry of the Environment
Ministère de l'Environnement
Ontario

CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 6422-4ZNFLK

RECEIVED
NOV -7 2001

City of Ottawa
110 Laurier Avenue West
Ottawa, Ontario
K1P 1J1

Site Location: East Urban Community Expansion Area
Part of Lot B, Concession 9
Ottawa City

3326-CD-21

You have applied in accordance with Section 53 of the Ontario Water Resources Act for approval of:

a stormwater management facility and associated appurtenances to be constructed to service the East Urban Community, located in the former City of Cumberland, now in the City of Ottawa, as follows:

Stormwater Management Facility

An on-line stormwater management facility located along the Cardinal Creek channel between the H.E.P.C. Easement and Watters Road, consisting of an elongated stormwater detention/extended detention wet pond with quality/erosion and quantity control functions and to enhance base flows in Cardinal Creek. The stormwater management facility has a combined available storage volume of approx. 280,000 m^3 of extended detention (quality/erosion) storage in the wet pond (including 6,000 m^3 to augment the dry weather flow in Cardinal Creek) and 42,000 m^3 of permanent pool storage (including Southern Sediment Forebay and Northern Sediment Forebay). Quality control is provided at the inlet forebay of each of the Southern and Northern Sediment Forebays via a stilling well and vegetative lining to enhance sediment removal. Discharge from the forebays to the main wet cell is provided through a permeable berm. An outlet headwall on each forebay is provided with stop logs to isolate the outlet pipe from the forebay during maintenance activities. Discharge control downstream for the main wet pond is provided via an outlet control structure consisting of a combination of weir and pipe for lowflows and a combination of overflow and open channel for larger flows, designed to provide quality control by detaining the runoff from the 24 mm design storm event prior to discharge over a 36 hour period to Cardinal Creek at Watters Road. Quantity control in the pond is provided by attenuating the catchment area post-development flows to near pre development flow rates of 6.1 m^3/s, 7.4 m^3/s and 8.5 m^3/s during the 2, 5 and 100 year design storm events and to near flow rates of 14.4 m^3/s and 17.0 m^3/s during the July 1st 1979 and 100 year Snow-on-rain year design storm events respectively prior to discharging to Cardinal Creek at Watters Road (including 6,000 m^3 to augment the dry weather flow released at a discharge rate of

0.005 m^3/s over a 14 day period). All of the above including inlet and outlet piping and control structures, outlet structure berm/dam, valved bypass piping for augmenting low flow, weirs, low flow channel, overflow channel, and provisions for emptying the pond cells for maintenance and sediment removal;

including temporary erosion/sedimentation stormwater management measures during construction, all in accordance with the stormwater management design brief, Master Drainage Plan Reports and final drawings prepared by Cumming Cockburn Ltd., Consulting Engineers.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(1) "Ministry" means the Ontario Ministry of the Environment;

(2) "Owner" means the City of Ottawa and includes its successors and assignees;

(3) "Environmental Appeal Board" means the Environmental Review Tribunal, as defined in the Environmental Review Tribunal Act, as amended from time to time.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. The Owner shall make all necessary investigations, take all necessary steps and obtain all necessary approvals so as to ensure that the physical structure, siting and operations of the stormwater works do not constitute a safety or health hazard to the general public.

2. The Owner shall ensure that sediment and excessive decaying vegetation are removed from the above noted stormwater management system at such a frequency as to prevent the excessive buildup and potential overflow of sediment and/or decaying vegetation into the receiving watercourse.

3. OPERATION AND MAINTENANCE

(1) The Owner shall ensure that at all times, the sewage works and the related equipment and appurtenances which are installed or used to achieve compliance with this certificate are properly operated and maintained.

(2) The Owner shall prepare an operations manual for the operation of the sewage works and retain a copy of the manual at the Owner's headquarters. Upon request, the Owner shall make the manual available for inspection and copying by the Ministry personnel.

(3) The Owner shall ensure that the manual includes the following information:

(a) inspection program including frequency of inspection of the forebays, wet pond, catch basins and manholes for sediment accumulation and method for removal of sediment; and

(b) maintenance program for all the components of the sewage works which need maintenance.

(4) The Owner shall prepare within six months of substantial completion of the sewage works, a complete set of drawings accurately showing the sewage works as-constructed. The Owner shall keep a complete set of as-constructed drawings at the Owner's headquarters throughout the operational life of the sewage works, and upon request, shall make the drawings available for inspection and copying by Ministry staff.

4. WATER QUALITY MONITORING

(1) Composite samples consisting of four (4) grab samples of the effluent shall be collected at the outlet from the wet detention pond at approximately 9, 23, 34 and 45 hours after each of four (4) rainfall events per year (May to September inclusive), and analyzed for the following parameters:

Total Suspended Solids, Total Phosphorus, Oil and Grease (total), Ammonia plus Ammonium, pH and temperature.

(2) In addition to the monitoring requirements specified in sub-section (1), the Owner shall measure the Dissolved Oxygen in the pond at the end of sample collection for each of the four (4) rainfall events specified in sub-subsection (1).

(3) Pursuant to subsections (1) and (2) the Owner shall prepare and submit in writing a monitoring report to the District Manager by the 31st day of October immediately following the monitoring period;

(4) The monitoring program described in subsections (1), (2) and (3) shall begin when 80% of the land mass tributary to the stormwater management facility (approx. 415 has of the 517 ha planned for urbanization) have been developed. After its inception, the said monitoring program shall last a period of no less than four (4) consecutive years.

5. RECORD KEEPING AND RETENTION

(1) The Owner shall retain for a minimum of three (3) years or longer if requested in writing by the District Manager, all records and information related to or resulting from the monitoring activities required by this certificate or proposed by the Owner.

6. GENERAL CONDITION

(1) Except as otherwise provided by these Conditions, the Owner shall design, build, install,

operate and maintain the works in accordance with the description given in this Certificate, the application for approval of the works and the submitted supporting documents and plans and specifications as listed in this Certificate.

(2) Where there is a conflict between a provision of any submitted document referred to in this Certificate and the Conditions of this Certificate, the Conditions in this Certificate shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed because it is not in the public interest for the Director to approve facilities which, by reason of potential health and safety hazards do not generally comply with legal standards or approval requirements falling outside the purview of this Ministry.

2. Condition 2 is included as regular removal of sediment and excessive decaying vegetation from this approved stormwater management system are required to mitigate the impact of sediment and/or decaying vegetation on the downstream receiving watercourse. It is also required to ensure that adequate storage is maintained in the stormwater management facilities at all times as required by the design.

3. Condition 3 is included to ensure that the sewage works are properly operated and maintained such that the environment is protected and deterioration, loss, injury or damage to any person or property is prevented.

4. Conditions 4 and 5 are included to ensure that various water quality parameters of the effluent discharged from the stormwater management pond are monitored and the sewage works is performing as designed.

5. Condition 6 is imposed to ensure that the works are built and operated in the manner in which they were described for review and upon which approval was granted. This condition is also included to emphasize the precedence of Conditions in the Certificate and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Appeal Board within 15 days after receipt of this Notice, require a hearing by the Board. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;

4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary* Environmental Appeal Board 2300 Yonge St., 12th Floor P.O. Box 2382 Toronto, Ontario M4P 1E4	AND	The Director Section 53, *Ontario Water Resources Act* Ministry of the Environment 2 St. Clair Avenue West, Floor 12A Toronto, Ontario M4V 1L5

* **Further information on the Environmental Appeal Board's requirements for an appeal can be obtained directly from the Board at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 31st day of October, 2001

THIS CERTIFICATE WAS MAILED
ON Nov. 5, 2001
JC
(Signed)

Mohamed Dhalla, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

JC/
c: District Manager, MOE Ottawa
Clerk, City of Ottawa
Peter Spal, Cumming Cockburn Limited ✓

Hydrodynamic Separation Product Calculator

Crown Pointe

Treatment Unit 1

CASCADE SEPARATOR CS-5

Project Information					
Project Name	Crown Pointe			**Option #**	B
Country	Metric	**State**	N/A	**City**	Ottawa

Contact Information			
First Name	Sam	**Last Name**	Labadie
Company	IBI Group	**Phone #**	613-899-5717
Email	samantha.labadie@ibigroup.com		

Design Criteria					
Site Designation	Treatment Unit 1			**Sizing Method**	Net Annual
Screening Required?	No	**Drainage Area (ac)**	1.40	**Peak Flow (cfs)**	300.00
Groundwater Depth (ft)	>15	**Pipe Invert Depth (ft)**	>15	**Bedrock Depth (ft)**	5 - 10
Multiple Inlets?	No	**Grate Inlet Required?**	No	**Pipe Size (in)**	750.00
Required Particle Size Distribution?	No	**90° between two inlets?**	N/A	**180° between inlet and outlet?**	No
Runoff Coefficient	0.90	**Rainfall Station**	128 - Ottawa, ON	**TC (Min)**	13

Treatment Selection					
Treatment Unit	CASCADE SEPARATOR	**System Model**	CS-5		
Target Removal	80%	**Particle Size Distribution (PSD)**	110	**Predicted Net Annual Removal**	85.31%

*Treatment flow rate calculated using annualized weighted calculation.

Hydrodynamic Separation Product Calculator

Crown Pointe

Treatment Unit 1

CASCADE SEPARATOR CS-5

CASCADE SEPARATOR ESTIMATED NET ANNUAL SOLIDS LOAD REDUCTION BASED ON THE RATIONAL RAINFALL METHOD								
Rainfall Intensity[1] (in/hr)	% Rainfall Volume[1]	Cumulative Rainfall Volume	Rainfall Volume Treated	Total Flowrate (cfs)	Treated Flowrate (cfs)	Hydraulic Loading Rate (%)	Removal Efficiency (%)	Incremental Removal (%)
0.0200	10.70%	10.70%	10.70%	0.0600	0.0600	1.37%	100.00%	10.71%
0.0400	9.30%	20.00%	9.30%	0.1200	0.1200	2.74%	100.00%	9.30%
0.0600	10.30%	30.30%	10.30%	0.1900	0.1900	4.34%	100.00%	10.26%
0.0800	8.60%	38.90%	8.60%	0.2500	0.2500	5.72%	100.00%	8.56%
0.1000	6.70%	45.60%	6.70%	0.3100	0.3100	7.09%	100.00%	6.74%
0.1200	5.80%	51.40%	5.80%	0.3700	0.3700	8.46%	100.00%	5.82%
0.1400	5.00%	56.40%	5.00%	0.4400	0.4400	10.06%	100.00%	5.03%
0.1600	4.40%	60.80%	4.40%	0.5000	0.5000	11.43%	100.00%	4.38%
0.1800	2.30%	63.10%	2.30%	0.5600	0.5600	12.80%	99.87%	2.33%
0.2000	4.20%	67.30%	4.20%	0.6200	0.6200	14.18%	98.57%	4.09%
0.2500	7.40%	74.70%	7.40%	0.7800	0.7800	17.83%	95.14%	7.02%
0.3000	4.00%	78.70%	4.00%	0.9300	0.9300	21.26%	91.92%	3.71%
0.3500	3.50%	82.20%	3.50%	1.0900	1.0900	24.92%	88.48%	3.11%
0.4000	1.80%	84.00%	1.80%	1.2500	1.2500	28.58%	85.03%	1.56%
0.4500	3.80%	87.80%	3.80%	1.4000	1.4000	32.01%	81.81%	3.09%
0.5000	1.40%	89.20%	1.40%	1.5600	1.5600	35.67%	78.37%	1.11%
0.7500	5.20%	94.40%	5.20%	2.3400	2.3400	53.50%	61.61%	3.21%
1.0000	2.40%	96.80%	2.40%	3.1100	3.1100	71.11%	45.06%	1.09%
1.5000	2.30%	99.10%	1.72%	4.6700	3.5000	80.03%	27.48%	0.64%
								91.76%
							Removal Efficiency Adjustment[2] =	6.45%
							Predicted % Annual Rainfall Treated =	92.07%
							Predicted Net Annual Load Removal Efficiency =	85.31%
1 - Based on 10 years of rainfall data from Canadian Station 6105976, Ottawa CDA, ON								
2 - Reduction due to use of 60-minute data for a site that has a time of concentration less than 30-minutes.								

*Treatment flow rate calculated using annualized weighted calculation.

SECTION (_____)
STORM WATER TREATMENT DEVICE

1.0 GENERAL

1.1 This item shall govern the furnishing and installation of the Cascade Separator™ by Contech Engineered Solutions LLC, complete and operable as shown and as specified herein, in accordance with the requirements of the plans and contract documents.

1.2 The Contractor shall furnish all labor, equipment and materials necessary to install the storm water treatment device(s) (SWTD) and appurtenances specified in the Drawings and these specifications.

1.3 The manufacturer of the SWTD shall be one that is regularly engaged in the engineering design and production of systems deployed for the treatment of storm water runoff for at least five (5) years and which have a history of successful production, acceptable to the Engineer. In accordance with the Drawings, the SWTD(s) shall be a Cascade Separator™ device manufactured by:

Contech Engineered Solutions LLC
9025 Centre Pointe Drive
West Chester, OH, 45069
Tel: 1 800 338 1122

1.4 Related Sections

1.4.1 Section 02240: Dewatering
1.4.2 Section 02260: Excavation Support and Protection
1.4.3 Section 02315: Excavation and Fill
1.4.4 Section 02340: Soil Stabilization

1.5 All components shall be subject to inspection by the engineer at the place of manufacture and/or installation. All components are subject to being rejected or identified for repair if the quality of materials and manufacturing do not comply with the requirements of this specification. Components which have been identified as defective may be subject for repair where final acceptance of the component is contingent on the discretion of the Engineer.

1.6 The manufacturer shall guarantee the SWTD components against all manufacturer originated defects in materials or workmanship for a period of twelve (12) months from the date the components are delivered to the owner for installation. The manufacturer shall upon its determination repair, correct or replace any manufacturer originated defects advised in writing to the manufacturer within the referenced warranty period. The use of SWTD components shall be limited to the application for which it was specifically designed.

1.7 The SWTD manufacturer shall submit to the Engineer of Record a “Manufacturer’s Performance Certification” certifying that each SWTD is capable of achieving the specified removal efficiencies listed in these specifications. The certification shall be supported by independent third-party research

1.8 No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the Engineer of Record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

2.0 MATERIALS

2.1 Housing unit of stormwater treatment device shall be constructed of pre-cast or cast-in-place concrete, no exceptions. Precast concrete components shall conform to applicable sections of ASTM C 478, ASTM C 857 and ASTM C 858 and the following:

2.1.1 Concrete shall achieve a minimum 28-day compressive strength of 4,000 pounds per square-inch (psi);
2.1.2 Unless otherwise noted, the precast concrete sections shall be designed to withstand lateral earth and AASHTO H-20 traffic loads;
2.1.3 Cement shall be Type III Portland Cement conforming to ASTM C 150;
2.1.4 Aggregates shall conform to ASTM C 33;
2.1.5 Reinforcing steel shall be deformed billet-steel bars, welded steel wire or deformed welded steel wire conforming to ASTM A 615, A 185, or A 497.
2.1.6 Joints shall be sealed with preformed joint sealing compound conforming to ASTM C 990.
2.1.7 Shipping of components shall not be initiated until a minimum compressive strength of 4,000 psi is attained or five (5) calendar days after fabrication has expired, whichever occurs first.

2.2 Internal Components and appurtenances shall conform to the following:

2.2.1 Hardware shall be manufactured of Type 316 stainless steel conforming to ASTM A 320;
2.2.2 Support brackets shall be manufactured of 5052 Aluminum
2.2.3 Fiberglass components shall conform to applicable sections of ASTM D-4097
2.2.4 Access system(s) conform to the following:
2.2.5 Manhole castings shall be designed to withstand AASHTO H-20 loadings and manufactured of cast-iron conforming to ASTM A 48 Class 30.

3.0 PERFORMANCE

3.1 The SWTD shall be capable of achieving an annualized weighted reduction of at least 80% of the OK-110 particle distribution having particles ranging from 53 microns to 212 microns with a d_{50} of approximately 110 microns unless otherwise stated.

3.2 The SWTD shall be designed with a sump chamber for the storage of captured sediments and other negatively buoyant pollutants in between maintenance cycles. The minimum storage capacity provided by the sump chamber shall be in accordance with the volume listed in Table 1. The boundaries of the sump chamber shall be limited to that which do not degrade the

SWTD's treatment efficiency as captured pollutants accumulate. In order to not restrict the Owner's ability to maintain the SWTD, the minimum dimension providing access from the ground surface to the sump chamber shall be 16 inches in diameter.

3.3 The SWTD shall be designed to capture and retain Total Petroleum Hydrocarbons generated by wet-weather flow and dry-weather gross spills and have a capacity listed in Table 1 of the required unit.

3.4 The SWTD shall convey the flow from the peak storm event of the drainage network, in accordance with required hydraulic upstream conditions as defined by the Engineer. If a substitute SWTD is proposed, supporting documentation shall be submitted that demonstrates equal or better upstream hydraulic conditions compared to that specified herein. This documentation shall be signed and sealed by a Professional Engineer registered in the State of the work. All costs associated with preparing and certifying this documentation shall be born solely by the Contractor.

4.0 EXECUTION

4.1 The contractor shall exercise care in the storage and handling of the SWTD components prior to and during installation. Any repair or replacement costs associated with events occurring after delivery is accepted and unloading has commenced shall be borne by the contractor.

4.2 The SWTD shall be installed in accordance with the manufacturer's recommendations and related sections of the contract documents. The manufacturer shall provide the contractor installation instructions and offer on-site guidance during the important stages of the installation as identified by the manufacturer at no additional expense. A minimum of 72 hours notice shall be provided to the manufacturer prior to their performance of the services included under this subsection.

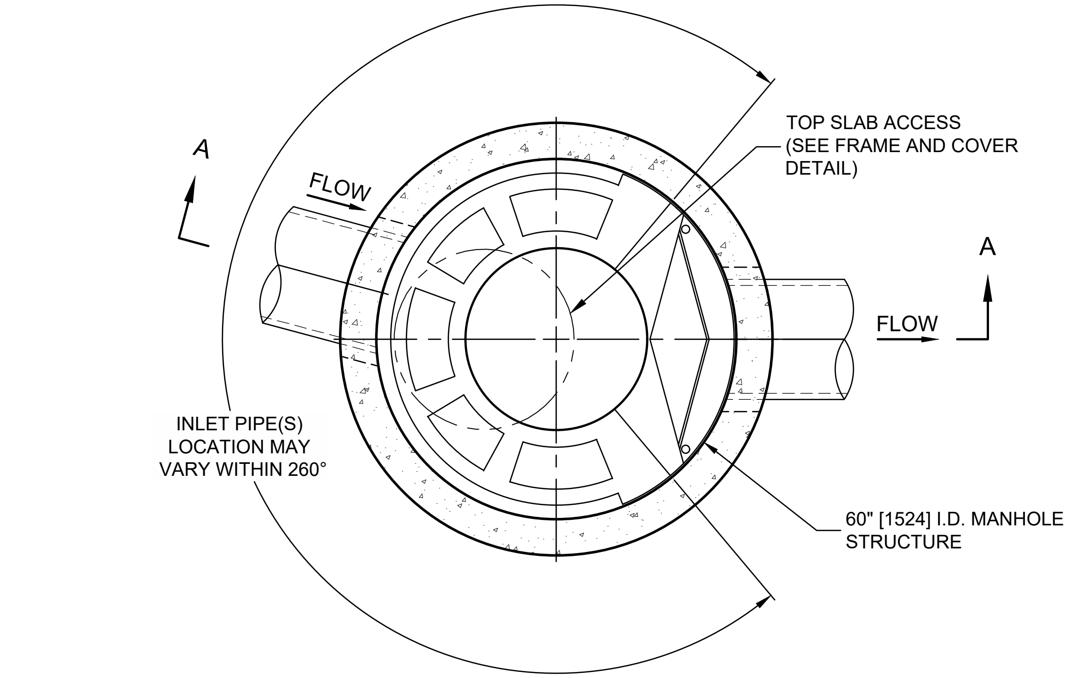
4.3 The contractor shall fill all voids associated with lifting provisions provided by the manufacturer. These voids shall be filled with non-shrinking grout providing a finished surface consistent with adjacent surfaces. The contractor shall trim all protruding lifting provisions flush with the adjacent concrete surface in a manner, which leaves no sharp points or edges.

4.4 The contractor shall removal all loose material and pooling water from the SWTD prior to the transfer of operational responsibility to the Owner.

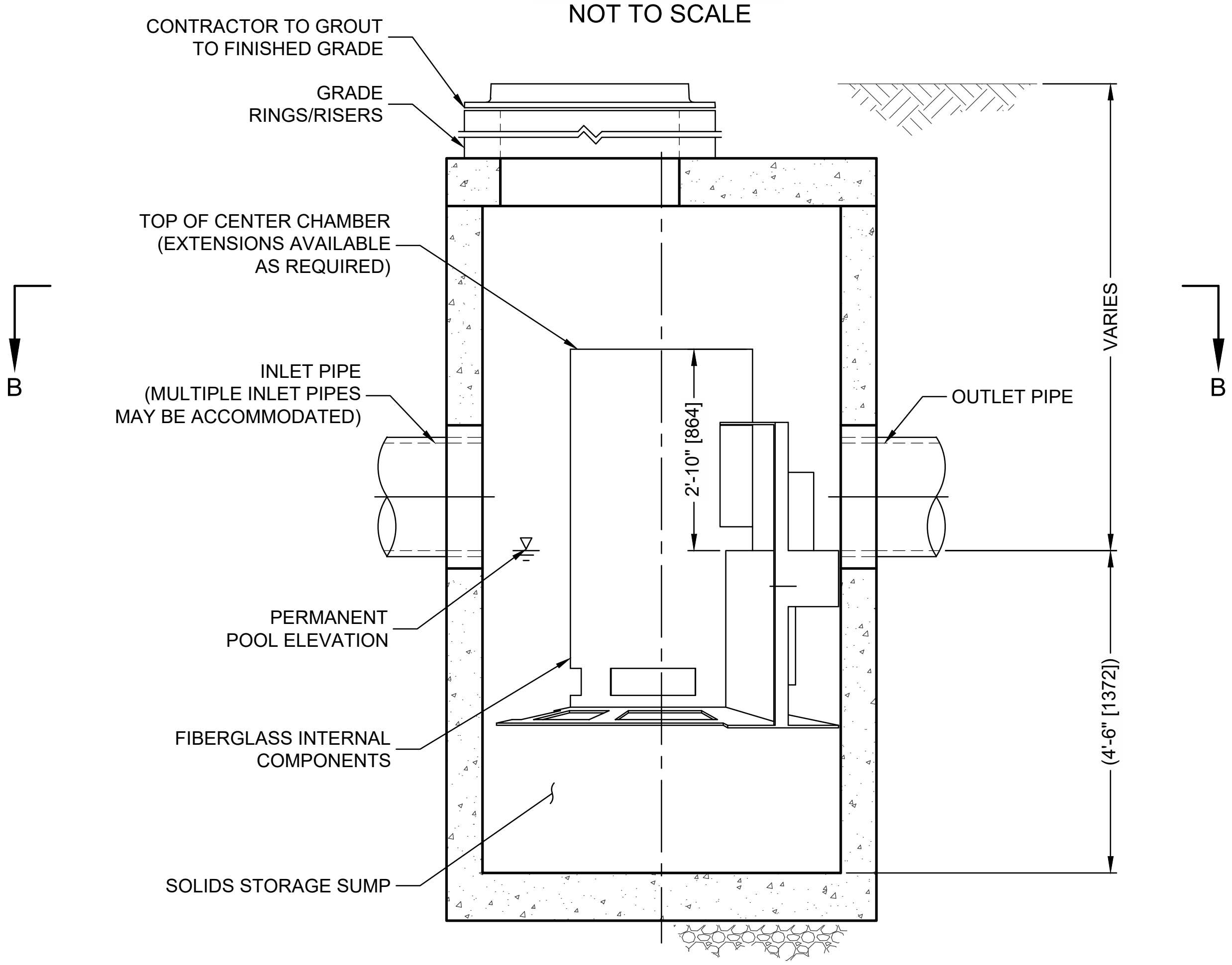
TABLE 1: Storm Water Treatment Device Storage Capacities

Cascade Model	Minimum Sump Storage Capacity (yd^3)	Minimum Oil Storage Capacity (gal)
CS-4	0.70	141.0
CS-5	1.09	269.3
CS-6	1.57	475.9
CS-8	2.79	1128.0
CS-10	4.36	2203.2
CS-12	6.28	3807.1

END OF SECTION



PLAN VIEW B-B
NOT TO SCALE



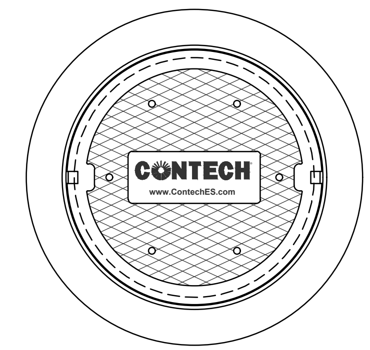
ELEVATION A-A
NOT TO SCALE

CASCADE
separator™

CASCADE SEPARATOR DESIGN NOTES

THE STANDARD CS-5 CONFIGURATION IS SHOWN. ALTERNATE CONFIGURATIONS ARE AVAILABLE AND ARE LISTED BELOW. SOME CONFIGURATIONS MAY BE COMBINED TO SUIT SITE REQUIREMENTS.

CONFIGURATION DESCRIPTION
GRATED INLET ONLY (NO INLET PIPE)
GRATED INLET WITH INLET PIPE OR PIPES
CURB INLET ONLY (NO INLET PIPE)
CURB INLET WITH INLET PIPE OR PIPES



FRAME AND COVER
(DIAMETER VARIES)
NOT TO SCALE

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (cfs [L/s])			
PEAK FLOW RATE (cfs [L/s])			
RETURN PERIOD OF PEAK FLOW (yrs)			
RIM ELEVATION			
PIPE DATA:	INVERT	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
NOTES / SPECIAL REQUIREMENTS:			

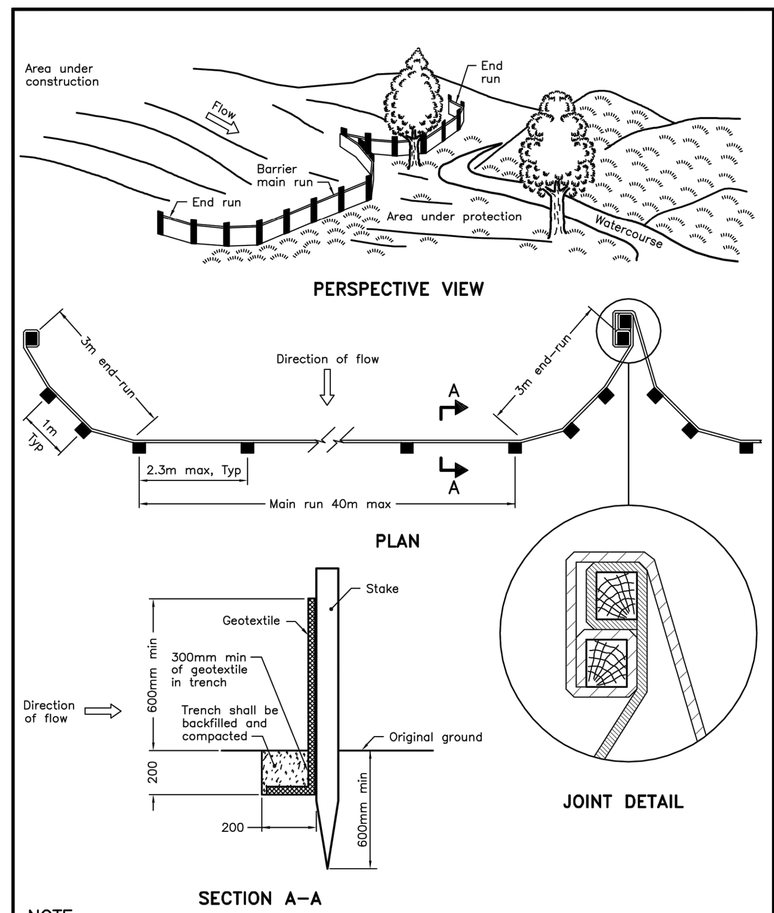
GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHT, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
3. CASCADE SEPARATOR WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
4. CASCADE SEPARATOR STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 2' [610], AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.
5. CASCADE SEPARATOR STRUCTURE SHALL BE PRECAST CONCRETE CONFORMING TO ASTM C478 AND AASHTO LOAD FACTOR DESIGN METHOD.
6. ALTERNATE UNITS ARE SHOWN IN MILLIMETERS [mm].

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CASCADE SEPARATOR MANHOLE STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT INLET AND OUTLET PIPE(S). MATCH PIPE INVERTS WITH ELEVATIONS SHOWN. ALL PIPE CENTERLINES TO MATCH PIPE OPENING CENTERLINES.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH®
ENGINEERED SOLUTIONS LLC
www.contechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CS-5
CASCADE SEPARATOR
STANDARD DETAIL

APPENDIX D



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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER	OPSD 219.110	

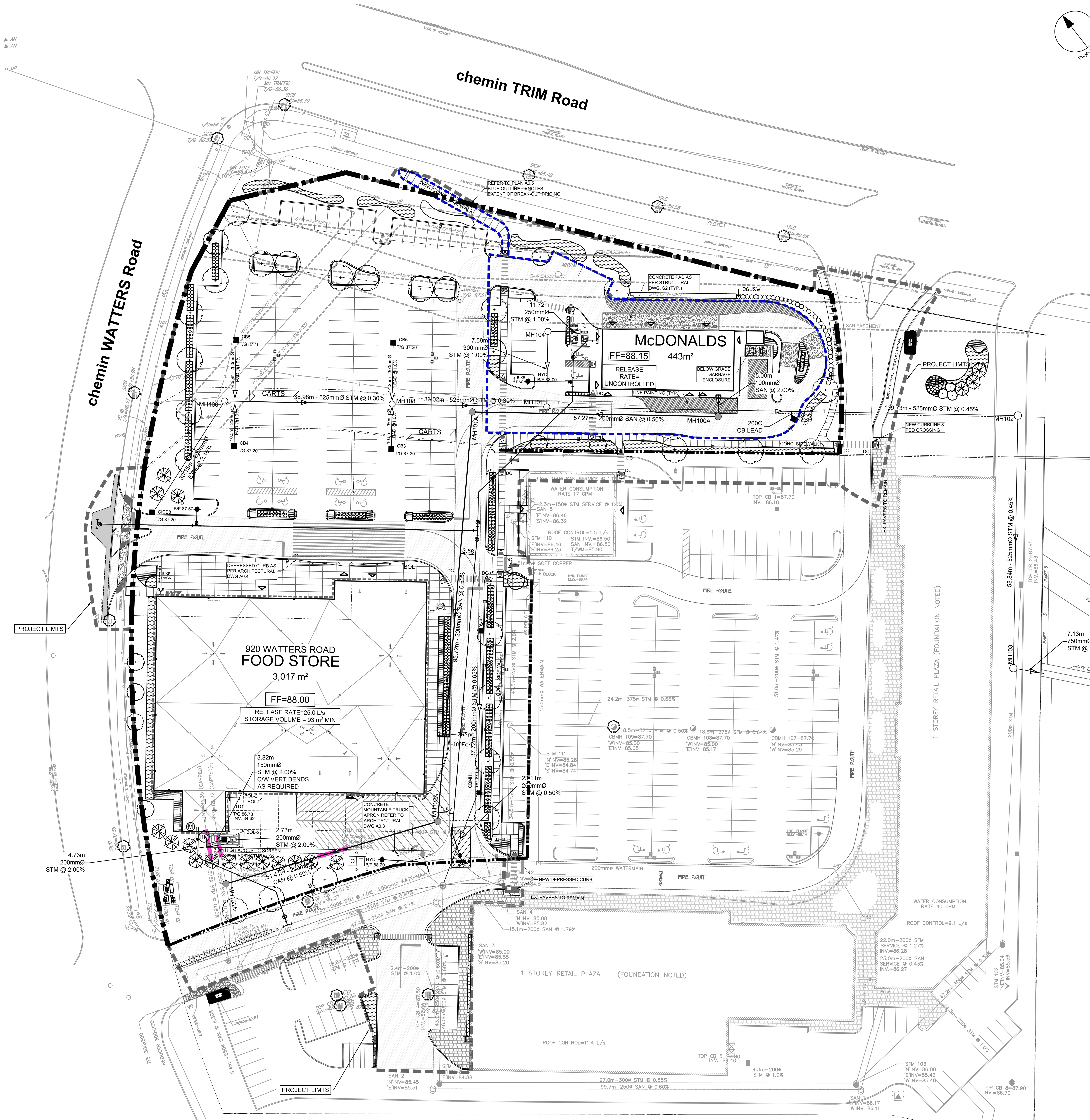
NOTES:

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.

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. 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.
3. WORKS NOTED ABOVE ARE TO BE INSTALLED, INSPECTED, MAINTAINED AND ULTIMATELY REMOVED BY SERVICING CONTRACTOR.
4. THIS IS A "LIVING DOCUMENT" AND MAY BE MODIFIED IN THE EVENT THE PROPOSED CONTROL MEASURES ARE INSUFFICIENT
5. SEE DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.

LEGEND :

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE (ASPHALT AREAS)
- 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 (7.5, 15.0)



CLIENT

CROWN POINTE Co-TENANCY

C/O
TAGGART REALTY MANAGEMENT

225 METCALFE STREET, OTTAWA, On
K2P 1P9

ISSUES

No.	DESCRIPTION	DATE
1	ISSUED FOR SPA	2021-10-28
2	REVISED PER CITY COMMENTS	2022-02-03
3	ISSUED FOR TENDER	2022-03-01
4	REVISED PER CITY COMMENTS AND NEW SITE PLAN	2022-04-19

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

KEY PLAN

CONSULTANTS

1:500 0 5 15 25m

SEAL

LICENSED PROFESSIONAL ENGINEER
T. R. BRULE
2022-04-19
PROVINCE OF ONTARIO

IBI GROUP
Suite 400 – 333 Preston Street
Ottawa ON K1S 5N4 Canada
tel 613 225 1311 / 613 241 3300 fax 613 225 9868
ibigroup.com

PROJECT

CROWN POINTE
900 WATTERS ROAD
CROWN POINTE COMMERCIAL
PHASE 3

PROJECT NO: 136063	
DRAWN BY: **D.D.**	CHECKED BY: **J.B.**
PROJECT MGR: **T.R.B.**	APPROVED BY: **----**

SHEET TITLE

EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER: C-900 — ISSUE: 4

CITY PLAN No. 18633

CITY FILE No. D07-12-21-0183

SCALE CHECK 1 in 10mm

File Location: J:\136063_Crown_Pointe\7.0_Production\7.03_Design\04_Civil\Sheets\C-900 EROSION AND SEDIMENT CONTROL PLAN.dwg Last Saved: March 1, 2022, by ddore Plotted: Tuesday, April 19, 2022 5:03:05 PM by Denis Dore

APPENDIX E

Braden Walker

From: Paul Black <black@fotenn.com>
Sent: October 27, 2020 8:18 AM
To: Braden Walker
Subject: RE: 920 Watters - Receipt
Attachments: Watters, 920_design_brief_submission requirements.pdf; Pre-application Consultation Servicing Memo_920 Watters.docx; 4R31114.pdf; OC2012460-AL-Trim (e).pdf; OC2012442-Al-Hydro (e).pdf; OC2012459-AL-Trim (e).pdf

HI Braden,
My apologies, I thought I had already been sent this to you. See attached and below.

Further to the pre-application consultation meeting held on October 6, 2020 for the above-noted site, please see the summary of staff comments provided below for the proposed commercial development at 920 Watters Road by Taggart.

Engineering-related notes:

Please see the high-level engineering-related notes below (#1 and #2), and the attached Servicing Memo. The Servicing Memo reflects the engineering design and submission requirements for the Site Plan Control application, among other relevant information applicable to the said application. **The Applicant is to consult both the Servicing Memo and the notes listed below**. The Memo has been updated further to the second pre-application consultation, with slight revisions to the listed items, submission requirements (some documents can now be combined), and links.

1. Easements:

The presence of infrastructure easements may have impacts to development on the subject site. The Applicant would be responsible to carry out a land title search to obtain easement information accordingly, in order to determine what is permitted, setbacks, and any applicable restrictions. Refer to plan 4R-31114 accordingly. In addition, please note that correspondence with Taggart and the City's Corporate Real Estate Office (CREO) took place in August 2018, with CREO stating that they were in support of parking and some landscaping on the City storm/sanitary sewer easements, as long as the easements remain accessible to the City for any works. The submission is to reflect the above-noted, accordingly. Per the 2018 pre-application consultation notes, it was also strongly suggested that the applicant contact Mark Beaudette at Hydro One to determine if the necessary setbacks are being complied with for any new building adjacent to their power lines or transformers.

2. Development Charges (DC):

   a. Please note that the subject site falls within Area E-2, the lands to which the Cardinal Creek Erosion Works Stormwater Facilities 2019 by-law applies (area-specific DC). For further information, please consult the link below. Questions concerning the by-law are to be addressed to Gary Baker, DC Program Coordinator (613-580-2424 ext. 27406 | gary.baker@ottawa.ca).

https://ottawa.ca/en/planning-development-and-construction/developing-property/development-application-review-process/development-application-submission/fees-and-funding-programs/development-charges/area-specific-development-charges-stormwater-management-facilities#cardinal-creek-erosion-works

b. Also, please note that the Millennium Park DC may also apply at the building permit stage. Please start by speaking with Gary Baker regarding this Development Charge. Any questions or clarifications may be re-directed to Building Code Services, accordingly.

Urban Design:

McDonald's:

- Please utilize heavy landscaping and decorative fencing to screen the drive through pick up area abutting Trim Road
- Please reduce the drive-through pick up lanes from 2 to 1 lane.
- Please provide a direct/straight and landscaped pedestrian connection between the Giant Tiger and Trim Road; this may require eliminating parking spaces, but it will increase safety.

Food Store:

- Please provide soft landscaping at the rear and along the south side of the proposed food store; the existing spine for pedestrians through the site can be used.
- Please remove as much perimeter parking as possible and have a drive aisle abutting the landscape buffer strip adjacent to Trim Road.

Zoning/setbacks:

- Note that the zoning is split on this site and specific restrictions apply to the McDonald's; ensure you comply with all provisions in both zones
- Special setbacks may be required by Hydro One for the adjacent buildings along with landscaping restrictions.

Transportation:

Submit a screening form. If a TIA is warranted proceed to scoping.
The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.

ROW protection on Watters is 26m.
A Stationary Noise Impact Study is required if there is noise sensitive land use within 100m of the loading dock or drive thru.
Clear throat requirements on Watters as per TAC guidelines.
Grocery store loading, access and egress will be reviewed at site plan application. Provide turning templates for largest design vehicle.
The location of the Watters access must not interfere with the queuing at the Trim signal.

Parkland Dedication:

Cash in lieu of parkland must be paid on the uplift portion of this site through the approval process.

Submission requirements:

As a general comment, all reports and studies submitted with this new site plan application must be less than 5 years old. Please review the list below in conjunction with the list provided in the attached Servicing Memo:

<u>Plans</u>

Topographical Plan of Survey
Site Plan
Landscape Plan
Tree Conservation Plan/Report
Grade Control and Drainage
Site Servicing Plan
Erosion and Sediment Control Plan
Architectural Building Elevation Drawings (dimensioned and color)
Perspective Plan of new site for on-site sign posting

Studies and Reports

Transportation Impact Assessment (see notes from Transportation)
Design Brief and Stormwater Management Report
Stationary Noise Report
Geotechnical Report
Planning Rationale and Design Brief
Stage 1 Archaeological Resource Assessment (Stage 2 if required)
Phase 1 Environmental Site Assessment (Phase 2 ESA if required)
Tree Conservation Report

Please advise if you require any further information.

Regards,

Julie Lebrun, MCIP, RPP (MICU, UPC)

Planner / Urbaniste

Development Review, Suburban Services East /

Examen des demandes d'aménagement, Services suburbains est

Planning, Infrastructure and Economic Development /

Services de planification, d'infrastructure et de développement économique

City of Ottawa | Ville d'Ottawa

613.580.2424 ext./poste 27816

ottawa.ca/planning / ottawa.ca/urbanisme

Paul Black, MCIP RPP
Senior Planner
T 613.295.4395

Out of Office - COVID-19
Please be advised that Fotenn staff are currently working remotely in accordance with government recommendations for social distancing. Otherwise I am working regularly and am available by email, phone or video conference.

From: Braden Walker <braden.walker@taggart.ca>
Sent: Monday, October 26, 2020 4:42 PM
To: Paul Black <black@fotenn.com>
Subject: RE: 920 Watters - Receipt

Hi Paul,

Can you update me on this please?

Thank you,
Braden Walker | Development Manager
Taggart Realty Management
T | 613-234-7000 ext: 512 **D** | 613-604-0868 **M** | 613-223-1579
A | 225 Metcalfe Street Ottawa, Suite 708, Ottawa, Ontario K2P 1P9
E | braden.walker@taggart.ca
W | https://www.taggart.ca/

TAGGART REALTY MANAGEMENT

Integrity. Quality. Community. Since 1948

From: Braden Walker
Sent: October 15, 2020 5:02 PM
To: Paul Black <black@fotenn.com>
Subject: RE: 920 Watters - Receipt

Hi Paul,

Have we received the comments back on our pre-consult yet?

You mentioned Millennium Park DCs. Where would I find this on the City of Ottawa website?

Thank you,
Braden Walker | Development Manager
Taggart Realty Management
T | 613-234-7000 ext: 512 **D** | 613-604-0868 **M** | 613-223-1579
A | 225 Metcalfe Street Ottawa, Suite 708, Ottawa, Ontario K2P 1P9
E | braden.walker@taggart.ca

W | https://www.taggart.ca/

TAGGART REALTY MANAGEMENT

Integrity. Quality. Community. Since 1948

From: Paul Black <black@fotenn.com>
Sent: October 6, 2020 10:05 AM
To: Braden Walker <braden.walker@taggart.ca>
Subject: RE: 920 Watters - Receipt
Importance: High

HI Braden,
I screwed up and thought that Julie had sent the meeting request to you, but am finding out now that it hasn't been. The meeting is right now and I can't get a hold of you. I will proceed with the meeting, and if you're able, you can join the call. We can schedule a follow-up as well.

I'm so sorry about this error. I'll forward you the invite.

Paul

Paul Black, MCIP RPP
Senior Planner
T 613.295.4395

Out of Office - COVID-19
Please be advised that Fotenn staff are currently working remotely in accordance with government recommendations for social distancing. Otherwise I am working regularly and am available by email, phone or video conference.

From: Braden Walker <braden.walker@taggart.ca>
Sent: Friday, September 18, 2020 4:26 PM
To: Jacob Bolduc <bolduc@fotenn.com>
Cc: Paul Black <black@fotenn.com>
Subject: RE: 920 Watters - Receipt

Thanks Jacob,

No need for the PDF I've done it.

Please let me know when the pre-app is scheduled.

Thank you,

Braden Walker | Development Manager
Taggart Realty Management
T | 613-234-7000 ext: 512 **D** | 613-604-0868 **M** | 613-223-1579
A | 225 Metcalfe Street Ottawa, Suite 708, Ottawa, Ontario K2P 1P9
E | braden.walker@taggart.ca
W | https://www.taggart.ca/

TAGGART REALTY MANAGEMENT

Integrity. Quality. Community. Since 1948

From: Jacob Bolduc <bolduc@fotenn.com>
Sent: September 18, 2020 3:10 PM
To: Braden Walker <braden.walker@taggart.ca>
Cc: Paul Black <black@fotenn.com>
Subject: 920 Watters - Receipt

Good afternoon Braden,

Please find attached the receipt for the 920 Watters Pre-App. I don't have access to a scanner at the moment, so this is just a picture with my phone. I can get you a scanned PDF version on Monday/Tuesday when I'm in the office, if you need it.

Thanks,

Jacob Bolduc, RPP, MCIP
Planner

FOTENN
396 Cooper Street, Suite 300
Ottawa, ON K2P 2H7
T 613.730.5709 ext. 238
fotenn.com

OUT OF OFFICE ALERT - COVID-19
Please be advised that Fotenn staff are currently working remotely in accordance with government recommendations for social distancing. Otherwise I am working regularly and am available by email, phone or video conference.

Follow Us

SERVICING MEMO

Date:	October 6, 2020
To / Destinataire	Julie Lebrun, MCIP, RPP Planner, Development Review East
From / Expéditeur	Sara Mashaie, P.Eng. Project Manager, Infrastructure Approvals, Development Review East
Subject / Objet	**Pre-Application Consultation** **920 Watters Rd., Ward 1 – Orléans** *Proposed commercial development at Taggart Realty Crowne Pointe Centre* File No. PC2020-0244

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

****Note:** Some items may not be required as part of your submission and are for informational purposes.

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

2. The following Engineering plans and reports are requested for the **Site Plan Control** submission:

   a. Site Servicing Plan

   b. Site Servicing Report

   c. Stormwater Management Report (can be combined with the Site Servicing Report)

   d. Grade Control and Drainage Plan

   e. Erosion and Sediment Control Plan (can be combined with the Grade Control and Drainage Plan)

   f. Geotechnical Report

3. Plans are to be submitted on standard **A1 size** (594mm x 841mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400, or 1:500). With all submitted plans and reports, please provide an individual PDF format of the files.

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

   ⇨ Ottawa Sewer Design Guidelines (October 2012)

   ⇨ Ottawa Design Guidelines – Water Distribution (2010)

   ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)

   ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)

   ⇨ City of Ottawa Environmental Noise Control Guidelines (January, 2016)

   ⇨ City of Ottawa Park and Pathway Development Manual (2012)

   ⇨ City of Ottawa Accessibility Design Standards (2012)

   ⇨ Ottawa Standard Tender Documents (latest version)

   ⇨ Ontario Provincial Standards for Roads & Public Works (2013)

5. 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).

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

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

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

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

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

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

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

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

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

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

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

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

iv. Review provision of a high-level sewer.

v. 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.

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

   i. Location of service

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

   iii. Average daily demand: ___ l/s.

   iv. Maximum daily demand: ___l/s.

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

9. All development application should be considered for an ECA by the MOECC.

   a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant 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 is still unclear or there is a difference of opinion only then will they approach the MOECC).
   b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
   c. Pre-consultation is not required if applying for standard works (schedule A of the Agreement) under Transfer Review.
   d. Mandatory pre-consultation is required if applying for additional works (schedule A of the Agreement) under Transfer Review.
   e. Pre-consultation with local District office of MOECC is recommended for direct submission.
   f. Consultant completes an MOECC request form for a pre-consultation. Send request to moeccottawasewage@ontario.ca.

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

Should you have any questions or require additional information, please contact me directly at (613) 580-2424, ext. 27885 or by email at sara.mashaie@ottawa.ca.

APPENDIX F