File: 123987 – 7.3

DESIGN BRIEF
PUROLATOR INC.
1400 UPPER CANADA STREET
OTTAWA, ON

Development Application File No. **D07-12-20-0125**

Prepared for Purolator Inc.
by IBI Group
Revised September 2023

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

List of Figures

List of Appendices

1 INTRODUCTION

1.1 Scope

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

1.2 Subject Site

The subject site, located within Taggart Realty Management's Kanata West Business Park, is identified as Block 5 – Phase 5 on all approved subdivision plans.

The proposed development will be made up of a warehouse, office and retail facility in support of Purolator's parcel distribution operations. The building footprint is approximately 8,835m^2.

The location of the subject site is shown on **Figure 1.** The site is approximately 3.19 hectares in size and is bounded by Upper Canada Street to the south, development lands to the west, agricultural lands to the north and Palladium Drive to the east. The latest aerial photo showing the existing conditions are shown on **Figure 2**. Detailed design drawings for Upper Canada Street (to which the building services will connect) have been included in **Appendix E**.

1.3 Previous Studies

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

- Design Brief, Kanata West Business Park, 333 Huntmar Drive, prepared by IBI Group, revised March 2019.
- Detail Design drawing set, Kanata West Business Park, 333 Huntmar Drive, prepared by IBI Group, latest revision dated March, 2019.

1.4 Geotechnical Considerations

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

- Report No. PG4783-1 dated July 11, 2023 for the Purolator site;

Among other items, the reports comment on the following:

- Site grading
- Foundation design
- Pavement structure
- Infrastructure construction
- Design for earthquakes
- Corrosion potential
- Environmental considerations
- Limit of hazard lands

Generally, the original grade is relatively flat, sloping from north-west to south-east; however, the presence of fill piles from the subdivision construction works was noted. The subsurface profile encountered at the test hole locations consists of fill in some locations, followed by topsoil underlain by a loose to compact, silty sand to sandy silt layer. Glacial till, consisting of compact to dense grey silty sand with clay, gravel, cobbles and boulders was noted below the silty sand/sandy silt layer within the boreholes.

2 WATER DISTRIBUTION

2.1 Existing Conditions

Existing watermains in proximity to the site include a 250 mm diameter main on Palladium Drive installed in 2016 and a 200 mm main on Upper Canada Street, installed in 2020.

2.2 Design Criteria

2.2.1 Water Demands

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

- Average Day 1.30 l/s
- Maximum Day 1.94 l/s
- Peak Hour 3.50 l/s

The watermain demand calculation was forwarded to the city to determine the boundary conditions at the site, copy of the boundary conditions is included in **Appendix A** and summarized below.

Table 2.2.1 Boundary Conditions

	Existing Condition	Future Condition
Minimum HGL	156.5	156.5
Maximum HGL	161.3	161.3
Max Day + FireFlow (183.3 L/s)	136.1	140.1

2.2.2 System Pressures

The 2010 City of Ottawa Water Distribution Guidelines states that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 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 150 kPa (21 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point in the distribution system in unoccupied areas 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) in occupied areas. Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

2.2.3 Fire Flow Rate

A calculation using the Fire Underwriting Survey (FUS) method was conducted to determine the fire flow requirement for the site. The building is considered non-combustible construction and is sprinklered. The mechanical engineer has confirmed the sprinkler system is fully supervised. Results of the analysis provides a maximum fire flow rate of 11,000 l/min or 183.3 l/s is required which is used in the hydraulic analysis. A copy of the FUS calculation is included in **Appendix A**.

2.3 Proposed Water Distribution Plan

The proposed water service for the Purolator site is shown on the Site Servicing Plan C-001 (**Appendix A**). A 150mm water service is shown connecting to the building from Upper Canada Street. Three existing fire hydrants fronting the property are expected to provide full fire flow coverage for the site. For the purposes of this report, assuming a minimal loss within the service connection the pressures within the site can be estimated as follows:

Minimum Pressure (Peak Hour) – The minimum peak hour pressure on the site can be estimated as HGL 156.50m – meter elevation (assumed to be 0.4m above finished floor elevation) 105.80m = 50.7m or 497.4 kPa which exceeds the minimum requirement of 276 kPa.

Fire Flow – The existing condition for Max Day plus fire flow is more restrictive than future condition, therefore the existing condition will be considered. The max day plus fire flow can be estimated as HGL 136.1 – ground floor 105.4 = 30.7m or 301.2 KPa which exceeds the minimum of 150kPa.

Max HGL (High Pressure Check) – The high-pressure check can be estimated as HGL 161.3 – lowest level (in this case, finished floor elevation) 105.40 = 55.9m or 548.4 KPa which is below the maximum of 552 kPa, therefore a pressure reducing valve is not required.

The above results indicate the municipal infrastructure can support the proposed development.

With 2 AA hydrants within 45m of the building the minimum number of hydrants needed to deliver the required fire flow to the structure is being provided in accordance with Technical Bulletin ISTB-2018-02 dated March 21, 2018. Furthermore, the fire dept. connection is located within 45m of a public hydrant located on Upper Canada Street, as such a private hydrant is not needed.

Table 2.3 – Hydrant Table

BUILDING ID	FIRE FLOW DEMAND (L/MIN)	FIRE HYDRANT(S) WITHIN 75M (5,700 L/MIN)	FIRE HYDRANT(S) WITHIN 150M (3,800 L/MIN)	COMBINED FIRE FLOW (L/MIN)
Purolator	11,000	2	2	19,200

3 WASTEWATER DISPOSAL

3.1 Existing Conditions

The site was designed to be serviced by the existing sanitary sewers within the Kanata West Business Park as identified in the KWBP Design Brief. A copy of the Kanata West Business Park sanitary drainage area plan and sewer design sheets have been included in **Appendix B**.

3.2 Proposed Site

As described above in section 1.1, the proposed development is to be a warehouse, office and retail facility. There are no other significant waste water generators for this site. Sanitary sewer flows are estimated using the specific City of Ottawa identified below.

3.3 Criteria

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria has 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
- Total site area 3.19 Ha
- Industrial 35,000 l/Ha/d
- Infiltration Allowance 0.33 L/s/Ha
- Minimum Sewer Slopes - 200 mm diameter 0.32%

3.4 Sanitary Sewer Design

Given the above criteria, total wastewater flow from the proposed development will be 1.94 l/s. The detailed sewer calculations and sanitary drainage area plan are included in **Appendix B**.

The sanitary sewer design sheet for the Kanata West Business Park confirms flows from the subject lands have been accounted for within the KWBP sanitary sewer design. The KWBP sanitary sewer design sheet can be found in **Appendix B**.

4 SITE STORMWATER MANAGEMENT

4.1 Existing Conditions

The existing undeveloped subject lands currently drain both westward via existing ditching towards the Pond 6 West SWM facility and south-east to an existing ditch inlet on the subject site that drains to the Pond 6 East SWM facility. Storm sewers adjacent to the site include an 825mm dia sewer within Upper Canada Street which drains eastward to the Pond 6 East SWM facility, this is the ultimate outlet for the subject lands. Additional storm sewers exist in Palladium Drive and Upper Canada Street however no new connections will be made to this infrastructure.

4.2 Design Criteria

As part of the Kanata West Business Park (KWBP) Design Brief stormwater management release rates were established for individual blocks. The subject site is identified as 155A on the Kanata West Business Park 14289-500 Storm Drainage Area plan, which is included in **Appendix C**. Table 4.1 from the approved KWBP design brief has also been included in **Appendix C** to confirm the release rate for the subject block.

Some of the key criteria include the following:

- Design Storm — 1:5 year return (Ottawa)
- Rational Method Sewer Sizing
- Initial Time of Concentration — 10 minutes
- Runoff Coefficients
  - Landscaped Areas — C = 0.20
  - Asphalt/Concrete — C = 0.90
  - Roof — C = 0.90
- Pipe Velocities — 0.80 m/s to 6.0 m/s
- Minimum Pipe Size — 250 mm diameter (200 mm CB Leads)

The stormwater design for the lands in question are subject to review by the City of Ottawa development review branch and the Mississippi Valley Conservation Authority (MVCA) prior to commencement of servicing works.

The design of the on-site stormwater management has been done in such a way as to not negatively impact the adjacent properties and no flows up to and including the 100 year storm shall encroach on adjacent lands.

4.2.1 Infiltration

The KWBP Design Brief maintained the infiltration targets established within previous studies completed for the Kanata West Area, namely the Kanata West Master Servicing Study. Relevant excerpts from the Kanata West MSS are provided within **Appendix C** for reference. The targets provided within the KWBP design brief indicated that a range of 70 - 100 mm/year of runoff be infiltrated from the western portion of the KWBP site, The Design Brief also maintained that post development infiltration rates are to be increased by 25% above these pre-development rates to compensate for areas (ie. Roadway corridors) that cannot provide infiltration.

The Purolator site is located within the western portion of the KWBP. The infiltration target has been established as 25% above the average of 70-100mm/year, for a target of 106mm/year. The subject site has limited pervious area available for infiltration. As with previously approved site plans in the KWBP, the subject site will be provided with an infiltration gallery fed by the stormwater flowing from the controlled rooftop. Please refer to the geotechnical report for confirmation of percolation rates used in calculations.

The design of the infiltration gallery is to be as per MECP requirements and the bottom of storage media will be minimum 1m above the high groundwater. The lowest bottom of media storage is 102.30m (102.90m header pipe elevation – 0.6m depth). Based on the geotechnical report the current groundwater in the area is approximately 102.64m; however, upon completion of the paving of the site it is expected that the ground water elevation will be lowered by at least 2m.

The proposed infiltration gallery has been sized to maximize infiltration potential for the site. The sizing was based on the roof drainage area, daily precipitation data (using wet year and dry year to establish overflow volume based on measured historical data). The maximum potential infiltration of the gallery was estimated using gallery size and precipitation norms for the area [920mm] and the overflow was then subtracted. Infiltration was assumed through the bottom surface area, with percolation rates established based on Geotechnical investigation of the site. The sizing of the gallery has been tailored for the proposed Purolator building roof area. The below table provides summary of the infiltration calculations for the site, further details of the infiltration galleries are provided within the Engineering Drawings 123987-001 and 123987-010. Also, detailed design calculations are provided within **Appendix C.** These calculations are discussed in-depth in Section 4.2.2 of this report. For percolation rates please refer to the geotechnical report.

Table 4.2.1 - Infiltration Gallery Calculations Summary on Annual Basis

GALLERY	TRIB AREA (M2)	ANNUAL RUNOFF VOLUME (M3)	AVERAGE OVERFLOW VOLUME (M3)	AVERAGE ANNUAL VOLUME INFILTRATED (M3)
Parking Lot	8600	7515.4	3265.0	4251.4

Where:

- Annual Runoff Volume is based on rooftop area and 95% of the annual precipitation from rooftops available as runoff (920mm annual precipitation)
- Overflow Volume is based on building specific infiltration gallery sizing

The required infiltration will be provided by an infiltration gallery fed by rooftop drains. The infiltration gallery will provide an estimated 4251m^3 of infiltration on an annual basis, or 133.3mm/year for the 3.19ha site, above the required post-development rate of 106mm/year.

4.2.2 Infiltration Detailed Calculations

The Appendix C calculations have been broken down step-by-step below.

The volume of the infiltration gallery can be calculated as follows:

Volume = Width x Length x Depth x No. of Cells x Void Ratio

= 5m x 42m x 0.6m x 1 x 0.38

= 47.88m3

In order to establish a range of function for the proposed infiltration gallery, precipitation data for a wet year and a dry year was used. Daily precipitation data was provided by the Government of Canada Climate Normals Data for Station Ottawa CDA. The data that was provided includes rainfall amounts from April 1st through October 31st. This rainfall (in mm) was converted into an average rainfall intensity (mm/hr) by taking the amount of rain and dividing by 24 hours. The rainfall available to the infiltration gallery was then determined to be the average rainfall intensity multiplied by the roof area (8600m2) by the effective runoff percent (95%). To be conservative, the volume into the infiltration gallery was then capped at the volume of the gallery (47.88m3) and assumed any overage would outlet through the overflow pipe.

The amount of water that can infiltrate through the gallery from the bottom per day is as follows:

Infiltration = Surface Area of Infiltration Gallery x No. of Cells x Percolation Rate

= (5m x 42m) x 1 x 0.504m/day

= 105.84 m3/day

Therefore the maximum infiltration that the gallery can provide in one day is 105m3. Since this value is above our conservative capped volume, the calculations will only show up to 47.88m3/day of infiltration.

These calculations were applied to each “wet year” day’s rainfall quantities on the roof and the infiltration gallery’s overflow was tracked to be 6766 m3 and 3819 m3, respectively.

The function of the infiltration gallery during a wet year can then be determined as follows:

Runoff Percent = Overflow Volume / Precipitation Volume

= 3616 m3 / 6538 m3

= 55.30%

Therefore, during a wet year it can be expected that 55% of the water that enters the infiltration gallery will overflow without being infiltrated. The same calculations were done for a “dry year” and yielded a result of 31.57%. On average, it can be expected that 43.44% of the water that enters the infiltration gallery will overflow and not be infiltrated.

Since the data only ranges from April to October, we cannot take the wet year Precipitation Volume of 6538 m3 and Overflow Volume of 3616 m3 as the entire year’s volumes. The overflow percentage must be applied to the Available Volume for an annual precipitation. The annual precipitation is 920mm as provided by the Government of Canada Climate Normals Data for Station Ottawa CDA. The Available Volume can be calculated as follows:

Available Volume = Area of Roof x (Annual Precipitation x Effective Runoff)

= 8600m2 x (920mm x 0.95 / 1000mm/m)

= 7516.4 m3

It is then possible to determine the overflow volume for a full wet year or dry year, as shown below for a wet year:

Overflow Volume = Available Volume x Overflow Percent

= 7516.4 m3 x 55.30%

= 4156.6 m3

The infiltration volume is then the difference between the Available Volume and the Overflow Volume, or 7516.4m3 – 4156.6m3 = 3359.8 m3/year. Repeating the same calculations for a dry year yields an infiltration volume of 5143.2 m3/year. On average, the infiltration gallery is expected to infiltrate 4251.4 m3/year, or 133.3mm/year for the 3.19ha site, which is above the target post-development rate of 106mm/year.

There will be some years with high intensity precipitation (similar to the “wet year” used in these calculations) where the target will not be reached as the intensity will flow through the gallery before it has a chance to infiltrate, however the target has been met for an average year as required.

4.3 Stormwater Management

Based on the approved Kanata West Business Park Design Brief, table 4.2, and the storm water modeling, the maximum allowable release rate for the subjected site is 525 l/s.

The site is approximately 3.19 ha and is proposed to comprise of a warehouse, office and retail facility along with asphalt parking lot and landscape areas. The post development average runoff coefficient was calculated as 0.85 in KWMSS.

The proposed development will have one outlet which will connect to the existing 825mm storm sewer within Upper Canada Street. The flows will be controlled with inlet control devices at locations identified on plan C-001 and the CB Data Table on C-010.

100 year flows from the loading dock trench drains have been included in the storm sewer design sheet.

The unrestricted portions of the site constitute 0.18 ha of softscape at the extremities of the site and 0.13 ha of hardscape areas (primarily the loading bay). Based on the proposed coefficient and Tc=10 min, the 100 yr flow from the uncontrolled area is 89.10 l/s. Based on an allowable release rate of 525 l/s for the site, the controlled portion is limited to 525 l/s – 89.10 l/s = 435.90 l/s (see detailed stormwater management calculations in **Appendix C**).

As noted above, stormwater runoff from the site is directed to the existing Upper Canada Street storm sewer system which ultimately outlets to the Pond 6 East Stormwater Management Facility.

4.4 Minor Storm Sewer Design Criteria

The minor storm sewers for this site will be sized based on standards of both the City of Ottawa and the provincial Ministry of the Environment. Some of the key criteria will include the following:

- Design Return Periods: Local and Collector Roads 1:2 yr (Ottawa)
- Sewer Sizing by Rational Method
- Runoff Coefficients:

	Roof	C=0.90
	Asphalt Parking Lot	C=0.90
	Landscaped Areas	C=0.20

- Initial T of C 10 min
- Min Velocity: City Design Guidelines 0.80 m/s

The minor storm sewers for the subject site will be sized based on the rational method and the City of Ottawa 1:2 yr. event. Minor storm flow to the downstream storm sewer network will be controlled by Inlet Control Devices (ICDs) to limit flow and prevent sewer surcharging downstream.

The minor storm sewer system is illustrated on the General Plan C-001 and the Details and Notes Plan C-010. The storm sewer design sheet and related Storm Sewer Drainage Area plan C-500 are included in **Appendix C**.

Minor system discharges to the storm sewer in Upper Canada Street within the maximum 100 year restricted release rate of 525 L/s. The flow rate is based on the City requirement to limit 100 year post development flow off site base on approved parameters provided on the KWMSS Storm Sewer Design Sheet. To this end, no negative impact on the existing downstream system is anticipated.

4.5 Onsite Detention

The site was designed to limit runoff to the allowable release rate up to the 100 year storm event. Flows in excess of this release rate will be contained on-site via roof top storage, underground sewer storage, and surface ponding at inlet locations. Orifices in catchbasins will be employed to control runoff from parking, access and landscape areas. To determine the resulting storage volumes a 2 year and 100 year storm was applied, with time steps of 1 minute interval until a peak storage volume requirement was attained for the sub-area being controlled. The peak storage volume required was then met or exceeded at the ponding location. Ponding volumes were determined by the AutoCAD Civil 3D grading model. Please refer to the ponding plan 123843-C-600 for more information regarding pond volumes.

Ponding depths were limited to 300 mm for the 100 year event. In the event of less frequent storms overland flow routes toward Upper Canada Street and the Pond 6 East SWM facility have been provided that will prevent any negative impact on the buildings.

Major flow up to the 100 year storm is contained on-site and is gradually released to the minor system, major flow does not leave the site via overland flow.

The stormwater management for the site has ensured that there will be no surface ponding during the 2 year storm event.

A stormwater management summary sheet and the results of the on-site storage volume requirements are included in **Appendix C**.

A summary of the flowrate controls for each drainage area and corresponding storage details is provided in the table below.

Table 4.5 – Post-Development Storage Summary Table

Drainage Area	Tributary Area	Restricted Flow	Req Storage	Avail Storage	Overflow
MH 6/7/8	1.01	219.00	273.88	331.06	0.00
CICB10A	0.06	16.00	8.32	25.30	0.00
CB1B	0.04	11.00	5.36	5.66	0.00
MH 4/3	0.51	61.50	181.90	183.68	0.00
DCICB3D	0.17	51.00	20.71	49.62	0.00
CICB2B	0.16	51.00	18.12	47.80	0.00
CICB1A	0.02	6.00	2.44	3.43	0.00
Total Surface	**1.97**	**415.50**	**510.73**	**646.55**	**0.00**
Rooftop R1	0.86	20.00	423.65	450.00	0.00
Total Buildings	**0.86**	**20.00**	**423.65**	**450.00**	**0.00**
Total	**2.83**	**435.50**	**934.38**	**1096.55**	**0.00**

4.6 Quality Control

The site outlets to Kanata West Pond 6 East which was designed to provide both quantity and quality control for the subject lands. Therefore, no on-site quality control is required.

5 SEDIMENT AND EROSION CONTROL PLAN

During construction, existing stream and storm water conveyance systems can be exposed to significant sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings may be used such as;

- The installation of straw bales within existing drainage features surrounding the site;
- Bulkhead barriers will be installed in the outlet pipes;
- Sediment capture filter socks 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. Thus, these structures will be constructed with a sediment capture filer sock. These 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 stockpiled. Mitigative measures and proper management to prevent these materials entering the sewer systems is 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 before any catchbasins are installed.

The Sediment and Erosion Control Plan C-900 is included in **Appendix D**.

6 CONCLUSION

The Servicing strategy can be summarized as follows:

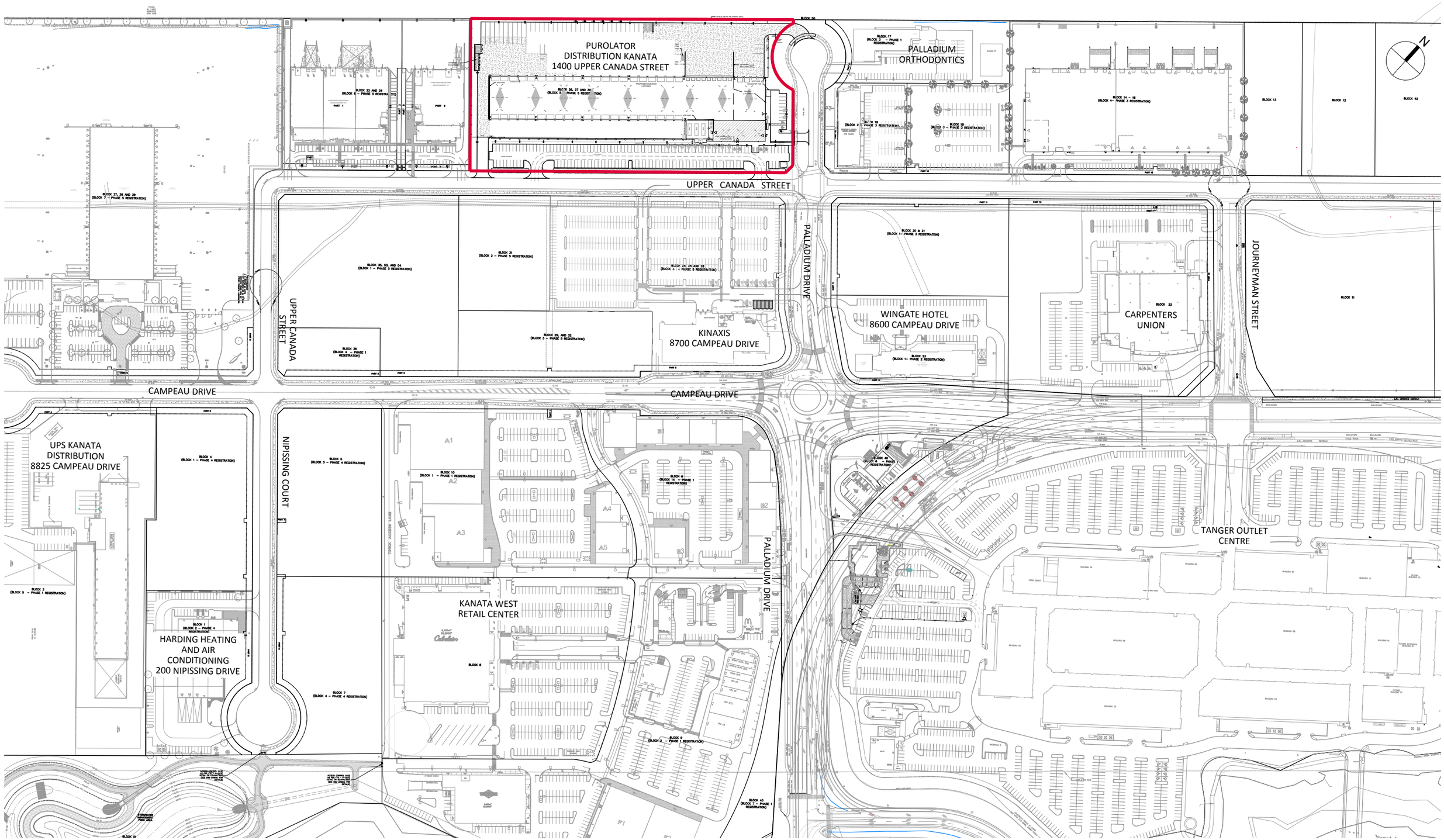
- Adequate fire flow protection and domestic supply will be provided from the existing watermain located in Upper Canada Street.
- Sanitary design flows under the proposed condition can be accommodated by the existing sanitary sewers with no negative impact on downstream sewers anticipated.
- Stormwater can be attenuated on-site to meet the release rate criteria established by the previous study. Control will be achieved through the use of orifice controls in the catchbasins and manholes. Storage will be provided through underground, rooftop and parking lot surface ponding in larger events.
- Erosion and sediment control measures have been outlined for the construction of the development.

This report has illustrated that the proposed Purolator site can be serviced by the adjacent existing municipal services. All municipal infrastructure designs have been done in conformance with current City of Ottawa and MECP guidelines.

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

IBI GROUP

Samantha E. Labadie, P. Eng



J: \123987_KNWPurolator\7.0_Production\7.03_Design\04_Civil_Land\Figures\123987-Figure-1.dwg Layout Name: FIGURE 1 Plot Scale: 1:5.13 Plotted At: 9/19/2023 Last Saved By: dsiurna Last Saved At: Jun. 21, 23

IBI

Scale
N.T.S.

Project Title
PUROLATOR
DISTRIBUTION KANATA
1400 UPPER CANADA STREET

Drawing Title
LOCATION PLAN

Sheet No.
FIGURE 1

J: \123987_KNWPurolator\7.0_Production\7.03_Design\04_Civil_Land\Figures\123987-Figure-2.dwg Layout Name: FIGURE 2

IBI

Project Title
PUROLATOR
DISTRIBUTION KANATA
1400 UPPER CANADA STREET

Drawing Title
EXISTING CONDITIONS

Sheet No.
FIGURE 2

APPENDIX A

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : Purolator Inc.
LOCATION : Kanata West Business Park - City of Ottawa
DEVELOPER : Purolator Inc.

FILE: 123987
DATE PRINTED: 09-Jun-23
DESIGN: JEB
PAGE : 1 OF 1

NODE	RESIDENTIAL UNITS SF	RESIDENTIAL UNITS Office	RESIDENTIAL UNITS ST	Population	NON-RESIDENTIAL INDTRL (ha.)	NON-RESIDENTIAL INST. (ha.)	NON-RESIDENTIAL RETAIL (m^2)	AVERAGE DAILY DEMAND (l/s) Non-res.	AVERAGE DAILY DEMAND (l/s) Res.	AVERAGE DAILY DEMAND (l/s) Total	MAXIMUM DAILY DEMAND (l/s) Non-res.	MAXIMUM DAILY DEMAND (l/s) Res.	MAXIMUM DAILY DEMAND (l/s) Total	MAXIMUM HOURLY Non-res.	MAXIMUM HOURLY Res.	MAXIMUM HOURLY Total	FIRE DEMAND (l/min)
Purolator					3.20			1.30		1.30	1.94		1.94	3.50		3.50	11,000

ASSUMPTIONS

RESIDENTIAL DENSITIES
- Single Family (SF) 3.4 p / p / u
- Stacked Townhouse (ST) 2.3 p / p / u

AVG. DAILY DEMAND
- Office (Table 4.2) 75 l / cap / day
- Business Park (Industrial) 35,000 l / ha / day
- Institutional 35,000 l / 1000m^2 / day
- Retail (Shopping Centre) 2,500 l / 1000m^2 / day

MAX. DAILY DEMAND
- Office (Table 4.2) 188 l / cap / day
- Industrial (Business Park) 52,500 l / ha / day
- Institutional 52,500 l / 1000m^2 / day
- Retail (Shopping Centre) 3750 l / 1000m^2 / day

MAX. HOURLY DEMAND
- Office (Table 4.2) 413 l / cap / day
- Industrial (Business Park) 94,500 l / ha / day
- Institutional 94,500 l / 1000m^2 / day
- Retail (Shopping Centre) 6,750 l / 1000m^2 / day

FIRE FLOW
- Purolator 11,000 l / min

Fire Flow Requirement from Fire Underwriters Survey

Purolator - 1400 Upper Canada Street

Floor 1 GFA	8,835	m^2
Floor 2 GFA	967	m^2
Total	9,802	m^2

Fire Flow

$F = 220C\sqrt{A}$

C	0.8		C =	1.5	wood frame
A	9,802	m^2		1.0	ordinary
				0.8	non-combustible
F	17,425	l/min		0.6	fire-resistive
Use	17,000	l/min			

Occupancy Adjustment

			-25%	non-combustible
			-15%	limited combustible
Use	0%		0%	combustible
			+15%	free burning
Adjustment	0	l/min	+25%	rapid burning
Fire flow	17,000	l/min		

Sprinkler Adjustment

			-30%	system conforming to NFPA 13
			-10%	standard water supply
Use	-40%		-10%	fully supervised system
Adjustment	-6800	l/min		

Exposure Adjustment

Building Face	Separation (m)	Adjacent Exposed Wall			Exposure Charge *
		Length	Stories	L*H Factor	
north	>30				0%
east	>30				0%
south	>30				0%
west	20.3	46.5	2	93	3%
Total					3%

Adjustment 510 l/min

Required Fire Flow

Total adjustments	(6,290)	l/min
Fire flow	10,710	l/min
Use	**11,000**	**l/min**
	183.3	**l/s**

Exposure charges from Water Supply For Public Protection in Canada 2020
for Type II building with unprotected openings

* Techinical Bulletin ISTB 2021-03

Boundary Conditions
1440 Upper Canada Street

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	78	1.30
Maximum Daily Demand	116	1.94
Peak Hour	210	3.50
Fire Flow Demand #1 – Existing	10,998	183.30
Fire Flow Demand #1 - Future	10,998	183.30

Location

Future Condition: Location of future 305 mm watermain

Results

Existing Condition

Connection 1 - Upper Canada Street

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.3	82.2
Peak Hour	156.5	75.4
Max Day plus Fire Flow #1	136.1	46.4

[1] Ground Elevation = 103.5 m

Future Condition

Connection 1 - Upper Canada Street

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	161.3	82.2
Peak Hour	156.5	75.4
Max Day plus Fire Flow #1	140.1	52.1

[1] Ground Elevation = 103.5 m

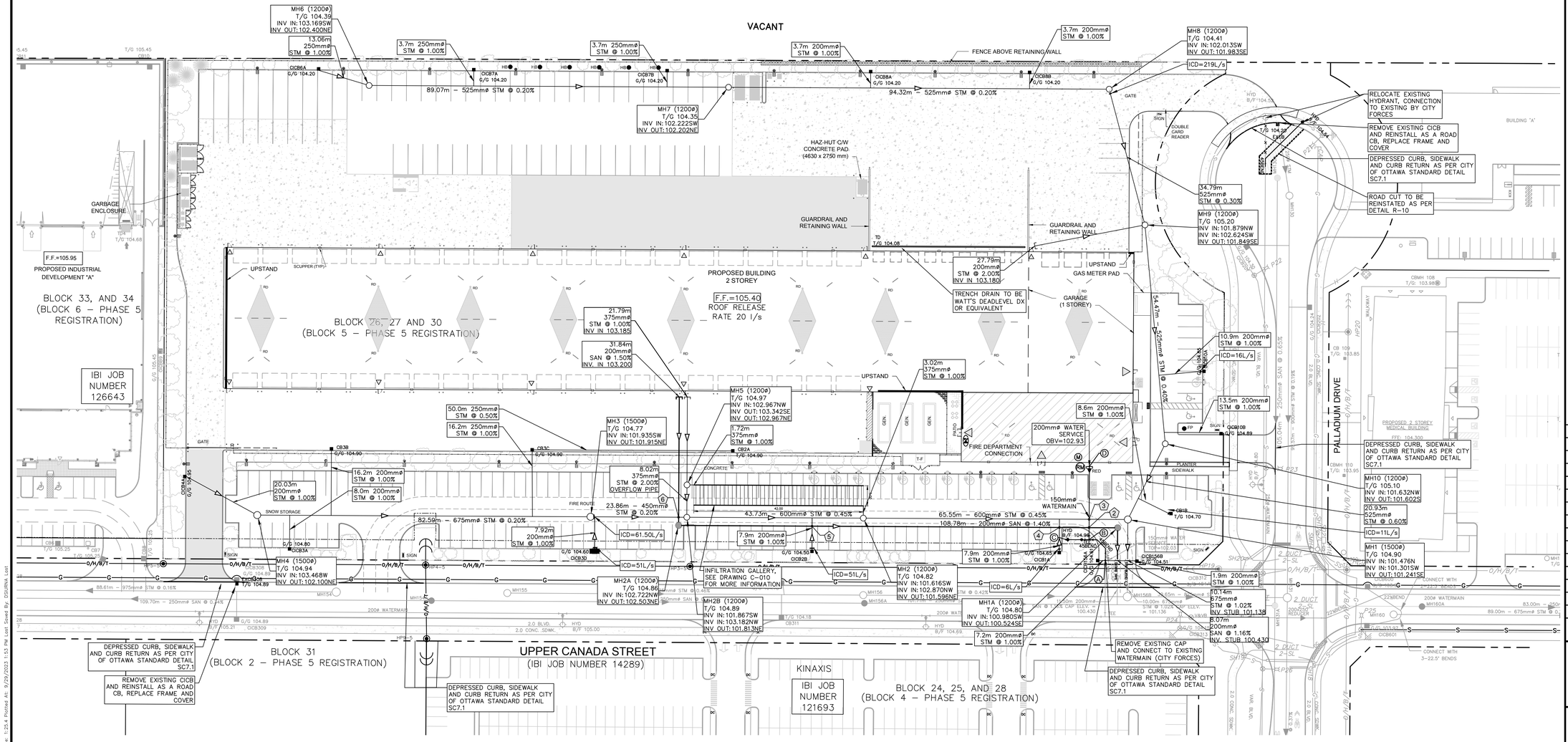
Notes

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:

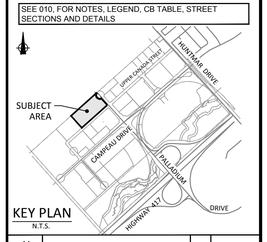
a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, 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.



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



KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.06.21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021.01.15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020.12.18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020.11.13
1	ISSUED FOR SPA	T.R.B.	2020.09.17

CATCHBASIN DATA TABLE

STRUCTURE ID	STORM AREA ID	STRUCTURE	FRAME & COVER	ELEVATION			OUTLET PIPE		INLET CONTROL DEVICE	
				TOP OF GRATE	INVERT		DIAMETER	TYPE	RESTRICTED FLOW (l/s)	ICD TYPE
					INLET	OUTLET	(mm)			
CICB6A	MH6	OPSD 705.010	S22 & S23	104.20		102.80	250	PVC DR35		
CICB7A	MH6	OPSD 705.010	S22 & S23	104.20		102.80	250	PVC DR35		
CICB7B	MH6	OPSD 705.010	S22 & S23	104.20		102.80	250	PVC DR35		
CICB8A	MH7	OPSD 705.010	S22 & S23	104.20		102.80	200	PVC DR35		
CICB8B	MH7	OPSD 705.010	S22 & S23	104.20		102.80	200	PVC DR35		
CICB10A	MH9	OPSD 705.010	S22 & S23	104.85		103.45	200	PVC DR35	16.00	IPEX LMF
CICB10B	MH9	OPSD 705.010	S22 & S23	104.89		103.49	200	PVC DR35		
CB1B	MH10	OPSD 705.010	S19	104.70		103.30	200	PVC DR35	11.00	IPEX LMF
CICB4A	MH4	OPSD 705.010	S22 & S23	104.95		103.55	200	PVC DR35		
CICB3A	MH4	OPSD 705.010	S19	104.80		103.40	200	PVC DR35		
CB3B	MH4	OPSD 705.010	S22 & S23	104.90		103.70	200	PVC DR35		
CB3C	MH4	OPSD 705.010	S22 & S23	104.90	103.45	103.40	250	PVC DR35		
DCICB3D	MH3	OPSD 705.010	S22 & S23	104.60		103.20	200	PVC DR35	51.00	IPEX MHF
CB2A	MH4	OPSD 705.010	S22 & S23	104.90		103.50	250	PVC DR35		
CICB2B	MH2B	OPSD 705.010	S22 & S23	104.50		103.10	200	PVC DR35	51.00	IPEX MHF
CICB1A	MH2B	OPSD 705.010	S22 & S23	104.65		103.25	200	PVC DR35	6.00	IPEX LMF
CICB156A	MH4	OPSD 705.010	S22 & S23	104.56		103.16	200	PVC DR35		
CICB156B	MH4	OPSD 705.010	S22 & S23	104.51		103.11	200	PVC DR35		

CROSSING SCHEDULE	
2	150mmø WATERMAIN OVER 200mmø SANITARY SEWER - CLEARANCE 0.983m
3	150mmø WATERMAIN OVER 600mmø STORM SEWER - CLEARANCE 0.409m
4	200mmø STORM SEWER OVER 200mmø SANITARY SEWER - CLEARANCE 1.797m
5	200mmø STORM SEWER OVER 200mmø SANITARY SEWER - CLEARANCE 0.789m
6	200mmø SANITARY OVER 450mmø STORM SEWER - CLEARANCE 0.412m

WATERMAIN SCHEDULE

	Station	Description	Finished Grade	Top of Watermain	Watermain Cover	As Built Watermain
A	0+000.00	REMOVE EXISTING CAP AND CONNECT	104.56	102.03	2.53	
	0+003.00	45 BEND	104.66	102.26	2.40	
	0+005.91	45 BEND	104.74	102.34	2.40	
B	0+007.93	150mm TEE	104.89	102.49	2.40	
	0+009.75	HYDRANT VALVE	104.88	102.48	2.40	
C	0+013.40	HYDRANT TEE	104.89	102.49	2.40	
B	0+000.00	-	104.89	102.49	2.40	
	0+010.00	-	105.02	102.62	2.40	
	0+017.25	150mm x 200mm REDUCER	105.31	102.91	2.40	
D	0+018.15	150mm SERVICE CONNECTION	105.33	102.93	2.40	

REVISED 2023-08-15

STRM STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT IN AS–BUILT	INVERT OUT	INVERT OUT AS–BUILT	DESCRIPTION
MH1	104.90	N101.476 SW101.301		SE101.241		1500mmø OPSD–701.011
MH2	104.82	SW101.616 NW102.870		NE101.596		1200mmø OPSD–701.010
MH2B	104.89	SW101.867 NW103.182		NE101.813		1200mmø OPSD–701.010
MH3	104.77	SW101.935		NE101.915		1500mmø OPSD–701.011
MH4	104.94	W103.468		NE102.100		1500mmø OPSD–701.011
MH5	104.97	NW102.967		SE103.342 NE102.967		1200mmø OPSD–701.010
MH6	104.39	SW103.169		NE102.400		1200mmø OPSD–701.010
MH7	104.35	SW102.222		NE102.202		1200mmø OPSD–701.010
MH8	104.41	SW102.013		SE101.983		1200mmø OPSD–701.010
MH9	105.20	NW101.879 SW102.624		SE101.849		1200mmø OPSD–701.010
MH10	105.10	NW101.632		S101.602		1200mmø OPSD–701.010
STM BLKHD	104.53	NW101.138				675mmø BULKHEAD

SAN STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT IN AS–BUILT	INVERT OUT	INVERT OUT AS–BUILT	DESCRIPTION
MH1A	104.80	SW100.980		SE100.524		1200mmø OPSD–701.010
MH2A	104.86	NW102.722		NE102.503		1200mmø OPSD–701.010
SAN BLKHD	104.54	NW100.430				200MMø CAP

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,

LICENCED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
SITE SERVICING PLAN

Scale
1:500

Design	Date
S.E.L.	AUG . 2020
Drawn: S.E.L./D.P.S.	Checked: T.R.B.
Project No.: 123987	Drawing No.: C-001

CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260

UTILITY LEGEND

- TRANSFORMER
- TRANSFORMER C/W CONCRETE WINGS
- HSG — HYDRO SWITCHGEAR
- HMH — HYDRO MANHOLE
- BELL PEDESTAL
- GLB — BELL GRADE LEVEL BOX (l=600mm, w=1200mm, d=750mm) C/W 1.5 x 3.0m easement
- FC — BELL FIBER CABINET (l=1200mm, w=750mm, d=500mm)
- CSP — BELL CENTRAL SPLITTING POINTS (l=1175mm, w=1200mm, d=500mm)
- ROGERS PEDESTAL
- ROGERS VAULT (l=1000mm, w=1000mm, d=1200mm) C/W 1m x 2m easement
- P30 — STREET LIGHT
- STREET LIGHT DISCONNECT
- STREET LIGHT GROUNDING
- H/B/T/G/S — JOINT UTILITY TRENCH
- H — HYDRO CABLE AND DUCTS
- B — BELL CABLE
- BB — BELL DUCTS
- T — ROGERS CABLE
- TT — ROGERS DUCTS
- G — GAS
- S — STREET LIGHT CABLE
- UTILITY DROP LOCATIONS
- 10–DUCTS 6–H 4–T — CONCRETE ENCASED DUCT BANK C/W NUMBER OF DUCTS
- COMB2 — COMMUNITY MAILBOX
- PROPOSED TREE LOCATION
- ROOT MANAGEMENT BARRIER

SERVICING LEGEND

- MH118A — SANITARY MANHOLE
- 200mmø SAN — SANITARY SEWER
- MH109 / MH118 — STORM MANHOLE
- 825mmø STM — STORM SEWER - LESS THAN 900Ø
- 900mmø STM — STORM SEWER - 900Ø AND GREATER
- 200ø WATERMAIN — WATERMAIN
- CB100 T/G 104.10 — STREET CATCHBASIN C/W TOP OF GRATE
- CICB101 G/G 104.25 — CURB INLET CATCHBASIN C/W GUTTER GRADE
- DCB100 T/G 104.10 — DOUBLE CATCHBASIN C/W TOP OF GRATE
- DCICB101 G/G 104.25 — DITCH INLET CATCHBASIN C/W GUTTER GRADE
- CBMH100 T/G 103.59 — CATCHBASIN MANHOLE C/W TOP OF GRATE
- CBMH101 T/G 103.59 / MH109 — DITCH INLET MANHOLE C/W TOP OF GRATE
- ICD LOCATION
- RYCB T/G 104.35 — REAR YARD CATCHBASIN IN ROAD CONNECTING STRUCTURE C/W SOLID GRATE
- T/G 104.35 INV 103.35 — REAR YARD "TEE" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.50 INV 103.50 — REAR YARD "END" CATCHBASIN (300Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35 INV 103.35 — REAR YARD "CUSTOM ANGLED " CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- T/G 104.35 INV 103.35 — REAR YARD "THREE WAY" CATCHBASIN (450Ø) C/W TOP OF GRATE AND INVERT OUT
- PERFORATED REAR YARD SUBDRAIN
- 300mmø CSP — CSP CULVERT C/W DIAMETER
- V&VB — VALVE AND VALVE BOX
- V&VC — VALVE AND VALVE CHAMBER
- HYD 104.35 — FIRE HYDRANT C/W BOTTOM OF FLANGE ELEVATION
- 200ø WM RED 150ø WM — WATERMAIN REDUCER
- 2 VBENDS — VERTICAL BEND LOCATION

SEDIMENT EROSION LEGEND

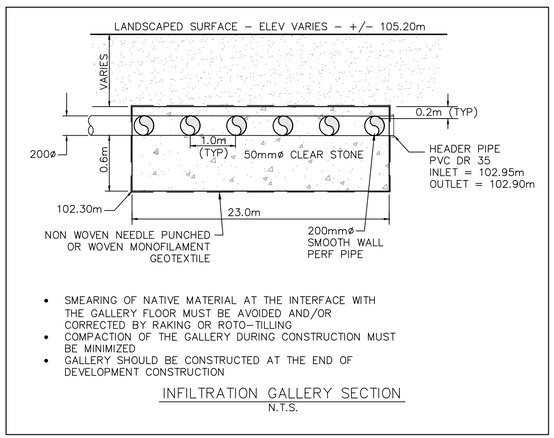
- HEAVY DUTY SILT FENCE
- SNOW FENCE
- STRAW BALE CHECK DAM
- STRAW BALE CHECK DAM WITH FILTER CLOTH
- ROCK CHECK DAM
- CB — SEDIMENT SACK PLACED UNDER EXISTING CB COVER
- TEMPORARY MUD MAT 0.15m THICK 50mm CLEAR STONE ON NON WOVEN FILTER CLOTH

GRADING LEGEND

- PROPOSED SWALE C/W FLOW DIRECTION
- 0.5% — PROPOSED DITCH C/W FLOW DIRECTION AND SLOPE
- 1.5% — SLOPE C/W FLOW DIRECTION
- MAJOR OVERLAND FLOW ROUTE
- 104.62 — PROPOSED SPOT GRADE
- x104.40 GG — PROPOSED SWALE GRADE
- x104.50 GUTTER — PROPOSED SWALE HIGH POINT GRADE
- 104.60 103.59 — LOT CORNER GRADE C/W EXISTING GRADE
- 86.45 EX — TIE INTO EXISTING GRADE
- 96.79 — FULL STATIC PONDING GRADE
- 4.5% 103.50 — RETAINING WALL C/W TOP OF WALL AND GRASS GRADE
- TERRACING 3:1 MAXIMUM UNLESS NOTED OTHERWISE
- PRESSURE REDUCING VALVE

GENERAL LEGEND

- LIMIT OF CONSTRUCTION
- PHASING LINE
- BARRIER CURB
- MOUNTABLE CURB
- DEPRESSED BARRIER CURB
- CONCRETE SIDEWALK
- TACTILE WALKING SURFACE INDICATOR
- ASPHALT SIDEWALK / PATHWAY
- BUS STOP CONCRETE / ASPHALT
- HEAVY DUTY ASPHALT
- RIGID CONCRETE APRONS



- SMEARING OF NATIVE MATERIAL AT THE INTERFACE WITH THE GALLERY FLOOR MUST BE AVOIDED AND/OR CORRECTED BY RAKING OR ROTO–TILLING
- COMPACTION OF THE GALLERY DURING CONSTRUCTION MUST BE MINIMIZED
- GALLERY SHOULD BE CONSTRUCTED AT THE END OF DEVELOPMENT CONSTRUCTION

INFILTRATION GALLERY SECTION
N.T.S.

DRAWING NOTES

1.0 GENERAL

1.1 CONTRACTOR TO VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.

1.2 DO NOT SCALE DRAWINGS.

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

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

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

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

1.7 FOR LEGAL SURVEY INFORMATION REFER TO REGISTERED PLAN.

1.8 REFER TO SITE PLAN BY N45 ARCHITECTURE.

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

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

1.11 ALL CONCRETE CURBS AND SIDEWALKS TO CONFORM TO O.P.S. AND CONSTRUCTED TO CITY STANDARDS. ALL ONSITE CURBS TO BE BARRIER TYPE, WITH DEPRESSIONS AS NOTED.

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

1.13 ALL CONSTRUCTION TRAFFIC TO ACCESS SITE FROM PALLADIUM DRIVE OR UPPER CANADA STREET.

1.14 FOR GEOTECHNICAL REPORT SEE GEOTECHNICAL INVESTIGATION PG4783-1 REV.3 DATED JULY 11, 2023 BY PATERSON GROUP.

Table 3 - Recommended Pavement Structure - Car Only Parking Areas

Thickness (mm)	Material Description
50	**Wear Course** – HL-3 or Superpave 12.5 Asphaltic Concrete
150	**BASE** – OPSS Granular A Crushed Stone
300	**SUBBASE** – OPSS Granular B Type II
SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over in-situ soil or fill material placed over in-situ soil or fill.	

Table 4 - Recommended Pavement Structure - Access Lanes and Heavy-Truck Parking Areas

Thickness (mm)	Material Description
40	**Wear Course** – Superpave 12.5 Asphaltic Concrete
50	**Binder Course** – Superpave 19.0 Asphaltic Concrete
150	**BASE** – OPSS Granular A Crushed Stone
450	**SUBBASE** – OPSS Granular B Type II
SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over fill or in-situ soil.	

Table 5 - Recommended Rigid Pavement Structure for Concrete Aprons

Thickness (mm)	Material Description
Specified by Others	**Exposure Class C2 – 32 MPa Concrete** (5 to 8% Air Entrainment)
300	**BASE** – OPSS Granular A Crushed Stone
100	**RIGID INSULATION** – HI-40 Extruded Polystyrene Insulation
SUBGRADE – Either fill, in-situ soil, or OPSS Granular B Type I or II material over fill or in-situ soil.	

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

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

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

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

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

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

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

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

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

2.0 SANITARY

2.1 ALL SANITARY SEWER MAINS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ONLY FACTORY FITTINGS TO BE USED. SEWER TO BE INSTALLED AS PER OSPD 1005.01. SANITARY SEWER MATERIALS TO BE:
250mmØ AND SMALLER - PVC DR 35

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

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

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

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

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

3.0 STORM

3.1 ALL STORM SEWERS TO BE CSA CERTIFIED, BELL AND SPIGOT TYPE. ALL STORM SEWERS TO BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS. ONLY FACTORY FITTINGS TO BE USED. STORM SEWER MATERIALS TO BE : 375mmØ AND SMALLER - PVC DR 35, 450mmØ AND LARGER - CONC. CL. 100-D, 825mmØ AND LARGER - CONC. CL. 65-D

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

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

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

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

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

3.7 CONNECTION TO THE EXISTING STORM SEWER TO BE INCLUDED IN THE COST FOR STORM SEWER INSTALLATION.

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

4.0 WATER

4.1 ALL WATERMAINS TO BE PVC DR 18, WITH MINIMUM COVER OF 2.4M AND INSTALLED PER CITY OF OTTAWA STANDARDS. ALL DOMESTIC WATER SERVICES ARE TO BE 200MM/Ø.

4.2 THRUST BLOCKS TO BE INSTALLED AT ALL BENDS, TEES, AND CAPS ALL AS PER OPSD 1103.01 AND 1103.02.

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

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

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

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

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

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

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

5.0 PARKING LOT AND WORK IN PUBLIC RIGHTS OF WAY

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

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

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

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

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

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

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

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

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

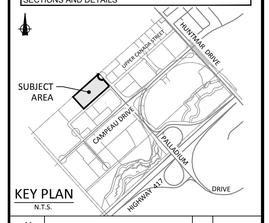
5.10 CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE ENGINEER WITH VERIFICATION PRIOR TO PLACEMENT.

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

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

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

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



KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:06:21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021:01:15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020:12:18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020:11:13
1	ISSUED FOR SPA	T.R.B.	2020:09:17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,

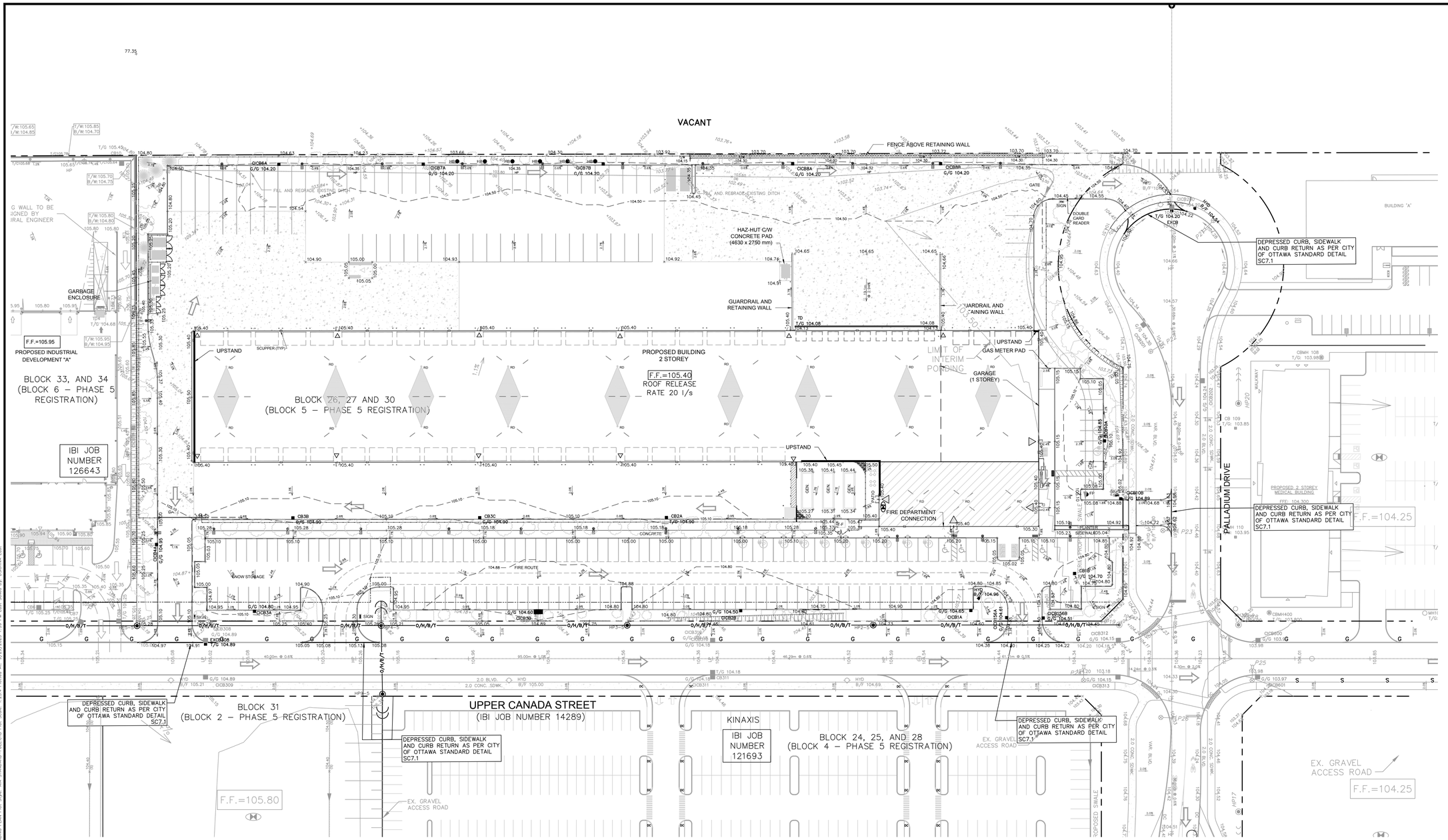
LICENCED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
GENERAL NOTES, LEGEND AND CB DATA TABLE

Scale
N.T.S.

Design	Date
S.E.L.	AUG . 2020
Drawn	Checked
S.E.L./D.P.S.	T.R.B.
Project No.	Drawing No.
123987	C-010

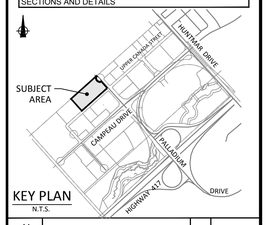
CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260



NOTES:

1. SEE DETAIL DRAWING C–010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR STANTEC GEOMATICS.

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



KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.06.21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021.01.15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020.12.18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020.11.13
1	ISSUED FOR SPA	T.R.B.	2020.09.17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET, KANATA, ONTARIO

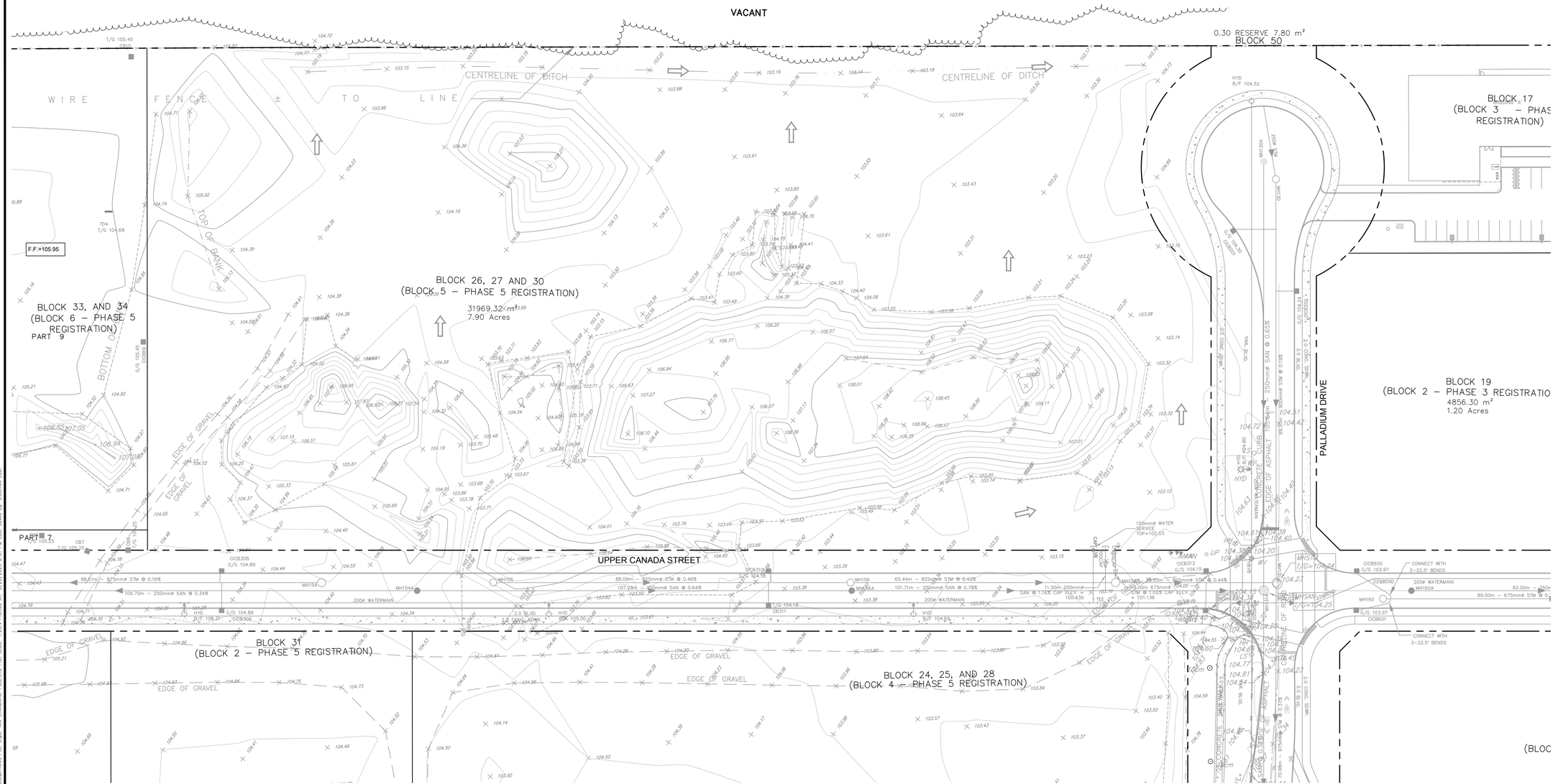
LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
SITE GRADING PLAN

Scale
1:500

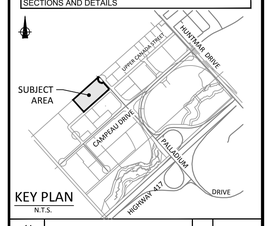
Design	Date
S.E.L.	AUG . 2020
Drawn	Checked
S.E.L./D.P.S.	T.R.B.
Project No.	Drawing No.
123987	C-200

CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260



NOTES:
1. SEE DETAIL DRAWING C–010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR STANTEC GEOMATICS.

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



KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.06.21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021.01.15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020.12.18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020.11.13
1	ISSUED FOR SPA	T.R.B.	2020.09.17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,
KANATA, ONTARIO

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
EXISTING CONDITIONS

Scale
1:500

Design	Date
S.E.L.	AUG . 2020
Drawn	Checked
S.E.L./D.P.S.	T.R.B.
Project No.	Drawing No.
123987	C-201

CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260

APPENDIX B

IBI GROUP
IBI Group
400-333 Preston Street
Ottawa, Ontario
K1S 5N4

SANITARY SEWER DESIGN SHEET

PROJECT: KANATA WEST BUSINESS PARK
LOCATION: 333 HUNTMAR DRIVE
CLIENT: TAGGART

LOCATION				RESIDENTIAL									ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW	TOTAL FLOW	PROPOSED SEWER DESIGN							
				UNIT TYPES				AREA	POPULATION		PEAK FACTOR	PEAK FLOW	AREA (Ha)							PEAK FLOW	AREA (Ha)		FLOW			CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	VELOCITY (actual)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH	SF	SD	TH	APT	(Ha)	IND	CUM		(L/s)	PRESTIGE BUISNESS PK		COMMERCIAL		INDUSTRIAL			(L/s)	IND	CUM	(L/s)	(L/s)	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	(m/s)	L/s	(%)
													IND	CUM	IND	CUM	IND	CUM	PF													
KANATA WEST BUSINESS PARK - Block number based on overall concept plan of subdivision																																	
Upper Canada Street	**Blocks 31**	**MH154A**	**MH153A**										**0.70**	**0.70**				**0.00**	**1.50**	**0.34**	**0.92**	**0.92**	**0.30**	**0.00**	**0.64**	**43.87**	**110.00**	**250**	**0.50**	**0.866**	**0.301**	**43.22**	**98.53**
	Blocks 35, 53, 54												**1.84**	**2.54**				**0.00**	**1.50**	**1.23**	**2.06**	**2.98**		**0.00**	**1.23**								
	Blocks 33, 34	**MH153A**	**MH152A**														**1.89**	**1.89**	**5.90**	**4.52**	**1.89**	**4.87**	**1.61**	**0.00**	**7.36**	**39.24**	**114.86**	**250**	**0.40**	**0.774**	**0.543**	**31.88**	**81.24**
		MH152A	**MH151A**											**2.54**				**1.89**	**5.90**	**5.75**	**0.03**	**4.90**	**1.62**	**0.00**	**7.37**	**36.70**	**10.84**	**250**	**0.35**	**0.724**	**0.562**	**29.33**	**79.92**
	Blocks 37, 38, 39	**MH151A**	**MH150A**											**2.54**			**7.04**	**8.93**	**4.50**	**17.51**	**7.24**	**12.14**	**4.01**	**0.00**	**21.52**	**36.70**	**102.56**	**250**	**0.35**	**0.724**	**0.753**	**15.18**	**41.37**
		MH150A	*MH101A*											*2.54*				*8.93*	*4.50*	*17.51*	*0.11*	*12.25*	*4.04*	*0.00*	*21.56*	*36.70*	*63.86*	*250*	*0.35*	*0.724*	*0.753*	*15.15*	*41.27*
Campeau Drive	*Blocks 3*	*MH99A*	*MH100A*										*4.18*	*4.18*						*2.03*	*4.68*	*4.68*	*1.54*	*0.00*	*3.58*	*50.02*	*112.75*	*250*	*0.65*	*0.987*	*0.570*	*46.44*	*92.85*
		MH100A	*MH101A*											*4.18*						*2.03*	*0.25*	*4.93*	*1.63*	*0.00*	*3.66*	*51.91*	*101.44*	*250*	*0.70*	*1.024*	*0.571*	*48.25*	*92.95*
Nipissing Court	**Blocks 1, 7**	**MH123A**	**MH122A**														**2.23**	**2.23**	**6.25**	**5.65**	**2.59**	**2.59**	**0.85**	**0.00**	**6.50**	**50.02**	**65.18**	**250**	**0.65**	**0.987**	**0.607**	**43.52**	**87.00**
		MH122A	**MH121A**															**2.23**	**6.25**	**5.65**	**0.20**	**2.79**	**0.92**	**0.00**	**6.57**	**50.02**	**100.00**	**250**	**0.65**	**0.987**	**0.607**	**43.45**	**86.87**
	Blocks 4, 5	**MH121A**	**MH101A**										**2.37**	**2.37**				**2.23**	**6.25**	**6.80**	**2.61**	**5.40**	**1.78**	**0.00**	**8.58**	**85.51**	**97.00**	**250**	**1.90**	**1.688**	**1.038**	**76.93**	**89.97**
Campeau Drive	*Block 36*	*MH101A*	*MH103A*										*0.33*	*9.42*				*11.16*	*4.75*	*26.05*	*0.56*	*23.14*	*7.64*	*0.00*	*33.69*	*43.87*	*93.00*	*250*	*0.50*	*0.866*	*0.952*	*10.18*	*23.20*
	Block 32, 54	*MH103A*	*MH104A*										*1.00*	*10.42*				*11.16*	*4.75*	*26.54*	*1.31*	*24.45*	*8.07*	*0.00*	*34.61*	*43.87*	*120.00*	*250*	*0.50*	*0.866*	*0.952*	*9.26*	*21.11*
Campeau Drive	*Block 29, 32*	*MH104A*	*MH105A*										*0.85*	*11.27*				*11.16*	*4.75*	*26.95*	*0.99*	*25.44*	*8.40*	*0.00*	*35.35*	*43.87*	*53.11*	*250*	*0.50*	*0.866*	*0.952*	*8.52*	*19.42*
KWRC	*Blocks 6, 8, 9, 10*		*MH 105A*												*11.78*	*11.78*				*5.73*	*11.78*	*11.78*	*3.89*	*0.00*	*9.61*	*39.24*	*12.01*	*250*	*0.40*	*0.774*	*0.601*	*29.62*	*75.50*
Campeau Drive		*MH105A*	*MH106A*											*11.27*		*11.78*		*11.16*	*4.75*	*32.68*	*0.28*	*37.50*	*12.38*	*0.00*	*45.05*	*59.68*	*87.77*	*300*	*0.35*	*0.818*	*0.877*	*14.63*	*24.51*
	Block 24	*MH106A*	*MH107A*										*0.75*	*12.02*		*11.78*		*11.16*	*4.75*	*33.04*	*1.10*	*38.60*	*12.74*	*0.00*	*45.78*	*59.68*	*90.92*	*300*	*0.35*	*0.818*	*0.900*	*13.90*	*23.29*
Upper Canada Street	**Blocks 26, 27, 30**	**MH154A**	**MH156A**														**3.19**	**3.19**	**5.50**	**7.11**	**3.40**	**3.40**	**1.12**	**0.00**	**8.23**	**50.02**	**107.00**	**250**	**0.65**	**0.987**	**0.692**	**41.79**	**83.55**
		MH156A	**MH131A**															**3.19**	**5.50**	**7.11**	**0.19**	**3.59**	**1.18**	**0.00**	**8.29**	**50.02**	**101.71**	**250**	**0.65**	**0.987**	**0.692**	**41.73**	**83.42**
Palladium Drive	*Blocks 17*	*MH130A*	*MH131A*											*0.00*			*0.71*	*0.71*	*5.50*	*1.58*	*1.18*	*1.18*	*0.39*	*0.00*	*1.97*	*50.02*	*106.00*	*250*	*0.65*	*0.987*	*0.467*	*48.05*	*96.06*
Palladium Drive		*MH131A*	*MH132A*											*0.00*				*3.90*	*5.25*	*8.29*	*0.23*	*5.00*	*1.65*	*0.00*	*9.94*	*43.87*	*67.35*	*250*	*0.50*	*0.866*	*0.672*	*33.92*	*77.33*
	Block 23, 24, 25, 28	*MH132A*	*MH133A*										*3.30*	*3.30*				*3.90*	*5.25*	*9.90*	*3.56*	*8.56*	*2.82*	*0.00*	*12.72*	*43.87*	*71.26*	*250*	*0.50*	*0.866*	*0.730*	*31.14*	*71.00*
		MH133A	*MH107A*											*3.30*				*3.90*	*5.25*	*9.90*	*0.17*	*8.73*	*2.88*	*0.00*	*12.78*	*107.45*	*42.79*	*250*	*3.00*	*2.121*	*1.304*	*94.67*	*88.11*
Campeau Drive	*Block 49*	*MH107A*	*MH108A*											*15.32*	*0.42*	*12.20*		*15.06*	*4.40*	*40.22*	*0.97*	*48.30*	*15.94*	*0.00*	*56.16*	*59.68*	*120.00*	*300*	*0.35*	*0.818*	*0.900*	*3.52*	*5.90*
		MH108A	*EX604A*											*15.32*		*12.20*		*15.06*	*4.40*	*40.22*	*0.49*	*48.79*	*16.10*	*0.00*	*56.32*	*59.68*	*120.00*	*300*	*0.35*	*0.818*	*0.900*	*3.36*	*5.63*
	Block 22	*MH 604A*	*MH 603A*										*2.63*	*17.95*		*12.20*		*15.06*	*4.40*	*41.50*	*3.03*	*51.82*	*17.10*	*0.00*	*58.60*	*62.51*	*102.12*	*300*	*0.38*	*0.857*	*0.942*	*3.91*	*6.26*
Upper Canada Street	**Blocks 18, 19, 20, 21**	**MH160A**	**MH161A**											**0.00**			**2.25**	**2.25**	**5.75**	**5.24**	**2.48**	**2.48**	**0.82**	**0.00**	**6.06**	**58.86**	**83.00**	**250**	**0.90**	**1.162**	**0.714**	**52.80**	**89.70**
	Block 14- 16	**MH161A**	**MH162A**										**2.23**	**2.23**				**2.25**	**5.75**	**6.32**	**2.45**	**4.93**	**1.63**	**0.00**	**7.95**	**50.02**	**112.00**	**250**	**0.65**	**0.987**	**0.692**	**42.07**	**84.10**
		MH162A	**MH140A**											**2.23**				**2.25**	**5.75**	**6.32**	**0.22**	**5.15**	**1.70**	**0.00**	**8.02**	**63.57**	**110.98**	**250**	**1.05**	**1.255**	**0.772**	**55.55**	**87.38**
Upper Canada Street	**Blocks 40, 41**	**MH167A**	**MH166A**											**0.00**			**1.45**	**1.45**	**6.25**	**3.67**	**1.66**	**1.66**	**0.55**	**0.00**	**4.22**	**51.91**	**72.00**	**250**	**0.70**	**1.024**	**0.611**	**47.69**	**91.87**
	Block 42	**MH166A**	**MH165A**											**0.00**			**0.74**	**2.19**	**5.70**	**5.06**	**0.94**	**2.60**	**0.86**	**0.00**	**5.91**	**50.02**	**100.00**	**250**	**0.65**	**0.987**	**0.607**	**44.10**	**88.17**
	Blocks 12, 13	**MH165A**	**MH140A**											**0.00**			**1.49**	**3.68**	**5.30**	**7.90**	**1.68**	**4.28**	**1.41**	**0.00**	**9.31**	**39.24**	**99.02**	**250**	**0.40**	**0.774**	**0.601**	**29.92**	**76.26**
Journeyman Street		*MH140A*	*MH141A*											*2.23*				*5.93*	*5.00*	*13.10*	*0.30*	*9.73*	*3.21*	*0.00*	*16.31*	*31.02*	*120.00*	*250*	*0.25*	*0.612*	*0.612*	*14.71*	*47.43*
		MH141A	*MH (84)*											*2.23*				*5.93*	*5.00*	*13.10*	*0.22*	*9.95*	*3.28*	*0.00*	*16.38*	*31.02*	*40.30*	*250*	*0.25*	*0.612*	*0.612*	*14.64*	*47.20*
		Stub	*MH 603A*											*2.23*				*5.93*	*5.00*	*13.10*	*0.00*	*9.95*	*3.28*	*0.00*	*16.38*	*31.63*	*32.98*	*250*	*0.26*	*0.624*	*0.624*	*15.26*	*48.22*
Campeau Drive	*Block 11*	*MH 603A*	*MH 602A*										*2.40*	*22.58*		*12.20*		*20.99*	*3.80*	*49.22*	*2.83*	*64.60*	*21.32*	*0.00*	*70.54*	*103.47*	*105.24*	*375*	*0.32*	*0.908*	*0.973*	*32.93*	*31.83*
	Tanger Outlet Centres	*MH 602A*	*MH 601A*											*22.58*	*16.40*	*28.60*		*20.99*	*3.80*	*57.19*	*16.84*	*81.44*	*26.88*	*0.00*	*84.07*	*109.75*	*107.73*	*375*	*0.36*	*0.963*	*1.059*	*25.68*	*23.40*
	Block 52	*MH 601A*	*MH 600A*										*2.16*	*24.74*		*28.60*		*20.99*	*3.80*	*58.24*	*2.54*	*83.98*	*27.71*	*0.00*	*85.95*	*109.75*	*106.95*	*375*	*0.36*	*0.963*	*1.059*	*23.79*	*21.68*
Campeau Drive	*Block XX*	*MH XXX*	*MH XXX*	*Light Grey = Constructed Sewer*																													

PUROLATOR

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				Peak Factor (PF)
TH/SD	2.7	p/p/u	P.B.P.	28,000	L/Ha/day	1.5
APT	1.8	p/p/u	COM	28,000	L/Ha/day	1.5
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart

Notes:

1. Manning's coefficient (n) = 0.013
2. Demand (per capita): 280 L/day 300 L/day
3. Infiltration allowance: 0.33 L/s/Ha 0.4 L/s/Ha
4. Residential Peaking Factor:
   Harmon Formula = 1+(14/(4+P^0.5)) K=0.8
   where P = population in thousands

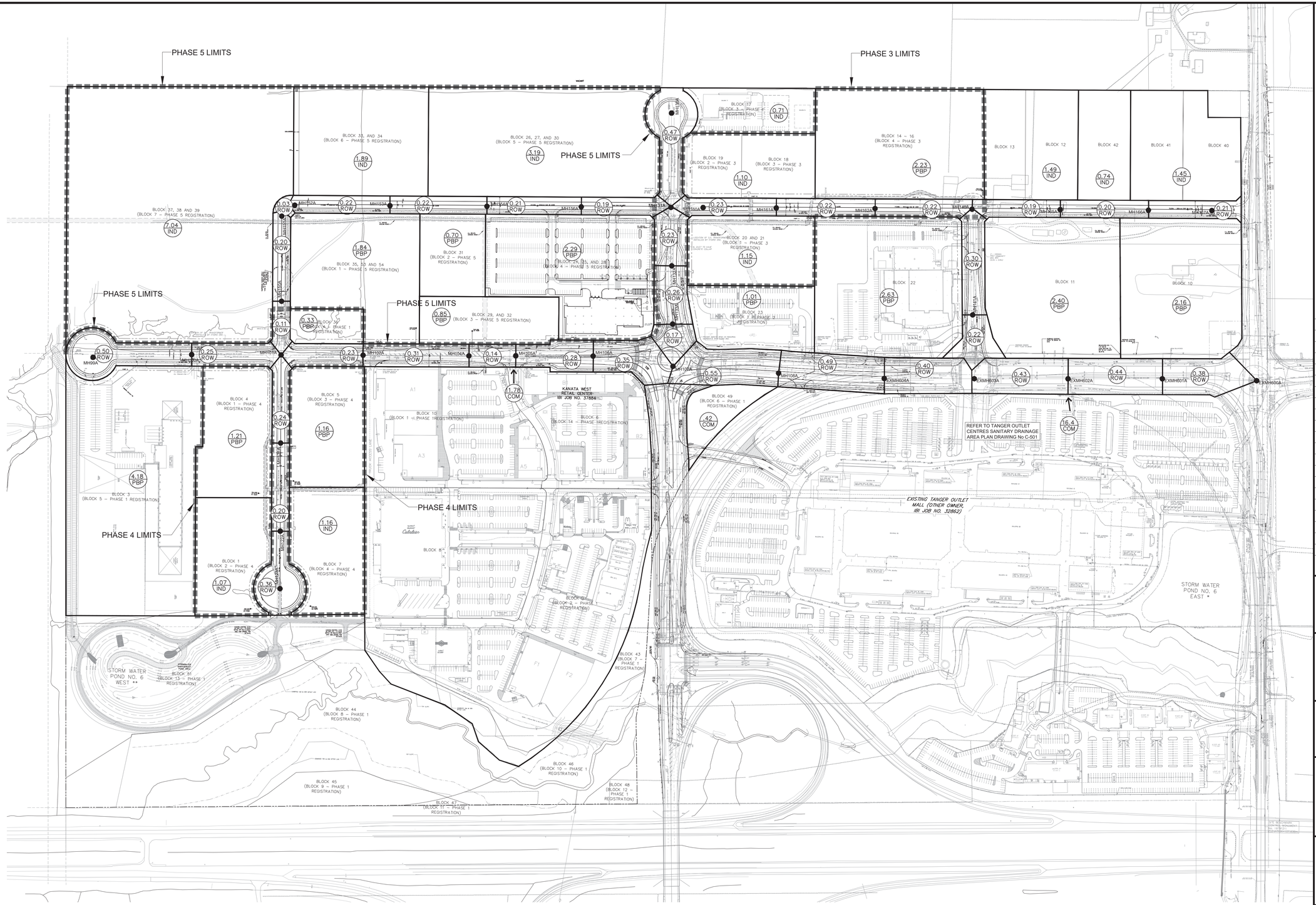
Designed: LME

Checked:

Dwg. Reference: 14289-501

No.	Revision	Date
1.	City submission No. 1	2014-11-25
2.	City submission No. 2	2015-04-08
3.	City submission No. 3	2015-06-18
4.	City submission No. 4	2015-10-15
5.	Revised for Phase 2 Registration	2018-04-19
6.	Revised for Phase 3 Registration	2018-09-14
7.	Revised per City Comments (Phase 3)	2018-12-14
8.	Revised for Phase 4 Registration	2019-04-26
9.	Revised for Phase 4 Registration Comments	2019-06-24
10.	Revised for Phase 5 Registration	2019-09-11
11.	Revised per City comments for Phase 5 Registration	2019-10-25

File Reference:	Date:	Sheet No:
14289.5.7.1	2018-04-19	1 of 1



LEGEND:

- 5.14 / P.B.P. — AREA IN HECTARES / LAND USE TYPE
- PBP — PRESTIGE BUSINESS PARK - 35 000 l/s/ha
- IND — LIGHT INDUSTRIAL - 35 000 l/s/ha
- COM — COMMERCIAL - 50 000 l/S/ha
- ROW — RIGHT OF WAY (INFILTRATION FLOW ONLY)
- DRAINAGE AREA LIMITS
- MH601A — SANITARY MANHOLE & NUMBER
- SANITARY SEWER & FLOW DIRECTION

No.	REVISIONS	By	Date
20			
19			
18			
17			
16			
15	ISSUED FOR PHASE 5 REGISTRATION	LME	19: 09: 10
14	REVISED AS PER PHASE 4 COMMENTS	LME	19: 07: 25
13	REVISED AS PER PHASE 4 COMMENTS	LME	19: 07: 22
12	REVISED AS PER PHASE 4 COMMENTS	LME	19: 06: 24
11	ISSUED FOR PHASE 4 REGISTRATION	LME	19: 04: 25
10	REVISED AS PER PHASE 3 COMMENTS	LME	19: 03: 08
9	ISSUED FOR PHASE 3 TENDER	LME	19: 01: 11
8	REVISED AS PER PHASE 3 COMMENTS	LME	18: 12: 14
7	REVISED FOR PHASE 3 REGISTRATION	LME	18: 09: 14
6	REVISED FOR PHASE 2 REGISTRATION	LME	18: 04: 20
5	REVISED AS PER CITY COMMENTS	LME	15: 11: 05
4	REVISED AS PER CITY COMMENTS	LME	15: 10: 15
3	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	LME	15: 06: 19
2	REVISED AS PER CITY COMMENTS	LME	15: 04: 08
1	ISSUED TO CITY FOR APPROVAL	LME	14: 11: 27

TAGGART REALTY MANAGEMENT

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

Project Title

KANATA WEST BUSINESS PARK PHASE 5

LICENSED PROFESSIONAL ENGINEER
L. M. ENGLISH
13379508
2019/09/10
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale
1:2000

Design	Date
LME	NOV. 2014
Drawn	Checked
DPS	TRB
Project No.	Drawing No.
14289	501

D07-16-14-0003_P5

#17661

J:\14289_Innovation\3.0 Drawings\3.5Civil\Topo\c\501 SANITARY DRAINAGE AREA PLAN.dwg Layout Name: 501 SANITARY DRAINAGE AREA PLAN Plot Style: AIA STANDARD HALFCTB Plot Scale: 1:1(1.0 Printed At: 10/24/2019 2:25 PM Last Saved By: dsouza Last Saved

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

SANITARY SEWER DESIGN SHEET

Purolator
CITY OF OTTAWA

LOCATION				Office									ICI AREAS								INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA w/ Units (Ha)	UNIT TYPES				AREA w/o Units (Ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)						ICI PEAK FACTOR	PEAK FLOW (L/s)	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY (full)	AVAILABLE CAPACITY	
STREET	AREA ID	FROM MH	TO MH		SF	SD	TH	Office		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL				IND	CUM	(L/s)	IND	CUM	(L/s)	(L/s)	(m)	(mm)	(%)	(m/s)	L/s	(%)
														IND	CUM	IND	CUM	IND	CUM														
Purolator		BLDG	MH2A							0.0	0.0	1.50	0.00	0.00	0.00	0.00	0.00	3.19	3.19	1.50	1.94	3.19	3.19	0.00	0.00	0.00	1.94	41.92	31.84	200	1.50	1.293	39.99	95.38%
Purolator		MH2A	MH1A							0.0	0.0	1.50	0.00	0.00	0.00	0.00	0.00	0.00	3.19	1.50	1.94	0.00	3.19	0.00	0.00	0.00	1.94	40.49	108.78	200	1.40	1.248	38.55	95.21%
Purolator		MH1A	EX STUB							0.0	0.0	1.50	0.00	0.00	0.00	0.00	0.00	0.00	3.19	1.50	1.94	0.00	3.19	0.00	0.00	0.00	1.94	36.93	8.07	200	1.16	1.139	34.99	94.75%

Design Parameters:

Residential			ICI Areas			
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	
APT	1.8	p/p/u	COM	28,000	L/Ha/day	
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
Office	75	L/p/day		17000	L/Ha/day	

Notes:

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

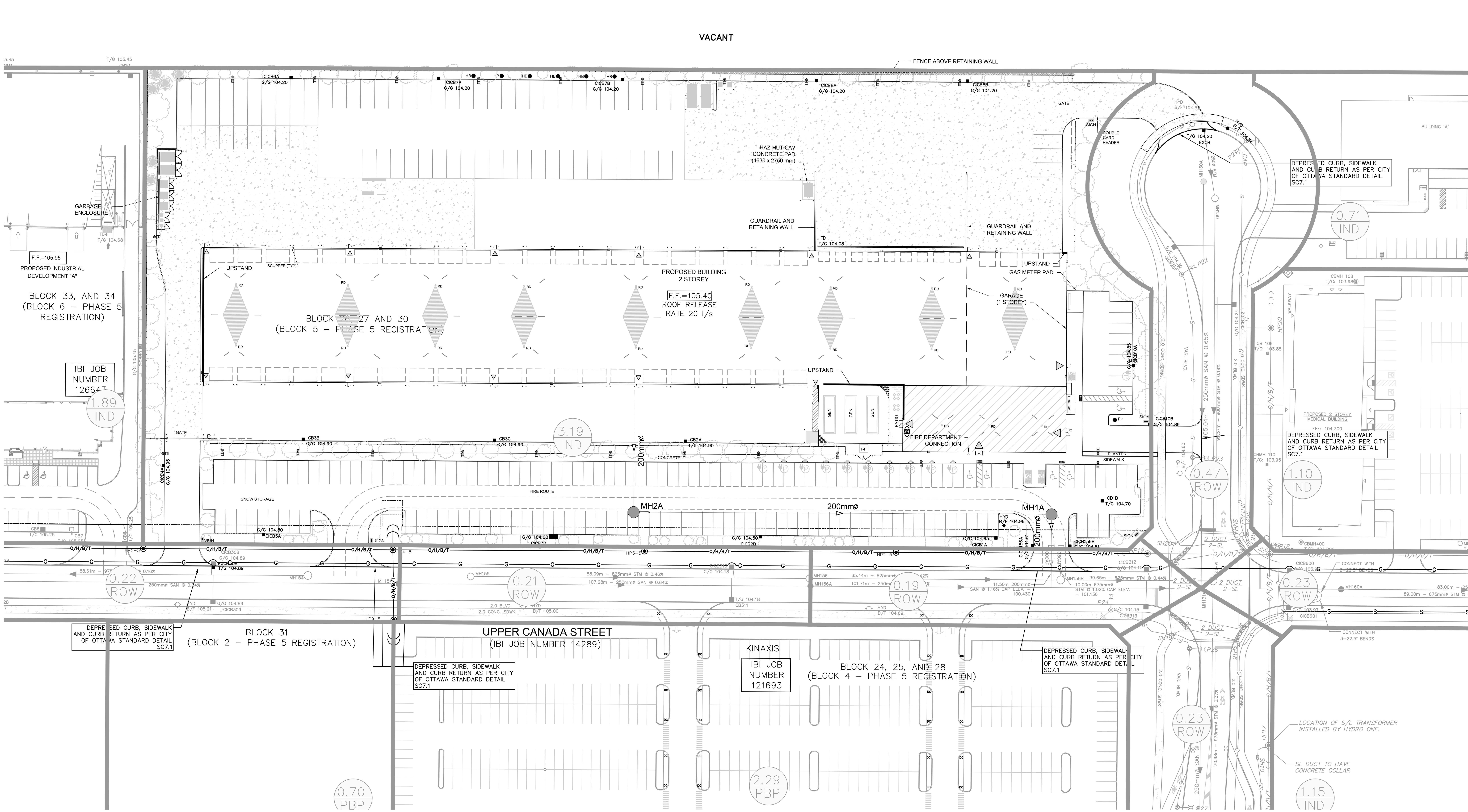
Designed: SEL

Checked: TRB

Dwg. Reference: 123987-001

No.	Revision	Date
1.	1st City Submission	2020-09-17
2.	2nd City Submission	2020-12-18
3.	3rd City Submission	2023-06-06

File Reference: 123987.7.3 **Date:** 2023-06-06 **Sheet No:** 1 of 1



NOTES:

1. SEE DETAIL DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR STANTEC GEOMATICS.

LEGEND :

- WH — AREA NUMBER
- 1.01 0.0 — RUNOFF COEFFICIENT
- AREA IN HECTARES
- 5.14 — AREA IN HECTARES
- PBP — LAND USE TYPE

PBP	PRESTIGE BUSINESS PARK - 35 000 l/s/ha
IND	LIGHT INDUSTRIAL - 35 000 l/s/ha
COM	COMMERCIAL - 50 000 l/s/ha
ROW	RIGHT OF WAY (INFILTRATION FLOW ONLY)

- DRAINAGE AREA LIMITS
- EXISTING DRAINAGE AREA LIMITS

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

SUBJECT AREA

KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L	2023:09:29
6	REVISED AS PER NEW SITE PLAN	S.E.L	2023:09:19
5	REVISED AS PER NEW SITE PLAN	S.E.L	2023:06:21
4	ISSUED FOR 60% SUBMISSION	T.R.B	2021:01:15
3	REVISED AS PER CITY COMMENTS	T.R.B	2020:12:18
2	ISSUED FOR 30% REVIEW	T.R.B	2020:11:13
1	ISSUED FOR SPA	T.R.B	2020:09:17

TAGGART REALTY MANAGEMENT

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

Project Title

Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale 1:500

Design: S.E.L.	Date: AUG . 2020
Drawn: S.E.L./D.P.S.	Checked: T.R.B.
Project No.: 123987	Drawing No.: C-400

CITY PLAN No. 18260

CITY FILE No. D07-12-20-0125

APPENDIX C

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

STORM SEWER DESIGN SHEET

Purolator Inc.
City of Ottawa

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW													SEWER DATA									
STREET	AREA ID	FROM	TO	C= 0.20	C= 0.25	C= 0.30	C= 0.50	C= 0.57	C= 0.65	C= 0.69	C= 0.70	C= 0.76	C= 0.90	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	(%)
Purolator - 2 yr		MH6	MH7										0.68	1.70	1.70	10.00	1.65	11.65	76.81	104.19	122.14	178.56	130.67	177.27	207.81	303.79		130.67	200.57	89.07	525			0.20	0.898	69.89	34.85%
Purolator - 2 yr		MH7	MH8										0.33	0.83	2.53	11.65	1.75	13.40	70.99	96.20	112.73	164.73	179.39	243.10	284.87	416.28										
																11.65	1.75	13.40	70.99	96.20	112.73	164.73	0.00	0.00	0.00	0.00		179.39	200.84	94.32	525			0.20	0.899	21.45	10.68%
Purolator		MH8	MH9											0.00	2.53	13.40	0.53	13.93	65.81	89.10	104.37	152.46	166.31	225.15	263.75	385.28										
	TD1	*MH8*	*MH9*										*0.08*	0.20	0.20	13.40	0.53	13.93	65.81	89.10	104.37	152.46	13.17	17.83	20.89	30.52		196.83	245.30	34.79	525			0.30	1.098	48.48	19.76%
Purolator		MH9	MH10										0.08	0.20	2.73	13.93	0.72	14.65	64.41	87.18	102.11	149.14	175.66	237.75	278.47	406.74										
Purolator - 100yr	*TD1*	*MH9*	*MH10*											0.00	0.20	13.93	0.72	14.65	64.41	87.18	102.11	149.14	12.89	17.45	20.44	29.85		205.51	283.18	54.47	525			0.40	1.267	77.67	27.43%
Purolator		MH10	MH1										0.04	0.10	2.83	14.65	0.22	14.87	62.61	84.71	99.21	144.89	177.02	239.51	280.50	409.64										
Purolator - 100yr	*TD1*	*MH10*	*MH1*											0.00	0.20	14.65	0.22	14.87	62.61	84.71	99.21	144.89	12.53	16.96	19.86	29.00		206.02	348.11	20.93	525			0.60	1.558	142.09	40.82%
Purolator	*Oversized for Storage*	MH4	MH3						0.09				0.42	1.21	1.21	10.00	1.30	11.30	76.81	104.19	122.14	178.56	93.20	126.44	148.22	216.68		93.20	391.96	82.59	675			0.20	1.061	298.76	76.22%
Purolator		MH3	MH2B										0.17	0.43	1.64	11.30	0.49	11.79	72.16	97.81	114.62	167.51	118.25	160.29	187.84	274.52		118.25	133.41	23.86	450			0.20	0.813	15.15	11.36%
Purolator	R1	BLDG	MH5										0.86	2.15	2.15	10.00	0.23	10.23	76.81	104.19	122.14	178.56	165.26	224.19	262.81	384.21		165.26	182.95	21.79	375			1.00	1.605	17.69	9.67%
Purolator	*Overflow Pipe*	MH5	MH2B											0.00	2.15	10.23	0.06	10.29	75.95	103.01	120.75	176.52	163.42	221.65	259.82	379.81		163.42	258.35	8.02	375			2.00	2.266	94.94	36.75%
Purolator		MH2B	MH2										0.16	0.40	4.19	11.79	0.49	12.28	70.56	95.62	112.04	163.73	295.72	400.72	469.55	686.15		295.72	429.94	43.73	600			0.45	1.473	134.21	31.22%
Purolator		MH2	MH1										0.06	0.15	4.34	12.28	0.74	13.02	69.03	93.51	109.56	160.09	299.66	405.93	475.61	694.93		299.66	429.72	65.55	600			0.45	1.472	130.06	30.27%
Purolator		MH1	BLKHD										0.03	0.08	7.24	13.02	0.07	13.09	66.86	90.54	106.07	154.95	484.31	655.80	768.27	1,122.35										
Purolator - 100yr	*TD1*	*MH1*	*BLKHD*											0.00	0.20	13.02	0.07	13.09	66.86	90.54	106.07	154.95	13.38	18.12	21.23	31.01		515.33	883.82	10.14	675			1.02	2.393	368.50	41.69%
Purolator		BLKHD	MH156B											0.00	7.24	13.09	0.07	13.16	66.67	90.27	105.75	154.48	482.88	653.83	765.95	1,118.95										
Purolator - 100yr	*TD1*	*BLKHD*	*MH156B*											0.00	0.20	13.09	0.07	13.16	66.67	90.27	105.75	154.48	13.34	18.07	21.17	30.92		513.80	885.66	10.00	675			1.02	2.398	371.86	41.99%
																															675						

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

Notes:
1. Mannings coefficient (n) = 0.013

Designed: SEL

Checked: TRB

Dwg. Reference: 123987-500

No.	Revision	Date
1.	Issued for Site Plan Application	2020-09-17
2.	Revised per City comments	2020-12-18
3.	3rd Submission	2023-06-06
4.	4th Submission	2023-09-15

File Reference:	Date:	Sheet No:
123987.7.03	2023-09-15	1 of 1

IBI GROUP
333 PRESTON STREET
OTTAWA, ON
K1S 5N4

PROJECT: Purolator
DATE: 2023-09-15
FILE: 123987.7.04
REV #: 2
DESIGNED BY: SEL
CHECKED BY: TB

STORMWATER MANAGEMENT

Formulas and Descriptions

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

Maximum Allowable Release Rate

Restricted Flowrate from Kanata West Business Park approved Table 4.1 (see table in Appendix C)

	KWBP Minor System Flow (Table 4.2) L/s
Area ID	155A 525
Q_{TOTAL} =	525.00 L/s

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

Uncontrolled Landscape Areas (UN-E + UN-SE + UN-S + UN-N)

C =	0.28 (C_{100} increased by 25%)
T_c =	10 min
i_{100yr} =	178.56 mm/hr
$A_{uncontrolled}$ =	0.18 Ha
$Q_{uncontrolled}$ =	24.57 L/s

Captured Unrestricted Drainage Areas (TD1 + CICB156A/B + CICB10B)

C =	1.00 (C_{100} increased by 25%)
T_c =	10 min
i_{100yr} =	178.56 mm/hr
$A_{uncontrolled}$ =	0.13 Ha
$Q_{uncontrolled}$ =	64.53 L/s

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

$Q_{max\ allowable}$ =	435.90 L/s

MODIFIED RATIONAL METHOD (100-Year & 2-YearPonding)

Drainage Area MH 6/7/8 CICB 6A, 7A, 7B, 8A, 8B

Area (Ha)	1.01	Restricted Flow Q, (L/s)=	219.00
C =	1.00	50% Effective Flow Q, (L/s)=	109.50

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
20	119.95	336.80	109.50	227.30	272.76
22	112.88	316.95	109.50	207.45	273.83
23	109.68	307.96	109.50	198.46	**273.88**
24	106.68	299.52	109.50	190.02	273.64
26	101.18	284.09	109.50	174.59	272.36

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
369.56	260.06	**358.88**

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	273.88	279.27	51.79	0.00

100+20

Overflow	Required	Balance
0.00	358.88	79.61

Drainage Area MH 6/7/8

Area (Ha)	1.010	Restricted Flow Q, (L/s)=	219.00
C =	0.90	50% Effective Flow Q, (L/s)=	109.50

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
6	96.64	244.21	109.50	134.71	48.50
8	85.46	215.95	109.50	106.45	51.10
9	80.87	204.37	109.50	94.87	**51.23**
10	76.81	194.09	109.50	84.59	50.75
12	69.89	176.62	109.50	67.12	48.33

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	51.23	279.27	51.79	0.00

Drainage Area CICB10A

Area (Ha)	0.06		
C =	1.00	Restricted Flow Q, (L/s)=	16.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
6	226.01	37.70	16.00	21.70	7.81
8	199.20	33.23	16.00	17.23	8.27
9	188.25	31.40	16.00	15.40	**8.32**
10	178.56	29.78	16.00	13.78	8.27
12	162.13	27.04	16.00	11.04	7.95

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
37.68	21.68	**11.71**

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	8.32	24.80	0.50	0.00

100+20

Overflow	Required	Balance
0.00	11.71	0.00

Drainage Area CICB10A

Area (Ha)	0.060		
C =	0.90	Restricted Flow Qr (L/s)=	16.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-1	192.83	28.95	16.00	12.95	-0.78
1	148.14	22.24	16.00	6.24	0.37
2	133.33	20.02	16.00	4.02	**0.48**
3	121.46	18.23	16.00	2.23	0.40
5	103.57	15.55	16.00	-0.45	-0.14

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	0.48	24.80	0.50	0.00

Drainage Area CB1B

Area (Ha)	0.04		
C =	1.00	Restricted Flow Q, (L/s)=	11.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
6	226.01	25.13	11.00	14.13	5.09
8	199.20	22.15	11.00	11.15	5.35
9	188.25	20.93	11.00	9.93	**5.36**
10	178.56	19.86	11.00	8.86	5.31
12	162.13	18.03	11.00	7.03	5.06

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
25.12	14.12	**7.63**

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	5.36	5.16	0.50	0.00

100+20

Overflow	Required	Balance
0.00	7.63	2.47

Drainage Area CB1B

Area (Ha)	0.040		
C =	0.90	Restricted Flow Qr (L/s)=	11.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-1	192.83	19.30	11.00	8.30	-0.50
1	148.14	14.83	11.00	3.83	0.23
2	133.33	13.34	11.00	2.34	**0.28**
3	121.46	12.16	11.00	1.16	0.21
5	103.57	10.37	11.00	-0.63	-0.19

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	0.28	5.16	0.50	0.00

Drainage Area MH 4/3 CICB 4A, 3A, CB3B, 3C, 2A

Area (Ha)	0.51	Restricted Flow Q, (L/s)=	61.50
C =	1.00	50% Effective Flow Q, (L/s)=	30.75

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
37	79.42	112.60	30.75	81.85	181.70
39	76.51	108.48	30.75	77.73	181.88
40	75.15	106.54	30.75	75.79	**181.90**
41	73.83	104.68	30.75	73.93	181.87
43	71.35	101.16	30.75	70.41	181.67

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
127.85	97.10	**233.04**

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	181.90	137.36	46.32	0.00

100+20

Overflow	Required	Balance
0.00	233.04	95.68

Drainage Area MH 4/3

Area (Ha)	0.510	Restricted Flow Q, (L/s)=	61.50
C =	0.90	50% Effective Flow Q, (L/s)=	30.75

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
14	64.23	81.96	30.75	51.21	43.02
16	59.50	75.93	30.75	45.18	43.37
17	57.42	73.27	30.75	42.52	**43.37**
18	55.49	70.80	30.75	40.05	43.26
20	52.03	66.39	30.75	35.64	42.77

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	43.37	137.36	46.32	0.00

Drainage Area DCICB3D

Area (Ha)	0.17		
C =	1.00	Restricted Flow Q, (L/s)=	51.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{100yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 100yr (m^3)
5	242.70	114.70	51.00	63.70	19.11
7	211.67	100.03	51.00	49.03	20.59
8	199.20	94.14	51.00	43.14	**20.71**
9	188.25	88.97	51.00	37.97	20.50
11	169.91	80.30	51.00	29.30	19.34

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
112.97	61.97	**29.75**

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	20.71	48.62	1.00	0.00

100+20

Overflow	Required	Balance
0.00	29.75	0.00

Drainage Area DCICB3D

Area (Ha)	0.170		
C =	0.90	Restricted Flow Qr (L/s)=	51.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow Q_p=2.78xCi_{2yr}A (L/s)	Q_r (L/s)	Q_p-Q_r (L/s)	Volume 2yr (m^3)
-2	229.26	97.51	51.00	46.51	-5.58
0	167.22	71.13	51.00	20.13	0.00
1	148.14	63.01	51.00	12.01	**0.72**
2	133.33	56.71	51.00	5.71	0.69
4	111.72	47.52	51.00	-3.48	-0.84

Storage (m^3)

Overflow	Required	Surface	Underground	Balance
0.00	0.72	48.62	1.00	0.00

Drainage Area	CICB2B
Area (Ha)	0.16
C =	1.00

Restricted Flow Q_r (L/s)= 51.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
4	262.41	116.72	51.00	65.72	15.77
6	226.01	100.53	51.00	49.53	17.83
7	211.67	94.15	51.00	43.15	**18.12**
8	199.20	88.60	51.00	37.60	18.05
10	178.56	79.42	51.00	28.42	17.05

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
112.98	61.98	**26.03**

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
100yr	0.00	18.12	47.30	0.50	0.00
100+20	0.00	26.03			0.00

Drainage Area	CICB2B
Area (Ha)	0.160
C =	0.90

Restricted Flow Qr (L/s)= 51.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
-2	229.26	91.78	51.00	40.78	-4.89
0	167.22	66.94	51.00	15.94	0.00
1	148.14	59.31	51.00	8.31	**0.50**
2	133.33	53.37	51.00	2.37	0.28
4	111.72	44.73	51.00	-6.27	-1.51

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
2yr	0.00	0.50	47.30	0.50	0.00

Drainage Area	CICB1A
Area (Ha)	0.02
C =	1.00

Restricted Flow Q_r (L/s)= 6.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
5	242.70	13.49	6.00	7.49	2.25
7	211.67	11.77	6.00	5.77	2.42
8	199.20	11.08	6.00	5.08	**2.44**
9	188.25	10.47	6.00	4.47	2.41
11	169.91	9.45	6.00	3.45	2.27

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
13.29	7.29	**3.50**

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
100yr	0.00	2.44	2.93	0.50	0.00
100+20	0.00	3.50			0.57

Drainage Area	CICB1A
Area (Ha)	0.020
C =	0.90

Restricted Flow Qr (L/s)= 6.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
-1	192.83	9.65	6.00	3.65	-0.22
1	148.14	7.41	6.00	1.41	0.08
2	133.33	6.67	6.00	0.67	**0.08**
3	121.46	6.08	6.00	0.08	0.01
5	103.57	5.18	6.00	-0.82	-0.25

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
2yr	0.00	0.08	2.93	0.50	0.00

Drainage Area	Rooftop R1
Area (Ha)	0.86
C =	1.00

Restricted Flow Q_r (L/s)= 20.00

100-Year Ponding

T_c Variable (min)	i_{100yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{100yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 100yr (m^3)
104	36.77	87.91	20.00	67.91	423.74
106	36.23	86.62	20.00	66.62	423.69
107	35.97	85.99	20.00	65.99	**423.65**
108	35.71	85.37	20.00	65.37	423.60
110	35.20	84.16	20.00	64.16	423.47

100Yr +20%

100YRQp 20% (L/s)	Qp - Qr (L/s)	Volume 100+20 (m3)
103.19	83.19	**534.06**

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
100yr	0.00	423.65	450.00	0.00	0.00
100+20	0.00	534.06			84.06

Drainage Area	Rooftop R1
Area (Ha)	0.860
C =	0.90

Restricted Flow Qr (L/s)= 20.00

2-Year Ponding

T_c Variable (min)	i_{2yr} (mm/hour)	Peak Flow $Q_p = 2.78xCi_{2yr}A$ (L/s)	Q_r (L/s)	$Q_p - Q_r$ (L/s)	Volume 2yr (m^3)
40	32.86	70.71	20.00	50.71	121.71
42	31.76	68.33	20.00	48.33	121.79
43	31.23	67.20	20.00	47.20	**121.78**
44	30.73	66.11	20.00	46.11	121.74
46	29.77	64.06	20.00	44.06	121.59

Storage (m^3)	Overflow	Required	Surface	Underground	Balance
2yr	0.00	121.78	450.00	0.00	0.00

Drainage Area	Tributary Area	Restricted Flow	Req Storage	Avail Storage	Overflow
MH 6/7/8	1.01	219.00	273.88	331.06	0.00
CICB10A	0.06	16.00	8.32	25.30	0.00
CB1B	0.04	11.00	5.36	5.66	0.00
MH 4/3	0.51	61.50	181.90	183.68	0.00
DCICB3D	0.17	51.00	20.71	49.62	0.00
CICB2B	0.16	51.00	18.12	47.80	0.00
CICB1A	0.02	6.00	2.44	3.43	0.00
Total Surface	1.97	415.50	510.73	646.55	0.00
Rooftop R1	0.86	20.00	423.65	450.00	0.00
Total Buildings	0.86	20.00	423.65	450.00	0.00
Total	**2.83**	**435.50**	**934.38**	**1096.55**	**0.00**
	Max Allowable	**435.90**			

100-Yr Event	Pond. Volume	Depth
	222.09	0.28
	7.82	0.17
	4.86	0.09
	135.58	0.20-0.30
	19.71	0.22
	17.62	0.22
	1.94	0.13

2-Yr Event	Pond. Volume	Depth
	0.00	0.00
	0.00	0.00
	0.00	0.00
	0.00	0.00
	0.00	0.00
	0.00	0.00
	0.00	0.00

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

PROJECT:	Purolator
DATE:	2023-09-15
FILE:	123987.7.04
REV #:	2
DESIGNED BY:	SEL

UNDERGROUND STORAGE CALCULATIONS

Pipe Storage	***MH 6/7/8***				
From	**To**	**Length**	**Diameter**	**X-sec Area**	**Volume**
CICB6A	MH6	13.06	250	0.049	0.64
CICB7A	MAIN	3.70	250	0.049	0.18
CICB7B	MAIN	3.70	250	0.049	0.18
MH6	MH7	89.07	525	0.216	19.28
CICB8A	MAIN	3.70	200	0.031	0.12
CICB8B	MAIN	3.70	200	0.031	0.12
MH7	MH8	94.32	525	0.216	20.42
				Total	40.94

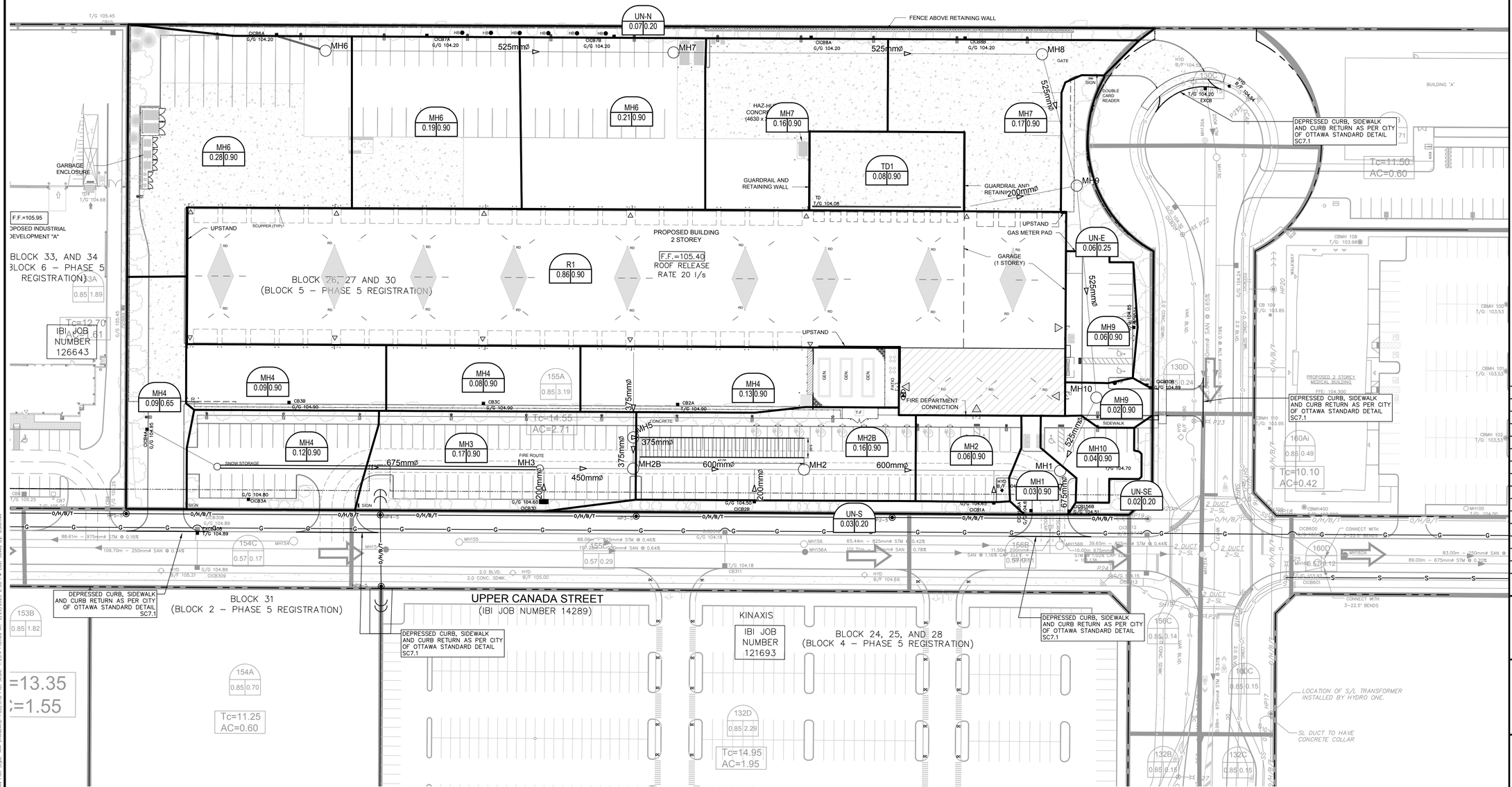
Structure Storage			***MH 6/7/8***			
	Invert	**Top**	**Height**	**diameter**	**X-sec Area**	**Volume**
CICB6A	103.200	104.60	1.40	600	0.360	0.50
CICB7A	103.150	104.55	1.40	600	0.360	0.50
CICB7B	103.100	104.50	1.40	600	0.360	0.50
MH6	102.400	104.78	2.38	1200	1.131	2.69
CICB8A	103.100	104.50	1.40	600	0.360	0.50
CICB8B	103.100	104.50	1.40	600	0.360	0.50
MH7	102.202	104.57	2.37	1200	1.131	2.68
MH8	101.983	104.60	2.62	1200	1.131	2.96
					Total	10.85

TOTAL	**51.79**

Pipe Storage	***MH 4/3***				
From	**To**	**Length**	**Diameter**	**X-sec Area**	**Volume**
CICB4A	MH4	20.00	200	0.031	0.63
CB3B	MAIN	16.20	200	0.031	0.51
CB3C	MAIN	16.20	250	0.049	0.80
CICB3A	MAIN	8.00	200	0.031	0.25
CB2A	CB3C	50.00	250	0.049	2.45
MH4	MH3	82.59	675	0.358	29.55
				Total	34.19

Structure Storage			***MH 4/3***			
	Invert	**Top**	**Height**	**diameter**	**X-sec Area**	**Volume**
CICB4A	103.550	104.95	1.40	600	0.360	0.50
CICB3B	103.500	104.90	1.40	600	0.360	0.50
CICB3C	103.500	104.90	1.40	600	0.360	0.50
CICB3D	103.200	104.60	1.40	600	0.360	0.50
MH4	102.100	104.88	2.78	1500	1.767	4.91
MH3	101.888	104.83	2.94	1500	1.767	5.20
					Total	12.13

TOTAL	**46.32**



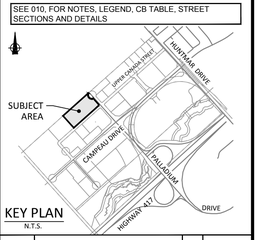
NOTES:

1. SEE DETAIL DRAWING C-010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR STANTEC GEOMATICS.

LEGEND :

- WH / 1.01 | 0.0 — AREA NUMBER; RUNOFF COEFFICIENT; AREA IN HECTARES
- WH / 1.01 | 0.0 — EXISTING AREA NUMBER; EXISTING AREA IN HECTARES; EXISTING RUNOFF COEFFICIENT
- Tc=11.70 / AC=1.23 — ESTIMATED TIME OF CONCENTRATION IN MINUTES; PRODUCT OF AREA AND RUNOFF COEFFICIENT
- DRAINAGE AREA LIMITS
- EXISTING DRAINAGE AREA LIMITS
- EXISTING EMERGENCY OVERLAND FLOW

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



KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.09.19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023.06.21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021.01.15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020.12.18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020.11.13
1	ISSUED FOR SPA	T.R.B.	2020.09.17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,

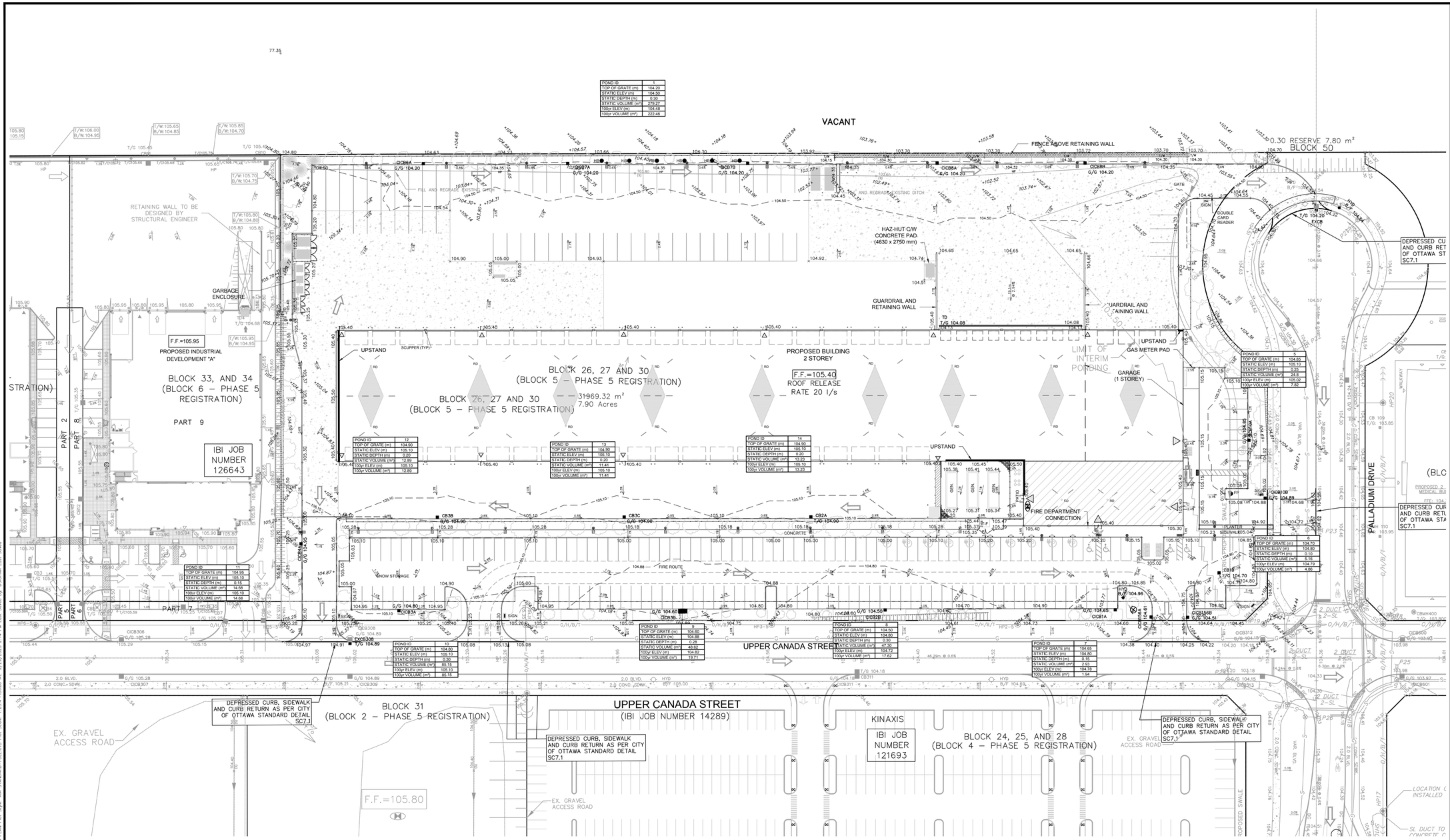
LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
STORM DRAINAGE AREA PLAN

Scale
1:500

Design	Date
S.E.L.	AUG . 2020
Drawn: S.E.L./D.P.S.	Checked: T.R.B.
Project No.: 123987	Drawing No.: C-500

CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260



POND ID	1
TOP OF GRATE (m)	104.20
STATIC ELEV (m)	104.50
STATIC DEPTH (m)	0.30
STATIC VOLUME (m³)	279.27
100yr ELEV (m)	104.48
100yr VOLUME (m³)	222.46

POND ID	11
TOP OF GRATE (m)	104.95
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	14.68
100yr ELEV (m)	105.10
100yr VOLUME (m³)	14.68

POND ID	12
TOP OF GRATE (m)	104.90
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	12.89
100yr ELEV (m)	105.10
100yr VOLUME (m³)	12.89

POND ID	13
TOP OF GRATE (m)	104.90
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	11.41
100yr ELEV (m)	105.10
100yr VOLUME (m³)	11.41

POND ID	14
TOP OF GRATE (m)	104.90
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.20
STATIC VOLUME (m³)	13.23
100yr ELEV (m)	105.10
100yr VOLUME (m³)	13.23

POND ID	4
TOP OF GRATE (m)	104.85
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.25
STATIC VOLUME (m³)	24.8
100yr ELEV (m)	105.02
100yr VOLUME (m³)	7.82

POND ID	6
TOP OF GRATE (m)	104.70
STATIC ELEV (m)	104.80
STATIC DEPTH (m)	0.10
STATIC VOLUME (m³)	5.16
100yr ELEV (m)	104.79
100yr VOLUME (m³)	4.86

POND ID	9
TOP OF GRATE (m)	104.60
STATIC ELEV (m)	104.88
STATIC DEPTH (m)	0.28
STATIC VOLUME (m³)	48.62
100yr ELEV (m)	104.82
100yr VOLUME (m³)	19.71

POND ID	8
TOP OF GRATE (m)	104.50
STATIC ELEV (m)	104.80
STATIC DEPTH (m)	0.30
STATIC VOLUME (m³)	47.30
100yr ELEV (m)	104.72
100yr VOLUME (m³)	17.62

POND ID	10
TOP OF GRATE (m)	104.80
STATIC ELEV (m)	105.10
STATIC DEPTH (m)	0.30
STATIC VOLUME (m³)	85.15
100yr ELEV (m)	105.10
100yr VOLUME (m³)	85.15

POND ID	7
TOP OF GRATE (m)	104.65
STATIC ELEV (m)	104.80
STATIC DEPTH (m)	0.15
STATIC VOLUME (m³)	2.93
100yr ELEV (m)	104.78
100yr VOLUME (m³)	1.94

Roof Ponding Information

i. 16 flow control roof drains proposed
ii. All drains to be Watts RD100 with flow control or approved equivilant
iii. Maximum depth of storage 150mm
iv. Flow per drain to be maximum 1.25 litres/second, total flow from roof 20 litres/second
v. Scupper locations not yet established

NOTES:

1. SEE DETAIL DRAWING C–010 FOR ADDITIONAL DETAILS AND NOTES.
2. SITE BENCHMARK TO BE OBTAINED FROM LEGAL SURVEYOR STANTEC GEOMATICS.

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

KEY PLAN
N.T.S.

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:29
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:19
6	ADD 2 YR PONDING ELEVATIONS	S.E.L.	2023:09:01
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:06:21
4	ISSUED FOR 60% SUBMISSON	T.R.B.	2021:01:15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020:12:18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020:11:13
1	ISSUED FOR SPA	T.R.B.	2020:09:17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET, KANATA, ONTARIO

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

Drawing Title
PONDING PLAN

Scale
1:500

Design	Date
S.E.L.	AUG . 2020
Drawn	Checked
S.E.L./D.P.S.	T.R.B.
Project No.	Drawing No.
123987	C-600

CITY FILE No. D07-12-20-0125
CITY PLAN No. 18260

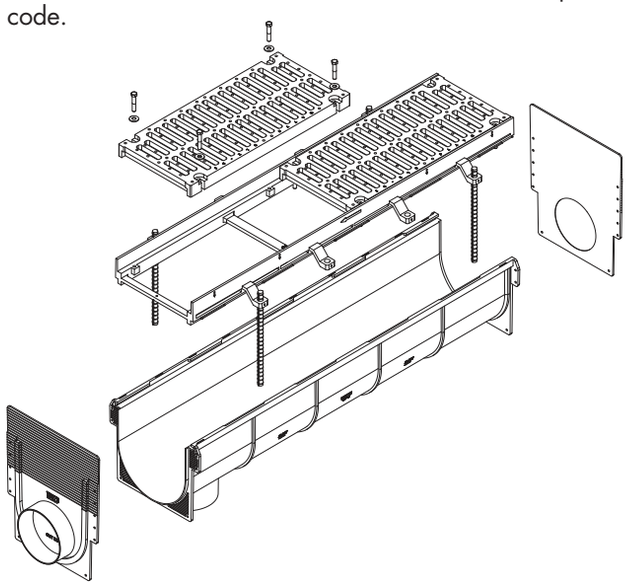
S:\123987_KNP\Location\7.0_Production\7.03_Design\04_Civil\Sheets\C-600.dwg Layout Name: C-600 PONDING PLAN Plot Style: AIA STANDARD-FULL.CTB Plot Scale: 1:25.4 Plotted At: 9/29/2023 2:14 PM Last Saved By: DSURINA Last Saved

Dead Level™ DX

Tag: _____

Pre-Sloped Polypropylene Trench Drain System w/Ductile Iron Frame

SPECIFICATION: Watts Dead Level DX Pre-Sloped Trench Drain System with 12"(305) wide x 48"(1219) long (standard) ductile iron frame, UV stabilized talc-filled polypropylene channels with 6"(152) No Hub Bottom or End outlet(s). System shall be frame-anchored, with (specify) grating to suit DIN Class (specify) load rating. System to include frame connectors, grate lockdowns, and construction covers. Installation to be performed in accordance with manufacturer's instructions and building code.



Grate Options:

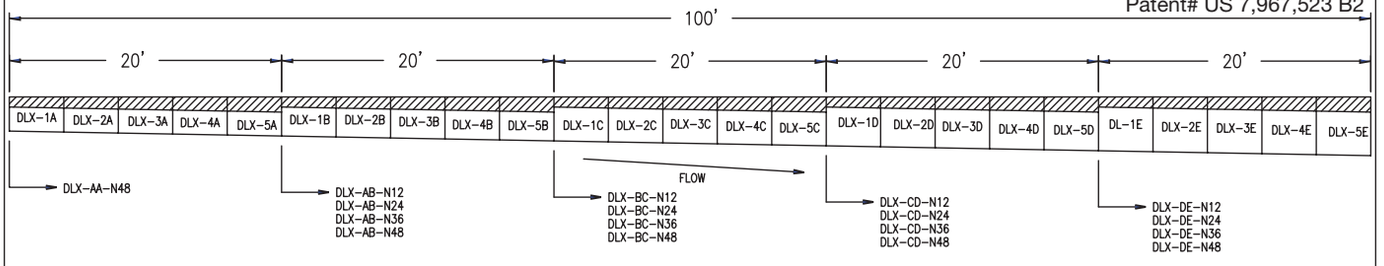
Suffix	Description	
-DI	Ductile Iron	Class F ☐
-DI-ADA	Ductile Iron ADA	Class F ☐
-GDI	Galvanized Ductile Iron*	Class F ☐
-RGP	Reinforced Galvanized Perforated	Class E ☐
-RGS	Reinforced Galvanized Slotted	Class E ☐
-RSP	Reinforced Stainless Steel Perforated	Class E ☐
-RSS	Reinforced Stainless Steel Slotted	Class E ☐
-SCI	Solid Cast Iron*	Class F ☐

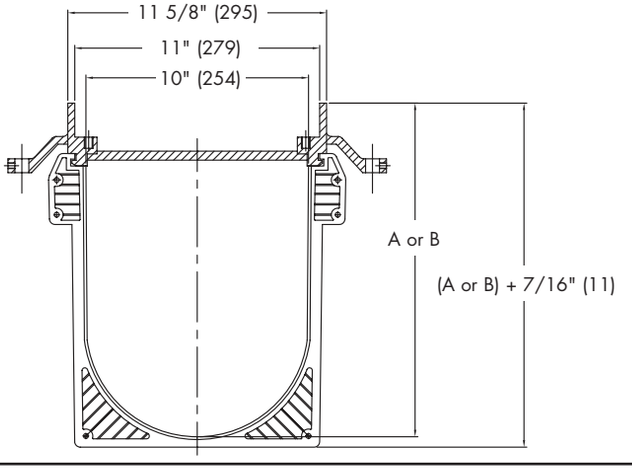
Options:

Suffix	Description	
-B24	24"x24"x24" Catch Basin w/DI Grate	☐
-B24T	24"x24"x24" Catch Basin w/DI Grate & Trash Basket	☐
-B24SS	24"x24"x24" Catch Basin w/SS Grate	☐
-B24SST	24"x24"x24" Catch Basin w/SS Grate & Trash Basket	☐
-FG	Galvanized Steel Frame Guard	☐
-FS	Stainless Steel Frame Guard	☐
-US	Buy American Compliant	☐

* Not Available With -US

Patent# US 7,967,523 B2





Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

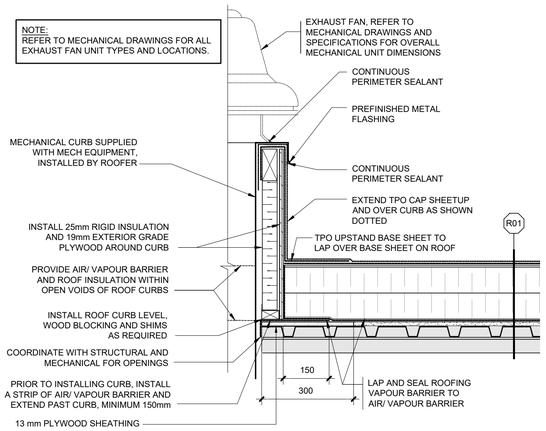
Dead Level™ DLX Dimensional Data

Part #	Configuration	Length	Weight (lbs)	Dim. A	Dim. B
DLX-AA-N48	Neutral	48" (1219)	37	8-3/4"(222)	8-3/4"(222)
DLX-1A	Sloped	48" (1219)	39	8-3/4"(222)	9-1/16"(230)
DLX-2A	Sloped	48" (1219)	44	9-1/16"(230)	9-3/8"(238)
DLX-3A	Sloped	48" (1219)	47	9-3/8"(238)	9-11/16"(246)
DLX-4A	Sloped	48" (1219)	49	9-11/16"(246)	10"(254)
DLX-5A	Sloped	48" (1219)	54	10"(254)	10-5/16"(262)
DLX-AB-N12	Neutral	12" (305)	10	10-5/16"(262)	10-5/16"(262)
DLX-AB-N24	Neutral	24" (610)	19	10-5/16"(262)	10-5/16"(262)
DLX-AB-N36	Neutral	36" (914)	28	10-5/16"(262)	10-5/16"(262)
DLX-AB-N48	Neutral	48" (1219)	37	10-5/16"(262)	10-5/16"(262)
DLX-1B	Sloped	48" (1219)	40	10-5/16"(262)	10-5/8"(270)
DLX-2B	Sloped	48" (1219)	45	10-5/8"(270)	10-15/16"(278)
DLX-3B	Sloped	48" (1219)	48	10-15/16"(278)	11-1/4"(286)
DLX-4B	Sloped	48" (1219)	50	11-1/4"(286)	11-9/16"(294)
DLX-5B	Sloped	48" (1219)	55	11-9/16"(294)	11-7/8"(302)
DLX-BC-N12	Neutral	12" (305)	11	11-7/8"(302)	11-7/8"(302)
DLX-BC-N24	Neutral	24" (610)	21	11-7/8"(302)	11-7/8"(302)
DLX-BC-N36	Neutral	36" (914)	31	11-7/8"(302)	11-7/8"(302)
DLX-BC-N48	Neutral	48" (1219)	45	11-7/8"(302)	11-7/8"(302)
DLX-1C	Sloped	48" (1219)	41	11-7/8"(302)	12-3/16"(310)
DLX-2C	Sloped	48" (1219)	46	12-3/16"(310)	12-1/2"(318)
DLX-3C	Sloped	48" (1219)	49	12-1/2"(318)	12-13/16"(325)
DLX-4C	Sloped	48" (1219)	51	12-13/16"(325)	13-1/8"(333)
DLX-5C	Sloped	48" (1219)	56	13-1/8"(333)	13-7/16"(341)
DLX-CD-N12	Neutral	12" (305)	11	13-7/16"(341)	13-7/16"(341)
DLX-CD-N24	Neutral	24" (610)	21	13-7/16"(341)	13-7/16"(341)
DLX-CD-N36	Neutral	36" (914)	31	13-7/16"(341)	13-7/16"(341)
DLX-CD-N48	Neutral	48" (1219)	45	13-7/16"(341)	13-7/16"(341)
DLX-1D	Sloped	48" (1219)	42	13-7/16"(341)	13-3/4"(349)
DLX-2D	Sloped	48" (1219)	47	13-3/4"(349)	14-1/16"(357)
DLX-3D	Sloped	48" (1219)	50	14-1/16"(357)	14-3/8"(365)
DLX-4D	Sloped	48" (1219)	52	14-3/8"(365)	14-11/16"(373)
DLX-5D	Sloped	48" (1219)	57	14-11/16"(373)	15"(381)
DLX-DE-N48	Neutral	48" (1219)	47	15"(381)	15"(381)
DLX-1E	Sloped	48" (1219)	43	15"(381)	15-5/16"(389)
DLX-2E	Sloped	48" (1219)	48	15-5/16"(389)	15-5/8"(397)
DLX-3E	Sloped	48" (1219)	51	15-5/8"(397)	15-15/16"(405)
DLX-4E	Sloped	48" (1219)	53	15-15/16"(405)	16-1/4"(413)
DLX-5E	Sloped	48" (1219)	58	16-1/4"(413)	16-9/16"(420)

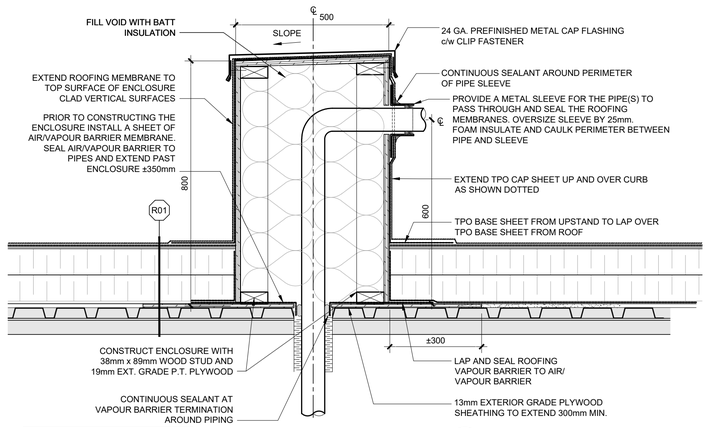
WATTS®

Specification Drainage Products

USA: Tel: (828) 288-2179 • TOLL-FREE: 1-800-338-2581 • www.watts.com
Canada: (905) 332-4090 • Fax: (905) 332-7068 • www.watts.ca

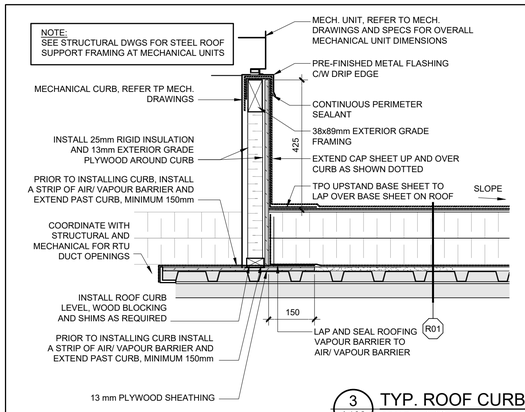


5 A102 TYP. EXHAUST FAN
SCALE 1:10

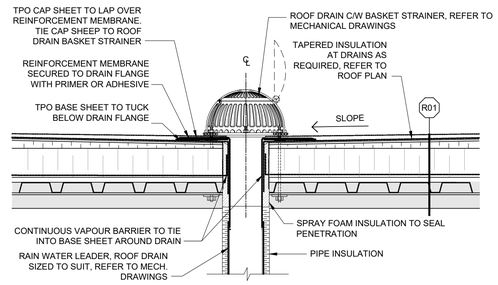


NOTE:
REFER TO MECHANICAL DRAWINGS FOR SIZE, QUANTITY AND LOCATIONS

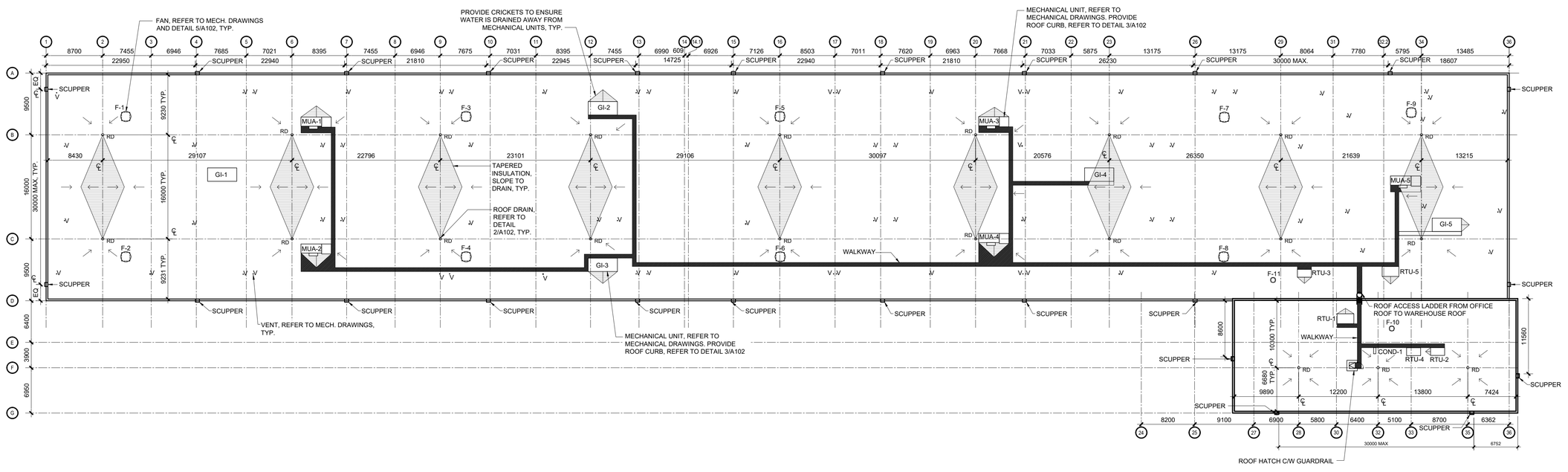
4 A102 TYP. PIPING ENCLOSURE
SCALE 1:10



3 A102 TYP. ROOF CURB
SCALE 1:10



2 A102 TYP. ROOF DRAIN
SCALE 1:10



1 A102 ROOF PLAN
SCALE 1:350

no.	revision	date (DD-MMM-YYYY)
10.	ISSUE FOR 60% SUBMISSION	16 AUG 2023
9.	RE-ISSUE FOR 30% SUBMISSION	15 JUNE 2023
8.	TENDER PACKAGE #1	12-FEB-2021
7.	ISSUED FOR 60% SUBMISSION	15-JAN-2021
6.	ISSUED FOR SITE PLAN CONTROL R1	16-DEC-2020
5.	ISSUED FOR 30% REVIEW	13-NOV-2020
4.	ISSUED FOR SITE PLAN CONTROL	18-SEP-2020
3.	FOR CLIENT REVIEW	30-JUL-2020
2.	FOR CLIENT REVIEW	17-MAR-2020
1.	FOR CLIENT MEETING	17-DEC-2019

N45 ARCHITECTURE INC.
71 Bank Street, 7th Floor - Ottawa, Ontario, K1P 5N2
tel. 613.224.0095 fax 613.224.9811

project
PUROLATOR DISTRIBUTION KANATA
1400 UPPER CANADA STREET
KANATA, ON. CANADA

north arrow: N, true north, W, E, S
seal

drawing title
ROOF PLAN AND DETAILS

scale	drawn by
1:250	DL
date (DD-MMM-YYYY)	checked by
JUNE 2023	RM
project number	drawing number
23-778	A102

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

revision 10

CITY'S FILE NO.: D07-12-20-0125
PLAN NO.: 18260

SUMMARY OF INFILTRATION GALLERY CALCULATIONS

AVERAGE SILTY SAND PERCOLATION RATE

annual precipitation (mm)	920
95% available runoff (mm)	874
area (ha)	3.19

								Infiltration Gallery Overflow (%)			Overflow Volume (m^3)			Infiltration Volume (m^3)		
Building ID	Area (m^2)	Available Runoff Volume (m^3)	Gallery ID	Width (m)	Length (m)	Area (m2)	Depth (m)	WET YEAR	DRY YEAR	AVERAGE	WET YEAR	DRY YEAR	AVERAGE	WET YEAR	DRY YEAR	AVERAGE
Roof	8600	7516	1	5	42	210	0.6	55.30%	31.57%	43.44%	4157	2373	3265	3360	5143	4251
TOTAL		7516											3265			4251

AVERAGE INFILTRATION RATE	133.27
REQUIRED INFILTRATION RATE	106

INFILTRATION GALLERY SIZING CALCULATION

WET YEAR CALCULATION

Roof	8600	m^2	PRECIPITATION DATA APRIL 1 TO OCTOBER 31 (WET YEAR)		
Effective Runoff	0.95	%	TOT PRECIP DEPTH	800.4	mm
Percolation	0.504	(m/day, avg sandy silt)	TOTAL PRECIP VOLUME	6538	m3
INFILTRATION GALLERY SIZING					
Width	5	m	DEVELOPMENT AREA	3.19	ha
Length	42	m			
depth	0.6	m	OVERFLOW VOL	3616	m3/year
Number Cells	1				
void ratio	0.38		RUNOFF VOLUME OVERFLOW	55.30%	
	47.88	TOTAL DRYCELL VOL			

DATE	RAINFALL	RAINFALL INTENSITY (AVG)	RAINWATER AVAILABLE	VOLUME INFLOW TO DRYCELL	VOLUME IN DRY CELL	VOLUME PASSING DRY CELL	INFILTRATION FROM BOTTOM	INFILTRATION FROM SIDES (BOTTOM 1/3)	BALANCE IN DRYCELL
	[MM]	[MM/HR]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]
01-Apr	0.2	0.008	0	0	0	0	0	0	0
02-Apr	0.4	0.017	3	3	3	0	3	0	0
03-Apr	0	0.000	0	0	0	0	0	0	0
04-Apr	0	0.000	0	0	0	0	0	0	0
05-Apr	0	0.000	0	0	0	0	0	0	0
06-Apr	7.8	0.325	64	48	48	16	48	0	0
07-Apr	3.4	0.142	28	28	28	0	28	0	0
08-Apr	4.6	0.192	38	38	38	0	38	0	0
09-Apr	4.2	0.175	34	34	34	0	34	0	0
10-Apr	0	0.000	0	0	0	0	0	0	0
11-Apr	0	0.000	0	0	0	0	0	0	0
12-Apr	0	0.000	0	0	0	0	0	0	0
13-Apr	0	0.000	0	0	0	0	0	0	0
14-Apr	0	0.000	0	0	0	0	0	0	0
15-Apr	0	0.000	0	0	0	0	0	0	0
16-Apr	0	0.000	0	0	0	0	0	0	0
17-Apr	0	0.000	0	0	0	0	0	0	0
18-Apr	0	0.000	0	0	0	0	0	0	0
19-Apr	0	0.000	0	0	0	0	0	0	0
20-Apr	8.2	0.342	67	48	48	19	48	0	0
21-Apr	2.8	0.117	23	23	23	0	23	0	0
22-Apr	0	0.000	0	0	0	0	0	0	0
23-Apr	0	0.000	0	0	0	0	0	0	0
24-Apr	0	0.000	0	0	0	0	0	0	0
25-Apr	0	0.000	0	0	0	0	0	0	0
26-Apr	0	0.000	0	0	0	0	0	0	0
27-Apr	0	0.000	0	0	0	0	0	0	0
28-Apr	0	0.000	0	0	0	0	0	0	0
29-Apr	0	0.000	0	0	0	0	0	0	0
30-Apr	0	0.000	0	0	0	0	0	0	0
01-May	9	0.375	74	48	48	26	48	0	0
02-May	0	0.000	0	0	0	0	0	0	0
03-May	0	0.000	0	0	0	0	0	0	0
04-May	2.4	0.100	20	20	20	0	20	0	0
05-May	8	0.333	65	48	48	17	48	0	0
06-May	1	0.042	8	8	8	0	8	0	0
07-May	1.6	0.067	13	13	13	0	13	0	0
08-May	0.8	0.033	7	7	7	0	7	0	0
09-May	0	0.000	0	0	0	0	0	0	0
10-May	0	0.000	0	0	0	0	0	0	0
11-May	0	0.000	0	0	0	0	0	0	0
12-May	0	0.000	0	0	0	0	0	0	0
13-May	0	0.000	0	0	0	0	0	0	0
14-May	0	0.000	0	0	0	0	0	0	0
15-May	1	0.042	8	8	8	0	8	0	0
16-May	17.4	0.725	142	48	48	94	48	0	0
17-May	0	0.000	0	0	0	0	0	0	0
18-May	11	0.458	90	48	48	42	48	0	0
19-May	30.2	1.258	247	48	48	199	48	0	0
20-May	29.4	1.225	240	48	48	192	48	0	0
21-May	5.9	0.246	48	48	48	0	48	0	0
22-May	26.9	1.121	220	48	48	172	48	0	0
23-May	11.3	0.471	92	48	48	44	48	0	0
24-May	0.4	0.017	3	3	3	0	3	0	0
25-May	0	0.000	0	0	0	0	0	0	0
26-May	0	0.000	0	0	0	0	0	0	0
27-May	7.8	0.325	64	48	48	16	48	0	0
28-May	0	0.000	0	0	0	0	0	0	0
29-May	0	0.000	0	0	0	0	0	0	0
30-May	0	0.000	0	0	0	0	0	0	0
31-May	0	0.000	0	0	0	0	0	0	0
01-Jun	10.6	0.442	87	48	48	39	48	0	0
02-Jun	0	0.000	0	0	0	0	0	0	0
03-Jun	0	0.000	0	0	0	0	0	0	0
04-Jun	0	0.000	0	0	0	0	0	0	0
05-Jun	1.4	0.058	11	11	11	0	11	0	0
06-Jun	0	0.000	0	0	0	0	0	0	0
07-Jun	5	0.208	41	41	41	0	41	0	0
08-Jun	0.2	0.008	2	2	2	0	2	0	0
09-Jun	0	0.000	0	0	0	0	0	0	0
10-Jun	0	0.000	0	0	0	0	0	0	0
11-Jun	4.8	0.200	39	39	39	0	39	0	0
12-Jun	26.2	1.092	214	48	48	166	48	0	0
13-Jun	1	0.042	8	8	8	0	8	0	0
14-Jun	0	0.000	0	0	0	0	0	0	0
15-Jun	0	0.000	0	0	0	0	0	0	0
16-Jun	5.6	0.233	46	46	46	0	46	0	0
17-Jun	0	0.000	0	0	0	0	0	0	0
18-Jun	0	0.000	0	0	0	0	0	0	0
19-Jun	4	0.167	33	33	33	0	33	0	0
20-Jun	0	0.000	0	0	0	0	0	0	0
21-Jun	0	0.000	0	0	0	0	0	0	0
22-Jun	0	0.000	0	0	0	0	0	0	0
23-Jun	1	0.042	8	8	8	0	8	0	0
24-Jun	27.2	1.133	222	48	48	174	48	0	0
25-Jun	0	0.000	0	0	0	0	0	0	0
26-Jun	0	0.000	0	0	0	0	0	0	0
27-Jun	29	1.208	237	48	48	189	48	0	0
28-Jun	0	0.000	0	0	0	0	0	0	0
29-Jun	0.2	0.008	2	2	2	0	2	0	0
30-Jun	0	0.000	0	0	0	0	0	0	0
01-Jul	0	0.000	0	0	0	0	0	0	0
02-Jul	10	0.417	82	48	48	34	48	0	0
03-Jul	14.8	0.617	121	48	48	73	48	0	0
04-Jul	7.6	0.317	62	48	48	14	48	0	0
05-Jul	14.8	0.617	121	48	48	73	48	0	0
06-Jul	0	0.000	0	0	0	0	0	0	0
07-Jul	0	0.000	0	0	0	0	0	0	0

08-Jul	0	0.000	0	0	0	0	0	0	0
09-Jul	0	0.000	0	0	0	0	0	0	0
10-Jul	0	0.000	0	0	0	0	0	0	0
11-Jul	0	0.000	0	0	0	0	0	0	0
12-Jul	0	0.000	0	0	0	0	0	0	0
13-Jul	10.6	0.442	87	48	48	39	48	0	0
14-Jul	0.4	0.017	3	3	3	0	3	0	0
15-Jul	0	0.000	0	0	0	0	0	0	0
16-Jul	0	0.000	0	0	0	0	0	0	0
17-Jul	0	0.000	0	0	0	0	0	0	0
18-Jul	0	0.000	0	0	0	0	0	0	0
19-Jul	0	0.000	0	0	0	0	0	0	0
20-Jul	6.2	0.258	51	48	48	3	48	0	0
21-Jul	0	0.000	0	0	0	0	0	0	0
22-Jul	0	0.000	0	0	0	0	0	0	0
23-Jul	0	0.000	0	0	0	0	0	0	0
24-Jul	0	0.000	0	0	0	0	0	0	0
25-Jul	3.6	0.150	29	29	29	0	29	0	0
26-Jul	31.6	1.317	258	48	48	210	48	0	0
27-Jul	0	0.000	0	0	0	0	0	0	0
28-Jul	0	0.000	0	0	0	0	0	0	0
29-Jul	42.4	1.767	346	48	48	299	48	0	0
30-Jul	2.4	0.100	20	20	20	0	20	0	0
31-Jul	0	0.000	0	0	0	0	0	0	0
01-Aug	0.6	0.025	5	5	5	0	5	0	0
02-Aug	10.8	0.450	88	48	48	40	48	0	0
03-Aug	0	0.000	0	0	0	0	0	0	0
04-Aug	0	0.000	0	0	0	0	0	0	0
05-Aug	0.4	0.017	3	3	3	0	3	0	0
06-Aug	4	0.167	33	33	33	0	33	0	0
07-Aug	1.2	0.050	10	10	10	0	10	0	0
08-Aug	2.8	0.117	23	23	23	0	23	0	0
09-Aug	11	0.458	90	48	48	42	48	0	0
10-Aug	0	0.000	0	0	0	0	0	0	0
11-Aug	0	0.000	0	0	0	0	0	0	0
12-Aug	0	0.000	0	0	0	0	0	0	0
13-Aug	0	0.000	0	0	0	0	0	0	0
14-Aug	0	0.000	0	0	0	0	0	0	0
15-Aug	2	0.083	16	16	16	0	16	0	0
16-Aug	0	0.000	0	0	0	0	0	0	0
17-Aug	0	0.000	0	0	0	0	0	0	0
18-Aug	14.2	0.592	116	48	48	68	48	0	0
19-Aug	0	0.000	0	0	0	0	0	0	0
20-Aug	0	0.000	0	0	0	0	0	0	0
21-Aug	15.6	0.650	127	48	48	80	48	0	0
22-Aug	0	0.000	0	0	0	0	0	0	0
23-Aug	6.6	0.275	54	48	48	6	48	0	0
24-Aug	0.8	0.033	7	7	7	0	7	0	0
25-Aug	0	0.000	0	0	0	0	0	0	0
26-Aug	3.8	0.158	31	31	31	0	31	0	0
27-Aug	24.2	1.008	198	48	48	150	48	0	0
28-Aug	0.8	0.033	7	7	7	0	7	0	0
29-Aug	0	0.000	0	0	0	0	0	0	0
30-Aug	0	0.000	0	0	0	0	0	0	0
31-Aug	0	0.000	0	0	0	0	0	0	0
01-Sep	0	0.000	0	0	0	0	0	0	0
02-Sep	0.4	0.017	3	3	3	0	3	0	0
03-Sep	0	0.000	0	0	0	0	0	0	0
04-Sep	1.9	0.079	16	16	16	0	16	0	0
05-Sep	5.8	0.242	47	47	47	0	47	0	0
06-Sep	0	0.000	0	0	0	0	0	0	0
07-Sep	0	0.000	0	0	0	0	0	0	0
08-Sep	0	0.000	0	0	0	0	0	0	0
09-Sep	0	0.000	0	0	0	0	0	0	0
10-Sep	6.4	0.267	52	48	48	4	48	0	0
11-Sep	61.8	2.575	505	48	48	457	48	0	0
12-Sep	20.6	0.858	168	48	48	120	48	0	0
13-Sep	5.8	0.242	47	47	47	0	47	0	0
14-Sep	0	0.000	0	0	0	0	0	0	0
15-Sep	8.1	0.338	66	48	48	18	48	0	0
16-Sep	2.3	0.096	19	19	19	0	19	0	0
17-Sep	0	0.000	0	0	0	0	0	0	0
18-Sep	0	0.000	0	0	0	0	0	0	0
19-Sep	0	0.000	0	0	0	0	0	0	0
20-Sep	0.8	0.033	7	7	7	0	7	0	0
21-Sep	0	0.000	0	0	0	0	0	0	0
22-Sep	0	0.000	0	0	0	0	0	0	0
23-Sep	13	0.542	106	48	48	58	48	0	0
24-Sep	0	0.000	0	0	0	0	0	0	0
25-Sep	0	0.000	0	0	0	0	0	0	0
26-Sep	0	0.000	0	0	0	0	0	0	0
27-Sep	0	0.000	0	0	0	0	0	0	0
28-Sep	1.3	0.054	11	11	11	0	11	0	0
29-Sep	14.1	0.588	115	48	48	67	48	0	0
30-Sep	25.2	1.050	206	48	48	158	48	0	0
01-Oct	0	0.000	0	0	0	0	0	0	0
02-Oct	0.4	0.017	3	3	3	0	3	0	0
03-Oct	7.8	0.325	64	48	48	16	48	0	0
04-Oct	7.8	0.325	64	48	48	16	48	0	0
05-Oct	6	0.250	49	48	48	1	48	0	0
06-Oct	0.4	0.017	3	3	3	0	3	0	0
07-Oct	0	0.000	0	0	0	0	0	0	0
08-Oct	1	0.042	8	8	8	0	8	0	0
09-Oct	1.2	0.050	10	10	10	0	10	0	0
10-Oct	0	0.000	0	0	0	0	0	0	0
11-Oct	0	0.000	0	0	0	0	0	0	0
12-Oct	0	0.000	0	0	0	0	0	0	0
13-Oct	10.4	0.433	85	48	48	37	48	0	0
14-Oct	9	0.375	74	48	48	26	48	0	0
15-Oct	0	0.000	0	0	0	0	0	0	0
16-Oct	0.2	0.008	2	2	2	0	2	0	0
17-Oct	1.6	0.067	13	13	13	0	13	0	0
18-Oct	0	0.000	0	0	0	0	0	0	0
19-Oct	0	0.000	0	0	0	0	0	0	0
20-Oct	0	0.000	0	0	0	0	0	0	0
21-Oct	5.8	0.242	47	47	47	0	47	0	0
22-Oct	0	0.000	0	0	0	0	0	0	0
23-Oct	1	0.042	8	8	8	0	8	0	0
24-Oct	0	0.000	0	0	0	0	0	0	0
25-Oct	0	0.000	0	0	0	0	0	0	0
26-Oct	1.3	0.054	11	11	11	0	11	0	0
27-Oct	10.9	0.454	89	48	48	41	48	0	0
28-Oct	0	0.000	0	0	0	0	0	0	0
29-Oct	13	0.542	106	48	48	58	48	0	0
30-Oct	0	0.000	0	0	0	0	0	0	0
31-Oct	0	0.000	0	0	0	0	0	0	0

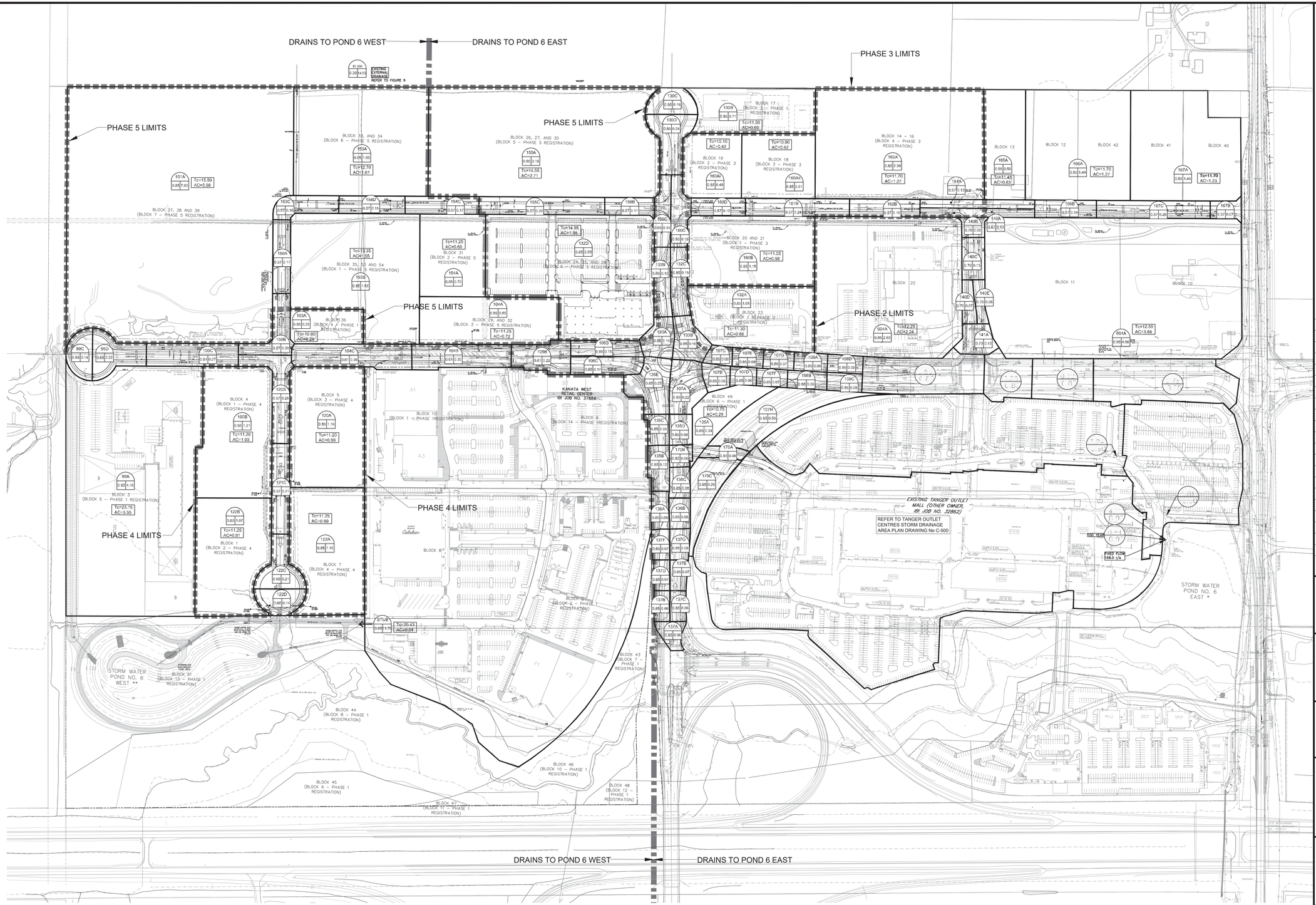
INFILTRATION GALLERY SIZING CALCULATION

DRY YEAR CALCULATION

Roof	8600	m^2	PRECIPITATION DATA APRIL 1 TO OCTOBER 31 (DRY YEAR)		
Effective Runoff	0.95	%	TOT PRECIP DEPTH	405.1	mm
Percolation	0.504	(m/day, avg sandy silt)	TOTAL PRECIP VOLUME	3310	m3
INFILTRATION GALLERY SIZING					
Width	5	m	DEVELOPMENT AREA	3.19	ha
Length	42	m			
depth	0.6	m	OVERFLOW VOL	1045	m3/year
Number Cells	1				
void ratio	0.38		RUNOFF VOLUME OVERFLOW	31.57%	
	47.88	TOTAL DRYCELL VOL			

DATE	RAINFALL	RAINFALL INTENSITY (AVG)	RAINWATER AVAILABLE	VOLUME INFLOW TO DRYCELL	VOLUME IN DRY CELL	VOLUME PASSING DRY CELL	INFILTRATION FROM BOTTOM	INFILTRATION FROM SIDES (BOTTOM 1/3)	BALANCE IN DRYCELL
	[MM]	[MM/HR]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]	[M^3]
01-Apr	0	0.000	0	0	0	0	0	0	0
02-Apr	0	0.000	0	0	0	0	0	0	0
03-Apr	0	0.000	0	0	0	0	0	0	0
04-Apr	15	0.625	123	48	48	75	48	0	0
05-Apr	0	0.000	0	0	0	0	0	0	0
06-Apr	0	0.000	0	0	0	0	0	0	0
07-Apr	0.3	0.013	2	2	2	0	2	0	0
08-Apr	0	0.000	0	0	0	0	0	0	0
09-Apr	0	0.000	0	0	0	0	0	0	0
10-Apr	0	0.000	0	0	0	0	0	0	0
11-Apr	0	0.000	0	0	0	0	0	0	0
12-Apr	1	0.042	8	8	8	0	8	0	0
13-Apr	1.6	0.067	13	13	13	0	13	0	0
14-Apr	5.9	0.246	48	48	48	0	48	0	0
15-Apr	2.3	0.096	19	19	19	0	19	0	0
16-Apr	0	0.000	0	0	0	0	0	0	0
17-Apr	0	0.000	0	0	0	0	0	0	0
18-Apr	0	0.000	0	0	0	0	0	0	0
19-Apr	0	0.000	0	0	0	0	0	0	0
20-Apr	0	0.000	0	0	0	0	0	0	0
21-Apr	0	0.000	0	0	0	0	0	0	0
22-Apr	6.9	0.288	56	48	48	8	48	0	0
23-Apr	4.8	0.200	39	39	39	0	39	0	0
24-Apr	0.3	0.013	2	2	2	0	2	0	0
25-Apr	0	0.000	0	0	0	0	0	0	0
26-Apr	0	0.000	0	0	0	0	0	0	0
27-Apr	0	0.000	0	0	0	0	0	0	0
28-Apr	0	0.000	0	0	0	0	0	0	0
29-Apr	10.8	0.450	88	48	48	40	48	0	0
30-Apr	1.6	0.067	13	13	13	0	13	0	0
01-May	3.8	0.158	31	31	31	0	31	0	0
02-May	0	0.000	0	0	0	0	0	0	0
03-May	11.3	0.471	92	48	48	44	48	0	0
04-May	0	0.000	0	0	0	0	0	0	0
05-May	0	0.000	0	0	0	0	0	0	0
06-May	4.1	0.171	33	33	33	0	33	0	0
07-May	3	0.125	25	25	25	0	25	0	0
08-May	0	0.000	0	0	0	0	0	0	0
09-May	23.4	0.975	191	48	48	143	48	0	0
10-May	0.5	0.021	4	4	4	0	4	0	0
11-May	0	0.000	0	0	0	0	0	0	0
12-May	22.3	0.929	182	48	48	134	48	0	0
13-May	0	0.000	0	0	0	0	0	0	0
14-May	0	0.000	0	0	0	0	0	0	0
15-May	2.3	0.096	19	19	19	0	19	0	0
16-May	0.3	0.013	2	2	2	0	2	0	0
17-May	0	0.000	0	0	0	0	0	0	0
18-May	0	0.000	0	0	0	0	0	0	0
19-May	0	0.000	0	0	0	0	0	0	0
20-May	0	0.000	0	0	0	0	0	0	0
21-May	0	0.000	0	0	0	0	0	0	0
22-May	8.4	0.350	69	48	48	21	48	0	0
23-May	10	0.417	82	48	48	34	48	0	0
24-May	3.4	0.142	28	28	28	0	28	0	0
25-May	6.2	0.258	51	48	48	3	48	0	0
26-May	1.9	0.079	16	16	16	0	16	0	0
27-May	0.3	0.013	2	2	2	0	2	0	0
28-May	1.3	0.054	11	11	11	0	11	0	0
29-May	1.1	0.046	9	9	9	0	9	0	0
30-May	0	0.000	0	0	0	0	0	0	0
31-May	10.9	0.454	89	48	48	41	48	0	0
01-Jun	0	0.000	0	0	0	0	0	0	0
02-Jun	0.5	0.021	4	4	4	0	4	0	0
03-Jun	0	0.000	0	0	0	0	0	0	0
04-Jun	0	0.000	0	0	0	0	0	0	0
05-Jun	0	0.000	0	0	0	0	0	0	0
06-Jun	0	0.000	0	0	0	0	0	0	0
07-Jun	0	0.000	0	0	0	0	0	0	0
08-Jun	0	0.000	0	0	0	0	0	0	0
09-Jun	0	0.000	0	0	0	0	0	0	0
10-Jun	0	0.000	0	0	0	0	0	0	0
11-Jun	0	0.000	0	0	0	0	0	0	0
12-Jun	0.3	0.013	2	2	2	0	2	0	0
13-Jun	12.2	0.508	100	48	48	52	48	0	0
14-Jun	0.3	0.013	2	2	2	0	2	0	0
15-Jun	1.3	0.054	11	11	11	0	11	0	0
16-Jun	11.8	0.492	96	48	48	49	48	0	0
17-Jun	6.4	0.267	52	48	48	4	48	0	0
18-Jun	0.8	0.033	7	7	7	0	7	0	0
19-Jun	0	0.000	0	0	0	0	0	0	0
20-Jun	5.2	0.217	42	42	42	0	42	0	0
21-Jun	3.2	0.133	26	26	26	0	26	0	0
22-Jun	0	0.000	0	0	0	0	0	0	0
23-Jun	0	0.000	0	0	0	0	0	0	0
24-Jun	0.3	0.013	2	2	2	0	2	0	0
25-Jun	0	0.000	0	0	0	0	0	0	0
26-Jun	0	0.000	0	0	0	0	0	0	0
27-Jun	0	0.000	0	0	0	0	0	0	0
28-Jun	0	0.000	0	0	0	0	0	0	0
29-Jun	0	0.000	0	0	0	0	0	0	0
30-Jun	1.1	0.046	9	9	9	0	9	0	0
01-Jul	0.5	0.021	4	4	4	0	4	0	0
02-Jul	6.1	0.254	50	48	48	2	48	0	0
03-Jul	0	0.000	0	0	0	0	0	0	0
04-Jul	6.4	0.267	52	48	48	4	48	0	0
05-Jul	0.8	0.033	7	7	7	0	7	0	0
06-Jul	0	0.000	0	0	0	0	0	0	0
07-Jul	0	0.000	0	0	0	0	0	0	0

08-Jul	0	0.000	0	0	0	0	0	0	0
09-Jul	6.7	0.279	55	48	48	7	48	0	0
10-Jul	0	0.000	0	0	0	0	0	0	0
11-Jul	0	0.000	0	0	0	0	0	0	0
12-Jul	0	0.000	0	0	0	0	0	0	0
13-Jul	0	0.000	0	0	0	0	0	0	0
14-Jul	0	0.000	0	0	0	0	0	0	0
15-Jul	0	0.000	0	0	0	0	0	0	0
16-Jul	0	0.000	0	0	0	0	0	0	0
17-Jul	0	0.000	0	0	0	0	0	0	0
18-Jul	20.9	0.871	171	48	48	123	48	0	0
19-Jul	11.5	0.479	94	48	48	46	48	0	0
20-Jul	0	0.000	0	0	0	0	0	0	0
21-Jul	0	0.000	0	0	0	0	0	0	0
22-Jul	0	0.000	0	0	0	0	0	0	0
23-Jul	6.9	0.288	56	48	48	8	48	0	0
24-Jul	9.2	0.383	75	48	48	27	48	0	0
25-Jul	0	0.000	0	0	0	0	0	0	0
26-Jul	0.3	0.013	2	2	2	0	2	0	0
27-Jul	1.3	0.054	11	11	11	0	11	0	0
28-Jul	0	0.000	0	0	0	0	0	0	0
29-Jul	1.1	0.046	9	9	9	0	9	0	0
30-Jul	0.3	0.013	2	2	2	0	2	0	0
31-Jul	4.1	0.171	33	33	33	0	33	0	0
01-Aug	0	0.000	0	0	0	0	0	0	0
02-Aug	8.9	0.371	73	48	48	25	48	0	0
03-Aug	11.5	0.479	94	48	48	46	48	0	0
04-Aug	0.8	0.033	7	7	7	0	7	0	0
05-Aug	0	0.000	0	0	0	0	0	0	0
06-Aug	0	0.000	0	0	0	0	0	0	0
07-Aug	0	0.000	0	0	0	0	0	0	0
08-Aug	0.8	0.033	7	7	7	0	7	0	0
09-Aug	0	0.000	0	0	0	0	0	0	0
10-Aug	0	0.000	0	0	0	0	0	0	0
11-Aug	0	0.000	0	0	0	0	0	0	0
12-Aug	1.3	0.054	11	11	11	0	11	0	0
13-Aug	0	0.000	0	0	0	0	0	0	0
14-Aug	0	0.000	0	0	0	0	0	0	0
15-Aug	0	0.000	0	0	0	0	0	0	0
16-Aug	0	0.000	0	0	0	0	0	0	0
17-Aug	0.6	0.025	5	5	5	0	5	0	0
18-Aug	0	0.000	0	0	0	0	0	0	0
19-Aug	5.5	0.229	45	45	45	0	45	0	0
20-Aug	0	0.000	0	0	0	0	0	0	0
21-Aug	0	0.000	0	0	0	0	0	0	0
22-Aug	0	0.000	0	0	0	0	0	0	0
23-Aug	0.8	0.033	7	7	7	0	7	0	0
24-Aug	0	0.000	0	0	0	0	0	0	0
25-Aug	0	0.000	0	0	0	0	0	0	0
26-Aug	0	0.000	0	0	0	0	0	0	0
27-Aug	3.3	0.138	27	27	27	0	27	0	0
28-Aug	0	0.000	0	0	0	0	0	0	0
29-Aug	0	0.000	0	0	0	0	0	0	0
30-Aug	0	0.000	0	0	0	0	0	0	0
31-Aug	0.8	0.033	7	7	7	0	7	0	0
01-Sep	0	0.000	0	0	0	0	0	0	0
02-Sep	0.9	0.038	7	7	7	0	7	0	0
03-Sep	8.4	0.350	69	48	48	21	48	0	0
04-Sep	0	0.000	0	0	0	0	0	0	0
05-Sep	0	0.000	0	0	0	0	0	0	0
06-Sep	0	0.000	0	0	0	0	0	0	0
07-Sep	0	0.000	0	0	0	0	0	0	0
08-Sep	0	0.000	0	0	0	0	0	0	0
09-Sep	0.6	0.025	5	5	5	0	5	0	0
10-Sep	4.4	0.183	36	36	36	0	36	0	0
11-Sep	0	0.000	0	0	0	0	0	0	0
12-Sep	3.5	0.146	29	29	29	0	29	0	0
13-Sep	11.7	0.488	96	48	48	48	48	0	0
14-Sep	0	0.000	0	0	0	0	0	0	0
15-Sep	0	0.000	0	0	0	0	0	0	0
16-Sep	0	0.000	0	0	0	0	0	0	0
17-Sep	1.1	0.046	9	9	9	0	9	0	0
18-Sep	0	0.000	0	0	0	0	0	0	0
19-Sep	0	0.000	0	0	0	0	0	0	0
20-Sep	3.1	0.129	25	25	25	0	25	0	0
21-Sep	1.4	0.058	11	11	11	0	11	0	0
22-Sep	0.6	0.025	5	5	5	0	5	0	0
23-Sep	0	0.000	0	0	0	0	0	0	0
24-Sep	0	0.000	0	0	0	0	0	0	0
25-Sep	4.9	0.204	40	40	40	0	40	0	0
26-Sep	0.3	0.013	2	2	2	0	2	0	0
27-Sep	0	0.000	0	0	0	0	0	0	0
28-Sep	3.9	0.163	32	32	32	0	32	0	0
29-Sep	2.1	0.088	17	17	17	0	17	0	0
30-Sep	0	0.000	0	0	0	0	0	0	0
01-Oct	0	0.000	0	0	0	0	0	0	0
02-Oct	4.5	0.188	37	37	37	0	37	0	0
03-Oct	0	0.000	0	0	0	0	0	0	0
04-Oct	0	0.000	0	0	0	0	0	0	0
05-Oct	0	0.000	0	0	0	0	0	0	0
06-Oct	0	0.000	0	0	0	0	0	0	0
07-Oct	3	0.125	25	25	25	0	25	0	0
08-Oct	0	0.000	0	0	0	0	0	0	0
09-Oct	0	0.000	0	0	0	0	0	0	0
10-Oct	2	0.083	16	16	16	0	16	0	0
11-Oct	0	0.000	0	0	0	0	0	0	0
12-Oct	1.8	0.075	15	15	15	0	15	0	0
13-Oct	0	0.000	0	0	0	0	0	0	0
14-Oct	8.9	0.371	73	48	48	25	48	0	0
15-Oct	0	0.000	0	0	0	0	0	0	0
16-Oct	0	0.000	0	0	0	0	0	0	0
17-Oct	6.8	0.283	56	48	48	8	48	0	0
18-Oct	0	0.000	0	0	0	0	0	0	0
19-Oct	0	0.000	0	0	0	0	0	0	0
20-Oct	0	0.000	0	0	0	0	0	0	0
21-Oct	0	0.000	0	0	0	0	0	0	0
22-Oct	0	0.000	0	0	0	0	0	0	0
23-Oct	0	0.000	0	0	0	0	0	0	0
24-Oct	0	0.000	0	0	0	0	0	0	0
25-Oct	6.6	0.275	54	48	48	6	48	0	0
26-Oct	0	0.000	0	0	0	0	0	0	0
27-Oct	0	0.000	0	0	0	0	0	0	0
28-Oct	0	0.000	0	0	0	0	0	0	0
29-Oct	0	0.000	0	0	0	0	0	0	0
30-Oct	5.5	0.229	45	45	45	0	45	0	0
31-Oct	0.3	0.013	2	2	2	0	2	0	0



LEGEND:

- DRAINAGE AREA LIMITS
- MH601 — STORM MANHOLE & NUMBER
- STORM SEWER & FLOW DIRECTION
- 604A / 0.85 | 2.63 — AREA ID, AREA IN HECTARES, RUNOFF COEFFICIENT
- EMERGENCY OVERLAND FLOW ROUTE
- Tc=11.70 AC=1.23 — ESTIMATED TIME OF CONCENTRATION IN MINUTES, PRODUCT OF AREA AND RUNOFF COEFFICIENT

EXISTING TANGER OUTLET CENTRE

- 0.56 / 0.85 — AREA IN HECTARES, RUNOFF COEFFICIENT

No.	REVISIONS	By	Date
20			
19			
18			
17			
16			
15	ISSUED FOR PHASE 5 REGISTRATION	LME	19: 09: 10
14	REVISED AS PER PHASE 4 COMMENTS	LME	19: 07: 25
13	REVISED AS PER PHASE 4 COMMENTS	LME	19: 07: 22
12	REVISED AS PER PHASE 4 COMMENTS	LME	19: 06: 24
11	ISSUED FOR PHASE 4 REGISTRATION	LME	19: 04: 25
10	REVISED AS PER PHASE 3 COMMENTS	LME	19: 03: 08
9	ISSUED FOR PHASE 3 TENDER	LME	19: 01: 11
8	REVISED AS PER PHASE 3 COMMENTS	LME	18: 12: 14
7	REVISED FOR PHASE 3 REGISTRATION	LME	18: 09: 14
6	REVISED FOR PHASE 2 REGISTRATION	LME	18: 04: 20
5	REVISED AS PER CITY COMMENTS	LME	15: 11: 05
4	REVISED AS PER CITY COMMENTS	LME	15: 10: 15
3	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	LME	15: 06: 19
2	REVISED AS PER CITY COMMENTS	LME	15: 04: 08
1	ISSUED TO CITY FOR APPOVAL	LME	14: 11: 27

TAGGART REALTY MANAGEMENT

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

Project Title

KANATA WEST BUSINESS PARK PHASE 5

L. M. ENGLISH — 100162508 — PROFESSIONAL ENGINEER — PROVINCE OF ONTARIO — 2019/09/10

Drawing Title

STORM DRAINAGE AREA PLAN

Scale: 1:2000

Design	Date
LME	NOV. 2014
Drawn	Checked
DPS	TRB
Project No.	Drawing No.
14289	500

D07-16-14-0003_P5

#17661

C. Minor system flows generated in the SWMHYMO model were exported to the XPSWMM models to determine hydraulic grade line within the sewer networks serviced by the existing Pond 6 West and Pond 6 East, as discussed in Section 4.6. The main hydrological parameters used in the rational method spreadsheet and SWMHYMO model are summarized in the following sections.

4.4.1 Design Storms and Drainage Area Parameters

The following design parameters were used in the evaluation of the stormwater management system for the subject site.

4.4.1.1 Design Storms

The following storm events were used in the design and evaluation of the site:

- 5 and 100 year 3 hour Chicago
- Sensitivity analysis: 100 year 3 hour Chicago with 20% increase in intensity

The following storm events were used in the evaluation of the existing Pond 6 West and Pond 6 East.

- 2, 5, 10, and 100 year, 12 hour SCS Type II storm event,
- Sensitivity analysis: July 1979, August 1988, and August 1996 Historical storms, as well as the 100 year 12 hour SCS Type II storm event with 20% increase in intensity.

4.4.1.2 Drainage Area Parameters

- Area and imperviousness - Catchment areas and imperviousness values are based on the areas and runoff coefficients applied in the rational method spreadsheet. Runoff coefficients were established in the September 2012 Conceptual Site Servicing Plan and are typical of commercial land use. See Drawing 14289-500 for the catchment areas used in the SWMHYMO modeling.
- Infiltration - Infiltration losses were selected to be consistent with the OSDG. The Horton values are as follows: f_o = 76.2 mm/h, f_c = 13.2 mm/h, k = 0.00115 s^{-1}.
- Length Parameter - The length parameter (LGI) for the detailed design municipal ROW within the development area are based on the measured sewer trunk length. The length parameter (LGI) for the proposed commercial blocks within the development area are based on the average between the trunk sewer length and a calculated length from the SWMHYMO user manual. This approach is consistent with the OSDG Appendix 8 (November 2004). Applicable calculations are provided in **Appendix C**.
- Slope - The ground slope was based upon the average slope for both impervious and pervious area. Generally, the slope is approximately 2% (0.02 m/m). This assumes a slope of approximately 1% for impervious or road surfaces and 3% for pervious surfaces (lot grading).
- Initial Abstraction (Detention Storage) - Detention storage depths of 0.8 mm and 1.5 mm were used for impervious and pervious areas, respectively. These values are more conservative than the OSDG.
- Manning's Roughness - Manning's roughness coefficients of 0.013 and 0.25 were used for impervious and pervious areas, respectively.

Table 4.2 summarizes the main hydrological parameters used in the SWMHYMO model. The drainage area plan is presented in Drawing 14289-500. Model output files are enclosed within **Appendix C**.

Table 4.2 Drainage Area Parameters (Model file: 100398.OUT)

Area ID	Area (ha)	IMP (%)		LGI (m)	AVAILABLE/REQUIRED STORAGE (cu-m)	MINOR SYSTEM CAPTURE (l/s)
		TIMP	XIMP			
101A	**7.03**	**0.93**	**0.93**	**327**	**780**	**1230**
150A	**0.17**	**0.53**	**0.53**	**83**	**n/a**	**31**
150B	**0.2**	**0.53**	**0.53**	**75**	**7**	**37**
UPS Site modelled as per approved report "Design Brief UPS Canada Inc. 8825 Campeau Drive (IBI Group, January 2017)						
99C	0.14	0.69	0.69	30	44	33
99D	0.22	0.69	0.69	60	21	45
100C	0.27	0.59	0.59	103	13	49
100B	1.21	0.93	0.93	155	117	259
120A	1.16	0.93	0.93	214	75	191
120B	0.26	0.53	0.53	100	7	45
103A	0.33	0.93	0.93	56	20	104
104C	0.36	0.59	0.59	135	17	62
Kanata West Retail Centre modelled as per approved report "Design Brief Kanata West Retail Centre 3015, 3075 and 3095 Palladium Drive" (IBI Group, July 2017)						
121C	0.21	0.53	0.53	101	49	37
122B	1.07	0.93	0.93	149	103	231
122A	1.16	0.93	0.93	216	73	185
122C	0.21	0.69	0.69	60	21	46
122D	0.14	0.69	0.69	30	24	31
153A	**1.89**	**0.93**	**0.93**	**119**	**190**	**430**
153B	**1.82**	**0.93**	**0.93**	**129**	**180**	**408**
153C	**0.16**	**0.53**	**0.53**	**79**	**n/a**	**29**
154D	**0.15**	**0.53**	**0.53**	**76**	**n/a**	**29**
154A	**0.70**	**0.93**	**0.93**	**81**	**70**	**171**
154C	**0.17**	**0.57**	**0.57**	**82**	**48**	**33**
155C	**0.29**	**0.57**	**0.57**	**141**	**60**	**50**
155A	**3.19**	**0.93**	**0.93**	**160**	**480**	**525**
132D	**2.29**	**0.93**	**0.93**	**157**	**360**	**377**
156B	**0.11**	**0.57**	**0.57**	**56**	**5**	**22**
156C	0.14	0.93	0.93	82	7	40
132B	0.15	0.93	0.93	80	9	43
130C	0.15	0.93	0.93	30	15	41
130B	0.71	0.93	0.93	101	120	111
130D	0.24	0.93	0.93	67	15	62
160C	0.15	0.93	0.93	81	n/a	43
132A	1.01	0.93	0.93	117	132	187
132C	0.15	0.93	0.93	77	4	43
104A	**0.85**	**0.93**	**0.93**	**95**	**90**	**204**
104B	0.3	0.71	0.71	111	65	75
105B	0.22	0.93	0.93	65	n/a	57
106C	0.17	0.93	0.93	82	1	110
135E	0.25	0.93	0.93	50	11	80
106B	0.15	0.93	0.93	82	1	58
133A	0.15	0.93	0.93	57	19	48
133B	0.16	0.93	0.93	57	n/a	74
137A	0.08	0.93	0.93	33	n/a	38
137B/C	0.12	0.93	0.93	36	n/a	57

Area ID	Area (ha)	IMP (%)		LGI (m)	AVAILABLE/REQUIRED STORAGE (cu-m)	MINOR SYSTEM CAPTURE (l/s)
		TIMP	XIMP			
137D/E	0.14	0.93	0.93	35	n/a	67
137F/G	0.15	0.93	0.93	35	n/a	72
136A/B/C	0.25	0.93	0.93	69	n/a	116
170A	0.06	0.93	0.93	54	n/a	29
170B	0.06	0.93	0.93	25	n/a	29
135B	0.12	0.93	0.93	64	n/a	56
135A	1.12	0.93	0.93	117	111	257
135C/D	0.17	0.93	0.93	35	n/a	81
107A	0.22	0.93	0.93	64	n/a	101
107C/B	0.15	0.93	0.93	35	n/a	72
107E/D	0.14	0.93	0.93	35	n/a	67
107G/F	0.14	0.93	0.93	35	n/a	67
108A/B	0.17	0.93	0.93	36	n/a	81
108D/C	0.16	0.93	0.93	40	n/a	76
604A	2.63	0.93	0.93	166	266	556
604B	0.59	0.93	0.93	137	n/a	170
166A	1.49	0.93	0.93	112	247	233
166B	0.14	0.53	0.53	70	5	42
167A	1.45	0.93	0.93	112	240	227
167C	0.26	0.53	0.53	127	14	59
167B	0.07	0.53	0.53	35	n/a	30
160B	1.01	0.93	0.93	80	245	144
160A	160A(i)ϕ 0.49ha	1.1	0.93	0.93	79	184 TBD	172 76ϕ
	160A(ii)θ 0.61ha					TBD	96θ
160D	0.12	0.53	0.53	61	n/a	23
161B	0.24	0.53	0.53	117	47	36
162A	2.39	0.93	0.93	188	355	233
162B	0.16	0.53	0.53	79	n/a	30
165A	0.58	0.93	0.93	92	160	116
164A	0.13	0.53	0.53	76	4	30
140AB	0.19	0.61	0.61	76	32	53
140C	0.13	0.71	0.71	48	11	32
140D/E	0.13	0.71	0.71	49	7	39
141A	0.13	0.71	0.71	34	15	30
603	0.26	0.93	0.93	54	n/a	75
602	0.32	0.93	0.93	70	n/a	92
601A	4.56	0.93	0.93	212	642	712
600	0.78	0.93	0.93	164	n/a	225

Bold font indicates Phase 5 areas

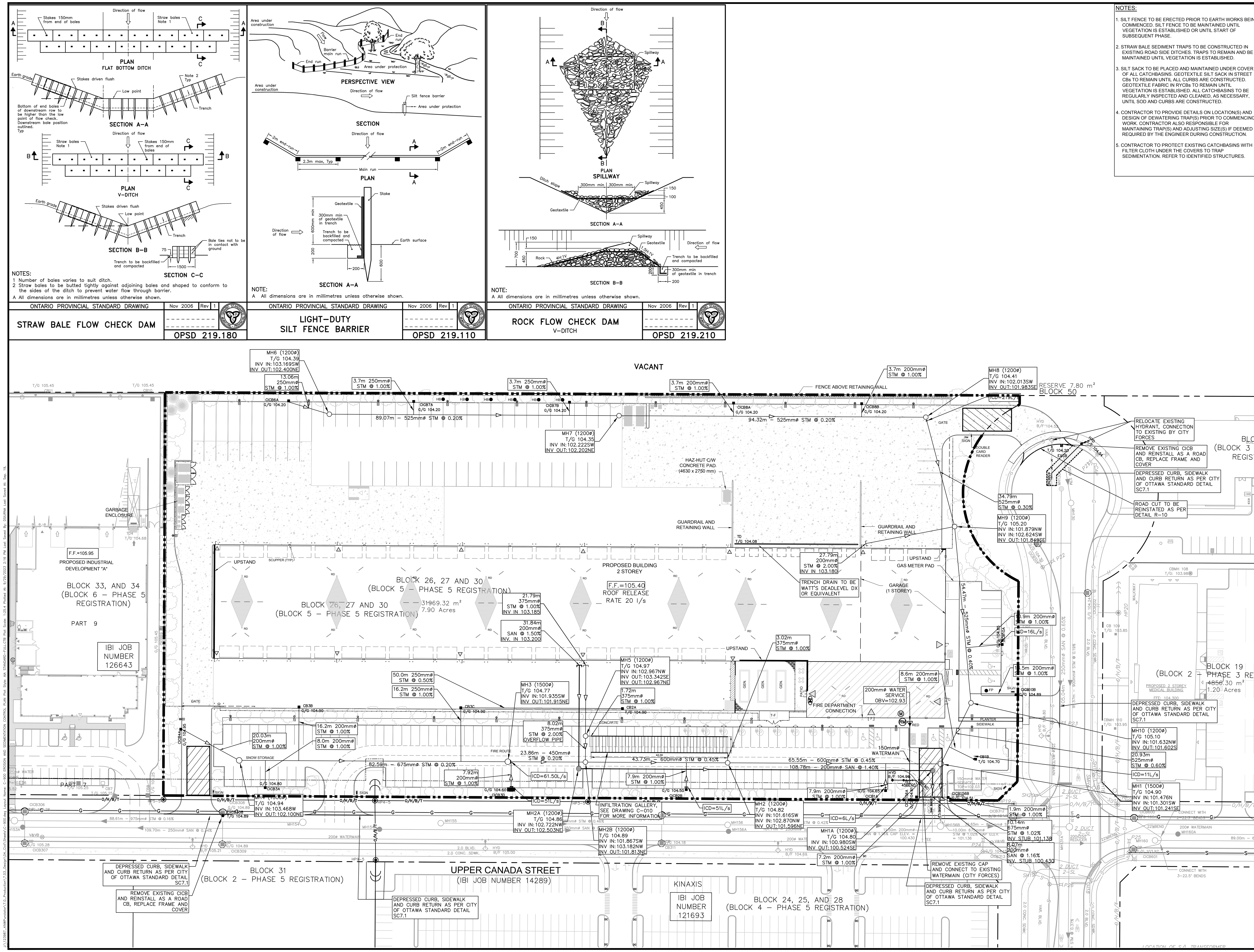
* required to store the 100 year storm event

ϕ Block 2 – Phase 3 Registration

θ Block 3 – Phase 3 Registration

TBD – To Be Determined at Site Plan Application

APPENDIX D



NOTES:

1. SILT FENCE TO BE ERECTED PRIOR TO EARTH WORKS BEING COMMENCED. SILT FENCE TO BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED OR UNTIL START OF SUBSEQUENT PHASE.
2. STRAW BALE SEDIMENT TRAPS TO BE CONSTRUCTED IN EXISTING ROAD SIDE DITCHES. TRAPS TO REMAIN AND BE MAINTAINED UNTIL VEGETATION IS ESTABLISHED.
3. SILT SACK TO BE PLACED AND MAINTAINED UNDER COVER OF ALL CATCHBASINS. GEOTEXTILE SILT SACK IN STREET CBs TO REMAIN UNTIL ALL CURBS ARE CONSTRUCTED. GEOTEXTILE FABRIC IN RYCBs TO REMAIN UNTIL VEGETATION IS ESTABLISHED. ALL CATCHBASINS TO BE REGULARLY INSPECTED AND CLEANED, AS NECESSARY, UNTIL SOD AND CURBS ARE CONSTRUCTED.
4. CONTRACTOR TO PROVIDE DETAILS ON LOCATION(S) AND DESIGN OF DEWATERING TRAP(S) PRIOR TO COMMENCING WORK. CONTRACTOR ALSO RESPONSIBLE FOR MAINTAINING TRAP(S) AND ADJUSTING SIZE(S) IF DEEMED REQUIRED BY THE ENGINEER DURING CONSTRUCTION.
5. CONTRACTOR TO PROTECT EXISTING CATCHBASINS WITH FILTER CLOTH UNDER THE COVERS TO TRAP SEDIMENTATION. REFER TO IDENTIFIED STRUCTURES.

LEGEND:

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

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:29
6	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:09:19
5	REVISED AS PER NEW SITE PLAN	S.E.L.	2023:06:21
4	ISSUED FOR 60% SUBMISSION	T.R.B.	2021:01:15
3	REVISED AS PER CITY COMMENTS	T.R.B.	2020:12:18
2	ISSUED FOR 30% REVIEW	T.R.B.	2020:11:13
1	ISSUED FOR SPA	T.R.B.	2020:09:17

TAGGART REALTY MANAGEMENT

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

Project Title
Purolator
DISTRIBUTION KANATA
1400 UPPER CANADA STREET,

LICENSED PROFESSIONAL ENGINEER
S. E. LABADIE
100214983
2023/09/29
PROVINCE OF ONTARIO

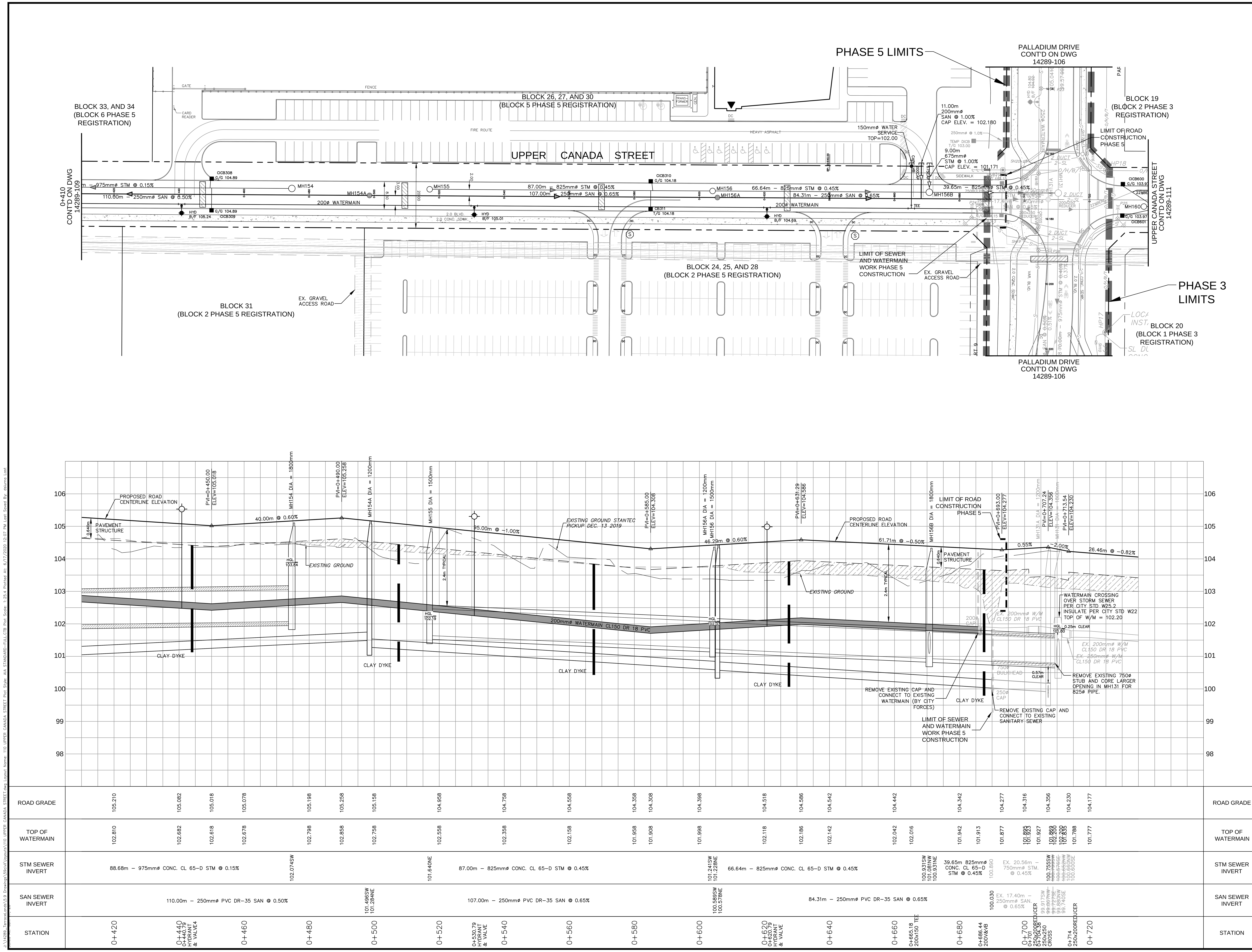
Drawing Title
EROSION AND SEDIMENTATION CONTROL PLAN

Scale

Design	Date
S.E.L.	AUG . 2020
Drawn	Checked
S.E.L./D.P.S.	T.R.B.
Project No.	Drawing No.
123987	C-900

CITY PLAN No. 18260
CITY FILE No. D07-12-20-0125

APPENDIX E



LEGEND:
- MH3A SANITARY MANHOLE
- MH3 STORM MANHOLE
- CB T/G 99.76 STREET CATCHBASIN c/w TOP OF GRATE
- CICB G/G 99.76 CURB INLET CATCHBASIN c/w GUTTER GRADE
- RYCB T/G 100.27 REARYARD CB c/w TOP OF GRATE
- DIMH T/G 97.40 DITCH INLET MANHOLE c/w TOP OF GRATE
- CBMH G/G 101.55 STREET CATCHBASIN MANHOLE c/w GUTTER GRADE
- V&VB VALVE AND VALVE BOX
- V&C VALVE AND CHAMBER
- HYD B/F 100.56 HYDRANT c/w BOTTOM OF FLANGE ELEVATION
- BARRIER CURB AS PER SC1.1
- D.C. DEPRESSED BARRIER CURB AS PER SC1.1 COMPLETE WITH TWSI PER SC7.3
- MOUNTABLE CURB AS PER SC1.3
- PROPOSED CONCRETE SIDEWALK
- REQUIRED FILL BELOW ROAD SUBGRADE
- CLAY DYKES
- HGL 103.54 HYDRAULIC GRADE LINE
- TEMPORARY 3.0m GRAVEL ACCESS ROAD

FOR EXTENT OF EXISTING CONSTRUCTION REFER TO DRAWING 14289-100A

No.	REVISIONS	By	Date
20			
19			
18			
17			
16			
15	ADD SERVICE CONNECTIONS FOR BLOCKS 5 AND 6	LME	20:06:17
14	ISSUED FOR CONSTRUCTION PHASE 4 AND 5	LME	20:05:27
13	ISSUED FOR TENDER PHASE 4 AND 5	LME	20:02:12
12	REVISED AS PER PHASE 5 COMMENTS	LME	19:10:25
11	ISSUED FOR PHASE 5 REGISTRATION	LME	19:09:10
10	REVISED FOR PHASE 3 REGISTRATION	LME	18:09:14
9	ADDED CITY FILE NUMBER	LME	18:05:30
8	REVISED FOR PHASE 2 REGISTRATION	LME	18:04:20
7	ISSUED FOR CONSTRUCTION	LME	16:01:19
6	ISSUED FOR MYLARS	LME	16:01:12
5	ISSUED TO TAGGART	LME	15:12:14
4	REVISED AS PER CITY COMMENTS	LME	15:10:15
3	REVISED AS PER NEW SITE PLAN AND CITY COMMENTS	LME	15:06:19
2	REVISED AS PER CITY COMMENTS	LME	15:04:08
1	ISSUED TO CITY FOR APPROVAL	LME	14:11:27

TAGGART REALTY MANAGEMENT

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

Project Title
KANATA WEST BUSINESS PARK PHASE 5

LICENSED PROFESSIONAL ENGINEER L. M. ERION 13379508 2020/06/17 PROVINCE OF ONTARIO

Drawing Title
UPPER CANADA STREET
FROM STA. 0+410 TO PALLADIUM DRIVE

Scale
HORIZ. SCALE 1:500
VERT. SCALE 1:50

Design	Date
LME	NOV. 2014
Drawn: DPS	Checked: TRB
Project No.: 14289	Drawing No.: 110

D07-16-14-0003_P5

#17661