BAYVIEW HOSPITALITY GROUP

6301 CAMPEAU DRIVE, RESIDENTIAL DEVELOPMENT, OTTAWA, ON

SERVICING REPORT

AUGUST 20, 2021
1ST SUBMISSION
2ND SUBMISSION
3RD SUBMISSION

6301 CAMPEAU DRIVE, RESIDENTIAL DEVELOPMENT, OTTAWA, ON

SERVICING REPORT

BAYVIEW HOSPITALITY GROUP

SITE PLAN APPLICATION
3RD SUBMISSION

PROJECT NO.: 201-03048-00
DATE: AUGUST 2021

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August 20, 2021

Sameer Gulamani
Managing Director, General Counsel
Bayview Hospitality Group

Via:

Momentum – Planning & Communications
1165 Greenlawn Crescent
Ottawa, ON, K2C 1Z4

Attention: Dennis Jacobs, Principal Planner, MCIP, RPP,

Dear Sir:

Subject: 6301 Campeau Drive – Residential Development - Servicing Report

Please find attached our revised servicing report, including civil engineering design drawings, prepared for your review prior to resubmission.

Yours sincerely,

Ding Bang (Winston) Yang, P.Eng.
Project Engineer

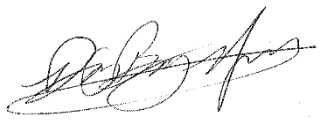
WSP ref.: 201-03048-00

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks	Issued for Site Plan Application	Revised Comments	Revised Comments	
Date	December 4, 2020	May 28, 2021	August 20, 2021	
Prepared by	Ding Bang (Winston) Yang	Ding Bang (Winston) Yang	Ding Bang (Winston) Yang	
Signature				
Checked by	Ishaque Jafferjee	Ishaque Jafferjee	Ishaque Jafferjee	
Signature				
Project number	201-03048-00	201-03048-00	201-03048-00	

SIGNATURES

PREPARED BY



Ding Bang (Winston) Yang, P.Eng
Project Engineer

REVIEWED BY

Ishaque Jafferjee, P.Eng.
Senior Project Manager

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1 GENERAL

1.1 EXECUTIVE SUMMARY

WSP was retained by Bayview Hospitality Group to provide servicing and grading design services for the proposed new residential development, including apartments and townhouses, located at 6301 Campeau Drive, north of existing Kanata Centre Park, south of Campeau Drive, west of Cordillera Street and east of existing OMNI heath care. This report outlines findings and calculations pertaining to the servicing of the proposed development for Parcel 1 and 2 with a gross lot area of 19,644m² and 17,410.8m² respectively.

Currently the land proposed for the residential development is natural landscaping area with mainly covered by grass and trees, and it is part of the Kanata Town Centre development lands. The total study area for both parcels were considered to be 1.964 and 1.741 ha respectively in size. The site is bounded by residential development to the north, and commercial development to the east, west and south. It is part of lot 3 concession 2 and 3, and part of road allowance between concession 2 and 3, Geographic Township of March, now City of Ottawa (refer to Appendix A for the Topographical Survey Plan by Annis, O'Sullivan, Vollebekk Ltd, February 2020). Based on the topographic survey, the ground, predominantly Canadian Shield granite, rises from a low elevation of 101.10 m in the southeast corner of parcel 2 north of Canadian Shield Ave to a high elevation of 111.73 m in the middle of parcel 1 and 2, falling again to a low elevation of 102.98 in the northwest corner south of Campeau Drive of parcel 1. Significant infrastructure has been previously installed around the perimeter of the Kanata Town Centre development lands as part of the development of the adjacent lands. Most of this infrastructure has been designed with some capacity to accommodate the future development of the subject site.

The City of Ottawa required that the design of a drainage and stormwater management system in this development must be prepared in accordance with the following documents:

- Sewer Design Guidelines, City of Ottawa, October 2012;
- Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003; and
- Stormwater Management Facility Design Guidelines, City of Ottawa, April 2012

This report was prepared utilizing servicing design criteria obtained from available sources, and outlines the design for water, sanitary wastewater, and stormwater facilities.

The format of this report matches that of the servicing study checklist found in Section 4 of the City of Ottawa's Servicing Study Guidelines for Development Applications, November 2009.

The following municipal services are available within Campeau Drive and Cordillera Street to the development as recorded from as-built drawings from City of Ottawa:

Campeau Drive:

- 750 mm storm sewer, 250mm sanitary sewer and 305mm watermain.

Cordillera Street:

- 300mm storm sewer, 200mm sanitary and 203mm watermain.

It is proposed that:

- On-site stormwater management systems, employing surface storage and the underground storm chambers will be provided to attenuate flow rates leaving the new parking lot and new building roof. Existing drainage patterns, previously established controlled flow rates and storm sewers will be maintained. Refer to the stormwater management report for details.

1.2 DATE AND REVISION NUMBER

This version of the report is the third revision, dated November 25, 2020.

1.3 LOCATION MAP AND PLAN

The proposed residential development for Parcel 1 and 2 are located at 6301 Campeau Drive, in the City of Ottawa at the location shown in Figure 1-1 below.

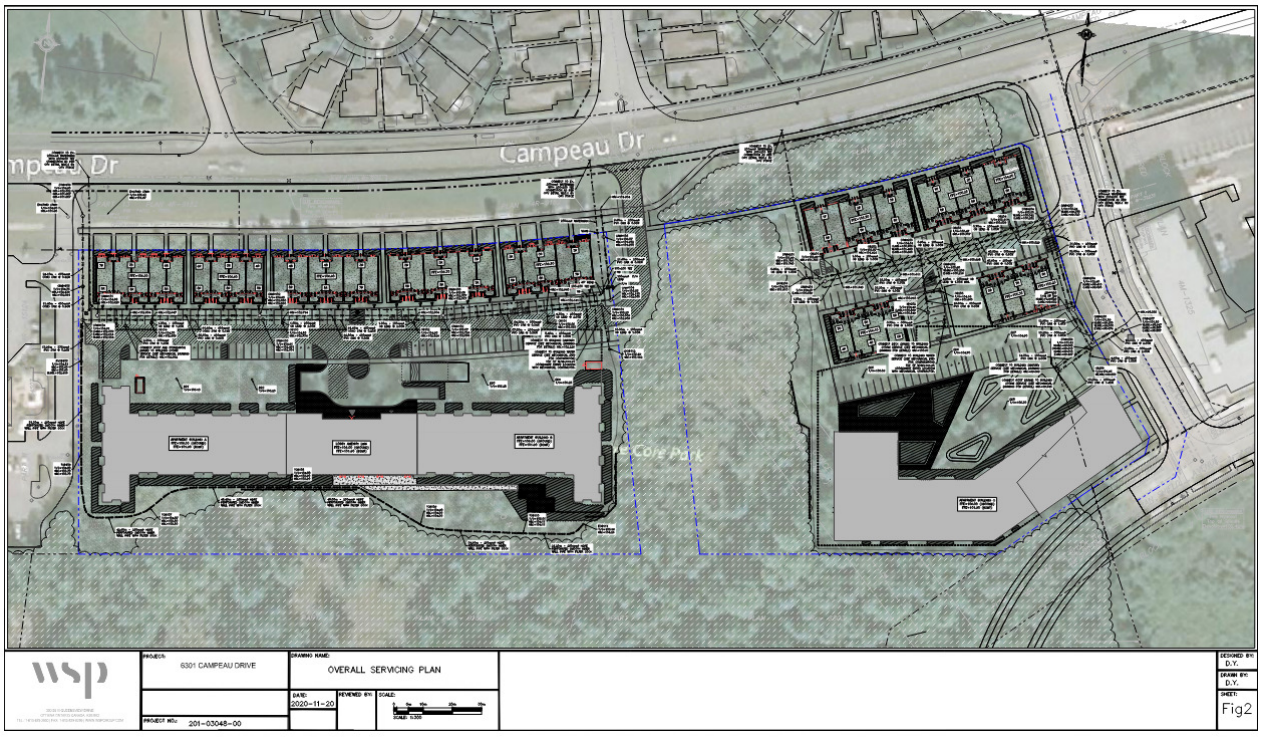


Figure 1-1 Site Location

1.4 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with zoning and related requirements prior to approval and construction, and is understood to be in conformance with current zoning.

1.5 PRE-CONSULTATION MEETINGS

A pre-consultation meeting was held with the City of Ottawa on November 8, 2019. Notes from this meeting are provided in Appendix A.

1.6 HIGHER LEVEL STUDIES

The review for servicing has been undertaken in conformance with, and utilizing information from, the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including:
    - Technical Bulletin ISDTB-2012-4 (20 June 2012)
    - Technical Bulletin ISDTB-2014-01 (05 February 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)
    - Technical Bulletin ISDTB-2018-01 (21 March 2018)
    - Technical Bulletin ISDTB-2018-04 (27 June 2018)
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
    - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
    - Technical Bulletin ISTB-2018-02 (21 March 2018)
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 1999.

1.7 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed modification of the site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines.

1.8 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

A municipal sanitary sewer, a municipal storm sewer and a watermain are located within both Campeau Drive and Cordillera Street right of way. A new sanitary sewer, a new storm sewer and a new water service will be connected to the existing sewers along Campeau Drive from the proposed development of Parcel 1. A new sanitary sewer, a new storm sewer and a new water service will be connected to the existing sewers along Cordillera Street from the proposed development of Parcel 2. Quantity control is required to restrict the discharge leaving both the development areas, as noted in the Stormwater Management Report. The existing boundary roads at the site will remain open.

1.9 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS

The proposed development site is bordered by residential land uses to the north and west, commercial areas to the east and existing park land to the south. The subjected site is divided into Parcel 1 and 2. Parcel 1 is within the 7000 Campeau Drive watershed. Runoff from Parcel 1 is directed to a 1200mm storm culvert across Campeau Drive which runs south to north to Kanata Lakes Gold Club and ultimately outlets to the existing Beaver Pond.

Parcel 2 is within the Kanata Town Centre watershed. Partial runoff along Cordillera Street from Parcel 2 is initially directed to a 300mm storm sewer along Cordillera Street and ultimately outlets to the existing storm pond in Urbandale's Corporation Central Business District. The rest of the runoff from Parcel 2 will be running off the existing grass areas to the south uncontrolled to a 1650mm trunk storm sewer along Maritime Way and ultimately outlets to the existing storm pond.

1.10 CONCEPT LEVEL MASTER GRADING PLAN

A detailed grading plan for both Parcel 1 and 2 have been developed, matching the existing overland flow pattern of directing overflow drainage to Campeau Drive to the northwest corner of Parcel 1 and to Cordillera Street to the east of Parcel 2. The site topographic survey, included in Appendix A, provides evidence of direction of overland flow of the site both Parcels.
Along the disturbed rock areas, the geotechnical engineer has confirmed that no retaining wall will be required even there is a elevation difference raining from 0.50m to 4.00m. The rock face can be vertical after blasting or hole raming. The confirmation letter from the geotechnical engineer has been attached to Appendix A for reference.
Grading will employ smooth transitions from the new work areas to existing grades with less than 4.0% slope. No changes will be made to grades at the development perimeter.

1.11 IMPACTS ON PRIVATE SERVICES

There are no existing domestic private services (septic system and well) located on the site. There are no neighbouring properties using private services.

1.12 DEVELOPMENT PHASING

Development phasing is expected for the current proposal. There are two parcels proposed. But there is no further direction for which parcel will be constructed first at this moment.

1.13 GEOTECHNICAL SUTDY

A geotechnical investigation report has been prepared by Yuri Mendez Engineering (Report 44-BHH-R0, November 23, 2019), and its recommendations has been taken into account in developing the engineering specifications. Yuri Mendez Engineering has also prepared a follow up commentary based on a geotechnical review of the proposed grading plan to access the rock wall condition. Based on the confirmation letter that the rock cut along the perimeter of the site required for grading can be vertical. Rock faces and slope are expected to be stable where they meet the proposed grades. The letter can be found in Appendix A.

1.14 DRAWING REQUIREMENT

The engineering plans submitted for site plan approval are in compliance with City requirements.

2 WATER DISTRIBUTION

2.1 CONSISTENCY WITH MASTER SERVICING STUDY AND AVAILABILITY OF PUBLIC INFRASTRUCTURE

There are an existing 305mm diameter public watermain along Campeau Drive and 203mm diameter municipal watermain along Cordillera Street providing water to Parcel 1 and Parcel 2. For Parcel 1, a 203mm diameter private watermain looping extended from the existing 305mm municipal watermain along Campeau Drive will provide redundancy for the Parcel 1 development. Two water services connections will be extended to the Apartment Building A and B mechanical room.

For Parcel 2, a 203mm diameter private watermain looping extended from the existing 305mm municipal watermain along Campeau Drive and 203mm municipal watermain along Cordillera Street will provide redundancy for the Parcel 2 development. One water service connection will be extended to the Apartment Building C mechanical room.

The new apartment buildings will be protected with a supervised automatic fire protection sprinkler system and will require a 203mm diameter water service. Three new private fire hydrants will be required for Parcel 1 to service and provide adequate coverage to the proposed townhouses and apartment building A and B. A new private fire hydrant will be required for Parcel 2. No changes are required to the existing City water distribution system to allow servicing for this property.

2.2 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

Boundary conditions have been provided by the City of Ottawa at the 305mm diameter watermain on Campeau Drive for the Parcel 1 development and at the 305mm diameter watermain on Campeau Drive and 203mm diameter watermain on Cordillera Street for the Parcel 2 development, and are included in Appendix B. A maximum fire flow of 266.67 l/s (16,000 l/min) was used for both Parcel 1 and 2 development which was calculated in Section 2.4. The boundary conditions were supplied by the City of Ottawa, based on fire flows and domestic demands estimated by WSP for the proposed residential development.

Table 2-1: Boundary Conditions for Parcel 1

BOUNDARY CONDITIONS		
SCENARIO	Head (m) @ Connection 1	Head (m) @ Connection 2
Maximum HGL	161.4	161.4
Minimum HGL (Peak Hour)	156.2	156.2
Max Day + Fire Flow	146.5	147.0

Table 2-2: Boundary Conditions for Parcel 2

BOUNDARY CONDITIONS		
SCENARIO	Head (m) @ Connection 1	Head (m) @ Connection 2
Maximum HGL	161.4	161.4
Minimum HGL (Peak Hour)	155.7	155.7
Max Day + Fire Flow	147.6	140.0

2.3 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development is considered as institutional development, consisting of an Athletics and Recreation Centre providing food service, gymnasium and leisure facilities. A water demand calculation sheet is included in Appendix B, and the total water demands are summarized as follows:

	Parcel 1	Parcel 2
Average Day	2.13 l/s	1.95 l/s
Maximum Day	5.33 l/s	4.85 l/s
Peak Hour	11.73 l/s	10.66 l/s

The 2010 City of Ottawa Water Distribution Guidelines stated that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in 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 — Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

A water model software, InfoWater was used to perform the water distribution analyze for the proposed development including Parcel 1 and 2. The minimum water pressure inside the building at the connection is determined with the minimum HGL condition, resulting in a pressure of 499.38 kPa for Building B, 502.00 kPa for Building A and 500.13 kPa for Building C which exceeds the minimum requirement of 276 kPa per the guidelines. Refer to Appendix B for detail water distribution analyze output.

Table 2-3: Summary of the minimum water pressure for Parcel 1 under peak hour scenario

Parcel 1 – Peak Hour @ 156.2m	
ID	Pressure (kPa)
J16	501.65
J18	500.40
J20	495.27
J22 (Building B)	499.38
J24 (Building A)	502.99

Table 2-4: Summary of the minimum water pressure for Parcel 2 under peak hour scenario

Parcel 2 – Peak Hour @ 155.7m	
ID	Pressure (kPa)
J26	503.84
J28	505.33
J30 (Building C)	500.13

2.4 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures. Assuming fire resistive construction and a fully supervised sprinkler system, a fire flow demand of 267 l/s for Building A, 250 l/s for Building B and 267 l/s for the wood frame townhouses in Parcel 1 have been calculated. For Parcel 2, a fire flow demand of 217 l/s for Building C and 267 l/s for the wood frame townhouses have been calculated under the same constrains. A copy of the calculation is included in Appendix B.

For Parcel 1, the townhouses and the apartment building A and B can be serviced through the combination of existing and proposed hydrants. There is one existing fire hydrant north of the site on Campeau Drive and three new private hydrants across the site from east to west. The middle private hydrant is within 45 m of the building fire department connection for both Building A and B. all of the proposed and existing hydrants are rated at 5700 l/min.

The proposed building A and B on site will be serviced by a single 203 mm service off the 203 mm private watermain. The service will run into the water entry room. The proposed building will be fully sprinklered and fire protection will be provided with the fire department Siamese connection within 45 m of the new private fire hydrant at the entrance from the private access road. The Siamese connection is located on the north side of the building.

The boundary condition for Maximum Day and Fire Flow results in a pressure of 226.37 kPa and 205.30 kPa at the ground floor level for Building B and A respectively. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As a pressure of 226.37 kPa and 205.30 are achieved, the fire flow requirement is exceeded.

Table 2-5: Summary of the Residual Pressure for Parcel 1 under Max Day + Fire scenario

Parcel 1 – Max Day + Fire @ 267 l/s	
ID	Residual Pressure (kPa)
J16	345.12
J18	329.07
J20	340.21
J22 (Building B)	226.37
J24 (Building A)	205.30

For Parcel 2, the townhouses and the apartment building C can be serviced through the combination of existing and proposed hydrants. There is one existing fire hydrant north of the site on Campeau Drive, two existing fire hydrants east of the site on Cordillera Street, one existing fire hydrant south of the site on Canadian Shield Ave and one new private hydrant in the middle of Parcel 2. The existing hydrant on Canadian Shield Ave is within 45 m of the building fire department connection. All the proposed and existing hydrants are rated at 5700 l/min.

The proposed building C on site will be serviced by a single 203 mm service off the 203 mm private watermain. The service will run into the water entry room. The proposed building will be fully sprinklered and fire protection will be provided with

the fire department Siamese connection within 45 m of the existing private fire hydrant at the entrance from the Canadian Shield Ave. The Siamese connection is located on the south side of the building.

The boundary condition for Maximum Day and Fire Flow results in a pressure of 253.32 kPa at the ground floor level for Building C. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As a pressure of 253.32 kPa is achieved, the fire flow requirement is exceeded.

Table 2-6: Summary of the Residual Pressure for Parcel 2 under Max Day + Fire scenario

Parcel 2 – Max Day + Fire @ 267 l/s	
ID	Residual Pressure (kPa)
J26	298.33
J28	285.02
J30	253.32

2.5 CHECK OF HIGH PRESSURE

High pressure is a concern for both Parcel 1 and Parcel 2. The maximum water pressure inside the building at the connection is determined with the maximum HGL condition, resulting in the range of 550.58 to 554.19 kPa which is slightly equal to the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure controls are required for Parcel 1 development. For Parcel 2, the maximum water pressure inside the building at the connection is determined with the maximum HGL condition, resulting in the range of 556.31 to 561.39 kPa which is slightly higher than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure controls are required for both Parcel 1 and 2 developments.

2.6 PHASING CONSTRAINTS

The development consists Parcel 1 and 2.

2.7 RELIABILITY REQUIREMENTS

DMA chamber as per city of Ottawa standard W3 and shot off valve will be provided at the study boundary for both Parcel 1 and 2 from Campeau Drive and Cordillera Street. Water can be supplied to the private watermain from both the Campeau Drive from the east and west and can be isolated for Parcel 1. For Parcel 2, water can be supplied to the private watermain from both the Campeau Drive and Cordillera Street.

2.8 NEED FOR PRESSURE ZONE BOUNDAY MODIFICATION

There is no need for a pressure zone boundary modification.

2.9 CAPABILITY OF MAJOR INFRASTRUCTURE TO SUPPLY SUFFICIENT WATER

The current infrastructure is capable of meeting the domestic demand based on City requirements and fire demand as determined by FUS requirements for the proposed townhouses and apartment buildings.

2.10 DESCRIPTION OF PROPOSED WATER DISTRIBUTION NETWORK

For Parcel 1, a 203mm water looping is proposed to be provided into the proposed development. Three private hydrants are required, one of them is located within 45 metres of the fire department connection on the north side of the building as per OBC requirements.

For Parcel 2, a 203mm water looping is proposed to be provided into the proposed development. One private hydrant is required. The fire department connection on the east side of apartment building C is 45 meters away from the existing municipal hydrant along Cordillera Street.

2.11 OFF-SITE REQUIREMENTS

No off-site improvements to watermains, feedermains, pumping stations, or other water infrastructure are required to maintain existing conditions and service the adjacent buildings, other than the connection of the new private watermain to the City watermain in the south frontage of the site.

2.12 CALCULATION OF WATER DEMANDS

Water demands were calculated by as described in Sections 2.3 and 2.4 above.

2.13 MODEL SCHEMATIC

For Parcel 1, the water works consist a 203mm water looping, three proposed private fire hydrants, two water services for apartment buildings A and B, and individual water service for the townhouses units.
For Parcel 2, the water works consist a 203mm water looping, one proposed private fire hydrant, one water services for apartment building C, and individual water service for the townhouses units. A model schematic is provided with InfoWater for this development.

3 WASTEWATER DISPOSAL

3.1 DESIGN CRITERIA

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria have been utilized in order to predict wastewater flows generated by the subject site and complete the sewer design;

- Minimum Velocity 0.6 m/s
- Maximum Velocity 3.0 m/s
- Manning Roughness Coefficient 0.013
- Average sanitary flow for residential use 280 L/cap/day
- Average sanitary flor for commercial use 28,000 L/Ha/day
- Commercial/Institutional Peaking Factor 1.5
- Infiltration Allowance (Total) 0.33 L/s/Ha
- Minimum Sewer Slopes – 200 mm diameter 0.32%

3.2 CONSISTENCY WITH MASTER SERVICING STUDY

For Parcel 1, the outlet for the private sanitary sewer network is the 250 mm diameter municipal sewer on Campeau Drive. For Parcel 2, the outlet for the private sanitary sewer network is the 200 mm diameter municipal sewer on Cordillera Street. The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on residential development. A sanitary drainage area plan and the sanitary design sheet have been attached to Appendix C for reference.

3.3 REVIEW OF SOIL CONDITIONS

There are no specific local subsurface conditions that suggest the need for a higher extraneous flow allowance.

3.4 DESCRIPTION OF EXISTING SANITARY SEWER

The outlet sanitary sewer for Parcel 1 is the existing 250 mm diameter sewer on Campeau Drive. This local sewer will outlet to a sanitary trunk sewer along the Kanata Lakes Golf Club corridor, then discharge to municipal wastewater treatment facility.

The outlet sanitary sewer for Parcel 2 is the existing 200 mm diameter sewer on Cordillera Street. This local sewer will outlet to sanitary trunk sewer along the Urbandale's Corporate Business Centre District, then discharge to municipal wastewater treatment facility.

3.5 VERIFICATION OF AVAILABLE CAPACITY IN DOWNSTREAM SEWER

For Parcel 1, the capacity of the downstream 250 mm diameter sewer on Campeau Drive at 0.37% slope is 36.17 L/s, which is adequate for the flow assumptions from the proposed Parcel 1. This existing sewer also services approximately 1.3 ha of the OMNI Health Care on the west side of Parcel 1. Assuming this existing area generates a proportional flow of 1.06 L/s, then the combined existing and anticipated flow estimate is 9.91 L/s.

For Parcel 2, the capacity of the downstream 200 mm diameter sewer on Cordillera Street at 0.33% slope is 18.70 L/s, which is adequate for the flow assumptions from the proposed Parcel 2. This existing sewer also services approximately 1.72 ha of

the Residential Building on the east side of Cordillera Street. This existing area generates a proportional flow of 2.93 L/s, then the combined existing and anticipated flow estimate is 9.67 L/s.

3.6 CALCULATIONS FOR NEW SANITARY SEWER

A sanitary sewer design sheet is provided for both Parcel 1 and 2. See Appendix C for details.

3.7 DESCRIPTION OF PROPOSED SEWER NETWORK

The proposed sanitary sewer network on site for both Parcel 1 and 2 will consist of 200 mm diameter private sanitary sewers with 200 mm diameter building services and typical sanitary services for townhouses.

3.8 ENVIRONMENTAL CONSTRAINTS

There are no previously identified environmental constraints that impact the sanitary servicing design in order to preserve the physical condition of watercourses, vegetation, or soil cover, or to manage water quantity or quality.

3.9 PUMPING REQUIREMENTS

The proposed development will have no impact on existing pumping stations and will not require new pumping facilities.

3.10 FORCE-MAINS

No force-mains are required specifically for this development.

3.11 EMERGENCY OVERFLOWS FROM SANITARY PUMPING STATIONS

No pumping stations are required for this site, except as required internally for the plumbing design to service the lower area of the building.

3.12 SPECIAL CONSIDERATIONS

There is no known need for special considerations for sanitary sewer design related to existing site conditions.

4 SITE STORM SERVICING

4.1 EXISTING CONDITION

The subjected property is located within the Kanata Town Centre Development Area west of Cordillera Street and south of Campeau Drive. For Parcel 1, the runoff is ultimately directed to a 1200 mm diameter culvert which runs south to north across Campeau Drive. The 1200 mm diameter culvert ultimately outlets to the Kanata Lakes Golf Club area. Drainage in excess of the minor system capacity currently flows overland to the Campeau Drive. For Parcel 2, the runoff is ultimately directed to the stormwater management facility pond in Urbandale's Corporate Business Centre District area via a series of sewers east of Parcel 2 along Canadian Shield Ave and Maritime Way. Drainage in excess of the minor system capacity currently flows overland to the Cordillera Street, Canadian Shield Ave and Maritime Way.

4.2 ANALYSIS OF AVAILABLE CAPACITY IN PUBLIC INFRASTRUCTURE

For Parcel 1, The total site area draining through the site is 3.09 ha. This area will discharge to a 750mm storm pipe at the northwest edge of the site which ultimately drains through a culvert toward the golf course lands. Of the 3.09 ha draining to the boundary of the site, the undeveloped area (1.29 ha) will be routed through a swale with underdrain downstream of proposed site controls (i.e. bypassing the system and remaining unchanged from existing conditions). Therefore, only the remaining 1.8 ha. were included in the pre /post-development allowable release rates. Refer to SWM report for detail calculation.

the IBI's Kanata Town Centre Phasing and Servicing Overview indicates that a 1200 mm diameter culvert under Campeau Drive at the Omincare site and the storm sewer outlet were designed to outlet the present contributing area via the 750 mm diameter storm sewer on the Campeau Drive is 3.22 ha, currently comprised of entirely pervious or undeveloped area. On-site attenuation to predevelopment flow is required for the purpose of advancing use of this storm outlet. Using the Rational Method, with coefficient of 0.20 for pervious areas and 0.9 for impervious areas, and a 10 minute time of concentration, results in an estimated 2 year flow of 147.64 L/s from this area. Using utility records from the City, the slope of the existing storm sewer 750 mm diameter running east to west on Campeau Drive is 0.12%, which equates to a capacity in excess of 147.64 L/s. As the proposed stormwater management works for the Parcel 1 will reduced the runoff rate, capacity in the minor system is not a concern.

For Parcel 2, the J.L. Richards & Associates' SWN Report for the Central Business District indicates that the present contributing area to the 300mm diameter storm sewer on the Cordillera Street is 0.3 ha, comprised of entirely impervious area. The rest of the runoff from this site will go to the 1650mm diameter trunk sewer on Maritime Way. Using the Rational Method, with coefficient of 0.20 for pervious areas and 0.9 for impervious areas, and a 10 minute time of concentration, results in an estimated 2 year flow of 157.89 L/s from this area. Using utility records from the City, the slope of the existing storm sewer 300 mm diameter running north to south on Cordillera Street is 1.60%, which equates to a capacity in excess of 122.44 L/s. As the proposed stormwater management works for the Parcel 2 will reduced the runoff rate, the modified peak flow leaving the site to Cordillera in 10-year storm is 60.0 L/s.

4.3 DRAINAGE DRAWING

Drawing C04 and C05 shows the receiving storm sewer and site storm sewer network for Parcel 1 and 2. Drawing C03 and C02 provides proposed grading and drainage, and includes existing grading information. Drawing C06 and C07 provide a post-construction drainage sub-area plan. Site sub-area information is also provided on the storm sewer design sheet attached in Appendix D.

4.4 WATER QUANTITY CONTROL OBJECTIVE

Refer to the Stormwater Management Report for the water quantity objective for the site.

4.5 WATER QUALITY CONTROL OBJECTIVE

The current runoff from Parcel 1 is draining toward the Kanata Lake golf course without quality control. Water quality control is required for the purpose of advancing use of the 1200 mm diameter culvert storm outlet. As noted from the discussion with City of Ottawa, the designated water quality control objective is to achieve 80% TSS removal. This objective will be achieved through the use of an oil and grit separator for the runoff generated from the site, achieving the TSS removal requirements as well as oil capture. The high degree of initial runoff capture and infiltration will also provide a significant contribution to quality treatment. A stormceptor EFO6 is proposed. Detail drawing and calculation for the selected stormceptor has been attached to Appendix D for reference.

Parcel 2 is not required to achieve water quality objectives. Water quality objectives are achieved through downstream works as noted in the Central Business District SWM study by J.L.Richards and Associates.

4.6 DESIGN CRITERIA

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

Some of the key criteria include the following:

• Design Storm (minor system)	1:2 year return (Ottawa)
• Rational Method Sewer Sizing	
• Initial Time of Concentration	10 minutes
• Runoff Coefficients	
Landscaped Areas	C = 0.25
Asphalt/Concrete	C = 0.90
Traditional 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 and service pipes)

4.7 PROPOSED MINOR SYSTEM

The detailed design for this site will maintain the existing storm sewer network to Campeau Drive north of the development site and Cordillera Street east of the development site.

For Parcel 1, there are two sets of drainage system, one is designed to pick up the runoff from the developed areas, the other one is designed to pick up the runoff from for the undeveloped land, roof and foundation which consist of a series of manholes, catchbasins and storm sewers leading to the outlet manhole STMH107 and STMH110 6 at the northwest corner of the site. All drainage areas on the site are collected in the site piped drainage system, with the exception of a narrow strip of land along the north boundary. The grades at the property line in these areas are too low to allow for outlet to the site storm sewer system, and the use of retaining walls in the vicinity of the site boundaries has been prohibited. Minor flows from these areas are therefore running off to the right of way of Campeau Drive. Major flows are allowed to be released to

the right of way. This area will remain primarily as pervious surfaces and will generate minimal flows. Grading of these areas will be consistent with existing conditions and will not generate additional flows to these off-site areas.

Water quality is proposed to be accommodated by SWMFs within the Kanata Lakes Golf Course development north of Campeau Drive. No matter the development of Kanata Lakes Golf course does or does not proceed, treatment of parcel 1 lands will be provided with an annual removal of 80% TSS removal oil-grit separator for the runoff from developed areas.

Undeveloped lands, roof runoff and foundation drainage are considered to be clean, those areas will not be treated and will be collected to the by-pass storm system.

For Parcel 2, there are two sets of drainage system, one is designed to pick up the runoff from the developed areas, the other one is designed to pick up the runoff from for the undeveloped land, roof and foundation which consists of a series of manholes, catchbasins and storm sewers leading to the outlet manhole STMH201 at the east of the site. All drainage areas on the site are collected in the site piped drainage system, with the exception of a narrow strip of land along the east boundary, front yard of the townhouse block. Minor flows from this area is therefore running off to the right of way of Cordillera Street. This area will remain primarily as pervious surfaces and will generate minimal flows. Grading of these areas will be consistent with existing conditions and will not generate additional flows to these off-site areas.

The runoff from the undeveloped area to the west and the strip of partial developed area along the west and south of the proposed development will be directed to the future Canadian Shield Ave via an open swale, then it will be collected to the piped system via proposed DICB201. The connection to the future Canadian Shield Ave will be confirmed once the design of the future avenue extension is completed.

Water quality is accommodated by the SWMF in the southeast of the Kanata Town Centre. The facility was designed to be level of 86% of sediment removal based on N.U.R.O. settling curves per *J.L.Richards & Associated Limited (January 1999).*

It is also customary for larger buildings to be provided with piped storm services for roof drainage. There are no downspouts proposed. Separate outlet pipes are provided for foundation drains and roof drains, and therefore roof drainage will not negatively impact the foundation. The storm services are connected to the storm sewer downstream of the controlled flow point, ensuring an unobstructed flow for these areas.

Using the above noted criteria, the existing on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated post development storm sewer drainage area plan are included in Appendix D.

4.8 STORMWATER MANAGEMENT

Refer to Stormwater Management report for details.

4.9 INLET CONTROLS

Refer to Stormwater Management report for details.

4.10 ON-SITE DETENTION

Refer to Stormwater Management report for details.

4.11 WATERCOURSES

For Parcel 1, The minor flow will be ultimately directed to the SWM pond in Kanata Lakes Golf Clyb, north of Campeau Drive. For Parcel 2, the minor flow will be ultimately directed to the SWM pond in the Central Business District east of Maritime Way.

4.12 PRE AND POST DEVELOPMENT PEAK FLOW RATES

Pre and post development peak flow rates for the impacted areas of the site have been noted in storm sewer design sheet.

4.13 DIVERSION OF DRAINAGE CATCHMENT AREAS

There will be no diversion of existing drainage catchment areas arising from the proposed work described in this report.

4.14 DOWNSTREAM CAPACITY WHERE QUANTITY CONTROL IS NOT PROPOSED

This checklist item is not applicable to this development as quantity control is provided.

4.15 IMPACTS TO RECEIVING WATERCOURSES

No significant negative impact is anticipated to downstream receiving watercourses due to proposed quantity and quality control measures, the separation of the site from the eventual receiving watercourse as a result of discharge through City owned sewers, and the planned stormwater management ponds on Kanata Lakes Golf Club and Central Business District.

4.16 MUNICIPAL DRAINS AND RELATED APPROVALS

There are no municipal drains on the site or associated with the drainage from the site.

4.17 MEANS OF CONVEYANCE AND STORAGE CAPACITY

The means of flow conveyance and storage capacity are described in the Stormwater Management Report.

4.18 HYDRAULIC ANALYSIS

Hydraulic calculations for the site storm sewers are provided in the storm sewer design sheet and the Stormwater Management Report.

4.19 IDENTIFICATION OF FLOODPLAINS

There are no designated floodplains on the site of this development.

4.20 FILL CONSTRAINTS

There are no known fill constraints applicable to this site related to any floodplain. The site is generally being raised higher relative to existing conditions. No fill constraints related to soil conditions are anticipated, as confirmed in the geotechnical report.

5 SEDIMENT AND EROSION CONTROL

5.1 GENERAL

During construction, existing storm sewer system can be exposed to sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings will be used including;

- Filter cloths will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use;
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.

During construction of the services, any trench dewatering using pumps will be fitted with a "filter sock." Thus, any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filter sock as needed including sediment removal and disposal.

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Consequently, until the surrounding surface has been completed, these structures will be covered to prevent sediment from entering the minor storm sewer system. These measures will stay in place and be maintained during construction and build-out until it is appropriate to remove them.

During construction of any development both imported and native soils are placed in stockpiles. Mitigative measures and proper management to prevent these materials entering the sewer system are needed.

During construction of the deeper watermains and sewers, imported granular bedding materials are temporarily stockpiled on site. These materials are however quickly used up and generally placed before any catchbasins are installed.

Refer to the Erosion and Sedimentation Control Plan C08 and C09 provided in Appendix E.

6 APPROVAL AND PERMIT REQUIREMENTS

6.1 GENERAL

The proposed development is subject to site plan approval and building permit approval.

No approvals related to municipal drains are required.

No permits or approvals are anticipated to be required from the Ontario Ministry of Transportation, National Capital Commission, Parks Canada, Public Works and Government Services Canada, or any other provincial or federal regulatory agency.

7 CONCLUSION CHECKLIST

7.1 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development can meet all provided servicing constraints and associated requirements. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

This is the second submission, response to first review comment is attached.

APPENDIX

A

- PRE-CONSULTATION MEETING NOTES
- TOPOGRAPHIC SURVEY PLAN
- GEOTECHNICAL REVIEW LETTER

Part of 6301 Campeau Drive
Pre-Consultation Meeting Minutes

Location: Room 4102E, City Hall
Date: November 8, 2:00pm to 3:00pm

Attendee	Role	Organization
Mark Young	Planner	City of Ottawa
Justin Armstrong	Project Manager (Infrastructure)	
Neeti Paudel	Project Manager (Transportation)	
Matthew Hayley	Planner (Environment)	
Justyna Garbos	Planner (Parks)	
Matthew Ippersiel	Planner (Urban Design)	
Lauren Reeves	Owner	OCLDC
Sameer Gulamani	Applicant	Bayview Hospitality
Alnoor Gulamani	Applicant	Bayview Hospitality

Comments from Applicant

1. The applicant is proposing a phased development of purpose-built 6-storey multi-residential apartment buildings at the south side of the site and 3-storey townhouses on the north side of the site along Campeau Drive. The buildings would have shared covered podium parking in the middle of the site which will have amenity space on top. Access is provided through Cordillera street and through a laneway shared with the adjacent private retirement home (which may not be feasible).
2. A central access point or alternative access point for the western development block would be preferable.
3. Zoning By-law relief will be requested for the requirement for 50% at grade commercial development.

Planning Comments

1. The proposal will require a major Zoning By-law Amendment Application and a New complex site plan approval application.
2. Please ensure that all zoning requirements and provisions are indicated on the provided plans.
3. Commercial uses should be maintained as a permitted use at grade, but a stringent requirement for 50% should be revisited. Commercial viability at grade on Cordillera Street and Maritme Way.

4. A joint access for both parcels on Campeau Drive aligned with Stonecroft Terrace may be a viable option. This would also need to include accessible pedestrian access to the Town Centre Park.
5. Consideration for the opportunity for flexible units that could accommodate small businesses on Campeau Drive needs to be considered as part of the design and zoning.
6. The maximum permitted height is 3 storeys – therefore the basement level as proposed must be more than 50% below grade. We would recommend front to back ground floor suites, with accessible access to allow for home based business opportunities.
7. Zoning By-law amendment application will need to address portions of the site currently zoned Development Reserve (DR), proposed performance standards and the addition of townhouse as a permitted use.

Urban Design Comments

1. Generally supportive of the proposed scale of the buildings and the urban treatment of Campeau.
2. The apartment building in the south-east corner of the site should be an L-shaped building, wrapping the corner of the site with a frontage on Cordillera Street. This may also be an appropriate location for ground floor retail.
3. The greening of the rooftops of the parking decks as amenity space is supported. The internal courtyard spaces would likely be even stronger places if they were entirely at grade level.
4. Consider the relationship that will be created between the townhomes and the parking garage, what the pedestrian experience will be in that space, and how the raised amenity space will be accessed from the north. Alternatively, connecting the raised parking structure directly to the buildings, as suggested, may be worth exploring as an option.
5. As the plan progresses, consider what the interface between the development and the park to the south will be. Try to establish a clear delineation between public and private space and ensure there are pedestrian connections through the site.
6. Consider relocating the east-west drive aisle to the south of the property, between the development and the park. This would improve the relationship with the park, clarify the distinction of public and private space, and may help connect the apartment buildings to the amenity space (as they would be shifted north).
7. The proposal will be subject to a formal review with the Urban Design Review Panel. An informal pre-consultation meeting with the panel is also recommended at an early stage in the development review process. The next meetings are scheduled for:
    - December 6th (Nov 22nd submission deadline)
    - January 10th (Dec 27th submission deadline)

- More details available on the UDRP webpage. For questions, email UDRP coordinator David Maloney: David.Maloney@ottawa.ca

Parks Planning:

1. Parks will take cash-in-lieu of parkland at an amount equivalent to 10% of the value of the land area of the site being developed. The exact amount will be identified as a condition of site plan approval. In addition, the applicant will be charged a land appraisal fee of $565 (HST included).
2. Bill Teron Park is planned to be expanded in the future. Please see the attached plan for illustration of the expansion. The applicant should be mindful of their development's transition to/connection into the future parkland south of it.
3. If a combined vehicular/pedestrian site access is considered on the intervening city parkland access block, Parks planning will play an active role in the detailed design of this access to ensure that pedestrian access to Bill Teron Park is prioritized, designed in accordance with the Parks Development Manual, and meets accessibility requirements. The construction of said vehicular and pedestrian access shall be solely at the cost of the developer, and shall not be credited toward cash-in-lieu of parkland requirements. Parks Planning is willing and wanting to work with the developer to help find solutions that benefit both parties.
4. All efforts shall be utilized to protect and retain city owned trees on the abutting city park land. The required TCR shall identify how these trees are being protected. The report shall also address any mitigation measures required for tree retention if blasting and associated grading is required adjacent to the park property line.
5. Efforts shall be undertaken to ensure that the grade differential between the park block and the development sites is minimized to the greatest extent possible.

Engineering Comments

The following are engineering comments related to the recent pre-consultation meeting for the development of 6301 Campeau Drive that was held on Friday November 8th, 2019. It is recommended that the developer retain a local engineering firm familiar with the City of Ottawa's procedures and requirements in order to navigate the comments made below and provide recommendations pertaining to the potential engineering design for the proposed site.

1. WATER

- Water is available along Campeau and along Cordillera/Canadian Shield.
- Watermain looping will be required for the proposed development.

- As per The City of Ottawa's Water Distribution Guidelines Technical Bulletin ISDTB-2014-02, individual residential facilities with a basic day demand greater than 50m^3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.
- A watermain boundary condition request should be made for each proposed connection to the City watermain. As part of the request, anticipated domestic demands and FUS fireflow requirements should be provided along with a screenshot of the proposed connection locations. The request can be sent to justin.armstrong@ottawa.ca.

2. SANITARY

- Sanitary is available along Campeau and along Cordillera/Canadian Shield. For discharge to either location, it should be demonstrated that capacity exists within the receiving sewers. The Servicing Brief (Revised) Kanata Town Centre Central Business District Subdivision Memo prepared by J.L.Richards for Urbandale Corporation, dated June 13, 2012 (attached), and the sanitary sewer design sheet prepared by J.L.Richards for Urbandale dated October 12, 2016 (attached) are related to the design of the sanitary sewers along Cordillera/Canadian shield. These documents should be consulted when demonstrating capacity exists for sewage discharging to this location.

6. STORM

- The report titled *Kanata Town Centre Phasing and Servicing Overview*, prepared by IBI Group, dated September 23, 2013 (attached) states that "*a 1200 mm diameter culvert under Campeau Drive at the Omnicare site and the storm sewer outlet for Omnicare were designed to outlet a portion of the Kanata Town Centre lands adjacent to Campeau Drive. This storm outlet is directly available to Block A to D inclusive. On-site attenuation to predevelopment flow should be considered a requirement for the purposes of advancing use of the storm outlet.*" The referenced 1200 mm diameter culvert outlets under Campeau Drive to the existing Kanata Lakes Golf Course. This statement is consistent with the proposed Storm Servicing and Drainage Plan submitted by DSEL as part of the proposed Kanata Lakes Golf Course development application (D07-16-19-0026), in which a 3.32 ha drainage area (runoff coefficient = 0.2) located south of Campeau Drive has been proposed for allocation to drain to the golf course lands. The proposed Kanata Lakes Golf Course development application files can be obtained from the following link: https://app01.ottawa.ca/postingplans/appDetails.jsf?lang=en&appId= BONQGQ

Please keep in mind that providing onsite attenuation to restrict the storm release rate to predevelopment flows will require significant onsite storage (given that the site is currently grassed/landscaped).

- IBI's report, noted above, also states that *"A local storm sewer varying in size from 525mm diameter to 1650 mm diameter exists in Kanata Main Street and Canadian Shield Avenue across the full frontage of the Kanata Town Centre site. This storm sewer has limited capacity available for direct connection from the Town Centre development, with the understanding that onsite attenuation will be required to match the sewer design capacity as specified in MOE Certificate of Approval Number 3-1378-98-006."* The above-mentioned sewers ultimately outlet to Urbandale's stormwater management pond located at the south-east corner of the Town Centre lands. The SWM pond was designed in accordance with the report titled *Stormwater Management Report, Kanata Town Centre, Central Business District,* prepared by J.L. Richards, dated January 1999 (attached). JLR's report is consistent with IBI's report in which Blocks E, G, H, I and J have been allocated to the existing storm sewers within Kanata Main Street and Canadian Shield Avenue with an outlet to Urbandale's pond. The allocated release rate for each parcel of land will be restricted to the sewer design capacity of the storm sewers as well as the stormwater allocations set with JLR's report.

  If servicing allows it, there may be an opportunity to re-direct storm flows from Block A through D to outlet to Canadian Shield Avenue and ultimately Urbandale's pond if it can be demonstrated that the storm sewers and stormwater management pond have capacity to accept the additional flows.

<u>Transportation Planning:</u>

1. Follow Traffic Impact Assessment Guidelines
   - Scoping form should be submitted– triggers trip generation. Meets the triggers for full Traffic Impact Assessment.
   - Applicant advised that their 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).
   - Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
   - All requested access locations including the access between the two parcels on Campeau Drive (if proposed) will be reviewed at the TIA strategy (analysis) stage.
2. ROW protection on Campeau Drive between Didsbury and Teron is 40m even. Ensure that this is protected. Campeau Drive at this section is identified to be widened in the 2031 network concept of the TMP (Terry Fox to March) and no parking is currently proposed on Campeau. An eyebrow Street within the right of way is not supported as a temporary measure. Please note that if and when the EA for the widening of Campeau Drive is updated on-street parking may be considered.

3. Site triangles at the following locations on the final plan will be required:
    - Arterial Road to Local Road: 5 metre x 5 metres
4. Noise Impact Studies required:
    - Road
5. On site plan:
    - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
    - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
    - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
    - Show lane/aisle widths.
    - Sidewalk is to be continuous across access as per City Specification 7.1.

Planning Forester:

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City;
2. Tree removal
    a. any removal of privately-owned trees 10cm or larger in diameter requires a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR
    b. any removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR
3. The TCR must list all trees on site by species, diameter and health condition – separate stands of trees may be combined using averages
4. The TCR must clearly show where tree removal will occur.
5. Tree permits for geotechnical work are possible, but tree removal must be limited to areas required for machinery access and drilling; please provide a plan supported by the TCR showing travel routes and landings
6. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines listed on Ottawa.ca
7. For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

Environment:

1. An EIS/TCR is required to address species at risk.
2. They will also need to address the Protocol for Wildlife protection during Construction which is available at www.ottawa.ca

Requested Plans and Studies

1. A list of required plans and studies required for a complete Site Plan Control application have been attached.

Process

1. This is a pre-consultation for a Zoning By-law Amendment and Site Plan Control application at 6301 Campeau Drive to the requirements for a complete application.

2. This proposal will trigger a Major Zoning By-law Amendment Application and a New Site Plan Control application, Manager Approval, subject to Public Consultation. The proposal would fall under the 'complex' category as per the Site Plan Control Subtype Threholds. The application form, timeline and fees can be found here.

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

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please contact me at Mark.Young@ottawa.ca or at 613-580-2424 extension 41396 if you have any questions.

Sincerely,

Mark Young MCIP RPP
Planner III
Development Review - West

DATA COLLECTION SKETCH OF

PART OF LOT 3 CONCESSION 2
PART OF LOT 3 CONCESSION 3
AND PART OF ROAD ALLOWANCE BETWEEN CONCESSION 2 AND 3
(CLOSED BY INST. LT278660)
GEOGRAPHIC TOWNSHIP OF MARCH
CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebekk Ltd.
Field Work Completed February 10, 2020.

Scale 1 : 500

20 15 10 5 0 10 20 Metres

Metric
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Notes & Legend

MH-S	-	Maintenance Hole (Sanitary)
MH-B	-	Maintenance Hole (Bell Telephone)
MH-H	-	Maintenance Hole (Hydro)
MH	-	Maintenance Hole (Unidentified)
VC	-	Valve Chamber (Watermain)
FH	-	Fire Hydrant
LS	-	Light Standard
S	-	Sign
WV	-	Water Valve
PWF	-	Post & Wire Fence
65.00	-	Location of Elevations
65.00	-	Top of Concrete Curb Elevation

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.999911.

SITE AREA = 37064.5 m²

BOUNDARY INFORMATION COMPILED FROM PLAN 4R-32488.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Ontario Land Surveyors
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com

Job No. 2019-20 Pnt.05ced_T Dr DC

P.O. Box 74087, RPO Beechwood, Ottawa, On., K1M 2H9
Phone: (613) 899 0834

Yuri Mendez
Engineering

Ottawa, August 24, 2020
No.: 6301-Campeau-YME-L1

Sameer Gulamani
Bayview Hospitality Holdings Ltd.

Reference: Subsurface Investigation Report 46-BHH-R1 for a proposed Townhouses and 6 Storey Appartment Buildings development at 6301 Campeau Dr., Ottawa, ON..

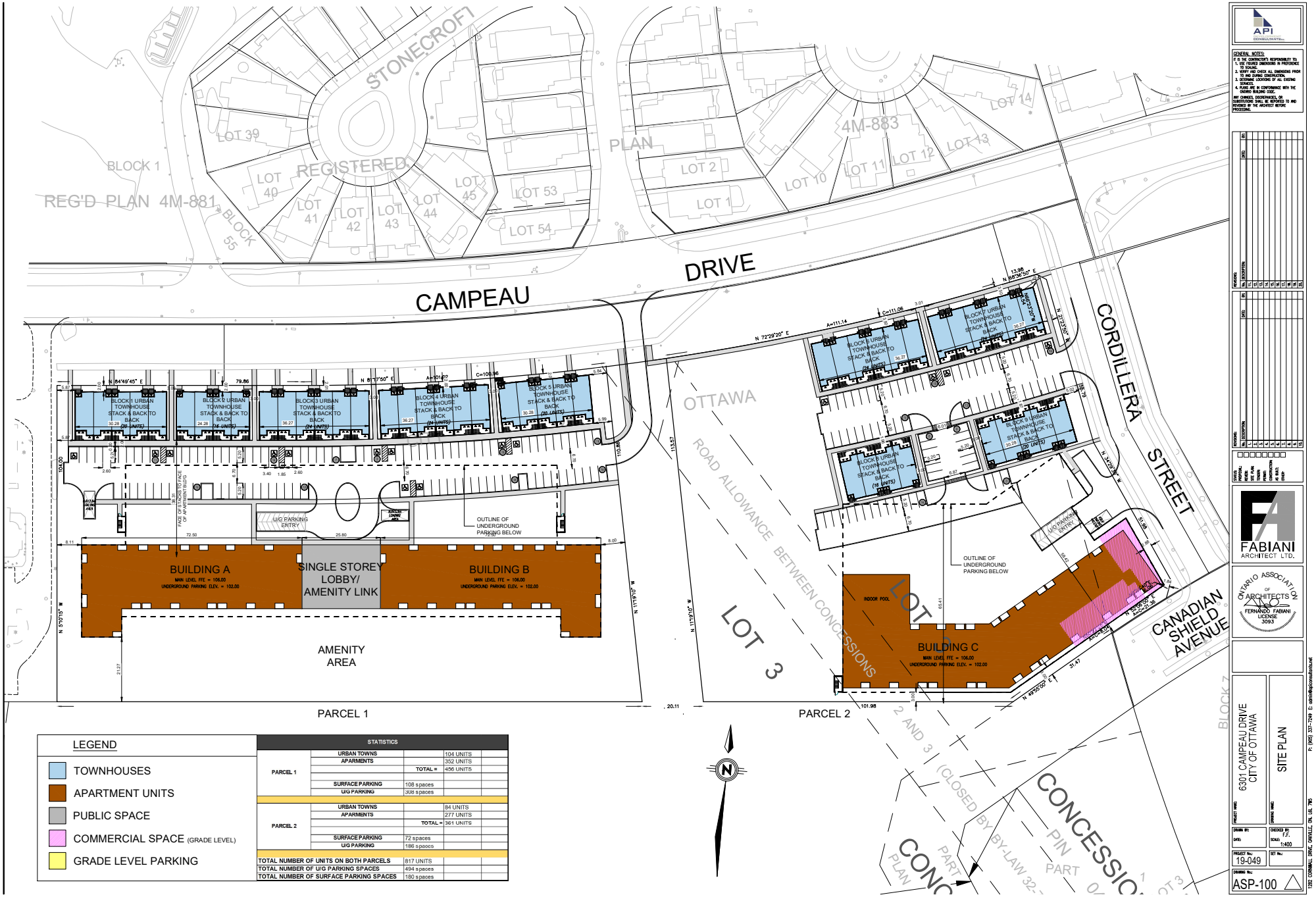
Subject: Validation of the referenced report for the changes on the proposed development and new site plan described in the attached drawing No. ASP-100 by Fabiani Architect Ltd. sealed by Fernando Fabiani arquitect license 3093 and issued for the referenced development at 6301 Campeau Drive.

At this time it is understood that the development will consist on townhouses and two 10 storey apartment buildings distributed as shown in the subject ASP-100 drawing.

In view of the subject ASP-100 drawing and the above described development YME does not see issues in the application of the referenced 46-BHH-R1 report for the new development. As such all references in report 46-BHH-R1 which are read " Townhouses and 6 Storey Appartment Buildings" will be read "Townhouses and two 10 Storey Apartment Buildings".

Do not hesitate to contact us if you have any questions.

Yuri Mendez, M. Eng, P. Eng



LEGEND

- TOWNHOUSES
- APARTMENT UNITS
- PUBLIC SPACE
- COMMERCIAL SPACE (GRADE LEVEL)
- GRADE LEVEL PARKING

STATISTICS				
PARCEL 1	URBAN TOWNS		104 UNITS	
	APARMENTS		352 UNITS	
		TOTAL =	456 UNITS	
	SURFACE PARKING	108 spaces		
	U/G PARKING	308 spaces		
PARCEL 2	URBAN TOWNS		84 UNITS	
	APARMENTS		277 UNITS	
		TOTAL =	361 UNITS	
	SURFACE PARKING	72 spaces		
	U/G PARKING	186 spaces		
TOTAL NUMBER OF UNITS ON BOTH PARCELS		817 UNITS		
TOTAL NUMBER OF U/G PARKING SPACES		494 spaces		
TOTAL NUMBER OF SURFACE PARKING SPACES		180 spaces		

GENERAL NOTES:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO
2. VERIFY AND CHECK ALL DIMENSIONS PRIOR TO AND DURING CONSTRUCTION.
3. DETERMINE LOCATIONS OF ALL EXISTING SERVICES.
4. PLANS ARE IN CONFORMANCE WITH THE EXISTING BUILDING CODE.

ANY CHANGES, DISCREPANCIES, OR SUBSTITUTIONS SHALL BE REPORTED TO AND REVIEWED BY THE ARCHITECT BEFORE PROCEEDING.

FABIANI ARCHITECT LTD.

ONTARIO ASSOCIATION OF ARCHITECTS
FERNANDO FABIANI
LICENSE 3093

6301 CAMPEAU DRIVE
CITY OF OTTAWA

SITE PLAN

DRAWN BY:
CHECKED BY: F.F.
DATE:
SCALE: 1:400
PROJECT No.: 19-049
SET No.:
DRAWING No.: ASP-100

1282 CORNWALL DRIVE, OAKVILLE, ON, L6J 7W5
P: (905) 337-7249 E: admin@apicorporation.net

P.O. Box 74087, RPO Beechwood, Ottawa, On., K1M 2H9
Phone: (613) 899 0834

Yuri Mendez
Engineering

Ottawa, November 25, 2020
No.: 6301-Campeau-YME-L2

Sameer Gulamani
Bayview Hospitality Holdings Ltd.

Reference: Proposed development at 6301 Campeau Drive: "Overall Grading Plan by WSP Group for their project numbered 201-03048-00 dated November 20, 2020 ".

Subject: Review from the geotechnical stand point based on the findings reported in Subsurface Investigation Report 46-BHH-R1.

YME has no objections to the referenced grading plan from the geotechnical stand point.

Rock cuts along the perimeter of the buildings shown in the referenced plan or required for grading can be vertical.

Rock faces and slopes are expected to be stable where they meet the proposed grades.

Do not hesitate to contact us if you have any questions.

Yuri Mendez, M. Eng, P. Eng

P.O. Box 74087, RPO Beechwood, Ottawa, On., K1M 2H9
Phone: (613) 899 0834

Yuri Mendez
Engineering

Ottawa, March 25, 2021
No.: 6301-Campeau-YME-L3

Sameer Gulamani
Bayview Hospitality Holdings Ltd.
sameer.gulamani@bayviewhospitality.com

Reference: "Official Plan Amendment, Zoning By-law Amendment and Site Plan Control Application First Round Comments 6301 and 6475 Campeau Drive".

Subject: Responses to the referenced comments concerning the Subsurface Investigation Report 46-BHH-R1.

The subject comments are those expressed in paragraphs B32 to B39, B40 and B41 to B42.

The response for comments in paragraphs B32, B36. B40 and B41 follows. The comments in paragraphs B40 and B41 refer to the version of the subject report which is referred to as R0 by other consultants as current. The version R1 is current since July 18, 2020, date in which was email submitted to representatives of the developer. The version R1 in which the most significant addition as expressed in our submission is " the inclusion of a grading subsection just after the bearing capacity section" was submitted upon our initiative. You will note in the added "6.4 Grading/Terracing/Grade Raises" section that the section does not restrict grade raise. As such the revised version also confirms the assumption made by the reviewer in paragraph B36 that "there is no grade raise limit for this site". With regards to the comment in paragraph B32 which points out a discrepancy in the dates, the reader will also note that the November 23, 2019 date in the introduction of the R1 report remains because that date refers to the preliminary investigation conducted at this site, which is numbered 44-BHH-R0 and referred correctly in the paragraph. The R1 version thus clears the comments in paragraphs B32, B36, B40 and B41. Due to an addition resulting from a comment in referenced first round comments a new version R2 is being submitted with this letter.

The validation of 46-BHH-R1 sought in paragraph B33 regarding the "10-storey apartments rather than 6-storey" description of buildings have been provided in the addemdum referred to as 6301-Campeau-YME-L1 in August 24, 2020, however, a revision R2 is being attached to this letter because the addition of parking levels beneath a first parking level requires the addition of a waterproofing section. For the ease of reference, the R2 version is only different from the R1 version due to the addition of a waterproofing section and the description of the development.

The response for the comment in paragraphs B34 follows. As seen in BH5 in the report, a minimum 5 blowcount was recorded in saturated clay. Generally, SPT blowcounts in saturated clays exceeding 4 are estimated to have in excess of 100 kPa of shear strength. This is generally estimated based on wide experience conducting shear vane testing along with SPT testing. Glacio fluvial and champlain sea clays present in Ottawa are generally of low to medium plasticity. This is based on experience testing soft clays, including some 300 consolidation and plasticity tests in Ottawa through some 15 years. While high plasticity clays are present in Ottawa, they are rare. We thus ruled out high plasticity via texture and other lab assessments. In issuing the statements regarding plasticity and shear strength in the report, it is done with the same confidence of doing other tests. We thus have addressed the explanations sought in paragraph B34.

The comment in paragraph B35 is to be addressed by other consultants.

As for the comment in paragraph B37 regarding the impact of bedrock excavation on adjacent properties, note that excavation will impact existing adjacent buildings via vibrations and noise. Vibrations induced damage is prevented setting the limits on particle velocities set out by the thresholds in Ontario regulation OPSS.MUNI 120. Particle velocities are measured on the perimeter of buildings using seismographs.

As for the comment in paragraph B38, all versions of the subsurface investigation report do have a tree planting guide which meets City of Ottawas "Tree Planting in Sensitive Marine Clay Soils Guidelines". It has been introduced in the report as a guide, however, the conditions encountered are not of soft clay sites which are subject of the City's guidelines.

The response for the comment in paragraphs B39 follows. The reports issued, as is generally the practice in subsurface investigations, are designed to provide information regarding the physical and mechanical properties of soils and water conditions which will assist other designers in the design of structures interacting with ground conditions. The underground storage cisterns in paragraph B39 are thus one specific case in which those properties will assist in the same manner in which they assist to the numerous structures at this site, such as the foundations themselves, retaining walls, underground service, etc.

As for the statement sought in paragraph B42, YME is unaware of any other revised grading plan later than the November 20, 2020 version referenced in letter 6301-Campeau-YME-L2. If no newer version has been issued, we hereby state that "the most recent grading and drainage plans for each parcel have been reviewed and that the geotechnical recommendations remain valid".

Do not hesitate to contact us if you have any questions.

Yuri Mendez, M. Eng, P. Eng

APPENDIX

APPENDIX

B

- WATERMAIN BOUNDARY CONDITIONS FROM CITY OF OTTAWA
- EMAILS FROM CITY OF OTTAWA
- FIRE UNDERWRITERS SURVEY – FIRE FLOW CALCULATION
- WATER DEMAND CALCULATION
- WATER MODEL OUTPUT - INFOWATER

Boundary Conditions
6301 Campeau Drive - Parcel 1

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	165	2.75
Maximum Daily Demand	412	6.87
Peak Hour	907	15.11
Fire Flow Demand #1	15,000	250.00
Fire Flow Demand #2	16,000	266.67

Location

Results

Connection 1 – Campeau Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.4	80.1
Peak Hour	156.2	72.7
Max Day plus Fire 1	147.6	60.5
Max Day plus Fire 2	146.5	58.9

[1] Ground Elevation = 105.0 m

Connection 2 – Campeau Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.4	79.7
Peak Hour	156.2	72.3
Max Day plus Fire 1	148.1	60.8
Max Day plus Fire 2	147.0	59.3

[1] Ground Elevation = 105.3 m

Notes

1. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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.

Boundary Conditions
6301 Campeau Drive - Parcel 2

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	128	2.14
Maximum Daily Demand	321	5.35
Peak Hour	705	11.75
Fire Flow Demand #1	13,000	216.67
Fire Flow Demand #2	16,000	266.67

Location

Results

Connection 1 – Campeau Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.4	80.4
Peak Hour	155.7	72.3
Max Day plus Fire 1	150.5	64.9
Max Day plus Fire 2	147.6	60.8

[1] Ground Elevation = 104.8 m

Connection 2 – Cordillera St.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.4	82.8
Peak Hour	155.7	74.6
Max Day plus Fire 1	145.3	59.9
Max Day plus Fire 2	140.0	52.4

[1] Ground Elevation = 103.2 m

Notes

1. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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.

Yang, Winston

From: Rasool, Rubina <Rubina.Rasool@ottawa.ca>
Sent: Monday, November 23, 2020 5:51 PM
To: Yang, Winston
Subject: RE: Boundary Condition for 6301 Campeau Drive
Attachments: 6301 Campeau Drive - Parcel 1_23Nov2020.docx; 6301 Campeau Drive - Parcel 2_ 23Nov2020.docx

Winston,

Please find attached the water boundary conditions. We apologize for the delay due to staff shortages in Asset Management.

Thank you,

Rubina

Rubina Rasool, E.I.T.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - West Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue Laurier Ouest. Ottawa (Ontario) K1P 1J1 rubina.rasool@ottawa.ca

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From: Yang, Winston <Winston.Yang@wsp.com>
Sent: October 15, 2020 5:28 PM
To: Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: Jafferjee, Ishaque <ishaque.jafferjee@wsp.com>; Fernando Fabiani <ffabiani@apiconsultants.net>; Shen, Stream <Stream.Shen@ottawa.ca>
Subject: RE: Boundary Condition for 6301 Campeau Drive

Hi Justin,

Just try to reconnect with you regarding the Boundary condition for 6301 Campeau Drive.
Our client is looking to split up the development into two parcels, 1 and 2.
The water looping for redundancy for both parcels are proposed.

For Parcel 1, the proposed watermain will go through parcel 1 and connect to the existing 305mm dia. watermain along Campeau Drive at both end of the site, please see attached preliminary servicing plan for details.
The domestic water demands were calculated using the City of Ottawa's Water Design Guidelines and fire demands were calculated using FUS 1999.
The results are summarized as follow:

Proposed Buildings	Average Daily Demand (l/s)	Maximum Daily Demand (l/s)	Maximum Hourly Demand (l/s)	Fire Demand (l/s)
Parcel 1				
Building A	0.92	2.30	5.05	267
Building B	0.92	2.30	5.05	250
Townhouses	0.91	2.28	5.01	267
Total	**2.75**	**6.88**	**15.11**	

For Parcel 2, the proposed watermain will go through parcel 2 and connect to the existing 305mm dia. watermain along Campeau Drive to the north and the existing 203mm dia. watermain along Cordillera Street to the east, please refer to attached preliminary servicing plan for details.
The domestic water demands were calculated using the City of Ottawa's Water Design Guidelines and fire demands were calculated using FUS 1999.
The results are summarized as follow:

Proposed Buildings	Average Daily Demand (l/s)	Maximum Daily Demand (l/s)	Maximum Hourly Demand (l/s)	Fire Demand (l/s)
Parcel 2				
Building C	1.43	3.57	7.86	217
Building C – Commercial	0.02	0.02	0.04	
Townhouses	0.70	1.75	3.85	267
Total	**2.14**	**5.35**	**11.75**	

Please see attached pdfs for the detail calculation for FUS and water demands for your reference and see below in red for the responses.

The Architect has also confirmed that the type of construction for Apartments is non-combustible and combustible wood frame for townhouses. And apartments will be requpped ith Automatic Fire Protection.

Please provide boundary condition at the connection points of Campeau Drive and Cordillera in the vicinity of the property.

Should you have any questions please do not hesitate to contact me.

Thank you,

Ding Bang (Winston) Yang, P.Eng.
Project Engineer
Infrastructure

T+ 1 613-690-0538

2611 Queensview Drive, Suite 300
Ottawa, Ontario,
K2B 8K2, Canada

www.wsp.com

From: Armstrong, Justin [mailto:justin.armstrong@ottawa.ca]
Sent: Tuesday, June 30, 2020 4:29 PM
To: Yang, Winston <Winston.Yang@wsp.com>
Cc: Jafferjee, Ishaque <Ishaque.Jafferjee@wsp.com>
Subject: RE: Boundary Condition for 6301 Campeau Drive

Hi Winston,

Just had a chance to look over the demands provided with the boundary condition request and I have the following comments:

- Buildings A, B, & C have all been accounted for in the same FUS calculation sheet since they all have the same fire area, however, building A seems like it should be subject to different exposure charges than B and C. Building A is fronted to the north by a townhouse block, to the east by building B, and potentially to the west by the existing development. The townhouse block and building B both seem as though they could be within 10 metres of building A. Building D's offsets also seem a little high. Please verify that offset distances used to calculate the exposure charges are accurate. Also ensure that the length-height factor of adjacent buildings is accounted for when determining the exposure charge. The City of Ottawa Water Distribution Guideline Technical Bulletin ISTB-2018-02 should be used for the FUS calculations as it goes into great detail with respect to each step of FUS calculations. The fire flow is interpolated by the updated FUS under the Appendix H in the City of Ottawa Water Distribution Guideline Technical Bulletin ISTB-2018-02.
- For step 1 of each FUS calculation the required fire flow is rounded down, however, ISTB-2018-02 indicates that the required fire flow should be rounded to the nearest thousand at this step. This means that for buildings A, B, C and townhomes (6 in a row) the required fire flow was rounded incorrectly at step 1. The rounding has been revised to the nearest 1000.
- Why is occupancy type different between apartments and townhomes in step 2? Are they not all residential occupancies? Is this typical? This is typical for apartments and townhomes.

Please address the above and I will subsequently send off the demands and request the boundary conditions.

Kind Regards,

During this period of uncertainty surrounding COVID-19, we are following best practices recommended to minimize the risk of exposure, while ensuring that service to our clients remains as uninterrupted as possible. For the most part I am working from home and will respond to emails at my earliest opportunity. Should there be delays due to internet connectivity, I thank your understanding and patience.

Justin Armstrong, E.I.T.
Engineering Intern
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - West Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2400 ext./poste 21746, justin.armstrong@ottawa.ca

From: Yang, Winston <Winston.Yang@wsp.com>
Sent: June 24, 2020 5:48 PM
To: Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: Jafferjee, Ishaque <ishaque.jafferjee@wsp.com>
Subject: Boundary Condition for 6301 Campeau Drive

Hi Cody,

We are working on the SPA for the 6301 Campeau Drive. The proposed development consists of townhouses along the frontage of Campeau Drive and four 6-storey apartment buildings to the south .
The proposed development is proposed to be serviced from the 305 mm diameter watermain along Campeau Drive and 203 mm diameter watermain along Cordillera. Street Please see attached Site Location for detail.

The domestic water demands were calculated using the City of Ottawa's Water Design Guidelines and fire demands were calculated using FUS 1999.
The results are summarized as follow

Proposed Buildings	Average Daily Demand (l/s)	Maximum Daily Demand (l/s)	Maximum Hourly Demand (l/s)	Fire Demand (l/s)
Parcel 1				
Building A	0.62	1.53	3.37	183
Building B	0.61	1.51	3.33	183
Townhouses	1.05	2.63	5.78	267
Parcel 2				
Building C	0.61	1.52	3.34	183
Building D	0.62	1.53	3.37	233
Townhouses	0.63	1.58	3.47	267
Total	**4.12**	**10.30**	**22.65**	

Please see attached pdfs for the detail calculation for FUS and water demands for your reference.

Please provide boundary condition at the connection points of Campeau Drive and Cordillera in the vicinity of the property.

Should you have any questions please do not hesitate to contact me.

Thank you,

Ding Bang (Winston) Yang, P.Eng.
Project Engineer
Infrastructure

T+ 1 613-690-0538

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K2B 8K2, Canada

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Water Demand Calculation Sheet

Project:	**6301 Campeau Drive**	**Date:**	**11/25/2020**
Location:	**City of Ottawa**	**Design:**	**WY**
WSP Project No.	**201-03048-00**	**Page:**	**1 of 1**

Proposed Buildings	Residential					Non-Residentail			Average Daily			Maximum Daily			Maximum Hourly			Fire
	Units			Beds	Pop.	Industrial	Institutional	Commercial	Demand (l/s)			Demand (l/s)			Demand (l/s)			Demand
	SF	APT	UT			(ha)	(ha)	(ha)	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	(l/s)
Parcel 1																		
Building A - 1 bed		104			146				0.47		0.47	1.18		1.18	2.60		2.60	267
Building A - 2 bed		70			147				0.48		0.48	1.19		1.19	2.62		2.62	
Building B - 1 bed		104			146				0.47		0.47	1.18		1.18	2.60		2.60	250
Building B - 2 bed		70			147				0.48		0.48	1.19		1.19	2.62		2.62	
Townhouses		52			73				0.24		0.24	0.59		0.59	1.30		1.30	267
Townhouses		52			109				0.35		0.35	0.88		0.88	1.95		1.95	267
Total					658						2.13			5.33			11.73	
Parcel 2																		
Building C - 1 bed		148			207				0.67		0.67	1.68		1.68	3.69		3.69	
Building C - 2 bed		118			248				0.80		0.80	2.01		2.01	4.42		4.42	217
Building C - Commercial								0.06		0.02	0.02		0.03	0.03		0.05	0.05	
Townhouses		40			56				0.18		0.18	0.45		0.45	1.00		1.00	267
Townhouses		40			84				0.27		0.27	0.68		0.68	1.50		1.50	267
Total					595					0.02	1.95		0.03	4.85		0.05	10.66	
																	8	

Population Densities

Single Family	3.4	person/unit
Semi-Detached	2.7	person/unit
Duplex	2.3	person/unit
Townhome (Row)	2.7	person/unit
Bachelor Apartment	1.4	person/unit
1 Bedroom Apartment	1.4	person/unit
2 Bedroom Apartment	2.1	person/unit
3 Bedroom Apartment	3.1	person/unit
4 Bedroom Apartment	4.1	person/unit
Avg. Apartment	1.8	person/unit

Average Daily Demand

Residentail	280	l/cap/day
Industrial	35000	l/ha/day
Institutional	28000	l/ha/day
Commercial	28000	l/ha/day

Maximum Daily Demand

Residential	2.5	x avg. day
Industrial	1.5	x avg. day
Institutional	1.5	x avg. day
Commercial	1.5	x avg. day

Maximum Hourly Demand

Residential	2.2	x max. day
Industrial	1.8	x max. day
Institutional	1.8	x max. day
Commercial	1.8	x max. day

Fire Flow Design Sheet (FUS)
6301 Campeau Drive
10 Storey Multi-Residential Apartment Buildings A
City of Ottawa
WSP Project No. 201-03048-00
Date: 15-Oct-20

Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
1.5 for wood construction (structure essentially combustible)
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 14312 m^2
C = 0.8
F = 21055.4 L/min

rounded off to 21,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 21,000 = 17,850 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -50% x 17,850 = -8,925 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

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

Side 1	30	10%	north side
Side 2	0	25%	east side
Side 3	100	0%	south side
Side 4	45	5%	west side
		40%	(Total shall not exceed 75%)

Increase due to separation 40% x 17,850 = 7,140 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 16,000 L/min (Rounded to nearest 1000 L/min)
or **267 L/sec**
or 4,227 gpm (us)
or 3,520 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
6301 Campeau Drive
10 Storey Multi-Residential Apartment Buildings B
City of Ottawa
WSP Project No. 201-03048-00
Date: 15-Oct-20

Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
1.5 for wood construction (structure essentially combustible)
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 14312 m^2
C = 0.8
F = 21055.4 L/min

rounded off to 21,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 21,000 = 17,850 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -50% x 17,850 = -8,925 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

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

Side 1	30	10%	north side
Side 2	78	0%	east side
Side 3	100	0%	south side
Side 4	0	25%	west side
		35%	(Total shall not exceed 75%)

Increase due to separation 35% x 17,850 = 6,248 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 15,000 L/min (Rounded to nearest 1000 L/min)
or **250 L/sec**
or 3,963 gpm (us)
or 3,300 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
6301 Campeau Drive
10 Storey Multi-Residential Apartment Buildings C
City of Ottawa
WSP Project No. 201-03048-00
Date: 15-Oct-20

Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
1.5 for wood construction (structure essentially combustible)
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 22600 m^2
C = 0.8
F = 26458.6 L/min

rounded off to 26,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard -15% x 26,000 = 22,100 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System -50% x 22,100 = -11,050 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

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

Side 1	25	10%	north side
Side 2	60	0%	east side
Side 3	100	0%	south side
Side 4	78	0%	west side
		10%	(Total shall not exceed 75%)

Increase due to separation 10% x 22,100 = 2,210 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 13,000 L/min (Rounded to nearest 1000 L/min)
or **217 L/sec**
or 3,434 gpm (us)
or 2,860 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
6301 Campeau Drive
3 Storey Urban Townhomes - 4 in a row
City of Ottawa
WSP Project No. 201-03048-00
Date: 15-Oct-20

Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
1.5 for wood construction (structure essentially combustible)
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 969 m^2
C = 1.5
F = 10272.5 L/min

rounded off to 10,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard 0% x 10,000 = 10,000 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System 0% x 10,000 = 0 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

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

Side 1	48	0%	north side
Side 2	3.5	18%	east side
Side 3	52	0%	south side
Side 4	3.5	18%	west side
		36%	(Total shall not exceed 75%)

Increase due to separation 36% x 10,000 = 3,600 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 14,000 L/min (Rounded to nearest 1000 L/min)
or **233 L/sec**
or 3,698 gpm (us)
or 3,080 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
6301 Campeau Drive
3 Storey Urban Townhomes - 6 in a row
City of Ottawa
WSP Project No. 201-03048-00
Date: 15-Oct-20

Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 1999

1. An estimate of the Fire Flow required for a given fire area may be estimated by: $F = 220\ C\ \sqrt{A}$

F = required fire flow in litres per minute
C = coefficient related to the type of construction
1.5 for wood construction (structure essentially combustible)
1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8 for noncombustible construction (unprotected metal structural components, masonry or metal walls)
0.6 for fire-resistive construction (fully protected frame, floors, roof)
A = total floor area in square metres (including all storeys, but excluding basements at least 50% below grade)

A = 1470 m^2
C = 1.5
F = 12652.4 L/min

rounded off to 12,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard 0% x 12,000 = 12,000 L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System 0% x 12,000 = 0 L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

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

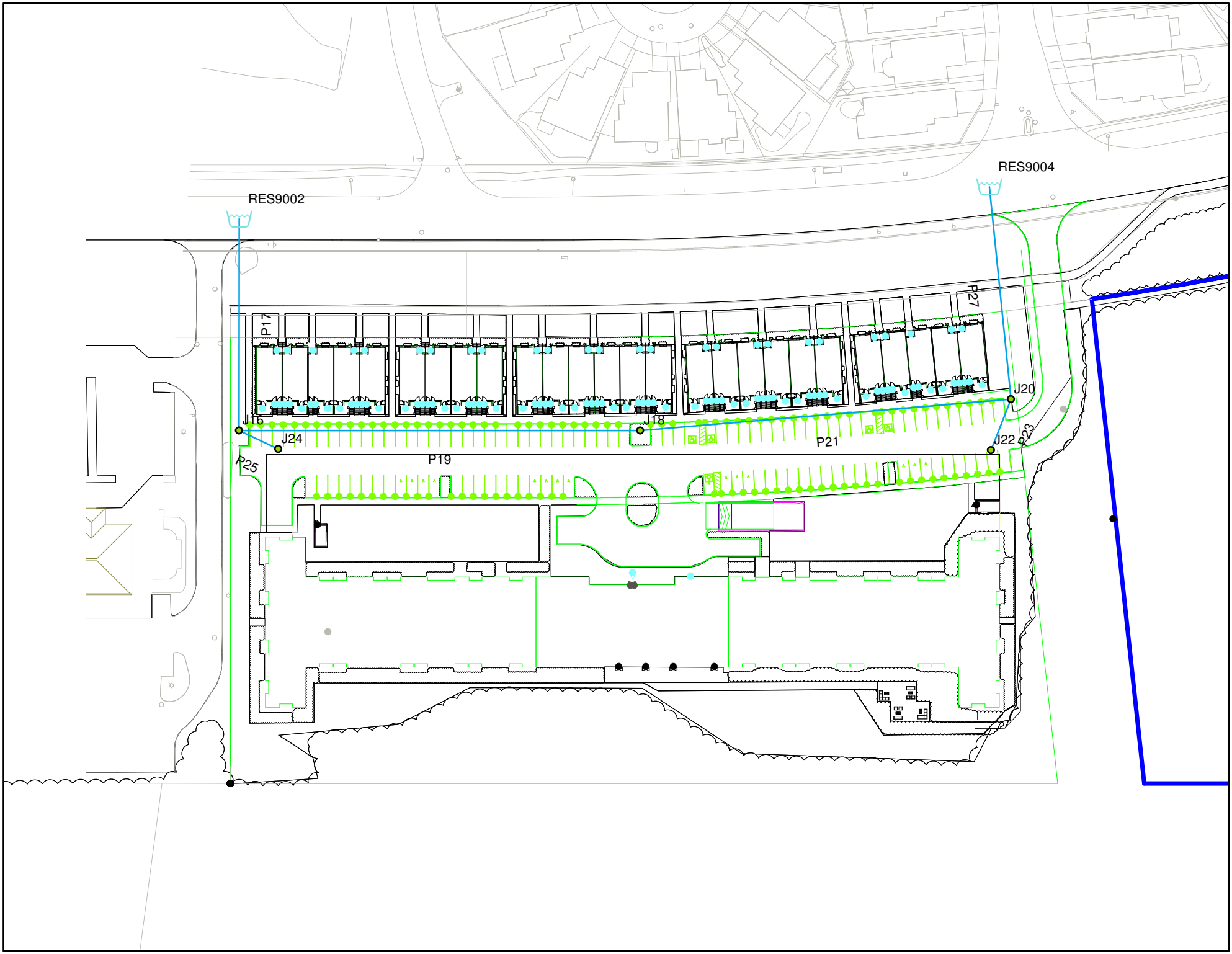
Side 1	48	0%	north side
Side 2	3.5	18%	east side
Side 3	52	0%	south side
Side 4	3.5	18%	west side
		36%	(Total shall not exceed 75%)

Increase due to separation 36% x 12,000 = 4,320 L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 16,000 L/min (Rounded to nearest 1000 L/min)
or **267 L/sec**
or 4,227 gpm (us)
or 3,520 gpm (uk)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 1991
by Fire Underwriters Survey


RES9002
RES9004
P17
P27
J16
J18
J20
J24
J22
J23
P21
P19
P25

		ID	Total Demand (L/s)	Available Flow at Hydrant (L/s)	Critical Node ID	Critical Node Pressure (kPa)	Critical Node Head (m)	Design Flow (L/s)	Design Pressure (kPa)	Design Fire Node Pressure (kPa)
1	☐	J16	267.51	590.37	J16	137.86	119.06	590.38	137.86	137.86
2	☐	J18	267.68	523.02	J18	137.86	119.19	523.02	137.86	137.87
3	☐	J20	267.28	584.37	J20	137.86	119.71	584.37	137.86	137.87
4	☐	J22	252.37	312.93	J22	137.86	119.28	312.93	137.86	138.17
5	☐	J24	269.37	314.26	J24	137.86	118.91	314.26	137.86	137.75

		ID	Static Demand (L/s)	Static Pressure (kPa)	Static Head (m)	Fire-Flow Demand (L/s)	Residual Pressure (kPa)	Available Flow at Hydrant (L/s)	Available Flow Pressure (kPa)
1	☐	J16	0.51	407.63	146.59	267.00	345.12	590.37	137.86
2	☐	J18	0.68	407.56	146.71	267.00	329.07	523.02	137.86
3	☐	J20	0.28	403.68	146.84	267.00	340.21	584.37	137.86
4	☐	J22	2.37	407.87	146.84	250.00	226.37	312.93	137.86
5	☐	J24	2.37	409.05	146.59	267.00	205.30	314.26	137.86

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J16	0.20	104.99	161.40	552.76
2	☐	J18	0.27	105.12	161.40	551.51
3	☐	J20	0.12	105.64	161.40	546.37
4	☐	J22	0.95	105.21	161.40	550.58
5	☐	J24	0.95	104.85	161.40	554.19

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J16	1.12	104.99	156.18	501.65
2	☐	J18	1.50	105.12	156.18	500.40
3	☐	J20	0.62	105.64	156.18	495.27
4	☐	J22	5.22	105.21	156.18	499.38
5	☐	J24	5.22	104.85	156.18	502.99

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P17	RES9002	J16	30.48	199.90	100.00	1.25	0.04	0.00	0.02	Open	0
2	☐	P19	J16	J18	30.48	199.90	100.00	0.10	0.00	0.00	0.00	Open	0
3	☐	P21	J18	J20	30.48	199.90	100.00	-0.17	0.01	0.00	0.00	Open	0
4	☐	P23	J20	J22	30.48	199.90	100.00	0.95	0.03	0.00	0.01	Open	0
5	☐	P25	J16	J24	30.48	199.90	100.00	0.95	0.03	0.00	0.01	Open	0
6	☐	P27	J20	RES9004	30.48	199.90	100.00	-1.24	0.04	0.00	0.02	Open	0

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P17	RES9002	J16	30.48	199.90	100.00	6.87	0.22	0.02	0.53	Open	0
2	☐	P19	J16	J18	30.48	199.90	100.00	0.53	0.02	0.00	0.00	Open	0
3	☐	P21	J18	J20	30.48	199.90	100.00	-0.97	0.03	0.00	0.01	Open	0
4	☐	P23	J20	J22	30.48	199.90	100.00	5.22	0.17	0.01	0.32	Open	0
5	☐	P25	J16	J24	30.48	199.90	100.00	5.22	0.17	0.01	0.32	Open	0
6	☐	P27	J20	RES9004	30.48	199.90	100.00	-6.81	0.22	0.02	0.52	Open	0


RES9006
RES9008
J26
J28
J30
P31
P33
P35

		ID	Total Demand (L/s)	Available Flow at Hydrant (L/s)	Critical Node ID	Critical Node Pressure (kPa)	Critical Node Head (m)	Design Flow (L/s)	Design Pressure (kPa)	Design Fire Node Pressure (kPa)
1	☐	J26	267.27	465.45	J26	137.86	118.34	465.45	137.86	137.71
2	☐	J28	267.27	446.22	J30	132.76	118.18	441.10	137.86	143.08
3	☐	J30	220.42	318.17	J30	137.86	118.70	318.17	137.86	137.85

		ID	Static Demand (L/s)	Static Pressure (kPa)	Static Head (m)	Fire-Flow Demand (L/s)	Residual Pressure (kPa)	Available Flow at Hydrant (L/s)	Available Flow Pressure (kPa)
1	☐	J26	0.57	397.79	144.86	266.70	298.33	465.45	137.86
2	☐	J28	0.57	377.99	142.68	266.70	285.02	446.22	137.86
3	☐	J30	3.72	372.89	142.68	216.70	253.32	318.17	137.86

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J26	0.23	104.27	161.40	559.84
2	☐	J28	0.23	104.11	161.40	561.39
3	☐	J30	1.49	104.63	161.40	556.31

		ID	Demand (L/s)	Elevation (m)	Head (m)	Pressure (kPa)
1	☐	J26	1.25	104.27	155.69	503.84
2	☐	J28	1.25	104.11	155.68	505.33
3	☐	J30	8.16	104.63	155.67	500.13

		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P29	RES9006	J26	53.14	199.90	100.00	0.89	0.03	0.00	0.01	Open	0
2	☐	P31	J26	J28	42.87	199.90	100.00	0.67	0.02	0.00	0.01	Open	0
3	☐	P33	J28	RES9008	58.42	199.90	100.00	-1.05	0.03	0.00	0.02	Open	0
4	☐	P35	J28	J30	17.33	199.90	100.00	1.49	0.05	0.00	0.03	Open	0

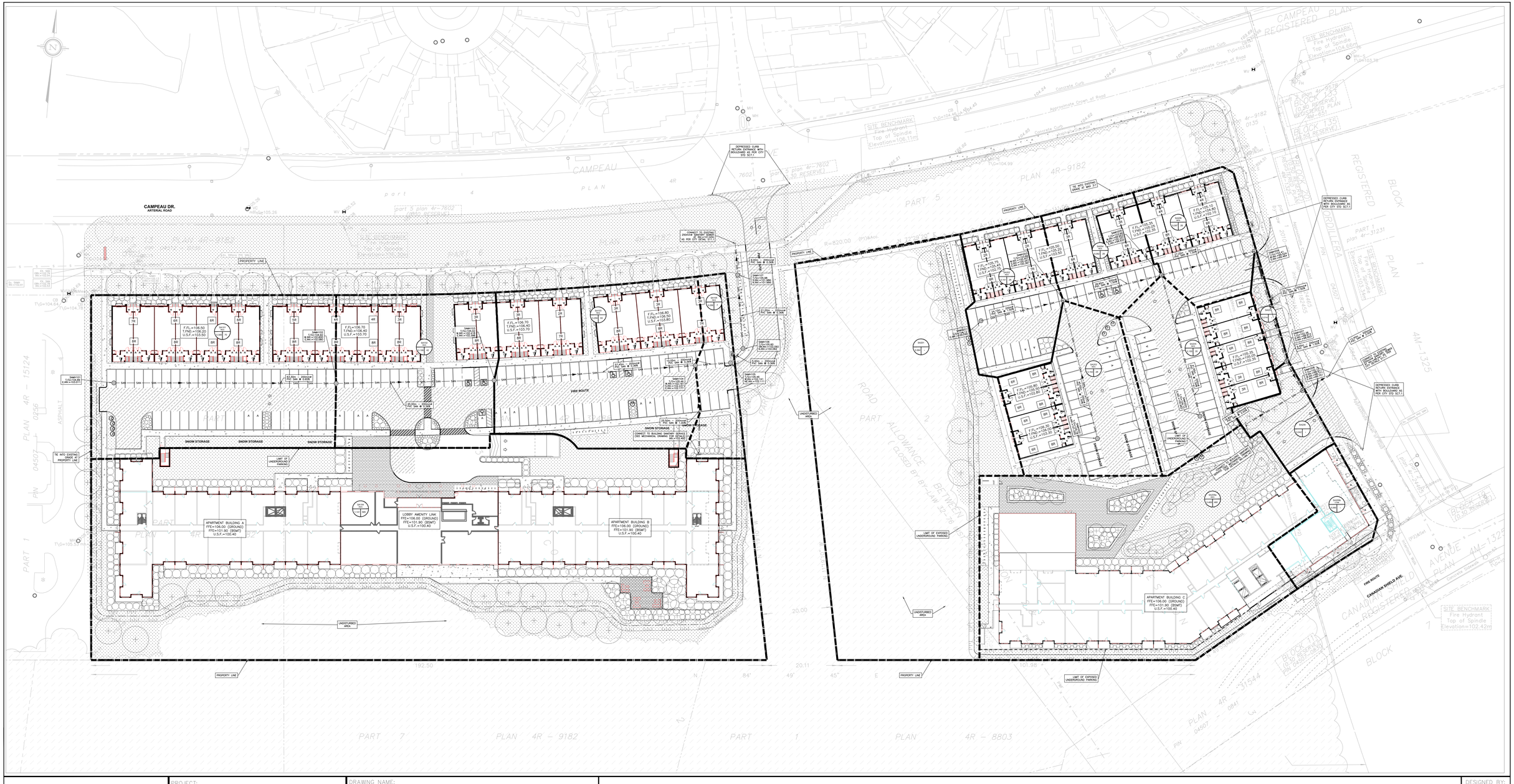
		ID	From Node	To Node	Length (m)	Diameter (mm)	Roughness	Flow (L/s)	Velocity (m/s)	Headloss (m)	HL/1000 (m/k-m)	Status	Flow Reversal Count
1	☐	P29	RES9006	J26	53.14	199.90	100.00	4.91	0.16	0.02	0.28	Open	0
2	☐	P31	J26	J28	42.87	199.90	100.00	3.66	0.12	0.01	0.17	Open	0
3	☐	P33	J28	RES9008	58.42	199.90	100.00	-5.75	0.18	0.02	0.38	Open	0
4	☐	P35	J28	J30	17.33	199.90	100.00	8.16	0.26	0.01	0.73	Open	0

APPENDIX

APPENDIX

C

- FIGURE 4 – OVERALL SANITARY DRAIANGE PLAN
- SANITARY SEWER DESIGN SHEET



wsp 300-2611 QUEENSVIEW DRIVE OTTAWA ONTARIO CANADA K2B 8K2 TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM	PROJECT: 6301 CAMPEAU DRIVE PROJECT NO.: 201-03048-00	DRAWING NAME: OVERALL SANITARY DRAIANGE PLAN DATE: 2021-08-20 REVIEWED BY: SCALE: 0 5m 10m 20m 30m SCALE: 1:300	DESIGNED BY: D.Y. DRAWN BY: D.Y. SHEET: Fig4

SANITARY SEWER DESIGN SHEET

6301 Campeau Drive
Residential Development
Project: 201-03048-00
Date: August, 2021

LOCATION				RESIDENTIAL AREA AND POPULATION												INDUSTRIAL				COMMERCIAL		INSTITUTIONAL		I+C+I	INFILTRATION			TOTAL	PIPE					
LOCATION	FROM M.H.	TO M.H.	SANITARY DRAINAGE AREA ID	INDV AREA (ha)	ACCU AREA (ha)	NUMBER OF UNITS						POPULATION		PEAK FACT.	PEAK FLOW (l/s)	GROSS AREA (ha)	DEVEL. AREA (ha)	ACCU. AREA (ha)	PEAK FACTOR	INDIV AREA (ha)	ACCU. AREA (ha)	INDIV AREA (ha)	ACCU. AREA (ha)	PEAK FLOW (l/s)	INDIV AREA (ha)	ACCU. AREA (ha)	INFILT. FLOW (l/s)	**TOTAL FLOW (l/s)**	LENGTH (m)	DIA. (mm)	SLOPE (%)	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)	AVAIL. CAP. (%)
						SINGLES	SEMIS	TOWNS	1-BED APT.	2-BED APT.	3-BED APT.	INDIV POP.	ACCU POP.																					
TO CAMPEAU DRIVE																																	
Parcel 1	SAMH101	SAMH102	SA101	0.309	0.309				20.00	20.00		70	70	3.63	0.82										0.309	0.31	0.10	**0.92**	63.30	200	0.65	26.44	0.84	**96.50%**
Parcel 1	SAMH102	SAMH103	SA102	0.199	0.508				12.00	12.00		42	112	3.58	1.30										0.199	0.51	0.17	**1.47**	45.00	200	0.36	19.68	0.63	**92.54%**
Parcel 1	SAMH103	SAMH104	SA103	0.259	0.767				18.00	18.00		63	175	3.53	2.00										0.259	0.77	0.25	**2.26**	57.45	200	0.36	19.68	0.63	**88.53%**
Parcel 1	BLDG	SAMH104	SA104	1.141	1.141				208.00	140.00		585	585	3.35	6.35										1.141	1.14	0.38	**6.73**	25.50	200	1.00	32.80	1.04	**79.48%**
Parcel 1	SAMH104	SAMH105	SA105	0.056	1.964				2.00	2.00		7	767	3.30	8.20										0.056	1.96	0.65	**8.85**	10.05	200	0.36	19.68	0.63	**55.05%**
Parcel 1	SAMH105	SAMH106			1.964							0	767	3.30	8.20										0.000	1.96	0.65	**8.85**	5.40	200	0.36	19.68	0.63	**55.05%**
Parcel 1	SAMH106	EXISTING			1.964								767	3.30	8.20										0.000	1.96	0.65	**8.85**	30.00	200	0.36	19.68	0.63	**55.05%**
OMNI Health Care	*EXISTING*	*EXISTING*			0.000									3.80	0.00					1.30	1.30			0.63	1.300	1.30	0.43	**1.06**	*251.00*	*250*	*0.37*	36.17	0.74	**97.07%**
Campeau Drive	*EXISTING*	*EXISTING*			1.964								767	3.30	8.20						1.30			0.63	0.000	3.26	1.08	**9.91**	*11.87*	*250*	*0.37*	36.17	0.74	**72.61%**
TO CORDILLERA STREET																																	
Parcel 2	SAMH201	SAMH203	SA201, SA202	0.665	0.665				8.00	8.00		28	28	3.69	0.33										0.665	0.67	0.22	**0.55**	24.10	200	1.50	40.17	1.28	**98.62%**
Parcel 2	SAMH202	SAMH203	SA203	0.153	0.153				8.00	8.00		28	28	3.69	0.33										0.153	0.15	0.05	**0.39**	40.55	200	1.50	40.17	1.28	**99.04%**
Parcel 2	SAMH203	SAMH205	SA204	0.082	0.900				8.00	8.00		28	56	3.64	0.66										0.082	0.90	0.30	**0.96**	28.90	200	1.50	40.17	1.28	**97.61%**
Parcel 2	SAMH204	SAMH205	SA205	0.155	0.155				10.00	10.00		35	35	3.67	0.42										0.155	0.16	0.05	**0.47**	41.65	200	1.50	40.17	1.28	**98.83%**
Parcel 2	SAMH205	SAMH206	SA206	0.097	1.152				8.00	8.00		28	119	3.58	1.38										0.097	1.15	0.38	**1.76**	27.25	200	1.50	40.17	1.28	**95.62%**
Parcel 2	SAMH206	SAMH207	SA207	0.014	1.166							0	119	3.58	1.38										0.014	1.17	0.38	**1.76**	32.75	200	1.50	40.17	1.28	**95.61%**
Parcel 2	SAMH207	SAMH208	SA208	0.042	1.208							0	119	3.58	1.38										0.042	1.21	0.40	**1.78**	9.45	200	1.50	40.17	1.28	**95.57%**
Parcel 2	BLDG	SAMH208	SA209a, SA209b	0.469	0.469				141.00	125.00		460	460	3.39	5.06					0.065	0.065			0.03	0.534	0.53	0.18	**5.27**	18.80	200	2.00	46.38	1.48	**88.65%**
Parcel 2	SAMH208	EXISTING			1.677							0	579	3.35	6.29						0.065			0.03	0.000	1.74	0.57	**6.90**	12.40	200	2.50	51.86	1.65	**86.70%**
Residential Building	*EXISTING*	*EXISTING*		1.725	1.725							207	207	3.51	2.36										1.725	1.73	0.57	**2.93**	*69.60*	*200*	*1.20*	35.93	1.14	**91.85%**
Cordillera Street	*EXISTING*	*EXISTING*			3.402								786	3.29	8.38						0.065				0.000	3.47	1.14	**9.53**	*11.87*	*200*	*0.33*	18.70	0.60	**49.04%**

DESIGN PARAMETERS

RESIDENTIAL AVG. DAILY FLOW =	280	l/cap/day
COMMERCIAL AVG. DAILY FLOW =	28,000	l/ha/day
	0.324	l/ha/s
INSTITUTIONAL AVG. DAILY FLOW =	28,000	l/ha/day
	0.324	l/ha/s
LIGHT INDUSTRIAL FLOW =	35,000	l/ha/day
	0.405	l/ha/s
HEAVY INDUSTRIAL FLOW =	55,000	l/ha/day
	0.637	l/ha/s

COMMERCIAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)
	1.0	(WHEN AREA < 20%)
INSTITUTIONAL PEAK FACTOR =	1.5	(WHEN AREA > 20%)
	1.0	(WHEN AREA < 20%)
RESIDENTIAL CORRECTION FACTOR, K =	0.80	
MANNING N =	0.013	
PEAK EXTRANEOUS FLOW, I (l/s/ha) =	0.33	

PEAK POPULATION FLOW, (l/s) =	P*q*M/86400
PEAK EXTRANEOUS FLOW, (l/s) =	I*Ac
RESIDENTIAL PEAKING FACTOR, M =	1+(14/(4+P^0.5))*K
Ac = CUMULATIVE AREA (ha)	
P = POPULATION (THOUSANDS)	
SEWER CAPACITY, Qcap (l/s) =	1/N S^(1/2) R^(2/3) Ac
(MANNING'S EQUATION)	

UNIT TYPE	PERSONS/UNIT
SINGLES	3.4
SEMI-DETACHED	2.7
TOWNHOMES	2.7
SINGLE APT. UNIT	1.4
2-BED APT. UNIT	2.1
3-BED APT. UNIT	3.1

DESIGNED:	**NO.**	**REVISION**	**DATE**
D.B.Y.	1.	City Submission No.1	2020-12-04
CHECKED:	2.	City Submission No.2	2021-05-28
D.B.Y./I.J.	3.	City Submission No.3	2021-08-20
PROJECT:			
6310 Campeau Drive			
Residential Development			
LOCATION:			
Ottawa, Ontario			
PAGE NO:	**FILE & DWG. REFERENCE:**		
1 of 1	Figure 4		

APPENDIX

APPENDIX

D

- STORM SEWER DESIGN SHEET
- POST-DEVELOPMENT STORM DRAINAGE AREA PLAN C06 AND C07
- GRADING PLAN C02 AND C03
- SERVICING PLAN C04 AND C05
- ROOF DRAINAGE PLAN C10
- STORMCEPTOR

STORM SEWER DESIGN SHEET

6301 Campeau Drive
Residential Development
Project: 201-03048-00
Date: August, 2021

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.35	C= 0.50	C= 0.60	C= 0.75	C= 0.90	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	BLDG FLOW (L/s)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	CONTROLLED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
POST-DEVELOPMENT																															
To Campeau Drive																															
Parcel 1	A-108a, A-108b, A-EXT1	RYCB106	STMH105	1.351					0.022	0.806	0.806	30.00	30.16	40.04	53.93	91.87		32.28				32.28		PVC DR-35	250.0	1.00	11.35	59.53	1.21	0.16	27.24	45.77%
Parcel 1	A-109a, A-109b, A-EXT2	DICB105	STMH101	0.196					0.002	0.114	0.114	20.00	20.29	52.03	70.25	119.95		5.93				5.93		PVC DR-35	250.0	1.00	20.90	59.53	1.21	0.29	53.60	90.04%
Parcel 1	A-107	BLDG TRENCH DRAIN	STMH111						0.015	0.038	0.038	10.00	10.02	76.81	104.19	178.56		2.88				2.88		PVC DR-35	200.0	1.00	1.55	32.83	1.04	0.02	29.95	91.22%
Parcel 1		STMH111	STMH101-STMH102							0.000	0.038	10.02	10.30	76.71	104.06	178.33		2.88				2.88		PVC DR-35	200.0	1.00	17.15	32.83	1.04	0.27	29.95	91.23%
Parcel 1		STMH101	STMH102							0.000	0.152	20.29	21.63	51.57	69.63	118.87		7.81				7.81		PVC DR-35	250.0	0.44	64.65	39.49	0.80	1.34	31.67	80.21%
Parcel 1		STMH102	STMH103							0.000	0.152	21.63	22.56	49.55	66.87	114.12		7.51				7.51		PVC DR-35	250.0	0.44	45.05	39.49	0.80	0.93	31.98	80.99%
Parcel 1		STMH103	STMH104							0.000	0.152	22.56	23.79	48.24	65.09	111.06		7.31				7.31		PVC DR-35	250.0	0.44	59.30	39.49	0.80	1.23	32.18	81.49%
Parcel 1	A-BLDG	BUILDING ROOF	STMH104						0.387	0.968	0.968	10.00	10.23	76.81	104.19	178.56		74.37			11.00	85.37	11.00	PVC DR-35	300.0	1.00	19.00	96.80	1.37	0.23	11.43	11.81%
Parcel 1		STMH104	STMH105							0.000	1.120	23.79	23.96	46.63	62.89	107.28		52.22				52.22		PVC DR-35	300.0	0.44	9.05	64.21	0.91	0.17	11.99	18.67%
Parcel 1		STMH105	CBMH106							0.000	1.120	23.96	24.22	46.43	62.61	106.80		51.99				51.99		PVC DR-35	300.0	0.44	14.05	64.21	0.91	0.26	12.22	19.03%
Parcel 1	A-110	CBMH106	STMH107	0.011					0.003	0.014	1.133	24.22	24.66	46.11	62.18	106.05		52.26				52.26		PVC DR-35	300.0	0.44	24.10	64.21	0.91	0.44	11.95	18.61%
To Campeau Drive																															
Parcel 1	A-101, A-EXT3	CB101	CBMH108	0.129					0.208	0.592	0.592	10.00	10.72	76.81	104.19	178.56		45.48				45.48		PVC DR-35	300.0	0.65	47.40	78.04	1.10	0.72	32.56	41.72%
Parcel 1	A-102	CB102	CBMH108	0.008					0.185	0.467	0.467	10.72	10.86	74.16	100.56	172.27		34.66				34.66		PVC DR-35	250.0	1.00	10.45	59.53	1.21	0.14	24.87	41.78%
Parcel 1	A105-A-107	BUILDING DECK	CBMH108	0.116					0.023	0.122	0.122	10.00	10.01	76.81	104.19	178.56		9.37				9.37		PVC DR-35	250.0	1.00	0.75	59.53	1.21	0.01	50.15	84.25%
Parcel 1		CBMH108	CISTERN							0.000	1.182	10.86	10.89	73.65	99.86	171.06		87.02				87.02		CONC 100-D	450.0	0.20	1.55	127.63	0.80	0.03	40.61	31.82%
Parcel 1	A-103	CB103	CISTERN	0.023					0.190	0.488	0.488	10.00	10.13	76.81	104.19	178.56		37.49				37.49		PVC DR-35	250.0	1.00	9.50	59.53	1.21	0.13	22.03	37.01%
Parcel 1	A-104	CB104	CISTERN	0.020					0.164	0.421	0.421	10.00	10.13	76.81	104.19	178.56		32.37				32.37		PVC DR-35	250.0	1.00	9.55	59.53	1.21	0.13	27.16	45.62%
Parcel 1		CISTERN	CBMH109 (ICD)							0.000	2.091	10.89	11.30	73.54	99.70	170.79		153.78				153.78		CONC 100-D	525.0	0.20	22.00	192.52	0.89	0.41	38.74	20.12%
Parcel 1		STMH109 (ICD)	STMH112							0.000	2.091	11.30	11.81	72.13	97.77	167.45		150.84			70.40	150.84	70.40	CONC 100-D	525.0	0.20	27.05	192.52	0.89	0.51	122.12	63.43%
Parcel 1		STMH112	STMH110							0.000	2.091	11.81	12.04	70.48	95.50	163.53		147.39			70.40	147.39	70.40	CONC 100-D	525.0	0.20	12.30	192.52	0.89	0.23	122.12	63.43%
Campeau Drive		Site	*EXISTING*								3.225	24.66	24.75	45.57	61.45	104.79		146.94				146.94		CONC	*750.0*	*0.12*	*4.77*	386.04	0.87	0.09	386.04	61.94%

Definition:
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 = 1174.184/(TC+6.014)^0.816 — 5 Year
i = 1735.688/(TC+6.014)^0.820 — 100 Year

Notes:
1. Mannings coefficient (n) = 0.013

Time-of-Concentration in the Swale
FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^.33]
Where: Longest Watercourse Length, L (m). S (%)
Runoff Coef.C = 0.25 Impervious

No.	L (m)	S %	Tc (min)
1	225	2.00	30.00
2	48	2.00	20.00

Designed: D.B.Y.
Checked: D.B.Y./I.J.
Dwg. Reference: C06

No.	Revision	Date
1.	City Submission No. 1	2020-12-04
2.	City Submission No. 2	2021-05-28
3.	City Submission No. 3	2021-08-20

File Reference: 201-03048-00
Date: 2021-08-20
Sheet No: 1 of 2

STORM SEWER DESIGN SHEET

6301 Campeau Drive
Residential Development
Project: 201-03048-00
Date: August, 2021

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.35	C= 0.50	C= 0.60	C= 0.75	C= 0.90	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	BLDG FLOW (L/s)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	CONTROLLED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
To Future Canadian Shield Ave																														
Parcel 2	B-EXT1, B-101	DICB201	FUTURE CANADIAN SHIELD AVE	0.564					0.036	0.404	0.404	30.00	30.26	40.04	53.93	91.87		16.16				16.16		PVC DR-35	200.0	1.00	16.00	32.83	1.04	0.26	16.67	50.77%
To Cordilera Street																														
Parcel 2	B-110	BLDG DECK DRAINS	STMH215	0.092					0.035	0.139	0.139	10.00	10.20	76.81	104.19	178.56		10.65				10.65		PVC DR-35	250.0	0.50	10.05	42.09	0.86	0.20	31.44	74.69%
Parcel 2		STMH215	CBMH217							0.000	0.139	10.20	10.69	76.06	103.17	176.79		10.55				10.55		PVC DR-35	250.0	0.50	25.30	42.09	0.86	0.49	31.54	74.93%
Parcel 2	B-103	CBMH217	STMH218	0.022					0.156	0.403	0.541	10.69	10.93	74.26	100.70	172.51		40.20				40.20		PVC DR-35	300.0	0.45	13.50	64.93	0.92	0.25	24.74	38.10%
Parcel 2	B-102	CBMH209	STMH218	0.002					0.100	0.251	0.251	10.00	10.21	76.81	104.19	178.56		19.30				19.30		PVC DR-35	250.0	1.00	15.40	59.53	1.21	0.21	40.23	67.57%
Parcel 2		STMH218	CBMH208							0.000	0.793	10.93	11.14	73.40	99.51	170.46		58.17				58.17		PVC DR-35	375.0	0.30	10.55	96.13	0.87	0.20	37.95	39.48%
Parcel 2	B-105	CB202	CBMH208-CBMH207	0.039					0.119	0.319	0.319	10.00	10.21	76.81	104.19	178.56		24.53				24.53		PVC DR-35	200.0	1.00	13.05	32.83	1.04	0.21	8.30	25.28%
Parcel 2	B-104	CBMH208	CBMH207	0.004					0.045	0.115	1.227	11.14	11.69	72.70	98.56	168.81		89.20				89.20		CONC 100-D	450.0	0.25	29.75	142.70	0.90	0.55	53.50	37.49%
Parcel 2	B-106	CBMH207	STMH206	0.002					0.085	0.214	1.441	11.69	11.88	70.88	96.05	164.47		102.11				102.11		CONC 100-D	450.0	0.25	10.45	142.70	0.90	0.19	40.59	28.44%
Parcel 2	B-107, B-108	RYCB205	CB204	0.022					0.014	0.047	0.047	10.00	10.23	76.81	104.19	178.56		3.63				3.63		PVC DR-35	250.0	1.00	16.75	59.53	1.21	0.23	55.90	93.90%
Parcel 2		CB0204	STMH206							0.000	0.047	10.23	10.34	75.93	102.99	176.48		3.59				3.59		PVC DR-35	250.0	1.00	8.30	59.53	1.21	0.11	55.94	93.97%
Parcel 2		STMH206	STMH205							0.000	1.488	11.88	12.46	70.26	95.20	163.00		104.54				104.54		CONC 100-D	450.0	0.25	31.30	142.70	0.90	0.58	38.16	26.74%
Parcel 2		STMH205	STMH204							0.000	1.488	12.46	12.71	68.48	92.76	158.78		101.89				101.89		CONC 100-D	450.0	0.25	13.40	142.70	0.90	0.25	40.81	28.60%
Parcel 2		STMH204	CISTERN							0.000	1.488	12.71	12.76	67.75	91.75	157.05		100.80				100.80		CONC 100-D	450.0	0.25	2.25	142.70	0.90	0.04	41.90	29.36%
Parcel 2	B-109	CB203	CISTERN	0.018					0.031	0.088	0.088	10.00	10.02	76.81	104.19	178.56		6.73				6.73		PVC DR-35	200.0	1.00	0.95	32.83	1.04	0.02	32.83	79.51%
Parcel 2		CISTERN	CBMH203							0.000	1.575	12.76	12.84	67.63	91.59	156.76		106.54				106.54		CONC 100-D	450.0	0.25	4.45	142.70	0.90	0.08	36.15	25.34%
Parcel 2		CBMH203	STMH202							0.000	1.575	12.84	12.91	67.39	91.26	156.20		106.17			56.16	106.17	56.16	PVC DR-35	300.0	0.60	4.80	74.98	1.06	0.08	18.82	25.10%
Parcel 2	B-BLDG	BLDG ROOF	STMH202						0.276	0.691	0.691	10.00	10.24	76.81	104.19	178.56		53.04			7.00	53.04	7.00	PVC DR-35	250.0	1.00	17.35	59.53	1.21	0.24	52.53	88.24%
Parcel 2		STMH216	STMH214							0.000	0.000	10.00	10.51	76.81	104.19	178.56		0.00				0.00		PVC DR-35	250.0	0.50	26.00	42.09	0.86	0.51	42.09	100.00%
Parcel 2		STMH219	STMH214							0.000	0.000	10.00	10.73	76.81	104.19	178.56		0.00				0.00		PVC DR-35	250.0	0.50	37.50	42.09	0.86	0.73	42.09	100.00%
Parcel 2		STMH214	STMH212							0.000	0.000	10.73	11.26	74.11	100.49	172.15		0.00				0.00		PVC DR-35	250.0	0.45	25.95	39.93	0.81	0.53	39.93	100.00%
Parcel 2		STMH213	STMH212							0.000	0.000	10.00	10.75	76.81	104.19	178.56		0.00				0.00		PVC DR-35	250.0	0.50	38.70	42.09	0.86	0.75	42.09	100.00%
Parcel 2		STMH212	STMH211							0.000	0.000	11.26	11.82	72.28	97.97	167.79		0.00				0.00		PVC DR-35	250.0	0.45	27.35	39.93	0.81	0.56	39.93	100.00%
Parcel 2		STMH211	STMH210							0.000	0.000	11.82	12.05	70.45	95.46	163.45		0.00				0.00		PVC DR-35	250.0	3.00	28.50	103.10	2.10	0.23	103.10	100.00%
Parcel 2		STMH210	STMH202							0.000	0.000	12.05	12.15	69.74	94.49	161.77		0.00				0.00		PVC DR-35	250.0	3.00	12.30	103.10	2.10	0.10	103.10	100.00%
Parcel 2		STMH202	STMH201							0.000	2.266	12.91	13.09	67.17	90.96	155.69		152.21				152.21	63.16	PVC DR-35	300.0	0.70	12.05	80.99	1.14	0.18	17.83	22.01%

Definition:
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 = 1174.184/(TC+6.014)^0.816 — 5 Year
i = 1735.688/(TC+6.014)^0.820 — 100 Year

Notes:
1. Mannings coefficient (n) = 0.013

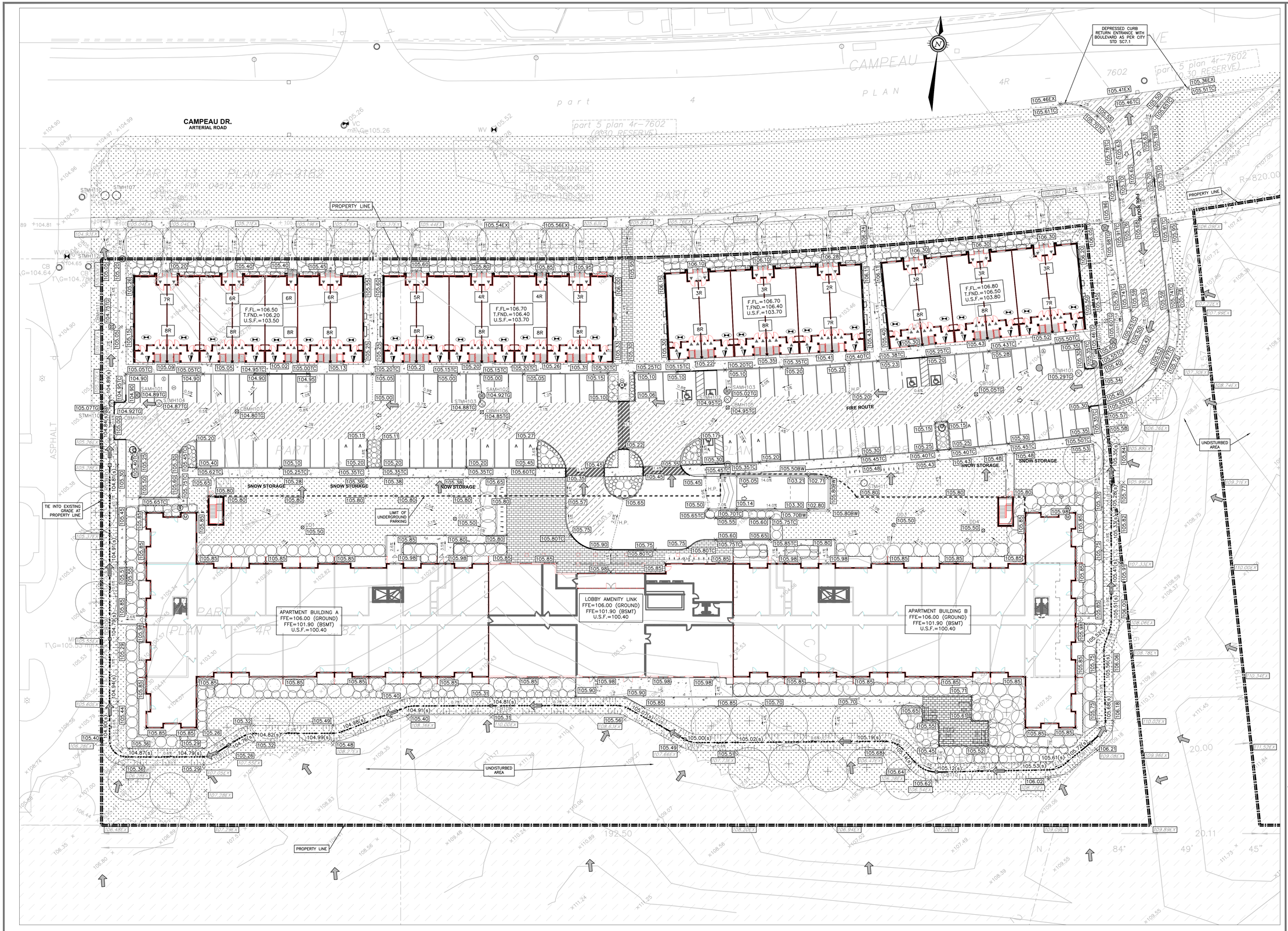
Time-of-Concentration in the Swale
FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^.33]
Where: Longest Watercourse Length, L (m). S (%)
Runoff Coef.C = 0.25 Impervious

No.	L (m)	S %	Tc (min)
3	180	1.50	30.00

Designed: D.B.Y.
Checked: D.B.Y./I.J.
Dwg. Reference: C07

No.	Revision	Date
1.	City Submission No. 1	2020-12-04
2.	City Submission No. 2	2021-05-28
3.	City Submission No. 3	2021-08-20

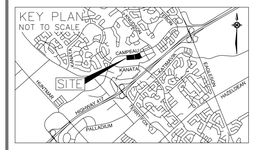
File Reference: 201-03048-00
Date: 2021-08-20
Sheet No: 2 of 2



GENERAL NOTES:

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.



KEY PLAN
(N.T.S.)

No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

wsp
2611 Queensview Dr. Ottawa, ON Canada K2B 8K2
t: 613.829.2800 f: 613.829.8299 www.wspgroup.com

CLIENT

BHG BAYVIEW HOSPITALITY GROUP

SAI SAPLUS ARCHITECTS | API DEVELOPMENT CONSULTANTS INC. | FABIANI

ANNIS,O'SULLIVAN, VOLLEBEKK
Ontario Land Surveyors
14 CONCOURSE GATE, SUITE 500, NEPEAN, ONTARIO, K2E 7S6
TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

GRADING PLAN
PARCEL 1

PROJECT NO.	DRAWING NO.
201-03048-00	C02

D07-12-20-0171

#18353

FILENAME: V:\10-13 MLD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
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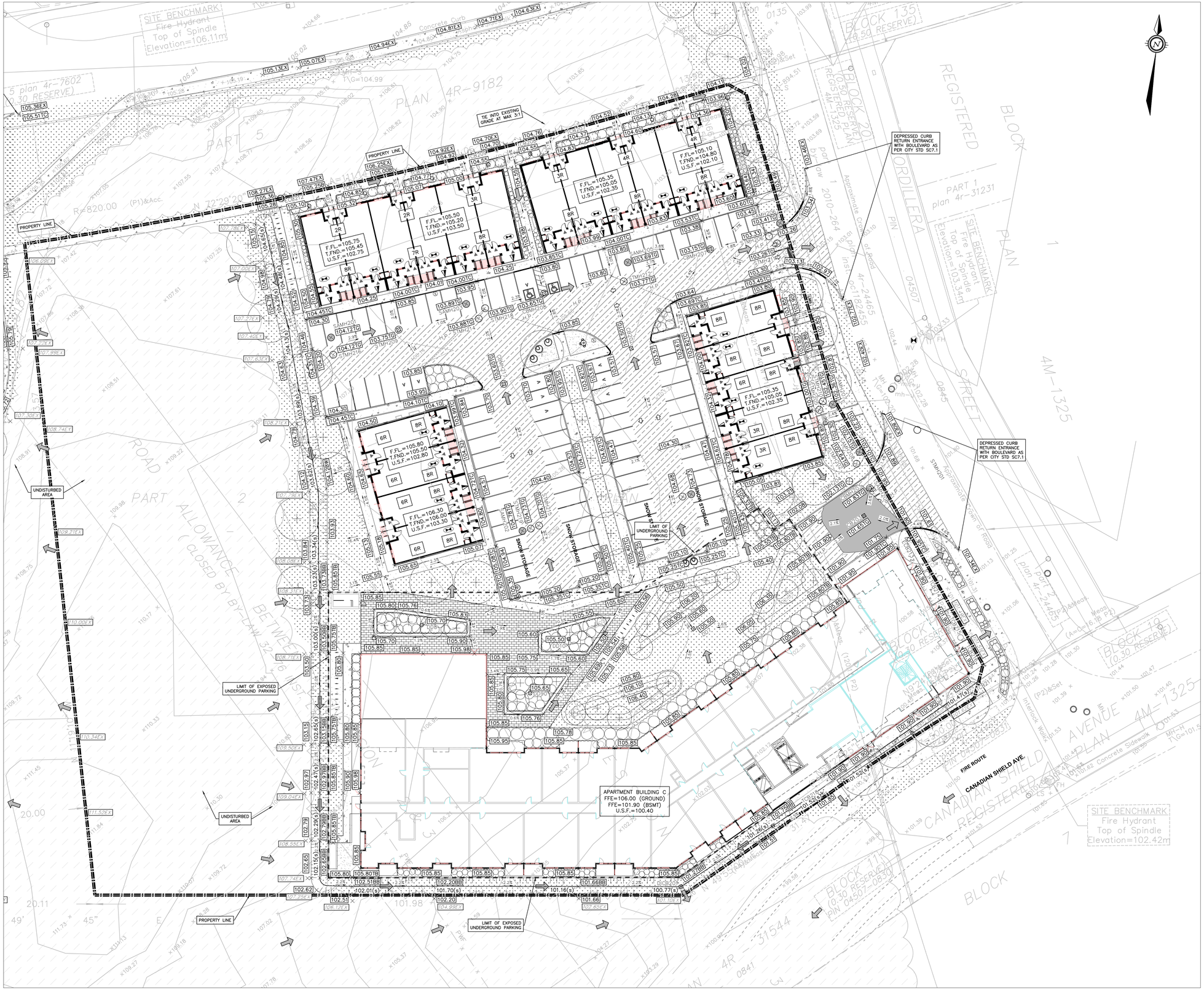

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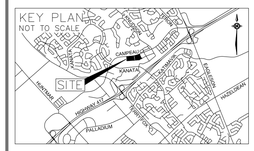

KEY PLAN
(N.T.S.)

No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

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CLIENT

BHG BAYVIEW HOSPITALITY GROUP

SAI SAPLUS ARCHITECTS | API CONSULTANTS INC. | FABIANI ARCHITECTS

ANNIS,O'SULLIVAN, VOLLEBEKK
Ontario Land Surveyors
14 CONCOURSE GATE, SUITE 500, NEPEAN, ONTARIO, K2E 7S6
TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

GRADING PLAN
PARCEL 2

PROJECT NO. 201-03048-00

DRAWING NO. C03

D07-12-20-0171

#18353

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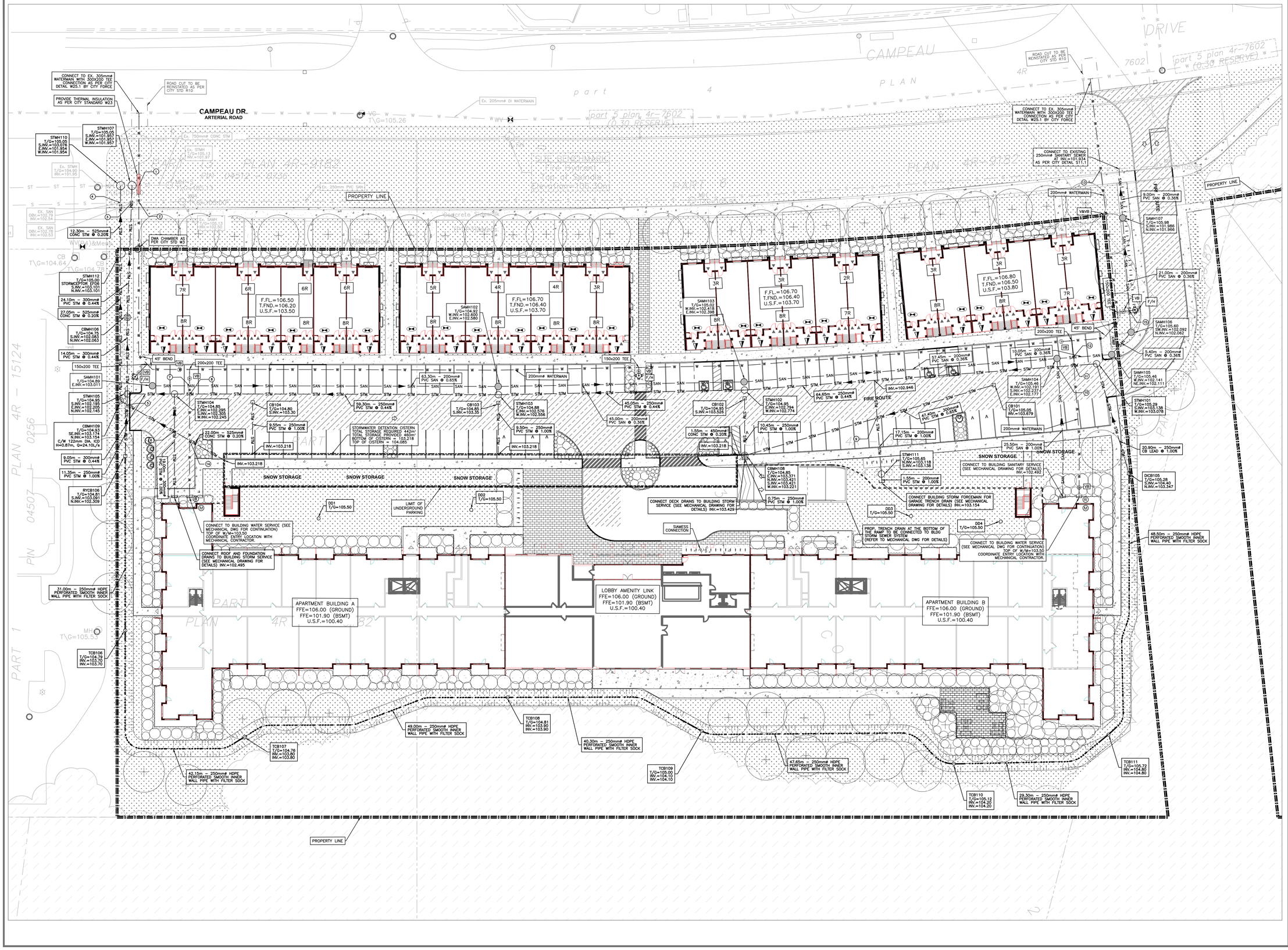

GENERAL NOTES:

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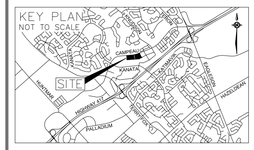

KEY PLAN
(N.T.S.)

No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
0 5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

wsp
2611 Queensview Dr. Ottawa, ON Canada K2B 8K2
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BHG BAYVIEW HOSPITALITY GROUP

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Ontario Land Surveyors
14 CONCOURSE GATE, SUITE 500, NEPEAN, ONTARIO, K2E 7S6
TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

SERVICING PLAN
PARCEL 1

PROJECT NO.	DRAWING NO.
201-03048-00	C04

D07-12-20-0171

#18353

FILENAME: V:\10-13 MLD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
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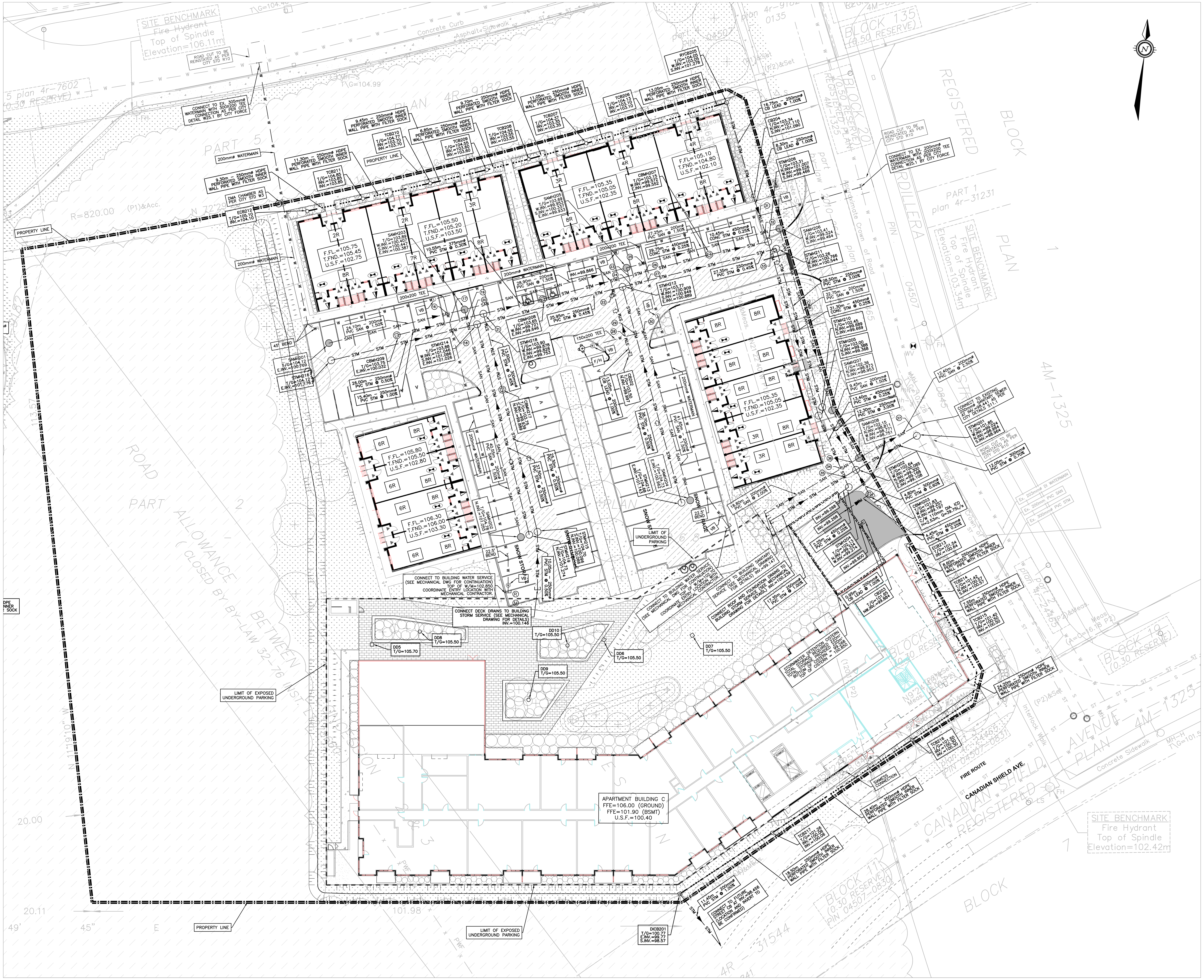

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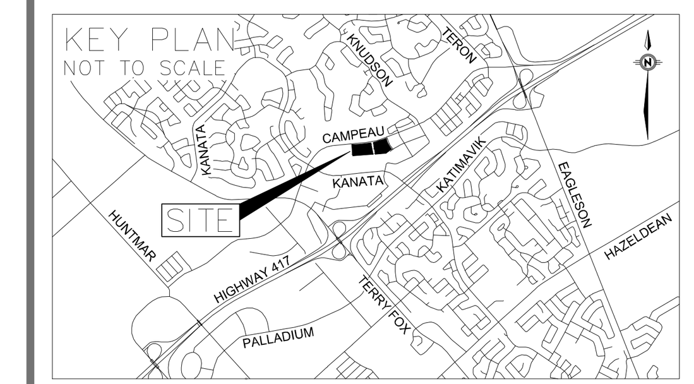

KEY PLAN
(N.T.S)

No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

wsp
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API DEVELOPMENT CONSULTANTS INC. ARCHITECTURE & PLANNING INITIATIVES
FABIANI ARCHITECT LTD

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Ontario Land Surveyors
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TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT
6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE
SERVICING PLAN
PARCEL 2

PROJECT NO.
201-03048-00

DRAWING NO.
C05

D07-12-20-0171

#18353

FILENAME: V:\10-13 MI-LD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
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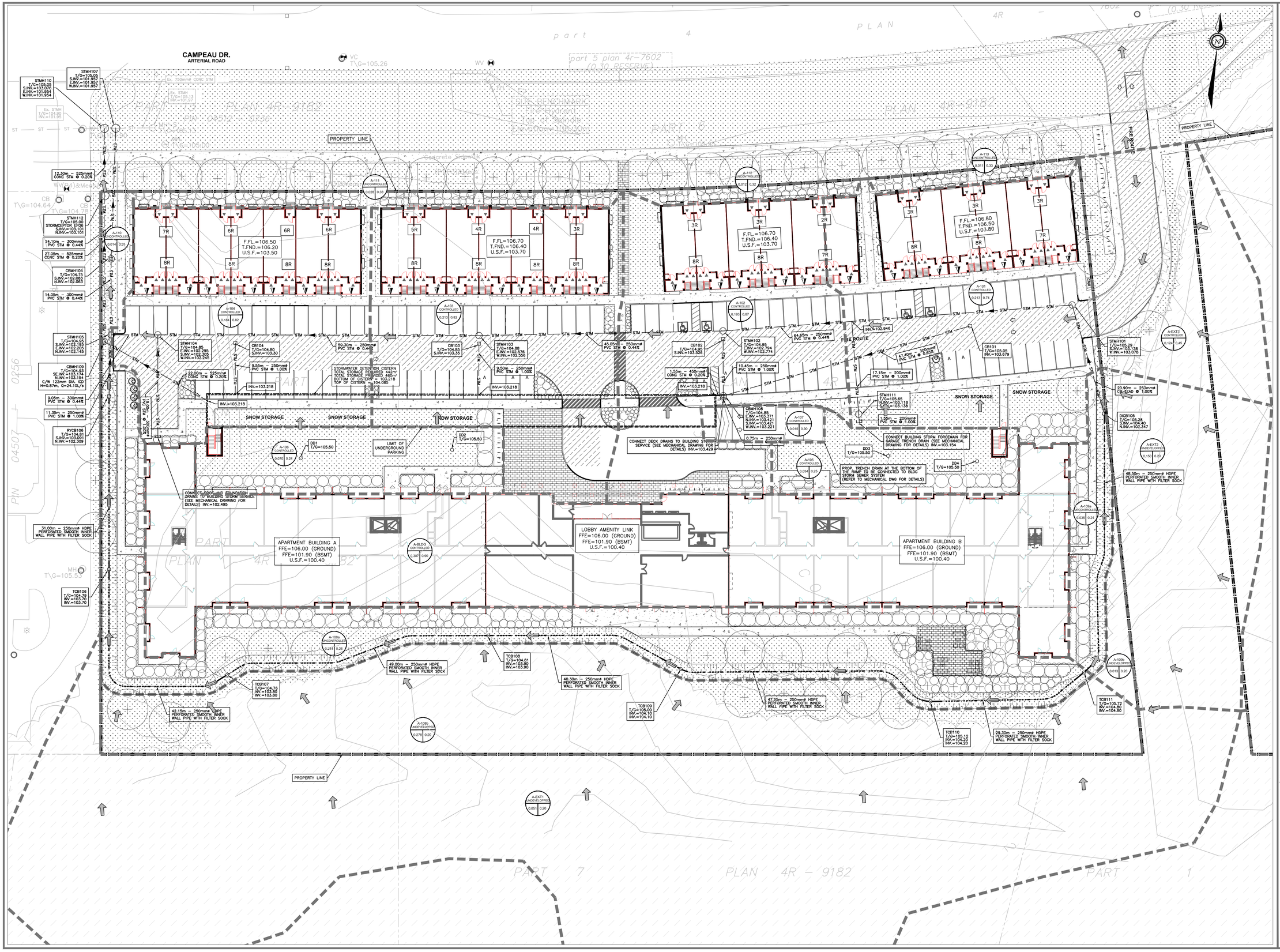

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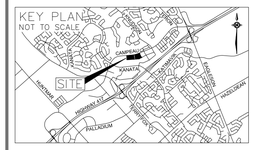
KEY PLAN
NOT TO SCALE



KEY PLAN
(N.T.S)

No.	REVISIONS	BY	DATE
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02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

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TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

STORM DRAIANGE AREA PLAN
PARCEL 1

PROJECT NO. 201-03048-00

DRAWING NO. C06

D07-12-20-0171

#18353

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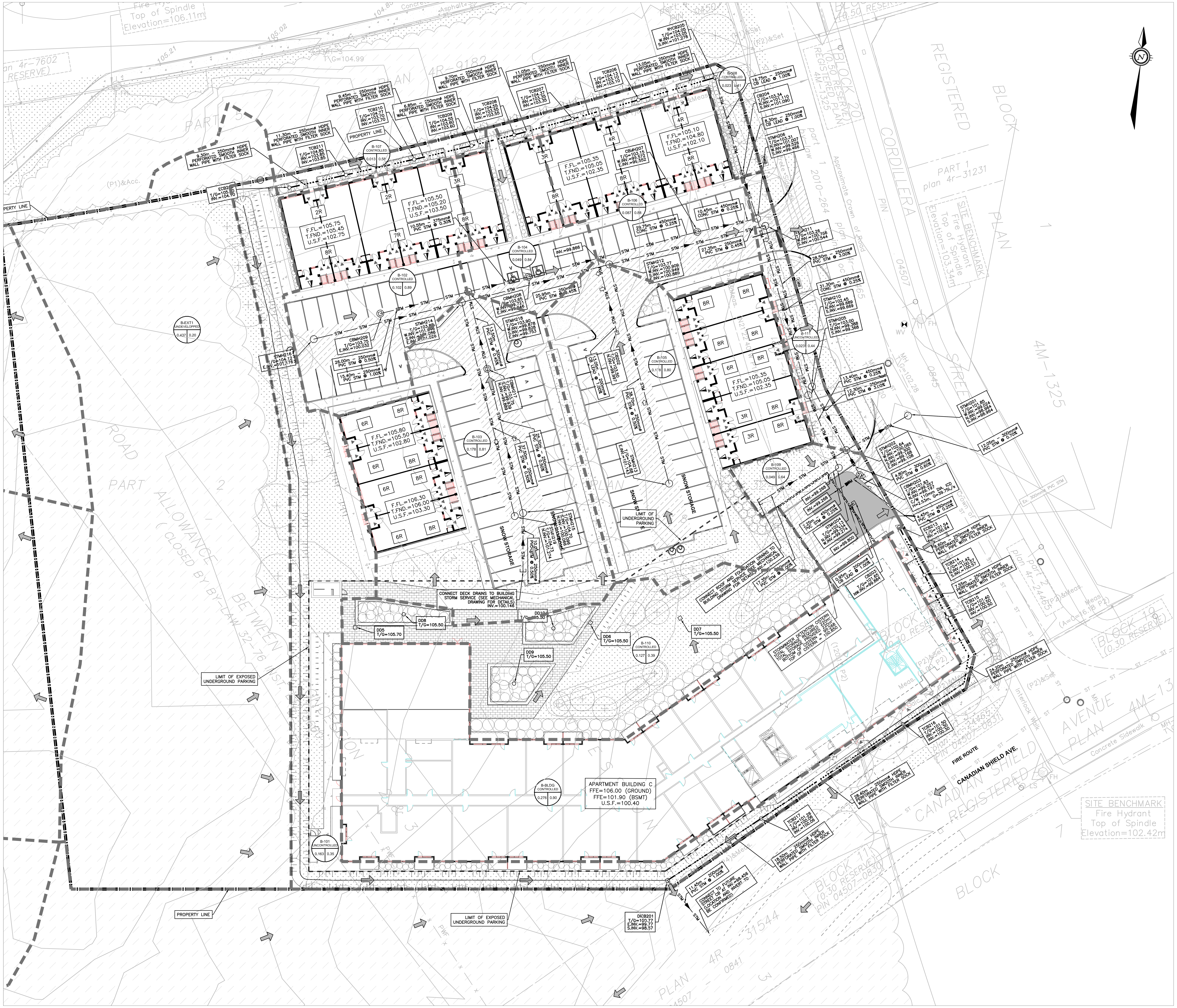

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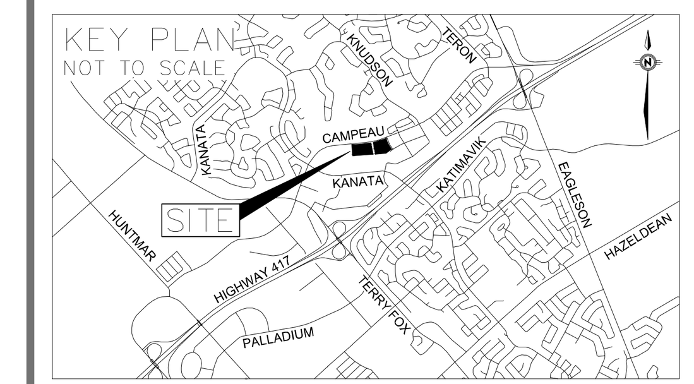

KEY PLAN
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No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

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REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

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TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

STORM DRAIANGE AREA PLAN
PARCEL 2

PROJECT NO.
201-03048-00

DRAWING NO.
C07

D07-12-20-0171

#18353

FILENAME: V:\10-13 MI-LD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
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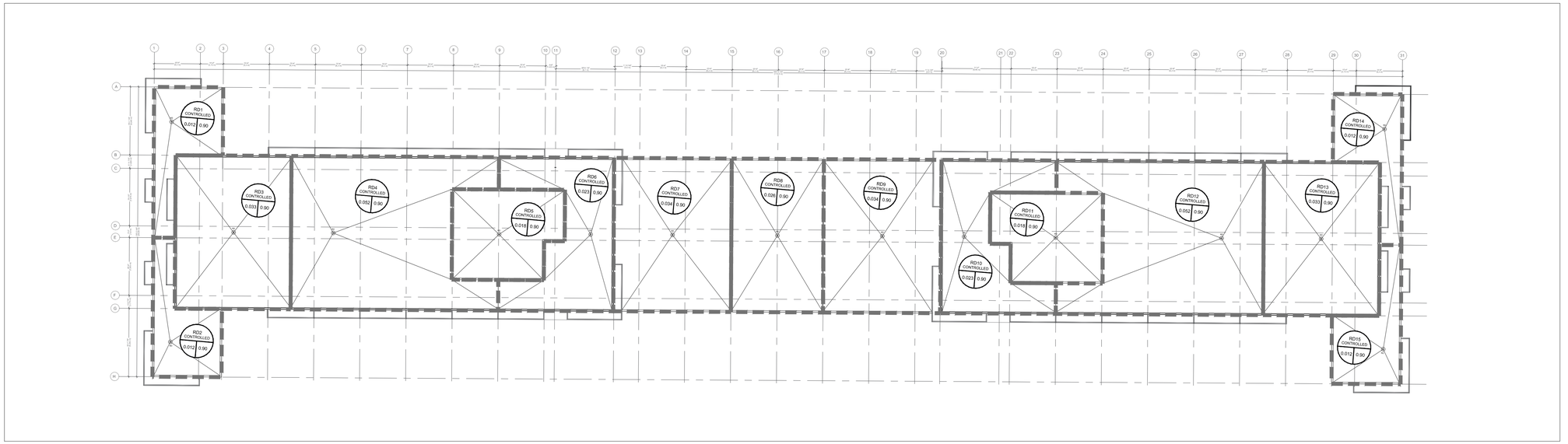
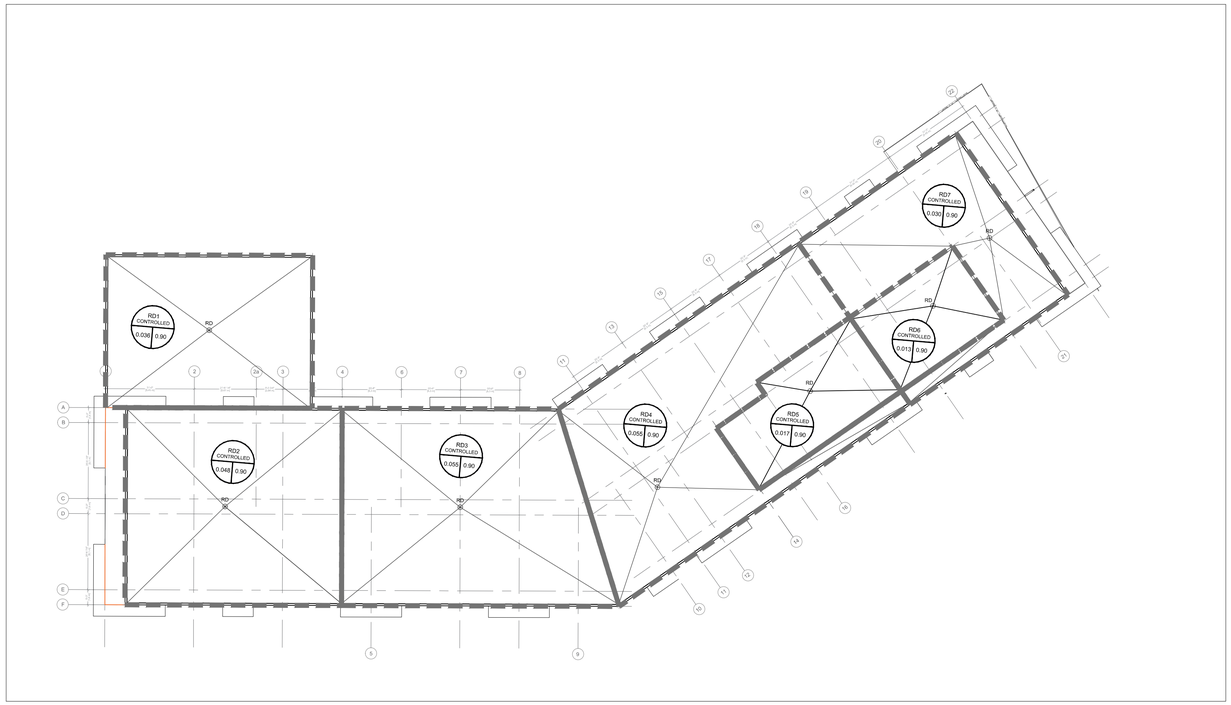




WATTS | **Adjustable Accutrol Weir** Tag: _____ | **Adjustable Flow Control for Roof Drains**

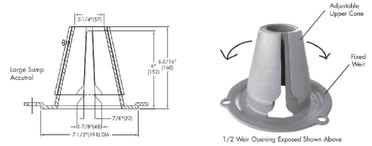
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below:
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.



1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____
Job Location _____ Contractor's P.O. No. _____
Engineer _____ Representative _____

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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ES-WD-RD-ACCUTROLACJ-CAN 1015

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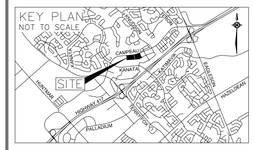

KEY PLAN
(N.T.S.)

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01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

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REGISTERED PROFESSIONAL ENGINEER
I. M. JAFFERJEE
100164153
2021-08-20
PROVINCE OF ONTARIO

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wsp
2611 Queensview Dr. Ottawa, ON Canada K2B 8K2
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TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

ROOF DRAINAGE PLAN

PROJECT NO. 201-03048-00

DRAWING NO. C10

D07-12-20-0171

#18353

FILENAME: V:\15-13 MLD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
PLOTDATE: Aug 20, 2021 - 4:03pm, carvy69741

Stormceptor®

FORTERRA

Stormceptor Net Annual Sediment Load Reduction Sizing Tool

Project Name: 6301 Campeau Drive - Parcel 1 **Site Name:** 6301 Campeau Drive - Parcel 1 **Location:** Ottawa / ON

Site has been updated successfully.

Download Stormceptor Specifications & Drawings

Download Stormceptor EFO Sizing Report

Design Summary

Net Annual Sediment (TSS) Load Reduction Sizing Summary	
Stormceptor Model	**TSS Removal Provided (%)**
EFO4	70
EFO6	83
EFO8	90
EFO10	92
EFO12	93

Recommended Stormceptor EFO Model: EFO6

Estimated Net Annual Sediment (TSS) Load Reduction (%): 83

Water Quality Runoff Volume Capture (%): > 90

Upstream Flow Controlled Results								
Rainfall Intensity (mm/hr)	Percent Rainfall Volume	Cumulative Rainfall Volume	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate ($L/min/m^2$)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1	51.3%	51.3%	3.09	185.5	70.5	90	46.2	46.2
2	8.7%	60.0%	6.18	370.9	141.0	83	7.2	53.3
3	40.0%	100.0%	9.27	556.4	211.6	75	30.0	83.4
4	0.0%	100.0%	12.00	720.0	273.8	70	0.0	83.4
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50	0.0%	100.0%	12.00	720.0	273.8	70	0.0	83.4

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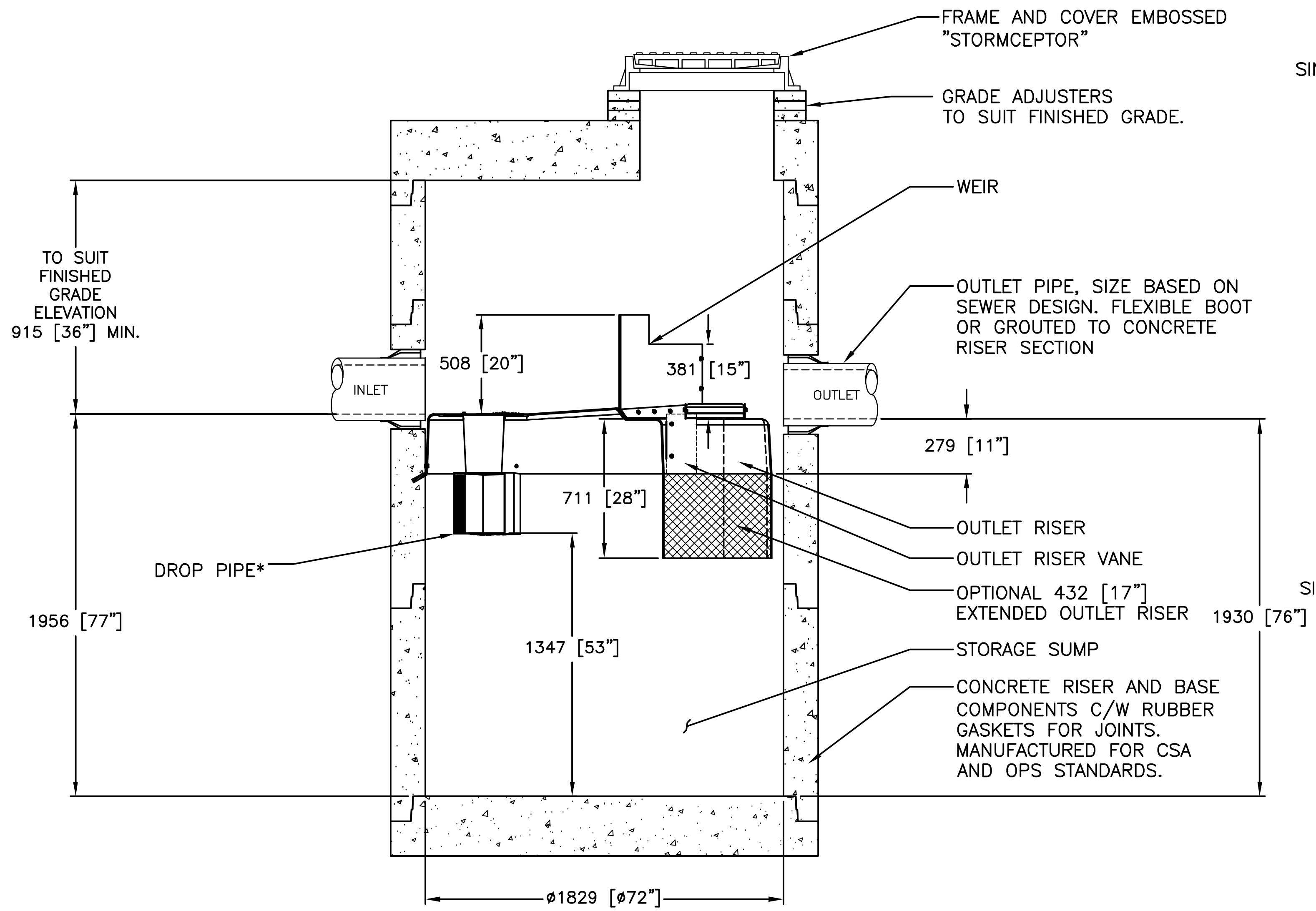
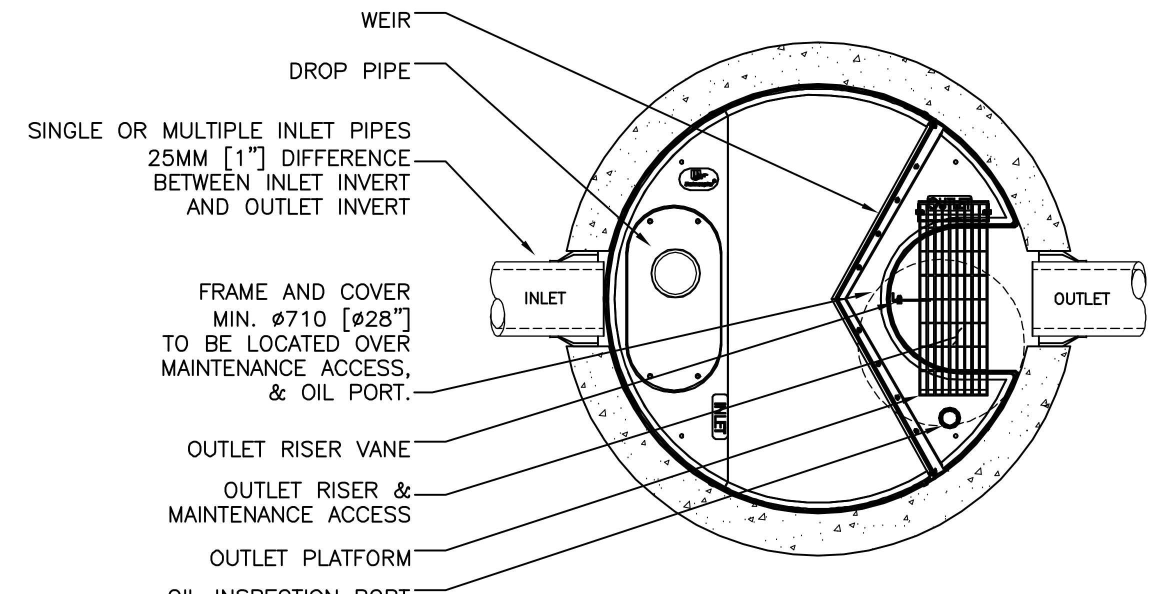
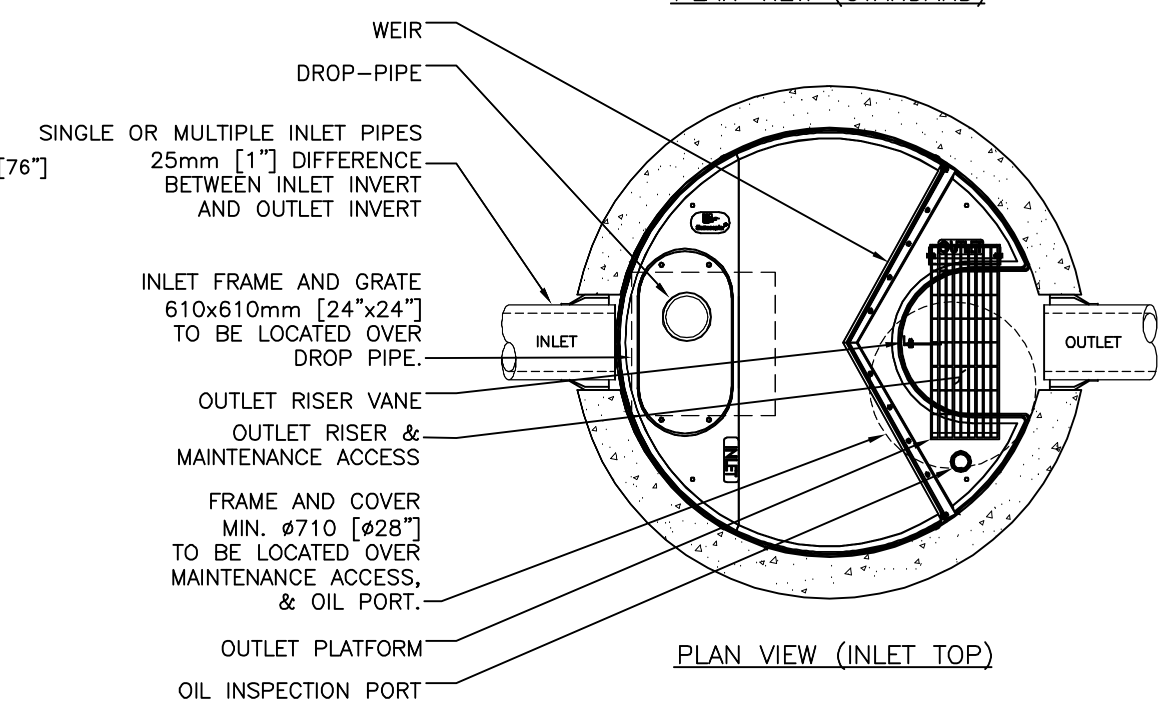
DRAWING NOT TO BE USED FOR CONSTRUCTION



SECTION VIEW



PLAN VIEW (STANDARD)



PLAN VIEW (INLET TOP)

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF6 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EFO6 (OIL CAPTURE CONFIGURATION).

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL STORMCEPTOR REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE (IF REQUIRED).

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 STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

STANDARD DETAIL
NOT FOR CONSTRUCTION

SITE SPECIFIC DATA REQUIREMENTS

STORMCEPTOR MODEL	EFO6				
STRUCTURE ID					*
HYDROCARBON STORAGE REQ'D (L)					*
WATER QUALITY FLOW RATE (L/s)					*
PEAK FLOW RATE (L/s)					*
RETURN PERIOD OF PEAK FLOW (yrs)					*
DRAINAGE AREA (HA)					*
DRAINAGE AREA IMPERVIOUSNESS (%)					*
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

MARK	DATE	REVISION DESCRIPTION	BY
####	####	####	####
####	####	####	####
####	####	####	####
1	6/8/18	OUTLET PLATFORM	JSK
0	05/26/17	INITIAL RELEASE	JSK

Stormceptor® EF

SCALE = NTS

imbrium®
407 FAIRVIEW DRIVE, WHITBY, ON L1N 3A9
TF 800-565-4801 CA 416-960-9900 INTL +1-416-960-9900

DATE: 10/13/2017	
DESIGNED: JSK	DRAWN: JSK
CHECKED: BSF	APPROVED: SP
PROJECT No.: EFO6	SEQUENCE No.: *
SHEET: 1 OF 1	

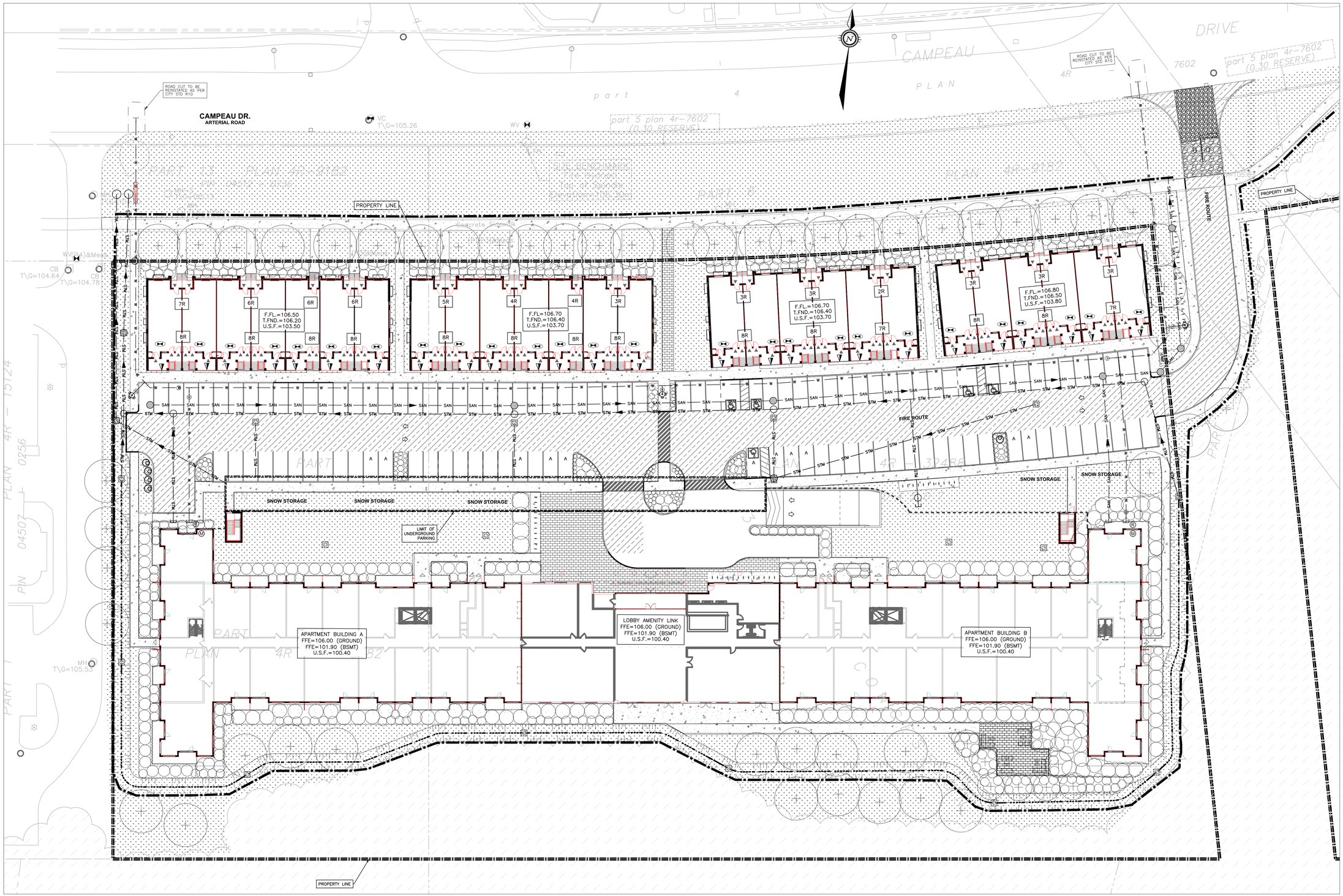
I:\IMBRIUM\PRODUCTS\STORMCEPTOR\STORMCEPTOR EF\40 DRAWINGS & DETAILS\STANDARD DETAILS\EFO STANDARD DETAILS\EFO6-DETAIL.DWG 4/12/2019 11:05 AM

APPENDIX

APPENDIX

E

- EROSION AND SEDIMENTATION CONTROL PLAN C08 AND C09



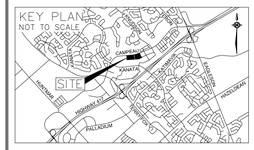
LEGEND

- LIGHT DUTY SILT FENCE AS PER OPSD-219.110
- SNOW FENCE
- ROCK CHECK DAM AS PER OPSD-219.211
- STRAW BALE CHECK DAM AS PER OPSD-219.180
- FILTER CLOTH PLACED UNDER CB AND CBMH COVER

GENERAL NOTES:

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.



KEY PLAN
(N.T.S.)

No.	REVISIONS	BY	DATE
03	REVISED AS PER CITY COMMENTS	D.Y.	2021-08-20
02	REVISED AS PER CITY COMMENTS	D.Y.	2021-05-28
01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2021-08-20
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

wsp
2611 Queensview Dr. Ottawa, ON Canada K2B 8K2
t: 613.829.2800 f: 613.829.8299 www.wspgroup.com

CLIENT

BHG BAYVIEW HOSPITALITY GROUP

SAI SAPLUS ARCHITECTS | API DEVELOPMENT CONSULTANTS Inc. | FABIANI

ANNIS,O'SULLIVAN, VOLLEBEKK
Ontario Land Surveyors
14 CONCOURSE GATE, SUITE 500, NEPEAN, ONTARIO, K2E 7S6
TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

EROSION AND SEDIMENTATION CONTROL PLAN
PARCEL 1

PROJECT NO.
201-03048-00

DRAWING NO.
C08

D07-12-20-0171

#18353

FILENAME: V:\10-13 MLD - 2020 Projects\201-03048-00 - 6301 Campeau Drive\3. Drawings\Working drawings\Working drawings\201-03048-00_C.dwg
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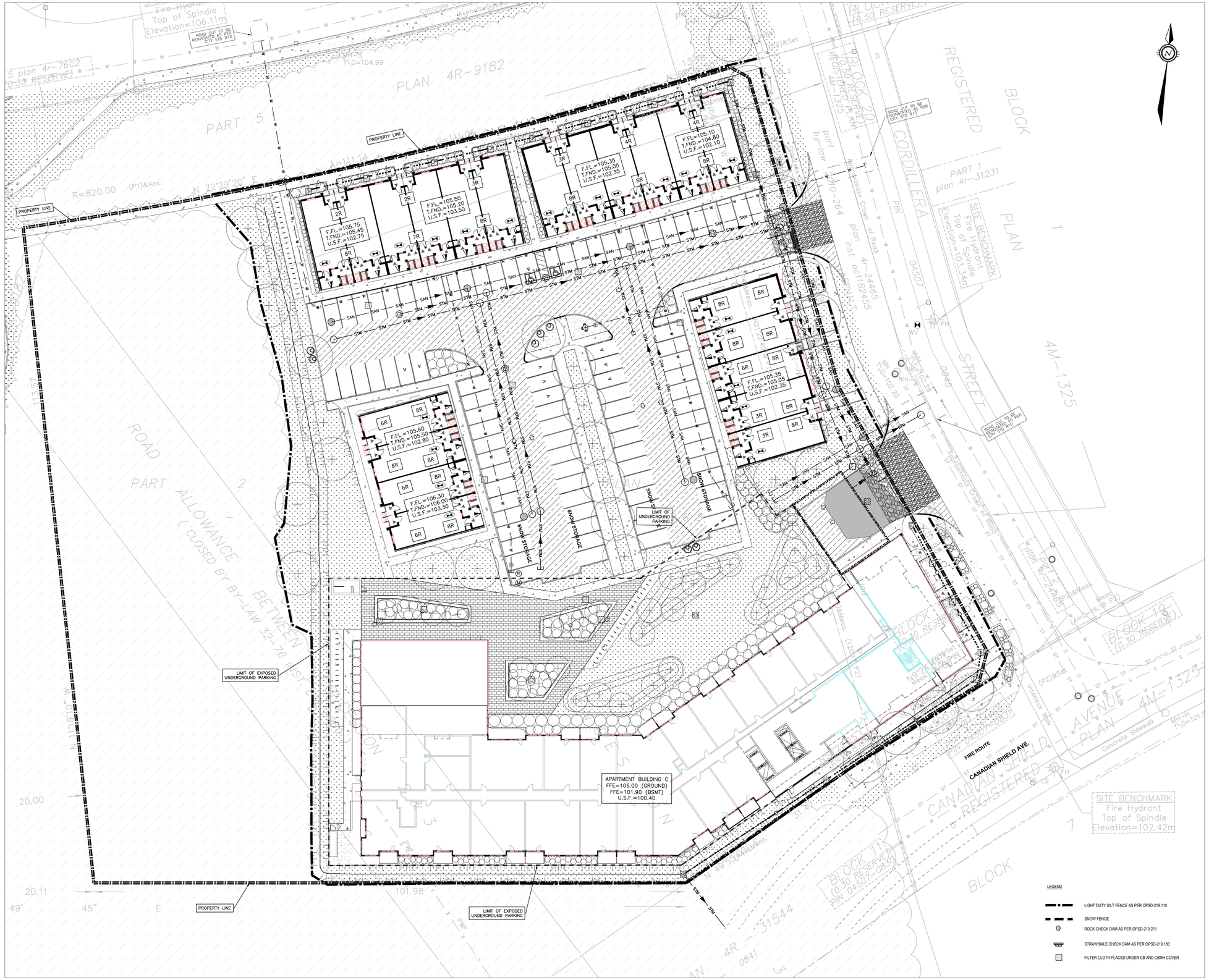

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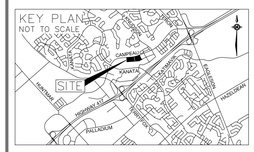

KEY PLAN
(N.T.S.)

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01	ISSUED FOR SPA	D.Y.	2020-12-04

HORIZONTAL SCALE:
5m 2 0 5 10m
SCALE: 1:300

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

REGISTERED PROFESSIONAL ENGINEER
D. B. YANG
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2021-08-20
PROVINCE OF ONTARIO

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TEL.(613)727-0850 FAX(613)727-1079

DESIGNED BY:	DRAWN BY:	APPROVED BY:
D.Y.	D.Y.	D.Y./I.J.

PROJECT

6301 CAMPEAU DRIVE
RESIDENTIAL DEVELOPMENT

DRAWING TITLE

EROSION AND SEDIMENTATION CONTROL PLAN
PARCEL 2

PROJECT NO.	DRAWING NO.
201-03048-00	C09

D07-12-20-0171

#18353

APPENDIX

APPENDIX

F

- SUBMISSION CHECK LIST