Robinson
Land Development

Servicing & Stormwater Management Brief

Guardian Angels Catholic School Addition
4 Baywood Drive
Ottawa, ON

Prepared For:

Ottawa Catholic School Board (OCSB)

Prepared By:

Robinson Land Development

Project No. 26018
Version 1
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LEGAL NOTIFICATION

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1.0 INTRODUCTION

Robinson Land Development have been retained by the Ottawa Catholic School Board (OCSB) to prepare detailed servicing and stormwater management designs in support of the proposed additions to the Guardian Angels Catholic School located at 4 Baywood Drive in the City of Ottawa. The subject site is bound by Baywood Drive to the north, existing residential properties to the west and east, and an existing park block to the south (refer to **Figure 1.0 – Key Plan** following page 1).

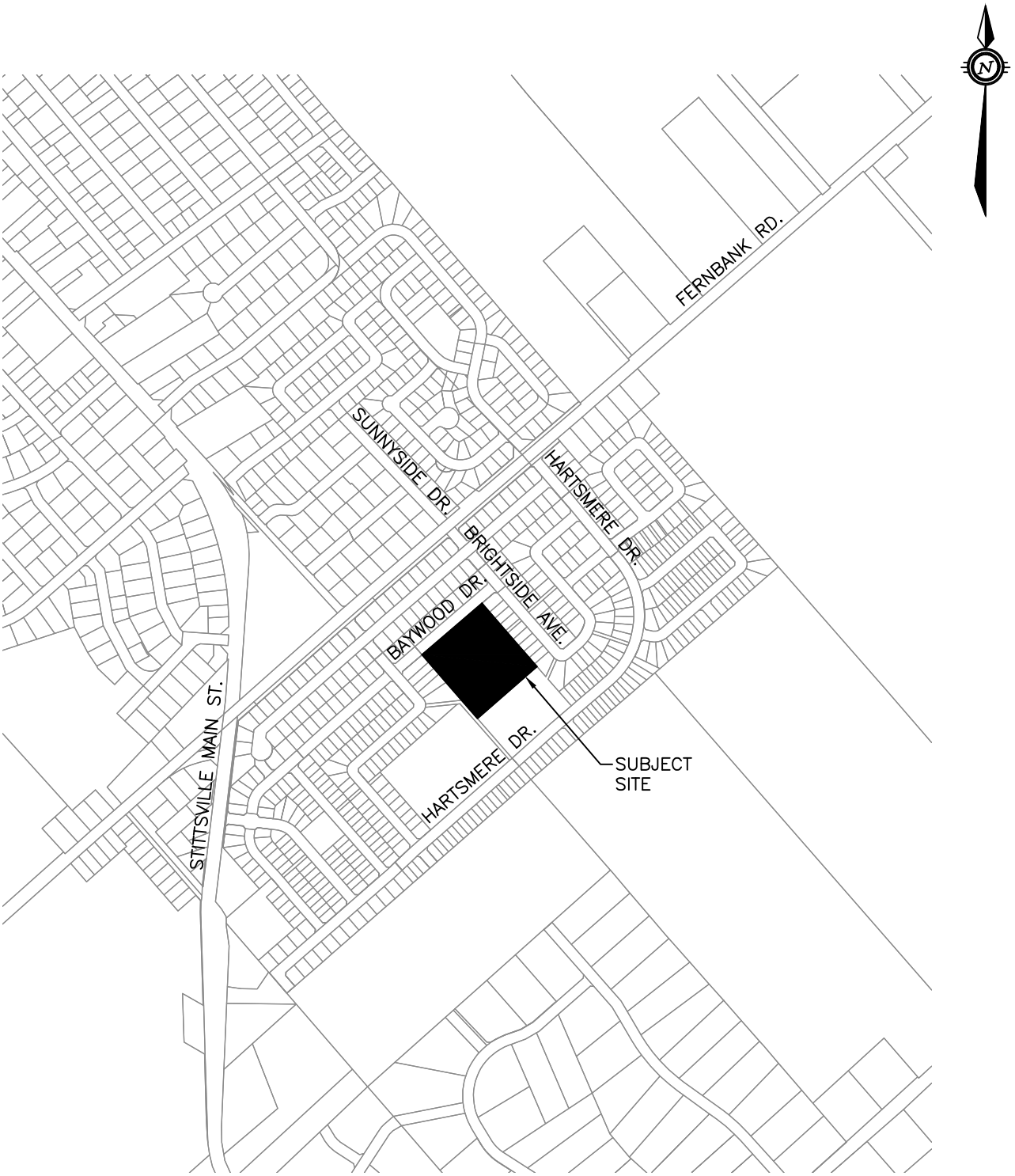
This report will detail the proposed means of servicing the building additions and will provide details on how the stormwater management requirements will be achieved in accordance with overarching reports and current City of Ottawa guidelines. The report will focus on the areas of the site subject to the redevelopment work.

2.0 GUIDELINES, STUDIES AND REPORTS

The servicing and stormwater management designs for the subject site have been prepared in keeping with the following documents:

- **Sewer Design Guidelines**, City of Ottawa, December 2025 (herein referred to as OSDG).
- **Water Distribution Design Guidelines**, City of Ottawa, December 2025 (herein referred to as OWDG).
- **Design Guidelines for Sewage Works**, Ministry of the Environment, 2008 (herein referred to as MECP Design Guidelines).
- **Design Guidelines for Drinking-Water Systems**, Ministry of the Environment, 2008 (herein referred to as MECP Water Design Guidelines).
- **Stormwater Planning and Design Manual,** Ministry of the Environment, March 2003 (herein referred to as MECP SWM Design Guidelines).
- **Water Supply for Public Fire Protection**, Fire Underwriters Survey, 2020 (herein referred to as FUS Guidelines).
- **Ontario Building Code Compendium**, Ministry of Municipal Affairs and Housing Building Development Branch, June 27, 2025 (herein referred to as OBC).
- **Fernbank Subdivision, Stormwater Management Concept Report,** Novatech, April June 24, 1994 (herein referred to as the Fernbank SWM Report).
- **Site Servicing and Stormwater Management Brief, Guardian Angel Catholic School, 4 Baywood Drive, City of Ottawa**, Capital Engineering Group Ltd., March 2014 (herein referred to as the 2014 SWM Brief).

A pre-consultation meeting was held with the City of Ottawa on February 9th, 2026 to discuss requirements for the proposed redevelopment. The pre-consultation meeting feedback has been provided under **Appendix A** for reference.



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scale N.T.S.	4 BAYWOOD DRIVE, OTTAWA	project no. 26018
date 27/04/26		
drawn by BLM	KEY PLAN	FIG 1.0

3.0 EXISTING CONDITIONS

The subject site is contained within a 2.32-hectare block located within the West Wind Farms Subdivision. Under current conditions, the site includes a 1-storey elementary school with a gross floor area of approximately 4823 square metres. The school was originally constructed in the early 2000s; a 165 square metre addition was added to the southwest corner of the building circa 2014. An existing asphalt surface parking lot is located on the west side of the building with a connection to Baywood Drive. Asphalt play areas are located on the east and south sides of the building. Portable structures are located at the eastern corner of the site. Refer to **Figure 2.0** below for an aerial view of the site under its current development state.

Figure 2.0: Existing Conditions

The topography of the property is generally flat and slopes towards the property boundaries. Refer to the Topographic Plan of Survey prepared by Farley, Smith & Denis Surveying Ltd. under **Appendix A** for more details. Existing municipal infrastructure is available within the adjacent right-of-way as detailed in the sections below.

4.0 DEVELOPMENT PROPOSAL

The Owner is proposing to construct two new building additions. The first addition will be located at the southwest corner of the existing building and will have a gross floor area of approximately 307 square metres. The second addition will be located at the southeast corner of the existing building and will have a gross floor area of approximately 539 square metres. The asphalt play area along the southside of the building will be widened to maintain continuous access around the rear of the building. The existing parking lot will also be expanded to the south to provide additional parking spaces. The student population is anticipated to increase from the current count of 846 students up to a total of 1013 students. The anticipated population of 1013 students accounts for the two new building additions plus

an additional portable to be installed in the future. Refer to the Site Plan, prepared by PRTY, under **Appendix B** for more details.

5.0 WATER SERVICING

5.1 Existing System

Existing municipal watermains are available in proximity to the subject site as follows:

- A 203mm diameter PVC watermain within the Baywood Drive right-of-way.

The existing school is serviced for domestic water supply via a 152mm diameter water service connection to the 203mm diameter watermain on Baywood Drive. The existing water service is located at the northwest corner of the building and also provides water supply to a private hydrant located adjacent to the internal bus drop off lane. The site contains a secondary 152mm diameter water service connection located on the east side of the building which provides water supply to an additional private hydrant located near the existing portables. Refer to the *General Plan of Services and Utilities* prepared by Novatech for the original school design under **Appendix A**.

5.2 Proposed System

The proposed building additions will require water supply for domestic use. Water supply will be provided by connections to the internal plumbing system for the existing building which will be designed by the Mechanical Consultant. No exterior water servicing will be required to service the proposed additions.

5.3 Design Criteria

The following design criteria have been used to estimate water demands and assess the existing watermain distribution system in accordance with the current OWDG:

• Basic Day (BSDY) Demand	70 L/student/day	(OWDG; Table 4.2)
• Maximum Day (MXDY) Demand	BSDY x 1.5	(OWDG; Table 4.2)
• Peak Hour (PKHR) Demand	MXDY x 1.8	(OWDG; Table 4.2)
• Minimum Pressure	40 psi	(OWDG; S4.2.2.1)
• Maximum Pressure	80 psi	(OWDG; S4.2.2.3)

Since the site use is an elementary school, institutional peaking factors have been utilized.

5.4 Water Demands

Using the design criteria above, domestic water demands have been calculated for both the existing and proposed development conditions. The results have been summarized in the table below.

Table 5.1: Domestic Water Demands

Development Condition	No. of Students	Basic Day Demand (L/s)	Maximum Day Demand (L/s)	Peak Hour Demand (L/s)
Existing	846	0.69	1.03	1.85
Proposed	1013	0.82	1.23	2.22

As shown in the table above, the domestic water demands for the subject site will increase following the proposed additions to the building. Refer to the supporting water demand calculations under **Appendix C**.

5.5 Fire Flows

In accordance with the current OWDG, the total required fire flow shall first be calculated based on OBC *Appendix A-3.2.5.7*. The water supply coefficient (K) is derived from OBC Table 1 based on the type of construction and group classification for the building (as confirmed by the Architect).

The total of spatial coefficient (S_{TOT}) is interpolated from OBC Figure 1 based on exposure distances measured from the proposed building. Where a building has exposures on more than one side, the percentage increase in the fire protection water supply should be totaled to reflect all exposure protection requirements. Note that the total of spatial coefficient need not exceed a value of 2.0.

The required minimum water supply flow rate can then be derived from OBC Table 2 based on the calculated minimum supply of water (Q). The fire flow calculations have been summarized in the table below:

Table 5.2: OBC Fire Flow Calculations

Parameter	*Existing*	Proposed
Water Supply Coefficient (K)[*1]	*10*	10
Building Volume (V)[*2]	*34,243 m^3*	40,250 m^3
Total of Spatial Coefficient (S_{TOT})[*3]	*1.0*	1.0
Type of Construction[*4]	*Non-combustible*	Non-combustible
Group Classification[*5]	*A-2*	A-2
Minimum Supply of Water (Q)[*6]	*342,433 L*	402,499
Required Water Supply Flow Rate[*7]	*9,000 L/min*	9,000 L/min

Notes:
1. Derived from OBC Table 1.
2. Calculated based on floor areas and heights provided by Architect.
3. Interpolated from OBC Figure 1
4. Constructed type confirmed by Architect.
5. Group classification confirmed by Architect.
6. $Q = K \times V \times S_{TOT}$
7. Derived from OBC Table 2.

In accordance with the current OWDG, where a pressurized hydrant is available and the required minimum water supply flow rate is 9,000 L/min (or greater), the required fire flow shall also be calculated using FUS guidelines. As shown in the table above, the required water supply flow rate for the building is not less than 9,000 L/min and therefore additional calculations using FUS guidelines are warranted.

The total required fire flow has been calculated in accordance with the FUS guidelines using the following input parameters:

- Type of Construction Ordinary construction

- Effective Floor Area — Total floor area as per Site Plan
- Occupancy Class — Limited Combustible
- Sprinkler Protection — Automatic sprinkler protection
  Full supervision of sprinkler system
  Water supply is standard for system and hose lines
- Exposure Distances — Separations as per Site Plan

Using the parameters above, the total required fire flows have been calculated for both the existing and proposed development conditions. The results have been summarized in the table below:

Table 5.3: FUS Fire Flow Calculations

Development Condition	Total Required Fire Flow (L/min)
Existing	*7,000*
Proposed	8,000

As shown in the table above, the total required fire flow for the subject site will increase to 8,000 L/min following the proposed building additions. Refer to the supporting OBC and FUS fire flow calculations provided under **Appendix C**.

5.6 Boundary Conditions

The City of Ottawa has provided boundary conditions at the location of the existing water service connection on Baywood Drive based on anticipated water demands and fire flows for the subject site. The boundary conditions have been summarized in the table below and are provided under **Appendix C** for reference.

Table 5.4: Boundary Conditions

Demand Scenario	Head (m)	Pressure (psi)
Maximum HGL	159.5	64.8
Peak Hour	154.4	57.6
Max. Day + Fire Flow	148.7	49.5

As shown in the table above, the minimum pressure modelled at the service connection exceeds the minimum operating pressure of 40 psi and therefore remains in accordance with the current OWDG. The maximum pressure modelled at the service connection is below the desired maximum operating pressure of 80 psi and therefore a pressure reducing valve (PRV) will not be required.

Since the available pressure within the existing distribution system during the max. day plus fire flow scenario exceeds 20 psi, it can be concluded that there is sufficient fire flow available to support the proposed site modifications.

5.7 Hydrant Coverage

In accordance with current OWDG, the aggregate fire flow capacity of all contributing fire hydrants within 150 m of a building shall not be less than the required fire flow. The contribution

to the required fire flow is dependent on the distance from the hydrant to building being considered. A flow of 5,700 L/min should be assigned to all hydrants with a distance of less than or equal to 75 m from the building being considered and 3,800 L/min to all hydrants with a distance between 75 m and 150 m from the building being considered (as per *Table 1* from *Appendix I* for AA rated hydrants).

As noted under **Section 5.5**, the total required fire flow for the proposed building is 8,000 L/min. Since both private on-site hydrants are located within 75 m of the building, the total contributing fire flow is 11,400 L/min which exceeds the required value. There is also an existing municipal hydrant on Baywood Drive, adjacent to the parking lot entrance, which can provide additional coverage if required.

Since the building is sprinklered, a hydrant must also be located within 45 metres of the building's siamese connection in accordance with the Ontario Building Code (OBC). The existing private hydrant located along the bus drop off lane is within 45 metres of the existing siamese connection located west of the main entrance. Refer to **Figure 3.0: Hydrant Coverage Plan** provided under **Appendix C**.

6.0 SANITARY SERVICING

6.1 Existing System

Existing municipal sanitary sewers are available in proximity to the subject site as follows:

- A 250mm diameter PVC sanitary sewer within the Baywood Drive right-of-way.

The existing school is serviced for sanitary flows via a 150mm diameter sanitary service which outlets to the existing 250mm diameter sanitary sewer on Baywood Drive. The existing sanitary service is located at the northeast corner of the building. Refer to the *General Plan of Services and Utilities* prepared by Novatech for the original school design under **Appendix A**.

6.2 Proposed System

The proposed building additions will require outlets for sanitary flows. Sanitary flows from the building additions will be conveyed to the internal plumbing system for the existing building which will be designed by the Mechanical Consultant. No exterior sanitary servicing will be required to service the proposed additions.

6.3 Design Criteria

The following design criteria have been used to estimate peak sanitary design flows and assess the existing sanitary sewer system in accordance with the current OSDG:

• Sanitary Design Flow	30 L/person/day	(OSDG Appendix 4-A)
• Institutional Peaking Factor	1.5	(OSDG Figure 4.3)
• Infiltration Allowance	0.33 L/s/ha	(OSDG Figure 4.3)
• Minimum Full Flow Velocity	0.60 m/s	(OSDG S6.1.2.2)
• Maximum Full Flow Velocity	3.0 m/s	(OSDG S6.1.2.2)
• Manning's 'n' Value	0.013	(OSDG S6.1.8.2)
• Level of Service	2-Year Event	
• Existing Number of People	911	(as per Architect)
• Proposed Number of People	1088	(as per Architect)

The Architect has confirmed that the existing school does not have a designated cafeteria or showers which are actively used, therefore, a daily design flow of 30 L/person/day has been assumed in accordance with Appendix 4-A of the OSDG (provided under **Appendix D** for reference).

6.4 Sanitary Design Flows

Using the design criteria established above, peak sanitary design flows have been calculated for both the existing and proposed development conditions. The results have been summarized in the table below.

Table 6.1: Peak Sanitary Design Flows

Development Condition	Peak Inst. Flow*2 (L/s)	Infiltration Allowance (L/s)	Total Design Flow (L/s)
Existing	0.47	0.77	1.24
Proposed	0.57	0.77	1.33

As shown in the table above, the total sanitary design flow for the subject site will increase by approximately 7 percent following the proposed additions to the building, however, the existing 150mm diameter sanitary service has adequate capacity to convey the increased sanitary design flow. Refer to the sanitary sewer design sheets provided under **Appendix D** for more details.

7.0 STORM SERVICING

7.1 Existing System

Existing municipal storm sewers are available in proximity to the subject site as follows:

- A 300mm-450mm diameter storm sewers within the Baywood Drive right-of-way.

The existing school site has three independent storm sewer outlets. Stormwater runoff from the parking lot area is captured by a surface inlet and conveyed by a 300mm diameter storm sewer to the existing 300mm diameter storm sewer on Baywood Drive. Stormwater runoff from the existing building roof is captured by roof drains and conveyed by a 200mm diameter storm service to the existing storm maintenance hole on Baywood Drive. Stormwater runoff from the eastern portion of the site is captured by surface inlets any conveyed by a 300mm diameter storm sewer through a dedicated block to the existing storm sewer system on Brightside Avenue. Minor system flows from the subject site are conveyed by municipal storm sewers in an easterly direction before discharging to a surface outlet on the southeast side of Hickstead Way. The stormwater is conveyed through an inline stormwater management facility before ultimately discharging into the Faulkner Municipal Drain.

Refer to the *General Plan of Services and Utilities* prepared by Novatech for the original school design under **Appendix A**.

7.2 Existing System Capacity

The existing on-site storm sewer systems have been assessed to determine if there is adequate capacity to convey additional peak flows from the proposed site modifications. It has

been determined that the existing 200mm diameter storm service is currently undersized to convey the unrestricted 2-year peak flow from the existing building roof and therefore a new storm outlet will be required for the building addition roofs.

It has been determined that the existing 300mm diameter storm sewer discharging from the parking lot is approximately 76% full during the 2-year design event under existing conditions. Given that the proposed site modifications are related to a retrofit situation, the City has acknowledged that it would be acceptable for the pipe to be over capacity for the unrestricted 2-year event provided that the system remains below 80% full under restricted peak flow conditions. Refer to correspondence with the City under **Appendix E**.

7.3 Design Criteria

The following design criteria have been used to design the on-site storm sewer system in accordance with the current OSDG:

• Peak Flow (Q)	2.78CiA	(Rational Method)
• Rainfall Intensity (i)	City of Ottawa IDF Curve Equations	
• Inlet Time	10 minutes	(OSDG S5.1.4)
• Minimum Full Flow Velocity	0.80 m/s	(OSDG S6.1.2.1)
• Maximum Full Flow Velocity	3.0 m/s	(OSDG S6.1.2.1)
• Manning's 'n' Value	0.013	(OSDG S6.1.8.1)
• Level of Service	2-Year Event	(PIEDTB-2016-01)

In accordance with the OSDG, runoff coefficients will be increased by 25% (up to a maximum of 1.0) during the 100-year event. The runoff coefficients used for the site design are as follows:

• Pervious Areas	0.20
• Impervious Areas	0.90
• Gravel Areas	0.70

Refer to the supporting runoff coefficient calculations provided under **Appendix E** for more details.

7.4 Storm Sewer Design

Minor system flows from the building additions will be captured by roof drains and conveyed to a new storm sewer system which discharges to the existing 300mm diameter storm sewer located within the existing parking lot. As discussed under **Section 7.2** above, the existing 200mm diameter building storm service is currently undersized and therefore flows from the building addition roofs cannot be conveyed to the existing mechanical system. In addition, the existing mechanical system cannot accommodate internal routing between the two additions. To maximize the available cover depth above the proposed storm sewer system, flows from the east addition will be routed externally to the west addition mechanical system before discharging to the proposed storm sewer system within the parking lot area.

Minor system flows from the parking lot expansion will also be captured and conveyed by the existing 300mm diameter storm sewer system. The proposed storm sewers have been designed with adequate capacity to convey the unrestricted 2-year peak flow from the subject site. The storm sewers have also been designed to convey the restricted 100-year peak flow without surcharging of the system. The storm sewers have been designed to meet the allowable full flow velocities for self-cleansing in accordance with the current OSDG. Refer to the Storm Drainage Area Plan (DWG. 26018-STM1) and the storm sewer design sheets provided under **Appendix E** for more details.

8.0 STORMWATER MANAGEMENT

8.1 Existing System

Under existing conditions, stormwater runoff from the building is roof is restricted by roof drain controls. The *General Plan of Services and Utilities* prepared by Novatech for the original school design (refer to **Appendix A**) indicates that the existing catch basin manhole in the parking lot and existing storm maintenance hole along the eastern boundary were to be equipped with inlet control devices (ICDs). The combination of roof drain and inlet controls were utilized to restrict peak flows discharging from the site.

8.2 Design Criteria

In keeping with the current OSDG, the following stormwater management design criteria have been implemented for the subject site based on a retrofit situation:

- Demonstrate that there will be no increase in peak flows discharging from the site for the 2-year through 100-year design events.
- Provide on-site storage (in excess of the allowable release rates) for all storm events up to and including the 100-year event.
- Maximum surface ponding depth of 350mm.
- Minimum 300mm of freeboard between 100-year spill elevation and any building openings.
- No spill from stress test (100-year + 20%) onto permanent structures.
- Minimum 150mm of freeboard between spill elevations and ground elevation at building envelope (in proximity to flow route or ponding area).
- Provide a major overland flow route to the adjacent municipal right-of-ways.
- Provide quality control of stormwater runoff discharging from the site.

8.3 Unrestricted Peak Flows

Stormwater runoff from the existing parking lot area (denoted as PRE1) is captured by an existing catch basin manhole and conveyed to the existing storm sewer system on Bayview Drive. Stormwater runoff from the southwest portion of the site (denoted as PRE2) is conveyed towards the southern property boundary via overland sheet flow. Stormwater runoff from the eastern portion of the site (denoted as PRE3) is captured by existing ditch inlet catch basins and conveyed to the existing storm sewer system on Brightside Avenue. Stormwater runoff from the frontage of the site (denoted as PRE4) is captured by the existing municipal catch basins along Bayview Drive. Stormwater runoff from the existing building roof (denoted as PRE5) is captured by roof drains and conveyed to the existing storm sewer system on Bayview Drive. Unrestricted peak flows for the on-site drainage areas have been calculated using the Rational Method and summarized in the table below.

Table 8.1: Unrestricted Peak Flows – Existing Condition

Drainage Area	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)
PRE1	51.9	70.4	150.8
PRE2	56.3	76.4	163.7
PRE3	66.4	90.1	193.0
PRE4	34.9	47.4	101.5
PRE5	92.9	126.0	239.9
Total	**302.4**	**410.3**	**848.9**

As shown in the table above, the unrestricted peak flows from the subject site ranges from 302.4 L/s during the 2-year event up to 848.9 L/s during the 100-year design event. Refer to supporting peak flow calculations under **Appendix F**.

Stormwater runoff from the existing parking lot and parking lot expansion area (denoted as STM1) will be captured by the existing catch basin manhole and conveyed to the existing storm sewer system on Bayview Drive. The drainage area tributary to the existing catch basin manhole and storm outlet have been increased to accommodate the site modifications.

Stormwater runoff from the southwest portion of the site (denoted as STM2) will continue to be conveyed towards the southern property boundary via overland sheet flow as under existing conditions. The tributary drainage area has been reduced, and the runoff coefficient has marginally increased.

Stormwater runoff from the eastern portion of the site (denoted as STM3) will continue to be captured by the existing ditch inlet catch basins and conveyed to the existing storm sewer system on Brightside Avenue. There is a negligible change in the tributary drainage area and runoff coefficient.

Stormwater runoff from the frontage of the site (denoted as STM4) will continue to be captured by the existing municipal catch basins along Bayview Drive. There is no change in the tributary drainage area or runoff coefficient.

Stormwater runoff from the existing building roof (denoted as STM5) will continue to be captured by roof drains and conveyed to the existing storm sewer system on Bayview Drive. There is no change in the tributary drainage area or runoff coefficient.

Unrestricted peak flows for the on-site drainage areas have been calculated using the Rational Method and summarized in the table below.

Table 8.2: Unrestricted Peak Flows – Proposed Condition

Drainage Area	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)
STM1	59.3	80.4	172.3
STM2	50.2	68.1	145.9
STM3	66.1	89.7	192.1
STM4	34.9	47.4	101.5
R1	10.4	14.2	27.0
R2	5.9	8.0	15.3
R3	92.9	126.0	239.9
Total	**319.8**	**433.8**	**894.0**

As shown in the table above, the proposed site modifications will increase peak flows discharging from the subject site above existing conditions. Refer to supporting peak flow calculations under **Appendix F**.

8.4 Quantity Control

To restrict stormwater peak flows discharging from the site, quantity controls will be required. In keeping with the stormwater management design previously prepared by Novatech for the original school site, an inlet control device (ICD) will be installed within the outlet of the existing catch basin manhole in the parking lot. As discussed under **Section 7.2**, the restricted peak flow to the existing 300mm diameter storm sewer (downstream of the CBMH) must be controlled to no greater than 54 L/s such that the existing pipe does not exceed 80% full under controlled conditions. The drainage area tributary to the inline ICD includes the existing parking and parking lot expansion (STM1) plus the building addition roofs (R1 + R2). Although stormwater runoff from the building roofs will be restricted by roof drains, the downstream control (i.e. inline ICD) will govern for the stormwater management design (i.e. the design does not account for multiple flow controls in series). Using the orifice equation, a 139mm diameter custom ICD has been sized to ensure that the maximum flow rate for all events up to and including the 100-year event does not exceed 54 L/s. Refer to orifice sizing calculations provided under **Appendix F** for more details.

The building addition roofs (R1 + R2) will be restricted by roof drains. The east addition will be controlled by a total of 4 roof drains and the west addition will be controlled by a total of 2 roof drains. An additional roof drain is proposed for each addition to capture stormwater from the proposed canopies which extend out from the building foundation. Since the canopies have a negligible area, the additional roof drain control has been excluded from the stormwater management calculations. Refer to the Roof Plumbing plan prepared by GWAL under **Appendix F** for more details. The roof drains incorporate an adjustable weir opening to restrict flows conveyed to the minor storm sewer system. The peak flow rates from the building addition roofs have been calculated assuming a fully exposed weir opening at a maximum 150mm ponding depth. As discussed above, the building addition roofs will ultimately be controlled by the downstream inline ICD. A Watts roof drain specification sheet has been provided under **Appendix F** for reference.

The restricted peak flows for the 2-year through 100-year design events have been calculated and summarized in the table below.

Table 8.3: Restricted Peak Flows – Proposed Condition

Proposed Drainage Area	Existing Drainage Area	Flow Control	2-Year Peak Flow (L/s)	5-Year Peak Flow (L/s)	100-Year Peak Flow (L/s)
STM1 + R1 + R2[*1]	PRE1	Inline ICD	52.1	52.7	54.0
STM2	PRE2	Uncontrolled	50.2	68.1	145.9
STM3	PRE3	Uncontrolled	66.1	89.7	192.1
STM4	PRE4	Uncontrolled	34.9	47.4	101.5
R3	PRE5	Roof Drains[*2]	92.9	126.0	239.9
Total			**296.2**	**383.9**	**733.4**

Notes:
1. Building addition roofs ultimately controlled by downstream inline ICD.
2. The existing building roof is controlled by roof drains, however, uncontrolled flows have been reported in both existing and proposed conditions for simplicity.

As shown in the table above, the restricted peak flow tributary to the existing 300mm diameter storm sewer outlet in the parking lot (PRE1 outlet) will marginally increase during the 2-year event (51.9 L/s up to 52.1 L/s), however, will be significantly reduced in the 5-year and 100-year events respectively. The uncontrolled peak flow to the southern property boundary (PRE2 outlet) will be reduced in the 2-year through 100-year design events. The uncontrolled peak flows to the existing 300mm diameter storm sewer outlet along the eastern boundary (PRE3 outlet) will be marginally reduced in the 2-year through 100-year design events. The uncontrolled peak flows to Baywood Drive via overland sheet flow (PRE 4 outlet) and via the existing 200mm diameter storm service (PRE5 outlet) will not be impacted by the proposed site modifications. Overall, peak flows discharging from the subject site will be reduced in comparison to existing conditions.

8.5 Quantity Storage

To restrict stormwater peak flows to the rates provided in **Section 8.4** above, on-site storage will be required. On-site storage (in excess of the allowable release rates) will be required for all storm events up to and including the 100-year event. Required storage volumes have been calculated for each controlled drainage area using the Modified Rational Method and summarized in the table below.

Table 8.4: Required Storage Volumes

Drainage Area	2-Year Event		5-Year Event		100-Year Event	
	Required Storage Volume (m^3)	Available Storage Volume (m^3)	Required Storage Volume (m^3)	Available Storage Volume (m^3)	Required Storage Volume (m^3)	Available Storage Volume (m^3)
STM1 + R1 + R2	14.1	14.2	29.9	33.3	112.4	113.0
R1	1.7	28.0	4.0	28.0	17.0	28.0
R2	1.3	16.0	2.6	16.0	7.8	16.0

Notes:
1. Available surface storage volumes are calculated using AutoCAD Civil3D by Autodesk.
2. Available roof storage estimated based on conical shaped ponding area at 150mm ponding depth.

The required storage volume for cumulative drainage area STM1 + R1 + R2 will be provided as surface storage within the parking lot. The required storage volumes for drainage areas R1 and R2 will be provided as rooftop storage. Available storage volumes for the roofs have been estimated by assuming a conical shaped ponding area with a maximum ponding depth of 150mm. As shown in the table above, adequate on-site storage has been provided to detain the 100-year event to the allowable release rates established for the site. Refer to the ponding details presented on the Grading Plan (DWG. 26018-GR1) under **Appendix B** and the storage volume tables provided under **Appendix F** for more details.

8.6 Ponding Depths

In accordance with the current OSDG, there shall be no surface ponding during the 2-year event and the maximum ponding depth shall not exceed 350mm. Since the unrestricted 2-year peak flow (75.7 L/s) tributary to the existing 300mm diameter storm sewer outlet from the parking lot exceeds the maximum allowable peak flow of 54 L/s, surface ponding will occur during the 2-year design event. Given that the proposed site modifications are a retrofit situation, a deviation from current City standards is warranted. Ponding details for the 2-year through 100-year design events have been summarized in the table below.

Table 8.5: Ponding Details

Drainage Area	2-Year Event		5-Year Event		100-Year Event	
	Ponding Elev. (m)	Ponding Depth (m)	Ponding Elev. (m)	Ponding Depth (m)	Ponding Elev. (m)	Ponding Depth (m)
STM1 + R1 + R2	113.89	0.15	113.93	0.19	114.01	0.27

Notes:
1. Ponding depths are measured from the ponding elevation to the existing catch basin manhole T/G elevation.

As shown in the table above, the ponding depth during the 100-year design event remains below the maximum allowable depth of 350mm.

8.7 Stress Test (100-YR + 20%) and Freeboard

The stress test (100-year + 20%) event must be assessed to ensure that ponding limits do not encroach onto adjacent permanent structures. Flows and required storage volumes for the stress test event are shown on the storage volume tables provided under **Appendix F**. For drainage area STM1, the stress test ponding elevation coincides with the maximum static ponding elevation. For building floodproofing, a minimum freeboard of 0.30m must also be provided between the maximum static ponding elevation and any building openings adjacent to the ponding area. The table below demonstrates the provided freeboard for the controlled ponding area.

Table 8.6: Provided Freeboard

Drainage Area	Max. Static Ponding Elev.[*1] (m)	Building Opening Elevation (m)	Freeboard (m)	Ground Surface Elev.[*2] (m)	Freeboard (m)
STM1	114.04	114.50	0.46	114.35	0.31

Notes:
1. Maximum static ponding elevation before spilling occurs. Coincides with stress test ponding elevation.
2. Ground surface elevation at perimeter of closest permanent structure adjacent to ponding area.

As shown in the table above, adequate freeboard has been provided to protect the on-site building from flooding for all events up to and including the stress test event.

8.8 Major System

No changes to the existing major system design are proposed to accommodate the site modifications. In the event that the storm sewer system is blocked or over capacity, stormwater will cascade from the parking area to the Baywood Drive right-of-way. As discussed under **Section 8.7**, adequate freeboard has been provided above the major system spill elevation in accordance with the current OSDG.

8.9 Quality Control

As discussed in the overarching Fernbank SWM Report, quality control measures were implemented to enhance TSS removal of stormwater runoff from the Fernbank Subdivision lands (which includes the subject site) before ultimately discharging into the Faulkner Municipal Drain. The Fernbank SWM Report, which was conceptual at the time of writing, proposed a wetland facility with a pre-treatment sedimentation basin to meet the required quality controls. The *Concept Storm Drainage Area Plan* and relevant excerpts from the Fernbank SWM Report have been provided under **Appendix F** for reference.

Since quality control will be provided by the existing SWM facility downstream of Hickstead Way, no additional on-site measures are required.

9.0 EROSION AND SEDIMENT CONTROL

Prior to construction and until vegetation has been re-established in disturbed areas, temporary erosion and sediment control measures must be implemented to mitigate the impact of construction on receiving watercourses and existing infrastructure. The following erosion and sediment control (ESC) measures have been proposed for the subject site:

- Limiting the extent of exposed soils at any given time.
- Erosion and sediment control measures shall be maintained until vegetation has been re-established in all disturbed areas. Re-vegetate disturbed areas in accordance with approved Landscape Plan as soon as possible.
- Stockpile soil away (15 metres or greater) from watercourses, drainage features and top of steep slopes.
- Installation of silt sacks between frame and cover on all proposed and existing catch basins and open cover storm manholes until construction is completed.
- Silt fence barriers to be installed and maintained along property boundaries and where indicated on the erosion and sediment control plans.
- Installation of mud mats at all construction entrances.
- For dry weather periods (active and/or inactive construction phases) inspections of ESC measures shall be undertaken on a weekly basis.
- Inspection of ESC measures shall be undertaken immediately after major storm events (>25mm of rain in 24 hour period), significant snowmelt events (melting of snow at a rate which adversely affects the performance and function of the system), and extreme weather events.
- Visual inspections shall also be undertaken in anticipation of large storm events (or a series of rainfall and/or snowmelt days) that could potentially yield significant runoff volumes.
- Identify and rectify any deficiencies and undertake necessary maintenance measures as soon as possible.

- Inspections and maintenance of temporary ESC measures shall continue until they are no longer required.
- The Contractor shall ensure that records of inspection are taken, including at a minimum:
  - the inspector's name;
  - date of inspection;
  - visual observations;
  - any necessary remedial measures taken to maintain the interim ESC measures.
- Care shall be taken to prevent damage to ESC during construction operations.
- In some cases, barriers may be removed temporarily to accommodate construction operations. The affected barriers shall be reinstated immediately after construction operations are completed.
- ESC should be adjusted during construction to adapt to site features as the site becomes developed.
- ESC shall be cleaned of accumulated sedimentation as required and replaced as necessary.
- During the course of construction, if the Engineer believes that additional prevention methods are required to control erosion and sedimentation, the Contractor shall implement additional measures, as required, to the satisfaction of the Engineer.
- Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification (OPSS) 805.

Refer to the Erosion and Sediment Control Plan (DWG. 26018-ESC1) **Appendix B** for more details.

10.0 CONCLUSIONS

It has been demonstrated that the proposed site modifications for the Guardian Angels School site located at 4 Baywood Drive can be adequately serviced and stormwater management requirements can be achieved in keeping with current City of Ottawa guidelines and overarching reports. Specifically, the site modifications will include the following key servicing and stormwater management design features:

- Water supply for domestic use will continue to be provided by the existing 152mm water service off the existing 203mm watermain system on Baywood Drive.
- Water supply for fire protection will continue to be provided by the two existing private hydrants located on the site.
- Sanitary flows will be conveyed by the existing 150mm diameter sanitary service which discharges to the existing sanitary sewer system on Baywood Drive.
- The existing storm sewer (minor) system will be extended to provide a stormwater outlet for the proposed building addition roofs.
- Stormwater peak flows will be restricted by an inline ICD to not surcharge the existing storm sewer system and be controlled to less than existing conditions.
- Adequate on-site storage will be provided for all events up to and including the 100-year design event.
- The major system design will convey overland flow to the adjacent municipal right-of-way.
- Quality control of stormwater runoff will be provided by the existing SWM Facility downstream of Hickstead Way.
- Erosion and sediment control measures will be implemented prior to construction and maintained until vegetation has been re-established in disturbed areas.

Report Prepared By:

Brandon MacKechnie, P.Eng.
Project Engineer

Appendix A

Pre-Consultation Meeting Feedback

Topographic Plan of Survey (prepared by Farley, Smith & Denis Surveying Ltd.)

General Plan of Services and Utilities (prepared by Novatech)

File No.: PC2026-0015

February 11, 2026

Isabel Richer
Pye & Richards – Temprano & Young Architects Inc.
Via email: isabel.richer@prty.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Revision Application – 4 Baywood Drive

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on February 9, 2026.

Pre-Consultation Preliminary Assessment

Next Steps

1. Please note, if your development proposal changes significantly in scope, design, or density it is recommended that a subsequent pre-consultation application be submitted.

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. The application needs to be a new Site Plan, based on the age of the original approval. Typically we require it be a complex application due to the number of

parking spaces proposed. However, in this particular case, the size of the proposed addition makes this more appropriately a standard site plan application, so we will proceed with this as an Application for new development, Standard – non-rural. This is a site specific determination, so will not serve as precedent for future applications.

2. The site is located in the Suburban Transect, Neighbourhood Designation in our Official Plan. Schools are specifically referenced in Section 4.10 - Official Plan: Section 4. City-Wide Policies. Policies prioritize safe, sustainable ways to get to school, so we'd like to see clear bike parking areas, easily accessible and covered if possible.

3. Zoning review

    a. Please provide the dimensions on the site plan for the following:

        i. The parking spaces

        ii. Area of the parking lot both existing and proposed

        iii. Aisle and driveway width

        iv. Landscaped buffer for the proposed parking lot

        v. Portables

        vi. Waste storage and waste management design details

        vii. Width of Baywood Drive

4. Parking requirements

    a. Total required parking (42 classes x 1.5 = 63 required*) – based on 11 portables. Two portables to be removed 2 removed after

    b. Currently proposing 73 total spaces (59 existing + 14 new)

    c. 57 Bike parking spaces are required in total, based on the number of portables currently on site and the proposed addition. Please indicate the number of bike parking spaces currently on the site and how many are proposed.

    d. The site plan should reflect the bike parking location, and the plans should include design details, and dimensions for the bike parking.

5. Terms of Reference Site Plan requirements

a. Please include the lengths of property lines

b. Please ensure that the site features on abutting lots within 5m of the site are included, landscape elements and sheds (conceptually if exact location is not possible to determine)

c. Clearly label any pedestrian entrances to the site and indicate the surface material/treatment and the width of the walkway.

d. Indicate the provided setbacks, not just the required setbacks from both the existing and proposed building.

e. Indicate the setbacks from the portables closest to the interior and rear lot lines.

6. We will want to see more intensive landscaping with new trees along the proposed parking lot, along the western lot line to screen it from the adjacent properties.

7. Please confirm whether snow will be removed from the site.

8. The zoning table on the site plan indicates that there will be a new portable, for a total of 12, but the site plan shows 11 including one that will be relocated. Please confirm the actual number of portables.

9. Consider making the gate from the play area clearer, it is difficult to determine if it corresponds with the chain link fence in the legend.

10. Please indicate the transparency and materials contemplated for the addition.

Urban Design

Comments:

Submission requirement:

1. An Urban Design Brief is not required.
2. Drawings and studies are required as shown on the SPIL. Please follow the terms of reference (Planning application submission information and materials | City of Ottawa) to prepare these drawing and studies. These include:
    a. Site plan
    b. Landscape Plan
    c. Building Elevations
    d. Floor Plan (recommended)

Preliminary design comment:

1. Please ensure that the new kindergarten play area is well buffered from the parking area. Consider opportunities for tree planting to provide shade for students.
2. Look for opportunities to provide additional tree plantings and landscaping on site, particularly around the parking areas and along the public ROW.

Engineering

Comments:

1. The Stormwater Management Criteria, for the subject site, is to be based on the following:
   SWM for the addition - Depending on the scope of hardscaping around the addition, if the rooftop is flat, only rooftop SWM will be required.

    1. Water Quality Control: provide enhanced levels of protection of 80% for total suspended solids removal if required.
    2. Water Quantity Control: In the absence of area specific SWM criteria 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.
        1. 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].
        2. 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.
        3. Any storm events greater than the established 5-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.
    3. 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.
    4. Ponding Notes:
        1. 100-year spill elevation must be 300mm lower than any building opening or ramp.
        2. Demonstrate that the stress test spill elevation (100-year +20% event) does not spill onto any permanent structures.

3. The maximum permissible ponding depth for the 100-year storm event is 350mm. No spilling to adjacent sites.
4. 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

5. 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.
6. 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.
7. 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.
8. Dry ponds are only to be functional for events that are greater than the 2-year storm event, a freeboard of 0.3m between the 100-year HWL elevation and the emergency overflow elevation and to be designed with a maximum depth of 1.5m with 3:1 side slopes. An emergency overland flow route to an appropriate outlet (Rideau River) from the SWM facility needs to be designed.
9. **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.
    1. 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.

2. 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.

2. Storm Sewer
    1. A 300mm dia. PVC storm sewer is available within Baywood Dr.

3. Water:
    1. A 203mm dia. PVC Watermain is avilable within Baywood Dr.
    2. Domestic water from the existing building can be extended into the addition with sufficient proof of demand capacity.
    3. Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m3/day (0.57 L/s) or with 50+ units are required to be connected to a minimum of two water services, with each their own meter, separated by an isolation valve to avoid a vulnerable service area.
    4. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:
        1. Plan showing the proposed location of service(s).
        2. Type of development and the amount of fire flow required (L/min). Note: The OBC method can be used if the fire demand for the private property is less than 9,000 L/min. If the OBC fire demand reaches 9000 L/min, then the FUS method is to be used.
        3. Average daily demand: __L/s.
        4. Maximum daily demand: __L/s.
        5. Maximum hourly daily demand: __L/s.
        6. Note: Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons.
    5. Please review Technical Bulletin ISTB-2018-02, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant

coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal.

6. A Water Data Card will have to be submitted to size the water meter (if applicable).
7. Any proposed emergency route is to be to the satisfaction of Fire Services.

4. Sanitary Sewer
    1. A 250mm PVC Sanitary sewer is available within Baywood Dr
    2. Include correspondence from the Architect within the Appendix of the report confirming the number of residential units per building and a unit type breakdown for each of the buildings to support the calculated building populations.
    3. Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.
    4. 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.
    5. A backwater valve is required on the sanitary service for protection.
    6. An Environmental Compliance Approval (ECA) for sanitary sewer extension within the Parkway will be required.
5. General Servicing
    1. 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.
    2. Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The extent of the overlay must be shown on the grading plan or a road reinstatement plan.
    3. CCTV sewer inspection of city infrastructure is required to record pre and post construction conditions and ensure there is no damage to City Assets.
    4. 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.
    5. Connections to trunk sewers, easement sewers and backbone watermains are typically not permitted.
    6. Sewer connections to be made above the springline of the sewer main as per:
        1. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
        2. Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain.

3. Std Dwg S11 (For rigid main sewers) – lateral must be less that 50% the diameter of the sewermain.
4. No submerged outlet connections.

6. Grading and Erosion
    1. 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.
    2. Erosion and sediment control plan must be provided.
    3. 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).
    4. Street catch basins are not to be located at any proposed entrances.
    5. 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.
    6. 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.
7. Environmental
    1. 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.
    2. 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.
    3. Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)
    4. 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.
8. Geotechnical
    1. A Geotechnical Study/Investigation shall be prepared in support of this development proposal.

2. Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.
3. Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. Geotechnical Investigation and Reporting (ottawa.ca)
4. 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)

9. Exterior Site Lighting
    1. 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.

10. General
    1. 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**.
    2. 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.
    3. 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.

4. **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.

Please refer to the City of Ottawa Guide to Preparing Studies and Plans [Engineering]: Planning application submission information and materials. The guides on the City website specify all required information to be presented within the required documents.

Feel free to contact Yasser Abdulkarim, Project Manager, for follow-up questions.

Transportation

Comments:

11. Follow Transportation Impact Assessment Guidelines:

    a. The existing school is currently in operation and approximately 4 portables will be removed with the construction of the new classrooms. As such, a Transportation Impact Assessment (TIA) is not required. If it is anticipated that there will be a net increase of more than 80 students, please reach out to the Transportation Project Manager.

12. Existing Road Network Features

    a. The site is within proximity of the following arterials/collectors, as per the OP:

        i. Collector (2 UCU)

    b. An existing sidewalk is located along the Baywood frontage.

    c. Please confirm if a crossing guard is stationed at the at Baywood / Arrowwood intersection. As this is an uncontrolled crossing at an intersection along a collector road, there may be a safety concern peak times.

13. As the proposed site 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). Ensure

a clear path of travel (defined in AODA standards) is provided from the parking stalls to an access door.

c. It is strongly advised to use the City's Accessibility Design Standards, which provide a summary of AODA requirements.

14. On site/concept plan:

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

    b. Parking stalls at the end of dead-end parking aisles require adequate turning around space.

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

15. A Transportation Noise Assessment is not required.

Feel free to contact Becca Conrod, Transportation Project Manager, for follow-up questions.

Environment

Comments:

16. There are no triggers for an Environmental Impact Study.

17. Bird-Safe Design Guidelines - Please review and incorporate bird safe design elements, where feasible. 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
18. Please consider if there are features that can be added reduce the urban heat island effect (see OP 10.3). Concerned with the loss of mature trees along the western portion of the proposal near the parking lot. Look for opportunities to address the urban heat island effect by adding new large canopy trees, green rooves or vegetation walls, or incorporating building with low heat absorbing materials.

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

Forestry

Comments:

- A Tree Conservation Report (TCR) and Landscape Plan are required, including all elements within the relevant Terms of Reference.

- A tree permit is required for removal of any protected trees.

- Replacement trees must be provided in the landscape plan, prioritizing the provision of shade to play structures and paved areas, privacy to adjacent residences, and within the ROW to improve the streetscape and provide public benefit.

- The design and location of the additions and parking should minimize the impacts to healthy protected trees, particularly those providing privacy to adjacent residences.

    - Opportunities should be reviewed to avoid shifting the parking lot closer to the west property line.

- Confirm where the play structure is to be relocated to, to assess the tree impacts and planting opportunities.

Feel free to contact Nancy Young, Forester, for follow-up questions.

Parkland

Comments:

19. In accordance with Parkland Dedication By-law No. 2022-280 Section (11)(2)(f), where a school as defined by the Education Act maintains sufficient outdoor recreational space on-site at the time of development, it may be exempt from Parkland Dedication requirements.

Feel free to contact Samantha Gatchene, Parks Planner, for follow-up questions.

Other

20. 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 sample checklist is attached for your information and consideration.

    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. The type of Site Plan Control Application required will be an Application for new development, Standard – non-rural.

    a. 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,

Erin O'Connell

Encl. Study and Plan Identification List

c.c. Penelope Horn
Yasser Abdulkarim
Anton Chetrar
Becca Conrod
Matthew Hayley
Nancy Young
Samantha Gatchene
Amy MacPherson
Sahara Shrestha

TOPOGRAPHIC PLAN OF SURVEY OF

BLOCK 1
REGISTERED PLAN 4M-1054
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2026

Scale 1: 300

0 5 10 15 20 25 30 metres

Metric Note

Distances and/or coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99992.

Bearing Note

Bearings hereon are grid bearings derived from the Can-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°15'30" counter-clockwise was applied to bearings on P1, P2, P7, P8, P9 , P10 & P11.

For bearing comparisons, a rotation of 0°01'00" clockwise was applied to bearings on P3, P4, P5 & P6.

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

Utility Notes

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference: 9706p&p01, 9706p&p02, 12379p&p01 & 260165.
4. Sanitary and storm sewer grades and inverts were compiled from: Field measurement and City of Ottawa Utility Sheets.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
6. Not all overhead wires/transformers adjacent to the property have been located, the nearest overhead wire locations are shown on the plan.

Notes & Legend

⊙	Denotes	Survey Monument Planted
■	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
IB*	"	Iron Bar(0.3m Long)
CP	"	Concrete Pin
(Wit)	"	Witness
Meas	"	Measured
(P1)	"	Registered Plan 4M-1054
(P2)	"	Registered Plan 4M-1163
(P3)	"	Registered Plan 4M-1226
(P4)	"	Plan by (AOG) dated July 5, 2011 (Job No. 12114-11)
(P5)	"	Plan by (857) dated September 17, 2004 (Ref. No. 1-4M-1226)
(P6)	"	Plan by (857) dated October 19, 2004 (Ref. No. 1-4M-1226)
(P7)	"	Plan by (AOG) dated May 15, 2002 (Job No. 2784-01)
(P8)	"	Plan by (AOG) dated May 10, 2002 (Job No. 2784-01)
(P9)	"	Plan by (AOG) dated March 25, 2003 (Job No. 2784-01-F)
(P10)	"	Plan by (AOG) dated August 19, 2002 (Job No. 2784-01)
(P11)	"	Plan by (1236) dated October 5, 1999 (Ref. No. 99-1066)
(P12)	"	Plan by (1692) dated May 3, 2022 (File No. 106-22)
○ MH-ST	"	Maintenance Hole (Storm)
○ MH-S	"	Maintenance Hole (Sanitary)
ST	"	Underground Storm Sewer
S	"	Underground Sanitary Sewer
W	"	Underground Water
P	"	Underground Hydro
G	"	Underground Gas
B	"	Underground Bell
TV	"	Underground Rogers
T	"	Underground Ottawa Telecom
OHW	"	Overhead Wires
○ UP	"	Utility Pole
○ AN	"	Anchor
○ LS	"	Light Standard
CB	"	Catch Basin
◇ FH	"	Fire Hydrant
WV	"	Water Valve
GM	"	Gas Meter
TB-B	"	Bell Terminal Box
TB-C	"	Cable Terminal Box
FP	"	Flag Pole
B	"	Bollard
S	"	Sign
	"	Gate
Ø	"	Diameter
CLF	"	Chain Link Fence
PF	"	Picket Fence
BF	"	Board Fence
RF	"	Rail Fence
PVC	"	Plastic \ Vinyl Fence
SRW	"	Stone Retaining Wall
TRW	"	Timber Retaining Wall
Inv.	"	Invert
Inv(City)	"	Invert derived form City of Ottawa Utility Sheets
T/G	"	Top of Grate
T/FFdn	"	Top of Foundation
C/L	"	Centreline
+65.00	"	Location of Elevations
+65.00	"	Top of Concrete Curb/Retaining Wall Elevation
	"	Property Line
	"	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.
	"	Coniferous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

Site Area=23203.6 sq.m.

MANHOLE INVERTS			
Storm MH #	Invert	Sanitary MH #	Invert
ST-MH1	T/G=114.03 InvE(City)=111.30	SAN-MH1	T/G=114.01 InvE(City)=111.65
ST-MH2	T/G=113.56 InvE(City)=110.70 InvS(City)=111.42 InvW(City)=110.85	SAN-MH2	T/G=113.59 InvE(City)=111.15 InvS(City)=111.46 InvW(City)=110.15
ST-MH3	T/G=113.31 InvS(City)=109.62 InvW(City)=109.64	SAN-MH3	T/G=113.28 InvS(City)=110.41 InvW(City)=110.35
ST-MH4	T/G=112.91 InvN(City)=109.48 InvS(City)=110.27 InvW(City)=110.32	SAN-MH4	T/G=113.02 InvN(City)=110.75 InvS(City)=110.76
ST-MH5	T/G=113.82 InvN(City)=111.01	SAN-MH5	T/G=113.84 InvN(City)=111.45
ST-MH6	T/G=113.99 InvN=110.04 InvS=109.87		
CB1	T/G=113.55 InvN=110.07		

Surveyor's Certificate

I certify that :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 6th day of April, 2026.

April 8, 2026
Date

Daniel Robinson
Ontario Land Surveyor

This plan of survey relates to AOLS Plan Submission Form Number V-130950

TOPOGRAPHIC DATA WAS COLLECTED UNDER WINTER CONDITIONS. SNOW COVER AND ICE PRECLUDE DETERMINING LOCATION AND ELEVATION OF SOME TOPOGRAPHICAL DATA THAT IS OTHERWISE VISIBLE.

FILE No.: F-00031

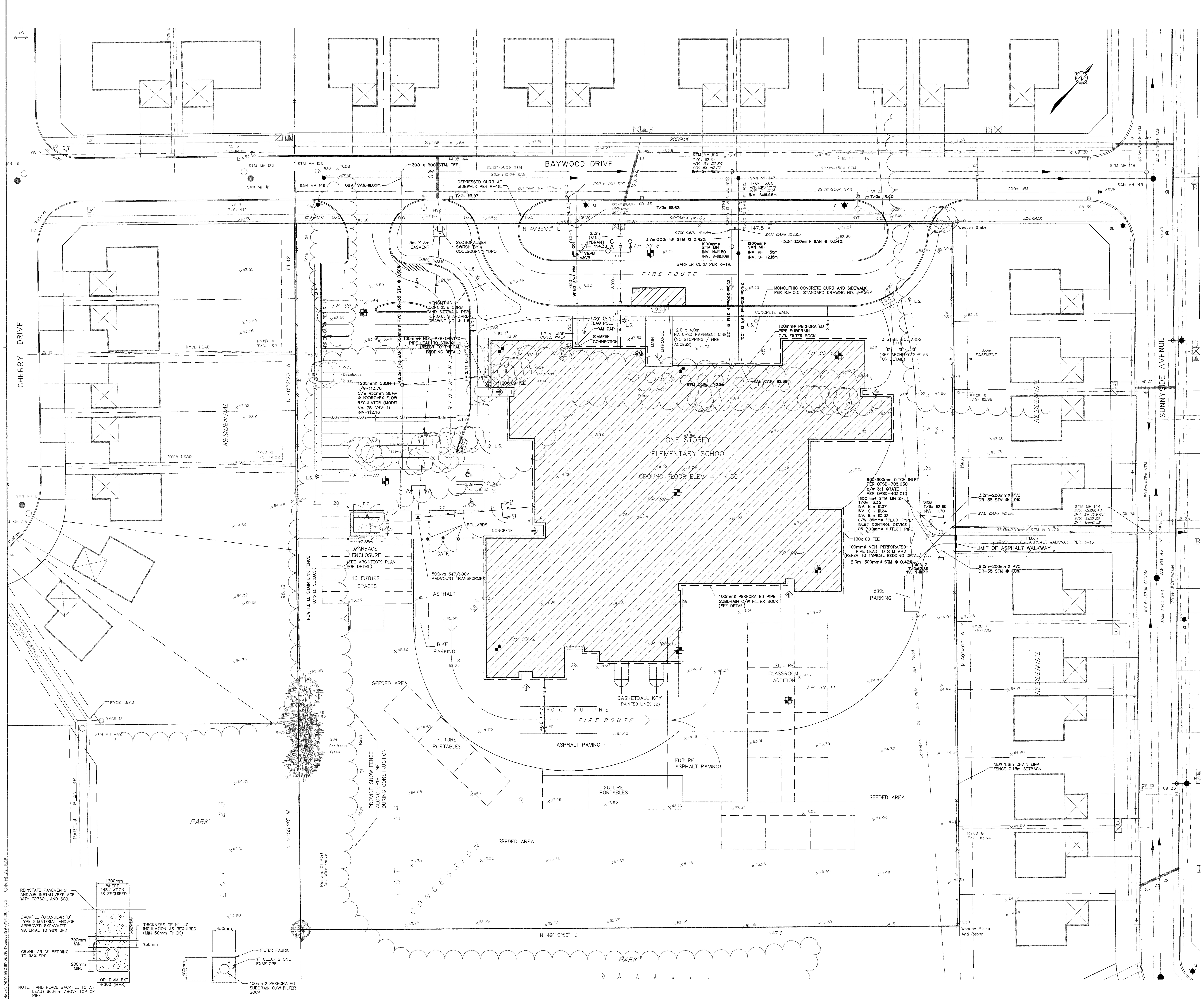
FARLEY, SMITH & DENIS SURVEYING LTD.

ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS

Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: info@fsdsurveys.ca

J:_Active Jobs\F-00031_4 Baywood dr - Guardian Angels ES\01_Topo\Final\F-00031_4 Baywood Dr_Blk1 RP4M-1054_T_F.dwg

TOPO 30X36



NOTE: HAND PLACE BACKFILL TO AT LEAST 600mm ABOVE TOP OF PIPE

TYPICAL BEDDING DETAIL
N.T.S.

SUBDRAIN DETAIL
(N.T.S.)

1. REFER TO ARCHITECT'S DRAWING FOR BUILDING DIMENSIONS AND SITE LAYOUT. DIMENSIONS AND LAYOUT INFORMATION SHALL BE CONFIRMED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
2. THE ORIGINAL TOPOGRAPHY AND GROUND ELEVATIONS, SERVICING AND SURVEY INFORMATION SHOWN ON THIS PLAN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACCURACY OF ALL INFORMATION OBTAINED FROM THIS PLAN.
3. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
4. BEFORE COMMENCING CONSTRUCTION PROVIDE PROOF OF COMPREHENSIVE ALL RISK AND OPERATIONAL LIABILITY INSURANCE INCLUDING BLASTING. INSURANCE POLICY TO NAME THE OWNER, ENGINEER AND ARCHITECT AS CO-INSURED. AMOUNT OF INSURANCE TO BE SPECIFIED BY OWNERS AGENT.
5. SUPPLY AND INSTALLATION OF ALL PIPING AND APPURTENANCES AS SHOWN. PROVIDE TEMPORARY CAPS AS SHOWN.
6. CONNECTION TO EXISTING SYSTEMS AS DETAILED, INCLUDING ALL RESTORATION WORK NECESSARY TO REINSTATE SURFACES TO THE CONDITION THAT EXISTED PRIOR TO CONSTRUCTION OR BETTER.
7. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS.
8. OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM TOWNSHIP OF GOULBOURN AND THE RMOC BEFORE COMMENCING CONSTRUCTION.
9. RESTORE ALL TRENCHES AND SURFACE OR PUBLIC ROAD ALLOWANCES TO CONDITION AT LEAST EQUAL TO ORIGINAL AND TO THE SATISFACTION OF THE TOWNSHIP OF GOULBOURN AUTHORITIES.
   - ASPHALT RESTORATION SHALL BE IN ACCORDANCE WITH OPSS-310.
   - THICKNESS OF GRANULAR MATERIAL AND ASPHALT LAYERS SHALL BE IN ACCORDANCE WITH TOWNSHIP OF GOULBOURN STANDARD DRAWING R-2 (COLLECTOR TYPE ROADWAY)
   - BOULEVARDS SHALL BE REINSTATED WITH 100mm OF TOPSOIL AND SODDED.
10. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ALL ORGANIC MATERIAL AND DEBRIS.
11. ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
12. CURBS TO BE IN ACCORDANCE WITH GOULBOURN STANDARD DRAWING R-19, UNLESS OTHERWISE NOTED.
13. ALL DESIGNATED TREES WITHIN SITE LIMITS TO BE MAINTAINED.
14. FILTER CLOTH TO BE PLACED UNDER GRATES OF ALL PROPOSED CATCHBASINS FOR TEMPORARY SEDIMENT CONTROL DURING CONSTRUCTION.
15. ANY ON-SITE STOCKPILES SHALL BE LOCATED IN AREAS TO BE DESIGNATED BY THE ENGINEER AND WELL AWAY FROM DRAINAGE SWALES, OUTLET DITCHES AND REAR YARD CATCHBASINS.
16. REFER TO GEOTECHNICAL REPORT PREPARED BY McROSTIE GENEST ST-LOUIS FOR SUBSURFACE CONDITIONS. (REPORT NO. SF-4554, DATED JUNE 18, 1999)

1. STORM SEWER CLASSES SHALL BE AS INDICATED.
2. SANITARY SEWERS SHALL BE PVC PIPE SDR-35 WITH RUBBER GASKETS.
3. CATCHBASIN LEADS SHALL BE 200 DIA. PVC SDR 35 @ 1.0% UNLESS OTHERWISE NOTED. REARYARD CATCHBASIN LEADS SHALL BE 250ø PVC SDR 35 @ 0.5% (MIN).
4. MANHOLES TO BE IN ACCORDANCE WITH GOULBOURN STANDARD DRAWING S-1, S-1A, S-2, S-3, S-3A, AND S-4.
5. SEWER TRENCHING TO BE AS PER CLASS "B" BEDDING (TOWNSHIP OF GOULBOURN STANDARD DRAWING S-12).
6. PRECAST CATCHBASINS SHALL BE 600 X 600 AS PER GOULBOURN STANDARD S-5. FRAMES AND COVERS SHALL BE IN ACCORDANCE WITH S-17 AND S-18.
7. SEWER BEDDING AS PER TOWNSHIP OF GOULBOURN STANDARD S-12.
8. ALL WORKS SHALL BE PERFORMED, AS APPLICABLE, IN ACCORDANCE WITH RMOC STANDARD SPECIFICATIONS, TOWNSHIP OF GOULBOURN SPECIFICATIONS AND IN PARTICULAR OPSS 407 AND 410.
9. ALL STORM AND SANITARY SERVICES ARE TO BE THE SIZES INDICATED AND THE MATERIAL SHALL BE PVC SDR-28.
10. MANHOLE BENCHING DETAILS TO BE AS PER TOWNSHIP OF GOULBOURN STANDARD DRAWING S-16.
11. INSULATE ALL SERVICES (STM/SAN) THAT HAVE LESS THAN 1.5m COVER WITH 50mm(MIN.)X1200mm HI-40 INSULATION. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
12. THE CONTRACTOR SHALL PROVIDE LEAKAGE TESTING IN ACCORDANCE WITH THE FOLLOWING :

"THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. SPECIFICALLY THE LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.01.16 AND 407.07.26. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS."

NOTES: WATERMAIN

1. VALVE BOXES AS PER R.M.O.C. DETAIL WSD-24.
2. ALL WATERMAINS TO BE INSTALLED AT MIN. DEPTH OF 2.4M.
3. WATERMAIN BEDDING IS TO BE AS PER R.M.O.C. DETAIL WSD-17.
4. CONCRETE THRUST BLOCK AS PER OPSD 1103.01.
5. CATHODIC PROTECTION REQUIRED FOR ALL IRON FITTINGS PER R.M.O.C. DETAILS WSD-40 AND WSD-42.
6. FIRE HYDRANT AS PER R.M.O.C. DETAIL WSD-19 .
7. PROVIDE THERMAL INSULATION FOR WATERMAIN AT OPEN STRUCTURES PER WSD-23.
8. IF WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS LESS THAN HALF THAT RECOMMENDED BY THE MANUFACTURER.
9. ALL WATERMAIN SERVICE INSTALLATIONS AT SEWER CROSSINGS TO BE AS PER RMOC DETAIL WSD-38.
10. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH RMOC STANDARDS AND SPECIFICATIONS. WATERMAIN TO BE PVC DR 18 OR DUCTILE IRON CLASS 52. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY CONTRACTOR. CONNECTION TO EXISTING WATERMAIN BY RMOC. NO WORK SHALL COMMENCE UNLESS A REGIONAL WATER WORKS INSPECTOR IS ON SITE.
11. THE DETAILS FOR WATER SERVICING AND METERING SHALL BE IN ACCORDANCE WITH THE REGIONAL REGULATORY CODE. THE OWNER SHALL PAY ALL RELATED COSTS, INCLUDING THE COST OF CONNECTING, INSPECTION, DISINFECTING AND THE SUPPLY AND INSTALLATION OF WATER METERS BY REGIONAL PERSONNEL.
12. IN ACCORDANCE WITH THIS REGIONAL REGULATORY CODE, NO DRIVEWAY SHALL BE LOCATED WITHIN 3.0m OF AN EXISTING FIRE HYDRANT. NO OBJECTS, INCLUDING VEGETATION, SHALL BE PLACED OR PLANTED WITHIN A 3.0m CORRIDOR BETWEEN A FIRE HYDRANT AND THE CURB NOR A 1.5m RADIUS FIRE HYDRANT AND THE CURB NOR A 1.5m RADIUS BESIDE OR BEHIND BESIDE OR BEHIND A FIRE HYDRANT.

WATERMAIN TABLE

STATION	PROPOSED ELEVATION	TOP OF PIPE ELEVATION	DESCRIPTION
0+000	*113.87*	*111.47 **	*200 x 150 TEE*
0+006.7	*114.02*	*111.62*	*V&VB*
0+007.0	*114.02*	*111.62*	*PROPERTY LINE*
0+008.0	*114.05*	*111.65*	*TEMPORARY 150mmø CAP*
0+010	114.07	111.67	
0.014.4 = 1+000	114.14	111.74	150 x 150 TEE FOR HYDRANT
0+015.5	114.17	111.17	V&VB
0+020	114.06	111.66	
0+025	114.11	111.71	
0+030	114.30	111.90	
0+034.1	114.35	111.95	CAP 1.0m FROM FOUNDATION
1+001	114.14	111.74	V&VB
1+007	114.20	111.80	HYDRANT T/F=114.30m

BY SUBDIVISION DEVELOPER (stations 0+000 to 0+008.0)

SITE WORKS CONTRACTOR TO EXTEND WATER SERVICE FROM V&VB (STA. 0+006.7) TO BUILDING FOUNDATION. (stations 0+008.0 to 1+007)

* TO BE CONFIRMED IN THE FIELD

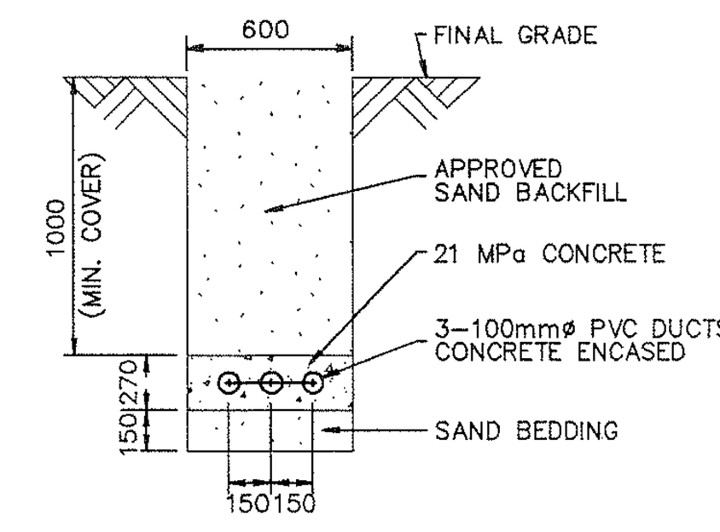
FOR SIZING WATER METER, TOTAL FIXTURE COUNT IS 237 F.U.

LEGEND

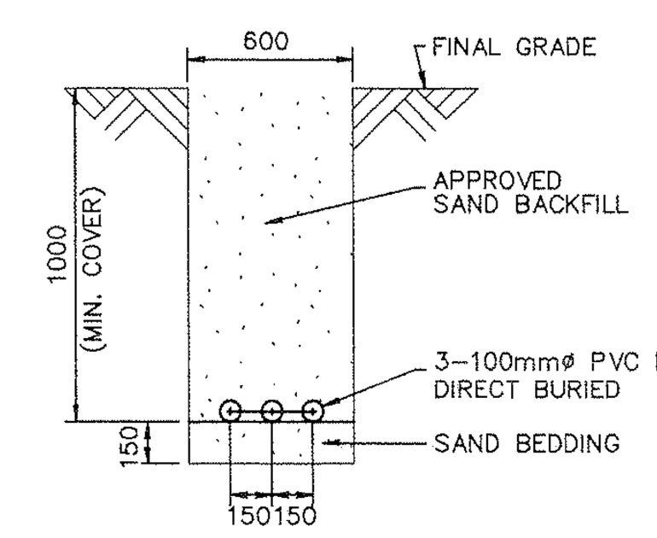
200mmø	PROPOSED WATERMAIN AND DIAMETER
	PROPOSED VALVE LOCATION
V&VB	VALVE & VALVE BOX
V&VC	VALVE & VALVE CHAMBER
HYD	PROPOSED HYDRANT C/W VALVE & LEAD
T/F=98.45	PROPOSED TOP OF BOTTOM FLANGE
BEND	PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE
MH 101	PROPOSED SANITARY MH & SEWER
MH 100	PROPOSED STORM MH & SEWER
CB 2	PROPOSED ROAD CATCHBASIN
RYCB 2	PROPOSED REARYARD CATCHBASIN
DICB	PROPOSED DITCH INLET CATCHBASIN
	DIRECTION OF FLOW
MH 101	*EXISTING SANITARY MH & SEWER*
MH 102	*EXISTING STORM MH & SEWER*
200mmø WM	*EXISTING WATERMAIN*
(N.I.C.)	NOT IN CONTRACT
P	PRIMARY HYDRO CABLE
S	SECONDARY HYDRO CABLE
	LIGHT STANDARD CABLE
B	TELEPHONE SERVICE
C	CABLEVISION SERVICE
G	PROPOSED GAS SERVICE BY OTHERS
	PROPOSED GAS METER
L.S.	PROPOSED LIGHT STANDARD
	PROPOSED 500kva PADMOUNT TRANSFORMER
	PROPOSED SECTIONALIZER SWITCH

UTILITY NOTES:

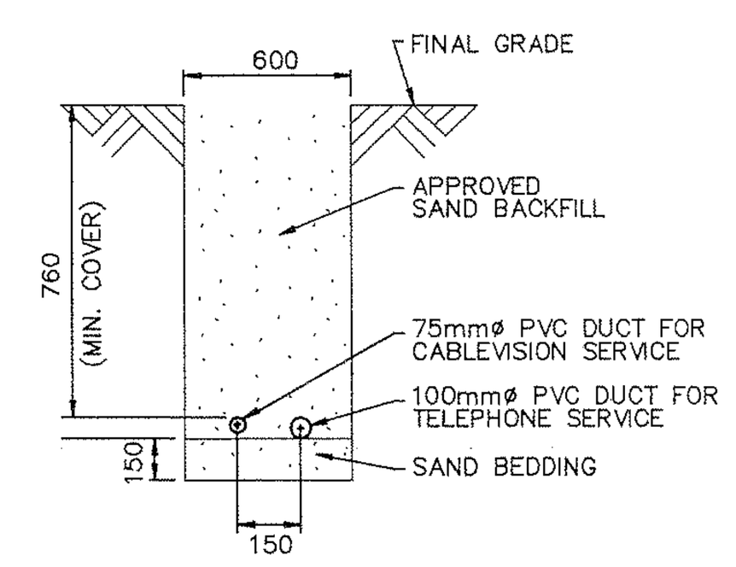
1. CONTRACTOR TO CONTACT RESPECTIVE UTILITY COMPANIES TO DETERMINE EXACT LOCATION OF EXISTING UTILITIES BEFORE COMMENCING WORK. CONTRACTOR TO ASSUME ALL LIABILITY FOR DAMAGE TO EX. UTILITIES.
2. CONTRACTOR SHALL EXCAVATE, BACKFILL, AND RESTORE ALL SURFACES TO EXISTING CONDITIONS FOR HYDRO PRIMARY, BELL, AND CABLEVISION CABLES.
3. MINIMUM 1.5m (3.0m PREFERRED) CLEARANCE TO BE PROVIDED FROM WATER SERVICES TO ALL PEDESTALS, TRANSFORMER PADS, ROAD DUCT CROSSINGS AND STREET LIGHTS.
4. MINIMUM 2.0m (3.0m PREFERRED) CLEARANCE TO BE PROVIDED FROM HYDRANT TO ALL ABOVE GROUND STRUCTURES INCLUDING STREETLIGHTS, BELL PEDESTALS, CABLE PEDESTALS, TRANSFORMERS, SECTIONALIZERS, ETC.



SECTION A-A
(N.T.S.)
(HYDRO PRIMARY)



SECTION B-B
(N.T.S.)
(HYDRO SECONDARY)



SECTION C-C
(N.T.S.)
(COMMUNICATION CONDUITS)

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

No.	REVISION	DATE	BY
7.	MINOR REVISIONS – ISSUED FOR FINAL APPROVAL	SEPT 25/99	GSH
6.	REVISED FIRE ROUTE	SEPT 9/99	GSH
5.	ENTRANCE AND GRADING REVISIONS	AUG 24/99	GSH
4.	REVISED PER R.M.O.C. COMMENTS	JULY 14/99	GSH
3.	UTILITY INFORMATION ADDED	JULY 12/99	GSH
2.	MINOR REVISIONS – ISSUED FOR TENDER	JULY 7/99	GSH
1.	ISSUED FOR COMMENTS AND COORDINATION	JUNE 30/99	GSH

LICENSED PROFESSIONAL ENGINEER – UDO BOEHME – PROVINCE OF ONTARIO – OCT 7/99

LICENSED PROFESSIONAL ENGINEER – G. S. HOLOWACH – PROVINCE OF ONTARIO – OCT. 7/99

NOVATECH
CONSULTING ENGINEERS & PLANNERS
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Nepean, Ontario, Canada
K2E 7Z7
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Facsimile (613)727-6972
Email: novainfo@novatech-eng.com

DESIGN	GSH
CHECKED	UB
DRAWN	DU
CHECKED	GSH
APPROVED	UB
SCALE	1:300

TOWNSHIP OF GOULBOURN

STITTSVILLE ELEMENTARY SCHOOL

GENERAL PLAN OF SERVICES AND UTILITIES

PROJECT No. 99081

DATE JULY 1999

DRAWING No. 99081-GP

PLANAO.DWG - 1200mmx841mm

Appendix B

Site Plan (prepared by PRTY)

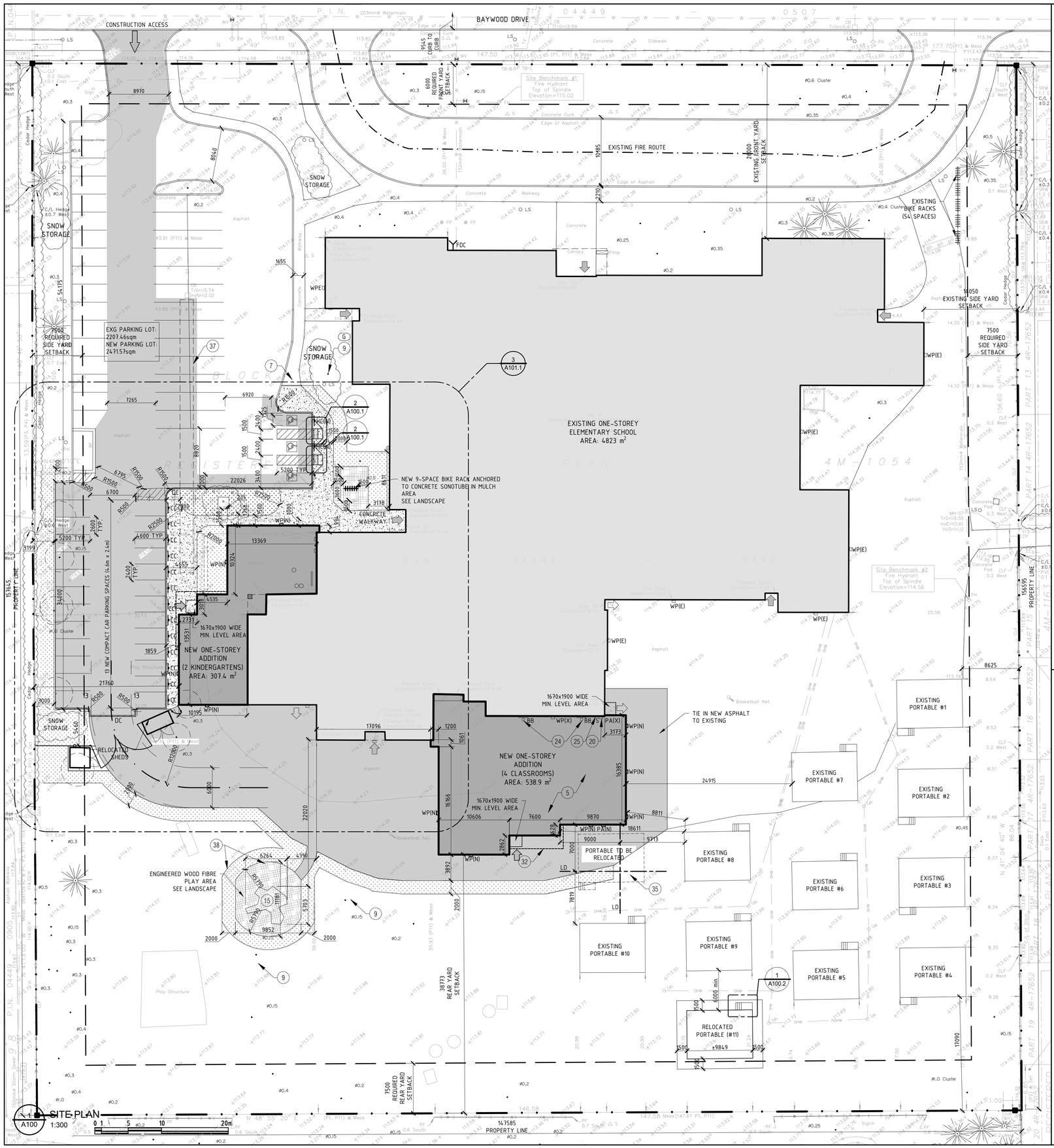
Servicing Plan (DWG. 26018-S1)

Grading Plan & Drainage Plan
(DWG. 26018-GR1)

Erosion and Sediment Control Plan
(DWG. 26018-ESC1)

Notes & Details (DWG. 26018-N1)

Existing Conditions and Removals Plan
(DWG. 26018-R1)



ZONING CONFIRMATION REPORT			
Municipality	City of Ottawa		
Legal Description			
Block 1, Registered Plan 4M-1054		City of Ottawa	
Survey Information			
Survey Information Prepared By:	Farley, Smith & Denis Surveying Ltd., dated 2026 April 6		
Common Address			
4 Baywood Drive	Ottawa,	Ontario	
Project Information			
Lot Size	23,208.0 sm		
Ground Floor Area	4,823sm Existing + 846sm Addition = 5,669 sm Total		
Zoning	I1B H(15) / INZ	Institutional 1B	
	Bylaw Provisions	Proposed/Existing	Compliance
Minimum Lot Width	30m	147.50m (exist.)	Complies
Minimum Lot Area	1,000 sm	23,208.0sm	Complies
Minimum Front Yard Setback	6m	26.1m (exist.)	Complies
Minimum Rear Yard Setback	7.5m	38.7m	Complies
Minimum Interior Side Yard Setback	7.5m	14.0m (exist.)	Complies
Minimum Corner Side Yard Setback	7.5m	N/A	N/A
Maximum Building Height	15.0m	7.1m (exist.)	Complies
Required Parking (Schedule 1A - Area C) Rate = 1.5 per classroom (includes 19 exist. classrooms + 6 exist. kindergartens + 9 exist. portables + 4 new classrooms + 2 new kindergartens = 40)	1.5 x 40 classrooms = 60 Spaces	59 existing spaces + 13 proposed = 72 provided	Complies
HC Parking Requirements	Based on 72 parking spaces provided = 1 Type A and 2 Type B required	1 existing Type A + 2 new Type B = 3 HC spaces provided	Complies
Required Bicycle Parking (1/100sm Gross Floor Area) existing school including 9 portables & new addition	1/100sm X 5,669sm = 57 spaces required	54 spaces (exist) + 9 new spaces = 66 provided	Complies
Required Loading Zones 1 per 1000-9999 sm of gross floor area	1 Loading Zone = 3.5m(W) X 7m (L) x 4.2m (H) as per zoning Section 113 (VI)	1 (exist.)	Complies
Minimum Width of Landscaped Area (Landscape Buffer)	Abutting A Street = 3.0m	existing	existing
	Abutting residential, institutional = 3.0m	existing	
	Other Cases - None	N/A	
Landscaped Provisions for Parking Lots	Landscape buffer width: 3m abbuting a street, 1.5m not abbuting a street	existing	existing
	Refuse collection areas must be minimum 9.0m from property line abutting a street	existing	
	Refuse collection areas must be minimum 3.0m from other property lines	existing	
	Refuse collection area must be screened with minimum 2.0m height screen	existing	
	Minimum landscaped area of parking lot = 15%	Parking lot area = 2471.46sqm Landscaped area around parking lot = 498.4sqm = >15%	

SITE PLAN NOTES:

1. REMOVE EXISTING PAINTED LINES
2. REMOVE EXISTING CURB
3. REMOVE PORTION OF EXISTING CONCRETE WALK & CURB
4. REMOVE EXISTING 1.5m x 1.2m HT. CHAIN LINK STEEL FENCE
5. REMOVE EXISTING ASPHALT - SEE CIVIL
6. REMOVE EXISTING TREE - SEE LANDSCAPE
7. EXISTING CONCRETE SIDEWALK TO REMAIN
8. PROTECT EXISTING PAD MOUNT TRANSFORMER & CONCRETE BOLLARDS TO REMAIN
9. PROTECT EXISTING TREE TO REMAIN - SEE LANDSCAPE
10. NEW PAINTED LINES, TYP.
11. NEW CONCRETE SIDEWALK - SEE CIVIL
12. NEW 1.2m WIDE CHAIN-LINK GATE
13. NEW PAIR OF 3.8m CHAIN LINK FENCE GATES
14. EXISTING PLAY STRUCTURE TO BE RELOCATED. SEE LANDSCAPE
15. RELOCATED PLAY STRUCTURE. SEE LANDSCAPE
16. REMOVE PORTION OF EXISTING GRASS
17. EXISTING GRASS TO REMAIN
18. NEW SOD ON NEW TOP SOIL
19. REMOVE & RELOCATE EXISTING OUTDOOR FURNITURE - SEE LANDSCAPE
20. NEW PLANTED TREE - SEE LANDSCAPE
21. REMOVE & RELOCATE EXISTING GROUND MOUNTED MUSICAL INSTRUMENTS & BASE. EXACT LOCATION TO BE CONFIRMED ON SITE.
22. REMOVE EXISTING COLUMN & CONCRETE BASE
23. REGRADE AROUND NEW DOOR TO PROVIDE FLUSH ACCESS. SEE CIVIL.
24. REMOVE & RELOCATE EXISTING WALL MOUNTED BASKETBALL HOOPS
25. REMOVE & RELOCATE EXISTING WALL MOUNTED SIGN
26. REMOVE & RELOCATE TWO (2) EXISTING SHEDS IN LOCATIONS SHOWN. PROVIDE NEW P.T. WOOD SLEEPERS/BASE AS REQUIRED.
27. REMOVE EXISTING SAND & SOIL. REFER TO CIVIL FOR NEW ASPHALT.
28. REMOVE EXISTING WOOD CURB.
29. NEW GALVANIZED 1.2M HT. CHAIN-LINK FENCE
30. SCRAPE, PREP, PRIME & REPAINT EXISTING RUSTING GARBAGE ENCLOSURE STEEL STRUCTURE.
31. REMOVE PLANTER BOX
32. OUTLINE OF NEW CANOPY ABOVE
33. REMOVE & RELOCATE EXISTING PLAY EQUIPMENT. SEE LANDSCAPE.
34. REMOVE EXISTING HEDGE - SEE LANDSCAPE
35. REMOVE EXISTING PORTABLE, SKIRT, STAIR & BASE. RELOCATE ON NEW GRANULAR PAD; 150mm GRAN A MIN. GRADE & COMPACT TO OCSB STANDARD. REINSTATE c/w SALVAGED SKIRT & PROVIDE NEW STAIR.
36. REMOVE EXISTING CURB. PROVIDE NEW CONCRETE CURB AS PER CIVIL.
37. REINSTATE TRENCH - SEE CIVIL
38. PROVIDE NEW 3.5M X 3.8M 200MM GRAN. A PAD

GENERAL SITE NOTES:

1. SEE SITE SERVICES, ELECTRICAL & MECHANICAL DRAWINGS FOR UNDERGROUND UTILITIES LINES AND FOR NEW GRADING. EXCAVATE BACKFILL & PROVIDE CONCRETE TO REQUIREMENTS OF MECHANICAL, ELECTRICAL & SITE SERVICES DRAWINGS AND SPECIFICATIONS AND TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
2. CONTRACTOR TO PROVIDE TEMPORARY CONSTRUCTION FENCING ALONG PROPERTY LINE TO PROTECT THE PUBLIC DURING CONSTRUCTION.
3. CONTRACTOR TO REPORT ANY ERRORS, OMISSIONS OR DISCREPANCIES ON SITE PLAN WITH ACTUAL SITE CONDITIONS TO THE ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION.
4. CONTRACTOR IS TO NOTIFY ALL UTILITY COMPANIES AND AUTHORITIES PRIOR TO ANY EXCAVATION AND ASCERTAIN LOCATIONS OF UNDERGROUND SERVICES.
5. CONTRACTOR IS TO COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.
6. CONTRACTOR TO MAINTAIN POSITIVE SURFACE RUN-OFF THROUGHOUT ENTIRE CONSTRUCTION PERIOD
7. NO PARKING LOT WORK CAN OCCUR WHILE THE SCHOOL YEAR IS IN SESSION.

OTTAWA CATHOLIC SCHOOL BOARD

570 WEST HUNT CLUB ROAD, NEPEAN, ON, K2G 3K4 (613)224-4455

SITE PLAN - LEGEND

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW CONSTRUCTION
- EXISTING BUILDING TO REMAIN
- NEW ADDITION
- NEW CONCRETE WALK, SEE CIVIL
- NEW SOD, SEE LANDSCAPE
- NEW ASPHALT, SEE CIVIL
- DC DEPRESSED CURB
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB
- (E) EXISTING TO REMAIN
- (X) EXISTING TO BE DEMOLISHED
- (N) N
- LD LIMITING DISTANCE
- CC NEW "COMPACT CAR PARKING ONLY" PARKING SIGN
- HC BARRIER FREE PARKING SIGN
- B EXISTING BOLLARD TO REMAIN
- + XX.XX EXISTING GRADE ELEVATION
- G EXISTING GAS METER
- FDC EXISTING FIRE DEPARTMENT CONNECTION
- CENTRELINE OF FIRE ACCESS ROUTE
- BUILDING ENTRANCE
- BUILDING EGRESS
- WP WALL PACK
- BB EXISTING BASKETBALL NET TO BE RELOCATED
- PA P.A. HORN. SEE ELECTRICAL
- S EXISTING SIGNAGE TO BE RELOCATED
- HB EXISTING HOSE BIB CONNECTION TO BE REMOVED
- EXISTING FENCE TO BE REMOVED
- EXISTING FENCE TO REMAIN
- NEW GALVANIZED 1.2m HT. CHAIN-LINK FENCE

REV.	DESCRIPTION	DATE
04	ISSUED FOR SITE PLAN CONTROL	2026 APR 27
03	ISSUED FOR 85% REVIEW	2026 APR 10
02	ISSUED FOR 50% REVIEW	2026 MAR 06
01	ISSUED FOR CLIENT REVIEW	2025 DEC 04

SEAL

ONTARIO ASSOCIATION OF ARCHITECTS — ISABEL RICHER LICENCE 7650 — 2026-04-27

Not for construction unless SEALED and SIGNED

PROJECT NORTH

PROJECT NORTH

PYE & RICHARDS - TEMPRANO & YOUNG ARCHITECTS INC.
824 Meath St. Suite 200 — 613. 724. 7700
Ottawa, ON K1Z 6E8 — info@prty.ca

PROJECT

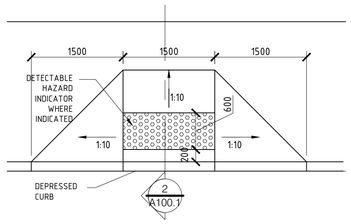
GUARDIAN ANGELS CATHOLIC SCHOOL ADDITION

4 BAYWOOD DRIVE — OTTAWA, ONTARIO

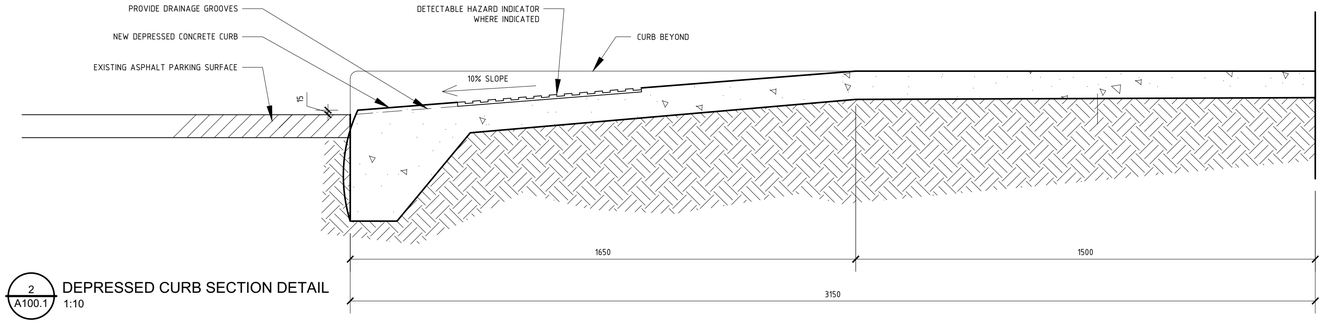
DRAWING

SITE PLAN

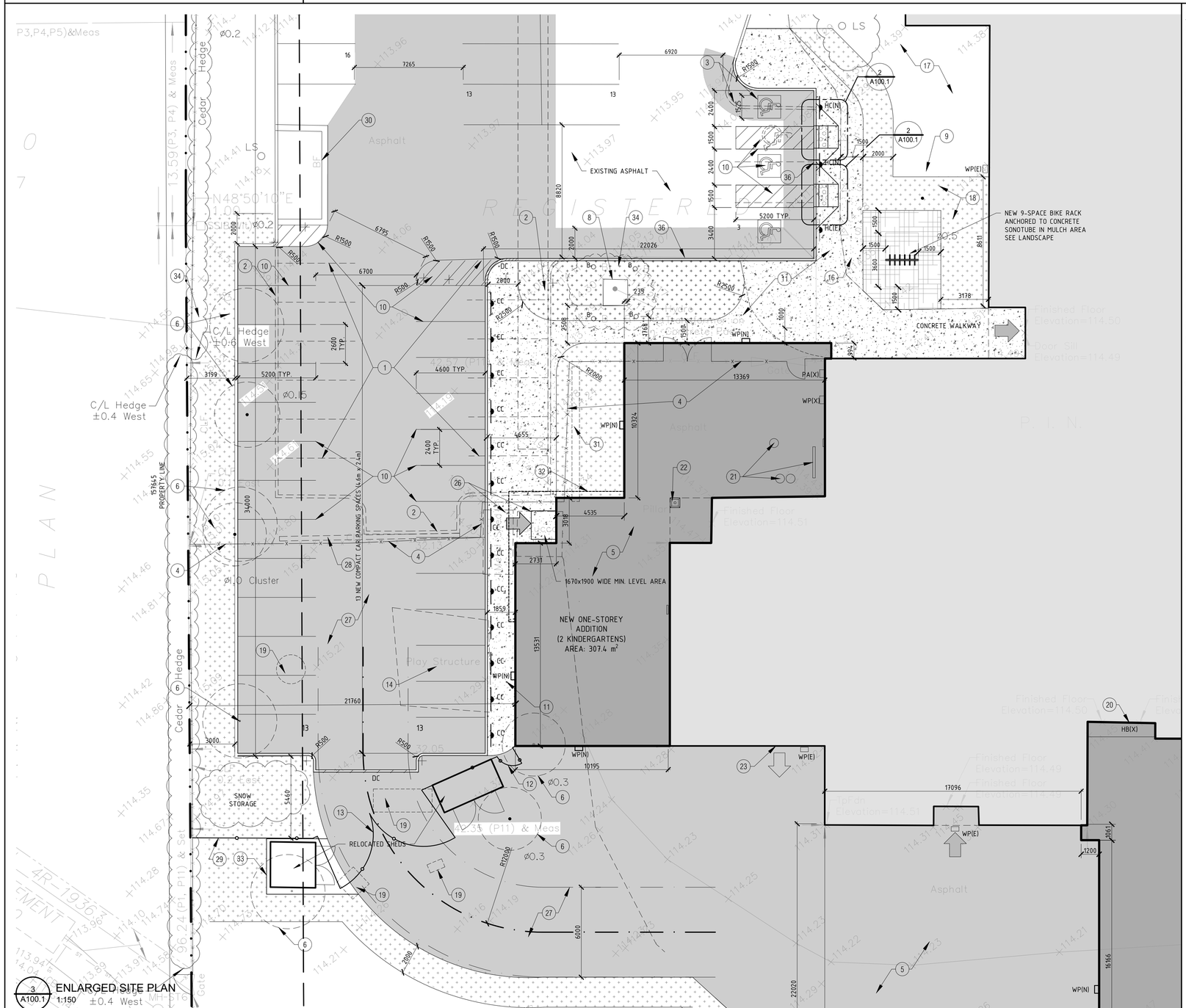
PROJECT NO.	25032	**DRAWING NO.**	A100
SCALE -	AS NOTED		
DRAWN -	DL		
CHECKED -	IR		
PLOT DATE -	27/04/2026	**PLOTTED BY:**	



1 A100.1 DEPRESSED CURB PLAN DETAIL
1:50



2 A100.1 DEPRESSED CURB SECTION DETAIL
1:10



3 A100.1 ENLARGED SITE PLAN
1:150 ±0.4 West

SITE PLAN NOTES:

1. REMOVE EXISTING PAINTED LINES
2. REMOVE EXISTING CURB
3. REMOVE PORTION OF EXISTING CONCRETE WALK & CURB
4. REMOVE EXISTING 1.5m x 1.2m HT. CHAIN LINK STEEL FENCE
5. REMOVE EXISTING ASPHALT - SEE CIVIL
6. REMOVE EXISTING TREE - SEE LANDSCAPE
7. EXISTING CONCRETE SIDEWALK TO REMAIN
8. PROTECT EXISTING PAD MOUNT TRANSFORMER & CONCRETE BOLLARDS TO REMAIN
9. PROTECT EXISTING TREE TO REMAIN - SEE LANDSCAPE
10. NEW PAINTED LINES, TYP.
11. NEW CONCRETE SIDEWALK - SEE CIVIL
12. NEW 1.2m WIDE CHAIN-LINK GATE
13. NEW PAIR OF 3.8m CHAIN LINK FENCE GATES
14. EXISTING PLAY STRUCTURE TO BE RELOCATED. SEE LANDSCAPE
15. RELOCATED PLAY STRUCTURE. SEE LANDSCAPE
16. REMOVE PORTION OF EXISTING GRASS
17. EXISTING GRASS TO REMAIN
18. NEW SOD ON NEW TOP SOIL
19. REMOVE & RELOCATE EXISTING OUTDOOR FURNITURE - SEE LANDSCAPE
20. NEW PLANTED TREE - SEE LANDSCAPE
21. REMOVE & RELOCATE EXISTING GROUND MOUNTED MUSICAL INSTRUMENTS & BASE. EXACT LOCATION TO BE CONFIRMED ON SITE.
22. REMOVE EXISTING COLUMN & CONCRETE BASE
23. REGRADE AROUND NEW DOOR TO PROVIDE FLUSH ACCESS. SEE CIVIL.
24. REMOVE & RELOCATE EXISTING WALL MOUNTED BASKETBALL HOOPS
25. REMOVE & RELOCATE EXISTING WALL MOUNTED SIGN
26. REMOVE & RELOCATE TWO (2) EXISTING SHEDS IN LOCATIONS SHOWN. PROVIDE NEW P.T. WOOD SLEEPERS/BASE AS REQUIRED.
27. REMOVE EXISTING SAND & SOIL. REFER TO CIVIL FOR NEW ASPHALT.
28. REMOVE EXISTING WOOD CURB.
29. NEW GALVANIZED 1.2M HT. CHAIN-LINK FENCE
30. SCRAPE, PREP, PRIME & REPAINT EXISTING RUSTING GARBAGE ENCLOSURE STEEL STRUCTURE.
31. REMOVE PLANTER BOX
32. OUTLINE OF NEW CANOPY ABOVE
33. PROVIDE NEW min. 3.5M X 3.8M 200MM GRAN. A PAD
34. REMOVE EXISTING HEDGE - SEE LANDSCAPE
35. REMOVE EXISTING PORTABLE, SKIRT, STAIR & BASE. RELOCATE ON NEW GRANULAR PAD; 150mm GRAN A MINUS, GRADE & COMPACT TO OCSB STANDARD. REINSTATE c/w SALVAGED SKIRT & PROVIDE NEW STAIR.
36. REMOVE EXISTING CURB. PROVIDE NEW CONCRETE CURB AS PER CIVIL.
37. REINSTATE TRENCH - SEE CIVIL
38. EXISTING SITE FURNITURE TO REMAIN

GENERAL SITE NOTES:

1. SEE SITE SERVICES, ELECTRICAL & MECHANICAL DRAWINGS FOR UNDERGROUND UTILITIES LINES AND FOR NEW GRADING. EXCAVATE BACKFILL & PROVIDE CONCRETE TO REQUIREMENTS OF MECHANICAL, ELECTRICAL & SITE SERVICES DRAWINGS AND SPECIFICATIONS AND TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
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OTTAWA CATHOLIC SCHOOL BOARD
570 WEST HUNT CLUB ROAD, NEPEAN, ON, K2G 3K4 (613)224-4455

SITE PLAN - LEGEND

- EXISTING TO REMAIN
- EXISTING TO BE DEMOLISHED
- NEW CONSTRUCTION
- EXISTING BUILDING TO REMAIN
- NEW ADDITION
- NEW CONCRETE WALK, SEE CIVIL
- NEW SOD, SEE LANDSCAPE
- NEW ASPHALT, SEE CIVIL
- DC DEPRESSED CURB
- EXISTING CONCRETE CURB
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- (E) EXISTING TO REMAIN
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- LD LIMITING DISTANCE
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- B EXISTING BOLLARD TO REMAIN
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- S EXISTING SIGNAGE TO BE RELOCATED
- HB EXISTING HOSE BIB CONNECTION TO BE REMOVED
- EXISTING FENCE TO BE REMOVED
- EXISTING FENCE TO REMAIN
- NEW GALVANIZED 1.2m HT. CHAIN-LINK FENCE

REV.	DESCRIPTION	DATE
04	ISSUED FOR SITE PLAN CONTROL	2026 APR 27

SEAL

ONTARIO ASSOCIATION OF ARCHITECTS
ISABEL FICHER LICENCE 7650

Not for construction unless SEALED and SIGNED

PROJECT NORTH

PYE & RICHARDS - TEMPRANO & YOUNG ARCHITECTS INC.
824 Meath St. Suite 200 613. 724. 7700
Ottawa, ON K1Z 6E8 info@prty.ca

PROJECT

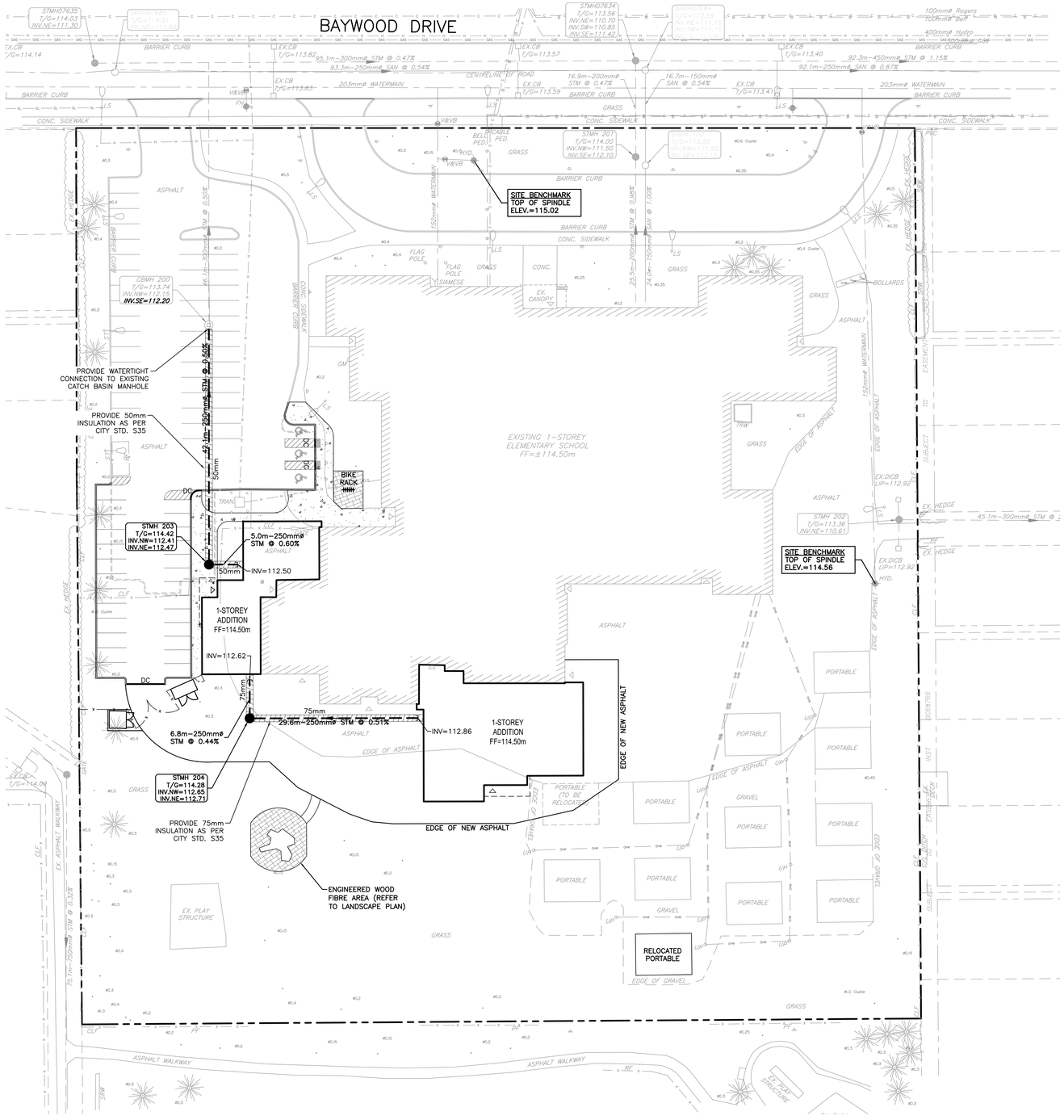
GUARDIAN ANGELS CATHOLIC SCHOOL ADDITION

4 BAYWOOD DRIVE OTTAWA, ONTARIO

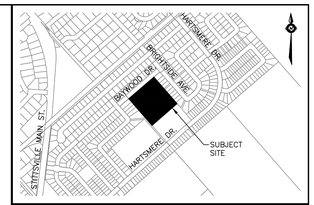
DRAWING

ENLARGED SITE PLAN & SITE DETAILS

PROJECT NO.	25032	DRAWING NO.	A100.1
SCALE -	AS NOTED		
DRAWN -	DL		
CHECKED -	IR		
PLOT DATE -	27/04/2026	PLOTTED BY:	



INLET CONTROL DEVICE (ICD) TABLE				
STRUCTURE	HEAD (m)	PEAK FLOW (L/s)	ORIFICE DIAMETER (mm)	ORIFICE TYPE
CBMH 200	1.71	54.0	139	CIRCULAR, SLIDE



KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- ×114.00 EXISTING ELEVATION
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING WATERMAIN
- V&VB EXISTING VALVE & VALVE BOX
- EXISTING SIAMESE CONNECTION
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- EXISTING TREE
- UP EXISTING UTILITY POLE AND GUY
- EXISTING LIGHT STANDARD
- OHW EXISTING OVERHEAD UTILITIES
- H EXISTING UNDERGROUND HYDRO
- C EXISTING UNDERGROUND CABLE
- B EXISTING UNDERGROUND BELL
- GAS EXISTING UNDERGROUND GAS
- SL EXISTING UNDERGROUND STREETLIGHTS
- STORM SEWER & MANHOLE
- BUILDING ENTRANCE
- 50mm INSULATION & THICKNESS (CITY STD. S35)

NOT FOR CONSTRUCTION

NOTES

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

PROPERTY BOUNDARIES HAVE BEEN DERIVED FROM THE TOPOGRAPHIC PLAN OF SURVEY BLOCK 1 REGISTERED PLAN 4M–1054, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2026. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO GEODETIC DATUM COVD–1928:1978.

NO.	REVISION DESCRIPTION	DATE	BY
2	ISSUED FOR REVIEW	27/04/26	BLM
1	ISSUED FOR 85% REVIEW	22/04/26	BLM

SCALE

0 4m 8m 16m

HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
27 Apr. '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

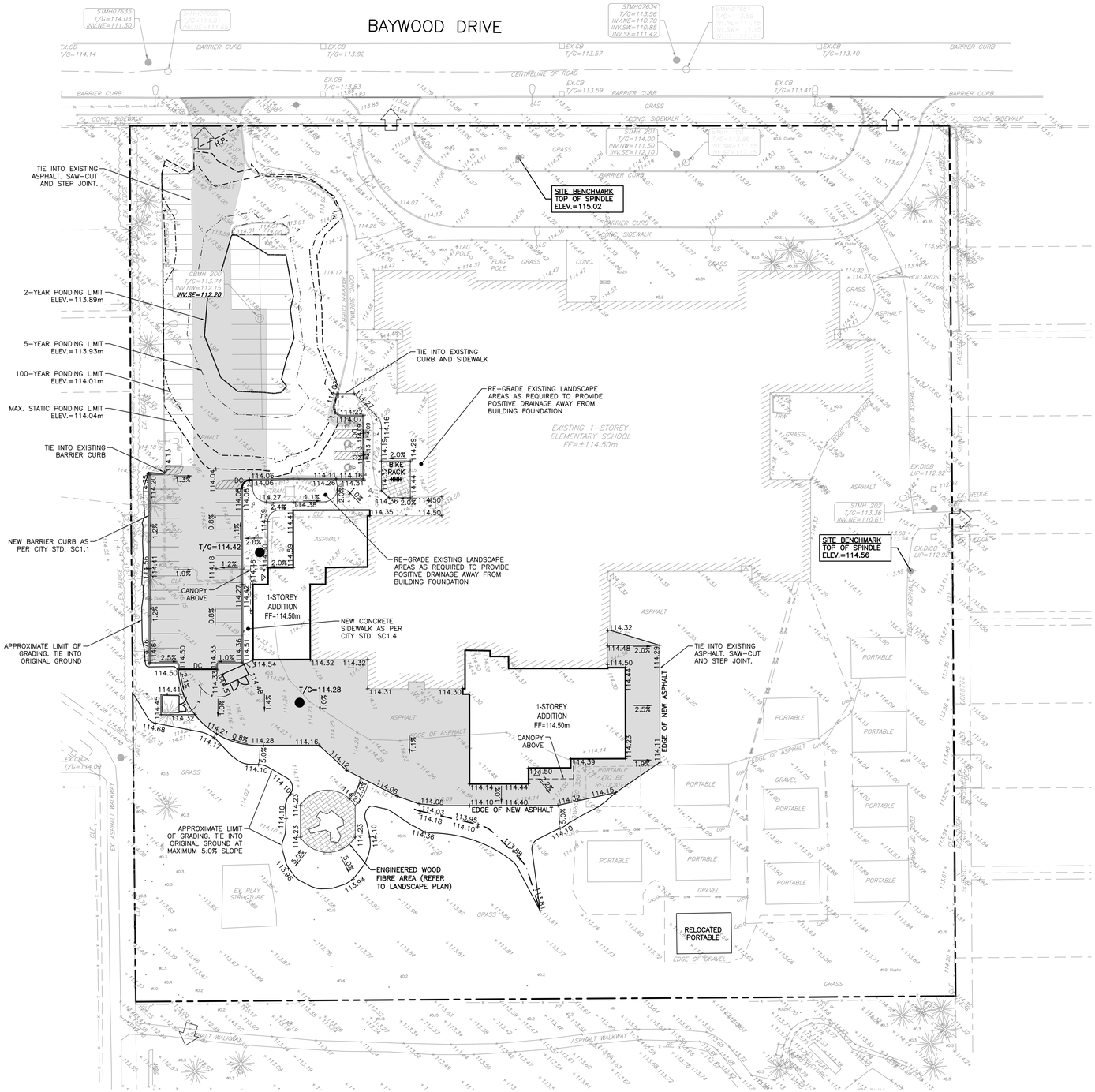
DESIGN	BLM
CHECKED	SG
DRAWN	BLM
CHECKED	SG
APPROVED	BLM

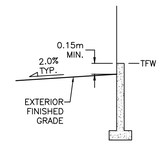
OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

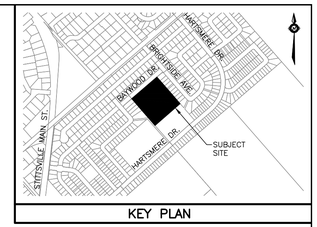
SERVICING PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-S1





TYPICAL FOUNDATION DETAIL
N.T.S.



KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- ×114.00 EXISTING ELEVATION
- ×114.00 PROPOSED GRADE
- 2.0% PROPOSED DRAINAGE SLOPE & DIRECTION
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING MANHOLE
- EXISTING TREE
- EXISTING UTILITY POLE AND GUY
- EXISTING LIGHT STANDARD
- STORM MANHOLE
- BUILDING ENTRANCE
- SWALE
- H.P. HIGH POINT
- 2-YEAR PONDING LIMIT
- 5-YEAR PONDING LIMIT
- 100-YEAR PONDING LIMIT
- MAX. STATIC PONDING LIMIT
- DC DEPRESSED CURB WITH TWSI
- MAJOR OVERLAND FLOW ROUTE
- NEW ASPHALT

NOTES:
1. PROPOSED PAVEMENT STRUCTURE TO BE SPECIFIED BY GEOTECHNICAL CONSULTANT PRIOR TO CONSTRUCTION.
2. GEOTECHNICAL CONSULTANT TO INSPECT SUBGRADE PRIOR TO PLACEMENT OF GRANULAR SUB-BASE.

NOT FOR CONSTRUCTION

NOTES

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

PROPERTY BOUNDARIES HAVE BEEN DERIVED FROM THE TOPOGRAPHIC PLAN OF SURVEY BLOCK 1 REGISTERED PLAN 4M-1054, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2026. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO GEODETIC DATUM CGVD-1928:1978.

NO.	REVISION DESCRIPTION	DATE	BY
2	ISSUED FOR REVIEW	27/04/26	BLM
1	ISSUED FOR 85% REVIEW	22/04/26	BLM

SCALE
0 4m 8m 16m
HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
27 Apr. '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

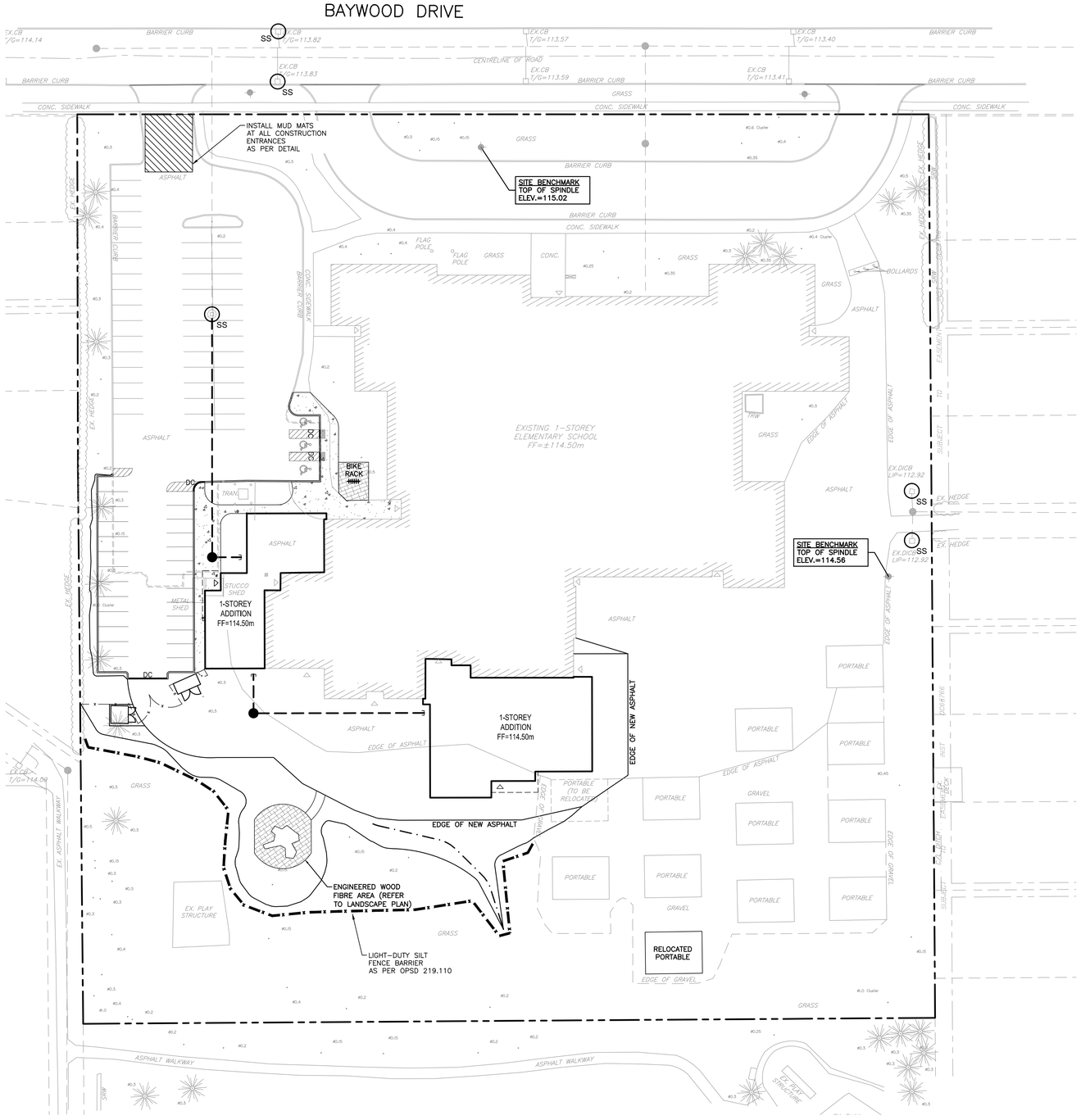
DESIGN	BLM
CHECKED	SG
DRAWN	BLM
CHECKED	SG
APPROVED	BLM

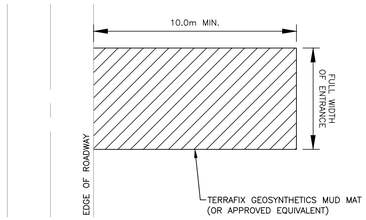
OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

GRADING & DRAINAGE PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-GR1

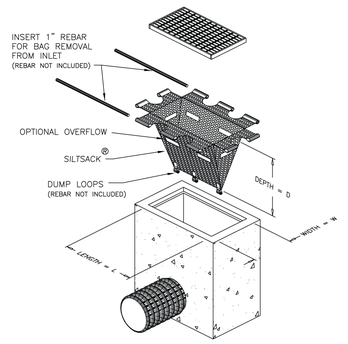


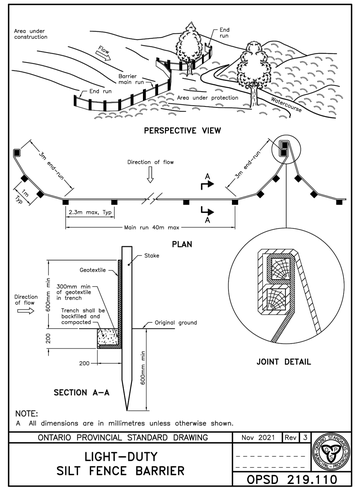


NOTES:
1. SEDIMENT SHALL BE CLEANED FROM ROADWAYS AS REQUIRED.
2. INSTALL AND MAINTAIN MUD MATS AT ALL CONSTRUCTION ENTRANCES.

MUD MAT DETAIL
N.T.S.

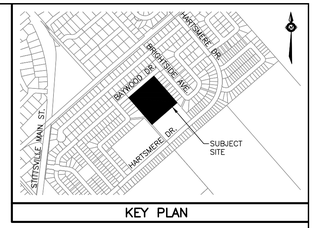
Typical Siltsack® Construction - Type B





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

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev. 3
LIGHT-DUTY SILT FENCE BARRIER		OPSD 219.110



LEGEND

- PROPERTY BOUNDARY
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- STORM SEWER & MANHOLE
- BUILDING ENTRANCE
- SWALE
- LIGHT-DUTY SILT FENCE BARRIER
- SILT SACK (OR APPROVED EQUIVALENT)

NOTES:

1. THE CONTRACTOR SHALL IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE ULTIMATE 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.
2. LIMIT THE EXTENT OF EXPOSED SOILS AT ANY GIVEN TIME.
3. RETAIN EXISTING VEGETATION TO THE GREATEST EXTENT POSSIBLE FOR AS LONG AS POSSIBLE.
4. MINIMIZE SLOPE LENGTH AND GRADIENT OF DISTURBED AREAS.
5. MAINTAIN OVERLAND SHEET FLOW AND AVOID CONCENTRATED FLOWS.
6. REDUCE RUNOFF VELOCITIES AND DETAIN RUNOFF TO PROMOTE SETTLING.
7. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MAINTAINED UNTIL VEGETATION HAS BEEN RE-ESTABLISHED IN ALL DISTURBED AREAS. RE-VEGETATE DISTURBED AREAS AS SOON AS POSSIBLE.
8. CONTRACTOR SHALL MINIMIZE THE AMOUNT OF STOCKPILED MATERIAL. ALL STOCKPILE SOIL SHALL BE AWAY (15 METRES OR GREATER) FROM WATERCOURSES, LID PRACTICES, DRAINAGE FEATURES AND TOP OF STEEP SLOPES. THE DOWNSTREAM SIDE OF ALL STOCKPILES SHALL BE PROTECTED WITH SILT FENCE. FIBRE ROLLS OR EQUIVALENT MEASURES PRIOR TO A RAINFALL EVENT.
9. SILT SACKS ARE TO BE PLACED UNDERNEATH THE FRAME AND COVER OF ALL PROPOSED AND EXISTING CATCH BASIN AND OPEN COVER STORM MANHOLES UNTIL CONSTRUCTION IS COMPLETED.
10. LIGHT-DUTY SILT FENCE BARRIERS SHALL BE INSTALLED AS PER OPSD 219.110 WHERE INDICATED AND MAINTAINED AS REQUIRED.
11. DURING ACTIVE CONSTRUCTION PERIODS, VISUAL INSPECTIONS SHALL BE UNDERTAKEN ON A WEEKLY BASIS AND AFTER MAJOR STORM EVENTS (>25mm RAIN IN 24 HOUR PERIOD) ON SEDIMENT CONTROL BARRIERS AND ANY DAMAGE REPAIRED IMMEDIATELY.
12. EROSION AND SEDIMENT CONTROL BARRIERS SHALL ALSO BE ASSESSED (AND REPAIRED AS REQUIRED) FOLLOWING SIGNIFICANT SNOWMELT EVENTS.
13. VISUAL INSPECTIONS SHALL ALSO BE UNDERTAKEN IN ANTICIPATION OF LARGE STORM EVENTS (OR A SERIES OF RAINFALL AND/OR SNOWMELT DAYS) THAT COULD POTENTIALLY YIELD SIGNIFICANT RUNOFF VOLUMES.
14. CARE SHALL BE TAKEN TO PREVENT DAMAGE TO EROSION AND SEDIMENT CONTROLS DURING CONSTRUCTION OPERATIONS.
15. IN SOME CASES, BARRIERS MAY BE REMOVED TEMPORARILY TO ACCOMMODATE THE CONSTRUCTION OPERATIONS. THE AFFECTED BARRIERS SHALL BE REINSTATED IMMEDIATELY AFTER CONSTRUCTION OPERATIONS ARE COMPLETED.
16. SEDIMENT CONTROL DEVICES SHALL BE CLEANED OF ACCUMULATED SEDIMENTATION AS REQUIRED AND REPLACED AS NECESSARY.
17. DURING THE COURSE OF CONSTRUCTION, IF THE ENGINEER BELIEVES THAT ADDITIONAL PREVENTION METHODS ARE REQUIRED TO CONTROL EROSION AND SEDIMENTATION, THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES, AS REQUIRED, TO THE SATISFACTION OF THE ENGINEER.
18. CONSTRUCTION AND MAINTENANCE REQUIREMENTS FOR EROSION AND SEDIMENT CONTROLS ARE TO COMPLY WITH OPSS 805.
19. MUD MATS SHALL BE INSTALLED AT ALL CONSTRUCTION ENTRANCES.
20. INSPECTION AND MAINTENANCE OF TEMPORARY ESC MEASURES SHALL CONTINUE UNTIL THEY ARE NO LONGER REQUIRED.
21. THE CONTRACTOR SHALL ENSURE THAT RECORDS OF INSPECTION ARE TAKEN, INCLUDING INSPECTOR'S NAME, DATE OF INSPECTION, VISUAL OBSERVATIONS, AND ANY NECESSARY REMEDIAL MEASURES TAKEN TO MAINTAIN INTERIM ESC MEASURES.

NOT FOR CONSTRUCTION

NOTES

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NO.	REVISION DESCRIPTION	DATE	BY
2	ISSUED FOR REVIEW	27/04/26	BLM
1	ISSUED FOR 85% REVIEW	22/04/26	BLM

SCALE
0 4m 8m 16m
HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B. L. MACKECHNIE
100199554
27 Apr. '26
PROVINCE OF ONTARIO

Robinson Land Development
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DESIGN	BLM
CHECKED	SG
DRAWN	BLM
CHECKED	SG
APPROVED	BLM

OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

EROSION AND SEDIMENT CONTROL PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-ESC1

GENERAL NOTES:

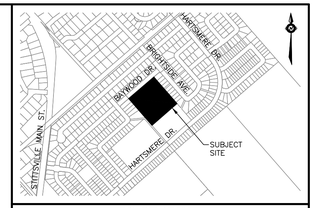
1. ALL WORKS AND MATERIALS SHALL CONFORM TO THE LATEST REVISIONS OF THE STANDARDS AND SPECIFICATIONS OF THE CITY OF OTTAWA AND ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), AS AMENDED BY THE CITY OF OTTAWA.
2. THE CONTRACTOR SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS AND ELEVATIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.
4. DESIGN ELEVATIONS GIVEN ARE TO BE ADHERED TO WITH NO CHANGES WITHOUT PRIOR WRITTEN APPROVAL BY ROBINSON LAND DEVELOPMENT.
5. ANY AREAS BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
6. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
7. ALL CONSTRUCTION SIGNAGE MUST CONFORM TO THE M.T.O. MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST AMENDMENT).
8. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.
9. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL BEDDING OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH, AS SPECIFIED BY OPSD, IS EXCEEDED.
10. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING.
11. THE CONTRACTOR IS RESPONSIBLE FOR AND SHALL PROVIDE FOR DEWATERING, SUPPORT AND PROTECTION OF EXCAVATIONS AND TRENCHING AS WELL AS RELEASE OF ANY PUMPED GROUNDWATER IN A CONTROLLED AND APPROVED MANNER.
12. DO NOT CONSTRUCT USING DRAWINGS THAT ARE NOT MARKED "ISSUED FOR CONSTRUCTION".
13. CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT FOR CONSTRUCTION PURPOSES.
14. MOVEMENT OF MATERIAL ON AND/OR OFF SITE SHALL BE IN ACCORDANCE WITH ONTARIO EXCESS SOIL REGULATION O.REG. 406/19.
15. THE CONTRACTOR SHALL COMPLETE A CCTV INSPECTION OF ALL NEW SEWERS. A COPY OF THE VIDEO INSPECTION SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW.

STORM SEWERS:

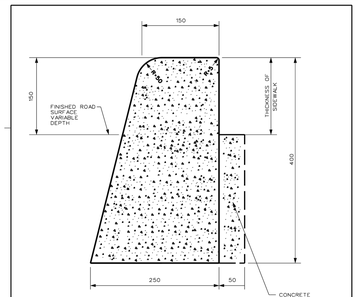
1. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2 (LATEST AMENDMENT). ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1 (LATEST AMENDMENT). PIPE SHALL BE JOINTED WITH STD. RUBBER GASKETS AS PER CSA A257.3 (LATEST AMENDMENT).
2. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
3. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
4. STORM MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S24.1.
5. CATCH BASIN MANHOLE FRAME AND COVERS SHALL BE AS PER CITY OF OTTAWA STD. S28.1.
6. STORM SEWER MANHOLES SERVING SEWERS LESS THAN 900mm SHALL BE CONSTRUCTED WITH A 300mm SUMP. FOR STORM SEWERS 900mm AND OVER USE BENCHING IN ACCORDANCE WITH OPSD 701.021.
7. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADDITIONAL BEDDING, A DIFFERENT TYPE OF BEDDING OR A HIGHER PIPE STRENGTH AT THEIR OWN EXPENSE AND SHALL ALSO BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
8. ALL STORM MANHOLES SHALL BE 1200mm DIAMETER AS PER OPSD 701.010 UNLESS OTHERWISE NOTED.
9. ALL CATCH BASINS SHALL BE 600mm X 600mm AS PER OPSD 705.010 UNLESS OTHERWISE NOTED.

ROADWORK SPECIFICATIONS:

1. CONCRETE BARRIER CURB SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC1.1.
2. ALL BARRIER CURB TO BE 150mm ABOVE FINISHED ASPHALT GRADE UNLESS OTHERWISE NOTED.
3. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD. SC1.4.
4. TWSIs SHALL BE INSTALLED IN ACCORDANCE WITH CITY OF OTTAWA STD. SC7.3.
5. ANY PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD, R10.
6. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA.
7. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY OR AS OTHERWISE DIRECTED BY THE GEOTECHNICAL CONSULTANT.
8. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300mm LIFTS.
9. ALL EDGES OF DISTURBED PAVEMENT SHALL BE SAW-CUT TO FORM A NEAT AND STRAIGHT LINE PRIOR TO PLACING NEW ASPHALT.
10. PAVEMENT STRUCTURE DETAILS TO BE PROVIDED BY THE GEOTECHNICAL CONSULTANT.
11. GEOTECHNICAL CONSULTANT SHALL REVIEW SUBGRADE PRIOR TO PLACEMENT OF GRANULAR SUB-BASE.



KEY PLAN



CONCRETE BARRIER CURB

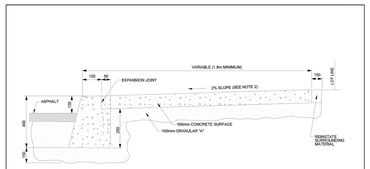
NOTES:

1. THE FULL CURB DEPTH SHALL BE CARRIED THROUGH THE DEPRESSED ACCESS CROSSING.
2. A CONCRETE SUPPORT IS REQUIRED WHEN BUILT ADJACENT TO THE SIDEWALK.
3. FOR AN EXTRUSION CURBING MACHINE IS USED, THE EXPANSION BITUMINOUS MATERIAL AND THE *15 DOWEL BARS MAY BE OMITTED AT THE DISCRETION OF THE EXTRUSION
4. EXPANSION AND CONTRACTION JOINTS AS PER SC3
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm

(DIMENSIONS mm)

NTS

Ottawa	CONCRETE BARRIER CURB FOR GRANULAR BASE PAVEMENT (MODIFIED OPSD 600.110)	DATE: JAN 2003 REV: JANUARY 2026 DWG. No.: SC1.1

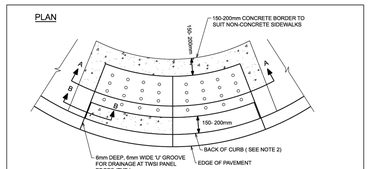


TYPICAL SIDEWALK SECTION

NOTES:

1. ALL MEASUREMENTS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED
2. THE MAXIMUM SLOPE IS NOT TO EXCEED 2%
3. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%
4. EXPANSION AND DUMMY JOINTS AS PER SC3
5. DEPRESSED CURB HEIGHT - FOR PEDESTRIAN CURB RAMPS 0 TO 6 mm AND FOR PRIVATE ENTRANCES 0 TO 13mm

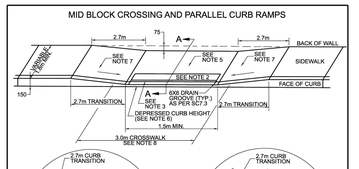
Ottawa	CONCRETE BARRIER CURB WITH SIDEWALK	DATE: JAN 2003 REV: JULY 2025 DWG No: SC1.4



NOTES:

1. TOPS OF TWSI'S (TACTILE WALKING SURFACE INDICATOR) SHALL BE ALIGNED & LEVEL WITH THE ADJACENT CONCRETE SURFACE & INSTALLATION IN WET CONCRETE SHALL BE EFFECTIVE IN PERMANENTLY SECURING THE PANEL IN PLACE AFTER SETTING.
2. FOR MONOLITHIC SIDEWALKS, TWSI SHALL BE 300 TO 350mm BACK FROM THE CURB FACE.
3. JOINTS SHALL BE CONSTRUCTED TRANSIVERSELY ACROSS THE SIDEWALK, PERPENDICULAR TO THE FACE OF CURB FOR SIDEWALK.
4. WHEN JOINTS ARE CONSTRUCTED ADJACENT TO TWSI'S, THE JOINTS SHALL EXTEND FROM THE BACK CORNERS OF THE OUTSIDE TWSI PLATES TO THE BACK OF SIDEWALK, OR TERMINATE AT AN ADJACENT JOINT
5. THE TERMINATION OF THE JOINTS AT BOTH THE FRONT AND BACK OF SIDEWALK SHALL BE NO LESS THAN 600mm APART.
6. JOINTS IN ALL CONCRETE ELEMENTS SHALL BE LAID OUT TO ENSURE THAT NO INDIVIDUAL RESULTING CONCRETE PANEL IS LESS THAN 0.5m² OR GREATER THAN 6m²

Ottawa	TITLE: ATTENTION TWSI DETAIL	DATE: MAR 2015 REV: JAN 2026 DWG No: SC7.3

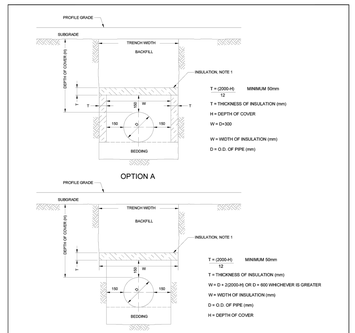


N.T.S.

NOTES:

1. DOUBLE RAMP WIDTH SHOULD MATCH SIDEWALK WIDTH, BE A MINIMUM OF 1.8m WIDE AND PERMIT WHEELCHAIRS TO ENTER CROSSING AT RIGHT ANGLES.
2. APPROVED 910 x WIDTH OF CURB RAMP (1500 MIN.) TACTILE WALKING SURFACE INDICATOR, TRUNCATED DOMES IN CURB.
3. 150 TO 200 GAP
4. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
5. FOR TRANSITIONAIRE, MAXIMUM SLOPE OF 2%.
6. DEPRESSED CURB HEIGHT SHALL BE 0 TO 6mm FOR PEDESTRIAN CURB RAMPS AND 0 TO 25mm FOR PRIVATE ENTRANCES, OR EQUAL TO HEIGHT OF CROSSWALK WHERE APPLICABLE.
7. FOR CURB RAMPS SLOPE OF 2% TO 5% MAXIMUM 8%.
8. FOR R15 AND R16 - 3.0m CONCRETE CROSSWALK AND R13.2 FOR AT - GRADE CONCRETE CROSSWALK SUBJECT TO AVOIDANCE OF MEDIANS. CROSSWALK LINES TO CENTRED ON THE CURB RAMP.
9. FOR RETROFIT APPLICATIONS ONLY.
10. WIRE MESH TO BE CONTINUOUS.
11. TWSI SHALL BE 300 TO 350mm BACK FROM CURB FACE.

Ottawa	PEDESTRIAN CURB RAMP WITHOUT BOULEVARD	DATE: MAY 2001 REV: MARCH 2022 DWG. No.: SC6



T = (2000-H) / 12 MINIMUM 50mm

T = THICKNESS OF INSULATION (mm)

H = DEPTH OF COVER

W = D+300

W = WIDTH OF INSULATION (mm)

D = O.D. OF PIPE (mm)

OPTION B

T = (2000-H) / 12 MINIMUM 50mm

T = THICKNESS OF INSULATION (mm)

W = D + 2(2000-H) OR D + 600 WHICHEVER IS GREATER

W = WIDTH OF INSULATION (mm)

D = O.D. OF PIPE (mm)

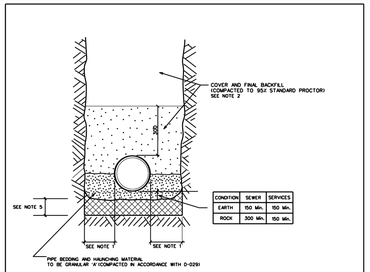
H = DEPTH OF COVER

TYPICAL PIPE INSULATION DETAIL

NOTES:

1. THE INSULATION MATERIAL SHALL BE EXTRUDED POLYSTYRENE ACCORDING TO MH-10.15 WITH A MINIMUM COMPRESSIVE STRENGTH OF 275 kPa
2. MINIMUM INSULATION THICKNESS SHALL BE 50mm
3. JOINTS SHALL BE STAGGERED FOR MULTIPLE INSULATION SHEETS
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED

Ottawa	TITLE: INSULATION FOR SHALLOW SEWERS	DATE: MAY 2001 REV: JULY 2024 DWG No: S35



CONDITION	SEWER	SERVICES
EARTH	150 Min.	150 Min.
ROCK	300 Min.	150 Min.

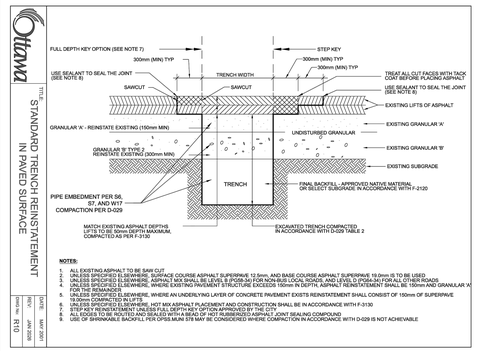
NOTES:

1.

PIPE INSIDE DIAMETER (mm)	CLEARANCE (mm)	
900 OR LESS	CONC PVC	450 450
OVER 900	500	

2. FINAL BACKFILL - APPROVED NATIVE MATERIAL OR SELECT SUBGRADE IN ACCORDANCE WITH F-4120 AND F-2120.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
4. INITIAL BACKFILL MATERIAL
   - CONCRETE PIPE - GRANULAR 'A', GRANULAR 'B' OR SELECT SUBGRADE MATERIAL WITH 100% PASSING THE 37.5mm SIEVE
   - PVC PIPE - GRANULAR 'A'
5. WHEN APPROVED BY THE CONTRACT ADMINISTRATOR, POOR SOILS SHALL BE EXCAVATED TO CREATE A FOUNDATION THAT SHALL BE FILLED TO THE BOTTOM OF THE BEDDING WITH GRANULAR 'B'.

Ottawa	SINGLE TRENCH (SEWER & SEWER SERVICES)	DATE: MAY 2001 REV: JAN 2026 DWG. No.: S6



NOTES:

1. ALL EXISTING ASPHALT TO BE SAW CUT
2. UNLESS SPECIFIED ELSEWHERE, SURFACE COURSE ASPHALT SUPERPAVE 12.5mm, AND BASE COURSE ASPHALT SUPERPAVE 19.0mm IS TO BE USED
3. UNLESS SPECIFIED ELSEWHERE, ASPHALT MIX SHALL BE LEVEL 9 (PG58-34) FOR NON-BUS LOCAL ROADS, AND LEVEL D (PG64-34) FOR ALL OTHER ROADS
4. UNLESS SPECIFIED ELSEWHERE, WHERE EXISTING PAVEMENT STRUCTURE EXCEEDS 150mm IN DEPTH, ASPHALT REINSTATEMENT SHALL BE 150mm AND GRANULAR 'A' 300mm
5. UNLESS SPECIFIED ELSEWHERE, WHERE AN UNDERLYING LAYER OF CONCRETE PAVEMENT EXISTS REINSTATEMENT SHALL CONSIST OF 150mm OF SUPERPAVE 19.0mm COMPACTED IN LIFTS
6. FOR ARTERIAL AND COLLECTOR ROADWAYS, HOT MIX ASPHALT PLACEMENT AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH F-3130
7. STEP KEY REINSTATEMENT UNLESS FULL DEPTH KEY OPTION APPROVED BY THE COTT
8. ALL EDGES TO BE ROUTED AND SEALED WITH A BEAD OF HOT RUBBERIZED ASPHALT JOINT SEALING COMPOUND
9. USE OF SHRINKABLE BACKFILL PER OPSS MUNI 378 MAY BE CONSIDERED WHERE COMPACTION IN ACCORDANCE WITH D-029 IS NOT ACHIEVABLE

Ottawa	TITLE: STANDARD TRENCH REINSTATEMENT IN PAVED SURFACE	DATE: MAY 2001 REV: R10

NOT FOR CONSTRUCTION

NOTES

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SCALE

LICENSED PROFESSIONAL ENGINEER — B. L. MACKECHNIE — 100199554 — 27 Apr. '26 — PROVINCE OF ONTARIO

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DRAWN	BLM
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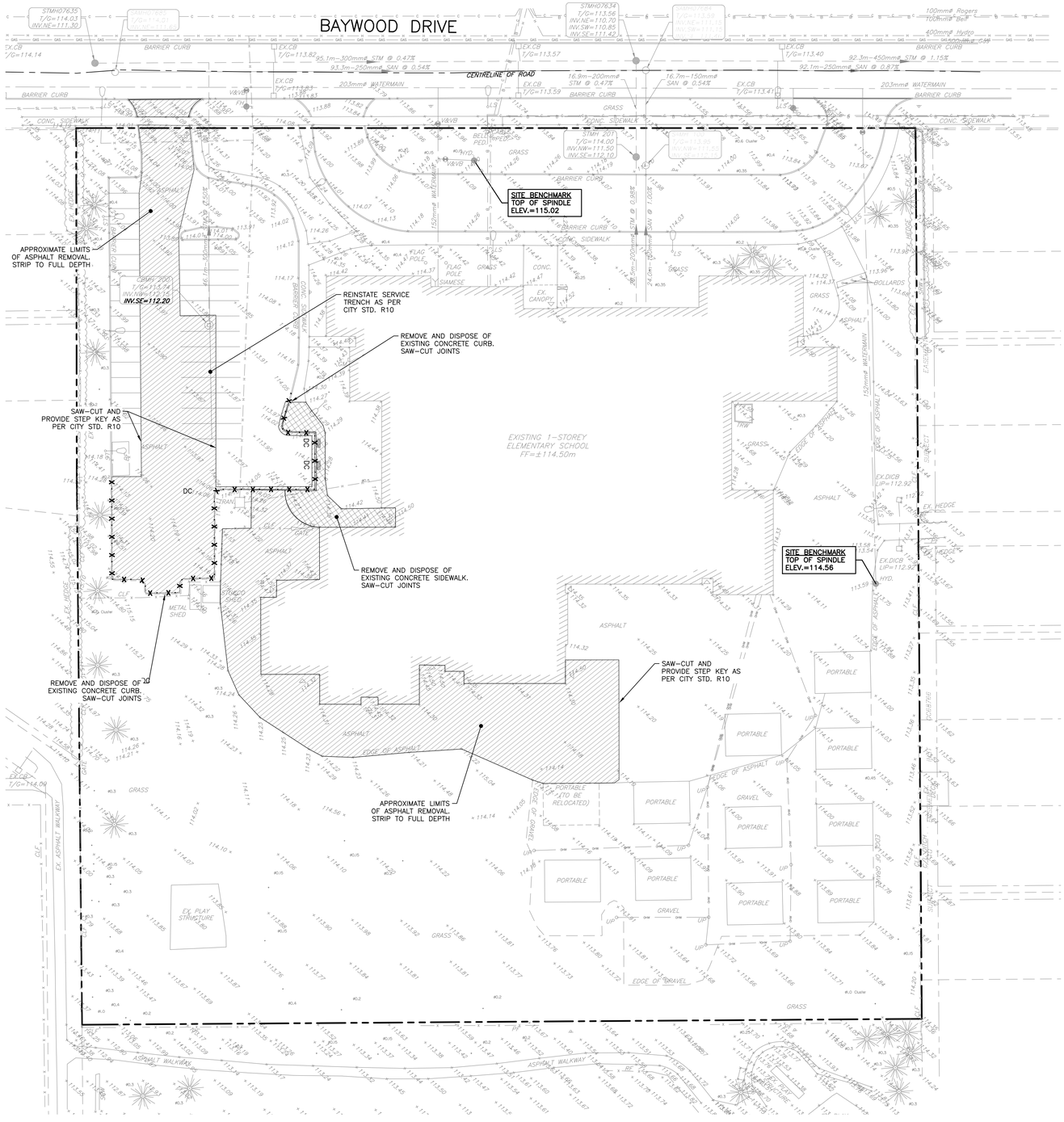
APPROVED	BLM

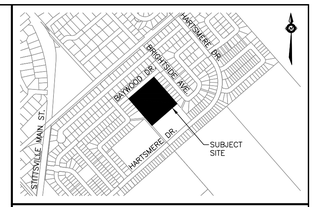
OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

NOTES & DETAILS

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-N1





KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- ×114.00 EXISTING ELEVATION
- EXISTING HYDRANT
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING WATERMAIN
- V&VB EXISTING VALVE & VALVE BOX
- EXISTING SANITARY SEWER & MANHOLE
- EXISTING STORM SEWER & MANHOLE
- EXISTING TREE
- UP EXISTING UTILITY POLE AND GUY
- EXISTING LIGHT STANDARD
- OHE EXISTING OVERHEAD UTILITIES
- H EXISTING UNDERGROUND HYDRO
- C EXISTING UNDERGROUND CABLE
- B EXISTING UNDERGROUND BELL
- GAS EXISTING UNDERGROUND GAS
- SL EXISTING UNDERGROUND STREETLIGHTS
- ASPHALT REMOVAL
- CONCRETE SIDEWALK REMOVAL
- CONCRETE CURB REMOVAL

NOT FOR CONSTRUCTION

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HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B.L. MACKECHNIE
100199554
27 Apr. '26
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DRAWN	BLM
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APPROVED	BLM

OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

EXISTING CONDITIONS & REMOVALS PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-R1

Appendix C

Water Demand Calculations

OBC Fire Flow Calculations

FUS Fire Flow Calculations

Boundary Conditions

Figure 3.0: Hydrant Coverage Plan

WATER DEMAND CALCULATIONS

4 Baywood Drive, Guardian Angels School
Project No. 26018

Robinson Land Development

DEVELOPMENT CONDITION	RESIDENTIAL POPULATION				No. OF STUDENTS	COMMERCIAL AREA (ha)	INSTITUTIONAL AREA (ha)	BASIC DAY DEMAND (L/s)				MAXIMUM DAY DEMAND (L/s)				PEAK HOUR DEMAND (L/s)			
	UNIT COUNT			TOTAL POPULATION				RES.	COMM.	INST.	TOTAL	RES.	COMM.	INST.	TOTAL	RES.	COMM.	INST.	TOTAL
	SINGLE FAMILY	TOWNHOUSE	APARTMENTS																
EXISTING					*846.0*					*0.69*	*0.69*			*1.03*	*1.03*			*1.85*	*1.85*
PROPOSED					1013.0					0.82	0.82			1.23	1.23			2.22	2.22

Notes:
1. Per unit populations as per OWDG Table 4.1.
2. Demand as per Ottawa Water Distribution Design Guidelines (Reference Section 4.2.8)
3. Estimated number of students provided by Architect.

Per Unit Populations		
Single Family =	3.4	persons/unit
Townhouses =	2.7	persons/unit
Apartments (2 bedroom) =	2.1	persons/unit

Basic Day Demand:		
Residential	280	L/person/day
Commercial	35000	L/ha/day
Institutional	28000	L/ha/day
Schools	**70**	**L/student/day**

Maximum Day Demand:		
Residential	2.5	x Avg. Day
Commercial	1.5	x Avg. Day
Institutional	**1.5**	**x Avg. Day**

Peak Hour Demand:		
Residential	2.2	x Max. Day
Commercial	1.8	x Max. Day
Institutional	**1.8**	**x Max. Day**

Table C1: Required Water Storage for Fire Protection

Development Condition	BLDG Volume, V (m^3)	Water Supply Coefficient[*1], K	S^{*2}_{TOT}	Min. Water Supply[*3], Q (L)	Required Water Supply Flow Rate[*4] (L/min)	Min. Required Water Storage[*5] (L)
Existing	*34,243*	*10*	*1.0*	*342,433*	*9,000*	FUS Required
Proposed	40,250	10	1.0	402,499	9,000	FUS Required

Notes:

1 Water supply coefficient as per OBC Table 1 for noncombustible construction, fire-resistance ratings as per OBC 3.2.2 and Institutional 1B.

2 Total spatial coefficient as per OBC Figure 1

3 $Q = K \times V \times S_{TOT}$

4 Required water supply flow rate as per OBC Table 2

5 If Flow Rate = 2700, 3600 or 4500 L/min then Storage = Q - 57000, if Flow Rate = 5400 or 6300 L/min then Storage = Q

Table C2: Building Volume Calculations

Development Condition	Building Area (m^2)	Building Height (m)	Building Volume (m^3)
Existing	*4,823*	*7.1*	*34,243*
Proposed	5,669	7.1	40,250

Table C3: Spatial Coefficient Calculations

Side	Existing		Proposed		Comments
	Exposure Distance (m)	S_{side}	Exposure Distance (m)	S_{side}	
West	32.1	0.0	21.9	0.0	Measured to west property line
North	36.0	0.0	36.0	0.0	Measured to centreline of Baywood Drive
East	14.1	0.0	14.1	0.0	Measured to east property line
South	56.0	0.0	38.7	0.0	Measured to south property line
Total		1.0		1.0	

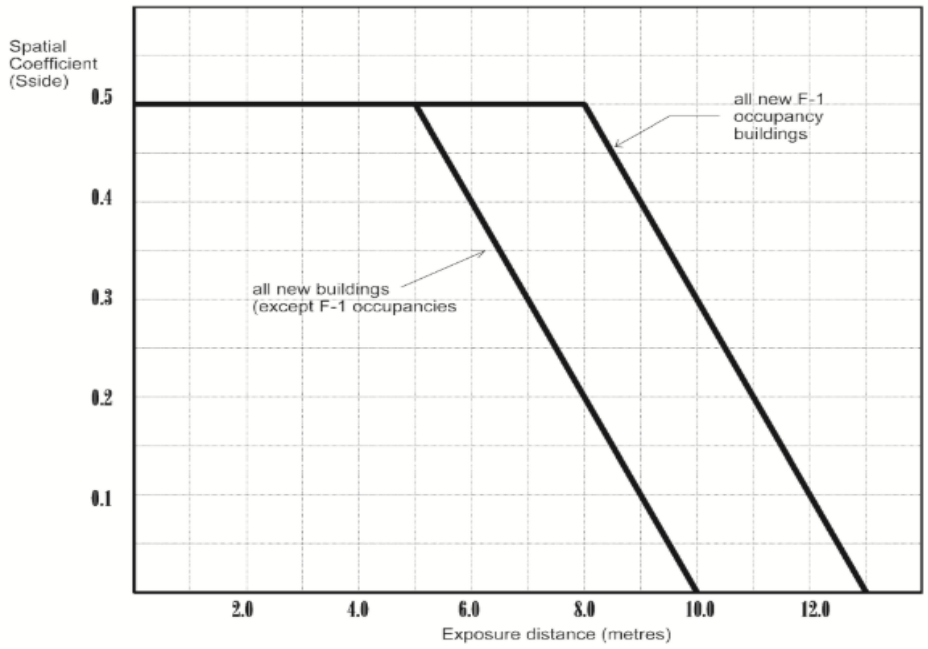

Figure 1
Spatial Coefficient vs Exposure Distance

Table 1: Water Supply Coefficient - K					
TYPE OF CONSTRUCTION	**Classification by Group or Division in Accordance with Table 3.1.2.1 of the Ontario Building Code**				
	A-2 B-1 B-2 B-3 C D	**A-4 F-3**	**A-1 A-3<**	**E F-2**	**F-1**
Building is of noncombustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches.	10	12	14	17	23
Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. of the OBC. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37
Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	23	28	32	39	53
Column 1	2	3	4	5	6

Table 2: **Minimum Water Supply Flow Rates**	
Building Code, **Part 3 Buildings**	**Required Minimum Water Supply Flow Rate (L/min.)**
One-storey building with building area not exceeding 600m² (excluding F-1 occupancies)	1800
All other buildings	2700 (If **Q** ≤ 108,000L)[1] 3600 (If **Q** > 108,000L **and** ≤ 135,000L)[1] 4500 (If **Q** > 135,000L **and** ≤ 162,000L)[1] 5400 (If **Q** > 162,000L **and** ≤ 190,000L)[1] 6300 (If **Q** > 190,000L **and** ≤ 270,000L)[1] 9000 (If **Q** > 270,000L)[1]

Note: [1] $\mathbf{Q=KVS_{Tot}}$ as referenced in Section 3(a)

Project Name:	Guardian Angels School Addition
Project Location:	4 Baywood Drive, Ottawa
Project No:	26018
Date:	10-Mar.26
Building Type:	Elementary School
Building Being Considered:	Existing Building

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Calculations for Total Required Fire Flow

Step	Parameter				Value	
A	Type of Construction	**Options**	**C**	Ordinary Construction (Type III)	1.0	
		Wood Frame (Type V)	1.5			
		Ordinary Construction (Type III)	1.0			
		Non-Combustible Construction (Type II)	0.8			
		Fire Resistive Construction (Type I)	0.6			
B	Ground Floor Area			(100% of area used in calculation)	4823.0	m^2
	Total Effective Floor Area				**4,823.0**	**m^2**
C	**Fire Flow**				**15,000**	**L/min**
D	Occupancy Class	**Options**	**Charge**	Limited Combustible	-0.15	
		Non-combustible	-0.25			
		Limited Combustible	-0.15			
		Combustible	0.00			
		Free burning	0.15			
		Rapid Burning	0.25			
	Occupancy Adjustment				**-2250**	**L/min**
	Fire Flow				**12,750**	**L/min**
E	Sprinkler Protection	**Options**	**Charge**	Automatic Sprinkler Protection	-0.30	
		Automatic Sprinkler Protection	-0.30			
		None	0.00			
		Water Supply is Standard for System and Hose Lines	-0.10	Yes	-0.10	
		Full Supervision of the Sprinker System	-0.10	Yes	-0.10	
	Sprinkler Reduction				**-6,375**	**L/min**
	Exposures					
	West Side					
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Wall Length				12	m
	Exposed Wall No. of Storeys				2	
	Length-Height Factor of Exposed Wall				24	m.storeys
	Construction Type of Exposed Wall	**Options**		Wood Frame		
		Wood Frame				
		Ordinary with Unprotected Openings				
		Ordinary without Unprotected Openings				
		Noncombustible or Fire Resistive with Unprotected Openings				
		Noncombustible or Fire Resistive without Unprotected Openings				
	Separation Distance			**>30m; No Exposure**	62.0	m
	West Side Exposure Charge				**0.00**	

	North Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			84	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			168	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	52.0	m
	North Side Exposure Charge			**0.00**	
F	**East Side**				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			10.2	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			20.4	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	27.0	m
	East Side Exposure Charge			**0.02**	
	South Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Wall Length			18	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			36	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	179.0	m
	South Side Exposure Charge			**0.00**	
	Total Exposure Charage			**0.02**	**< 0.75**
	Increase for Exposures			**255**	**L/min**
G	**Total Required Fire Flow**			**7,000**	**L/min**

Notes:

1. Fire flow calculations have been prepared in accordance with Fire Underwriters Survey (v. 2020)

2. Where buildings are at a diagonal to each other, the shortest separtion distance is increased by 3 metres and used as the exposure distance (Ref. FUS v.2020 pg.30).

Project Name:	Guardian Angels School Addition
Project Location:	4 Baywood Drive, Ottawa
Project No:	26018
Date:	10-Mar-26
Building Type:	Elementary School
Building Being Considered:	Existing Building + Proposed Additions

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Calculations for Total Required Fire Flow

Step	Parameter				Value	
A	Type of Construction	**Options**	**C**	Ordinary Construction (Type III)	1.0	
		Wood Frame (Type V)	1.5			
		Ordinary Construction (Type III)	1.0			
		Non-Combustible Construction (Type II)	0.8			
		Fire Resistive Construction (Type I)	0.6			
B	Ground Floor Area			(100% of area used in calculation)	5669.0	m^2
	Total Effective Floor Area				**5,669.0**	**m^2**
C	**Fire Flow**				**17,000**	**L/min**
D	Occupancy Class	**Options**	**Charge**	Limited Combustible	-0.15	
		Non-combustible	-0.25			
		Limited Combustible	-0.15			
		Combustible	0.00			
		Free burning	0.15			
		Rapid Burning	0.25			
	Occupancy Adjustment				**-2550**	**L/min**
	Fire Flow				**14,450**	**L/min**
E	Sprinkler Protection	**Options**	**Charge**	Automatic Sprinkler Protection	-0.30	
		Automatic Sprinkler Protection	-0.30			
		None	0.00			
		Water Supply is Standard for System and Hose Lines	-0.10	Yes	-0.10	
		Full Supervision of the Sprinker System	-0.10	Yes	-0.10	
	Sprinkler Reduction				**-7,225**	**L/min**
	Exposures					
	West Side					
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Building Fully Protected with Automatic Sprinker Systems				No	
	Exposed Wall Length				12	m
	Exposed Wall No. of Storeys				2	
	Length-Height Factor of Exposed Wall				24	m.storeys
	Construction Type of Exposed Wall	**Options**		Wood Frame		
		Wood Frame				
		Ordinary with Unprotected Openings				
		Ordinary without Unprotected Openings				
		Noncombustible or Fire Resistive with Unprotected Openings				
		Noncombustible or Fire Resistive without Unprotected Openings				
	Separation Distance			**>30m; No Exposure**	52.5	m
	West Side Exposure Charge				**0.00**	

	North Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			84	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			168	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	52.0	m
	North Side Exposure Charge			**0.00**	
F	**East Side**				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Building Fully Protected with Automatic Sprinker Systems			No	
	Exposed Wall Length			10.2	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			20.4	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	27.0	m
	East Side Exposure Charge			**0.02**	
	South Side				
	Subject Building and Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Building Fully Protected with Automatic Sprinker Systems			Yes	
	Exposed Wall Length			18	m
	Exposed Wall No. of Storeys			2	
	Length-Height Factor of Exposed Wall			36	m.storeys
	Construction Type of Exposed Wall	**Options**	Wood Frame		
		Wood Frame			
		Ordinary with Unprotected Openings			
		Ordinary without Unprotected Openings			
		Noncombustible or Fire Resistive with Unprotected Openings			
		Noncombustible or Fire Resistive without Unprotected Openings			
	Separation Distance		**>30m; No Exposure**	161.0	m
	South Side Exposure Charge			**0.00**	
	Total Exposure Charage			**0.02**	**< 0.75**
	Increase for Exposures			**289**	**L/min**
G	**Total Required Fire Flow**			**8,000**	**L/min**

Notes:

1. Fire flow calculations have been prepared in accordance with Fire Underwriters Survey (v. 2020)

2. Where buildings are at a diagonal to each other, the shortest separtion distance is increased by 3 metres and used as the exposure distance (Ref. FUS v.2020 pg.30).

Boundary Conditions
4 Baywood Drive

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	49	0.82
Maximum Daily Demand	74	1.23
Peak Hour	133	2.22
Fire Flow Demand #1	8,000	133.33

Location

Results

Connection 1 – Baywood Drive

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	159.5	64.8
Peak Hour	154.4	57.6
Max Day plus Fire Flow #1	148.7	49.5

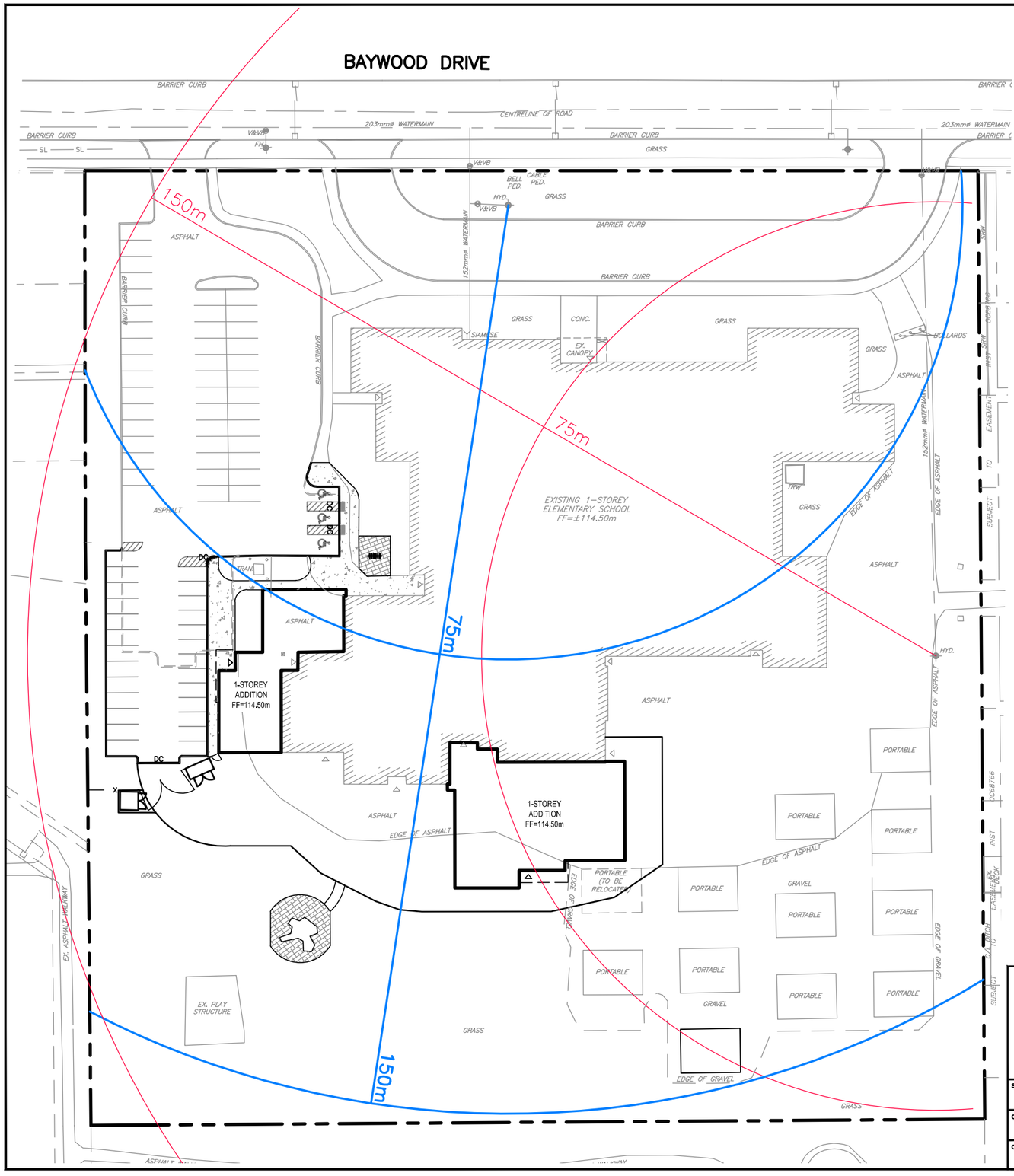
[1] Ground Elevation = 113.9 m

Notes

1. As per OWDG Tech Bulletin ISTB-2021-03 Section 4.3.1.:
    - Industrial, commercial, institutional service areas with a basic day demand greater than 50 m³/day (0.58 L/s) and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area. Individual residential facilities with a basic day demand greater than 50 m3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.



Robinson
Land Development

scale 1:750	GUARDIAN ANGELS SCHOOL ADDITIONS	project no. 26018
date 23/04/26	HYDRANT COVERAGE PLAN	FIG. 3.0
drawn by BLM		

Appendix D

OSDG Appendix 4-A

Sanitary Sewer Design Sheet –
Existing Conditions

Sanitary Sewer Design Sheet –
Proposed Conditions

APPENDIX 4-A DAILY SEWAGE FLOW FOR VARIOUS ESTABLISHMENTS

ITEM	UNIT OF MEASURE	DAILY VOLUME IN LITRES
RESTAURANTS AND DINING ROOMS		
- Ordinary (not 24 hour) restaurant	per seat	125
- 24 hour restaurant	per seat	200
- 24 hour intercity freeway restaurant	per seat	375
- 24 hour intercity freeway restaurant with showers		400
- Auto dishwasher and/or waste disposer		
- ordinary restaurant	per seat	12
- 24 hour restaurant	per seat	24
- Kitchen and toilet wastes only	per seat	115
- Kitchen and toilet wastes	per patron	35 *
- Banquet rooms – each banquet	per seat	30
- Drive-in restaurants	per seat	125
- Drive-in - all paper service	per car space	60
- Drive-in - all paper service	per inside seat	60
- Taverns, bars and cocktail lounges With minimum food service	per seat	125
- Night club restaurant	per seat	175
SCHOOLS		
- Day school with cafeteria, gym And showers	per person	90
- Day school with cafeteria or Gym and showers	per person	60
- Day school without cafeteria or Gym and showers	per person	30
- Boarding schools	per resident	275
- Boarding schools non resident staff	per person	50
SERVICE STATIONS		
- Car servicing (one service bay)	per car	40
- Catch basins in garage floors for Floor cleaning	per basin	375
SHOPPING CENTRES		
- Retail stores – washrooms only	per square metre of store area	5
- Retail stores area – parking area	per parking space	6
- Retail store area – employees	per person	40
- Retail store area – toilet rooms	per toilet room	2000

SANITARY SEWER DESIGN SHEET
GUARDIAN ANGELS SCHOOL, 4 BAYWOOD DRIVE, OTTAWA
EXISTING CONDITIONS

Robinson
Land Development

LOCATION			UNIT COUNT			RESIDENTIAL AREA AND POPULATION						INSTITUTIONAL				INFILTRATION			PEAK DESIGN FLOW (L/s)	PIPE						
						INDIVIDUAL		CUMULATIVE		PEAK FACTOR	PEAK POP. FLOW (L/s)															
STREET	FROM MH	TO MH	SINGLE-FAMILY	TOWNHOUSE	APARTMENTS	POP.	AREA (ha)	POP.	AREA (ha)			No. OF PEOPLE	ACCU. No. OF PEOPLE	PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha)	ACCU. AREA (ha)	EXTRAN. FLOW (L/s)		LENGTH (m)	DIAMETER (mm)	SLOPE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	EXCESS CAPACITY (L/s)	PERCENT FULL
TO BAYWOOD DRIVE SANITARY SEWER																										
Private	*BLDG*	*100*				*0.0*	*0.00*	*0.0*	*0.00*	*3.80*	*0.00*	*911.0*	*911.0*	*1.50*	*0.47*	*2.32*	*2.32*	*0.77*	*1.24*	*24.0*	*150.00*	*1.00*	*15.24*	*0.86*	*14.00*	*8.13*
Private	*100*	*EXMH*				*0.0*	*0.00*	*0.0*	*0.00*	*3.80*	*0.00*	*0.0*	*911.0*	*1.50*	*0.47*	*0.00*	*2.32*	*0.77*	*1.24*	*16.7*	*150.00*	*0.54*	*11.20*	*0.63*	*9.96*	*11.07*
DESIGN PARAMETERS																										

			Per Unit Populations:		Schools:	
Average Daily Flow =	280	L/person/day	Single Family	3.4 persons/unit	**30**	**L/person/day (OSDG Appendix 4-A)**
Institutional Flow =	28,000	L/ha/day	Semi-detached	2.7 persons/unit	**911**	**persons (Building Matrix from Architect)**
Industrial Flow =			Duplex	2.3 persons/unit		
Maximum Residential Peak Factor =	4.0		Townhouse	2.7 persons/unit		
Harmon - Correction Factor (K) =	0.8		Apartments:			
Institutional Peak Factor =	**1.5**		Bachelor	1.4 persons/unit		
Extraneous Flow =	**0.33**	**L/s/ha**	1 Bedroom	1.4 persons/unit		
Minimum Velocity =	0.6	m/s	2 Bedroom	2.1 persons/unit		
Maximum Velocity =	3.0	m/s	3 Bedroom	3.1 persons/unit		
			Average Apt.	1.8 persons/unit		

SANITARY SEWER DESIGN SHEET
GUARDIAN ANGELS SCHOOL, 4 BAYWOOD DRIVE, OTTAWA
PROPOSED CONDITIONS

Robinson
Land Development

LOCATION			UNIT COUNT			RESIDENTIAL AREA AND POPULATION						INSTITUTIONAL				INFILTRATION			PEAK DESIGN FLOW (L/s)	PIPE						
						INDIVIDUAL		CUMULATIVE		PEAK FACTOR	PEAK POP. FLOW (L/s)	No. OF PEOPLE	ACCU. No. OF PEOPLE	PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha)	ACCU. AREA (ha)	EXTRAN. FLOW (L/s)		LENGTH (m)	DIAMETER (mm)	SLOPE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	EXCESS CAPACITY (L/s)	PERCENT FULL
STREET	FROM MH	TO MH	SINGLE-FAMILY	TOWNHOUSE	APARTMENTS	POP.	AREA (ha)	POP.	AREA (ha)																	
TO BAYWOOD DRIVE SANITARY SEWER																										
Private	*BLDG*	*100*				*0.0*	*0.00*	*0.0*	*0.00*	*3.80*	*0.00*	*1088.0*	*1088.0*	*1.50*	*0.57*	*2.32*	*2.32*	*0.77*	*1.33*	*24.0*	*150.00*	*1.00*	*15.24*	*0.86*	*13.91*	*8.74*
Private	*100*	*EXMH*				*0.0*	*0.00*	*0.0*	*0.00*	*3.80*	*0.00*	*0.0*	*1088.0*	*1.50*	*0.57*	*0.00*	*2.32*	*0.77*	*1.33*	*16.7*	*150.00*	*0.54*	*11.20*	*0.63*	*9.87*	*11.89*
DESIGN PARAMETERS																										

			Per Unit Populations:		Schools:	
Average Daily Flow =	280	L/person/day	Single Family	3.4 persons/unit	**30**	**L/person/day (OSDG Appendix 4-A)**
Institutional Flow =	28,000	L/ha/day	Semi-detached	2.7 persons/unit	**1088**	**persons (Building Matrix from Architect)**
Industrial Flow =			Duplex	2.3 persons/unit		
Maximum Residential Peak Factor =	4.0		Townhouse	2.7 persons/unit		
Harmon - Correction Factor (K) =	0.8		Apartments:			
Institutional Peak Factor =	**1.5**		Bachelor	1.4 persons/unit		
Extraneous Flow =	**0.33**	**L/s/ha**	1 Bedroom	1.4 persons/unit		
Minimum Velocity =	0.6	m/s	2 Bedroom	2.1 persons/unit		
Maximum Velocity =	3.0	m/s	3 Bedroom	3.1 persons/unit		
			Average Apt.	1.8 persons/unit		

Appendix E

Runoff Coefficient Calculations

Storm Sewer Design Sheet – Existing Conditions

Storm Sewer Design Sheet – Proposed Conditions

Existing Drainage Area Plan
(DWG. 26018-PRE1)

Storm Drainage Area Plan
(DWG. 26018-STM1)

Correspondence with City

Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
PRE1	0.25	0.10	0.00	0.35	0.70	0.87	71.3
PRE2	0.12	0.53	0.06	0.72	0.37	0.46	26.2
PRE3	0.27	0.14	0.06	0.47	0.66	0.83	70.0
PRE4	0.15	0.15	0.00	0.30	0.55	0.68	49.5
PRE5	0.48	0.00	0.00	0.48	0.90	1.00	100.0
STM1	0.29	0.10	0.00	0.38	0.72	0.90	74.6
STM2	0.12	0.42	0.06	0.60	0.39	0.49	30.4
STM3	0.27	0.14	0.06	0.47	0.66	0.83	69.8
STM4	0.15	0.15	0.00	0.30	0.55	0.68	49.5
R1	0.05	0.00	0.00	0.05	0.90	1.00	100.0
R2	0.03	0.00	0.00	0.03	0.90	1.00	100.0
R3	0.48	0.00	0.00	0.48	0.90	1.00	100.0

Cumulative Runoff Coefficient Calculations

Drainage Area ID	Impervious Area (ha)	Pervious Area (ha)	Gravel Area (ha)	Total Area (ha)	C	C (100 YR)	Percent Impervious (%)
STM1 + R1 + R2	0.37	0.10	0.00	0.47	0.75	0.94	79.2

Runoff Coefficients:

C impervious = 0.90

C pervious = 0.20

C gravel = 0.70

C_{100} = C * 1.25 (Max. 1.0)

STORM SEWER DESIGN SHEET
GUARDIAN ANGELS SCHOOL, 4 BAYWOOD DRIVE, OTTAWA
EXISTING CONDITION

LOCATION			AREA (ha)	C	C (100 YR)	2-YR		100-YR		TIME OF CONC. (min)	2-YR RAINFALL INTENSITY (mm/hr)	2-YR PEAK FLOW (L/s)	100-YR RAINFALL INTENSITY (mm/hr)	100-YR PEAK FLOW (L/s)	100-YR RESTRICTED FLOW (L/s)	CUMULATIVE RESTRICTED FLOW (L/s)	PROPOSED SEWER							
DRAINAGE AREA	FROM MH	TO MH				INDIV. 2.78AC	ACCUM. 2.78AC	INDIV. 2.78AC	ACCUM. 2.78AC								PIPE DIA. (mm)	GRADE (%)	LENGTH (m)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min)	2-YR PERCENT FULL	100-YR PERCENT FULL WITH RESTRICTED CONTROLS
TO BAYWOOD DRIVE STORM SEWER																								
PRE1	*EXCBMH*	*EX MAIN*	*0.35*	*0.70*	*0.87*	*0.68*	*0.68*	*0.84*	*0.84*	*10.00*	*76.81*	*51.88*	*178.56*	*150.78*			*299.36*	*0.50*	*46.1*	*68.06*	*0.97*	*0.79*	*76%*	
TO BAYWOOD DRIVE STORM SEWER																								
PRE5	*EX BLDG*	*201*	*0.48*	*0.90*	*1.00*	*1.21*	*1.21*	*1.34*	*1.34*	*10.00*	*76.81*	*92.88*	*178.56*	*239.92*			*201.16*	*0.98*	*25.5*	*33.01*	*1.04*	*0.41*	*281%*	
	201	*EX MH*	*0.00*	*0.00*	*0.00*	*0.00*	*1.21*	*0.00*	*1.34*	*10.41*	*75.27*	*91.02*	*174.90*	*235.01*			*201.16*	*0.47*	*16.9*	*22.86*	*0.72*	*0.39*	*398%*	

Design Parameters

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Peak flows calculated using the Rational Method.
   Q = 2.78CIA, where:
   Q = Peak Flow (L/s)
   A = Drainage Area (ha)
   I = Rainfall Intensity (mm/hr)
   C = Runoff Coefficient
3. Manning's roughness coefficient = 0.013
4. Full flow velocity: MIN 0.8 m/s; MAX 3.0 m/s (City of Ottawa Sewer Design Guidelines, v.2012)

IDF curve equations (Intensity in mm/hr)

100 year Intensity = $1735.688 / (\text{Time in min} + 6.014)^{0.820}$
50 year Intensity = $1569.580 / (\text{Time in min} + 6.014)^{0.820}$
25 year Intensity = $1402.884 / (\text{Time in min} + 6.018)^{0.819}$
10 year Intensity = $1174.184 / (\text{Time in min} + 6.014)^{0.816}$
5 year Intensity = $998.071 / (\text{Time in min} + 6.053)^{0.814}$
2 year Intensity = $732.951 / (\text{Time in min} + 6.199)^{0.810}$

STORM SEWER DESIGN SHEET
GUARDIAN ANGELS SCHOOL, 4 BAYWOOD DRIVE, OTTAWA
PROPOSED CONDITION

LOCATION			AREA (ha)	C	C (100 YR)	2-YR		100-YR		TIME OF CONC. (min)	2-YR RAINFALL INTENSITY (mm/hr)	2-YR PEAK FLOW (L/s)	100-YR RAINFALL INTENSITY (mm/hr)	100-YR PEAK FLOW (L/s)	100-YR RESTRICTED FLOW (L/s)	CUMULATIVE RESTRICTED FLOW (L/s)	PROPOSED SEWER							
DRAINAGE AREA	FROM MH	TO MH				INDIV. 2.78AC	ACCUM. 2.78AC	INDIV. 2.78AC	ACCUM. 2.78AC								PIPE DIA. (mm)	GRADE (%)	LENGTH (m)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min)	2-YR PERCENT FULL	100-YR PERCENT FULL WITH RESTRICTED CONTROLS
TO BAYWOOD DRIVE STORM SEWER																								
R1	BLDG1	204	0.05	0.90	1.00	0.14	0.14	0.15	0.15	10.00	76.81	10.43	178.56	26.95	7.56	7.56	251.46	0.51	29.6	43.18	0.87	0.57	24%	18%
	204	BLDG2	0.00	0.00	0.00	0.00	0.14	0.00	0.15	10.57	74.69	10.15	173.53	26.20	0.00	7.56	251.46	0.44	6.8	40.10	0.81	0.14	25%	19%
R2	BLDG2	203	0.03	0.90	1.00	0.08	0.21	0.09	0.24	10.71	74.19	15.81	172.34	40.81	3.78	11.34	251.46	0.60	5.0	46.83	0.94	0.09	34%	24%
	203	EX CBMH	0.00	0.00	0.00	0.00	0.21	0.00	0.24	10.80	73.88	15.74	171.59	40.63	0.00	11.34	251.46	0.50	42.1	42.75	0.86	0.82	37%	27%
STM1	*EX CBMH*	*EX MAIN*	*0.38*	*0.72*	*0.90*	*0.77*	*0.98*	*0.96*	*1.20*	*11.61*	*71.13*	*70.06*	*165.06*	*198.34*	*54.00*	*54.00*	*299.36*	*0.50*	*46.1*	*68.06*	*0.97*	*0.79*	*103%*	*79%*

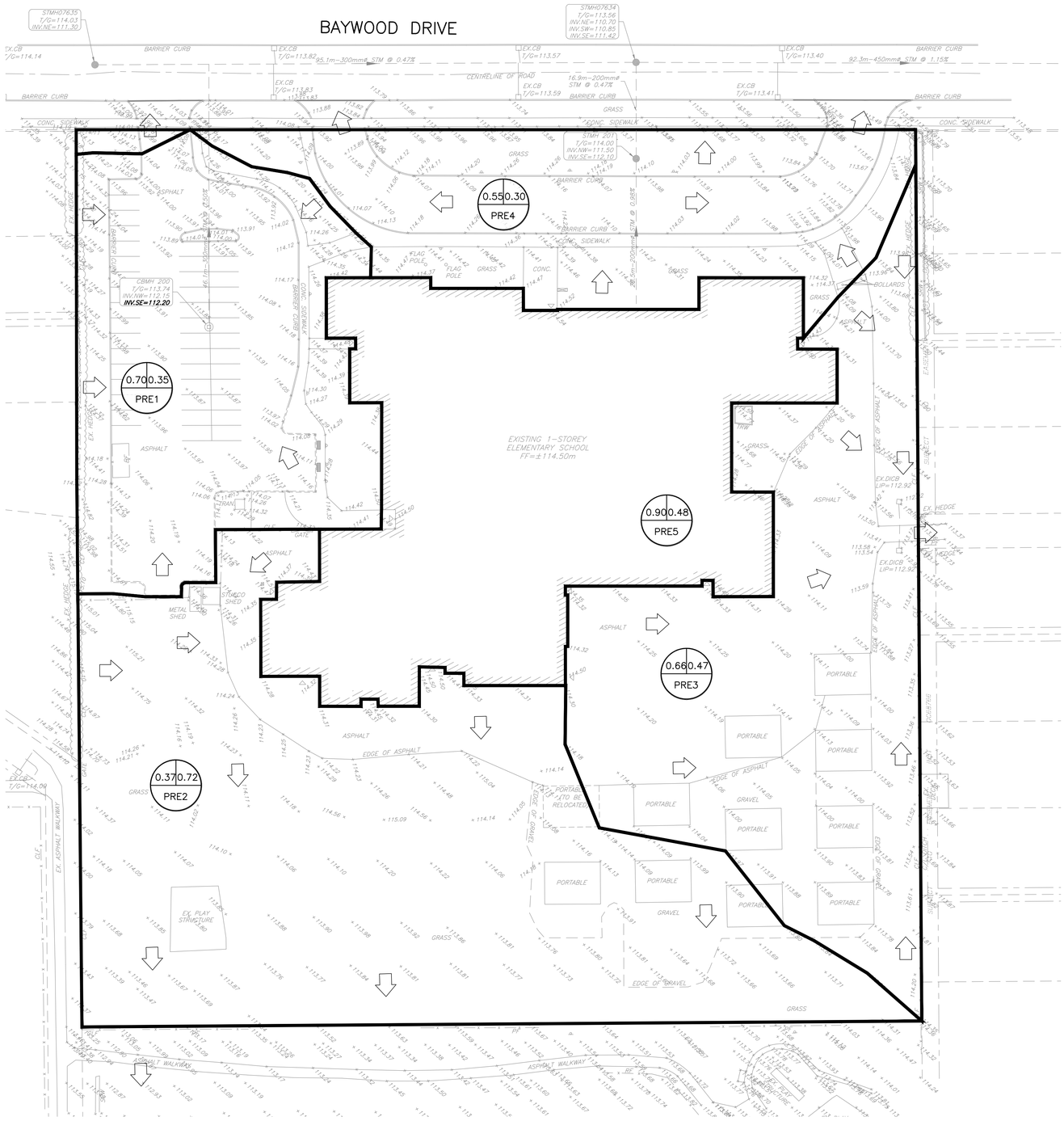
Design Parameters

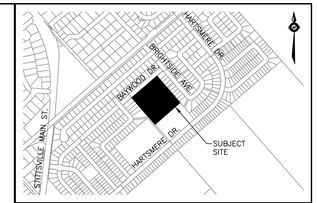
Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Peak flows calculated using the Rational Method.
   Q = 2.78CIA, where:
   Q = Peak Flow (L/s)
   A = Drainage Area (ha)
   I = Rainfall Intensity (mm/hr)
   C = Runoff Coefficient
3. Manning's roughness coefficient = 0.013
4. Full flow velocity: MIN 0.8 m/s; MAX 3.0 m/s (City of Ottawa Sewer Design Guidelines, v.2012)

IDF curve equations (Intensity in mm/hr)

100 year Intensity = $1735.688 / (\text{Time in min} + 6.014)^{0.820}$
50 year Intensity = $1569.580 / (\text{Time in min} + 6.014)^{0.820}$
25 year Intensity = $1402.884 / (\text{Time in min} + 6.018)^{0.819}$
10 year Intensity = $1174.184 / (\text{Time in min} + 6.014)^{0.816}$
5 year Intensity = $998.071 / (\text{Time in min} + 6.053)^{0.814}$
2 year Intensity = $732.951 / (\text{Time in min} + 6.199)^{0.810}$





KEY PLAN

LEGEND

- PROPERTY BOUNDARY
- ×114.00 EXISTING ELEVATION
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- PRE-DEVELOPMENT DRAINAGE AREA BOUNDARY
- PRE-DEVELOPMENT OVERLAND FLOW ROUTE

RUNOFF COEFFICIENT
0.25 | 1.10 — AREA (ha)
PRE1
DRAINAGE AREA ID

NOT FOR CONSTRUCTION

NOTES

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

PROPERTY BOUNDARIES HAVE BEEN DERIVED FROM THE TOPOGRAPHIC PLAN OF SURVEY BLOCK 1 REGISTERED PLAN 4M-1054, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD. 2026. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO GEODETIC DATUM CGVD-1928:1978.

NO.	REVISION DESCRIPTION	DATE	BY
2	ISSUED FOR REVIEW	27/04/26	BLM
1	ISSUED FOR 85% REVIEW	22/04/26	BLM

SCALE
0 4m 8m 16m
HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B.L. MACKECHNIE
100199554
27 Apr, '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road,
Suite 200, Ottawa, ON
K2H 1B3
(613) 592-6060 rcii.com

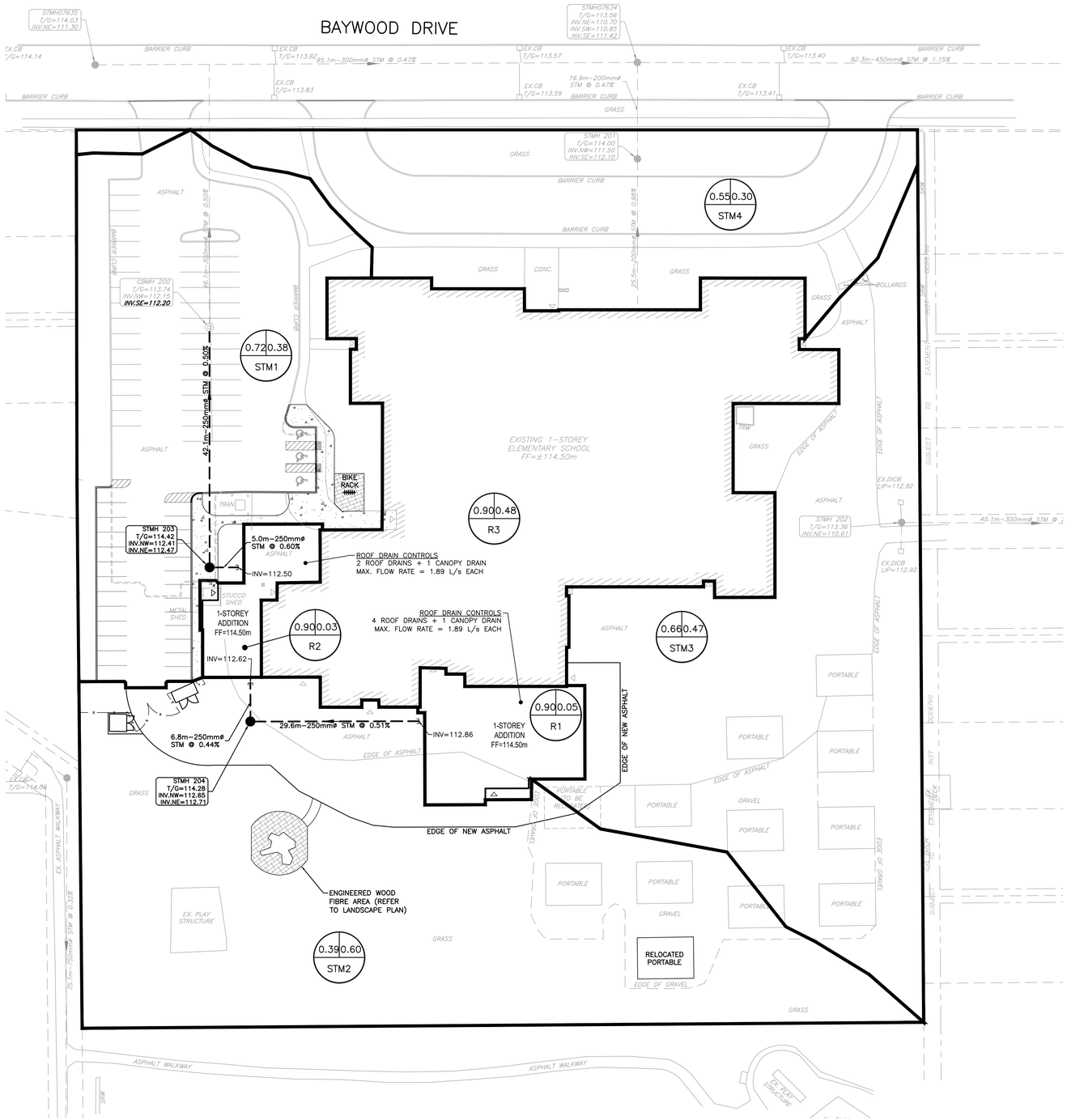
DESIGN	BLM
CHECKED	SG
DRAWN	BLM
CHECKED	SG
APPROVED	BLM

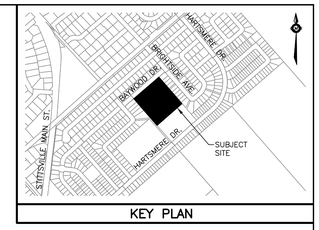
OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS
CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

EXISTING DRAINAGE AREA PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-PRE1





LEGEND

- PROPERTY BOUNDARY
- ×114.00 EXISTING ELEVATION
- EXISTING CATCH BASIN
- EXISTING CATCH BASIN MANHOLE
- EXISTING STORM SEWER & MANHOLE
- STORM SEWER & MANHOLE
- STORM DRAINAGE AREA BOUNDARY

RUNOFF COEFFICIENT
0.70 1.50 AREA (ha)
STM1
DRAINAGE AREA ID

NOT FOR CONSTRUCTION

NOTES

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

PROPERTY BOUNDARIES HAVE BEEN DERIVED FROM THE TOPOGRAPHIC PLAN OF SURVEY BLOCK 1 REGISTERED PLAN 4M–1054, CITY OF OTTAWA, PREPARED BY FARLEY, SMITH & DENIS SURVEYING LTD, 2026. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO GEODETIC DATUM CGVD–1928:1978.

NO.	REVISION DESCRIPTION	DATE	BY
2	ISSUED FOR REVIEW	27/04/26	BLM
1	ISSUED FOR 85% REVIEW	22/04/26	BLM

SCALE
0 4m 8m 16m
HORIZONTAL 1:400

LICENSED PROFESSIONAL ENGINEER
B.L. MACKECHNIE
100199554
27 Apr. '26
PROVINCE OF ONTARIO

Robinson Land Development
2936 Baseline Road, Suite 200, Ottawa, ON K2H 1B3
(613) 592-6060 rcii.com

DESIGN	BLM
CHECKED	SG
DRAWN	BLM
CHECKED	SG
APPROVED	BLM

OTTAWA CATHOLIC SCHOOL BOARD

GUARDIAN ANGELS CATHOLIC SCHOOL
4 BAYWOOD DRIVE, OTTAWA

STORM DRAINAGE AREA PLAN

PROJECT No.	26010
SURVEY	FARLEY, SMITH & DENIS SURVEYING LTD.
DATED	APRIL 2026
DWG. No:	26018-STM1

Brandon Mackechnie

From: Abdulkarim, Yasser <yasser.abdulkarim@ottawa.ca>
Sent: February 27, 2026 2:36 PM
To: Brandon Mackechnie
Cc: Mottalib, Abdul
Subject: RE: 4 Baywood Drive - Guardian Angels School Addition - Storm Servicing

"CAUTION: External Sender"
Hi Brandon,

With respect to the 300 mm storm service, based on the approach described, provided the restricted peak flow results in the existing 300 mm pipe operating at less than 80% capacity, we have no preliminary concerns with using roof drain controls for the building additions and an ICD for the parking area to achieve that restricted discharge.

Please let me know if you have any further questions.

Regards,

Yasser Abdulkarim, EIT
Project Manager | Gestionnaire de projet
Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement - Tous les quartiers (EPATQ)
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West |110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
613.580.2424 ext.12848 , yasser.abdulkarim@ottawa.ca

From: Chetrar, Anton <anton.chetrar@ottawa.ca>
Sent: February 27, 2026 1:30 PM
To: Abdulkarim, Yasser <yasser.abdulkarim@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Brandon Mackechnie <bmackechnie@rcii.com>
Subject: FW: 4 Baywood Drive - Guardian Angels School Addition - Storm Servicing

Good afternoon Brandon,

For your information I have moved to a different position within DR – now at South team. I am forwarding your request onto Yasser and Abdul to answer.

Thanks,
Anton Chetrar | P. Eng
Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure
Development Review – South Services | Direction de l'examen des projets d'aménagement – Service Sud

Planning, Development and Building Services Department (PDBS) and Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West |110 avenue Laurier Ouest
Ottawa, ON K1P 1J1
Tel.|Tél. 613.580.2424 ext.60865
anton.chetrar@ottawa.ca

From: Brandon Mackechnie <bmackechnie@rcii.com>
Sent: February 27, 2026 12:28 PM
To: Chetrar, Anton <anton.chetrar@ottawa.ca>
Subject: 4 Baywood Drive - Guardian Angels School Addition - Storm Servicing

Hi Anton,

We have begun reviewing background information for the proposed school addition at 4 Baywood Drive. We obtained the attached Servicing Plan from the GeoInformation Centre. Based on our preliminary review we note the following:

1. The site currently has two storm sewer outlets to Baywood Drive. A 200mm diameter storm sewer aligned with the centre of the building and a 300mm diameter storm sewer aligned with the parking lot.
2. The existing 200mm diameter storm sewer conveys flows from the existing building roof. The existing 300mm diameter storm sewer conveys flows from the existing parking lot.
3. The existing 200mm diameter storm sewer is currently undersized and therefore cannot accept any additional flows from the proposed building additions.

Since the existing 200mm storm service cannot be utilized, we have reviewed the capacity of the existing 300mm storm sewer to convey flows from the existing parking lot, proposed parking lot expansion, and proposed building additions. During the 2-year event, the unrestricted peak flow to the existing storm sewer will be approximately 71.4 L/s which marginally exceeds the pipe capacity of 68 L/s (105% full). For new developments, the standard is to design the storm sewers to have capacity to convey unrestricted peak flows for the design level of service. Given that this is a retrofit situation, we believe that an assessment of restricted peak flows would be justified. The incorporation of roof drain controls on the building additions and an ICD in the parking lot would result in a restricted peak flow which is less than the existing pipe capacity.

Can you please advise if the City has any preliminary comments or concerns on this approach before we finalize a design submission.

Thanks,

Brandon MacKechnie, P.Eng. | Project Engineer
2936 Baseline Road, Suite 200, Ottawa ON, K2H 1B3
O: 613-592-6060 D: 613-891-6485 | bmackechnie@rcii.com | www.rcii.com

WE'VE MOVED! 📦
Please note that Robinson Consultants Inc. has relocated to 2936 Baseline Road, Suite 200, Ottawa, Ontario K2H 1B3.

Appendix F

Unrestricted Peak Flows – Existing Conditions

Unrestricted Peak Flows – Proposed Conditions

Restricted Peak Flows – Proposed Conditions

Orifice Sizing Calculations

Roof Plumbing Plan
(prepared by GWAL)

Roof Drain Specification Sheet

Storage Volume Tables

Fernbank Subdivision SWM Report Excerpts

Fernbank Subdivision Concept Storm Drainage Area Plan

Unrestricted Peak Flows - Existing Conditions

Drainage Area ID	Area, A (ha)	Runoff Coefficient, C	100 YR Runoff Coefficient, C	Time of Concentration, Tc (min.)	Rainfall Intensity, i (mm/hr)			Peak Design Flow, Q (L/s)		
					2 YR	5 YR	100 YR	2 YR	5 YR	100 YR
PRE1	0.35	0.70	0.87	10.0	76.81	104.19	178.6	51.9	70.4	150.8
PRE2	0.72	0.37	0.46	10.0	76.81	104.19	178.6	56.3	76.4	163.7
PRE3	0.47	0.66	0.83	10.0	76.81	104.19	178.6	66.4	90.1	193.0
PRE4	0.30	0.55	0.68	10.0	76.81	104.19	178.6	34.9	47.4	101.5
PRE5	0.48	0.90	1.00	10.0	76.81	104.19	178.6	92.9	126.0	239.9
TOTAL	**2.32**							**302.4**	**410.3**	**848.9**

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.

2. Peak flows calculated using the Rational Method. (Q=2.78CiA)

3. Time of concentration is 10 minutes minimum.

IDF curve equations (Intensity in mm/hr)

$$\text{100 year Intensity} = 1735.688 / (\text{Time in min} + 6.014)^{0.820}$$
$$\text{50 year Intensity} = 1569.580 / (\text{Time in min} + 6.014)^{0.820}$$
$$\text{25 year Intensity} = 1402.884 / (\text{Time in min} + 6.018)^{0.819}$$
$$\text{10 year Intensity} = 1174.184 / (\text{Time in min} + 6.014)^{0.816}$$
$$\text{5 year Intensity} = 998.071 / (\text{Time in min} + 6.053)^{0.814}$$
$$\text{2 year Intensity} = 732.951 / (\text{Time in min} + 6.199)^{0.810}$$

Unrestricted Peak Flows - Proposed Conditions

Drainage Area ID	Area, A (ha)	Runoff Coefficient, C	100 YR Runoff Coefficient, C	Time of Concentration, Tc (min.)	Rainfall Intensity, i (mm/hr)			Peak Design Flow, Q (L/s)		
					2 YR	5 YR	100 YR	2 YR	5 YR	100 YR
STM1	0.38	0.72	0.90	10.0	76.81	104.19	178.6	59.3	80.4	172.3
STM2	0.60	0.39	0.49	10.0	76.81	104.19	178.6	50.2	68.1	145.9
STM3	0.47	0.66	0.83	10.0	76.81	104.19	178.6	66.1	89.7	192.1
STM4	0.30	0.55	0.68	10.0	76.81	104.19	178.6	34.9	47.4	101.5
R1	0.05	0.90	1.00	10.0	76.81	104.19	178.6	10.4	14.2	27.0
R2	0.03	0.90	1.00	10.0	76.81	104.19	178.6	5.9	8.0	15.3
R3	0.48	0.90	1.00	10.0	76.81	104.19	178.6	92.9	126.0	239.9
TOTAL	**2.32**							**319.8**	**433.8**	**894.0**

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.

2. Peak flows calculated using the Rational Method. (Q=2.78CiA)

3. Time of concentration is 10 minutes minimum.

IDF curve equations (Intensity in mm/hr)

$$\text{100 year Intensity} = 1735.688 / (\text{Time in min} + 6.014)^{0.820}$$
$$\text{50 year Intensity} = 1569.580 / (\text{Time in min} + 6.014)^{0.820}$$
$$\text{25 year Intensity} = 1402.884 / (\text{Time in min} + 6.018)^{0.819}$$
$$\text{10 year Intensity} = 1174.184 / (\text{Time in min} + 6.014)^{0.816}$$
$$\text{5 year Intensity} = 998.071 / (\text{Time in min} + 6.053)^{0.814}$$
$$\text{2 year Intensity} = 732.951 / (\text{Time in min} + 6.199)^{0.810}$$

Restricted Peak Flows - Proposed Conditions

Drainage Area ID	Area, A (ha)	Runoff Coefficient, C	100 YR Runoff Coefficient, C	Time of Concentration, Tc (min.)	Rainfall Intensity, i (mm/hr)			Peak Design Flow, Q (L/s)		
					2 YR	5 YR	100 YR	2 YR	5 YR	100 YR
STM1 + R1 + R2	0.47	0.75	0.94	10.0	76.81	104.19	178.6	52.1	52.7	54.0
STM2	0.60	0.39	0.49	10.0	76.81	104.19	178.6	50.2	68.1	145.9
STM3	0.47	0.66	0.83	10.0	76.81	104.19	178.6	66.1	89.7	192.1
STM4	0.30	0.55	0.68	10.0	76.81	104.19	178.6	34.9	47.4	101.5
R3	0.48	0.90	1.00	10.0	76.81	104.19	178.6	92.9	126.0	239.9
TOTAL	**2.32**							**296.2**	**383.9**	**733.4**

Notes:

1. Rainfall intensity calculated using City of Ottawa IDF curve equations.

2. Peak flows calculated using the Rational Method. (Q=2.78CiA)

3. Time of concentration is 10 minutes minimum.

IDF curve equations (Intensity in mm/hr)

100 year Intensity $= 1735.688 / (\text{Time in min} + 6.014)^{0.820}$

50 year Intensity $= 1569.580 / (\text{Time in min} + 6.014)^{0.820}$

25 year Intensity $= 1402.884 / (\text{Time in min} + 6.018)^{0.819}$

10 year Intensity $= 1174.184 / (\text{Time in min} + 6.014)^{0.816}$

5 year Intensity $= 998.071 / (\text{Time in min} + 6.053)^{0.814}$

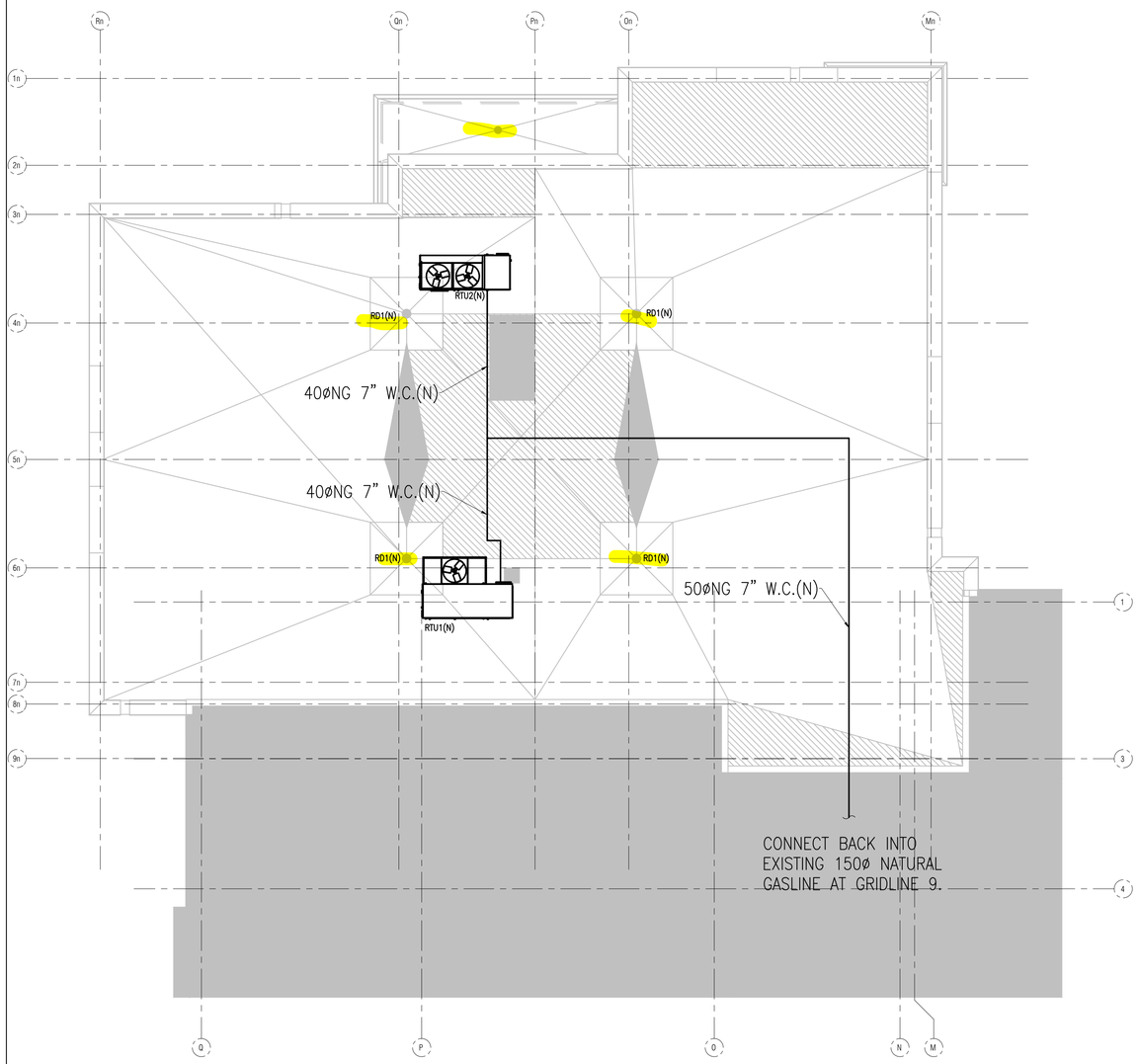
2 year Intensity $= 732.951 / (\text{Time in min} + 6.199)^{0.810}$

Orifice Sizing Calculations

Structure	Outlet Pipe Inv. Elev. (m)	Outlet Pipe Diam. (m)	C/L Orifice Elev. (m)	T/G Elev. (m)	2-YR Ponding Depth (m)	2-YR Ponding Elev. (m)	2-YR Head (m)	5-YR Ponding Depth (m)	5-YR Ponding Elev. (m)	5-YR Head (m)	100-YR Ponding Depth (m)	100-YR Ponding Elev. (m)	100-YR Head (m)	100-YR + 20% Ponding Depth (m)	100-YR + 20% Ponding Elev. (m)	100-YR + 20% Head (m)	2-YR Flow Rate (L/s)	5-YR Flow Rate (L/s)	100-YR Flow Rate (L/s)	100-YR + 20% Flow Rate (L/s)	Orifice Area[*3] (m^2)	Orifice Diameter (mm)	Orifice Type
EXCBMH 1	112.15	0.299	112.30	113.74	0.15	113.89	1.59	0.19	113.93	1.63	0.27	114.01	1.71	0.30	114.04	1.74	52.1	52.7	54.0	54.5	0.015	139	Circular, slide

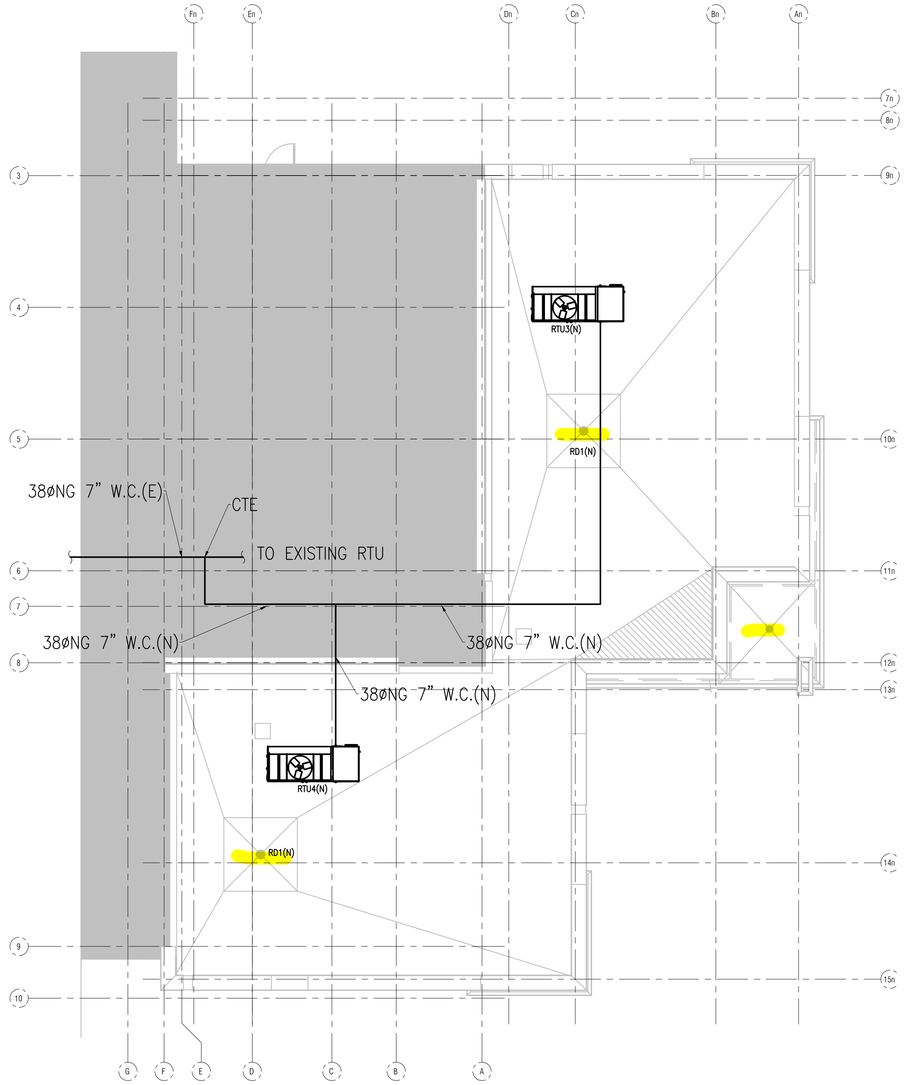
Notes:

1. Ponding depths are measured from the ponding elevation to the T/G elevation.
2. Heads are measured from the ponding elevation to the centreline of orifice elevation.
3. Orifice Area = (Q/1000) / 0.61(2*9.81*H_{100})$^{0.5}$ (OSDG Section 8.3.8.1)
4. Orifice areas are calculated using 100-year head and flow rate values.



1 M2.4 ROOF PLUMBING ADDITION #2 NEW WORK

1:100



2 M2.4 ROOF PLUMBING ADDITION #1 NEW WORK

1:100

GENERAL NOTES

1. COORDINATE WITH ALL OTHER TRADES.
2. CONTRACTOR TO PROVIDE INTERFERENCE DRAWINGS FOR PIPING IN CORRIDORS, OR WHERE CONGESTED.
3. COORDINATE INTERFERENCES WITH ALL OTHER TRADES.
4. PROVIDE FIRE STOPPING WHERE PIPE PENETRATES FIRE SEPARATIONS. COORDINATE WITH ARCHITECTURAL.
5. ALLOW FOR PIPE OFFSETS AS REQUIRED TO SUIT INTERFERENCES.
6. PROVIDE HOSE END VALVE WITH CHAIN AND CAP AT ALL LOW POINTS TO ALLOW FOR DRAINAGE.
7. REFERENCE ARCHITECTURAL DRAWING FOR PLUMBING FIXTURE MOUNTING HEIGHTS.
8. ALL STORM DRAINS SHALL BE A MINIMUM OF 75 MM DIAMETER UNLESS OTHERWISE INDICATED.
9. OFFSET PLUMBING PIPING TO AVOID STRUCTURAL MEMBERS AND OTHER INTERFERENCES.
10. MAINTAIN VENTING CLEARANCES TO INTAKES ON ROOF AS PER OBC.
11. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE UNDERGROUND PLUMBING SERVICES CIVIL CONTRACTOR AND WITH STRUCTURAL FOOTINGS AND FOUNDATIONS.
12. ALL PLUMBING VENTS SHALL TERMINATE MINIMUM 3500 MM AWAY FROM AIR INTAKES AS PER OBC.
13. COORDINATE PLUMBING PIPE & EQUIPMENT WITH ALL OTHER TRADES. CONTRACTOR TO PROVIDE INTERFERENCE DRAWINGS IN CORRIDORS, SERVICE ROOMS OR WHERE CONGESTED.
14. PROVIDE QUARTER TURN BALL ISOLATION VALVES AT ALL PLUMBING FIXTURES.
15. PROVIDE WATER HAMMER ARRESTORS ON DCW AND DHW ON ALL PLUMBING FIXTURE GROUPS OR END OF LINES.
16. ALL STORM PIPES SHALL BE INSULATED (EXPOSED AND CONCEALED) AND JACKETED WHERE EXPOSED AS PER SPECIFICATION.
17. ROUGH-IN TO PLUMBING FIXTURES SHALL BE COORDINATED WITH ARCHITECTURAL DRAWINGS & EXACT PLUMBING FIXTURE.
18. EXTEND PLUMBING PIPING TO EACH INDIVIDUAL PLUMBING FIXTURE WHERE SHOWN IN CHASE OR A GROUP OF FIXTURES.
19. THERMALLY INSULATE ALL DHW, DCW, DHWR PIPING TO EACH PLUMBING FIXTURE INCLUDING WITHIN PARTITIONS & CHASE. THERMALLY INSULATE ALL STORM PIPING AS PER SPECIFICATIONS.
20. REFERENCE ARCHITECTURAL DRAWINGS FOR CEILING TYPES & ELEVATIONS.
21. PROVIDE NEW PLUMBING FIXTURES AS INDICATED C/W ASSOCIATED PLUMBING SERVICES AND ACCESSORIES.
22. COORDINATE ALL EQUIPMENT AND PIPE SUPPORTS WITH OTHER TRADES TO MINIMIZE ATTACHMENTS TO STRUCTURE. REFER TO ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DETAILS.
23. ALL PIPING (STORM, DCW, DHW, DHWR, COND, NG) WITHIN CORRIDOR CEILING SPACE SHALL BE RUN WITHIN STRUCTURAL JOIST SPACE. PROVIDE ALL OFFSETS TO AVOID INTERFERENCES.
24. COORDINATE KINDERGARTEN AND CHILDCARE PLUMBING FIXTURE MOUNTING HEIGHTS WITH ARCHITECTURAL PLANS.

Client: OTTAWA CATHOLIC SCHOOL BOARD

DATE	REVISION	REF
2026-04-09	ISSUED FOR 85%	2
2026-03-04	ISSUED FOR 50%	1

Goodkey Weedmark
Consulting Engineers

GOODKEY WEEDMARK & ASSOCIATES LIMITED
1688 Woodward Dr. — 613 727-5111 Voice
Ottawa Ontario — 613 727-5115 Fax
Canada K2C 3R8 — www.gwal.com Web

True north / Nord du projet

Project north

Seal/Sceau

Project/Projet

ADDITION TO GUARDIAN ANGELS CATHOLIC SCHOOL

4 BAYWOOD DRIVE
OTTAWA, ONTARIO

Drawing title/Titre du dessin

ROOF PLUMBING NEW WORK

Scale / Échelle	AS NOTED
Design by / Conçu par	G.M./S.B./O.M.
Drawn by / Dessiné par	S.B. / O.M.
Reviewed by / Examiné par	G.M.
Date	2026-04-09
Project no./No. du projet	2025-613
Drawing/Dessin	M2.4
	OF 21
Revision no:	
Acad file/Fichier:	

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

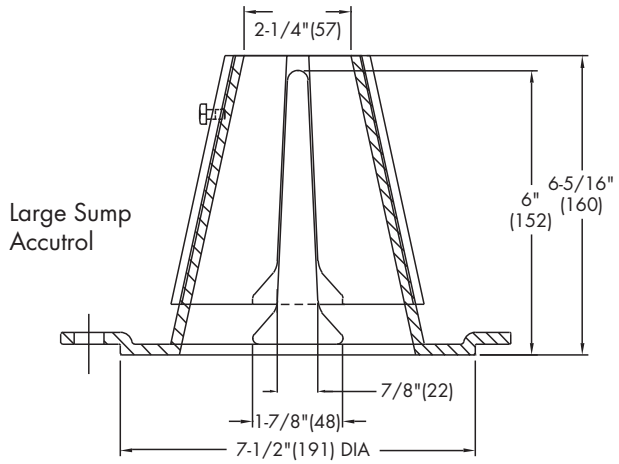
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

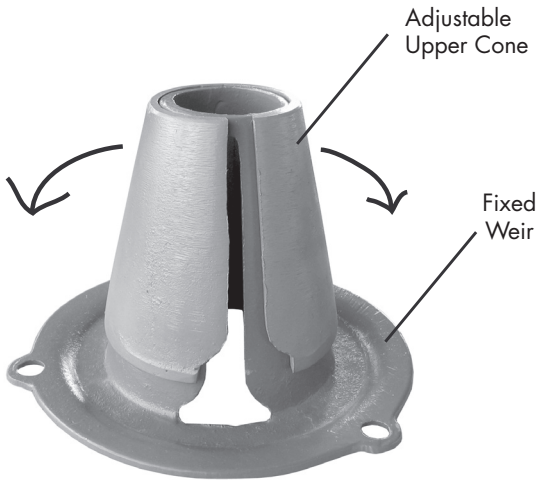
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

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

Engineer _____ Representative _____

WATTS®
A Watts Water Technologies Company

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

Storage Volume Calculations - Area R1 (East Addition Roof)

		No. of Roof Drains =	4.0
Area ID =	R1	Roof Drain Release Rate (L/s/drain) =	1.89
Area (ha) =	0.05	2-Year Release Rate (L/s) =	7.6
C =	0.90	5-Year Release Rate (L/s) =	7.6
C (100 YR) =	1.00	100-Year Release Rate (L/s) =	7.6
		100-Year + 20% Release Rate (L/s) =	7.6
		Available Surface Storage Volume (m^3) =	

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	**10**	**76.8**	**10.4**	**7.6**	**2.9**	**1.7**
	15	61.8	8.4	7.6	0.8	0.7
	20	52.0	7.1	7.6	-0.5	-0.6
	25	45.2	6.1	7.6	-1.4	-2.1
	30	40.0	5.4	7.6	-2.1	-3.8
	35	36.1	4.9	7.6	-2.7	-5.6
5 Year	**10**	**104.2**	**14.2**	**7.6**	**6.6**	**4.0**
	15	83.6	11.4	7.6	3.8	3.4
	20	70.3	9.5	7.6	2.0	2.4
	25	60.9	8.3	7.6	0.7	1.1
	30	53.9	7.3	7.6	-0.2	-0.4
	35	48.5	6.6	7.6	-1.0	-2.0
100 Year	10	178.6	27.0	7.6	19.4	11.6
	15	142.9	21.6	7.6	14.0	12.6
	20	**120.0**	**18.1**	**7.6**	**10.5**	**12.7**
	25	103.8	15.7	7.6	8.1	12.2
	30	91.9	13.9	7.6	6.3	11.4
	35	82.6	12.5	7.6	4.9	10.3
100 Year + 20%	10	214.3	32.3	7.6	24.8	14.9
	15	171.5	25.9	7.6	18.3	16.5
	20	**143.9**	**21.7**	**7.6**	**14.2**	**17.0**
	25	124.6	18.8	7.6	11.3	16.9
	30	110.2	16.6	7.6	9.1	16.3
	35	99.1	15.0	7.6	7.4	15.5

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)
5. Watts roof drain - fully exposed weir opening at maximum 150mm ponding depth.

Storage Volume Calculations - Area R2 (West Addition Roof)

		No. of Roof Drains =	2.0
Area ID =	R2	Roof Drain Release Rate (L/s/drain) =	1.89
Area (ha) =	0.03	2-Year Release Rate (L/s) =	3.8
C =	0.90	5-Year Release Rate (L/s) =	3.8
C (100 YR) =	1.00	100-Year Release Rate (L/s) =	3.8
		100-Year + 20% Release Rate (L/s) =	3.8
		Available Surface Storage Volume (m^3) =	

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	**10**	**76.8**	**5.9**	**3.8**	**2.2**	**1.3**
	15	61.8	4.8	3.8	1.0	0.9
	20	52.0	4.0	3.8	0.2	0.3
	25	45.2	3.5	3.8	-0.3	-0.4
	30	40.0	3.1	3.8	-0.7	-1.2
	35	36.1	2.8	3.8	-1.0	-2.1
5 Year	**10**	**104.2**	**8.0**	**3.8**	**4.3**	**2.6**
	15	83.6	6.5	3.8	2.7	2.4
	20	70.3	5.4	3.8	1.6	2.0
	25	60.9	4.7	3.8	0.9	1.4
	30	53.9	4.2	3.8	0.4	0.7
	35	48.5	3.7	3.8	0.0	-0.1
100 Year	10	178.6	15.3	3.8	11.5	6.9
	15	142.9	12.3	3.8	8.5	7.6
	20	**120.0**	**10.3**	**3.8**	**6.5**	**7.8**
	25	103.8	8.9	3.8	5.1	7.7
	30	91.9	7.9	3.8	4.1	7.4
	35	82.6	7.1	3.8	3.3	6.9
100 Year + 20%	15	171.5	14.7	3.8	10.9	9.8
	20	143.9	12.4	3.8	8.6	10.3
	25	**124.6**	**10.7**	**3.8**	**6.9**	**10.4**
	30	110.2	9.5	3.8	5.7	10.2
	35	99.1	8.5	3.8	4.7	9.9
	40	90.2	7.7	3.8	4.0	9.5

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)
5. Watts roof drain - fully exposed weir opening at maximum 150mm ponding depth.

Storage Volume Calculations - Area STM1 + R1 + R2 (EX CBMH)

Area ID =	STM1 + R1 + R2	2-Year Release Rate (L/s) =	52.1
Area (ha) =	0.47	5-Year Release Rate (L/s) =	52.7
C =	0.75	100-Year Release Rate (L/s) =	54.0
C (100 YR) =	0.94	100-Year + 20% Release Rate (L/s) =	54.5
		Available Surface Storage Volume (m^3) =	153.8

Design Event	Time (min)	Rainfall Intensity (mm/hr)	Flow (L/s)	Release Rate (L/s)	Net Runoff to be Stored (L/s)	Storage Required (m^3)
2 Year	**10**	**76.8**	**75.7**	**52.1**	**23.6**	**14.1**
	15	61.8	60.8	52.1	8.8	7.9
	20	52.0	51.2	52.1	-0.8	-1.0
	25	45.2	44.5	52.1	-7.6	-11.4
	30	40.0	39.4	52.1	-12.6	-22.7
	35	36.1	35.5	52.1	-16.6	-34.8
5 Year	**10**	**104.2**	**102.6**	**52.7**	**49.9**	**29.9**
	15	83.6	82.3	52.7	29.6	26.6
	20	70.3	69.2	52.7	16.5	19.8
	25	60.9	60.0	52.7	7.3	10.9
	30	53.9	53.1	52.7	0.4	0.7
	35	48.5	47.8	52.7	-4.9	-10.4
100 Year	10	178.6	219.8	54.0	165.8	99.5
	15	142.9	175.9	54.0	121.9	109.7
	20	**120.0**	**147.7**	**54.0**	**93.7**	**112.4**
	25	103.8	127.9	54.0	73.9	110.8
	30	91.9	113.1	54.0	59.1	106.4
	35	82.6	101.7	54.0	47.7	100.1
100 Year + 20%	15	171.5	211.1	54.5	156.6	141.0
	20	143.9	177.2	54.5	122.8	147.3
	25	**124.6**	**153.4**	**54.5**	**99.0**	**148.4**
	30	110.2	135.7	54.5	81.3	146.3
	35	99.1	122.0	54.5	67.5	141.8
	40	90.2	111.0	54.5	56.6	135.7

Notes:
1. Rainfall intensity calculated using City of Ottawa IDF curve equations.
2. Provided storage volumes have been calculated using Civil3D by Autodesk.
3. Flow calculated using the Rational Method. Q=2.78CiA
4. C (100 YR) = C + 25% (Max. 1.0)

2.0 DESIGN CRITERIA

2.1 WATER QUANTITY

The guideline recommended by the MDP for future developments serves as the criteria for water quantity control. In particular stormwater detention be provided for minor event flows (1:5 year storm event) from the proposed subdivision. The volume of runoff requiring attention is discussed later in the report.

2.2 WATER QUALITY

Existing MOEE and the MNR guidelines for the stormwater quality provided the criteria for establishing water quality objectives.

According to MOEE, during the summer period between May 15 to September 15 stormwater quality be achieved in the Rideau River, such that four or fewer event exceedences of 100 E. Coli per 100 ml and 25 mg/L TSS occur. During the remaining period of the year aquatic habitat must be protected such that TSS levels do not exceed 80 mg/L or that pre-development TSS levels are maintained and not exceeded.

3.0 DESIGN APPROACH

3.1 QUANTITY/QUALITY FACILITY OPTIONS

Due to the requirements to achieve an effluent of sufficient quality to permit water contact recreational activities and to attenuate minor storm events from the proposed subdivision site, only two feasible options exist to meet these objectives. These are as follows:

i) sedimentation basin plus disinfection, and
ii) constructed wetland facility.

A sedimentation basin must be sized to store minor event flows and release at a rate sufficient to permit disinfection. Typically disinfection is provided by means of ultra violet irradiation. Such facilities have been constructed and provide satisfactory levels of performance in the province. These facilities are more suited to areas where land constraint exist. The trend in environmental design, however, is to utilize natural environmental elements where possible to meet treatment objectives.

The second alternative, a constructed wetland facility, utilizes wetland habitats to achieve the target effluent objectives. Wetlands are sized and configured to provide both attenuation for minor event storms and to facilitate wetland ecosystems.

Since the constructed wetland is a simpler system to construct and operate and land constraints are a minor factor, only the constructed wetland option is reviewed as a potential stormwater management option.

4.0 CONCEPT PLAN

4.1 SITING CONSTRAINTS

The following factors limit the location of a constructed wetland facility and serve to narrow the approximate siting of the facility before specific design issues are addressed:

1. facility must be situated along Faulkner Drain,

2. facility must be situated to provide access for maintenance purposes,

3. sufficient space should exist to accommodate sizing for present and future flows, and

4. land must be available for facility.

The proposed constructed wetland facility which is identified on plan 94032-STM meets the above constraints. Location, access, size and availability are met. Identified land is owned by one of the proponents of the subdivision development. The area immediately south adjacent to Flewellyn Road is owned by Ontario Hydro.

5.0 CONCEPT DESIGN

5.1 FACILITY ELEMENTS

Recent publications and research on the subject of wetland construction identify two primary elements: [MOEE April 1992].

i) Pre-treatment area or sedimentation basin, and
ii) Operating wetland cell.

It is proposed that these two elements comprise the principal water storage and treatment elements. Also additional hydraulic structures are required to direct the flow or by-pass of water to the facility as follows:

iii) diversion structure
iv) by-pass structures
v) wetland discharge outlet.

The purpose of the pre-treatment area is to provide a pool to permit flow velocities to decrease and thereby promote the settling of the coarsest sediments. Recently proposed facilities in the RMOC area recommend permanent pools of approximately 1.0m depth. Typically this area provides 10% of the storage of the wetland live storage. Because the coarsest sediments settle in this pool initially, it will require the most maintenance in as far as sediment removal is concerned.

The constructed wetland functions best if a variety of locally available aquatic, semi-aquatic and emergent plant species are planted in the wetland. Local experience indicates that such species thrive if the fluctuation of the wetland pool is limited to approximately 0.3m and the average overall depth is approximately 0.7 - 0.8m. In addition the velocity through the wetland should be limited to 0.5 m/s.

5.2 STORAGE REQUIREMENTS

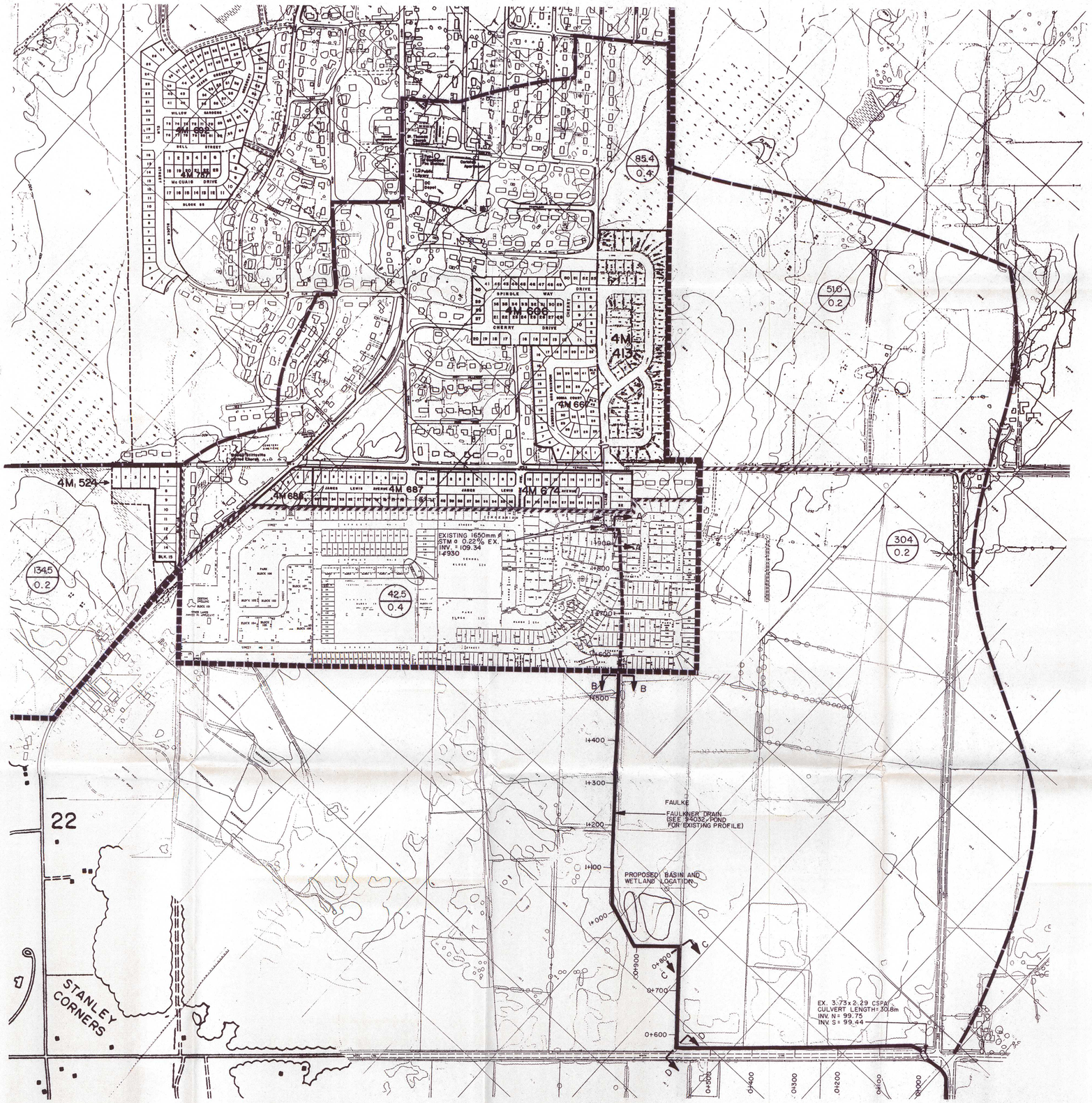
The sizing requirements of the wetland area was calculated using several methods as follows.

i) The Draft Interim Stormwater Quality Control Guidelines for New Development [MOE/MNR 1989] presented a table to estimate pond volumes for urban storm runoff.

ii) Volume generated from 25mm of runoff from impervious areas.

iii) Volume generated from 10mm of runoff from impervious areas.

iv) 1:5 year storm event difference between pre- and post-development flows.

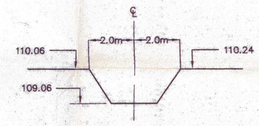


LEGEND

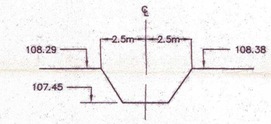
- WATERSHED BOUNDARY
- SUB-CATCHMENT BOUNDARY
- STITTSVILLE MUNICIPAL BOUNDARY
- EXISTING FAULKNER DRAIN
- EXISTING FAULKNER DRAIN TO BE REPLACED WITH STORM SEWER
- 51.0 / 0.2 — DRAINAGE AREA (ACCORDING TO STITTSVILLE MASTER DRAINAGE PLAN) / RUNOFF COEFFICIENT

NOTES

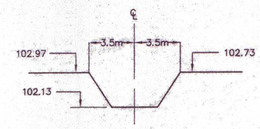
1. CROSS DITCH CROSS SECTIONS SHOWN AT APPROXIMATE LOCATIONS ±25m.



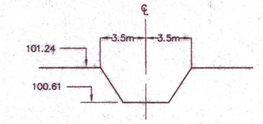
SECTION A–A



SECTION B–B



SECTION C–C



SECTION D–D

FOR INFORMATION ONLY

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

No.	REVISION	DATE	BY
1	ISSUED FOR CONCEPT APPROVAL	JUN 24/94	LJ

LICENSED PROFESSIONAL ENGINEER — L.J.A. JABLONSKI — PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER — UDO BOEHME — PROVINCE OF ONTARIO

NOVATECH
ENGINEERING CONSULTANTS LTD.
OTTAWA, ONTARIO

DESIGN	LJ
CHECKED	LJ
DRAWN	SAB
CHECKED	UB
APPROVED	
SCALE	1:5000
DATE ISSUED	JUN 24 1994

TOWNSHIP OF GOULBOURN

FERNBANK SUBDIVISION

CONCEPT STORM DRAINAGE AREA PLAN

PROJECT No.	94032
FIELD BOOK	
DATE	JUNE 1994
DRAWING No.	94032-STMC