Servicing & Stormwater Management

Final

St Philip Catholic School Addition
79 Maitland St S, Richmond, Ontario

May 14, 2025

Jp2g Project # 24-1045A

City of Ottawa File No. PC2025-0109

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

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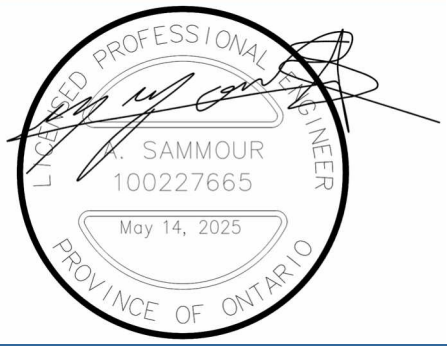

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1 Introduction

1.1 Site Description and Proposed Development

Jp2g Consultants Inc. (Jp2g) was retained by Edward J. Cuhaci and Associates Architects Inc. to complete a Servicing & Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for the Ottawa Catholic Board (OCSB) St Philip Addition located at 79 Maitland Street, hereafter referred to as the 'site'.

Figure 1: Site Location

The site is approximately 1.412 ha in size and is bound by existing residential developments to the northeast and southwest, a church to the southeast, and a cemetery to the northwest. The proposed development includes the construction of a new one storey and two-storey school addition, with no basements, additional parking areas and fire routes, concrete and asphalt walkways, and future portables. The building footprint is approximately 1,533.4 m^2.

A pre-consultation meeting was held with City of Ottawa staff on December 19, 2024, to determine the project constraints and requirements. The following report details the site servicing and stormwater management calculations used for capacity and water quantity control in accordance with the City's requirements.

1.2 Existing School and Proposed Addition Population

Population estimates for the existing and proposed addition were based on correspondence with OCSB staff. The existing and proposed population breakdown is as follows in the below table 1-1. Refer to Appendix E for student population estimates from OCSB staff.

Table 1.1: Estimated School Addition Population

Estimated Population	Existing	Addition	Total
Students	593	170	763
Staff	55	10	65
Total	648	180	828

The population estimate shown in the above table 1.1 will serve as the basis for estimating sanitary servicing demands for the proposed addition.

1.3 Existing Infrastructure

The following services are available for connection surrounding the subject site:

Water

The existing school site is serviced with a water supply well. There is an existing fire tank providing fire protection for the existing school. It is understood WSP has been retained by the OCSB to update the fire tank design and water supply well for the proposed addition.

Sanitary

There is an existing 200mm sanitary sewer on Fortune Street, a 250mm sanitary sewer on Royal York Street, and a 250mm sanitary sewer on Maitland Street. Per as-built documentation from 2013, the existing school is serviced with a 150mm sanitary service connected to the 250mm sanitary sewer on Maitland Street,

Storm

There is a 450mm storm sewer at the corner of Royal York and Fortune Street. From site review, there is a 375mm PVC storm sewer extending to the southeast along fortune street.

There is a 375mm storm sewer on Maitland Street. From site review, there is a 450mm concrete culvert collecting ditch drainage at the corner of Royal York and Maitland Street. This culvert is connected to a catchbasin manhole, MHST06141, of the 375mm storm sewer shown on GeoOttawa.

Per as-built documentation from 2013, the existing buildings roof and foundation drains are serviced with a 200mm storm service at 1.00%. The 200mm storm service is connected to a 200mm storm sewer through the adjacent church property, however, the full pipe run outlet is unknown. Refer to Appendix E – Additional Documents for 2013 as-built.

1.4 List of Relevant Guidelines

The following guidelines were used as reference related to the design of the proposed servicing, and grading considerations for the subject site:

- City of Ottawa Sewer Design Guidelines
- Chapter 8 of the City of Ottawa Sewer Design Guidelines (Stormwater guidelines)
- City of Ottawa Stormwater Management Policies
- City of Ottawa Water Design Guidelines
- City of Ottawa Design Specifications
- Ministry of Environment (MOE) Guidelines for the Design of Water Distribution Systems and Design of Sanitary Sewage Systems
- Stormwater Management Planning and Design Manual 2003
- Ontario Building Code (2012)

1.5 Design Drawings

The following reference civil design drawings are included in Appendix A:

- C1 – Site Servicing Plan
- C2 – Site Grading, Erosion and Sediment Control Plan

- C3 – Details, Notes and Schedules
- C4 – Stormwater Management, Erosion and Sediment Control Plan
- FIG.1 – Pre-Development Drainage Areas
- FIG.2 – Post-Development Drainage Areas

1.6 Environmental Compliance Assessment

Our understanding is an environmental compliance assessment for the site is not required. This site is exempt by O. Reg. 525/98, applicable as follows:

> *"Subsections 53 (1) and (3) of the Act do not apply to the use, operation, establishment, alteration, extension or replacement of or a change in the storm water management facility that,*
> *(a) is designed to service one lot or parcel of land;*
> *(b) discharges into a storm sewer that is not a combined sewer;*
> *(c) does not service industrial land or a structure located on industrial land; and*
> *(d) is not located on industrial land. O. Reg. 525/98, s. 3; O. Reg. 40/15, s. 4."*

2 Geotechnical Considerations

A geotechnical investigation was complete by Paterson Group, refer to *Geotechnical Investigation Proposed Addition to St Philip Catholic Elementary School, PG7265-LET.01.*

The pavement structure for the car only parking areas should consist of 50mm HL3/SP12.5, 150mm of OPSS 1010 Granular A, and 300mm OPSS 1010 Granular B. The pavement structure for access lanes and heavy truck parking areas should consist of 40mm HL3/SP12.5, 50mm HL8/SP19.0, 150 mm OPSS 1010 Granular A, and 400mm OPSS 1010 Granular B.

3 Objective

The objective of this study is to outline the servicing requirements for the development of the site and identify the impact of the development on the existing municipal services, including water, storm, and sanitary.

4 Stormwater Management

4.1 Stormwater Management Criteria

4.1.1 Quantity Control Criteria

The quantity control criteria for this site is to control the 100-year post-development release rate to a 2-year pre-development level. Per consultation with the City of Ottawa, the pre-development runoff coefficient will need to be determined as per existing conditions, but in no case more than 0.5. Any storm greater than the established 2-year allowable release rate, up to and including the 100 year storm event, shall be detained on site. City of Ottawa IDF curves included in the City of Ottawa Sewer Design Guidelines will be used in determining peak runoff for each storm event.

4.1.2 Quality Control Criteria

Per pre-consultation with the City of Ottawa, quality control is to be provided to an 80% removal of total suspended solids.

4.2 Pre-Development Conditions

The existing site contains an existing one storey school, parking lot and school yard paved areas, portables, and a playground area. Upon review of the existing conditions grading and surrounding storm infrastructure, the following predevelopment outlets were identified:

Outlet 1: 450mm Storm Sewer on Fortune Street

Predevelopment outlet 1 was identified as the 450mm storm sewer on Fortune Street. From review of the existing site topography and drainage, two contributing drainage areas A2 and A3 were identified to contribute to predevelopment outlet 1.

Predevelopment drainage area A2 consists of the northwestern portion of the school site which consists of the asphalt driveway, asphalt walkways, and grassed areas. There is an existing catch basin within the driveway which captures drainage from area A2. The inverts of this existing catch basin were inaccessible due to being snow filled. The outlet for this CB is assumed to be the ditch along Royal York Street due to proximity. Area A2 was found to be 0.123 ha in size with a runoff coefficient of C=0.50.

Pre development drainage area A3 consists of a portion of the schools asphalt paved areas, and the portable areas. Area A3 was determined to be 0.364 ha in size with a runoff coefficient of C=0.50. Runoff from area A3 is sheet drained overland to the 600mm culvert underneath Royal York Street. The culvert ultimately conveys runoff to the ditch inlet across the street, assumed to be connected to the 450mm storm sewer on Fortune Street.

Outlet 2: 375mm Storm Sewer on Maitland Street

Predevelopment outlet 2 was identified as the 375mm storm sewer located on Maitland Street. From review of the existing topography and drainage, two contributing predevelopment drainage areas A4 and A5 were identified to contribute to the predevelopment outlet 2.

Predevelopment drainage area A4 consists of the schools asphalt yard and grassed areas. Runoff is conveyed overland and is sheet drained through the adjacent church property. There is a catch basin manhole on Maitland street where the drainage is collected, and thus conveyed through to the 375mm storm sewer on Maitland Street. Predevelopkment drainage area A4 was determined to be 0.363 ha in sizer with a runoff coefficient of C-0.42.

Predevelopment drainage area A5 consists of the existing schools grassed areas to the northwest, and the existing schools parking areas. From review on site, there is a 450mm diameter concrete pipe / culvert located at the corner of Royal York Street and Maitland Street. Runoff from the northwestern portion of the site is conveyed overland to a swale / ditch along Royal York Street. The ditch conveys runoff to the culvert, which is then connected to the catch basin manhole on Maitland Street connected to the 375mm storm sewer. Runoff from the grassed areas fronting Maitland Street, and within the existing schools parking lot is conveyed along an asphalt swale / gutter constructed along Maitland Street. The swale / gutter drains to the catch basin manhole connected to the 375mm storm sewer on Maitland Street. Predevelopment drainage area A5 was determined to be 0.268 ha in size with a runoff coefficient of C=0.50.

Outlet 3: Predevelopment Drainage Area A1

Predevelopment outlet 3 was identified as the existing building's roof. From review of as-built documentation, runoff collected on the existing building roof is collected in roof drains and conveyed through a 200mm storm service to a 200mm storm sewer through the adjacent church property. The final outlet of the 200mm storm sewer is unknown. From review of the 2013 as-built, flow from the roof drains is controlled to 3 L/s from the 2 roof drains. There are no proposed changes to the existing buildings roof drainage and therefore outlet 3 has been excluded from any post development stormwater management analysis.

Summary Predevelopment Drainage Areas

A summary of the predevelopment drainage areas and parameters is included in table 4-1 below. A predevelopment drainage plan is included in **Appendix A – Figure 1**. Refer to **Appendix B Stormwater Management** for detailed calculations of predevelopment drainage parameters.

Table 4-1: Overall Predevelopment Drainage Area Parameters

Outlet	Drainage Area	Area (ha)	Runoff Coefficient
Outlet 1: 450mm Storm Sewer on Fortune St	**A2**	0.123	0.50
	A3	0.364	0.50
Outlet 2: 375mm Storm Sewer on Maitland St	**A4**	0.363	0.42
	A5	0.268	0.50
Outlet 3: Existing Building Roof	**A1**	0.296	0.90

Predevelopment Allowable Flow Rates

Using the City of Ottawa IDF curves, the 2 year pre development allowable release rate was calculated for each outlet. Detailed calculations can be seen in **Appendix B – Stormwater Management Calculations**, and a summary of the 2 year predevelopment release rates are summarised in table 4-2 below. Therefore, the post development quantity control objective is to control all post development storm events, up to and including the 100 year strom event, to the 2 year predevelopment allowable release rate summarised below:

Table 4-2: Predevelopment Flow Rates

Outlet	2 Yr Predevelopment Release Rate (L/s)
Outlet 1: 450mm Storm Sewer on Fortune Street	51.81
Outlet 2: 375mm Storm Sewer on Maitland Street	61.20

4.3 Post-Development Conditions

The proposed site development includes a new one storey and part two storey addition, additional parking areas, hard surface walkways, fire route, future portables and landscaped areas. Per the preconsultation with the City of Ottawa, existing drainage patterns shall be maintained as part of the post development stormwater management solution.

Under post development conditions, post development drainage areas were separated into subcatchments, matching the two predevelopment outlets identified in section 4.2 above. Refer to **Appendix A – Figure 2 Post Development Drainage Plan**.

Outlet 1: 450mm Storm Sewer on Fortune Street

A new on site storm sewer system will be constructed throughout the new parking lot, and grassed areas of the site. Subcatchments B2a, B3a, B3b, B3c, B4a, B6 and B7 will be collected in new catch basins and conveyed through the new on site storm sewer system through to the Fortune Street 450mm storm sewer through a connection to the existing manhole at the corner of Royal York and Fortune Street. B3d consists of a portion of the site grading that will be uncontrolled, sheet draining through a new swale to the culvert passing under Royal York Street.

Outlet 2: 375mm Storm Sewer on Maitland Street

A second new on site storm sewer system will be constructed in the northeastern portion of the site throughout the new parking lot / fire route on the northeastern side of the site. Subcatchments B5b, B5c, and B5d will be collected in new catch basins and conveyed through this new storm sewer system. A new manhole is proposed over the existing 450mm diameter concrete culvert / storm sewer underneath Maitland Street. In this manner, the predevelopment outlet 2 identified as the existing 375mm diameter storm sewer connected to MHST06141 (as shown on GeoOttawa) will be maintained under post development conditions.

Under post development conditions, B4b, B4c, B5a, and B5e will flow uncontrolled. Grading in B4b and B4c will remain unchanged, and will continue to sheet drain overland through the neighboring church property. B5a will continue to sheet drain through the existing ditch / swale connected to the upstream inlet of the 450mm culvert

at the corner of Royal York and Maitland Street. B5e will sheet drain through the existing asphalt gutter / swale conveying runoff to the catch basin manhole on Maitland Street.

Outlet 3: Existing Building Roof

Under post development conditions there are no proposed changes to the existing roof drainage system. Stormwater analysis of the existing building roof and drainage area B1 has been excluded from this report.

4.3.1 Post Development Release Rates

The post development stormwater management quantity criteria is to limit all post development storms, up to and including the 100 year storm, to the 2 year predevelopment allowable release rate. Post development controls will be implemented by inlet control devices, or orifice plates on the outlet pipes of certain catch basins or catch basin manholes. Runoff will be controlled and detained on the proposed addition roof through adjustable flow controls weirs on the addition roof drains. The following tables 4-3 and table 4-4 summarize the post development flow rate restrictions, demonstrating post development flows are restricted to the pre development 2 year allowable release rate for each outlet 1 and outlet 2. Refer to Appendix B for detailed calculations.

Table 4-3: Outlet 1 Post Development Controls vs. 2 Year Predevelopment Release Rate

Drainage Area	Control ICD	100 Year Flow
B3a, B3b, B7, B4a	ICD-1	10.70
B3c	ICD-2	16.40
B2a	ICD-3	14.10
B6	Roof	4.20
B3d	Uncontrolled 100 Year	6.35
Total		51.75
Outlet 1 Predevelopment Allowable 2 Year Release Rate		51.81

Table 4-4: Outlet 2 Post Development Controls vs. 2 Year Predevelopment Release Rate

Drainage Area	Control ICD	100 Year Flow
B5c	ICD-4	11.50
B5b	ICD-5	10.40
B5d	ICD-6	9.70
B2b,B4b,B4c,B5a,B5e	Uncontrolled 100 Year	29.23
Total		60.83
Outlet 2 Predevelopment Allowable 2 Year Release Rate		61.20

4.3.2 Stormwater Management Controls

As mentioned above, stormwater management control is provided by a combination of roof drain controls and inlet control devices / orifice control plates at the outlet pipes of certain catch basin and catch basin manhole structures as follows:

- ICD-1 located in structure CBMH-1 which controls subcatchments B3a, B3b, B4a, and B7

- ICD-2 located in structure CB-1 which controls subcatchments B3c
- ICD-3 located in structure CB-2 which controls subcatchments B2a
- ICD-4 located in structure CB-5 which controls subcatchments B5c
- ICD-5 located in structure CB-6 which controls subcatchments B5b
- ICD-6 located in structure CB-7 which controls subcatchments B5d
- Watts Adjustable Flow Control Roof Drains (or equivalent) which controls subcatchment B6

Civil 3D stage-storage analysis was used to determine the available surface storage upstream of the proposed control device based on the proposed site grading. The modified rational method was used to determine peak storage requirements behind each control device. The orifice equation was used to size the proposed orifice plates based on the respective headwater levels and orifice invert. Detailed modified rational method calculations, including a stage-storage-discharge analysis for each control device is included in **Appendix B** for each ICD-1 through ICD-6, and proposed roof storage. Provided surface storage, as determined through civil 3D stage-storage analysis exceeds required storage for each restricted release rate.

The minimum orifice size proposed is 75mm, in accordance with the City of Ottawa Sewer Design Guidelines. The maximum ponding depth proposed in a parking area is 0.17m for the 100 year storm, in accordance with the City of Ottawa Sewer Design Guidelines. The highest proposed ponding elevation during the 100 year storm is at an elevation of 94.99, meeting the minimum 300mm clearance to any building opening or ramp as the building FFE is at an elevation of 95.35m. Proposed stormwater management controls, and ponding limits are shown in **Appendix A - C4 Stormwater Management Plan**.

It is acknowledged that some surface ponding is proposed in parking areas during the 2 year storm, behind ICD-2 and ICD-3. This is required in order to achieve the 2 year predevelopment allowable release rate restriction. Proposed ponding during the 2 year storm has been minimized, with 0.8m^3 of ponding behind ICD-2, and 1.5m^3 of ponding behind ICD-3. There is no surface ponding during a 2 year event in proposed parking areas for the remainder of the proposed stormwater management controls.

For roof drainage, parabolic weirs (Watts Drainage Adjustable Flow Control Roof Drains, or equivalent approved product) will be used to control flow. 13 roof drains are proposed in the “closed” position, which each deliver a flow rate of 5 gpm (0.32 L/s), for a total roof outflow of 4.2 L/s, which has been confirmed with the building mechanical engineers, WSP. To ensure the maximum release rate based on the head provided in the roof drain specifications, scuppers are to be provided on the building roof at 150mm above the roof drain elevation, to ensure each flow control roof drain will restrict flow to 0.32 L/s. Refer to the attached roof drain flow control product sheet in Appendix B.

4.3.3 Quality Control

Per consultation with the City of Ottawa, quality control for this site is required to provide 80% total suspended solids removal. As such, two oil grit separator (OGS) units are proposed for each storm outlet to provide quality treatment. A HydroStorm HS6 is proposed for quality control for the storm sewer outlet to Fortune Street, and can provide 83% TSS removal, treating 98% of the annual runoff based on a particle size distribution of 20um to 2000um. A HydroStorm HS4 unit is proposed for quality control for the storm sewer outlet to Maitland Street and can provide 88% TSS removal and treats 100% of the annual runoff based on a particle size distribution of 20um to 2000um. OGS sizing sheets have been included in **Appendix B**.

These OGS units are an example of treatment units that can be provided for quality control for the proposed storm sewer outlets. Other equivalent OGS products can also be provided during construction based on the drainage area parameters.

4.4 Proposed Storm Sewer Servicing

The proposed on site storm sewer pipe design has been sized to convey the 5 year storm event in accordance with City of Ottawa requirements. Sewers were sized and sloped to ensure that a maximum of 88% of full flow capacity, while staying above the minimum slopes specified in the City of Ottawa *Sewer Design Guidelines*.

Foundation drains will be connected to the building storm service. Foundation drains are to be equipped with a backwater valve as per the City of Ottawa Detail S14. The roof drains are to be connected downstream of the foundation drain backwater valve.

Based on the shallow outlet connection inverts and existing site grading constraints, portions of the proposed storm sewer system will be constructed with shallow pipe cover. The storm sewer system is proposed to be constructed with insulation per the City of Ottawa Detail S35 to protect the storm sewer system from freezing. In the 'worst case' scenario, at CB-2, there is 490mm of cover from the finished grade in the parking lot to the pipe obvert crown. Per the S35 detail, 125mm of insulation is required. The 490mm of cover will allow for the 65mm of asphalt, 150 mm of Granular A for the pavement structure, 125mm of insulation, and 150mm of granular A above the crown of the pipe. This has been reviewed with Paterson Group, the geotechnical engineer.

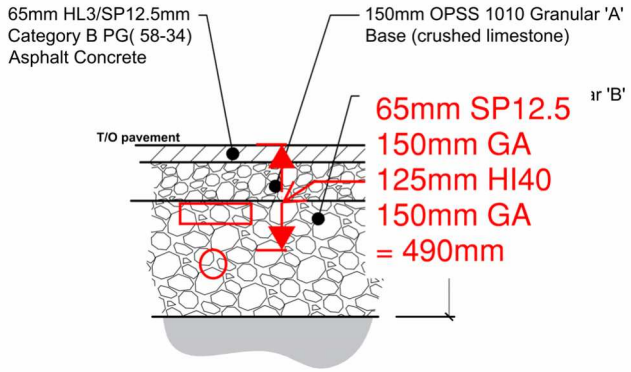


Figure 4-1: CB-2 Pipe Cover Section

4.5 Overland Flow Route

In the case of system blockages, an emergency overland flow route must be provided to the city ROW. Site grading has been designed to provide an overflow route such that surface runoff will be directed to the ROW before the touching any part of the building envelope. An overland flow route is presented in **Appendix A – Drawing C4**. In the proposed west parking lot, drainage will be directed over the top of the curb at the CB-1 and CB-2 low points, thus towards the swale / ditch within the Royal York Street ROW.

In the grassed areas and school landscaped yard, drainage will be directed over the top of the berm along Fortune Street and directed towards the Fortune Street ROW. Within the northeastern parking lot, drainage will be directed towards the main entrance, and thus to the Maitland Street ROW.

5 Sanitary Servicing

5.1 Sanitary Design Criteria

The sanitary servicing design for the site is to conform to the City of Ottawa Sewer Design Guidelines, and the MECP Design Guidelines for Sewage Works. The following criteria were used to estimate the peak sanitary flow rates, and to determine the required sanitary servicing for the site:

- Minimum velocity = 0.6m/s
- Maximum velocity = 3.0 m/s
- Manning roughness coefficient n=0.013

- A sewage flow rate of 70 L/student/d (Table 5-3 of MOE Design Guidelines for Sewage Works)
- Estimated student population of 325 for the addition (See section 1.2)
- Peak Factor of 1.5 (City of Ottawa Institutional Peak Factor)
- Infiltration allowance of 0.33 L/s/ha.

5.2 Existing Sanitary Servicing

There is an existing 250mm diameter sanitary sewer on Fortune Street, an existing 250mm diameter sanitary sewer available on Royal York Street, and an existing 250mm diameter sanitary sewer on Maitland Street.

Per as-built documentation from 2013, the existing school is serviced with a 150mm sanitary service connected to the 250mm sanitary sewer on Maitland Street. Refer to **Appendix E – Additional Documents** for 2013 as-built servicing information.

5.3 Proposed Sanitary Servicing and Calculations

A new sanitary service will connect to the proposed building addition, conveying sanitary flows from the addition to the existing 250mm diameter sanitary sewer on Royal York Street. Refer to drawing **C1 – Site Servicing Plan** in Appendix A for proposed servicing.

Peak sanitary flow from the site is calculated based on the estimated addition population described in section 1.1. As per preconsultation with the City of Ottawa, the peak sanitary flows are to be estimated from the addition only to accurately represent the new sanitary flows required to be conveyed to the downstream pump station. Sanitary flows were estimated using the per student water consumption demands of 70l/student/day within the City of Ottawa Water Design Guidelines. This is additionally in accordance with the Table 5-3 of the MOE Design Guidelines for Sewage Works, with an estimate sewage flow rate of 70 l/student/day. An infiltration allowance of 0.33 L/s/ha was allocated, based on the City of Ottawa Technical Bulletin ISTB-2018-01.

As such, peak flows from the proposed addition were estimated to be 0.68 L/s. The new 150mm sanitary sewer at 1.0% slope will have a full flow capacity of 15.2 L/s. The full flow capacities are sufficient to convey the sanitary flows from the proposed addition, as calculated based on the City of Ottawa *Sewer Design Guidelines* (October 2012) and *Technical Bulletin ISTB-2018-01* (March 2018). Refer to the sanitary sewer design sheet in **Appendix C – Sanitary** for detailed calculations. The proposed sanitary servicing meets the velocity requirements and is satisfactory to the City of Ottawa Design Guidelines.

6 Water Servicing

6.1 Existing Water Servicing

The existing school is serviced with an existing water supply well. There is a fire storage tank for fire protection. It is understood that the fire storage tank and existing supply well are being updated by WSP.

7 Sediment and Erosion Control

Erosion and sediment control measures will be implemented during construction to protect downstream water quality and prevent sediment from entering the catch basins and storm sewer system. The following recommendations will be included in the contract documents, refer to **Appendix Drawing C4 – Stormwater Management, Erosion and Sediment Control Plan**.

1. The contractor shall implement best management practices to provide for protection of the area drainage system and receiving water course during construction activities. This includes:
2. Limiting the amount of exposed soil
3. Revegetation on exposed areas as soon as possible
4. A silt barrier/fence will be installed around the perimeter of the site in order to prevent sedimentation from leaving the site.

5. Installing and maintaining mudmats at the construction entrance to prevent migration of sedimentation to the city ROW
6. Providing filter cloths / bags on downstream catch basins and storm structures, and the newly constructed catch basins until construction has been complete.
7. Construction works to be scheduled at times which avoid flooding during seasonal rains

The contractor will be required to inspect the erosion and sediment control measure after every rainfall. Inspection measures include:

1. Inspection of silt fence to ensure water and sediments are not flowing underneath the silt fence
2. Inspection of sedimentation traps on all catch basins and catch basin manholes

Upon completion of construction, erosion and sedimentation control will be provided through the on site storm system. All catch basins and catch basin manhole will be constructed with 600mm sumps, collecting sediments and suspended solids from the finished asphalt surface. Additionally, for quality control and TSS removal, an OGS unit will provide 80% TSS removal. The catch basin sumps and OGS units will be required to be cleaned and maintained by the owner after construction completion in accordance with the manufacturers instructions.

8 Conclusions

The proposed addition to St Philip can be serviced with new on-site storm sewers and sanitary sewers, connecting to existing City of Ottawa infrastructure in accordance with the City of Ottawa Design Sewer Design Guidelines, Water Design Guidelines and standards.

A new storm sewer system will be constructed, connecting to the 450mm storm sewer on Fortune Street, and to the existing 450mm concrete pipe / culvert on Mailtand Street. Quantity control will be provided through surface storage, restricting post development release to the 2 year pre development allowable release rate as per presconsultation with the City of Ottawa. OGS systems are proposed on the new storm sewer systems providing 80% TSS removal.

Site grading will provide accessibility to the proposed addition in accordance with AODA standards, and City of Ottawa standard details. Maximum ponding depths and elevations are in accordance with the City of Ottawa design guidelines, including a maximum ponding depth of 17cm, and a minimum of 300mm clearance from the building openings or ramps to the 100 year ponding elevation. Site grading has been designed to provide an adequate overland flow route to the City of Ottawa rights-of-way.

A new 150mm diameter sanitary sewer connected to the 250mm diameter sanitary sewer on Royal York St will provide sanitary servicing for the proposed addition. There is an existing 150mm diameter sanitary service connected to Maitland Street for the existing building.

The existing building is serviced with a water supply well. There is an existing fired storage tank providing fire coverage for the existing building. It is understood that the fire storage tank, and existing water supply well design is being updated by WSP for the proposed addition.

Erosion and sediment control will be provided during construction through the installation of a silt fence around the perimeter of construction and installing filter cloths in all catch basins / catch basin manholes. An erosion and sediment control plan will be included in the contract documents, requiring the contractor to follow best management practices, and provide regular maintenance of the measures. Long term sediment control will be provided in catch basin sumps, and the proposed OGS systems providing 80% TSS removal. The owner will be responsible for the regular maintenance of the sumps and OGS units upon completion of construction.

It is recommended that this report be filed in support of the proposed development. No adverse impacts are anticipated on the existing services as a result of the approval and construction of this development.

End of report.

Appendix A
Design Drawings

LEGEND

- PROPERTY LINE
- NEW BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- NEW SWALE
- EXISTING SWALE
- NEW SANITARY SEWER
- NEW STORM SEWER
- NEW SILT FENCE
- NEW PERFORATED DRAIN PIPE
- NEW PERIMETER FOUNDATION DRAINAGE
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW PRECAST PAVERS WITH HEAVY DUTY GRANULAR BASE
- NEW PRECAST PAVERS
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT INSULATION PER CITY OF OTTAWA DETAIL S35
- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SAINTARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- NEW CATCHBASIN
- NEW STORM MANHOLE / CATCHBASIN MANHOLE
- NEW SANITARY MANHOLE
- NEW INLET CONTROL DEVICE
- NEW ROOF DRAIN
- NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
- SEWER FLOW DIRECTION
- BUILDING ENTRANCE
- CAR ENTRANCE
- PROPOSED TWSI
- EXISTING SIDEWALK
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB
- SEE SHEET NUMBER "C3"

GENERAL NOTES

1. DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
4. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
5. CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
6. CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.
7. FOR EXACT LOCATIONS AND NUMBERS OF ROOF DRAINS AND SCUPPERS, REFER TO MECHANICAL, STRUCTURE AND ARCHITECTURAL DRAWINGS.
8. AFTER CONSTRUCTION, REGULAR MAINTENANCE OF CATCH BASIN STRUCTURES TO BE COMPLETE BY OWNER DURING WINTER TO REMOVE BLOCKAGES FROM FREEZING DUE TO SHALLOW PIPE COVER.

DRAWING NOTES

01 INSTALL FOUR WAY 3.0m LONG 150mm Ø PERFORATED SUBDRAIN WRAPPED IN GEOTEXTILE SOCK EXTENDING FROM CB/CBMH AT PAVEMENT SUBGRADE LEVEL. PROVIDE WATERTIGHT CONNECTION (TYPICAL).

02 SUPPLY AND INSTALL WATTS ROOF DRAIN CONTROLS (OR EQUIVALENT PRODUCT) TO BE INSTALLED ON ROOF DRAINS. SPECIFIC WEIR SETTINGS IN CLOSED POSITION. MAXIMUM DISCHARGE 4.20 l/s TOTAL AT 120mm HEAD (TYPICAL).

03 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN MANHOLE, CBMH-1 OUTLET. MAXIMUM DISCHARGE 10.70 l/s AT 0.94m HEAD AND ORIFICE DIAMETER AT 75mm.

04 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-1 OUTLET. MAXIMUM DISCHARGE 16.40 l/s AT 0.85m HEAD AND ORIFICE DIAMETER AT 90mm.

05 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-2 OUTLET. MAXIMUM DISCHARGE 14.10 l/s AT 0.84m HEAD AND ORIFICE DIAMETER AT 85mm.

06 ROOF TOP SCUPPERS TO BE PROVIDED AT 150mm ABOVE LEVEL OF ROOF DRAINS.

07 INSTALL NEW MONITORING STORM MANHOLE, STMH-02 AND 200mm Ø STORM SEWER PIPE FROM BUILDING. PROVIDE WATERTIGHT CONNECTION.

08 INSTALL NEW MONITORING SANITARY MANHOLE SAMH-1 AND 150mm Ø SAINTARY SEWER PIPE FROM BUILDING. PROVIDE WATERTIGHT CONNECTION.

09 CONNECT STORM AT APPROXIMATE INVERT LEVEL = 94.27 AND SANITARY SEWER AT APPROXIMATE INVERT LEVEL = 93.20 TO BUILDING. INVERT LEVELS TO BE COORDINATED AND MATCHING WITH ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS.

10 CONNECT SERVICES TO INTERIOR PLUMBING 1.0m FROM BUILDING FOUNDATION. REFER TO MECHANICAL AND ARCHITECTURAL PLANS.

11 NEW PERIMETER FOUNDATION DRAINAGE (REFER TO ARCHITECTURAL) TO BE CONNECTED TO THE NEW STORM SEWER.

12 DROP STRUCTURE PER OPSD 1003.010

13 SUPPLY AND INSTALL NEW OIL GRIT SEPARATOR UNIT TO THE FOLLOWING REQUIREMENTS:
- MINIMUM 80% TSS REMOVAL
- DRAINAGE AREA = 0.762 ha
- 5 YEAR WEIGHTED RUNOFF COEFFICIENT C = 0.68
- 100 YEAR WEIGHTED RUNOFF COEFFICIENT C = 0.80
- 5 YEAR FLOWS = 44.0 LPS
- 100 YEAR FLOW = 45.4 LPS

14 SUPPLY AND INSTALL BACKFLOW VALVES ON SANITARY AND STORM BUILDING CONNECTION AS PER CITY OF OTTAWA REQUIREMENT. STORM SERVICE BACKWATER VALVE AS PER CITY OF OTTAWA STANDARD DETAIL S14, AND SANITARY BACKWATER VLAVE AS PER S14.1 AND S14.2. REFER TO MECHANICAL DRAWINGS

15 PROVIDE 100mm HIGH LOAD RIGID INSULATION PLACED WITHIN SUBGRADE. INSULATION SHALL BE 2.0m WIDE ABOVE PIPE WHERE INDICATED (TYPICAL) AS PER CITY OF OTTAWA DETAIL S35.

16 SUBDRAINS SHOULD BE INSTALLED UNDER CURBS ON THE SIDES OF THE ACCESS ROAD AND PARKING AREA AND TO CONNECT TO THE NEW STORM SEWER NETWORK. SEE GEOTECHNICAL NOTES AND REFER TO GEOTECHNICAL REPORT.

17 PROVIDE INSULATION UNDER ENTRANCE PAVING/PAVERS 3m BEYOND DOORS .

18 BREAK IN AND CONNECT TO EXISTING STORM MANHOLE. PROVIDE WATERTIGHT CONNECTION. PROVIDE NEW 450mm PVC PIPE INVERT CONNECTION AT ELEVATION 93.70. CONTRACTOR TO CONFIRM MUNICIPAL SEWER INVERTS PRIOR TO CONSTRUCTION. CONNECTION SHALL BE MADE WITH CORE DRILLING.

19 INSTALL NEW STORM MANHOLE, STMH-03, OVER EXISTING 450mm CONCRETE PIPE. EXISTING 450mm PIPE INVERTS AT APPROX. 93.67NW AND 93.65SE. PROVIDE NEW 1.0m 450mm STORM SEWER PIPE ON EACH SIDE OF NEW STMH-03 TO CONNECT TO EXISTING 450mm CONCRETE PIPE. PARGE AND PROVIDE WATERTIGHT CONNECTION. CONTRACTOR TO CONFIRM EXISTING SEWER INVERTS PRIOR TO CONSTRUCTION.

20 BREAK IN AND CONNECT TO EXISTING SANITARY MANHOLE WITH NEW 150mm PIPE. PROVIDE NEW 150mm PIPE INVERT CONNECTION AT ELEVATION 91.80. PROVIDE WATERTIGHT CONNECTION.CONTRACTOR TO CONFIRM MUNICIPAL SANITARY SEWER INVERTS PRIOR TO CONSTRUCTION. CONNECTIONS SHALL BE MADE WITH CORE DRILLING.

21 EXISTING CATCH BASIN TO BE REMOVED

22 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-5 OUTLET. MAXIMUM DISCHARGE 11.50 l/s AT 0.93m HEAD AND ORIFICE DIAMETER AT 75mm.

23 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-6 OUTLET. MAXIMUM DISCHARGE 10.40 l/s AT 0.86m HEAD AND ORIFICE DIAMETER AT 75mm.

24 SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT CATCHBASIN, CB-7 OUTLET. MAXIMUM DISCHARGE 9.70 l/s AT 0.79m HEAD AND ORIFICE DIAMETER AT 75mm.

25 NEW PERIMETER FOUNDATION DRAINAGE (REFER TO ARCHITECTURAL) TO BE CONNECTED TO BUILDING STOM SERVICE CONNECTION. FOUNDATION DRAIN TO BE EQUIPPED WITH BACKWATER VALVE AS PER CITY OF OTTAWA STANDARD DETAIL S14. REFER TO MECHANICAL DRAWINGS.

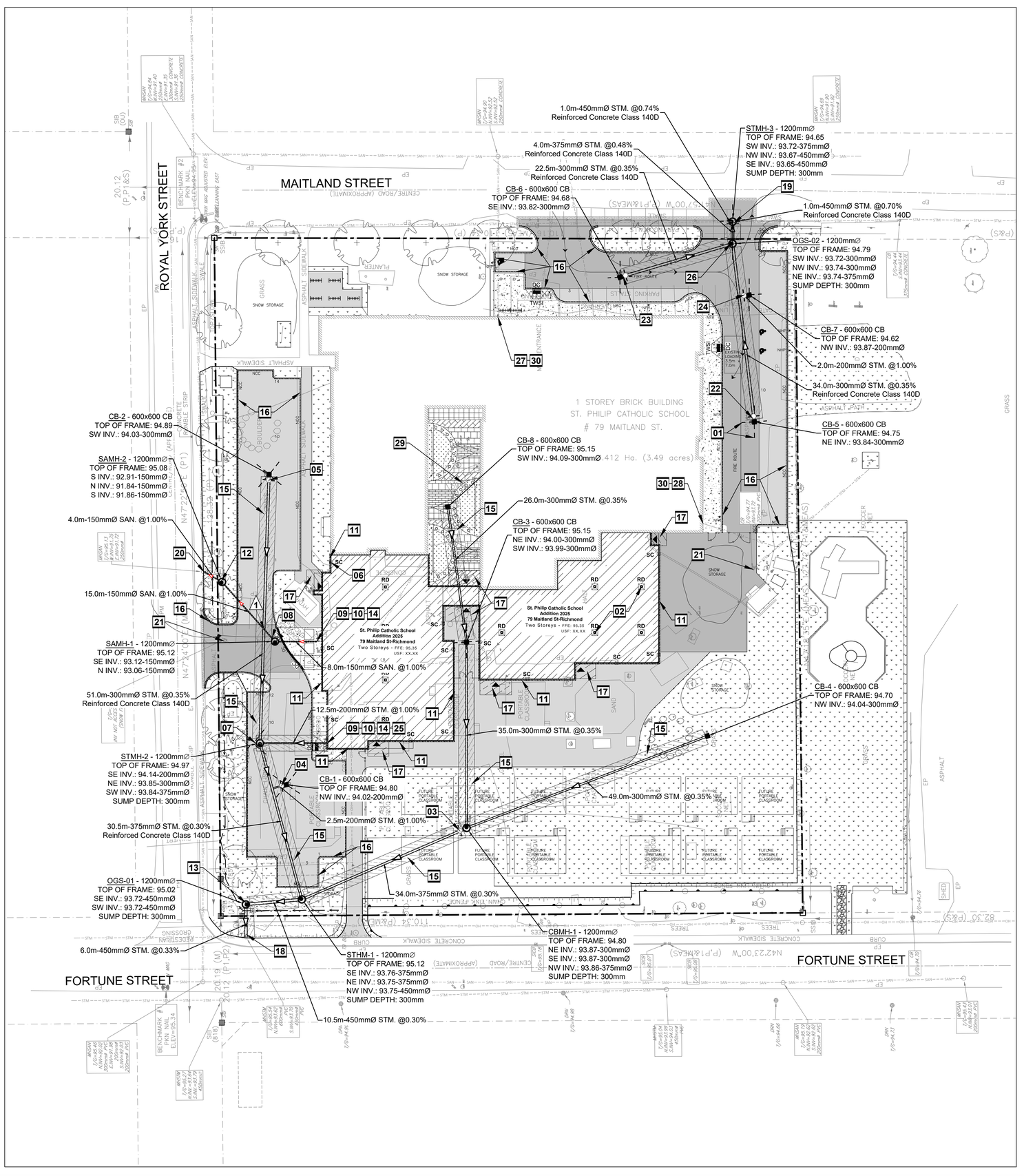
26 SUPPLY AND INSTALL NEW OIL GRIT SEPARATOR UNIT TO THE FOLLOWING REQUIREMENTS:
- MINIMUM 80% TSS REMOVAL
- DRAINAGE AREA = 0.137 ha
- 5 YEAR WEIGHTED RUNOFF COEFFICIENT C = 0.90
- 100 YEAR WEIGHTED RUNOFF COEFFICIENT C = 1.00
- 5 YEAR FLOWS = 30.5 LPS
- 100 YEAR FLOW = 31.9 LPS

27 EXISTING 150mm SANITARY SERVICE FOR EXISTING BUILDING TO REMAIN AS PER AS CONSTRUCTED SERVICING GRADING AND DRAINAGE PLAN BY CAPTIAL ENGINEERING GROUP LTD DATED 2013/11/25.

28 EXISTING 200mm STORM SERVICE FOR EXISTING BUILDING ROOF DRAINS AND FOUNDATION DRAINS TO REMAIN AS PER AS CONSTRUCTED SERVICING GRADING AND DRAINAGE PLAN BY CAPTIAL ENGINEERING GROUP LTD DATED 2013/11/25.

29 EXISTING WATER WELL TO REMAIN

30 CONTRACTOR TO PROVIDE CCTV OF EXISTING BUILDING SERVICE PRIOR TO CONSTRUCTION



CLIENT LOGO

OTTAWA CATHOLIC SCHOOL BOARD

KEYPLAN (NTS)

DISCLAIMER NOTES

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3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JP2G FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JP2G.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	YYYY-MM-DD	BY	DESCRIPTION
3	2025-05-14	RI/AS	ISSUED FOR SITE PLAN CONTROL REV-1
2	2025-03-25	RW/AS	ISSUED FOR BUILDING PERMIT
1	2025-03-07	RW/AS	ISSUED FOR 99% REVIEW

STAMP

STAMP

PROJECT

ST. PHILIP CATHOLIC SCHOOL ADDITION 2025

79 MAITLAND STREET S
RICHMOND, ONTARIO, K0A 2Z0

DRAWING

SITE SERVICING PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

Jp2g PROJECT No.: 24-1045A

NORTH

CLIENT No.:	PC2024-0513
DRAFTED:	R.WESSON / R.ISMAIL
DESIGNED:	R.WESSON / K.ROMANCHUK
REVIEWED:	Z.BAUMAN
APPROVED:	A.SAMMOUR

SCALE

1:400

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4 12 20 m

SHEET #

C1

DWG NAME: J:\1-MAITLTDS\CP\LIVE\2024\24-1045A - CUHACI - OCSB - ADDITION TO ST. PHILIP CATHOLIC SCHOOL\05 DRAWINGS\1 ONGOING\24-1045A ST PHILLIP CATHOLIC SCHOOL ISSUED FOR SITE PLAN CONTROL-REV-1-MAY XX 2025.DWG LAYOUT: C1_SITE SERVICING PLAN SAVED ON 2025-05-13

LEGEND

- PROPERTY LINE
- NEW BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- NEW SWALE
- EXISTING SWALE
- NEW SILT FENCE
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW PRECAST PAVERS WITH HEAVY DUTY GRANULAR BASE
- NEW PRECAST PAVERS
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT
- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SAINTARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- NEW CATCHBASIN
- NEW STORM MANHOLE / CATCH BASIN MANHOLE
- NEW SANITARY MANHOLE
- NEW INLET CONTROL DEVICE
- RD NEW ROOF DRAIN
- SC NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
- BUILDING ENTRANCE
- CAR ENTRANCE
- PROPOSED TWSI
- EXISTING SIDEWALK (Concrete Sidewalk)
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB
- XX.XX EXISTING NATURAL GRADE
- XXXX PROPOSED ELEVATION
- XX.XXTC PROPOSED TOP OF CURB ELEVATION
- XX.XXBC PROPOSED BOTTOM OF CURB ELEVATION
- XXXX / XX.XX PROPOSED ELEVATION / EXISTING NATURAL GRADE
- -X.XX% PROPOSED SLOPE
- OVERLAND FLOW ROUTE

DRAWING NOTES

01 MATCH EXISTING GRADES AT PROPERTY LINE AND LIMITS OF WORK.

02 INSTALL HEAVY DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 2/C3 ACCORDINGLY. PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.

03 INSTALL LIGHT DUTY PAVEMENT IN ACCORDANCE WITH DETAIL 1/C3 ACCORDINGLY. PROVIDE POSITIVE DRAINAGE TOWARDS STORM STRUCTURES.

04 GRADES TO SLOPE AWAY FROM THE BUILDING TO PROVIDE POSITIVE DRAINAGE.

05 ANY DISTURBED AREA WITHIN THE RIGHT-OF-WAY SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE CITY OF OTTAWA.

06 PROTECT EXISTING BELL PEDESTAL DURING CONSTRUCTION.

07 CONSTRUCT PRIVATE ENTRANCE AS PER CITY OF OTTAWA STANDARD DETAIL S26.

08 GRADE TO BE 10mm LOWER THAN EXISTING / PROPOPSED DOOR SILL.

09 TOP OF BANK. PROVIDE MAXIMUM 3:1 SLOPE TO TIE INTO EXISTING / PROPOSED GRADES.

10 CONTRACTOR TO PROVIDE TRENCH BOX FOR EXCAVATION IN PROXIMITY OF MUNICIPAL RIGHT OF WAY FOR PROPOSED STORM SEWER CONNECTION AS PER DETAIL 4/C3.

11 NEW RAMP & TWSI 5% PREFERRED SLOPE AS PER OPSD 310.039 (SEE ARCHITECTURAL).

12 CONSTRUCT MONOLITHIC SIDEWALK AS PER CITY OF OTTAWA STANDARD DETAIL SC2, AND SC5 . PROVIDE MAXIMUM SLOPE OF 2.0% INSTALL REINFORCING MESH 150X150mm MW9.1XMW9.1 THROUGHOUT NEW SIDEWALK. STOP WIRE MESH AT EXPANSION JOINTS.

13 INSTALL NEW BARRIER CURB AS PER CITY OF OTTAWA DETAIL SC1.1

14 INSTALL NEW DEPRESSED CURB AS PER CITY OF OTTAWA DETAIL SC1.1

15 SAW CUT INTO EXISTING ASPHALT AS PER DETAIL 3/C3. MATCH EXISTING PAVEMENT AND GRANULAR STRUCTURE.

16 NEW ACCESSIBLE PARKING ACCESS RAMP. PROVIDE MAXIMUM 8% SLOPE. REFER TO ARCHITECTURAL DETAILS.

17 CONSTRUCT NEW SWALE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING S29 .

18 EXISTING DITCH TO BE RE-ALIGNED / RE-GRADED AND CLEANED TO MEET PROPOSED PARKING LOT TOP OF CURB GRADES.

19 PROVIDE TOPSOIL AND SOD GRADING FROM EXISTING EDGE OF SIDEWALK TO TIE INTO NEW PROPOSED SWALE GRADING. PROVIDE MAX 3H:1V SLOPES

20 TIE INTO EXISTING GRADES AT EXISTING FENCE LINE

21 MATCH NEW ASPHALT WALKWAY GRADES INTO EXISTING ASPHALT / CONCRETE WALKWAY GRADES

22 EXISTING HYDRO GENERATOR AND CONCRETE PAD TO REMAIN.

23 TIE NEW ASPHALT INTO EXISTING ASPHALT GUTTER / SWALE. MAINTAIN EXISTING ASPHALT GUTTER GRADING TO EXISTING CATCH BASIN STRUCTURE.

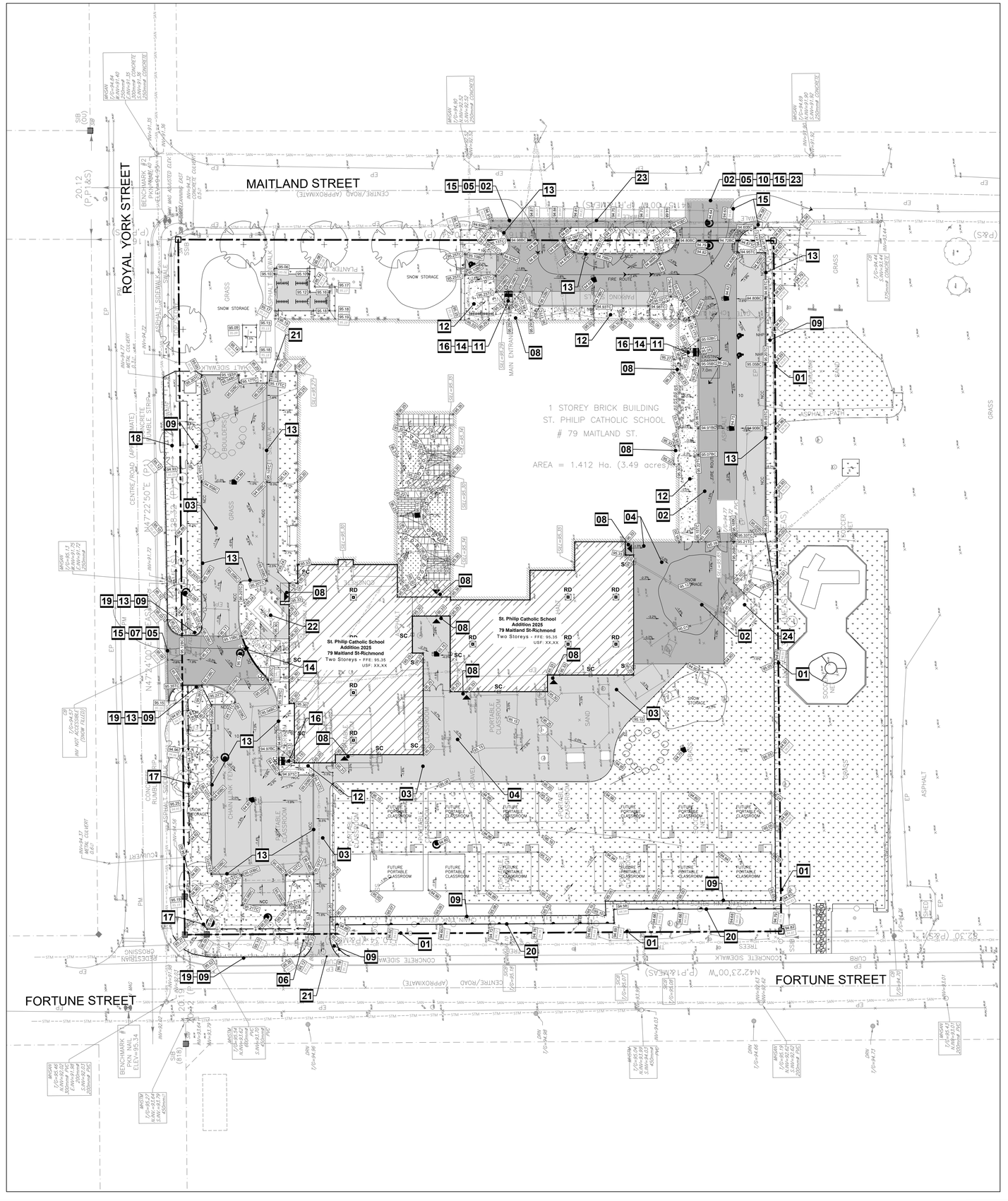
24 EXISTING FIRE PUMP HOUSE TO REMAIN

GEOTECHNICAL NOTES

1. A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO SHALL INSPECT ALL SUBGRADE SURFACES FOR FOOTING AND TRENCHES, PIPE BEDDING AND PAVEMENT STRUCTURES PRIOR TO CONSTRUCTION.
2. IT IS STRICTLY RECOMMENDED TO REFER GEOTECHNICAL INVESTIGATION REPORT : GEOTECHNICAL INVESTIGATION PROPOSED ADDITION TO ST. PHILIP CATHOLIC ELEMENTARY SCHOOL, 79 MAITLAND STREET SOUTH, RICHMOND, ONTARIO COMMUNITY BY PATERSON GROUP.
3. IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR BACKFILLING PURPOSES AND FOR TRENCH BACKFILL WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO THE RECOMMENDATION STATED IN THE GEOTECHNICAL REPORT.
4. CONTRACTOR BIDDING ON THIS PROJECT MUST REVIEW AVAILABLE DATA AND DECIDE ON THEIR OWN THE BEST METHOD FOR THE EXCAVATION OF THE BEDROCK IF DEEMED REQUIRED.
5. IT IS RECOMMENDED THAT THE BEDDING FOR THE UNDERGROUND SERVICES INCLUDING MATERIAL SPECIFICATIONS, THICKNESS OF COVER MATERIAL AND COMPACTION REQUIREMENTS CONFORM TO MUNICIPAL REQUIREMENTS AND/OR ONTARIO PROVINCIAL STANDARD SPECIFICATION AND DRAWINGS (OPSS AND OPSD).
6. IT IS RECOMMENDED THAT THE PIPE BEDDING BE 300 MM THICK AND CONSIST OF OPSS GRANULAR A. THE BEDDING MATERIAL SHOULD BE PLACED ALONG THE SIDES AND ON TOP OF THE PIPE TO PROVIDE A MINIMUM COVER OF 300 MM. THE BEDDING SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE SPMDD.
7. THE BEDDING THICKNESS MAY BE FURTHER INCREASED IN AREAS WHERE THE SUBGRADE BECOMES DISTURBED.
8. SINCE PAVED SURFACES WILL BE LOCATED OVER SERVICE TRENCHES, IT IS RECOMMENDED THAT THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (UP TO 1.8 M BELOW FINISHED GRADE), SHOULD MATCH THE EXISTING MATERIAL IN THE ROADWAY TO MINIMIZE DIFFERENTIAL FROST HEAVING OF THE SUBGRADE. THE TRENCH BACKFILL SHOULD BE PLACED IN 300 MM THICK LIFTS AND EACH LIFT SHOULD BE COMPACTED TO 95 PERCENT SPMDD.
9. THE BEDROCK/AUGER REFUSAL DEPTHS ACROSS THE SITE WERE VARIABLE.SHALLOW BEDROCK AND LARGE BOULDERS SHOULD BE EXPECTED DURING THE INSTALLATION OF ANY SERVICES AT THE SITE AND CONTRACTORS BIDDING ON THIS WORK SHOULD ANTICIPATE THESE CONDITIONS.
10. IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR TRENCH BACKFILL AND SUBGRADE FILL IN PARKING AREA AND ACCESS ROADS WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO OPSS 1010 SELECT SUBGRADE MATERIAL (SSM) - COMPACTED TO 95 PERCENT OF THE SPMDD AND THE UPPER 300 MM OF THE SUBGRADE FILL MUST BE COMPACTED TO 98% SPMDD.
11. AS PART OF THE SUBGRADE PREPARATION, THE PROPOSED PARKING AREA, PAVED AREA AND ACCESS ROADS SHOULD BE STRIPPED OF TOPSOIL AND OTHER OBVIOUSLY UNSUITABLE MATERIAL. THE SUBGRADE SHOULD BE PROPERLY SHAPED, CROWNED, THEN PROOF ROLLED WITH A HEAVY VIBRATORY ROLLER IN THE FULL-TIME PRESENCE OF A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER. ANY SOFT OR SPONGY SUBGRADE AREAS DETECTED SHOULD BE SUB EXCAVATED AND PROPERLY REPLACED WITH SUITABLE APPROVED BACKFILL COMPACTED TO 95 PERCENT SPMDD (ASTM D698-12E2).
12. THE SUBDRAINS ILLUSTRATED ON PLANS ARE SCHEMATIC. FULL SCHEME OF SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S).SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS MUST BE INSTALLED IN THE PROPOSED PARKING AREA AT LOW POINTS AND SHOULD BE CONTINUOUS BETWEEN CATCHBASINS TO INTERCEPT EXCESS SURFACE AND SUBSURFACE MOISTURE AND TO PREVENT SUBGRADE SOFTENING. THIS WILL ENSURE NO WATER COLLECTS IN THE GRANULAR COURSE, WHICH COULD RESULT IN PAVEMENT FAILURE DURING THE SPRING THAW. THE LOCATION AND EXTENT OF SUBDRAINS REQUIRED WITHIN THE PAVED AREAS SHOULD BE REVIEWED BY THE GEOTECHNICAL ENGINEER IN CONJUNCTION WITH THE PROPOSED SITE GRADING.
13. TO MINIMIZE THE PROBLEMS OF DIFFERENTIAL MOVEMENT BETWEEN THE PAVEMENT AND CATCHBASINS/MANHOLE DUE TO FROST ACTION, THE BACKFILL AROUND THE STRUCTURES SHOULD CONSIST OF FREE-DRAINING GRANULAR PREFERABLY CONFORMING TO OPSS GRANULAR B TYPE II MATERIAL. WEEP HOLES SHOULD BE PROVIDED IN THE CATCHBASINS/MANHOLES TO FACILITATE DRAINAGE OF ANY WATER THAT MAY ACCUMULATE IN THE GRANULAR FILL.
14. THE MOST SEVERE LOADING CONDITIONS ON LIGHT-DUTY PAVEMENT AREAS AND THE SUBGRADE MAY OCCUR DURING CONSTRUCTION. CONSEQUENTLY, SPECIAL PROVISIONS SUCH AS RESTRICTED LANES, HALF-LOADS DURING PAVING, TEMPORARY CONSTRUCTION ROADWAYS, ETC., MAY BE REQUIRED, ESPECIALLY IF CONSTRUCTION IS CARRIED OUT DURING UNFAVORABLE WEATHER.
15. THE FINISHED PAVEMENT SURFACE SHOULD BE FREE OF DEPRESSIONS AND SHOULD BE SLOPED (PREFERABLY AT A MINIMUM CROSS FALL OF 2 PERCENT) TO PROVIDE EFFECTIVE SURFACE DRAINAGE TOWARDS CATCH BASINS. SURFACE WATER SHOULD NOT BE ALLOWED TO POND ADJACENT TO THE OUTSIDE EDGES OF PAVED AREAS.
16. RELATIVELY WEAKER SUBGRADE MAY DEVELOP OVER SERVICE TRENCHES AT SUBGRADE LEVEL. THESE AREAS MAY REQUIRE THE USE OF THICKER/COARSER SUB-BASE MATERIAL AND THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL. IF THIS IS THE CASE, IT IS RECOMMENDED THAT ADDITIONAL 150 MM THICK GRANULAR SUB-BASE, OPSS GRANULAR B TYPE II, SHOULD BE PROVIDED IN THESE AREAS, IN ADDITION TO THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL.
17. THE GRANULAR MATERIALS USED FOR PAVEMENT CONSTRUCTION SHOULD CONFORM TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS 1010) FOR GRANULAR A AND GRANULAR B TYPE II AND SHOULD BE COMPACTED TO 100 PERCENT OF THE SPMDD.
18. THE ASPHALTIC CONCRETE USED, AND ITS PLACEMENT SHOULD MEET OPSS 1150 OR 1151 REQUIREMENTS. IT SHOULD BE COMPACTED FROM 92 PERCENT TO 97 PERCENT OF THE MRD (ASTM D2041). ASPHALT PLACEMENT SHOULD BE IN ACCORDANCE WITH OPSS 310 AND OPSS 313.
19. ALL EARTHWORK ACTIVITIES FROM PLACEMENT AND COMPACTION OF FILL IN THE SERVICE TRENCHES TO SUBGRADE PREPARATION, PLACEMENT AND COMPACTION OF GRANULAR MATERIALS AND ASPHALTIC CONCRETE SHOULD BE INSPECTED BY QUALIFIED GEOTECHNICIANS TO ENSURE THAT CONSTRUCTION OF THE SEWERS AND PAVEMENT PROCEEDS ACCORDING TO THE SPECIFICATIONS.
20. STRINGENT CONSTRUCTION CONTROL PROCEDURES SHOULD BE MAINTAINED TO ENSURE THAT UNIFORM SUBGRADE MOISTURE AND DENSITY CONDITIONS ARE ACHIEVED.
21. SHOULD SURFACE AND SUBSURFACE WATER SEEPAGE OCCUR INTO THE EXCAVATIONS COLLECT ANY WATER ENTERING THE EXCAVATIONS AND REMOVE IT BY PUMPING FROM SUMP.
22. IF THE BACKFILL IN THE SERVICE TRENCHES WILL CONSIST OF GRANULAR FILL, CLAY SEALS SHOULD BE INSTALLED IN THE SERVICE TRENCHES AT SELECT INTERVALS (SPACING) AS PER CITY OF OTTAWA DRAWING NO. S8. THE SEALS SHOULD BE 1 M WIDE, EXTEND OVER THE ENTIRE TRENCH WIDTH AND FROM THE BOTTOM OF THE TRENCH TO THE UNDERSIDE OF THE PAVEMENT STRUCTURE. THE CLAY SHOULD BE COMPACTED TO 95 PERCENT SPMDD. THE PURPOSE OF THE CLAY SEALS IS TO PREVENT THE PERMANENT LOWERING OF THE GROUNDWATER LEVEL. CLAY SEAL LOCATIONS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
23. IT IS RECOMMENDED THAT A GEOTEXTILE BE PLACED ON THE SURFACE OF THE SUBGRADE PRIOR OF PLACEMENT OF ANY GRANULAR SUB-BASE. THIS MUST BE ALLOWED FOR BY THE CONTRACTOR AND INSTALLED WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
24. THE MUNICIPAL SERVICES SHOULD BE INSTALLED IN SHORT OPEN TRENCH SECTIONS THAT ARE EXCAVATED AND BACKFILLED THE SAME DAY.

GENERAL NOTES

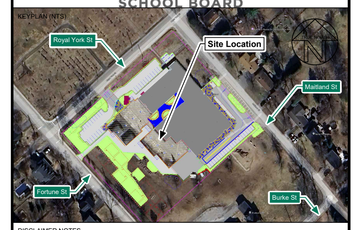
1. DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
2. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
4. ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
5. CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
6. CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.
7. IN THE EVENT THAT EXCAVATION IS REQUIRED ON THE CITY ROW OR ADJACENT PROPERTY, CONTRACTOR IS RESPONSIBLE TO ENSURE ADDITIONAL PERMIT AND/OR PERMISSION



CLIENT LOGO

OTTAWA CATHOLIC SCHOOL BOARD

KEY PLAN (NTS)



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3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JPZG FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JPZG.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	YYYY-MM-DD	BY	DESCRIPTION
3	2025-05-14	RI/AS	ISSUED FOR SITE PLAN CONTROL REV-1
2	2025-03-25	RW/AS	ISSUED FOR BUILDING PERMIT
1	2025-03-07	RW/AS	ISSUED FOR 99% REVIEW

STAMP

LICENSED PROFESSIONAL ENGINEER
A. SAMMOUR
100227665
May 14, 2025
PROVINCE OF ONTARIO

STAMP

PROJECT

ST. PHILIP CATHOLIC SCHOOL ADDITION 2025

79 MAITLAND STREET S
RICHMOND, ONTARIO, K0A 2Z0

DRAWING

SITE GRADING PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

Jp2g PROJECT No.: 24-1045A

NORTH

TRUE NORTH

CLIENT No.:	PC2024-0513
DRAFTED:	R.WESSON / R.ISMAIL
DESIGNED:	R.WESSON / K.ROMANCHUK
REVIEWED:	Z.BAUMAN
APPROVED:	A.SAMMOUR

SCALE

1:400
0 m 8 16
4 12 20 m

SHEET #

C2

DWG NAME: J:\1-MULTIDISCIPLINE\2024\24-1045A - CUHACI - OCSB - ADDITION TO ST. PHILIP CATHOLIC SCHOOL\05 DRAWINGS\1 ONGOING\24-1045A ST PHILIP CATHOLIC SCHOOL ISSUED FOR SITE PLAN CONTROL-REV-1-MAY XX 2025.DWG LAYOUT: C2_SITE GRADING PLAN SAVED ON 2025-05-13

GENERAL NOTES

1. DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS.
2. ALL SERVICES, MATERIALS, CONSTRUCTION METHODS AND INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND REGULATIONS OF THE: CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS, ONTARIO PROVINCIAL SPECIFICATION STANDARD SPECIFICATION (OPSS) AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD), UNLESS OTHERWISE SPECIFIED, TO THE SATISFACTION OF THE CITY AND THE CONSULTANT.
3. THE POSITION OF EXISTING POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES, STRUCTURES AND APPURTENANCES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL SATISFY HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM DURING THE COURSE OF CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF SUBJECT LANDS IS TO BE UNDERTAKEN AT CONTRACTOR'S EXPENSE.
4. THE CONTRACTOR MUST NOTIFY ALL EXISTING UTILITY COMPANY OFFICIALS FIVE (5) BUSINESS DAYS PRIOR TO START OF CONSTRUCTION AND HAVE ALL EXISTING UTILITIES AND SERVICES LOCATED IN THE FIELD OR EXPOSED PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO POWER, COMMUNICATION AND GAS LINES.
5. ALL TRENCHING AND EXCAVATIONS TO BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS AND AS PER THE RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL REPORT.
6. REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, LAYOUT AND REMOVALS. REFER TO LANDSCAPE PLAN FOR LANDSCAPED DETAILS AND OTHER RELEVANT INFORMATION. ALL INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
7. TOPOGRAPHIC SURVEY COMPLETED AND PROVIDED BY STANTEC GEOMATIC Ltd., PROJECT NO.: 161614621-111,. CONTRACTOR TO VERIFY IN THE FIELD PRIOR TO CONSTRUCTION OF ANY WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
8. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. VERIFY THAT JOB BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED.
9. ALL GROUND SURFACES SHALL BE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE APPROVED SWALE OR CATCH BASIN OUTLETS ARE PROVIDED.
10. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
11. ALL DISTURBED AREAS OUTSIDE PROPOSED GRADING LIMITS TO BE RESTORED TO ORIGINAL ELEVATIONS AND CONDITIONS UNLESS OTHERWISE SPECIFIED. ALL RESTORATION SHALL BE COMPLETED WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION.
12. ABUTTING PROPERTY GRADES TO BE MATCHED UNLESS OTHERWISE SHOWN.
13. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION, INCLUDING WATER PERMIT AND ROAD CUT PERMIT.
14. MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
15. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS. ALL EXCESS SOIL MANAGEMENT, TESTING AND DISPOSAL MUST COMPLY WITH CURRENT O.REG. 406/19. ALL ASSOCIATED COSTS ARE TO BE BORNE BY THE CONTRACTOR.
16. AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
17. CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY, COMPLETED BY OLS OR P.ENG CONFIRMING COMPLIANCE WITH DESIGN GRADING AND SERVICING. SURVEY IS TO INCLUDE LOCATION AND INVERTS FOR BURIED UTILITIES.
18. ABIDE BY RECOMMENDATIONS OF GEOTECHNICAL REPORT. REPORT ANY VARIATIONS IN OBSERVED CONATIONS FROM THOSE INCLUDED IN REPORT.
19. REPORT REFERENCES;
    i. GEOTECHNICAL INVESTIGATION PREPARED BY PATERSON GROUP, PROJECT NO.: PG7265-LET.01 , DATED OCTOBER 16, 2024.
20. PROVIDE CCTV INSPECTION REPORT FOR ALL SEWERS AND CATCHBASIN LEADS 200mm DIAMETER AND LARGER. REPEAT CCTV INSPECTION FOLLOWING RECTIFICATION OF ANY DEFICIENCIES.

NOTES: SANITARY SEWER AND MANHOLES

1. ALL SANITARY SEWER, SANITARY SEWER APPURTENANCES AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT ONTARIO STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW SANITARY PIPING. PROVIDE DYE TESTING FOR NEW SERVICES.
2. SANITARY SEWER PIPE SIZE 150mm DIAMETER AND GREATER TO BE PVC SDR-35 (UNLESS SPECIFIED OTHERWISE) WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA B-182.2.3.4.
3. SEWER BEDDING AS PER OPSD 802.031.
4. ALL SANITARY MANHOLES 1200mm IN DIAMETER TO BE AS PER OPSD 701.01.FRAME AND COVER TO BE AS OPSD 401.010 (TYPE A).
5. MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES AS PER THE OPSD 701.021.
6. ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER OPSD 1109.030, OR APPROVED BY THE ENGINEER.

NOTES: STORM SEWER AND MANHOLES

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT ONTARIO STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW STORM SEWERS, SERVICES AND CB LEADS.
2. STORM SEWERS 375mm DIAMETER AND SMALLER SHALL BE PVC SDR-35, WITH RUBBER GASKET PER CSA A-257.3 UNLESS OTHERWISE NOTED.
3. STORM SEWER 450mm AND LARGER SHALL BE REINFORCED CONCRETE CLASS 100 UNLESS OTHERWISE NOTED.
4. SEWER BEDDING AS PER OPSD 802.031.
5. ALL STORM MANHOLES TO BE AS PER MANHOLE AND CATCHBASIN SCHEDULE.
6. ANY NEW OR EXISTING STORM SEWER WITH LESS THAN 2.0m COVER REQUIRES THERMAL INSULATION AS PER OPSD 1109.030, OR APPROVED BY THE ENGINEER.
7. ALL CATCHBASIN LEADS TO BE MINIMUM 200mm DIAMETER AT MINIMUM 1.0% SLOPE UNLESS OTHERWISE SPECIFIED.
8. STORM CATCHBASINS AS PER OPSD 705.010 AND FRAME/COVER OPSD 400.020. STORM CBMH'S AS INDICATED IN TABLE WITH SUMP. ADJUSTMENT SECTIONS SHALL BE AS PER OPSD 704.010 AND FRAME/COVER OPSD 401.010 (TYPE B).
9. INSTALLATION OF FLOW CONTROL ICD'S TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.

Parking Lot and Work in Public Rights of Way

**** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.****

1. PRIOR TO START OF CONSTRUCTION:
   1.1. INSTALL SILT FENCE IN LOCATION SHOWN ON DWG C4.
   1.2. INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE (SEE TYPICAL DETAIL).
   1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
2. DURING CONSTRUCTION:
   2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
   2.2. PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
   2.3. PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
   2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
   2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
   2.6. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
   2.7. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
   2.8. DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
   2.9. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
   2.10. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
   2.11. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
   2.12. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
   2.13. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
   2.14. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
   2.15. ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
   2.16. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

EXCESS SOIL AND O.REG. 406/19

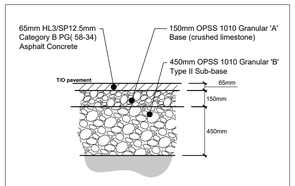
1. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, FOUNDATION, PAVED AREAS, SUBDRAINS AND SERVICE TRENCHES. EXCESS MATERIAL REMOVAL FROM SITE SHALL FOLLOW THE GEOTECHNICAL AND ENVIRONMENTAL ENGINEER'S RECOMMENDATION.
2. CONTRACTOR TO STOCKPILE UN-USABLE FILL TO BE REMOVED FROM SITE TO ALLOW THE GEOTECHNICAL ENGINEER IN 10 DAYS TO INSPECT THE MATERIALS AND TO PROVIDE GUIDANCE TO CONTRACTOR PRIOR TO DISPOSAL. EROSION CONTROL MEASURE ARE TO BE APPLIED TO STOCKPILE AREA. EXCESS MATERIALS SHALL BE DISPOSED AS PER THE REQUIREMENTS OF OPSS 180.
3. IF CONTAMINATION HAZARDOUS MATERIAL IS SUSPECTED DURING CONSTRUCTION (E.G. STAINING, ODOURS, ETC.), THE CONTRACTOR MUST NOTIFY THE PROPERTY OWNER(S), PROJECT LEADER, PRIME CONSULTANT, AND GEOTECHNICAL ENGINEER, FOR DIRECTION ON HOW TO PROCEED ACCORDING TO FEDERAL AND PROVINCIAL LEGISLATION. THE GEOTECHNICAL ENGINEER UNDER THE GUIDANCE OF A QUALIFIED PERSON, MUST DETERMINE IF ADDITIONAL SAMPLING (INCLUDING LEACHATE TESTING) IS REQUIRED TO MEET THE MINIMUM SAMPLING PROVISIONS UNDER O.REG. 406/19 (AS AMENDED).
4. EXCESS SOIL MANAGEMENT, TESTING AND DISPOSAL MUST COMPLY WITH O.REG. 406/19.
5. ALL SOIL HAULAGE RECORDS SHALL BE KEPT AND PROVIDED BY THE CONTRACTOR AND SUBMITTED TO THE CONSULTANT .
6. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED AT AN APPROVED DUMP SITE BY CONTRACTOR .

Parking Lot and Work in Public Rights of Way

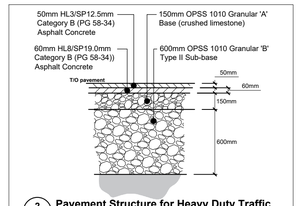
1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
3. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL REPORT REQUIREMENTS.
4. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR B MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
5. GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR B PLACEMENT.
6. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF GRANULAR A MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE GRADATION REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
7. ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR A PLACEMENT.
8. CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE CONSULTANT WITH SAMPLES OF ASPHALT MATERIAL FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
9. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE CONSULTANT WITH VERIFICATION PRIOR TO PLACEMENT.
10. 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 CONSULTANT. CONSULTANT TO DETERMINE APPROPRIATE DISPOSAL METHOD/LOCATION.
11. PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESS) FOR HEAVY DUTY AND LIGHT DUTY AREAS TO BE AS SPECIFIED IN THE GEOTECHNICAL REPORT AND SHOWN ON THE PLANS.

CROSSING TABLE

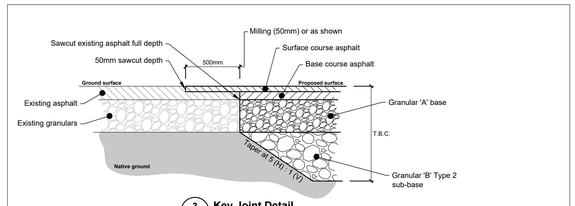
LOCATION	OVER / UNDER	T/G	OBVERT	INVERT	CLEARANCE (m)
⚠	NEW SANITARY- NEW STORM SEWER	95.16	93.18 (SAN)	94.12 (STM)	0.94



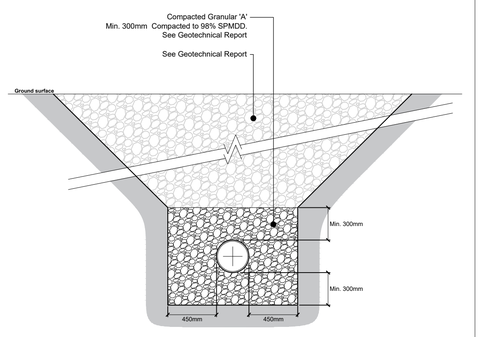
1 C3 **Pavement Structure for Light Duty Traffic**
Scale: **As shown**



2 C3 **Pavement Structure for Heavy Duty Traffic**
Scale: **As shown**



3 C3 **Key Joint Detail**
Scale: **As shown**



4 C3 **Standard Trench Detail**
Scale: **As shown**

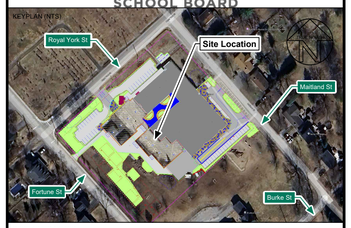
NEW STRUCTURE SCHEDULE

MANHOLE NO.	DESCRIPTION	T/GRATE ELEVATION	INVERT ELEVATION / PIPE DIAMETER	OPSD No.	FRAME (CITY OF OTTAWA)
CB-1	600x600mm Catchbasin	94.80	NW INV.: 94.02 - 200mmØ	705.010	S19
CB-2	600x600mm Catchbasin	94.89	SW INV.: 94.03 - 300mmØ	705.010	S19
CB-3	600x600mm Catchbasin	95.15	NE INV.: 94.00 - 300mmØ SW INV.: 93.99 - 300mmØ	705.010	S19
CB-4	600x600mm Catchbasin	94.70	NW INV.: 94.04 - 300mmØ	705.010	S19
CB-5	600x600mm Catchbasin	94.75	NE INV.: 93.84 - 300mmØ	705.010	S19
CB-6	600x600mm Catchbasin	94.68	SE INV.: 93.82 - 300mmØ	705.010	S19
CB-7	600x600mm Catchbasin	94.62	NW INV.: 93.87 - 200mmØ	705.010	S19
CB-8	600x600mm Catchbasin	95.15	SW INV.: 94.09 - 300mmØ	Standard	Standard
CBMH-1	1,200mmØ Manhole	94.80	NE INV.: 93.87 - 300mmØ SE INV.: 93.87 - 300mmØ NW INV.: 93.86 - 375mmØ	701.010	S25/S28.1
OGS-01	1,200mmØ Manhole	95.02	SE INV.: 93.72 - 450mmØ SW INV.: 93.72 - 450mmØ	701.010	S25/S24.1
OGS-02	1,200mmØ Manhole	94.79	SW INV.: 93.72 - 300mmØ NW INV.: 93.74 - 300mmØ NE INV.: 93.74 - 375mmØ	701.010	S25/S24.1
SAMH-1	1,200mmØ Manhole	95.12	SE INV.: 93.12 - 150mmØ N INV.: 93.06 - 150mmØ	701.010	S25/S24
SAMH-2	1,200mmØ Manhole	95.08	S INV.: 92.91 - 150mmØ N INV.: 91.84 - 150mmØ S INV.: 91.86 - 150mmØ	701.010 / 1003.010 DROP STRUCTURE	S25/S24
STHM-1	1,200mmØ Manhole	95.12	SE INV.: 93.76 - 375mmØ NE INV.: 93.75 - 375mmØ NW INV.: 93.75 - 450mmØ	701.010	S25/S24.1
STMH-2	1,200mmØ Manhole	94.97	SE INV.: 94.14 - 200mmØ NE INV.: 93.85 - 300mmØ SW INV.: 93.84 - 375mmØ	701.010	S25/S24.1
STMH-3	1,200mmØ Manhole	94.65	SW INV.: 93.72 - 375mmØ NW INV.: 93.67 - 450mmØ SE INV.: 93.65 - 450mmØ	701.010	S25/S24.1

CLIENT LOGO

OTTAWA CATHOLIC SCHOOL BOARD

KEY PLAN (NTS)



DISCLAIMER NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ISSUES/PROBLEMS WHICH MAY OCCUR AS A RESULT OF A FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY.
2. WHERE THERE ARE ALLEGED ERRORS, OMISSIONS, INCONSISTENCIES OR AMBIGUITIES PRESENT IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MUST SEEK CLARIFICATION FROM JPG. ANY COSTS OR SCHEDULE DELAYS WHICH RESULT AS A FAILURE TO CONTACT JPG FOR DIRECTION SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JPG FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JPG.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

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1	2025-03-07	RW/AS	ISSUED FOR 99% REVIEW

STAMP

STAMP

PROJECT

ST. PHILIP CATHOLIC SCHOOL ADDITION 2025

79 MAITLAND STREET S
RICHMOND, ONTARIO, K0A 2Z0

DRAWING

DETAILS, NOTES AND SCHEDULES

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

Jp2g PROJECT No.: 24-1045A

NORTH

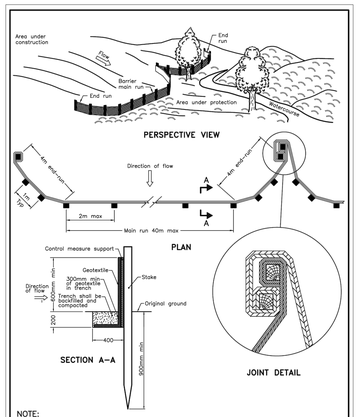
CLIENT No.:	PC2024-0513
DRAFTED:	R.WESSON / R.ISMAIL
DESIGNED:	R.WESSON / K.ROMANCHUK
REVIEWED:	Z.BAUMAN
APPROVED:	A.SAMMOUR

SCALE: SCALE AS SHOWN

SHEET # **C3**

LEGEND

- PROPERTY LINE
- NEW BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- NEW SWALE
- EXISTING SWALE
- NEW SILT FENCE
- NEW LIGHT DUTY ASPHALT
- NEW HEAVY DUTY ASPHALT
- NEW CONCRETE SIDEWALK
- NEW GRASS
- NEW PRECAST PAVERS WITH HEAVY DUTY GRANULAR BASE
- NEW PRECAST PAVERS
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT
- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- NEW CATCHBASIN
- NEW STORM MANHOLE / CATCH BASIN MANHOLE
- NEW SANITARY MANHOLE
- NEW INLET CONTROL DEVICE
- RD NEW ROOF DRAIN
- SC NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
- BUILDING ENTRANCE
- CAR ENTRANCE
- PROPOSED TWSI
- EXISTING SIDEWALK
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB
- OVERLAND FLOW ROUTE



ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
HEAVY–DUTY SILT FENCE BARRIER		OPSD 219.130

1 / C4 Heavy Duty Silt Fence Barrier
Scale: **Not to scale**

EROSION AND SEDIMENT CONTROL NOTES CONTINUED

**** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.****

1. PRIOR TO START OF CONSTRUCTION:
   - 1.1. INSTALL SILT FENCE IN LOCATION SHOWN ON DRAWINGS.
   - 1.2. INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE (SEE TYPICAL DETAIL).
   - 1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
2. DURING CONSTRUCTION:
   - 2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
   - 2.2. PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
   - 2.3. PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
   - 2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
   - 2.5. INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMPS WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
   - 2.6. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION
   - 2.7. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.
   - 2.8. DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW (LONGER THAN 30 DAYS).
   - 2.9. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
   - 2.10. NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
   - 2.11. CITY ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
   - 2.12. DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
   - 2.13. ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
   - 2.14. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ABUTTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
   - 2.15. ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
   - 2.16. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

EROSION AND SEDIMENT CONTROL NOTES

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE, DURING CONSTRUCTION ACTIVITIES; THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS, AND INSTALLING AND MAINTAINING MUD MATS FOR OUTGOING CONSTRUCTION TRAFFIC DURING CONSTRUCTION ACTIVITIES.
2. PREVENT SOIL LOSS DURING CONSTRUCTION (BY STORM WATER RUNOFF OR WIND EROSION).
3. PROTECT TOPSOIL BY STOCKPILING FOR REUSE.
4. PREVENT SEDIMENTATION OF STORM SEWERS AND RECEIVING STREAMS.
5. PREVENT AIR POLLUTION FROM DUST AND PARTICULATE MATTER.
6. ALL STORM MANHOLES AND CATCHBASIN MANHOLES TO HAVE 300mm SUMPS; ALL CATCHBASINS TO HAVE 600mm SUMPS.
7. INSTALL FILTER BAG INSERT IN ALL STORM MANHOLES AND CATCH BASINS IMPACTED DURING CONSTRUCTION, INCLUDING CATCH BASINS IN THE RIGHT OF WAY.
8. SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA INSPECTOR OR CONSERVATION AUTHORITY.
9. STORM WATER PUMPED INTO CITY SERVICE SHALL FLOW THROUGH A FILTER SOCK.
10. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

DRAWING NOTES

- 01 INSTALL SILT FENCE IN ACCORDANCE WITH OPSD 219.130.
- 02 PROPOSED MUD MAT DURING CONSTRUCTION

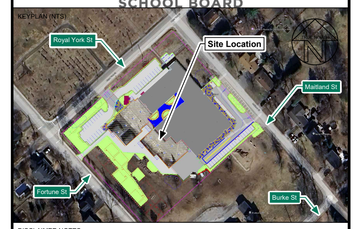
ICD SCHEDULE

ICD No.	LOCATION	PIPE SIZE (mm)	ICD SIZE (mm)	INVERT ELEVATION (m)	FLOW RATE (lps)
ICD-1	CBMH-1	375	75	94.01	10.70
ICD-2	CB-1	200	92	94.07	16.4
ICD-3	CB-2	300	85	94.14	14.1
ICD-4	CB-5	300	75	93.95	11.50
ICD-5	CB-6	300	75	93.93	10.40
ICD-6	CB-7	200	75	93.93	9.70

CLIENT LOGO

OTTAWA CATHOLIC SCHOOL BOARD

KEY PLAN (NTS)



DISCLAIMER NOTES

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ISSUES/PROBLEMS WHICH MAY OCCUR AS A RESULT OF A FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY.
2. WHERE THERE ARE ALLEGED ERRORS, OMISSIONS, INCONSISTENCIES OR AMBIGUITIES PRESENT IN THE CONTRACT DOCUMENTS, THE CONTRACTOR MUST SEEK CLARIFICATION FROM JPG. ANY COSTS OR SCHEDULE DELAYS WHICH RESULT AS A FAILURE TO CONTACT JPG FOR DIRECTION SHALL BE SOLELY THE RESPONSIBILITY OF THE CONTRACTOR.
3. DO NOT SCALE DRAWINGS. REFER ANY DIMENSIONAL CLARIFICATIONS AND/OR POSSIBLE TRADE INTERFERENCE/CONFLICTS TO JPG FOR CLARIFICATION PRIOR TO COMMENCEMENT OF THE WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION WITH SUBTRADES AND SHALL ADDRESS CONSTRUCTION TEAM COORDINATION ITEMS PRIOR TO ISSUING REQUESTS FOR INFORMATION FROM JPG.
5. THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWING, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM THEMSELVES OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	YYYY-MM-DD	BY	DESCRIPTION
3	2025-05-14	RI/AS	ISSUED FOR SITE PLAN CONTROL REV-1
2	2025-03-25	RW/AS	ISSUED FOR BUILDING PERMIT
1	2025-03-07	RW/AS	ISSUED FOR 99% REVIEW

STAMP

PROFESSIONAL ENGINEER — ANDREW SAMMOUR — 100227665 — May 14, 2025 — PROVINCE OF ONTARIO

STAMP

PROJECT

ST. PHILIP CATHOLIC SCHOOL ADDITION 2025

79 MAITLAND STREET S
RICHMOND, ONTARIO, K0A 2Z0

DRAWING

STORM WATER MANAGEMENT AND EROSION SEDIMENT CONTROL PLAN

Jp2g Consultants Inc.
ENGINEERS · PLANNERS · PROJECT MANAGERS

Jp2g PROJECT No.: 24-1045A

NORTH — TRUE NORTH

CLIENT No.:	PC2024-0513
DRAFTED:	R.WESSON / R.ISMAIL
DESIGNED:	R.WESSON / K.ROMANCHUK
REVIEWED:	Z.BAUMAN
APPROVED:	A.SAMMOUR

SCALE — 1:400
0 m 4 8 12 16 20 m

SHEET # **C4**

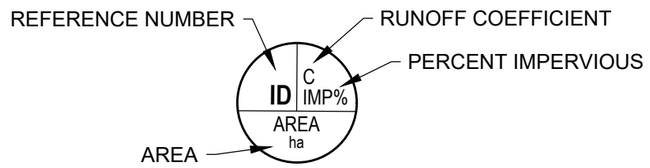
DWG NAME: J11-MULTIDISCIPLINE\2024\24-1045A - OJHAD - OCSB - ADDITION TO ST. PHILIP CATHOLIC SCHOOL\06 DRAWINGS\11 ONGOING\24-1045A ST PHILIP CATHOLIC SCHOOL ISSUED FOR SITE PLAN CONTROL\REV-1-MAY XX 2025.DWG LAYOUT: C4_SITE SWM AND EROSION PLAN SAVED ON 2025-05-13

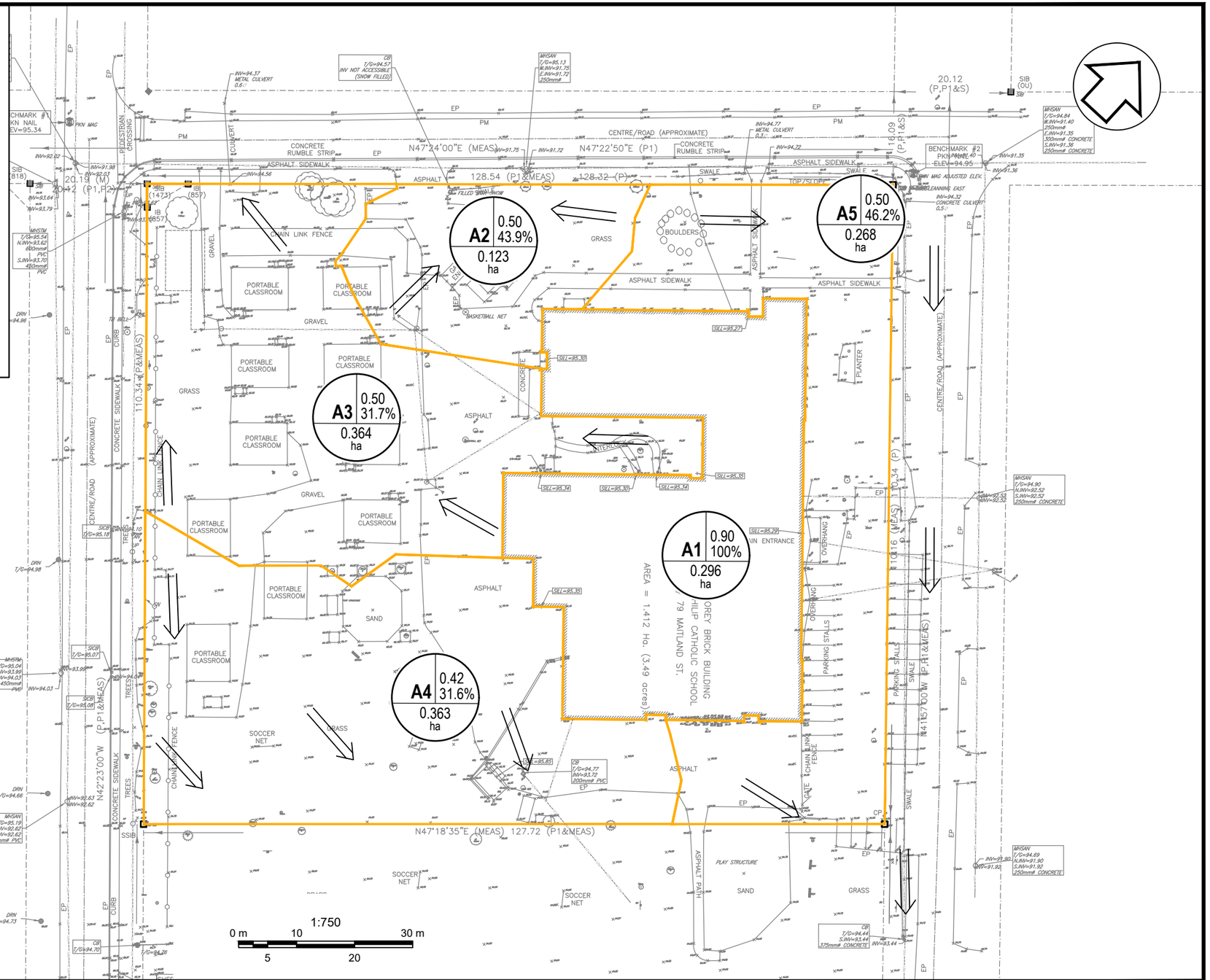
LEGEND

DRAINAGE AREA BOUNDARY

DRAINAGE FLOW DIRECTION

DRAINAGE AREA LABEL





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Phone: (613)828-7800, Fax: (613)828-2600

ST. PHILIP CATHOLIC SCHOOL
RICHMOND, ON
PRE-DEVELOPMENT DRAINAGE AREAS

Jp2g Project No.: 24-1045A

DESIGNED: KR		CLIENT No.:
DRAFTED: KR		REVISION DATE: 2025-05-14
CHECKED: SA	APPROVED: SA	REVISION No.: 1
SCALE: 1:750		FIGURE 1

LEGEND

DRAINAGE AREA BOUNDARY

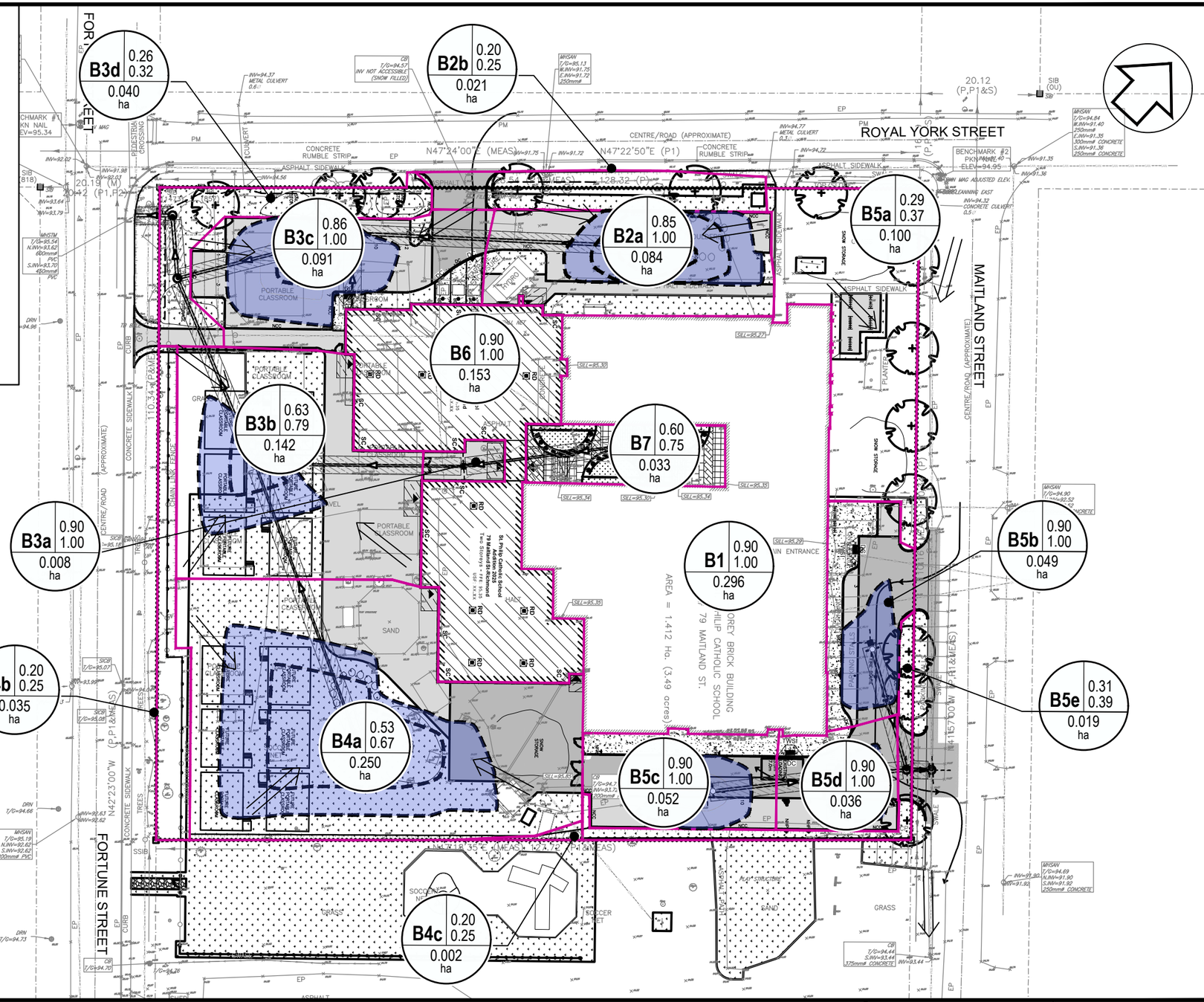
DRAINAGE FLOW DIRECTION

DRAINAGE AREA LABEL

REFERENCE NUMBER — 5 YR RUNOFF COEFFICIENT — 100 YR RUNOFF COEFFICIENT

ID | 5YR 100YR | AREA ha

AREA



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ST. PHILIP CATHOLIC SCHOOL
RICHMOND, ON
POST-DEVELOPMENT DRAINAGE AREAS

Jp2g Project No.: 24-1045A

DESIGNED: KR		CLIENT No.:
DRAFTED: KR		REVISION DATE: 2025-05-14
CHECKED: SA	APPROVED: SA	REVISION No.: 1
SCALE: 1:750		FIGURE 2

Appendix B
Stormwater Management

24-1045A - St. Phillip Catholic School
Stormwater Management Calculations
Existing Conditions Predevelopment 2 Year Release Rate

Receiving Structure	Subcatchment	Area	Impervious Area (C = 0.90)		Pervious Area (C = 0.20)	2 Year C*	2 Year Rainfall Intensity	2 Year Runoff
		(ha)	*(m^2)*	*(ha)*	*(ha)*	*<=10yr*	*(mm/hr)*	*(L/s)*
Uncontrolled								
Roof (Ex)	**A1**	0.296	2955.9	0.296	0	0.90	76.8	56.80
Total Uncontrolled		**0.296**						**56.80**
Controlled								
West CB	**A2**	0.123	537.7	0.054	0.06882	0.50	76.8	13.09
West Culvert	**A3**	0.364	1550	0.155	0.209	0.50	76.8	38.72
Total Outlet 1 - Fortune Street 450 Storm Sewer		**0.487**						**51.81**
Southeast Overland	**A4**	0.363	1146.7	0.115	0.24793	0.42	76.8	32.62
East CB	**A5**	0.268	1237.5	0.124	0.14395	0.50	76.8	28.58
Total Outlet 2 - Mailtand Street 450 Culvert		**0.630**						**61.20**
		1.413						**113.01**

***Runoff Coefficient is limited to a maximum value of 0.5 for pre-development as per pre-consultation notes.**

24-1045A - St. Phillip Catholic School
Stormwater Management Calculations

Post Development Drainage Areas

Receiving Structure	Subcatchment	Area	Impervious Area (C = 0.90)		Pervious Area (C = 0.20)	2 Year C	2 Year Rainfall Intensity	2 Year Runoff	100 Year C	100 Year Rainfall Intensity	100 Year Runoff	Structure Elevation
		(ha)	(m^2)	(ha)	(ha)	<=10yr	(mm/hr)	(L/s)	100yr	(mm/hr)	(L/s)	(m)
Uncontrolled												
Roof (Ex)	**B1**	0.296	2955.9	0.296	0	0.90	76.8	56.80	1.00	178.6	146.73	
Total Uncontrolled Roof		**0.296**						**56.80**			**146.73**	
Outlet 1 Fortune Street 450 Storm Sewer	**B3d**	0.040	33	0.003	0.03631	0.26	76.8	2.18	0.32	178.6	6.35	
Total Uncontrolled Outlet 1		**0.04**						**2.18**			**6.35**	
CB-2	**B2a**	0.084	786.8	0.079	0.00572	0.85	76.8	15.36	1.00	178.6	41.90	94.89
CB-3	**B3a**	0.008	83.2	0.008	0	0.90	76.8	1.60	1.00	178.6	4.13	95.15
CBMH-1	**B3b**	0.142	878	0.088	0.05411	0.63	76.8	19.18	0.79	178.6	55.75	94.80
CB-1	**B3c**	0.091	854.9	0.085	0.00531	0.86	76.8	16.66	1.00	178.6	45.07	94.80
CB-4	**B4a**	0.250	1190	0.119	0.131	0.53	76.8	28.48	0.67	178.6	82.76	94.70
Roof (Prop)	**B6**	0.153	1531.3	0.153	0	0.90	76.8	29.43	1.00	178.6	76.01	0.00
CB-8	**B7**	0.033	190.6	0.019	0.01443	0.60	76.8	4.28	0.75	178.6	12.43	95.15
Total Controlled Outlet 1		**0.762**						**114.985**			**318.053**	
	B2b	0.021	0	0.000	0.02146	0.20	76.8	0.92	0.25	178.6	2.66	
	B4b	0.035	0	0.000	0.03461	0.20	76.8	1.48	0.25	178.6	4.30	
	B4c	0.002	0	0.000	0.002	0.20	76.8	0.09	0.25	178.6	0.25	
Outlet 2 Maitland Street Culvert	**B5a**	0.100	136.1	0.014	0.0867	0.29	76.8	6.32	0.37	178.6	18.36	
	B5e	0.019	29.7	0.003	0.01612	0.31	76.8	1.26	0.39	178.6	3.66	
Total Uncontrolled Outlet 2		**0.177**						**10.057**			**29.225**	
Controlled - Outlet 2												
CB-6	**B5b**	0.049	491.6	0.049	0	0.90	76.8	9.45	1.00	178.6	24.40	94.68
CB-5	**B5c**	0.052	524.8	0.052	0	0.90	76.8	10.08	1.00	178.6	26.05	94.75
CB-7	**B5d**	0.036	355	0.036	0	0.90	76.8	6.82	1.00	178.6	17.62	94.62
Total Controlled Outlet 2		**0.137**						**26.354**			**68.075**	
Total Assuming No Control		**1.412**						**210.382**			**568.432**	

SWM Control Summary - Refer to Individual Sheets

ICD	Control Structure	100 Year Allowable Outflow (L/s)	100 Year Required Storage (m^3)	Structure Elevation (m)	100 Yr Ponding Depth (m)	Outlet Pipe Invert (m)	Pipe Diameter (mm)	Orifice Coefficient	Orifice Diameter (mm)	Orifice Head (m)	Orifice Invert Elevation (m)
ICD-1	CBMH-1	10.70	136.23	94.70	0.29	93.86	375	0.61	75	0.94	94.01
ICD-2	CB-1	16.40	17.70	94.80	0.17	94.02	200	0.61	92	0.85	94.07
ICD-3	CB-2	14.10	17.48	94.89	0.13	94.03	300	0.61	85	0.84	94.14
ICD-4	CB-5	11.50	8.73	94.75	0.17	93.84	300	0.61	75	0.93	93.95
ICD-5	CB-6	10.40	8.40	94.68	0.15	93.82	300	0.61	75	0.86	93.93
ICD-6	CB-7	9.70	4.75	94.62	0.14	93.87	200	0.61	75	0.79	93.93
Roof	Watts Adjustable Roof Drains	4.20	60.12	0.00	0.11	roof drain control					
Total		**77.00**	**253.43**								

Total Site Outflow Summary - Outlet 1 Fortune Street 450mm Storm Sewer

Source	Outflow (L/s)
ICD-1	10.70
ICD-2	16.40
ICD-3	14.10
Roof	4.20
Uncontrolled Outlet 1	6.35
Total	**51.75**
Allowable	**51.81**
Difference	**0.06**

Total Site Outflow Summary - Outlet 2 Maitland Street Culvert

Source	Outflow (L/s)
ICD-4	11.50
ICD-5	10.40
ICD-6	9.70
Uncontrolled Outlet 2	29.23
Total	**60.83**
Allowable	**61.20**
Difference	**0.38**

24-1045A - St. Phillip Catholic School
SWM Calculations - 100 Year Event Control
ICD-1

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CBMH-1	B3b	0.142	0.63	0.79	94.80									
CB-3	B3a	0.008	0.90	1.00	95.15									
CB-8	B7	0.033	0.60	0.75	95.15									
CB-4	B4a	0.250	0.53	0.67	94.70									
ICD-1 Total		0.434	0.58	0.72	94.70	10.1	10.4	10.7	32.1	67.2	136.2	94.989	105.350	0.289

Stage below ponding (m)
94.98

ICD-1 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	53.54	10.10	43.44	26.1
15	61.8	43.06	10.10	32.96	29.7
20	52.0	36.27	10.10	26.17	31.4
25	45.2	31.49	10.10	21.39	32.1
30	40.0	27.91	10.10	17.81	32.1
35	36.1	25.14	10.10	15.04	31.6
40	32.9	22.91	10.10	12.81	30.7
45	30.2	21.08	10.10	10.98	29.6
50	28.0	19.55	10.10	9.45	28.3
55	26.2	18.24	10.10	8.14	26.9
60	24.6	17.12	10.10	7.02	25.3

ICD-1 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	90.49	10.40	80.09	48.1
15	83.6	72.57	10.40	62.17	55.9
20	70.3	61.01	10.40	50.61	60.7
25	60.9	52.89	10.40	42.49	63.7
30	53.9	46.83	10.40	36.43	65.6
35	48.5	42.14	10.40	31.74	66.6
40	44.2	38.37	10.40	27.97	67.1
45	40.6	35.28	10.40	24.88	67.2
50	37.7	32.70	10.40	22.30	66.9
55	35.1	30.50	10.40	20.10	66.3
60	32.9	28.61	10.40	18.21	65.6

ICD-1 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	155.07	10.70	144.37	86.6
15	142.9	124.10	10.70	113.40	102.1
20	120.0	104.17	10.70	93.47	112.2
25	103.8	90.19	10.70	79.49	119.2
30	91.9	79.78	10.70	69.08	124.4
35	82.6	71.72	10.70	61.02	128.1
40	75.1	65.26	10.70	54.56	130.9
45	69.1	59.97	10.70	49.27	133.0
50	64.0	55.54	10.70	44.84	134.5
55	59.6	51.78	10.70	41.08	135.6
60	55.9	48.54	10.70	37.84	136.2

ICD-1 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CBMH-1 (m^3)	CB-4 (m^3)			Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.70	0.00	0.00	0.00	0.00			0.0	0.65	8.9	
94.71	0.01	0.01	0.00	0.00			0.0	0.66	9.0	
94.72	0.01	0.02	0.00	0.00			0.0	0.67	9.0	
94.73	0.01	0.03	0.00	0.00			0.0	0.68	9.1	
94.74	0.01	0.04	0.00	0.00			0.0	0.69	9.2	
94.75	0.01	0.05	0.00	0.00			0.0	0.70	9.2	
94.76	0.01	0.06	0.00	0.00			0.0	0.71	9.3	
94.77	0.01	0.07	0.00	0.00			0.0	0.72	9.4	
94.78	0.01	0.08	0.00	0.00			0.0	0.73	9.4	
94.79	0.01	0.09	0.00	0.00			0.0	0.74	9.5	
94.80	0.01	0.10	0.00	0.00			0.0	0.75	9.6	
94.81	0.01	0.11	0.00	6.31			6.3	0.76	9.6	
94.82	0.01	0.12	0.02	8.19			8.2	0.77	9.7	
94.83	0.01	0.13	0.09	10.41			10.5	0.78	9.7	
94.84	0.01	0.14	0.21	13.01			13.2	0.79	9.8	
94.85	0.01	0.15	0.41	16.00			16.4	0.80	9.9	
94.86	0.01	0.16	0.71	19.42			20.1	0.81	9.9	
94.87	0.01	0.17	1.13	23.30			24.4	0.82	10.0	
94.88	0.01	0.18	1.69	27.66			29.4	0.83	10.1	
94.89	0.01	0.19	2.41	32.53			34.9	0.84	10.1	2 YR
94.90	0.01	0.20	3.31	37.94			41.3	0.85	10.2	
94.91	0.01	0.21	4.40	43.88			48.3	0.86	10.2	
94.92	0.01	0.22	5.72	50.38			56.1	0.87	10.3	
94.93	0.01	0.23	7.27	57.50			64.8	0.88	10.4	
94.94	0.01	0.24	9.08	65.29			74.4	0.89	10.4	5 YR
94.95	0.01	0.25	11.17	73.77			84.9	0.90	10.5	
94.96	0.01	0.26	13.55	82.97			96.5	0.91	10.5	
94.97	0.01	0.27	16.25	92.93			109.2	0.92	10.6	
94.98	0.01	0.28	19.27	103.67			122.9	0.93	10.6	
94.99	0.01	0.29	22.65	115.22			137.9	0.94	10.7	100 YR
95.00	0.01	0.30	26.40	127.62			154.0	0.95	10.8	
95.01	0.01	0.31	30.55	140.89			171.4	0.96	10.8	
95.02	0.01	0.32	35.10	155.07			190.2	0.97	10.9	
95.03	0.01	0.33	40.08	170.19			210.3	0.98	10.9	
95.04	0.01	0.34	45.51	186.25			231.76	0.99	11.0	

Elevation (m)
94.70
94.71
94.72
94.73
94.74
94.75
94.76
94.77
94.78
94.79
94.80
94.81
94.82
94.83
94.84
94.85
94.86
94.87
94.88
94.89
94.90
94.91
94.92
94.93
94.94
94.95
94.96
94.97
94.98
94.99
95.00
95.01
95.02
95.03
95.04

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CBMH-1	375.00	93.86	0.00	4079.09	75	0.94

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

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Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-1	B3c	0.091	0.86	1.00	94.80									
ICD-2 Total		0.091	0.86	1.00	94.80	15.3	15.9	16.4	0.8	6.2	17.7	94.965	105.350	0.165

Stage below ponding (m)
94.96

ICD-2 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	16.66	15.30	1.36	0.8
15	61.8	13.39	15.30	-1.91	-1.7
20	52.0	11.28	15.30	-4.02	-4.8
25	45.2	9.79	15.30	-5.51	-8.3
30	40.0	8.68	15.30	-6.62	-11.9
35	36.1	7.82	15.30	-7.48	-15.7
40	32.9	7.13	15.30	-8.17	-19.6
45	30.2	6.56	15.30	-8.74	-23.6
50	28.0	6.08	15.30	-9.22	-27.7
55	26.2	5.68	15.30	-9.62	-31.8
60	24.6	5.33	15.30	-9.97	-35.9

ICD-2 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	26.30	15.90	10.40	6.2
15	83.6	21.09	15.90	5.19	4.7
20	70.3	17.73	15.90	1.83	2.2
25	60.9	15.37	15.90	-0.53	-0.8
30	53.9	13.61	15.90	-2.29	-4.1
35	48.5	12.25	15.90	-3.65	-7.7
40	44.2	11.15	15.90	-4.75	-11.4
45	40.6	10.26	15.90	-5.64	-15.2
50	37.7	9.50	15.90	-6.40	-19.2
55	35.1	8.87	15.90	-7.03	-23.2
60	32.9	8.32	15.90	-7.58	-27.3

ICD-2 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	45.07	16.40	28.67	17.2
15	142.9	36.07	16.40	19.67	17.7
20	120.0	30.28	16.40	13.88	16.7
25	103.8	26.21	16.40	9.81	14.7
30	91.9	23.19	16.40	6.79	12.2
35	82.6	20.84	16.40	4.44	9.3
40	75.1	18.97	16.40	2.57	6.2
45	69.1	17.43	16.40	1.03	2.8
50	64.0	16.14	16.40	-0.26	-0.8
55	59.6	15.05	16.40	-1.35	-4.5
60	55.9	14.11	16.40	-2.29	-8.2

ICD-2 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CB-1 (m^3)				Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.80	0.00	0.00	0.00				0.0	0.68	14.7	
94.81	0.01	0.01	0.00				0.0	0.69	14.8	
94.82	0.01	0.02	0.03				0.0	0.70	14.9	
94.83	0.01	0.03	0.10				0.1	0.71	15.0	
94.84	0.01	0.04	0.25				0.3	0.72	15.1	
94.85	0.01	0.05	0.48				0.5	0.73	15.2	
94.86	0.01	0.06	0.84				0.8	0.74	15.3	2 YR
94.87	0.01	0.07	1.34				1.3	0.75	15.4	
94.88	0.01	0.08	2.00				2.0	0.76	15.5	
94.89	0.01	0.09	2.85				2.9	0.77	15.6	
94.90	0.01	0.10	3.91				3.9	0.78	15.7	
94.91	0.01	0.11	5.21				5.2	0.79	15.8	
94.92	0.01	0.12	6.76				6.8	0.80	15.9	5 Yr
94.93	0.01	0.13	8.60				8.6	0.81	16.0	
94.94	0.01	0.14	10.75				10.8	0.82	16.1	
94.95	0.01	0.15	13.22				13.2	0.83	16.2	
94.96	0.01	0.16	16.01				16.0	0.84	16.3	
94.97	0.01	0.17	19.13				19.1	0.85	16.4	100 Yr
94.98	0.01	0.18	22.60				22.6	0.86	16.5	
94.99	0.01	0.19	26.43				26.4	0.87	16.6	
95.00	0.01	0.20	30.62				30.6	0.88	16.7	
95.01	0.01	0.21	35.16				35.2	0.89	16.8	
95.02	0.01	0.22	40.03				40.0	0.90	16.9	
95.03	0.01	0.23	45.20				45.2	0.91	17.0	
95.04	0.01	0.24	50.59				50.59	0.92	17.1	

Elevation (m)
94.80
94.81
94.82
94.83
94.84
94.85
94.86
94.87
94.88
94.89
94.90
94.91
94.92
94.93
94.94
94.95
94.96
94.97
94.98
94.99
95.00
95.01
95.02
95.03
95.04

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CB-1	200.00	94.02	0.01	6583.47	92	0.85

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

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SWM Calculations - 100 Year Event Control
ICD-3

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-2	B2a	0.084	0.85	1.00	94.89									
ICD-3 Total		0.084	0.85	1.00	94.89	13.4	13.8	14.1	1.2	6.4	17.5	95.013	105.350	0.123

Stage below ponding (m)
95.01

ICD-3 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	15.36	13.40	1.96	1.2
15	61.8	12.36	13.40	-1.04	-0.9
20	52.0	10.41	13.40	-2.99	-3.6
25	45.2	9.04	13.40	-4.36	-6.5
30	40.0	8.01	13.40	-5.39	-9.7
35	36.1	7.21	13.40	-6.19	-13.0
40	32.9	6.57	13.40	-6.83	-16.4
45	30.2	6.05	13.40	-7.35	-19.8
50	28.0	5.61	13.40	-7.79	-23.4
55	26.2	5.24	13.40	-8.16	-26.9
60	24.6	4.91	13.40	-8.49	-30.6

ICD-3 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	24.45	13.80	10.65	6.4
15	83.6	19.61	13.80	5.81	5.2
20	70.3	16.48	13.80	2.68	3.2
25	60.9	14.29	13.80	0.49	0.7
30	53.9	12.65	13.80	-1.15	-2.1
35	48.5	11.38	13.80	-2.42	-5.1
40	44.2	10.37	13.80	-3.43	-8.2
45	40.6	9.53	13.80	-4.27	-11.5
50	37.7	8.83	13.80	-4.97	-14.9
55	35.1	8.24	13.80	-5.56	-18.3
60	32.9	7.73	13.80	-6.07	-21.9

ICD-3 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	41.90	14.10	27.80	16.7
15	142.9	33.53	14.10	19.43	17.5
20	120.0	28.14	14.10	14.04	16.9
25	103.8	24.37	14.10	10.27	15.4
30	91.9	21.56	14.10	7.46	13.4
35	82.6	19.38	14.10	5.28	11.1
40	75.1	17.63	14.10	3.53	8.5
45	69.1	16.20	14.10	2.10	5.7
50	64.0	15.01	14.10	0.91	2.7
55	59.6	13.99	14.10	-0.11	-0.4
60	55.9	13.11	14.10	-0.99	-3.5

ICD-3 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CB-2 (m^3)				Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.89	0.00	0.00	0.00				0.0	0.71	13.0	
94.90	0.01	0.01	0.00				0.0	0.72	13.1	
94.91	0.01	0.02	0.08				0.1	0.73	13.1	
94.92	0.01	0.03	0.30				0.3	0.74	13.2	
94.93	0.01	0.04	0.74				0.7	0.75	13.3	
94.94	0.01	0.05	1.45				1.5	0.76	13.4	2 YR
94.95	0.01	0.06	2.52				2.5	0.77	13.5	
94.96	0.01	0.07	3.94				3.9	0.78	13.6	
94.97	0.01	0.08	5.72				5.7	0.79	13.7	
94.98	0.01	0.09	7.88				7.9	0.80	13.8	5 YR
94.99	0.01	0.10	10.40				10.4	0.81	13.8	
95.00	0.01	0.11	13.27				13.3	0.82	13.9	
95.01	0.01	0.12	16.48				16.5	0.83	14.0	
95.02	0.01	0.13	20.01				20.0	0.84	14.1	100 YR
95.03	0.01	0.14	23.83				23.8	0.85	14.2	
95.04	0.01	0.15	27.86				27.9	0.86	14.3	
95.05	0.01	0.16	32.16				32.2	0.87	14.3	
95.06	0.01	0.17	36.58				36.6	0.88	14.4	
95.07	0.01	0.18	41.03				41.0	0.89	14.5	
95.08	0.01	0.19	45.58				45.6	0.90	14.6	
95.09	0.01	0.20	50.21				50.21	0.91	14.7	

Elevation (m)
94.89
94.90
94.91
94.92
94.93
94.94
94.95
94.96
94.97
94.98
94.99
95.00
95.01
95.02
95.03
95.04
95.05
95.06
95.07
95.08
95.09

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CB-2	300.00	94.03	0.01	5693.77	85	0.84

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m). if orifice is not submerged.

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Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-5	B5c	0.052	0.90	1.00	94.75									
ICD-4 Total		0.052	0.90	1.00	94.75	10.4	11.1	11.5	-0.2	2.5	8.7	94.917	105.350	0.167

Stage below ponding (m)
94.91

ICD-4 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	10.08	10.40	-0.32	-0.2
15	61.8	8.11	10.40	-2.29	-2.1
20	52.0	6.83	10.40	-3.57	-4.3
25	45.2	5.93	10.40	-4.47	-6.7
30	40.0	5.26	10.40	-5.14	-9.3
35	36.1	4.73	10.40	-5.67	-11.9
40	32.9	4.32	10.40	-6.08	-14.6
45	30.2	3.97	10.40	-6.43	-17.4
50	28.0	3.68	10.40	-6.72	-20.2
55	26.2	3.44	10.40	-6.96	-23.0
60	24.6	3.22	10.40	-7.18	-25.8

ICD-4 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	15.20	11.10	4.10	2.5
15	83.6	12.19	11.10	1.09	1.0
20	70.3	10.25	11.10	-0.85	-1.0
25	60.9	8.88	11.10	-2.22	-3.3
30	53.9	7.87	11.10	-3.23	-5.8
35	48.5	7.08	11.10	-4.02	-8.4
40	44.2	6.45	11.10	-4.65	-11.2
45	40.6	5.93	11.10	-5.17	-14.0
50	37.7	5.49	11.10	-5.61	-16.8
55	35.1	5.12	11.10	-5.98	-19.7
60	32.9	4.81	11.10	-6.29	-22.7

ICD-4 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	26.05	11.50	14.55	8.7
15	142.9	20.85	11.50	9.35	8.4
20	120.0	17.50	11.50	6.00	7.2
25	103.8	15.15	11.50	3.65	5.5
30	91.9	13.40	11.50	1.90	3.4
35	82.6	12.05	11.50	0.55	1.2
40	75.1	10.96	11.50	-0.54	-1.3
45	69.1	10.07	11.50	-1.43	-3.9
50	64.0	9.33	11.50	-2.17	-6.5
55	59.6	8.70	11.50	-2.80	-9.2
60	55.9	8.15	11.50	-3.35	-12.0

ICD-4 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CB-5 (m^3)				Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.75	0.00	0.00	0.00				0.0	0.76	10.4	2 Yr
94.76	0.01	0.01	0.00				0.0	0.77	10.5	
94.77	0.01	0.02	0.01				0.0	0.78	10.5	
94.78	0.01	0.03	0.05				0.1	0.79	10.6	
94.79	0.01	0.04	0.12				0.1	0.80	10.7	
94.80	0.01	0.05	0.23				0.2	0.81	10.7	
94.81	0.01	0.06	0.40				0.4	0.82	10.8	
94.82	0.01	0.07	0.64				0.6	0.83	10.9	
94.83	0.01	0.08	0.96				1.0	0.84	10.9	
94.84	0.01	0.09	1.36				1.4	0.85	11.0	
94.85	0.01	0.10	1.87				1.9	0.86	11.1	
94.86	0.01	0.11	2.49				2.5	0.87	11.1	5 Yr
94.87	0.01	0.12	3.24				3.2	0.88	11.2	
94.88	0.01	0.13	4.12				4.1	0.89	11.2	
94.89	0.01	0.14	5.15				5.2	0.90	11.3	
94.90	0.01	0.15	6.33				6.3	0.91	11.4	
94.91	0.01	0.16	7.67				7.7	0.92	11.4	
94.92	0.01	0.17	9.14				9.1	0.93	11.5	100 Yr
94.93	0.01	0.18	10.76				10.8	0.94	11.6	
94.94	0.01	0.19	12.54				12.5	0.95	11.6	
94.95	0.01	0.20	14.47				14.5	0.96	11.7	
94.96	0.01	0.21	16.54				16.5	0.97	11.7	
94.97	0.01	0.22	18.76				18.8	0.98	11.8	
94.98	0.01	0.23	21.12				21.1	0.99	11.9	
94.99	0.01	0.24	23.62				23.6	1.00	11.9	
95.00	0.01	0.25	26.24				26.2	1.01	12.0	
95.01	0.01	0.26	29.00				29.0	1.02	12.0	
95.02	0.01	0.27	31.89				31.9	1.03	12.1	
95.03	0.01	0.28	34.91				34.9	1.04	12.2	
95.04	0.01	0.29	38.05				38.05	1.05	12.2	

Elevation (m)
94.75
94.76
94.77
94.78
94.79
94.80
94.81
94.82
94.83
94.84
94.85
94.86
94.87
94.88
94.89
94.90
94.91
94.92
94.93
94.94
94.95
94.96
94.97
94.98
94.99
95.00
95.01
95.02
95.03
95.04

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CB-5	300.00	93.84	0.00	4413.44	75	0.93

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

24-1045A - St. Phillip Catholic School
SWM Calculations - 100 Year Event Control
ICD-5

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-6	B5b	0.049	0.90	1.00	94.68									
ICD-5 Total		0.049	0.90	1.00	94.68	9.4	10.1	10.4	0.0	2.5	8.4	94.826	105.350	0.146

Stage below ponding (m)
94.82

ICD-5 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	9.45	9.40	0.05	0.0
15	61.8	7.60	9.40	-1.80	-1.6
20	52.0	6.40	9.40	-3.00	-3.6
25	45.2	5.56	9.40	-3.84	-5.8
30	40.0	4.93	9.40	-4.47	-8.1
35	36.1	4.44	9.40	-4.96	-10.4
40	32.9	4.04	9.40	-5.36	-12.9
45	30.2	3.72	9.40	-5.68	-15.3
50	28.0	3.45	9.40	-5.95	-17.9
55	26.2	3.22	9.40	-6.18	-20.4
60	24.6	3.02	9.40	-6.38	-23.0

ICD-5 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	14.24	10.10	4.14	2.5
15	83.6	11.42	10.10	1.32	1.2
20	70.3	9.60	10.10	-0.50	-0.6
25	60.9	8.32	10.10	-1.78	-2.7
30	53.9	7.37	10.10	-2.73	-4.9
35	48.5	6.63	10.10	-3.47	-7.3
40	44.2	6.04	10.10	-4.06	-9.7
45	40.6	5.55	10.10	-4.55	-12.3
50	37.7	5.15	10.10	-4.95	-14.9
55	35.1	4.80	10.10	-5.30	-17.5
60	32.9	4.50	10.10	-5.60	-20.2

ICD-5 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	24.40	10.40	14.00	8.4
15	142.9	19.53	10.40	9.13	8.2
20	120.0	16.39	10.40	5.99	7.2
25	103.8	14.19	10.40	3.79	5.7
30	91.9	12.56	10.40	2.16	3.9
35	82.6	11.29	10.40	0.89	1.9
40	75.1	10.27	10.40	-0.13	-0.3
45	69.1	9.44	10.40	-0.96	-2.6
50	64.0	8.74	10.40	-1.66	-5.0
55	59.6	8.15	10.40	-2.25	-7.4
60	55.9	7.64	10.40	-2.76	-9.9

ICD-5 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CB-6 (m^3)				Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.68	0.00	0.00	0.00				0.0	0.71	9.4	2 Yr
94.69	0.01	0.01	0.00				0.0	0.72	9.5	
94.70	0.01	0.02	0.02				0.0	0.73	9.6	
94.71	0.01	0.03	0.07				0.1	0.74	9.6	
94.72	0.01	0.04	0.18				0.2	0.75	9.7	
94.73	0.01	0.05	0.35				0.4	0.76	9.8	
94.74	0.01	0.06	0.61				0.6	0.77	9.8	
94.75	0.01	0.07	0.97				1.0	0.78	9.9	
94.76	0.01	0.08	1.46				1.5	0.79	10.0	
94.77	0.01	0.09	2.08				2.1	0.80	10.0	
94.78	0.01	0.10	2.85				2.9	0.81	10.1	5 Yr
94.79	0.01	0.11	3.77				3.8	0.82	10.2	
94.80	0.01	0.12	4.85				4.9	0.83	10.2	
94.81	0.01	0.13	6.08				6.1	0.84	10.3	
94.82	0.01	0.14	7.46				7.5	0.85	10.3	
94.83	0.01	0.15	8.99				9.0	0.86	10.4	100 Yr
94.84	0.01	0.16	10.66				10.7	0.87	10.5	
94.85	0.01	0.17	12.46				12.46	0.88	10.5	

Elevation (m)
94.68
94.69
94.70
94.71
94.72
94.73
94.74
94.75
94.76
94.77
94.78
94.79
94.80
94.81
94.82
94.83
94.84
94.85

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CB-6	300.00	93.82	0.00	4150.54	75	0.86

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

24-1045A - St. Phillip Catholic School
SWM Calculations - 100 Year Event Control
ICD-6

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	$Q_{allowable}$ (L/s) 2Yr	5 Yr	100 Yr	Storage Requirements 2 Yr (m^3)	5 Yr (m^3)	100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
CB-7	B5d	0.036	0.90	1.00	94.62									
ICD-6 Total		0.036	0.90	1.00	94.62	8.8	9.3	9.7	-1.2	0.6	4.8	94.759	105.350	0.139

Stage below ponding (m)
94.75

ICD-6 - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	76.8	6.82	8.80	-1.98	-1.2
15	61.8	5.49	8.80	-3.31	-3.0
20	52.0	4.62	8.80	-4.18	-5.0
25	45.2	4.01	8.80	-4.79	-7.2
30	40.0	3.56	8.80	-5.24	-9.4
35	36.1	3.20	8.80	-5.60	-11.8
40	32.9	2.92	8.80	-5.88	-14.1
45	30.2	2.69	8.80	-6.11	-16.5
50	28.0	2.49	8.80	-6.31	-18.9
55	26.2	2.32	8.80	-6.48	-21.4
60	24.6	2.18	8.80	-6.62	-23.8

ICD-6 - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	104.2	10.28	9.30	0.98	0.6
15	83.6	8.25	9.30	-1.05	-0.9
20	70.3	6.93	9.30	-2.37	-2.8
25	60.9	6.01	9.30	-3.29	-4.9
30	53.9	5.32	9.30	-3.98	-7.2
35	48.5	4.79	9.30	-4.51	-9.5
40	44.2	4.36	9.30	-4.94	-11.9
45	40.6	4.01	9.30	-5.29	-14.3
50	37.7	3.72	9.30	-5.58	-16.8
55	35.1	3.47	9.30	-5.83	-19.3
60	32.9	3.25	9.30	-6.05	-21.8

ICD-6 - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
10	178.6	17.62	9.70	7.92	4.8
15	142.9	14.10	9.70	4.40	4.0
20	120.0	11.84	9.70	2.14	2.6
25	103.8	10.25	9.70	0.55	0.8
30	91.9	9.07	9.70	-0.63	-1.1
35	82.6	8.15	9.70	-1.55	-3.3
40	75.1	7.42	9.70	-2.28	-5.5
45	69.1	6.81	9.70	-2.89	-7.8
50	64.0	6.31	9.70	-3.39	-10.2
55	59.6	5.88	9.70	-3.82	-12.6
60	55.9	5.52	9.70	-4.18	-15.1

ICD-6 - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume CB-7 (m^3)				Total Volume (m^3)	Orifice Head (m)	Orifice Flow (L/s)	Rainfall Event
94.62	0.00	0.00	0.00				0.0	0.65	8.8	2 Yr
94.63	0.01	0.01	0.00				0.0	0.66	8.9	
94.64	0.01	0.02	0.01				0.0	0.67	8.9	
94.65	0.01	0.03	0.05				0.1	0.68	9.0	
94.66	0.01	0.04	0.11				0.1	0.69	9.1	
94.67	0.01	0.05	0.22				0.2	0.70	9.1	
94.68	0.01	0.06	0.38				0.4	0.71	9.2	
94.69	0.01	0.07	0.60				0.6	0.72	9.3	5 Yr
94.70	0.01	0.08	0.90				0.9	0.73	9.3	
94.71	0.01	0.09	1.28				1.3	0.74	9.4	
94.72	0.01	0.10	1.75				1.8	0.75	9.5	
94.73	0.01	0.11	2.33				2.3	0.76	9.5	
94.74	0.01	0.12	3.03				3.0	0.77	9.6	
94.75	0.01	0.13	3.86				3.9	0.78	9.6	
94.76	0.01	0.14	4.82				4.8	0.79	9.7	100 Yr
94.77	0.01	0.15	5.93				5.9	0.80	9.8	
94.78	0.01	0.16	7.19				7.2	0.81	9.8	
94.79	0.01	0.17	8.63				8.6	0.82	9.9	
94.80	0.01	0.18	10.24				10.24	0.83	9.9	

Elevation (m)
94.62
94.63
94.64
94.65
94.66
94.67
94.68
94.69
94.70
94.71
94.72
94.73
94.74
94.75
94.76
94.77
94.78
94.79
94.80

Orifice Sizing

Outlet Structure	Pipe Diameter (mm)	Invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	Orifice Head
CB-7	200.00	93.87	0.00	4039.05	75	0.79

Q (cms) = 0.61 * A * sqrt(2 * g * H)

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

24-1045A - St. Phillip Catholic School
SWM Calculations - 100 Year Event Control
Roof

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	Release Rate (L/s) 5 Yr	Release Rate (L/s) 100 Yr	Storage Requirements 5 Yr (m^3)	Storage Requirements 100 Yr (m^3)	Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
Roof (Prop)	B6	0.153	0.90	1.00	0.00							
Roof Total		0.153	0.90	1.00	0.00	4.2	4.2	24.95	60.12	0.15	0.150	0.15

Stage below ponding (m)
0.10

Roof - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
30	46.7	17.90	4.20	13.70	24.66
35	41.9	16.06	4.20	11.86	24.90
40	38.1	14.59	4.20	10.39	24.95
45	35.0	13.40	4.20	9.20	24.84
50	32.4	12.40	4.20	8.20	24.61
55	30.2	11.56	4.20	7.36	24.28
60	28.3	10.83	4.20	6.63	23.88
65	26.6	10.20	4.20	6.00	23.41
70	25.2	9.65	4.20	5.45	22.88
75	23.9	9.16	4.20	4.96	22.31
80	22.8	8.72	4.20	4.52	21.69

Roof - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q_{actual} (L/s)	$Q_{allowable}$ (L/s)	Q_{stored} (L/s)	V_{stored} (m^3)
60	49.0	20.86	4.20	16.66	59.99
65	46.1	19.61	4.20	15.41	60.11
70	43.5	18.51	4.20	14.31	60.12
75	41.2	17.54	4.20	13.34	60.03
80	39.2	16.67	4.20	12.47	59.86
85	37.3	15.89	4.20	11.69	59.61
90	35.7	15.18	4.20	10.98	59.30
95	34.2	14.54	4.20	10.34	58.93
100	32.8	13.95	4.20	9.75	58.51
105	31.5	13.41	4.20	9.21	58.05
110	30.3	12.92	4.20	8.72	57.55

Roof - Stage-Storage Table **No. of Drain** **13**

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume: Roof Storage Area (m2)				Total Roof Storage Volume (m^3)	Roof Drain Head (m)	Roof Drain Flow (L/s)	Rainfall Event
0.00	0.00	0.00	1533.40				0.0	0.00	0.0	
0.02	0.02	0.02	1533.40				10.2	0.02	3.3	
0.04	0.02	0.04	1533.40				20.4	0.04	4.2	
0.06	0.02	0.06	1533.40				30.7	0.06	4.2	5 Yr
0.08	0.02	0.08	1533.40				40.9	0.08	4.2	
0.10	0.02	0.10	1533.40				51.1	0.10	4.2	
0.12	0.02	0.12	1533.40				61.3	0.12	4.2	100 Yr
0.14	0.02	0.14	1533.40				71.6	0.14	4.2	
0.15	0.01	0.15	1533.40				76.7	0.15	4.2	

Elevation (m)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.15

Roof Drain Selection - Gallons Per Minute Per Roof Drain

Weir Setting	1	2	3	4	5	6
Fully Exposed	5.00	10.00	15.00	20.00	25	30
0.75	5.00	10.00	13.75	17.50	21	25
0.50	5.00	10.00	12.50	15.00	18	20
0.25	5.00	10.00	11.25	12.50	14	15
Closed	5.00	5.00	5.00	5.00	5	5

Roof Drain Selection - Litres Per Second Per Roof Drain

Weir Setting	25.4	50.8	76.2	101.6	127	152.4
Fully Exposed	0.32	0.63	0.95	1.26	1.58	1.89
0.75	0.32	0.63	0.87	1.10	1.34	1.58
0.50	0.32	0.63	0.79	0.95	1.10	1.26
0.25	0.32	0.63	0.71	0.79	0.87	0.95
Closed	0.32	0.32	0.32	0.32	0.32	0.32

Interpolated Roof Drain Flow Rates (Per Roof Drain)

Head (mm)	Flow
0	0.00
10	0.13
20	0.25
25.4	**0.32**
30	0.32
40	0.32
50	0.32
50.8	**0.32**
60	0.32
70	0.32
76.2	**0.32**
80	0.32
90	0.32
100	0.32
101.6	**0.32**
110	0.32
120	0.32
127	**0.32**
130	0.32
140	0.32
150	0.32
152.8	**0.32**

STORM SEWER DESIGN SHEET

LOCATION					CONTRIBUTING AREA				FLOW				STORM SEWER DESIGN							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
ROAD SEGMENT	FROM	TO	SEWER TYPE (Lateral or Trunk)	AREA ID	AREA (A) (ha)	RUNOFF COEFF. (C) (--)	SECTION (C*A) [6]x[7] (ha)	ACCUM. (C*A) [8]+ prev[9] (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY (I) (mm/hr)	ACTUAL FLOW (Q =2.78*C*A*I) 2.78x[9]x[11] (L/s)	ACTUAL FLOW [12] or CONTROLLED FLOW (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	% OF PIPE CAPACITY (%)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)	COMMENTS
Field	CB-4	CBMH-1	Lateral	B4a	0.25	0.53	0.133	0.133	10.00	104.193	38.63	38.63	49.0	0.35%	300	57.21	68%	0.81	1.01	11.01	
Courtyard	CB-8	CB-3	Lateral	B7	0.03	0.60	0.020	0.020	10.00	104.193	5.80	5.80	26.0	0.35%	300	57.21	10%	0.81	0.54	10.54	
Play Area	CB-3	CBMH-1	Lateral	B3a	0.01	0.90	0.007	0.028	10.00	104.193	7.97	7.97	35.0	0.35%	300	57.21	14%	0.81	0.72	10.72	
Field	CBMH-1	STMH-1	Trunk	B3b	0.14	0.63	0.090	0.251	11.01	99.149	69.12	69.12	34.0	0.30%	375	96.03	72%	0.87	0.65	11.66	
Parking Lot	CB-2	STMH-2	Lateral	B2a	0.08	0.85	0.072	0.072	10.00	104.193	20.84	20.84	51.0	0.35%	300	57.21	36%	0.81	1.05	11.05	
Parking Lot	Roof (Prop)	STMH-2	Lateral	B6	0.15	0.90	0.138	0.138	10.00	104.193	39.92	4.20	12.5	1.00%	200	32.80	13%	1.04	0.20	10.20	Flow Control Roof Drains
Play Area	CB-1	STMH-1	Lateral	B3c	0.09	0.86	0.078	0.078	10.00	104.193	22.59	22.59	2.5	1.00%	200	32.80	69%	1.04	0.04	10.04	
Parking Lot	STMH-2	STMH-1	Trunk	-	-	-	0.000	0.288	11.05	98.955	79.17	79.17	30.5	0.30%	375	96.03	82%	0.87	0.58	11.63	
Parking Lot	STMH-1	OGS-01	Trunk	-	-	-	0.000	0.539	11.66	96.169	143.98	143.98	10.5	0.30%	450	156.16	92%	0.98	0.18	11.84	
Play Area	OGS-01	EX MHSTM	Trunk	-	-	-	0.000	0.539	11.84	95.389	142.81	142.81	6.0	0.33%	450	163.78	87%	1.03	0.10	11.94	
Parking Lot	CB-5	OGS-02	Trunk	B5c	0.05	0.90	0.047	0.047	10.00	104.193	13.68	13.68	34.0	0.35%	300	57.21	24%	0.81	0.70	10.70	
Parking Lot	CB-7	OGS-02	Trunk	B5d	0.04	0.90	0.032	0.032	10.00	104.193	9.25	9.25	2.0	1.00%	200	32.80	28%	1.04	0.03	10.03	
Parking Lot	CB-6	OGS-02	Trunk	B5b	0.05	0.90	0.044	0.044	10.00	104.193	12.82	12.82	22.5	0.35%	300	57.21	22%	0.81	0.46	10.46	
Parking Lot	OGS-02	STMH-3	Trunk	-	-	-	0.000	0.123	10.70	100.634	34.53	34.53	4.0	0.48%	375	121.47	28%	1.10	0.06	10.76	

Notes:

Project Name:	St. Philip Catholic School
Jp2g Project No.:	24-1045A
Client Ref No.:	

Prepared By:	Z. Bauman
Reviewed By:	K. Romanchuk
Approved By:	A. Sammour
Date:	5/6/2025
Revision:	1

Storm Event:	1:5 Year
Rainfall Intensity Formula:	Ottawa IDF
Mannings, n =	0.013

Rational Method: $Q = 2.78 * C * A * I$

where, Q = peak flow (L/s)
C = runoff coefficient
I = average rainfall intensity (mm/hr)
A = area (ha)

Hydroworks Sizing Summary

St Philip Catholic School - OGS2

79 Maitland St, Richmond

03-19-2025

Recommended Size: HydroStorm HS 4

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 4 is recommended to provide 80 % annual TSS removal based on a drainage area of .137 (ha) with an imperviousness of 100 % and Ottawa CDA, Ontario rainfall for the 20 um to 2000 um particle size distribution.

The recommended HydroStorm HS 4 treats 100 % of the annual runoff and provides 88 % annual TSS removal for the Ottawa CDA rainfall records and 20 um to 2000 um particle size distribution.

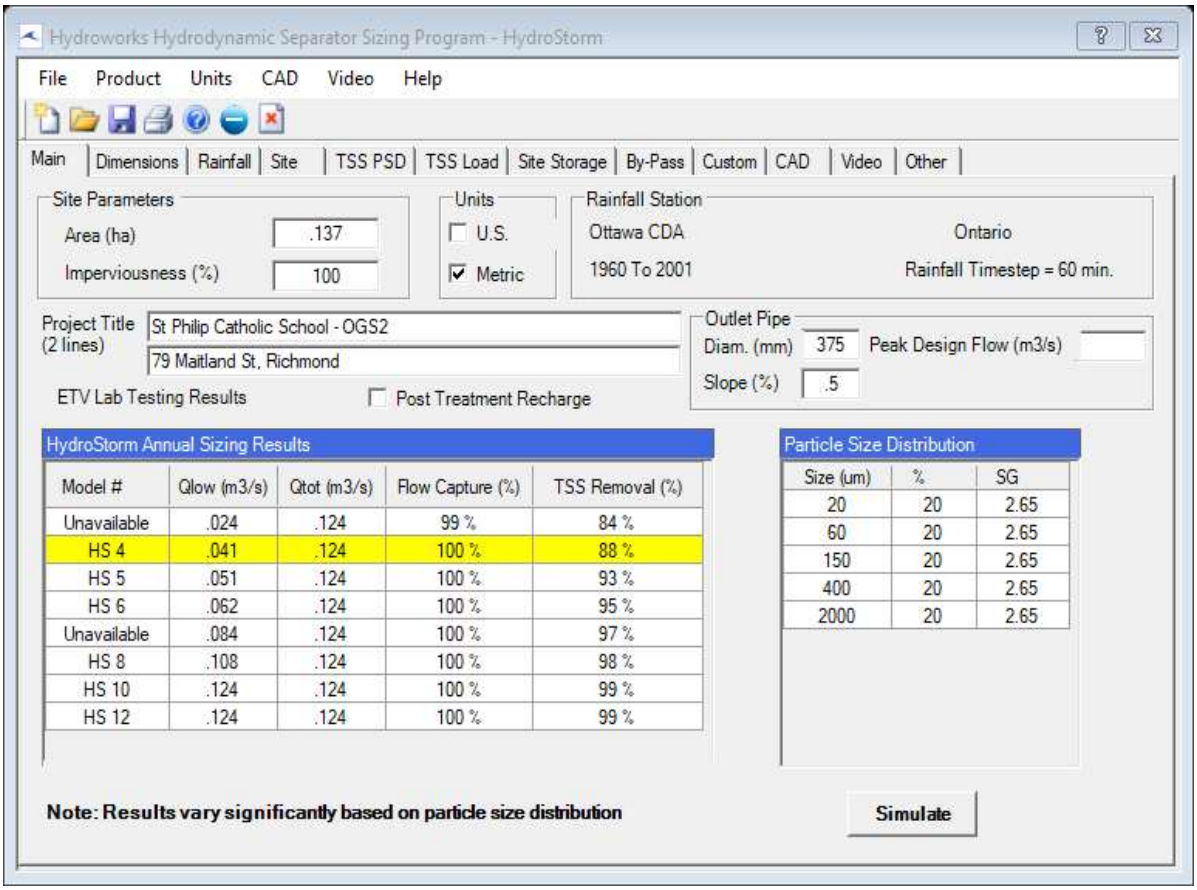
The HydroStorm has a headloss coefficient (K) of 1.04. Since a peak flow was not specified, headloss was calculated using the full pipe flow of .12 (m3/s) for the given 375 (mm) pipe diameter at .5% slope. The headloss was calculated to be 67 (mm) based on a flow depth of 375 (mm) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

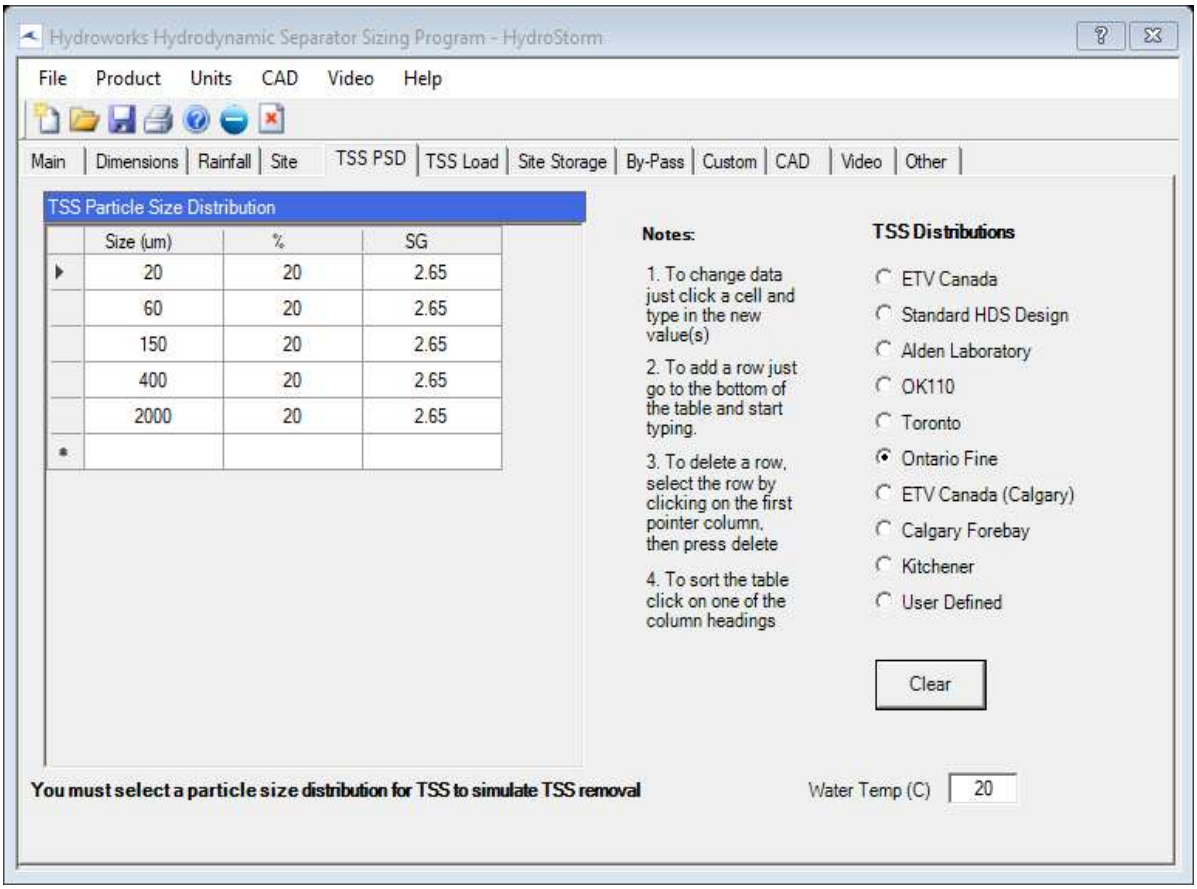
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

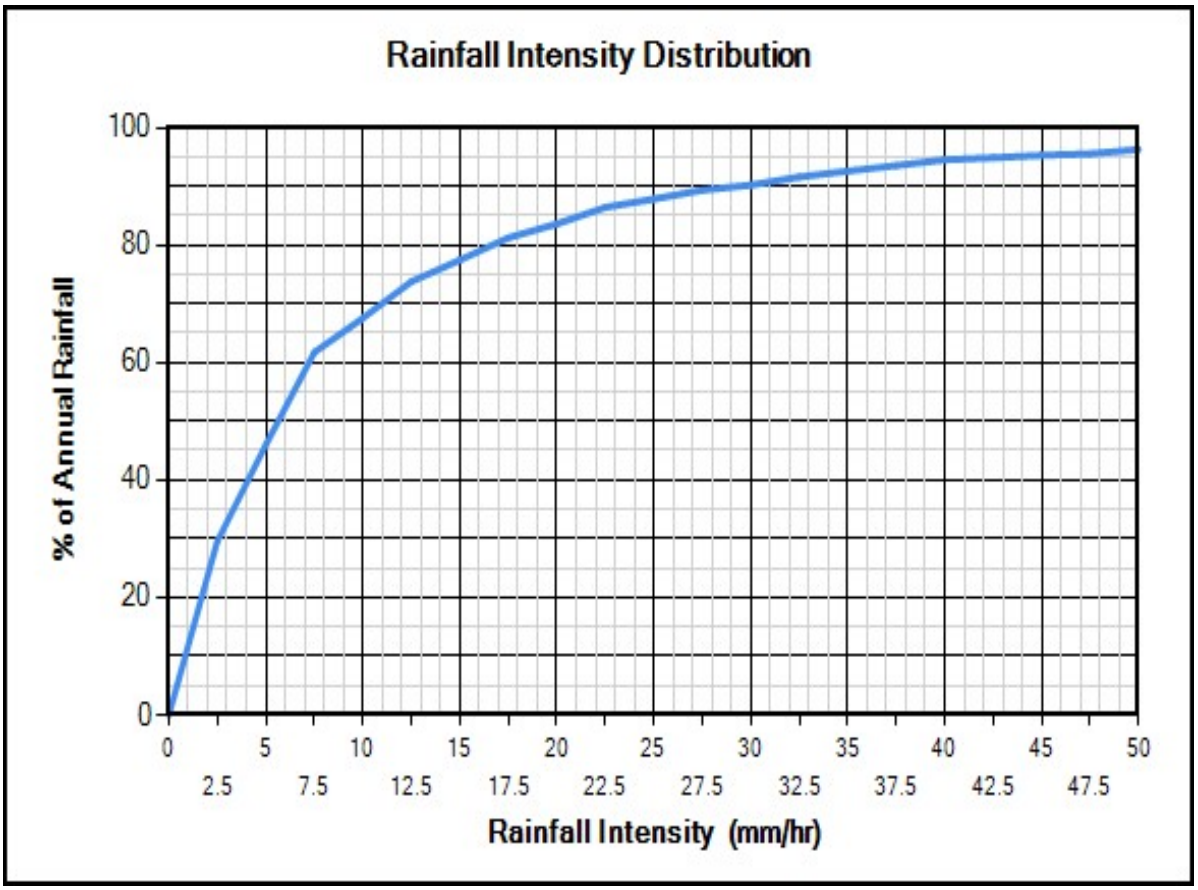
TSS Removal Sizing Summary



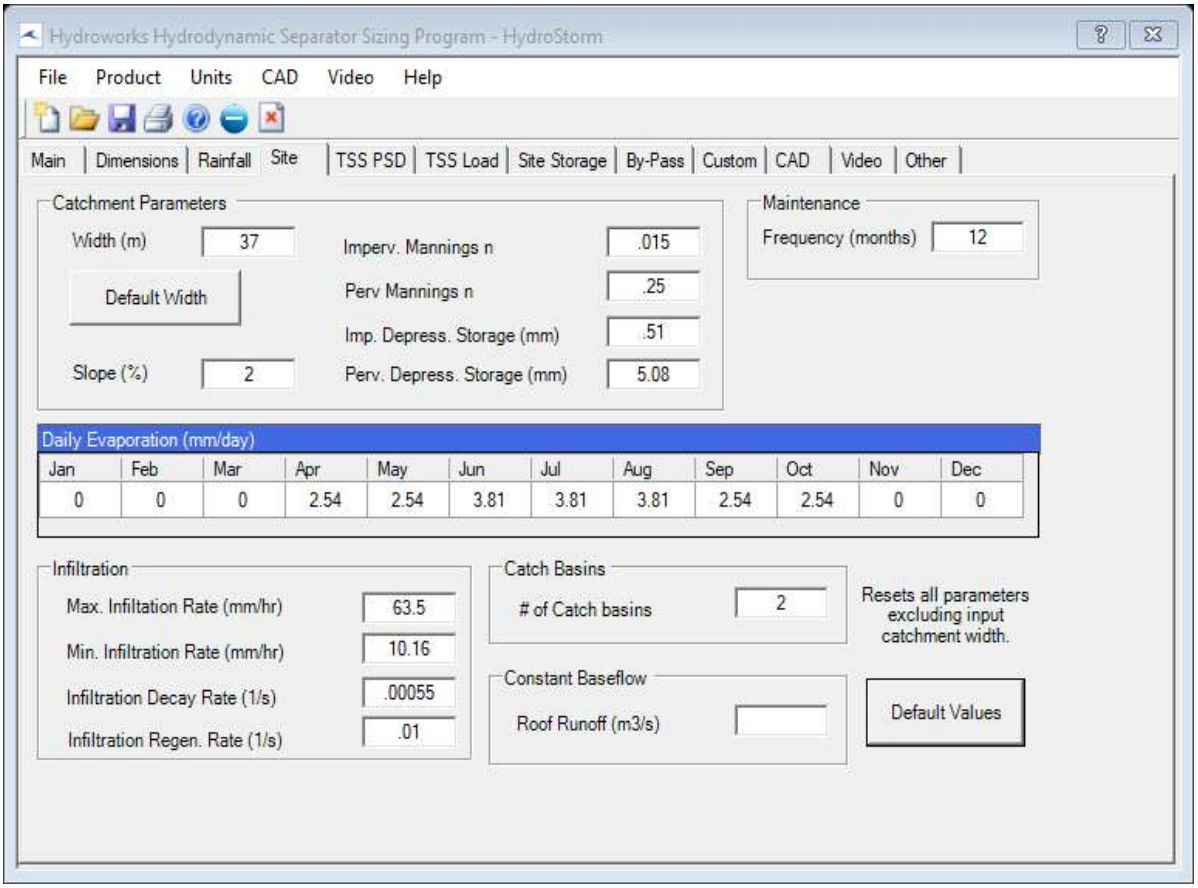
TSS Particle Size Distribution



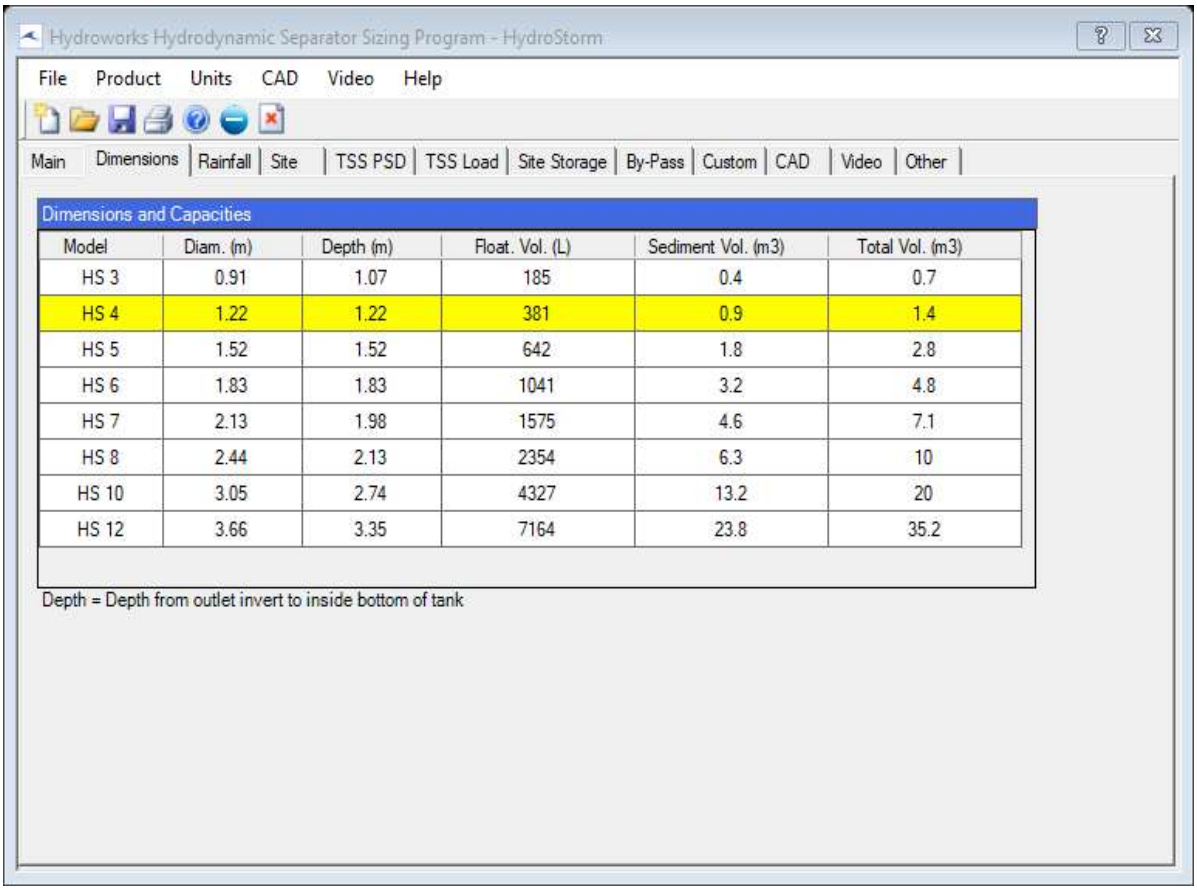
Rainfall Station - Ottawa CDA, Ontario(1960 To 2001)



Site Physical Characteristics



Dimensions And Capacities

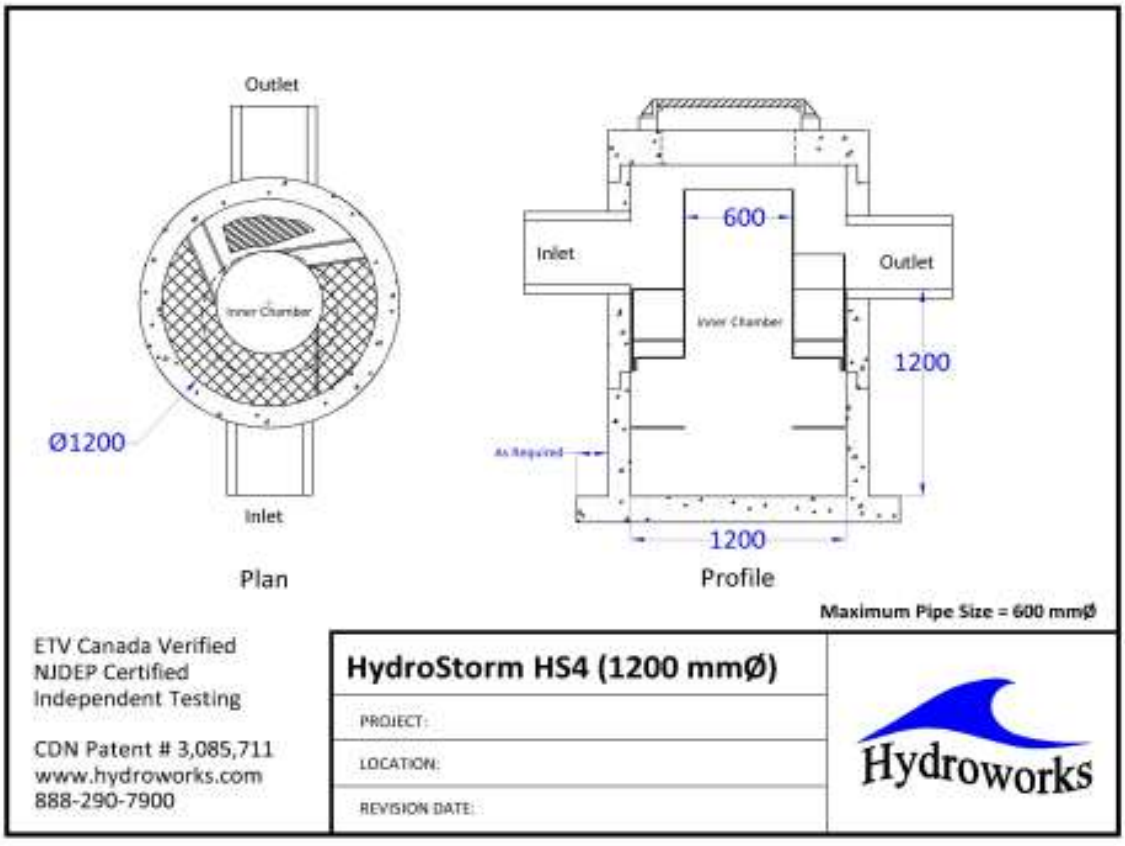


Dimensions and Capacities

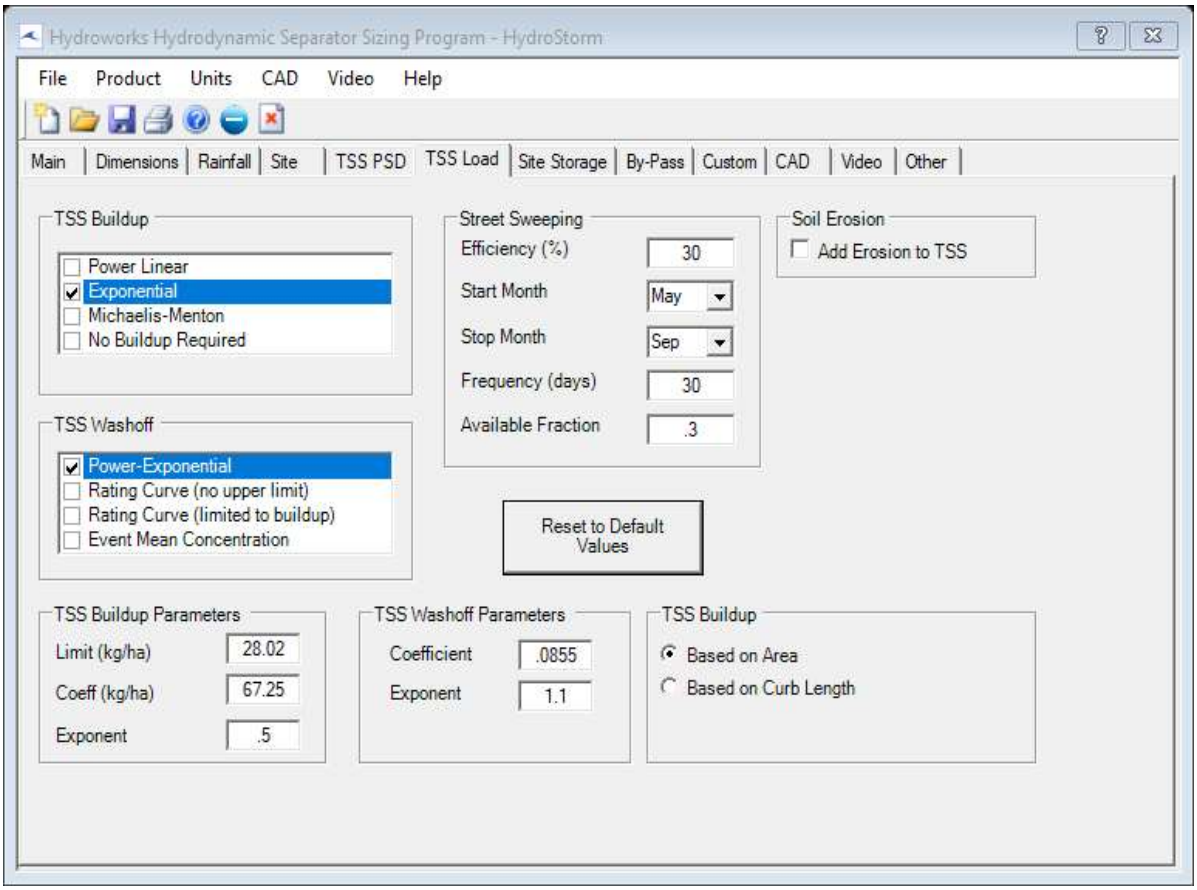
Model	Diam. (m)	Depth (m)	Float. Vol. (L)	Sediment Vol. (m3)	Total Vol. (m3)
HS 3	0.91	1.07	185	0.4	0.7
HS 4	1.22	1.22	381	0.9	1.4
HS 5	1.52	1.52	642	1.8	2.8
HS 6	1.83	1.83	1041	3.2	4.8
HS 7	2.13	1.98	1575	4.6	7.1
HS 8	2.44	2.13	2354	6.3	10
HS 10	3.05	2.74	4327	13.2	20
HS 12	3.66	3.35	7164	23.8	35.2

Depth = Depth from outlet invert to inside bottom of tank

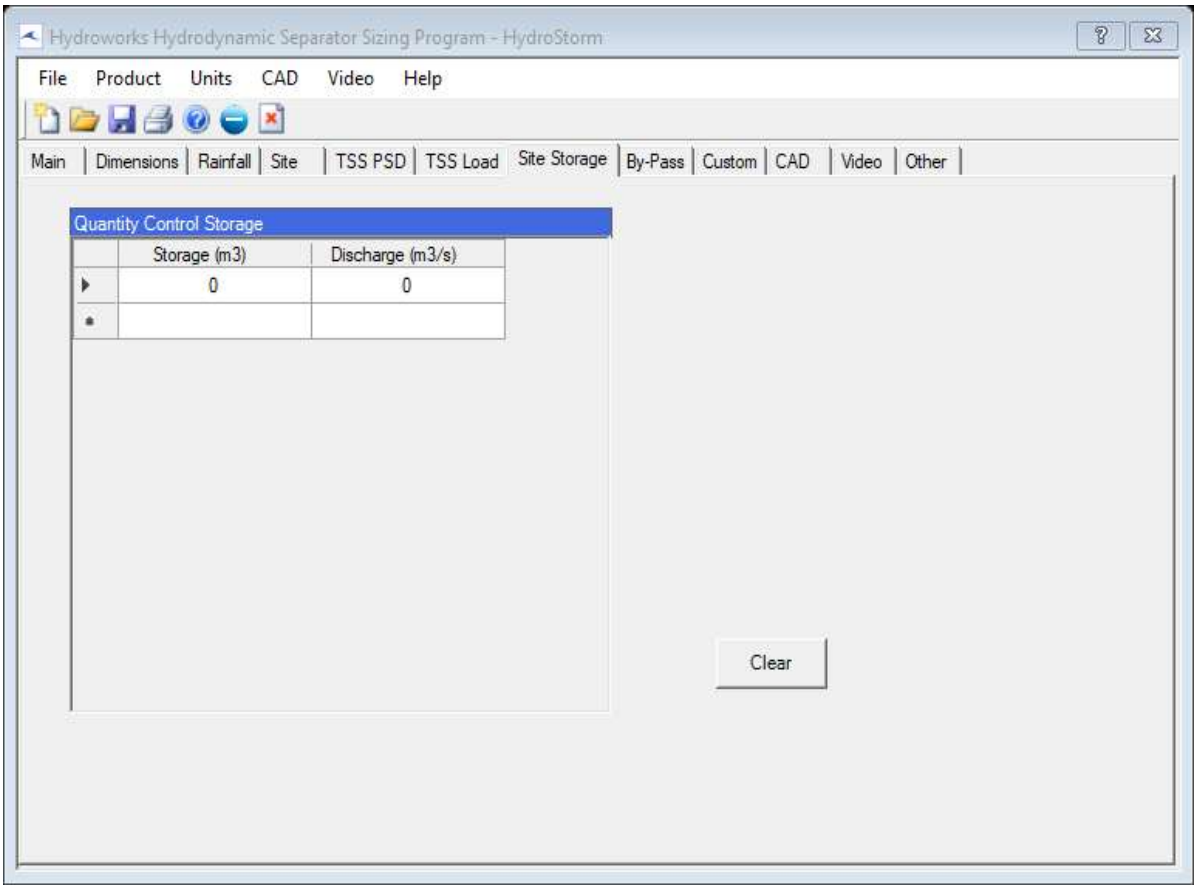
Generic HS 4 CAD Drawing



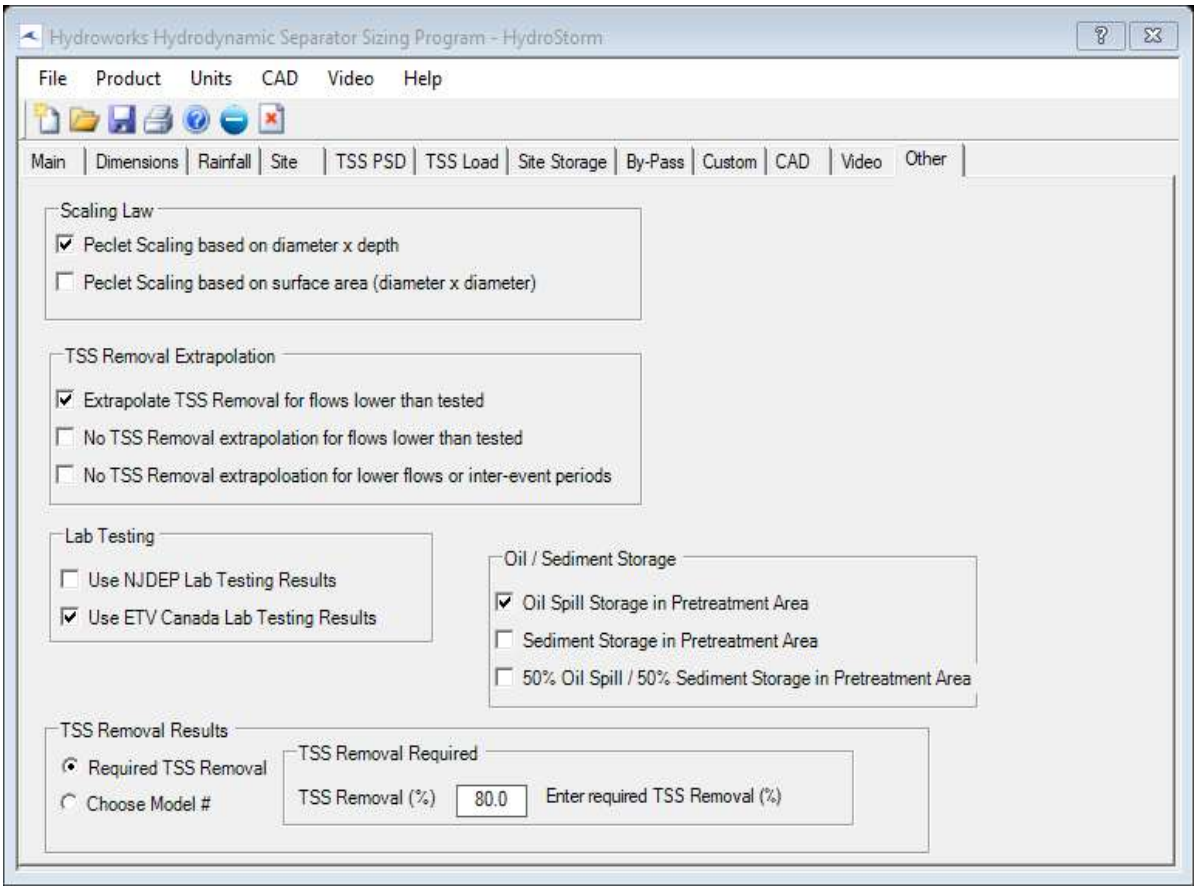
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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Hydroworks Sizing Summary

St Philip Catholic School - OGS 1

79 Matiland St,Richmond

03-19-2025

Recommended Size: HydroStorm HS 6

Hydroworks Sizing Program Version 5.8.5

A HydroStorm HS 6 is recommended to provide 80 % annual TSS removal based on a drainage area of .762 (ha) with an imperviousness of 82 % and Ottawa CDA, Ontario rainfall for the 20 um to 2000 um particle size distribution.

The recommended HydroStorm HS 6 treats 98 % of the annual runoff and provides 83 % annual TSS removal for the Ottawa CDA rainfall records and 20 um to 2000 um particle size distribution.

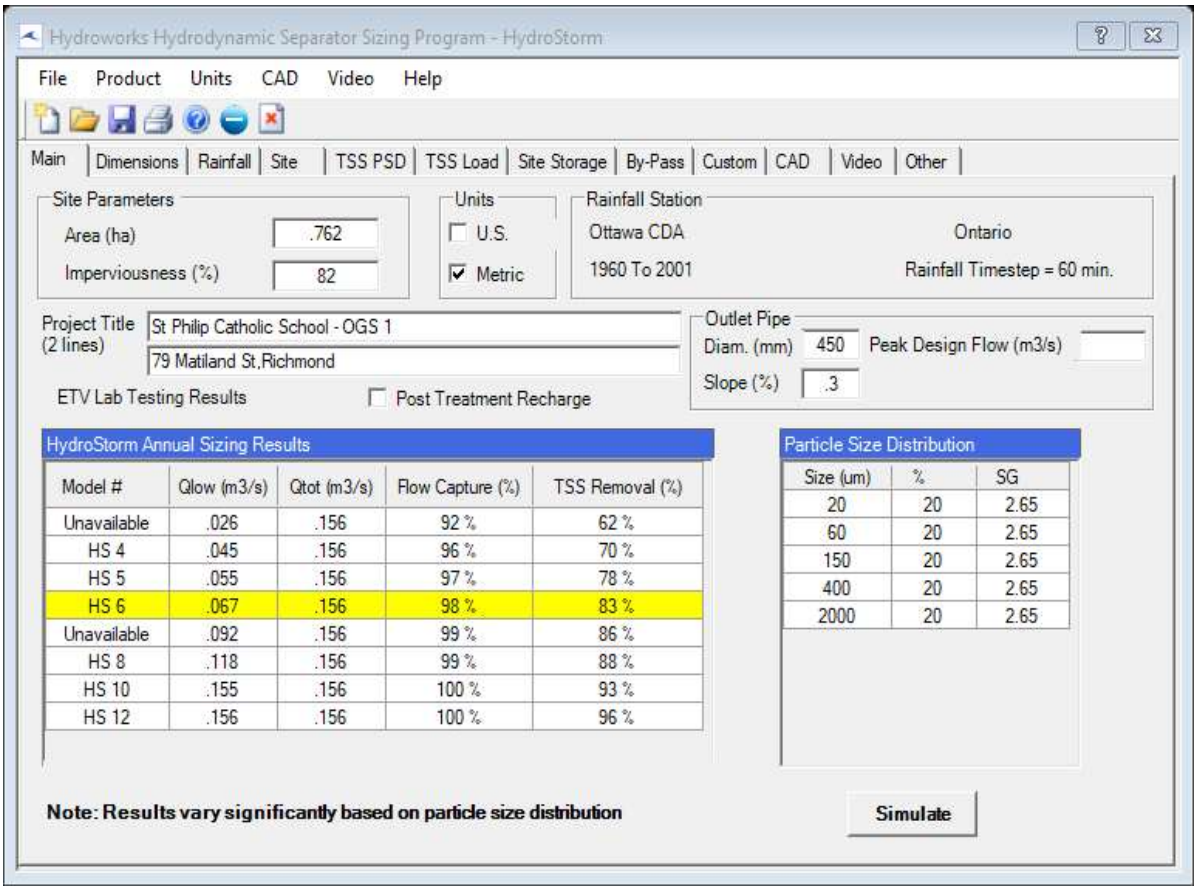
The HydroStorm has a headloss coefficient (K) of 1.04. Since a peak flow was not specified, headloss was calculated using the full pipe flow of .16 (m3/s) for the given 450 (mm) pipe diameter at .3% slope. The headloss was calculated to be 51 (mm) based on a flow depth of 450 (mm) (full pipe flow).

This summary report provides the main parameters that were used for sizing. These parameters are shown on the summary tables and graphs provided in this report.

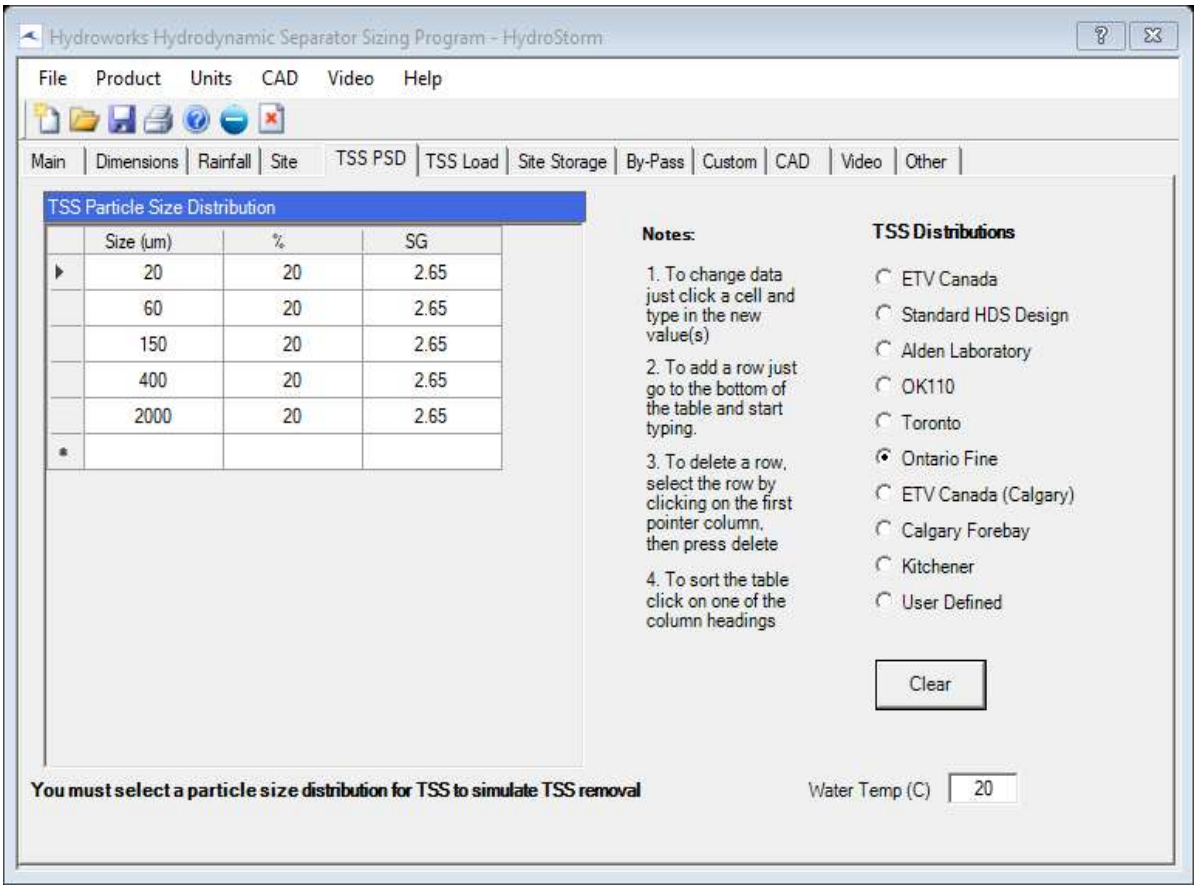
If you have any questions regarding this sizing summary please do not hesitate to contact Hydroworks at 888-290-7900 or email us at support@hydroworks.com.

The sizing program is for sizing purposes only and does not address any site specific parameters such as hydraulic gradeline, tailwater submergence, groundwater, soils bearing capacity, etc. Headloss calculations are not a hydraulic gradeline calculation since this requires a starting water level and an analysis of the entire system downstream of the HydroStorm .

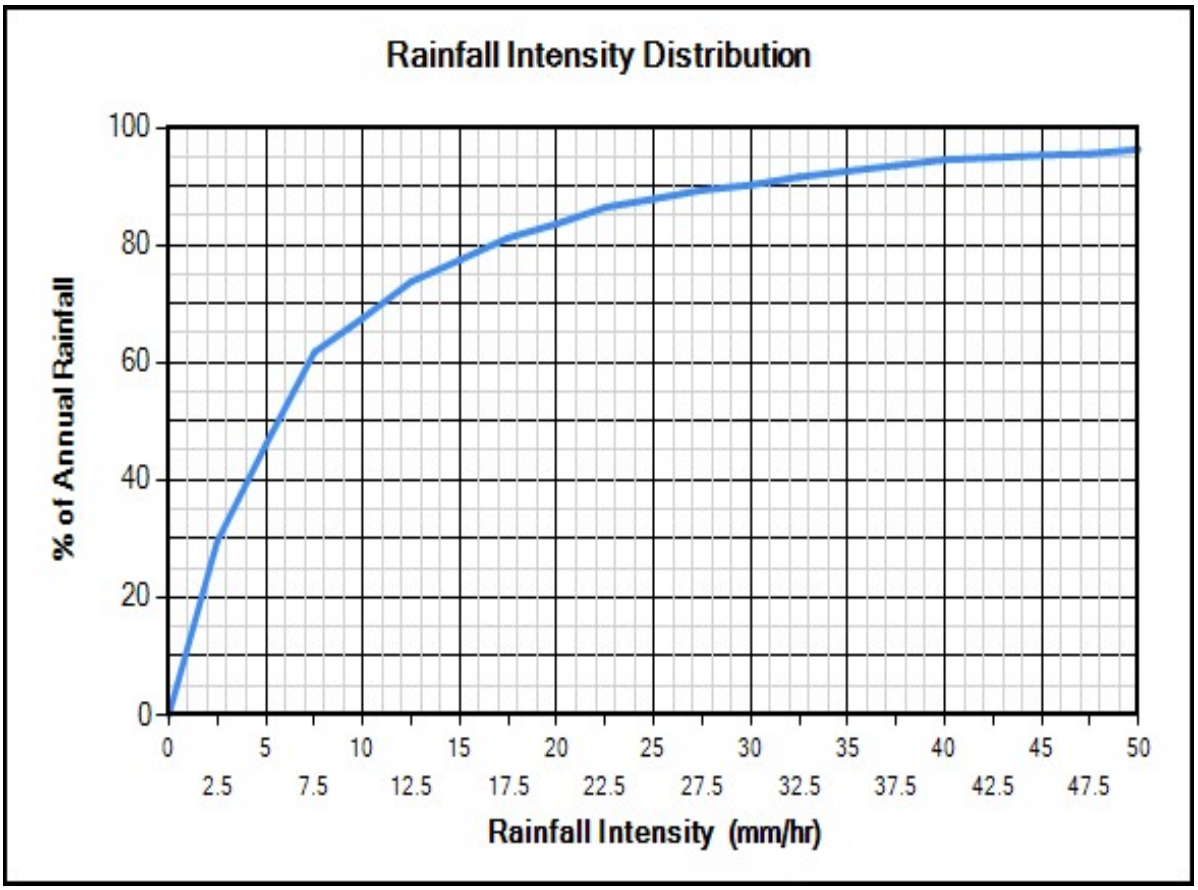
TSS Removal Sizing Summary



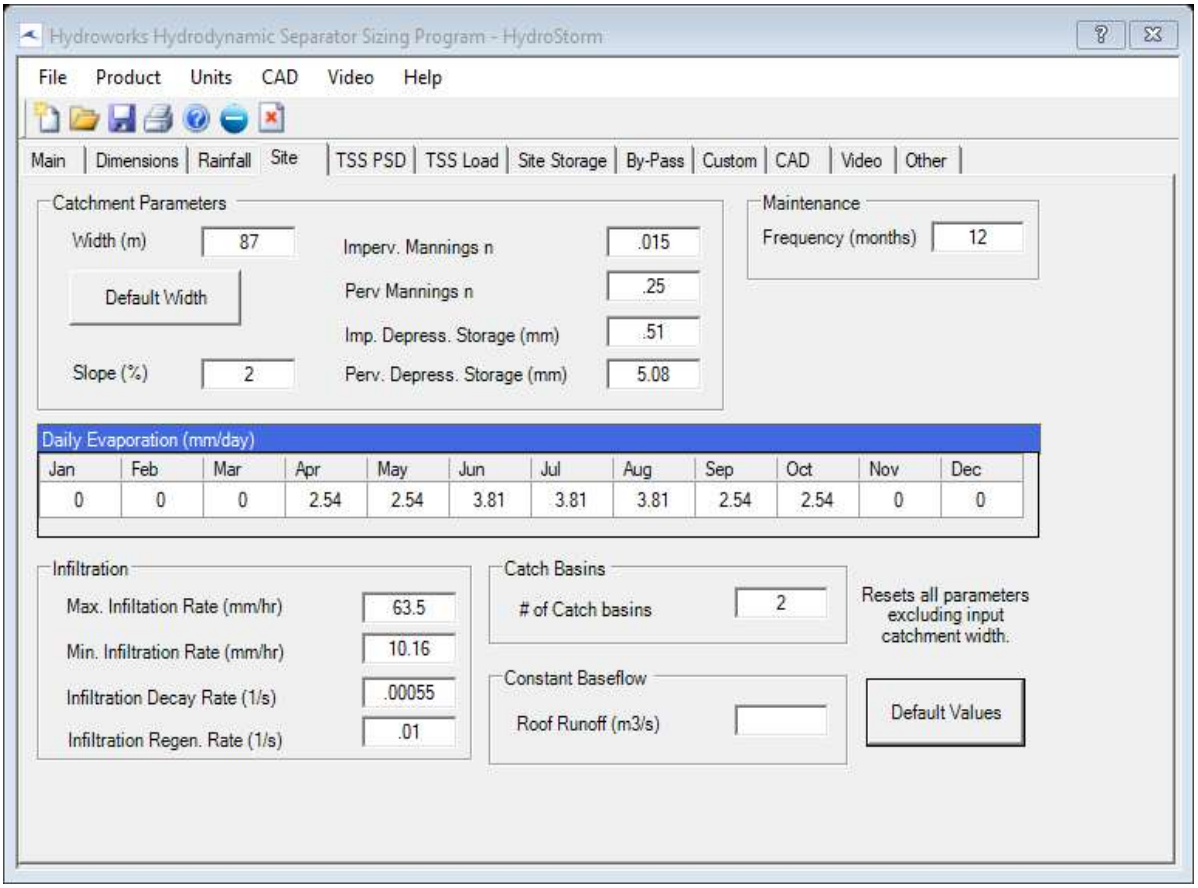
TSS Particle Size Distribution



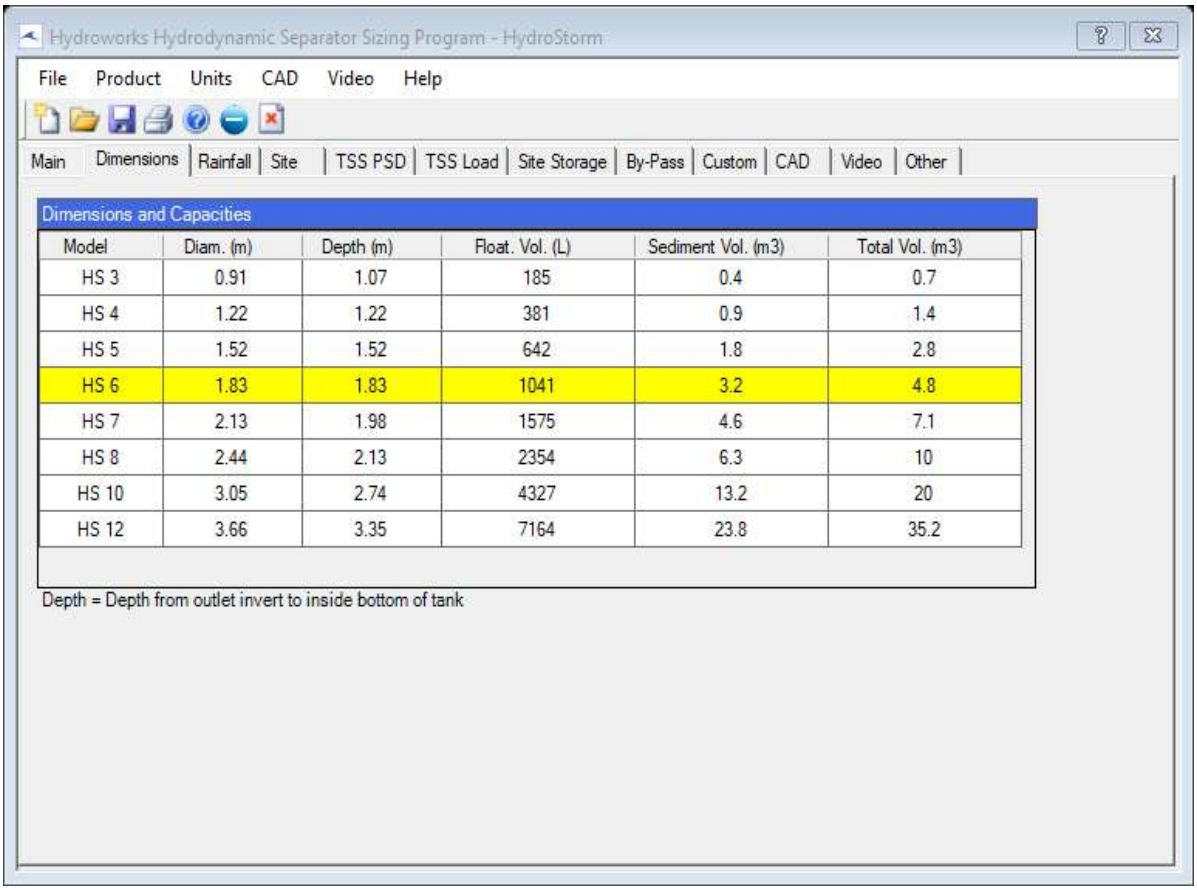
Rainfall Station - Ottawa CDA, Ontario(1960 To 2001)



Site Physical Characteristics



Dimensions And Capacities



Dimensions and Capacities

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HS 4	1.22	1.22	381	0.9	1.4
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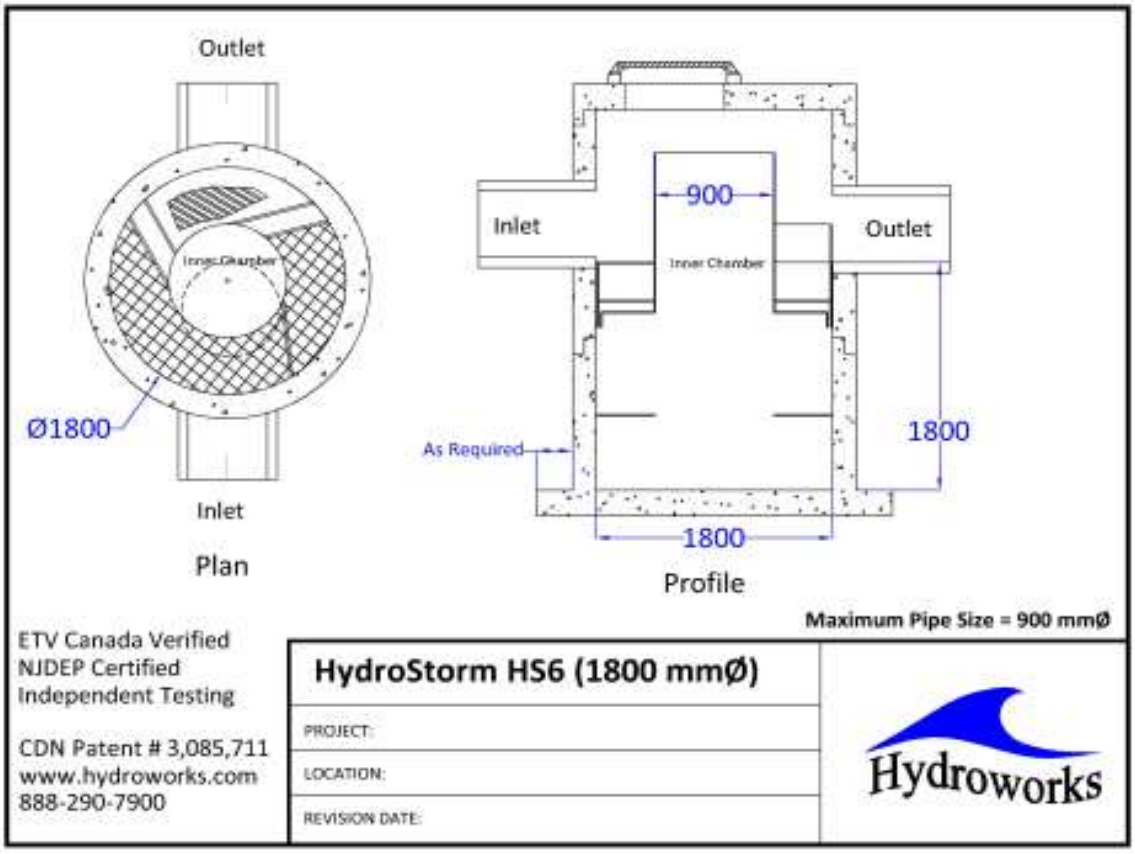
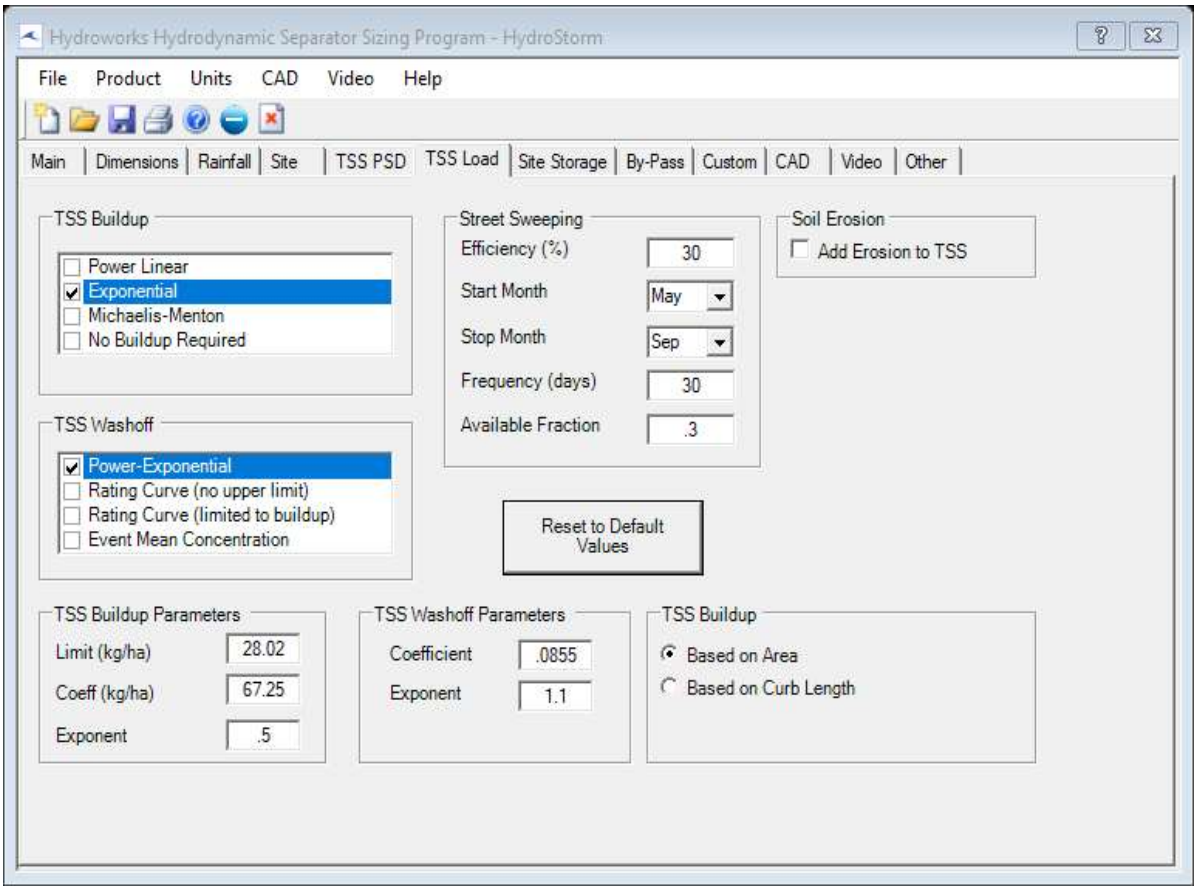
HS 6	1.83	1.83	1041	3.2	4.8
HS 7	2.13	1.98	1575	4.6	7.1
HS 8	2.44	2.13	2354	6.3	10
HS 10	3.05	2.74	4327	13.2	20
HS 12	3.66	3.35	7164	23.8	35.2

Depth = Depth from outlet invert to inside bottom of tank

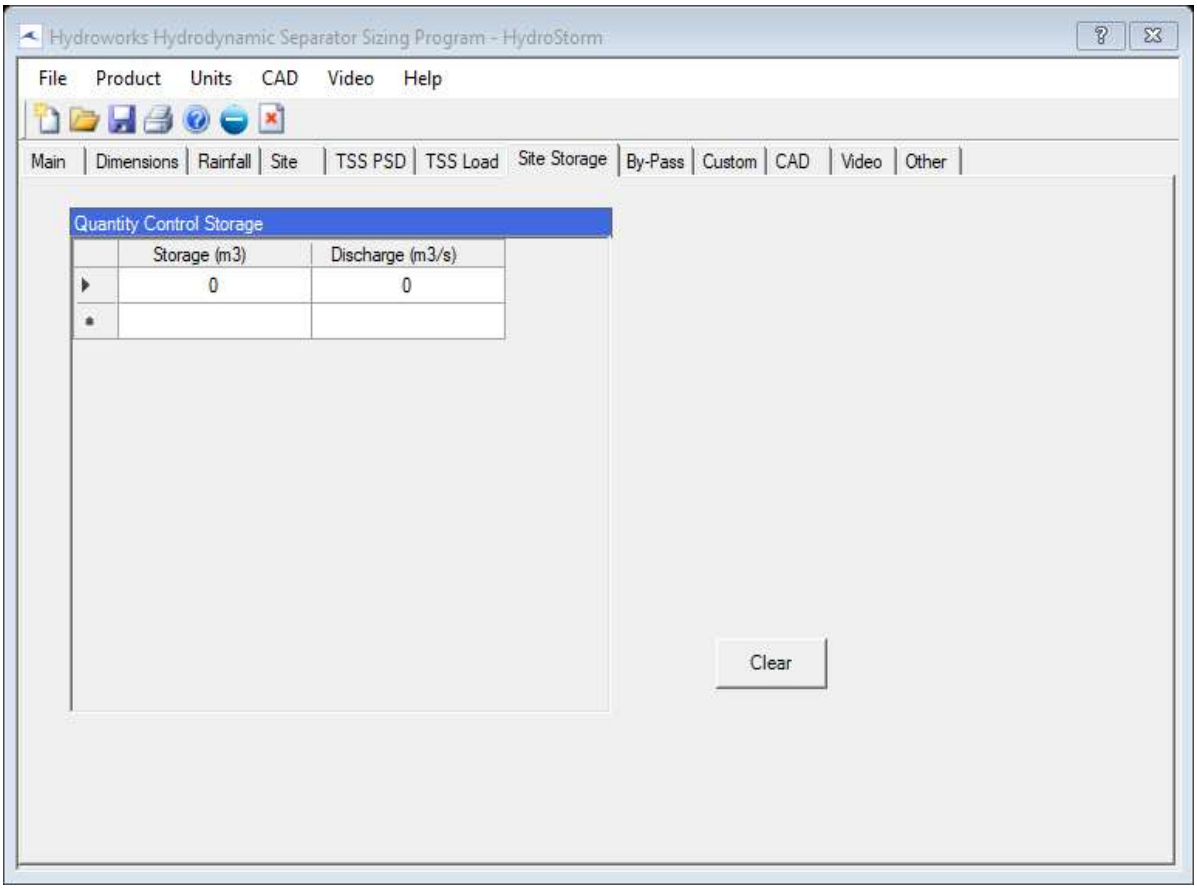
Generic HS 6 CAD Drawing



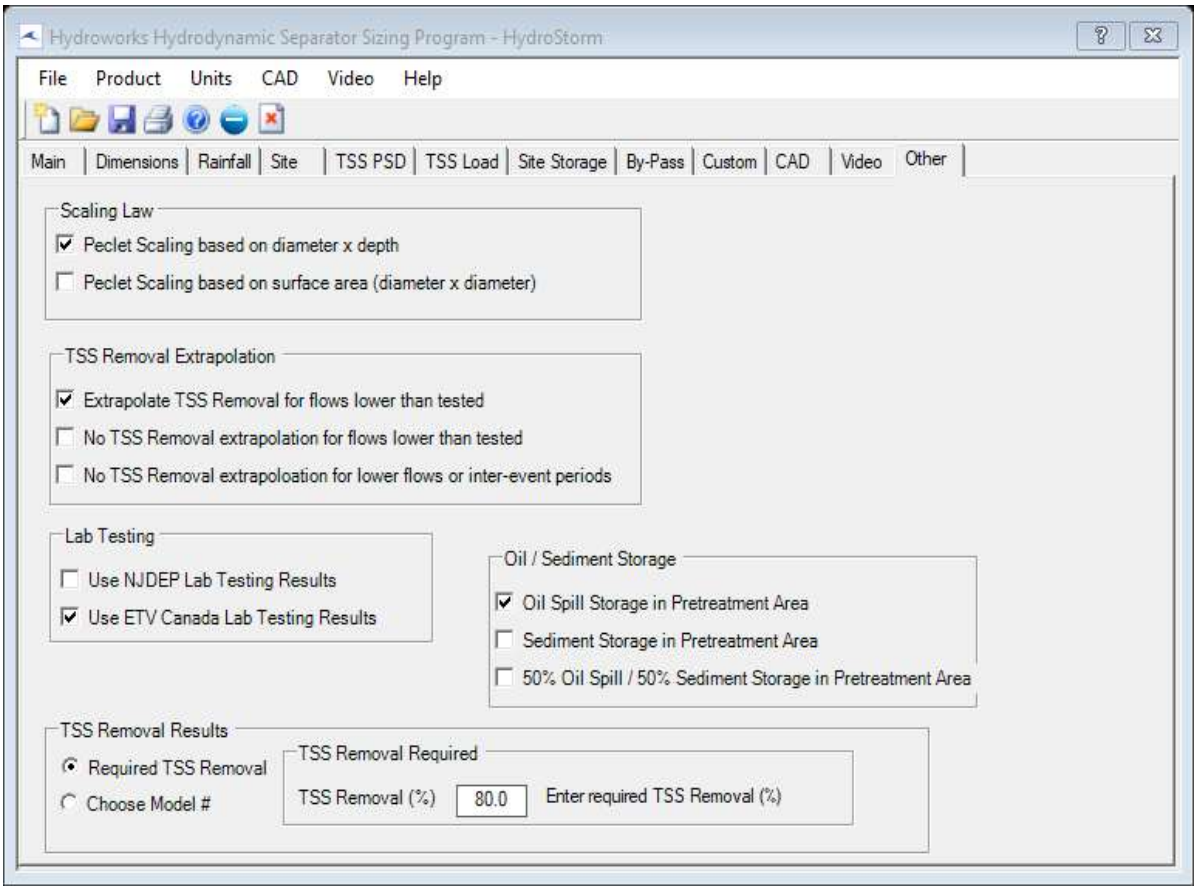
TSS Buildup And Washoff



Upstream Quantity Storage



Other Parameters



Flagged Issues

None

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

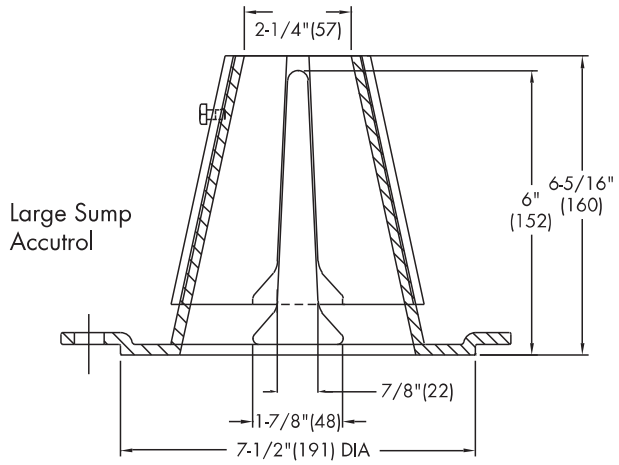
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

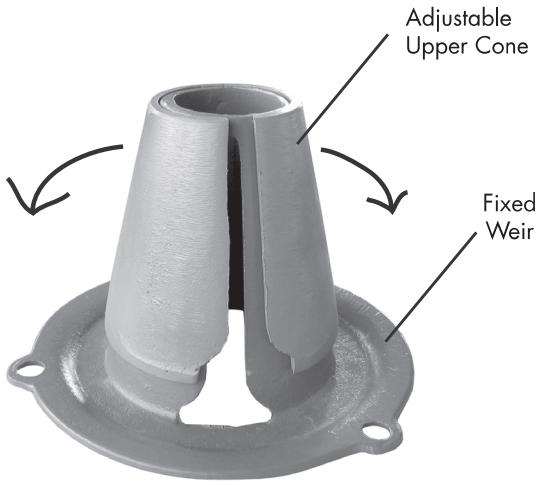
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

USA: Tel: (800) 338-2581 • Fax: (828) 248-3929 • Watts.com
Canada: Tel: (905) 332-4090 • Fax: (905) 332-7068 • Watts.ca
Latin America: Tel: (52) 81-1001-8600 • Fax: (52) 81-8000-7091 • Watts.com

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A Watts Water Technologies Company

Appendix C
Sanitary

24-1045A: St Philip Addition Sanitary Design Sheet

Sanitary Sewer Design Sheet

Peak Flow Design Based on Estimate Addition Population

Location			Sewer Data						Residential Flow							Commercial / Institutional Flow					Infiltration Flow			Total Flow	
Note	From	To	Length	Dia.	Slope	Capacity (full)	Velocity (full)	Utilization	Area	Units	Population	Cumulative		Average Flow	Peak Flow	Student Population	Area *(ha)*		Average Flow	Peak Flow	Area *(ha)*		Inf. Flow	Average Flow	Peak Flow
			(m)	*(mm)*		*(l/s)*	*(m/s)*	*(%)*	*(ha)*		*(p)*	Area	Population	*(l/s)*	*(l/s)*		Individual	Cumulative	*(l/s)*	*(l/s)*	Individual	Cumulative	*(l/s)*	*(l/s)*	*(l/s)*
School Addition	School	SAMH-1	8.0	150	1.00%	15.2	0.9	4.5	0.00	0	0	0.00	0	0.00	0.00	180	0.00	0.00	0.15	0.22	1.41	1.41	0.47	0.61	0.68
School Addition	SAMH-1	SAMH-2	15.0	150	1.00%	15.2	0.9	4.5	0.00	0	0	0.00	0	0.00	0.00	180	0.00	0.00	0.15	0.22	0.00	1.41	0.47	0.61	0.68
Municipal Connection	SAMH-2	Royal York St.	4.0	150	1.00%	15.2	0.9	4.5	0.00	0	0	0.00	0	0.00	0.00	180	0.00	0.00	0.15	0.22	0.00	1.41	0.47	0.61	0.68

Parameter	Value	Unit	Source
Manning's Roughness (n)	0.013		City of Ottawa *Sewer Design Guidelines* , October 2012, Table 6.
Residential Average Flow	280	L/p/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Commercial Average Flow	28000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Institutional Average Flow	28000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Industrial Average Flow	35000	L/ha/d	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Infiltration Allowance	0.33	L/s/ha	City of Ottawa *Technical Bulletin ISTB-2018-01* , March 2018
Schools - per student allowance	70	L/student/d	City of Ottawa *Water Design Guidelines* , July 2010, Table 4.2

Table 6.2 Sanitary Sewer Dia vs. Minimum Slope

Diameter	Minimum Slope
200 mm	0.32%
250 mm	0.24%
300 mm	0.186%
375 mm	0.14%
450 mm	0.111%
525 mm and larger	0.10%

Table 6.3 Material vs. Roughness Coefficient "n"

Material	Roughness Coefficient "n"
All Smooth Wall Pipes (PVC, Concrete, HDPE, all Limings etc.)	0.013
Brick	0.015
Corrugated Metal Pipe (paved)	0.017
Corrugated Metal Pipe (unpaved)	0.024

Table 4.2 Per Unit Populations

Unit Type	Persons Per Unit
Single Family	3.4
Semi-detached	2.7
Duplex	2.3
Townhouse (row)	2.7
Apartments:	
Bachelor	1.4
1 Bedroom	1.4
2 Bedroom	2.1
3 Bedroom	3.1
Average Apt.	1.8

Appendix D
Preconsultation Feedback Form

File No.: PC2024-0513

December 19, 2024

Scott Divell
OCSB
Via email: Scott.Divell@OCSB.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Revision Application – 79 Maitland Street South, Richmond Village

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on December 17, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

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

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. Policies and provisions, PPS, OP, CDP

   Zoning: RI2 H(15)

   Official Plan: Rural Transect, Village Designation (Section 9.4 of OP)

   Village of Richmond Secondary Plan, Village Institutional Designation

   From Section 3.4 of the Village of Richmond Secondary Plan:

   Lands designated as Institutional are intended to provide for a range of public and private services that serve the needs of village residents and visitors of the area. While small scale institutions are permitted in other designations, these lands are intended to provide for intuitional uses which require large land parcels, to operate at a larger scale.

   Uses permitted on lands designated Institutional on Schedule A - Designation Plan, are public uses such as library, schools, fire station, arena, community facilities, cemetery, place of worship, community garden, museum, retirement home and residential care facility.

   Development of new institutional uses shall be adequately integrated with adjacent uses to mitigate privacy impacts to these uses.

   Large scale institutional uses which have a high traffic demand, such as a high school, will require an amendment to this secondary plan.

   Village of Richmond CDP, Institutional Designation

   From Section 4.4 of the Village of Richmond CDP:

The Institutional land use designation accommodates a range of community and emergency uses that serve the needs of Richmond area residents and visitors. This designation applies to the larger institutional uses in the village. Other smaller scale institutional uses including a primary school may be located in other designations such as the Village Core or the Residential designations.

Policies:

Uses permitted on lands designated institutional include: a range of public uses such as a library, school, fire station, arena, community facilities used by the public, cemetery, church, community garden, museum, retirement/residential care facility and other associated uses.

New institutional uses should be located in such a way as to provide adequate buffering to any nearby residential uses. Large institutional uses such as a high school will require an amendment to the Secondary Plan and the Community Design Plan.

2. Committee of Adjustment / variances - Unknown.

3. Formalize agreement and register on title between school and church for child's play area, prior to site plan approval.

4. Landscape requirement – large shade trees recommended along City ROWS, and parking lot.

5. Confirm if there is any depressed curbing, particularly along the bus drop off and garbage areas.

6. Confirm location of garbage area, provide dimensions of loading area.

7. Apply the ROW and site triangle/corner widening requirements to the current site plan proposal and give the City the opportunity to review if any site elements needs to be further revised within a Phase 2 pre-consultation submission.

Urban Design

Comments:

8. Provide tree plantings within the ROW

9. Remove parking from the Royal York frontage – it appears that there may be space to reconfigure parking at the south side of the building.

10. If parking is provided along the road ROWs, please ensure that it is well screened with plantings and street trees

11. Please ensure that the garbage is screened from public roadways.

Engineering

Comments:

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

    a. **Water Quality Control**: provide enhanced levels of protection of 80% for total suspended solids removal.

        i. The proposed site plan shows two proposed parking lots including a future parking lot. It is recommended to size the OGS unit to include all proposed parking areas including future parking areas.

    b. **Water Quantity Control**: Please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 2-year pre-development level**.

        i. The pre-development runoff coefficient will need to be determined as per existing conditions but in no case more than 0.5. [If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5].

        ii. The time of concentration (Tc) used to determine the pre-development condition should be calculated. Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; **Tc of 10 minutes shall be used for all post-development calculations.**

        iii. Any storm events greater than the established 2-year allowable release rate, up to and including the 100-year storm event, shall be detained on-site. For events greater than 100 years, spillage must be directed to a public ROW and not to neighboring private property.

    c. Please note that the Village of Richmond, Environmental Management Plan requires stormwater criteria, as outlined in section 4.8, to be addressed while preparing the Stormwater Management Study. If any criteria from the EMP section 4.8 cannot be achieved, please provide rationale.

    d. Please provide a Pre-Development Drainage Area Plan to define the pre-development drainage areas/patterns. Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution.

e. Ponding Notes:

   i. 100-year spill elevation must be 300mm lower than any building opening or ramp.

   ii. Demonstrate that the stress test spill elevation (100-year +20% event) does not spill onto any permanent structures.

   iii. The maximum permissible ponding depth for the 100-year storm event is 350mm. No spilling to adjacent sites.

   iv. Please note that as per Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14) there shall be no surface ponding on private parking areas during the 2-year storm rainfall event. 100-year spill elevation must be 300mm lower than any building opening or ramp

f. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.

g. Please note that the minimum orifice dia. for a plug style ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s in order to reduce the likelihood of plugging.

h. If rooftop control and storage is proposed as part of the SWM solutions, sufficient details (Cl. 8.3.8.4) shall be discussed and documented in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a Roof Drain Plan as part of the submission.

i. **Underground Storage**: Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

   i. When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on

storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume.** Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate. In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modelers in the Water Resources Group. Regarding all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

ii. Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 5- and 100-year event storage requirements.

13. Storm Sewer

a. A 450mm dia. storm sewer (2003) is available for connection on Fortune Street.

b. A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

14. Water:

a. Fire flow calculation for the entire site is to follow the latest Technical Bulletin (IWSTB-2024-05). The design of the fire storage tank needs to meet the required fire flow demand for the entire site.

b. For further water servicing comments please see Hydrogeology section below.

15. Sanitary Sewer

a. We do not see any issues with sanitary capacity, but we would like to see the sanitary flow demand for the addition to confirm capacity at the pump station downstream.

b. Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.

c. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) Monitoring Devices.

16. General Servicing

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

b. CCTV sewer inspection of city infrastructure is required to record pre and post construction conditions and ensure there is no damage to City Assets.

c. Existing buildings sewer laterals require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements.

d. Sewer connections to be made above the springline of the sewer main as per:

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

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

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

iv. No submerged outlet connections.

17. Grading and Erosion

a. Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent properties. A topographical plan of survey shall be provided as part of the submission and a note provided on the plans.

b. Erosion and sediment control plan must be provided.

c. Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles,

required parking spaces or any portion of a road allowance. If snow is to be removed from the site, please indicate this on the plan(s).

d. Street catch basins are not to be located at any proposed entrances.

e. Depressed driveways are discouraged and are not allowed in sag locations. For other locations, the builder must ensure that the maximum depth of flow on the street during the 100-year and stress test events will not spill onto the depressed driveway.

f. If Window wells are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.

18. Environmental

a. A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.

b. The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O. Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.

c. Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)

d. A remediation plan may be required as per the outcome of the Phase one study. If required, a complete Phase Two study with the remediation activities will need to be submitted for our review.

19. Geotechnical

a. A Geotechnical Study/Investigation shall be prepared in support of this development proposal.

b. Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. Geotechnical Investigation and Reporting (ottawa.ca)

c. The location may have sensitive marine clay. A long-term groundwater investigation is required, or can assume groundwater is at surface elevation.

d. If Sensitive marine clay soils are present in this area that are susceptible to soil shrinkage that can lead to foundation and building damages. All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils- 2017 Guidelines are required to be satisfied. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m will need to be achieved. A memorandum addressing the Tree in Clay Soil Guidelines prepared by a geotechnical engineer is required to be provided to the City. Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines (ottawa.ca)

20. Exterior Site Lighting

    a. Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

21. General

    a. It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.

    b. Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.

    c. All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

22. **Construction approach** – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

The Noise Study requirements will be taken care by the TPM.

Feel free to contact Anton Chetrar, Project Manager, for follow-up questions at anton.chetrar@ottawa.ca

Hydrogeology

Comments:

23. A **Hydrogeological and Terrain Analysis** will be required for the Site Plan Control application to establish that there is an adequate quantity and quality of groundwater to support the proposed development(s). The report will not be required to address the terrain analysis portion of the report, as private sanitary servicing is not proposed. The requirements for the Hydrogeological and Terrain Analysis Report are outlined in the City of Ottawa's Hydrogeological and Terrain Analysis Guidelines (HTAG), section 5.0 for Site Plans (pages 81 to 83). The study forms part of the requirements for Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents.

    a. **Quantity**: The on-site supply well(s) must be established to confirm that the water quality and quantity are suitable for the proposed use prior to site plan approval. A pumping test is required to confirm that the well(s) on-site can supply the required quantity and quality of water. Pump test duration of 8 hours is recommended, however if the maximum daily water demands exceed 10,000 L/day the pumping test must be increased to 12 hours, the pumping test must be representative of the water demand cycles, and observation wells are also recommended.

        i. If an existing well is proposed to be used, then a well inspection is required to confirm it meets the Wells Regulations (O.Reg.903); specifically, confirming that the well casing and grouting are sound, grading is directed away from around the wellhead, and that the casing height is at least 40 cm, above ground and meets the rest of the regulations.

            1. Through the Ministry's open data catalogue, there appears to be two well records for the site: 1509232 establishing a well in 1960 and 1531858 abandoning a well in 2001.

            2. The Site plan submitted with the application shows a well in the courtyard. An attempt should be made to match or find the well record for this well.

        ii. The anticipated water demands (average day, maximum daily, and maximum hour) must be presented and justified for the pump test rate. The pumping rate should be the maximum daily demand rate. The pumping rate should consider the actual use, as well as any uses permitted under the proposed zoning. The Ottawa Design Guidelines – Water Distribution provides information for determining water demand rates for the proposed zoning, or uses, in Table 4.2 – Consumption Rates. Should an alternate method be proposed for determining the pump rate, the rate must be

converted to a maximum daily demand value, such as the 120-minute peak demand, as demonstrated in Ministry of Environment, Conservation and Parks (MECP) D-5-5.

b. **Quality**: The parameters of water quality that will be tested will be the "subdivision suite" known to local well testing companies, as well as trace metals, and Volatile organic compounds (VOC). Requirements are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines. The report should also provide an assessment of adjacent land uses and concerns and determine if any other parameters need to be tested (e.g., petroleum hydrocarbons, etc.).

    i. A review of nearby geochemistry data did not present any exceedances to health-related parameters.

    ii. As the property is likely serving a designated facility, the requirements for O.Reg. 170 have and will apply, which includes annual monitoring and testing for a number of organic and inorganic parameters. The suite of water quality testing requested exceeds the parameters required through O.Reg. 170, i.e. new water quality testing shall be completed with the future pumping test.

c. The site is located in the Wellhead Protection Area B, score 6, and therefore the application will be required to undertake a source protection policy screening by the City's Risk Management Official. The applicable Source Protection Plan policy that could be related to this site is related to non-residential storage and handling of chemicals, which will be determined in the screening. The City's RMO is Tessa Di Iorio, tessa.diiorio@ottawa.ca.

d. Technical consultation with the hydrogeological report reviewer is recommended for all site plan control applications. Please contact the reviewer assigned to the file to arrange for the consultation. The hydrogeological consultant should conduct a background review and provide a work plan for review prior to the meeting.

Feel free to contact Travis Smith (travis.smith@ottawa.ca), Sr Project Manager, Hydrogeology, for follow-up questions.

Noise

Comments:

24. Noise Impact Studies required for roadway noise, as the site is within proximity to two collector roadways.

25. A Stationary Noise Assessment is required to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto itself and the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

Feel free to contact Rochelle Fortier-Lesage (rochelle.fortier@ottawa.ca), Transportation Project Manager, for follow-up questions.

Transportation

Comments:

26. Follow Transportation Impact Assessment Guidelines:

    a. A Transportation Impact Assessment is required. Please submit the Scoping report to rochelle.fortier@ottawa.ca at your earliest convenience. The applicant is responsible to submit the Scoping Report and must allow for a 14 day circulation period and sign-off prior to the Strategy Report submission.

    b. The Strategy Report must be submitted for review at the latest with the formal submission package. The applicant is still encouraged to submit the Strategy Report to the TMP before submission of the Phase 3 pre-con package and allow for a 14 day circulation period.

    c. If an RMA is required to support the proposed development, the functional plan and/or RMA plans must be submitted with the formal submission to deem complete, per the TIA Guidelines. Request base mapping asap if RMA is required. Contact Engineering Services.

27. Ensure that the development proposal complies with the Right-of-Way protection requirements - See Schedule C16 of the Official Plan.

    a. Note that Royal York Street and Fortune Street are both collectors in the Village of Richmond and have a protected right-of-way of 26m.

    b. Corner triangles on the final plan will be required (measure on the property line/ROW protected line; no structure above or below this triangle). The City requires the following corner triangles at these locations:

        i. Collector/collector (i.e., Fortune/Royal York): two overlapping 5 metre x 15 metre triangles

        ii. Collector/local (i.e., Royal York/Maitland): a 3 metre x 9 metre triangle, with the longer portion on the higher road segment

c. ROW and corner triangles must be unincumbered and conveyed at no cost to the City. Note that conveyance of the ROW/corner triangle will be required prior to registration of the SP agreement. Additional information on the conveyance process can be provided upon request.

d. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management. The applicant shall submit support evidence and rationale to support any relief to Transportation Planning satisfaction.

28. Corner clearances should follow minimum distances set out within TAC Figure 8.8.2.

29. As the proposed site is institutional and for general public use, AODA legislation applies.

    a. Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.

    b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

    c. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements.

30. On site plan:

    a. Ensure site accesses meet the City's Private Approach Bylaw and all driveways/aisles meet the requirements outlined in Section 107 of the Zoning By-law.

    b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.

    c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.

    d. Turning movement diagrams required for internal movements (loading areas, garbage).

    e. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).

    f. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

g. Grey out any area that will not be impacted by this application.

Feel free to contact Rochelle Fortier-Lesage (rochelle.fortier@ottawa.ca), Transportation Project Manager, for follow-up questions.

Environment

Comments:

31. There is no trigger for an Environmental Impact Study.

32. The Tree Conservation Report shall identify all trees on the property and identify those that will be removed.

33. Please consider if there are features that can be added reduce the urban heat island effect (see OP 10.3.3). For example, this impact can be reduced by adding large canopy trees adjacent to asphalt yards/parking, green roofs or vegetation walls, or incorporating landscaping or building materials with low heat absorbing characteristics.

34. Bird-Safe Design Guidelines - Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

Feel free to contact Matthew Hayley, Environmental Planner, for follow-up questions.

Forestry

Comments:

35. Please explore planting opportunities within the municipal rights-of-way.

36. The following Tree Conservation Report (TCR) guidelines have been adapted from the Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca

    a. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City

        i. An approved TCR is a requirement of Site Plan approval.

    b. Any removal of city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

c. The TCR must contain 2 separate plans:

    i. Plan/Map 1 - show existing conditions with tree cover information.

    ii. Plan/Map 2 - show proposed development with tree cover information.

d. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition.

    i. For ease of review, the Planning Forester suggests that all trees be numbered and referenced in an inventory table.

e. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

f. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.

    i. Compensation may be required for the removal of city owned trees.

g. The removal of trees on a property line will require the permission of both property owners.

h. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available on the Tree Protection Specification or by searching Ottawa.ca.

    i. The location of tree protection fencing must be shown on the plan.

    ii. Show the critical root zone of the retained trees.

i. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.

37. The following Landscape Plan (LP) guidelines have been adapted from Schedule E of the Tree Protection By-law – for more information on these requirements please contact julian.alvarez-barkham@ottawa.ca

    a. Please ensure any retained trees are shown on the LP.

    b. Minimum Setbacks

        i. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.

        ii. Maintain 2.5m from curb.

iii. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.

iv. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.

v. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

b. Tree specifications

i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.

ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.

c. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.

d. No root barriers, dead-man anchor systems, or planters are permitted.

e. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

f. Hard surface planting

i. If there are hard surface plantings, a planting detail must be provided.

ii. Curb style planter design is highly recommended.

iii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

c. Trees are to be planted at grade.

d. Soil Volume - Please demonstrate as per the **Landscape Plan Terms of Reference** that the available soil volumes for new plantings will meet or exceed the following:

Tree Type/Size	Single Tree Soil Volume (m^3)	Multiple Tree Soil Volume (m^3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

i. It is strongly suggested that the proposed species list include a column listing the available soil volume.

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

f. The City requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

g. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. **Please provide a projection of the future canopy cover for the site to 40 years.**

Feel free to contact Julian Alvarez-Barkham, Forester, for follow-up questions.

Parkland

Comments:

38. Cash-in-lieu of parkland / parkland dedication

    a. Per Parkland Dedication By-law No. 2022-280, Section 11.2:

    No conveyance of land or payment of cash-in-lieu under this by-law is required in the case of the development or redevelopment of: a college or university or a school as defined by subsection 1(1) of the Education Act, where the school provides for the students' outdoor recreational needs on-site at the time of development and maintains sufficient outdoor recreational space on-site at the time of redevelopment, all to the satisfaction of the General Manager;

    It would appear that there is no parkland dedication requirement arising from this application.

Other

39. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

b. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

Submission Requirements and Fees

1. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

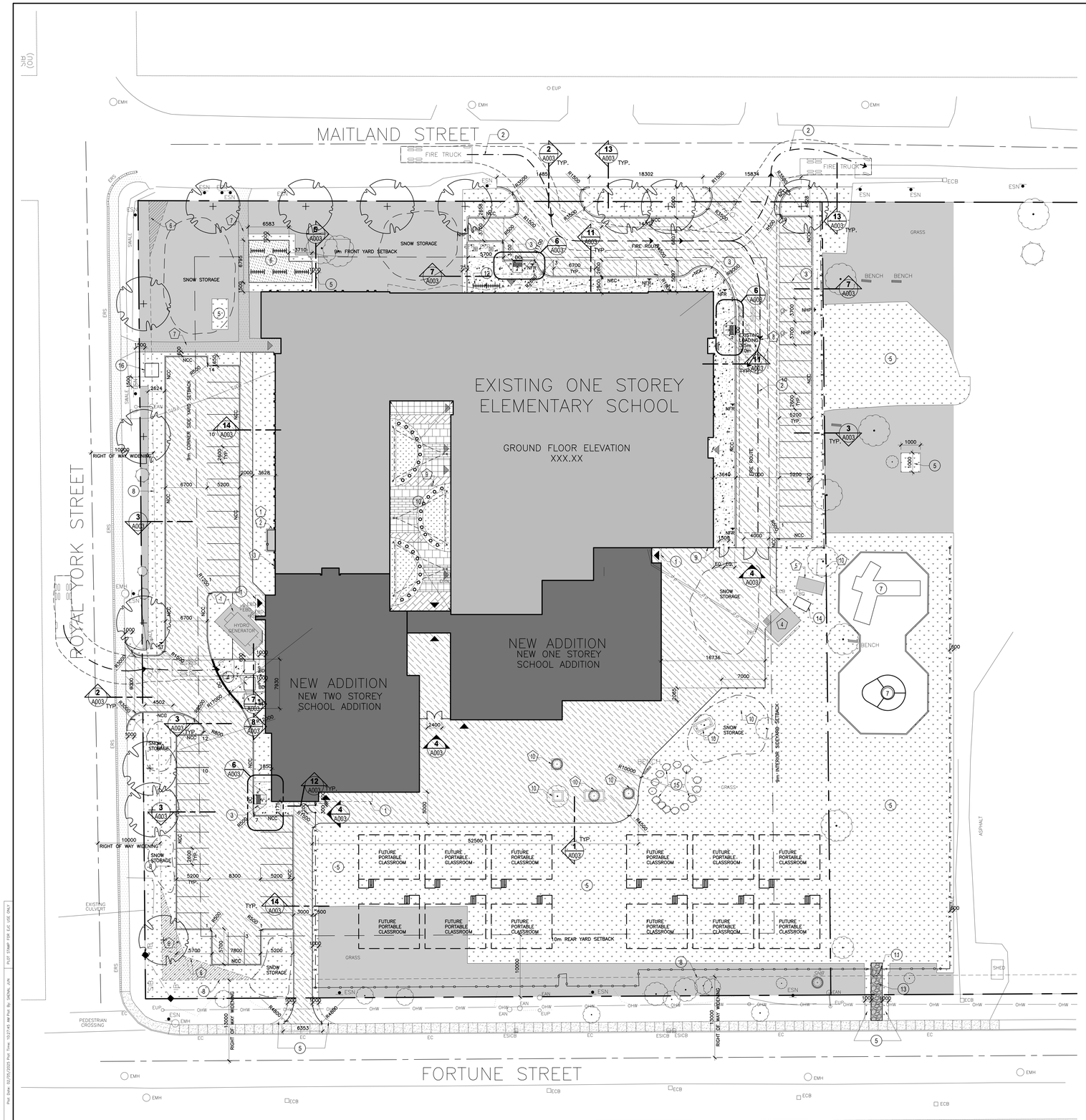
Yours Truly,
Shoma Murshid, Planner II

Development Review – All Wards

Encl. List Applicable Information

c.c. Rochelle Fortier, Anton Chetrar, Lisa Stern, Abdul Mottalib, Wendy Tse, Julian Alvarez-Barkham, Travis Smith, Matthew Hayley, Anissa McAlpine

Appendix E
Additional Documents



SITE PLAN
NEW SITE PLAN
1:250

LEGEND

- BARRIER FREE PARKING
- EXISTING BUILDING ENTRANCE/EXIT
- NEW BUILDING ENTRANCE/EXIT
- EBD EXISTING BOLLARD TO REMAIN
- EC EXISTING CONCRETE CURB TO REMAIN
- EDC EXISTING DEPRESSED CONCRETE CURB TO REMAIN
- ERS EXISTING CONCRETE RUMBLE STRIP TO REMAIN
- EXISTING CHAIN LINK FENCE TO REMAIN
- 1200mm HIGH NEW CHAIN LINK FENCE
- NCC NEW CURB, UNLESS OTHERWISE INDICATED
- DC DEPRESSED CURB
- ROAD CENTER LINE
- FIRE ROUTE
- SET BACK LINE
- PROPERTY LOT LINE
- SIB IRON BAR (REFER TO SURVEY)
- EMH EXISTING MAN HOLE TO REMAIN (REFER TO CIVIL)
- ECB EXISTING CATCH BASIN TO REMAIN (REFER TO CIVIL)
- ESICB EXISTING SIDE INLET CATCH BASIN TO REMAIN (REFER TO CIVIL)
- EFP EXISTING FLAG POLE TO REMAIN
- EUP EXISTING UTILITY POST TO REMAIN
- DRN EXISTING DRAIN TO REMAIN
- EAN EXISTING UTILITY POLE ANCHOR TO REMAIN (REFER TO CIVIL)
- ESN EXISTING SIGN TO REMAIN
- BENCH EXISTING BENCH TO REMAIN
- P EXISTING UNDERGROUND HYDRO LINE, REFER TO ELECTRICAL
- FOTS EXISTING UNDERGROUND FIBRE OPTIC LINE, REFER TO ELECTRICAL
- OHW EXISTING OVERHEAD UTILITY WIRES, REFER TO ELECTRICAL
- NFR NEW FIRE ROUTE SIGN (EVERY 25 METRES)
- NHP NEW HANDICAPPED PARKING SIGN
- LA NEW LOADING AREA SIGN
- ST NEW STOP SIGN
- LS NEW LIGHT STANDARD AND/OR REINSTATED EXISTING LIGHT STANDARD, REFER TO ELECTRICAL
- FH NEW FIRE HYDRANT (REFER TO CIVIL)
- MH NEW MAN HOLE (REFER TO CIVIL)
- CB NEW CATCH BASIN (REFER TO CIVIL)
- BD NEW BOLLARD
- NEW BUILDING
- EXISTING BUILDING
- EXISTING AREA NOT IN SCOPE OF WORK
- EXISTING LIGHT DUTY ASPHALT PAVING TO REMAIN
- EXISTING CONCRETE WALK TO REMAIN
- NEW TYPE 1 ASPHALT – HEAVY DUTY (REFER TO SPEC.)
- NEW TYPE 2 ASPHALT – LIGHT DUTY (REFER TO SPEC.)
- NEW CONCRETE WALK
- NEW SEEDED GRASS
- NEW SODDED GRASS (REFER TO LANDSCAPE)
- NEW CONCRETE PAVING
- CORNER TRIANGLE REQUIREMENT BY OFFICIAL PLAN
- NEW TREES (REFER TO LANDSCAPE)
- EXISTING TREES TO REMAIN (REFER TO LANDSCAPE)
- SHB EXISTING SHRUB TO REMAIN (REFER TO LANDSCAPE)

EXISTING SCHOOL + ADDITION

SITE DATA

SITE AREA	14,127.3 m²
FOOTPRINT	
EXISTING SCHOOL FOOTPRINT	2,952.2 m²
SCHOOL ADDITION FOOTPRINT	1,533.4 m²
TOTAL FOOTPRINT	4,485.6 m²
GROSS FLOOR AREA (AS PER CITY OF OTTAWA ZONING BY-LAW DEFINITION)	
EXISTING SCHOOL GROSS FLOOR AREA	2,133.3 m²
SCHOOL ADDITION GROSS FLOOR AREA	1,503.4 m²
TOTAL GROSS FLOOR AREA	3,636.7 m²

TOPOGRAPHICAL AND SURVEY INFORMATION PROVIDED BY STANTEC GEOMATICS LTD. (613)722-4420

PROJECT No.: 161614821-111
LEGAL DESCRIPTION:
UNIT 35, INDEX PLAN 4D-18
GEOGRAPHIC TOWNSHIP OF GOULBOURN
CITY OF OTTAWA

CITY OF OTTAWA ZONING

	REQUIRED		PROVIDED
RI–RURAL INSTITUTIONAL ZONE R12H (15)			
LOT AREA	MIN.	4000.0m²	14,120.0m²
LOT COVERAGE	MAX.	30%	31.7%
BUILDING HEIGHT	MAX.	15m	8.71m
FRONT YARD SETBACK	MIN.	9.0m	14.7m
REAR YARD SETBACK	MIN.	10.0m	31.6m
INT. SIDE YARD SETBACK	MIN.	9.0m	18.1m
CORNER YARD SETBACK	MIN.	9.5m	19.6m
LANDSCAPING IN PARKING	MIN.	20%	35.2%

PARKING CALCULATIONS

MOTOR VEHICLE PARKING :
EXISTING SCHOOL + ADDITION

REQUIRED: 15 EXISTING CLASSROOMS + 12 NEW CLASSROOMS + 12 FUTURE PORTABLE CLASSROOMS = 39 TOTAL

USE	No. CLASS	SPACES PER	SPACES REQ'D
ELEMENTARY SCHOOL	39	1.5/CLASS	59
TOTAL REQUIRED PARKING SPACES			59 SPACES
TOTAL REQUIRED PARKING SPACES FOR PERSONS WITH DISABILITIES			1 SPACES
PROVIDED SPACES @ 5.2mD X 2.6mW			56 SPACES
SPACES FOR PERSONS WITH DISABILITIES @ 5.2mD X 3.67mW			3 SPACES
TOTAL SPACES PROVIDED			59 SPACES

BICYCLE PARKING (0.6m X 1.8m)

	USE	GROSS AREA	SPACES PER	SPACES REQ'D
REQUIRED	SCHOOL	3,636.7m²	1 / 100m²	37 SPACES
	TOTAL REQUIRED PARKING SPACES			37 SPACES
PROVIDED	SCHOOL			45 SPACES
	TOTAL SPACES PROVIDED			45 SPACES

LOADING SPACES (3.5m X 7.0m)

	USE	GROSS AREA	TABLE 113A	SPACES REQ'D
REQUIRED	SCHOOL	3,636.7m²	COLUMN V	1
	TOTAL REQUIRED PARKING SPACES			1 SPACES
PROVIDED	SCHOOL			1 SPACES

GENERAL NOTES

1. EXTENT OF CONTRACT IS LIMITED TO WITHIN PROPERTY EXCEPT WHERE SHOWN OTHERWISE.
2. ALL WORK OUTSIDE PROPERTY LINE TO BE CONSTRUCTED TO CITY OF OTTAWA CONSTRUCTION STANDARDS.
3. PARKING STALL SIZE: 2600mm x 5200mm
   BARRIER FREE PARKING STALL: 3900mm x 5200mm
4. FOR LANDSCAPE/PLANTING DETAILS SEE DRAWING AS PREPARED BY JBLA.
5. FOR SITE GRADING INFORMATION SEE GRADING & DRAINAGE DRAWING AS PREPARED BY WSP.
6. FOR SITE SERVICES INFORMATION SEE SITE SERVICES DRAWING AS PREPARED BY WSP.
7. FOR SOIL INVESTIGATION REPORT REFER TO REPORT PREPARED BY EXP SERVICES.
8. SLOPES OF CONCRETE/PAVING AT DEPRESSED CURBS SHALL NOT EXCEED 5%.
9. CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE AND REPORT ANY ERRORS TO THE ARCHITECT. CONTRACTOR TO COORDINATE WITH ALL DRAWINGS.
10. FOR SITE SURVEY INFORMATION, SEE TOPOLOGICAL SURVEY DRAWING PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.

SITE PLAN NOTES – NEW

1. NEW SECOND FLOOR OVERHANG OR CANOPY
2. NEW FIRE ROUTE
3. NEW CURB RAMP WITH FLARED SIDES AND TACTILE SURFACE WALKING INDICATOR. REFER TO SITE DETAILS AND SPECIFICATIONS
4. GARBAGE EARTH BIN, REFER TO DETAILS AND SPECIFICATIONS
5. PROVIDE NEW SOD AND TOPSOIL WHERE EXISTING PORTABLE CLASSROOMS AND CRUSHED STONE PATHWAY WERE REMOVED
6. NEW BICYCLE PARKING CONCRETE PAD WITH FIVE (5) NEW BICYCLE RACKS
7. RELOCATED EXISTING PLAY STRUCTURE
8. RIGHT OF WAY WIDENING LINE REQUIRED BY CITY OF OTTAWA
9. ALIGN
10. COURTYARD DESIGN WITH SAILS, REFER TO LANDSCAPE
11. 1200mm WIDE PEDESTRIAN ACCESS GATE INSTALLED DURING CONSTRUCTION PHASE FOR STUDENTS AND PARENTS.
12. RELOCATED EXISTING BICYCLE RACK
13. COMPACTED GRAVEL PATH INSTALLED DURING CONSTRUCTION PHASE.
14. RELOCATED EXISTING CONCRETE BUNKER INCLUDING CONCRETE BASE AND/OR SLAB. INSTALL ON 300mm DEEP GRANULAR A PAD
15. RELOCATED EXISTING BOULDERS
16. NEW TRANSFORMER, REFER TO ELECTRICAL

SITE PLAN NOTES – EXISTING

1. EXISTING CONCRETE PAD
2. EXISTING GAS METER FENCE
3. SHEET METAL PROTECTION FOR EXISTING ELECTRICAL CONDUITS
4. EXISTING FIRE PUMP HOUSE TO REMAIN, REFER TO ELECTRICAL
5. EXISTING METAL STORAGE SHED TO REMAIN
6. CORNER TRIANGLE REQUIREMENT BY OFFICIAL PLAN
7. EXISTING ASPHALT PAVED SIDEWALK TO REMAIN
8. EXISTING LOADING SPACE 3.5m X 7.0m
9. EXISTING WATER WELL TO REMAIN
10. EXISTING WOOD TREE BOXES TO REMAIN

OTTAWA CATHOLIC SCHOOL BOARD

ISSUE NO.	REV NO.	DATE YYYY/MM/DD	ISSUE
5	0	2025/03/27	ISSUED FOR BUILDING PERMIT
4	0	2025/03/07	ISSUED FOR OWNER'S REVIEW
3	0	2025/01/31	ISSUED CONSTRUCTION DOCUMENTS 66%
2	0	2024/12/30	ISSUED FOR OBC 2012 COMPLIANCE
1	0	2024/12/11	ISSUED FOR DESIGN DEVELOPMENT

TRUE NORTH | PLAN NORTH

EDWARD J. CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St. Suite 1100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 236-7135 E-mail: info@cuhaci.com

PROJECT TITLE/TITRE DU PROJET
ST. PHILIP CATHOLIC SCHOOL
ADDITION 2025
79 MAITLAND STREET S
RICHMOND, ONTARIO, K0A 2Z0

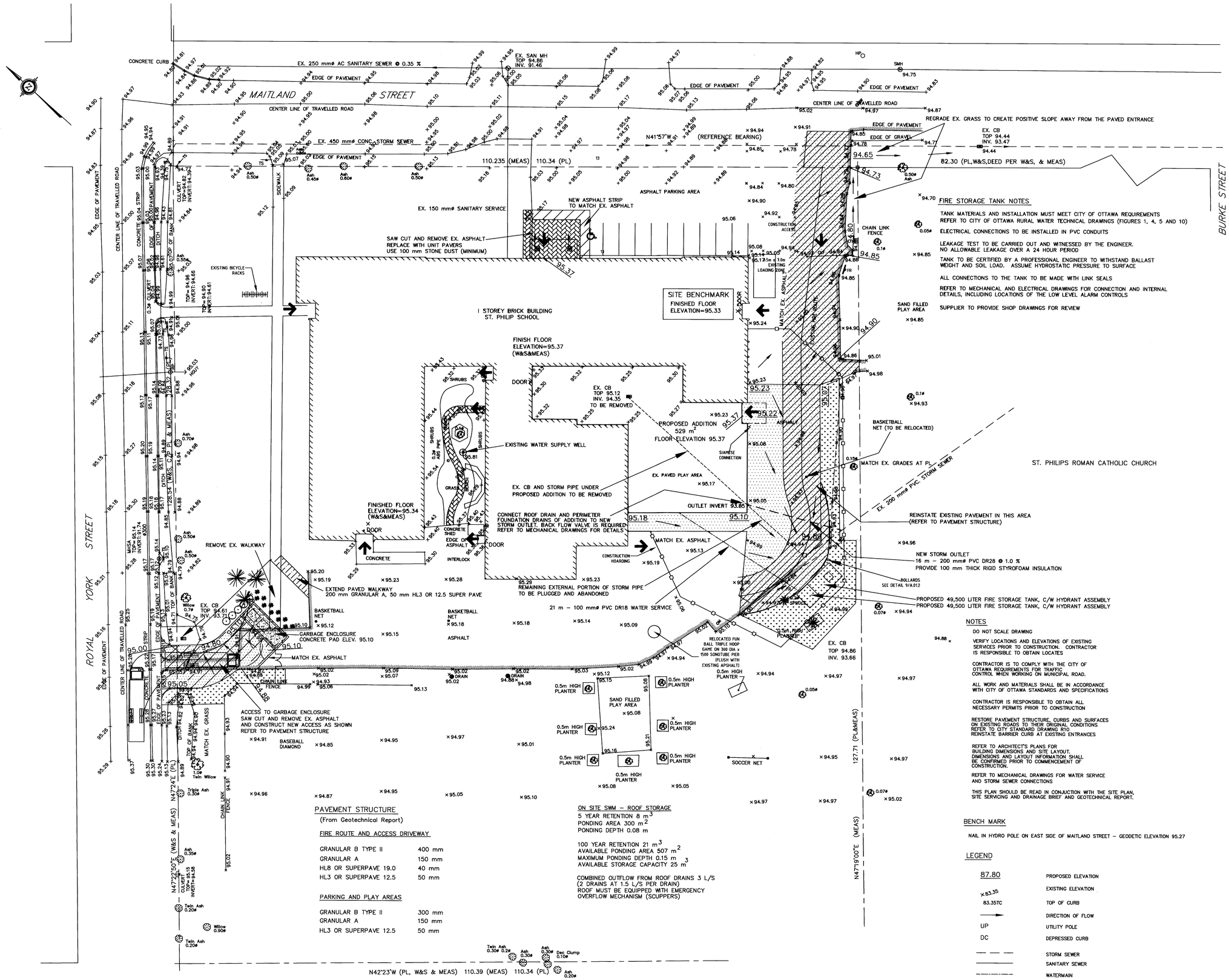
OTTAWA CATHOLIC SCHOOL BOARD
570 WEST HUNT CLUB ROAD
OTTAWA, ONTARIO, K2G 3R4

DRAWING TITLE/TITRE DU DESSIN
SITE PLAN

SCALE / ÉCHELLE	AS SHOWN	PROJ. No	2501
DRAWN BY / DESSINÉ PAR	S.J.	ISSUE No.	5
CHECKED BY / VÉRIFIÉ PAR	J.J.	REV. No	----
DATE	2024 10 09	DRAWING/DESSIN	A001

ACAD FILE/FICHIER: 2501-A001.DWG

Plotted: DWG, TO PDF.PC3 | Page Setup: ---- | Plot Date: 02/05/2025 Plot Time: 10:27:45 AM Plot By: SADNAL JUN | PLOT STAMP FOR LOC USE ONLY



FIRE STORAGE TANK NOTES

TANK MATERIALS AND INSTALLATION MUST MEET CITY OF OTTAWA REQUIREMENTS REFER TO CITY OF OTTAWA RURAL WATER TECHNICAL DRAWINGS (FIGURES 1, 4, 5 AND 10)

ELECTRICAL CONNECTIONS TO BE INSTALLED IN PVC CONDUITS

LEAKAGE TEST TO BE CARRIED OUT AND WITNESSED BY THE ENGINEER. NO ALLOWABLE LEAKAGE OVER A 24 HOUR PERIOD

TANK TO BE CERTIFIED BY A PROFESSIONAL ENGINEER TO WITHSTAND BALLAST WEIGHT AND SOIL LOAD. ASSUME HYDROSTATIC PRESSURE TO SURFACE

ALL CONNECTIONS TO THE TANK TO BE MADE WITH LINK SEALS

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR CONNECTION AND INTERNAL DETAILS, INCLUDING LOCATIONS OF THE LOW LEVEL ALARM CONTROLS

SUPPLIER TO PROVIDE SHOP DRAWINGS FOR REVIEW

PAVEMENT STRUCTURE

(From Geotechnical Report)

FIRE ROUTE AND ACCESS DRIVEWAY

GRANULAR B TYPE II	400 mm
GRANULAR A	150 mm
HL8 OR SUPERPAVE 19.0	40 mm
HL3 OR SUPERPAVE 12.5	50 mm

PARKING AND PLAY AREAS

GRANULAR B TYPE II	300 mm
GRANULAR A	150 mm
HL3 OR SUPERPAVE 12.5	50 mm

ON SITE SWM – ROOF STORAGE

5 YEAR RETENTION 8 m^3
PONDING AREA 300 m^2
PONDING DEPTH 0.08 m

100 YEAR RETENTION 21 m^3
AVAILABLE PONDING AREA 507 m^2
MAXIMUM PONDING DEPTH 0.15 m
AVAILABLE STORAGE CAPACITY 25 m^3

COMBINED OUTFLOW FROM ROOF DRAINS 3 L/S (2 DRAINS AT 1.5 L/S PER DRAIN)
ROOF MUST BE EQUIPPED WITH EMERGENCY OVERFLOW MECHANISM (SCUPPERS)

NOTES

DO NOT SCALE DRAWING

VERIFY LOCATIONS AND ELEVATIONS OF EXISTING SERVICES PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE TO OBTAIN LOCATES

CONTRACTOR IS TO COMPLY WITH THE CITY OF OTTAWA REQUIREMENTS FOR TRAFFIC CONTROL WHEN WORKING ON MUNICIPAL ROAD.

ALL WORK AND MATERIALS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARDS AND SPECIFICATIONS

CONTRACTOR IS RESPONSIBLE TO OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION

RESTORE PAVEMENT STRUCTURE, CURBS AND SURFACES ON EXISTING ROADS TO THEIR ORIGINAL CONDITIONS REFER TO CITY STANDARD DRAWING R10 REINSTATE BARRIER CURB AT EXISTING ENTRANCES

REFER TO ARCHITECT'S PLANS FOR BUILDING DIMENSIONS AND SITE LAYOUT. DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.

REFER TO MECHANICAL DRAWINGS FOR WATER SERVICE AND STORM SEWER CONNECTIONS

THIS PLAN SHOULD BE READ IN CONJUCTION WITH THE SITE PLAN, SITE SERVICING AND DRAINAGE BRIEF AND GEOTECHNICAL REPORT.

BENCH MARK

NAIL IN HYDRO POLE ON EAST SIDE OF MAITLAND STREET – GEODETIC ELEVATION 95.27

LEGEND

87.80	PROPOSED ELEVATION
x83.35	EXISTING ELEVATION
83.35TC	TOP OF CURB
→	DIRECTION OF FLOW
UP	UTILITY POLE
DC	DEPRESSED CURB
— — —	STORM SEWER
———	SANITARY SEWER
——·—·—·	WATERMAIN
	FIRE ROUTE / ACCESS
	PLAY AREA / PARKING

GENERAL NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THESE DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

Capital Engineering Group Ltd
Municipal / Land Development
110 Dossetter Way
Ottawa, Ontario K1G 4S5
T: (613)739-0776 F: (613)739-7302
E: cegl@rogers.com

NO.	ISSUE & REVISIONS	DATE
6	As Constructed	2013/11/25
5	Site Plan Approval	2013/04/18
4	Issued for Tender	2013/03/11
3	Issued for Building permit	2013/02/19
2	Revised to Address City Comments	2013/02/06
1	Issued for Site Plan Application	2012/12/17

SEAL
LICENSED PROFESSIONAL ENGINEER
AMINE NAOUM
Nov. 25/13
PROVINCE OF ONTARIO
Not for construction unless SEALED and SIGNED.

PROJECT NORTH

P & R
PYE & RICHARDS ARCHITECTS INC
824 MEATH STREET OTTAWA ONTARIO K1Z 6E8
TEL: 613 724-7700 FAX: 613 724-1289
EMAIL: staff@pnrarch.com
WEBSITE: www.pyeandrichardsarchitects.com

PROJECT
St. Philip Catholic School Kindergarten Addition
79 Maitland Street **Village of Richmond**

DRAWING
Servicing, Grading and Drainage Plan

Do not scale. Refer any dimensional errors and/or possible trade interference/conflict to the architects for clarification prior to commencement of the work.
The conditions of the contract apply.

PROJECT NO. 13–02	DRAWING NO. G1
SCALE – 1 : 250	
DRAWN – ANDREW	
CHECKED – AN	
	REVISION NO. 1

Zachary Bauman

From: Jerzy Jurewicz <jerzyj@cuhaci.com>
Sent: Monday, March 17, 2025 1:45 PM
To: Zachary Bauman; David Nguyen
Subject: FW: FW: St. Philip CS - Student population

Zach, please see below for the current and future student population.

Jerzy

Jerzy Jurewicz, OAA, ARIDO, AIA
Vice President
jerzyj@cuhaci.com Telephone: 613-236 7135
Edward J. Cuhaci and Associates Architects Inc.
171 Slater St., Suite 100, Ottawa, Ontario K1P 5H7
www.cuhaci.com Fax 613-236 1944 Cell 613-324 5576

From: Scott Divell <scott.divell@ocsb.ca>
Sent: March 17, 2025 12:38 PM
To: Jerzy Jurewicz <jerzyj@cuhaci.com>
Subject: Fwd: FW: St. Philip CS - Building Permit Documents

Current student population = 593
Current staff population = 55

Future student population = 763
Future staff population = 65

Trust this helps,
Scott Divell, Tech. OAAAS.
Project Coordinator - Architectural
Planning & Facilities

Ottawa Catholic School Board
570 West Hunt Club Road
Ottawa ON K2G 3R4

Direct: 613.691.7308
Cell: 613.875.5370
Office: 613.224.4455 ext. 2335

---------- Forwarded message ---------
From: **Jerzy Jurewicz** <jerzyj@cuhaci.com>
Date: Mon, Mar 17, 2025 at 12:00 PM
Subject: FW: St. Philip CS - Building Permit Documents
To: Scott Divell (scott.divell@ocsb.ca) <scott.divell@ocsb.ca>