EDWARD J. CUHACI & ASSCOCIATES ARCHITECTS INC.

ÉCOLE ÉLÉMENTAIRE CATHOLIQUE
465 PLACETTE TRIDENT MEWS, OTTAWA, ON

SERVICING AND STORMWATER MANAGEMENT REPORT

DECEMBER 5, 2025

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SITE PLAN APPLICATION

PROJECT NO.: CA00
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1 GENERAL

1.1 EXECUTIVE SUMMARY

WSP has been retained by Edward J. Cuhaci on behalf of the Conseil des écoles catholiques du Centre-Est (CECCE) to deliver comprehensive servicing, grading, and stormwater management design services for a new elementary school development at 465 Trident Mews, Ottawa. The 2.25-hectare site, currently vacant and primarily grass-covered, lies within a residential area, providing an ideal setting for community access and engagement. Entry to the site will be from Findlay Creek Drive, allowing ease of access for pedestrians and vehicles.

The site is generally sloped from northwest to southeast. As part of the subdivision development, the water from the school block is currently collected to a temporary ditch inlet catchbasin to the storm sewer on Trident Mews as an interim stage. Based on guidelines from a pre-consultation meeting held on July 14, 2025, the allowable release rate for stormwater from the site is limited to 454 L/s as per Design Brief – Cowan's Growe – 4791 Bank Street – Leitrim Development Area – Dated May 2018 by IBI Group, a requirement that will guide the stormwater management approach for the development.

The proposed development will feature a two-storey elementary school, soccer field, and parking area, with additional provisions made for future portable classrooms.

Stormwater servicing for the site will connect to the existing 1350mm concrete trunk sewer along Findlay Creek Drive, through an existing 825mm stub. Sanitary servicing for the school will connect to the existing 200mm sanitary service stub and manhole to Findlay Creek Drive sanitary sewer trunk. Water servicing for the school will connect to the existing 200mm water stub on Findlay Creek Drive. The two connections provide redundancy for a reliable water supply, meeting both domestic and fire protection requirements.

The grading design for the school site supports effective stormwater drainage, directing surface runoff toward a series of catch basins that convey water to the main trunk sewer on Findlay Creek Drive.

This detailed design provides a robust servicing, grading, and stormwater management framework for the proposed elementary school at 465 Trident Mews, supporting regulatory compliance, efficient drainage, and community accessibility while contributing to a resilient and functional school site.

Design of a drainage and stormwater management system in this development must be prepared in accordance with the following documents:

- Sewer Design Guidelines, City of Ottawa, September 2025;
- Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003; and
- Stormwater Management Facility Design Guidelines, City of Ottawa, April 2012

This report was prepared utilizing servicing design criteria obtained from the City of Ottawa and outlines the design for water, sanitary wastewater, and stormwater facilities, including stormwater management.

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

The following municipal services are provided from City of Ottawa.
Findlay Creek Drive:

- 1350mm storm trunk sewer (invert = 89.28), 825mm storm stub (invert = 89.83)
- 200mm sanitary sewer (invert = 89.17), 200mm sanitary stub (invert = 91.12)
- 250mm watermain, 200mm water service stub

Trident Mews Drive:

- 450mm storm sewer
- 200mm sanitary sewer
- 150mm watermain

It is proposed that:

- On-site stormwater management systems, employing surface storage and roof storage, will be provided to attenuate flow rates leaving the site area. Controlled flow rates will be maintained as per higher level study.

1.2 DATE AND REVISION NUMBER

The original report was issued on December 3rd, 2025.

1.3 LOCATION MAP AND PLAN

The proposed institutional development is located at 465 Trident Mews, Ottawa at the location shown in Figure 1-1 below.

Figure 1-1 Site Location

1.4 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with related requirements and is understood to be zoning-compliant.

1.5 PRE-CONSULTATION MEETINGS

A pre-consultation meeting was held with the City of Ottawa on July 14, 2025. Notes from this meeting are provided in **Appendix A**.

1.6 HIGHER LEVEL STUDIES

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

- Ottawa Sewer Design Guidelines, Third Edition, Document SDG003, September 2025, City of Ottawa.
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
    - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
    - Technical Bulletin ISTB-2018-02 (21 March 2018)
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020.
- Design Brief, Cowan's Grove, 4791 Bank Street, Leitrim Development Area, Prepared by IBI Group, Project: 103557, dated May 2018.
- Design Brief, Lilythorne at Findlay Creek, 4747-4755 And 4789 Bank Street, Leitrim Development Area, Prepared by IBI Group, Project: 105202, Dated April 2020.

1.7 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines. The site plan includes a new school building, a new parking area, football/soccer field and future portable classrooms.

1.8 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

An existing 1350mm diameter concrete trunk storm sewer is located along Findlay Creek Drive along the northwest side of the proposed elementary school site at 465 Trident Mews. The stormwater services for the new school will connect to this trunk sewer through an 825mm stub. Additionally, there is a 200mm sanitary stub along Findlay Creek Drive, which will be extended as needed to connect with the school's sanitary systems. Water servicing will utilize an existing watermain stub, and a second connection to the existing 250mm watermain along Findlay Creek Drive.

The site access points will be from Findlay Creek Drive.

1.9 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS

There are no watercourses, municipal drains or environmentally significant areas on the site. The proposed changes to the site will not require any additional approvals or amendments to approvals pertaining to environmentally significant areas, watercourses or municipal drains.

1.10 CONCEPT LEVEL MASTER GRADING PLAN

As the design is being submitted for site plan approval, the grading plan has been developed to the final design level. The existing and proposed grading are shown on Drawings C03. Existing grading information is based on a topographic survey of the site completed in October 2025 by AOV. No changes in grading are proposed beyond the redevelopment area boundaries. The proposed grading plan confirms the feasibility of the proposed stormwater management system, drainage, soil removal and fills. The geotechnical investigation was completed in October 2025 by EXP. The grading along the study area boundary is proposed to meet the existing grade.

1.11 IMPACTS ON PRIVATE SERVICES

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

1.12 DEVELOPMENT PHASING

There are no development phasing considerations for the site.

1.13 GEOTECHNICAL STUDY

A geotechnical investigation report was previously prepared by Golder Associates in December 2013. No additional geotechnical information was required for the design of the modified site services, including paving. This geotechnical report will be included with the contract documents to be issued for construction, and the recommendations of the reports will be referenced in the construction specifications. The geotechnical study does, however, recommend a grade raise restriction of at 4.0m.

1.14 DRAWING REQUIREMENT

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

2 WATER DISTRIBUTION

2.1 CONSISTENCY WITH MASTER SERVICING STUDY AND AVAILABILITY OF PUBLIC INFRASTRUCTURE

The new elementary school at 465 Trident Mews will be serviced by the 375mm watermain on Kelly Farm Drive, utilizing two separate service connections of 200mm diameter to meet both domestic and fire protection needs. The dual 200mm diameter private water services will provide redundancy for the school building. An automatic sprinkler system will provide fire protection within the building, with the fire department connection strategically located near the main entrance. It is 39m away from the existing municipal fire hydrant on Findlay Creek Drive. Another two fire hydrants are located on Trident Mews, which is 24m and 38m from the building. No additional changes to the City's water distribution system are necessary.

2.2 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

A boundary service request was submitted to the City of Ottawa and boundary conditions have been received and summarized below. A fire flow of 6,000 l/min (100 l/s) was estimated for the proposed elementary school.

Table 2-1: Boundary Conditions at Connection 1

Boundary Condition Connection 1 – Kugagami Road (@ 93.8m)				
SCENARIO	Existing Conditions		Future SUC	
	Hydraulic Pressure (kPa / PSI)	Head (m)	Hydraulic Pressure (kPa / PSI)	Head (m)
Basic Day (MAX HGL)	598.5 / 86.8	154.8	521.9 / 75.7	147.0
Peak Hour (MIN HGL)	501.2 / 72.7	144.9	448.2 / 65.0	139.5
Max Day + Fire Flow	501.2 / 72.7	144.9	441.3 / 64.0	138.8

Table 2-2: Boundary Conditions at Connection 2

Boundary Condition Connection 2 – Findlay Creek Drive (@ 93.7m)				
SCENARIO	Existing Conditions		Future SUC	
	Hydraulic Pressure (kPa / PSI)	Head (m)	Hydraulic Pressure (kPa / PSI)	Head (m)
Basic Day (MAX HGL)	599.2 / 86.9	154.8	522.6 / 75.8	147.0
Peak Hour (MIN HGL)	501.9 / 72.8	144.9	448.8 / 65.1	139.5
Max Day + Fire Flow	501.9 / 72.8	144.9	441.3 / 64.0	138.7

2.3 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development is considered as institutional development. A water demand calculation sheet is included in **Appendix B**, and the total water demands are summarized as follows:

Average Day 2.38 L/s

Maximum Day	3.57 L/s
Peak Hour	6.43 L/s

The 2010 City of Ottawa Water Distribution Guidelines stated that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

Minimum Pressure	Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)
Fire Flow	During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.
Maximum Pressure	Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

<u>Under Existing Conditions</u>

Water pressure at municipal connections check:

Min. HGL @ Connection – Pavement elevation = 144.9m – 93.81m = 51.09m = 501.02 kPa

Water pressure at building connection (at average day) check:

Max. HGL @ Connection – Finished floor elevation = 154.8m – 93.45m = 61.35m = 601.64 kPa

Water pressure at building connection (at max. hour demand) check:

Min. HGL @ Connection – Finished floor elevation = 144.9m – 93.45m = 51.45m = 504.55 kPa

Water pressure at building connection (at max. day + fire demand):

(Max Day + Fire) HGL @ Connection - Finished floor elevation = 144.9m – 93.45m = 51.45m = 504.55 kPa

<u>Future Conditions - South Urban Community (SUC) Water Infrastructure Upgrade</u>

Water pressure at municipal connections check:

Min. HGL @ Connection – Pavement elevation = 139.5m – 93.81m = 45.69m = 500.34 kPa

Water pressure at building connection (at average day) check:

Max. HGL @ Connection – Finished floor elevation = 147.0m – 93.45m = 53.55m = 525.15 kPa

Water pressure at building connection (at max. hour demand) check:

Min. HGL @ Connection – Finished floor elevation = 139.5m – 93.45m = 46.05m = 451.60 kPa

Water pressure at building connection (at max. day + fire demand):

(Max Day + Fire) HGL @ Connection - Finished floor elevation = 138.7m – 93.45m = 45.25m = 443.75 kPa

The minimum water pressure inside the building at the connection is determined with the minimum HGL condition, resulting in a pressure of 504.55 kPa which exceed the minimum requirement of 276 kPa per the guidelines, under both existing conditions and future SUC conditions. Under current condition, system pressure can reach up to 601.64 kPa, which

exceeds both the Ontario Building/Plumbing Code limit (552 kPa) and the recommended maximum. However, the future SUC upgrade is anticipated to be completed in 2027, about the same time of the school, maximum HGL will drop to 525.15 kPa by the time., which is below the 552 kPa limit, so the issue will resolve after the upgrade. Until the upgrade, pressure-reducing controls would be recommended to the Mechanical Consultant and School Board.

2.4 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow for the proposed building and portable classrooms has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures.

Assuming non-combustible construction and a fully supervised sprinkler system, a fire flow demand of 6,000 l/min (100 l/s) for the new school has been calculated. A copy of the FUS calculations is included in **Appendix B**.

The demand of 6,000 l/min for the school can be delivered through three existing fire hydrants within Findlay Creek Drive north to the site and Trident Mews east of the site. All three hydrants are within 45 m of the building. As per above, the three existing hydrants can provide up to 95 l/s with a combined total of 285 l/s which is greater than the FUS demand.

The fire flow demand of 4,000 l/min (66.7 l/s) has also been calculated for the portable classrooms. The portable classrooms are located close to the Trident Mews. The required fire flow could also be met through the combination of two existing public hydrants on Trident Mews. The distances between the classrooms and hydrants are between 45m to 90m.

The boundary condition for Maximum Day and Fire Flow results in a pressure of 504.55/443.75 kPa at the ground floor level. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As a pressure of 443.75 kPa is achieved, the fire flow requirement is exceeded.

Therefore, the existing watermain system has adequate capacity to service the proposed building and the new addition.

2.5 CHECK OF HIGH PRESSURE

The maximum water pressure inside the building at the connection is determined with the maximum HGL condition, resulting in a pressure of 601.64 kPa under existing conditions and 525.15 kPa under future SUC conditions. As the maximum water pressure exceeds the 552 kPa threshold in the guideline in which pressure control is required. As the South Urban Community (SUC) Water Infrastructure Upgrade is expected to be completed in 2028, a pressure reducing valve (PRV) is required should the occupancy occur before 2028.

2.6 PHASING CONSTRAINTS

Phasing constraints for development have not been detailed in this report for the site.

2.7 RELIABILITY REQUIREMENTS

Shut off valves are provided for the two proposed watermain services at the property line. Existing water valve at the connection will provide reliability.

2.8 NEED FOR PRESSURE ZONE BOUNDARY MODIFICATION

A pressure zone boundary modification is not required.

2.9 CAPABILITY OF MAJOR INFRASTRUCTURE TO SUPPLY SUFFICIENT WATER

The major infrastructure is capable of supplying sufficient water.

2.10 DESCRIPTION OF PROPOSED WATER DISTRIBUTION NETWORK

The proposed watermain system consists of two 200mm dia. service connections branching off the 250mm dia. watermain located in the Findlay Creek Drive right-of-way.

2.11 OFF-SITE REQUIREMENTS

No off-site improvements to watermains, feedermains, pumping stations, or other water infrastructure are required to maintain existing conditions and service the adjacent developments.

2.12 CALCULATION OF WATER DEMANDS

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

3 WASTEWATER DISPOSAL

3.1 DESIGN CRITERIA

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

- Minimum Velocity 0.6 m/s
- Maximum Velocity 3.0 m/s
- Manning Roughness Coefficient 0.013
- Total est. Hectares institutional use 2.07
- Average sanitary flow for institutional use 28,000 L/Ha/day
- Commercial/Institutional Peaking Factor 1.5
- Infiltration Allowance (Total) 0.33 L/Ha/s
- Minimum Sewer Slopes – 200 mm diameter 0.50%

The area of 2.25 ha represents the total area for the site. This is the sanitary collection area that is being considered to contribute to the proposed 200mm sanitary service connection to the municipal sanitary sewer.

3.2 CONSISTENCY WITH MASTER SERVICING STUDY

The sanitary connection for the new elementary school will be provided by extending into the existing 200mm sanitary stub on Findlay Creek Drive. The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on institutional development.

The criteria to determine anticipated actual peak flow based on site used as described in Ottawa Sewer Design Guidelines Appendix 4-A are as follows;

- Institutional: 28000 L/Ha/day = 0.324 L/Ha/s
- Peak flow = (0.324 L/Ha/s x 2.07 ha x 1.5 peaking factor) + 0.33 l/Ha/s x 2.07 ha = 1.69 L/s

The on-site sanitary sewer network has been designed in accordance with 1.69 L/s as described above.

3.3 REVIEW OF SOIL CONDITIONS

There are no specific subsurface conditions at this site that indicate a need for an increased extraneous flow allowance. Soil conditions have been assessed by Golder Associates, and bedding and backfill will be provided as recommended. Conventional sewer materials will be used, and dewatering will be carried out as necessary, following the geotechnical recommendations and in response to conditions encountered on-site.

All dewatering activities will be conducted in line with MECP regulations and the geotechnical recommendations, maintaining the groundwater level at least 1.0m below the base of excavations.

3.4 DESCRIPTION OF EXISTING SANITARY SEWER

The proposed sanitary service for the new elementary school will extend into the existing 200mm sanitary service stub and eventually connect to the existing 200mm sanitary sewer within the Findlay Creek Drive right-of-way.

3.5 VERIFICATION OF AVAILABLE CAPACITY IN DOWNSTREAM SEWER

The existing sanitary sewer within Findlay Creek Drive right-of-way is a 200 mm diameter sewer at a slope of 0.35%. This size and slope of sewer provides a capacity of 20.24 L/s.

The flow from the study area was included in the sanitary sewer in Findlay Creek Drive. Refer to Sanitary Sewer Design Sheet - Lilythorne at Findlay Creek by IBI Group, included in **Appendix B**.

3.6 CALCULATIONS FOR NEW SANITARY SEWER

The new sanitary service from the site is a 200 mm diameter sewer at a slope of 1.0%. This size and slope of sewer provides a capacity of 32.8 L/s.

For the 2.25 ha study area, the sanitary peak flow is calculated at 1.09 l/s with an infiltration flow of 0.74 l/s (based on a peak extraneous flow of 0.33 l/s/ha) for a total flow of 1.84 l/s. Both the proposed sanitary on-site and municipal sewers have adequate capacity to convey this flow.

3.7 DESCRIPTION OF PROPOSED SEWER NETWORK

The proposed on-site sanitary sewer network will include a 200mm sanitary service line connected to the new 1200mm maintenance hole. This maintenance hole will replace the existing stub cap, providing improved access and functionality for the sanitary system.

3.8 ENVIRONMENTAL CONSTRAINTS

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

3.9 PUMPING REQUIREMENTS

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

3.10 FORCEMAINS

There are no sanitary forcemains proposed on this site.

3.11 EMERGENCY OVERFLOWS FROM SANITARY PUMPING STATIONS

No sanitary pumping stations are proposed on this site.

4 SITE STORM SERVICING

4.1 EXISTING CONDITION

The subject site, located at 465 Trident Mews, is part of Cowan's Grove Subdivision development. The pre-development release rate from the 2.25 ha study area has been assigned to be 454 L/s for the 100-year event as per the IBI Design Brief 2018. Stormwater runoff from the site is conveyed via a 825mm stub to the 1350mm concrete trunk sewer along Findlay Creek Drive, which ultimately discharges into the designated stormwater management pond for quantity and quality control and treatment.

4.2 ANALYSIS OF AVAILABLE CAPACITY IN PUBLIC INFRASTRUCTURE

Based on the higher-level studies and plan, the allowable release rate for the site was allocated to be 454 L/s and remains unchanged, there are no concerns related to the adequacy and available capacity of the downstream network. Capacity in the minor system is not a concern.

4.3 DRAINAGE DRAWING

Drawing C04 shows the detailed site sewer network. Drawings C03 provides proposed grading and drainage and include existing grading information. Drawing C07 provides a post-construction drainage sub-area plan. Site sub-area information is also provided on the storm sewer design sheet attached in **Appendix C**. An overall grading plan and Servicing plan have also been attached to **Appendix C** for reference.

4.4 WATER QUANTITY CONTROL OBJECTIVE

The water quantity objective for the site is to limit the flow release to 454 L/s. Excess flows above this limit for the school site up to those generated by the 100-year storm event from drainage on the school site are temporarily stored on site.

No provision is required on the school's site to accommodate any flow from the adjacent lands. All flows exceeding the defined minor system capacity and on-site storage capability will enter the major system, with overflow to the City right of way, on the west and south boundaries of the site.

The maximum 100-year ponding elevation for this site is 92.70, and one 309 mm dia. circular plate ICDs is proposed to be used on the outlet inside STMH101 to restrict the flow rate leaving the site to 302.95 l/s at 2.31 m head. In theory, the runoff water will be detained on site up to the 100-yr rainfall event, and for those scenarios exceeding 100-yr rainfall event, the runoff water will be discharged offsite once all the available storage areas have reached their maximum capacities. The school site can provide a total of 509.37 m^3 of surface storage volume, but the required storage for 100-yr will be only 93.31 m^3. The ponded water will not reach the spill elevation 93.84 under 100 year and lesser events. The site has more storage capacity than required because of the grading design. This will allow extra detention of water on the site during extreme events and will reduce stress on the downstream stormwater management pond. If rain falls at a rate higher than the soccer field soil can absorb, then there will be surface ponding at the designated locations shown on the drawings. If the soccer field and landscaped areas allow for infiltration, the available surface storage volume will be further increased. In theory, the use of lower runoff coefficients for landscaped surfaces already accounts for a certain degree of absorption in these areas. For the 2-year storm event, a total storage volume of 1.32 m^3 is required. This storage will be accommodated within the underground storm pipes and maintenance holes, providing adequate detention for smaller, more frequent events without the need for surface ponding.

4.5 WATER QUALITY CONTROL OBJECTIVE

The on-site quality control objective is to provide enhanced protection (minimum 80% TSS removal) prior to releasing flows from the site's paved areas. For this site, an OGS unit (EFO5) has been sized to meet the quality control requirements. See **Appendix C** for OGS details.

4.6 DESIGN CRITERIA

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

Some of the key criteria include the following:

• Design Storm (minor system)	1:2-year return (Ottawa)
• Rational Method Sewer Sizing	
• Initial Time of Concentration	10 minutes
• Runoff Coefficients	
Landscaped Areas	C = 0.20
Asphalt/Concrete	C = 0.90
Traditional Roof	C = 0.90
• Pipe Velocities	0.80 m/s to 6.0 m/s
• Minimum Pipe Size	250 mm diameter (200 mm CB Leads and service pipes)

4.7 PROPOSED MINOR SYSTEM

The new drainage system consists of a series of manholes, catchbasins and storm sewers leading to the outlet manhole CBMH101 discharging controlled flows into STMH102 (OGS Unit) near the parking lot entrance before outletting into the existing system within the Findlay Creek Drive ROW. All drainage areas on the site are collected in the site piped drainage system.

It is also customary for larger buildings to be provided with piped storm services for roof drainage. The roof drainage storm service is connected to the existing 825 mm diameter storm stub located near the parking lot entrance with a new 1200 mm diameter maintenance hole, ensuring an unobstructed flow for these areas. The roof drain system is uncontrolled.

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

4.8 STORMWATER MANAGEMENT

The study area is proposed to be limited to a total post-development release rate of 454.0 l/s (allowable release rate was determined to be 315.73 l/s), which is achieved through an inlet control device (located within CBMH101).

Flows generated that are in excess of the site's allowable release rate will be stored on site in surface storage areas and gradually released into the minor system so as not to exceed the site's allocation.

The maximum surface retention depth of the developed areas will be limited to maximum 350mm during a 1:100 year event. The maximum static ponding elevation has been designed to be 92.84m as determined by the overland flow elevation, which is well below the building ground floor level of 93.45m.

No surface ponding will occur during a 2-year event. This storage will be accommodated within the underground storm pipes and maintenance holes, providing adequate detention for smaller, more frequent events without the need for surface ponding.

Overland flow routes will be provided in the grading to permit emergency overland flow from the site. The overflow routes will eliminate any increase in ponding depth for events exceeding 100 years.

At certain locations within the study area, the opportunity to store runoff is limited due to grading constraints. These locations are located at the perimeter of the site where it is necessary to tie into existing grades, and it is not always feasible to capture or store stormwater runoff. The runoff from these areas will be uncontrolled and be released as direct runoff.

The site grading and ponding has been designed to control water generated during the 1:100-year event, with no overflow leaving the site at this control level. Please refer to the SWM Calculations in **Appendix C**.

4.9 INLET CONTROLS

As noted in Section 4.8, there is one inlet control device (ICD) located in STMH101. While the majority of the site is controlled by this ICD, a portion of the site consisting of catchment area A-14 and building roof drain system will drain directly to the existing on-site storm network uncontrolled.

Therefore, the release from the study area that is not controlled by an ICD has been determined in the Stormwater Management Calculations, the total uncontrolled flows generated from the site are 138.30 L/s (24.10 L/s from catchment area A-14 and 114.20 L/s from the Roof B-1).

The ICD located in STMH101 controls the release rate from the remainder of the study area (catchment areas A-1 to A-13) to 302.95 L/s. Flow restrictions will cause the on-site catchbasin and catchbasin manholes to surcharge, generating surface ponding in the parking and landscaped areas. Ponding locations and elevations are summarized on the grading and drainage area plans. The proposed ICD dimensions are determined as:

Table 4-1: ICD Information

Structure	Head (m)	Flow Rate (l/s)	Orifice Type
STMH101	2.31	302.95	Orifice plate 309mm

Therefore, the total release rate from the study area is calculated to be 206.75 l/s and is within the limits of the maximum allowable release rate of 224.0 l/s from the site.

$$Q_{(release)} = Q_{(uncontrolled)} + Q_{(controlled)}$$

$$= (24.10 \text{ l/s} + 114.20 \text{ l/s}) + 302.95 \text{ l/s}$$

$$= \mathbf{441.25 \text{ L/s}}$$

The controlled and uncontrolled areas can be summarized in the following table.

Table 4-2: Stormwater Management Release Rates and Storage Summary

	Catchment Area	Release Rate (l/s)	Required Ponding Volume (m^3)	Provided Ponding Volume (m^3)
Uncontrolled	A-14	24.10	N/A	N/A
Uncontrolled	B-1	114.20	N/A	N/A
Controlled	A-1 – A13	302.95	93.31	509.37
	Total	441.25 l/s		
	Maximum allowable flow rate	454.00 l/s		

4.10 ON-SITE DETENTION

Any excess storm water up to the 100-year event is to be stored on-site to prevent surcharging of the downstream municipal storm sewer system. Detention will be provided in parking and landscape areas, where feasible. As previously noted, the volume of storage is dependent on the characteristics of each individual drainage area. It should be noted that greater than 0.30 m of vertical separation has been provided from all maximum ponding elevations to lowest building openings.

For the catchment areas where stormwater ponding is controlled by the ICD located in STMH101, a total of 93.31m3 of storage is required and 509.37m3 of storage is provided. In all instances the required storage is met via surface ponding which retain the stormwater and discharge at the restricted flow rate to the sewer system. Refer to the grading plan for ponding information.

4.11 WATERCOURSES

There will be no modification to watercourses as a result of the proposed development.

4.12 PRE AND POST DEVELOPMENT PEAK FLOW RATES

The study area has an allowable release rate of 454.0 l/s. The post-development 100-year peak flow rate has been designed to be 441.25 l/s which has been achieved through an orifice and on-site surface ponding.

4.13 DIVERSION OF DRAINAGE CATCHMENT AREAS

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

4.14 DOWNSTREAM CAPACITY WHERE QUANTITY CONTROL IS NOT PROPOSED

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

4.15 IMPACTS TO RECEIVING WATERCOURSES

No significant negative impact is anticipated to downstream receiving watercourses due to proposed quantity and quality control measures

4.16 MUNICIPAL DRAINS AND RELATED APPROVALS

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

4.17 MEANS OF CONVEYANCE AND STORAGE CAPACITY

The means of flow conveyance and storage capacity are described in Sections 4.7, 4.8, 4.9 and 4.10 above.

4.18 HYDRAULIC ANALYSIS

Hydraulic calculations for the site storm sewers are provided in the storm sewer design sheet.

4.19 IDENTIFICATION OF FLOODPLAINS

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

4.20 FILL CONSTRAINTS

There are no known fill constraints applicable to this site related to any floodplain. The site is generally being graded to be within 0.5m relative to existing conditions.

5 SEDIMENT AND EROSION CONTROL

5.1 GENERAL

During construction, existing storm sewer system can be exposed to sediment loadings. Several construction techniques designed to reduce unnecessary construction sediment loadings will be used including:

- Silt sacks will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use.
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.
- The installation of straw bales within existing drainage features surrounding the site.
- Bulkhead barriers will be installed in the outlet pipes.

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

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

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

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

Refer to the **Erosion and Sedimentation Control Plan C06** provided in **Appendix D**.

6 APPROVAL AND PERMIT REQUIREMENTS

6.1 GENERAL

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

No approvals related to municipal drains are required.

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

7 CONCLUSION CHECKLIST

7.1 CONCLUSIONS AND RECOMMENDATIONS

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

7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

No comments yet received.

APPENDIX

A

- PRE-CONSULTATION MEETING NOTES
- ARCHITECTURAL SITE PLAN
- TOPOGRAPHICAL SURVEY PLAN
- IBI GROUP DESIGN BRIEF (EXCERPTS ATTACHED)
- IBI GROUP GRADING PLAN FOR COWAN'S GROVE

File No.: PC2025-0176

July 14, 2025

Daniel Paquette
Conseil des écoles catholiques du Centre-Est (CECCE)
Via email: paqueda@ecolecatholique.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 465 Trident Mews

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on July 3, 2025.

Pre-Consultation Preliminary Assessment

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, it is highly advised that you submit a Phase 3 pre-consultation application form, together with the necessary/identified studies and/or plans to planningcirculations@ottawa.ca, copy (cc:) to the file lead and planning support. Alternatively, you may submit a Site Plan Control – Complex application.

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

3. Please note, if your development proposal changes significantly in scope, design, or density it is recommended that another 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. Policies and provisions

   PPS – Settlement Area

   OP – Suburban Southeast Transect, Neighbourhood Designation

2. Committee of Adjustment / variances required - Unknown
3. Landscape requirements
   a. **Large canopy trees within ROW is requested.**
4. If proposal and site details remain same, you may jump directly to the Phase 3 pre-consultation submission.

Urban Design

Comments:

Below are urban design comments on 465 Trident Mews:

5. An Urban Design Brief is **not** required.
6. Drawings and studies are required as shown on the SPIL. Please follow the terms of references (Planning application submission information and materials | City of Ottawa) to prepare these drawings and studies. These include:
   a. Site Plan
   b. Landscape Plan
   c. Building Elevations

d. Conceptual Floorplans

Preliminary Design Comments:

7. Please provide additional tree planting along the perimeter of the property, including within the public realm.

]For more information, please contact Nader Kadri, Planner III, at Nader.Kadri@ottawa.ca

Engineering

Comments:

8. Please note the following studies are related to this site and you may need them in preparing the servicing study for this application. You can review the list and request access as needed to the following higher-level subdivision studies for reference through geoinformation@ottawa.ca (the list of studies below is not exhaustive. Additional studies may be required):

    a. Design Brief, Cowan's Grove, 4791 Bank Street, Leitrim Development Area, Prepared By Ibi Group, Project: 103557-5.2.2, dated May 2018,

    b. Design Brief, Lilythorne At Findlay Creek, 4747-4755 And 4789 Bank Street, Leitrim Development Area, Prepared By Ibi Group, Dated April 2020,

    c. Geotechnical Investigation, Proposed Residential Development, Kellam Lands, Ottawa, Ontario prepared by Golder Associates, Report Number: 12-1121-0286, dated December 2013,

    d. Additional relevant studies are to be referenced as required.

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

    a. Demonstrate the servicing strategy is consistent with higher-level studies and plans. **Excerpts from relevant higher level studies and plans will need to be discussed and provided in the Appendix of the Site Servicing and SWM report as supporting documentation to the design.** Any deviations will require an update or addendum to the subdivision level MSS to support any changes at the discretion of the City.

b. Approved drainage patterns shall be respected as part of the proposed SWM solution otherwise an update or addendum to the subdivision level MSS will be required to support the project.

c. HGL Analysis to be completed and included as part of the Site Servicing and SWM report if basement levels are contemplated.

d. **Water Quality Control**: Provide enhanced levels of protection of 80% for total suspended solids removal. Higher-level studies have indicated end of pipe quality treatment is provided. In that case, provide the appropriate reference and excerpt from the respective report(s) to support the design.

e. **Water Quantity Control**: As per the higher level study, this school site is to control post-development runoff from the subject site, up to and including the 100-year storm event, to a **5-year storm event.**

    i. **The allowable post development runoff release rate for the site shall be consistent with the values presented in higher level studies.**

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

    iii. **All 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 properties.

f. 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.

g. Ponding Notes:

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

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

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

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

v. Ensure all ponding criteria noted in the subdivision master study is respected.

h. There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area.

i. 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.

j. 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.

k. 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. **Please complete the attached Roof Drainage Declaration form** and include a copy of it in the appendix of the SWM report.

Flow-Control-Roof-Drainage-Declaration.pc

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

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

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

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

10. Storm Sewer

a. An existing stub for a 825mm dia. Concrete storm sewer is available at the North-West area of the site at the intersection of Kugagami Rd and Findley Creek Dr.

b. The proposed SWM design shall be consistent with higher-level studies and plans.

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

11. Sanitary Sewer

a. An existing stub for a 200mm dia. PVC Sanitary sewer is available at the North-West area of the site at the intersection of Kugagami Rd and Findley Creek Dr.

b. If the proposed sanitary connection is to deviate from the existing stub, please contact the undersigned with anticipated peak flow and proposed new location prior to submitting a full design to determine if the connection is acceptable. The consultant must provide their justification for this connection and provide a downstream capacity analysis within their report. The report must discuss what will happen to the existing unused sanitary stub on the site fronting Findley Creek Drive.

c. Sanitary laterals must be designed in accordance with anticipated demand and shall be sized to minimum requirements. The City will not permit a private lateral to the public sewer connection to be of same size.

d. The sanitary sewer network flows to the Leitrim Pump Station. Provide evidence in the form of excerpts from higher level studies demonstrating that the proposed developments peak wastewater flow is within the allocated amount and will be adequately accommodated by the Leitrim Pump Station.

e. The proposed wastewater servicing design shall be consistent with higher-level studies and plans.

f. If the proposed sanitary servicing strategy deviates from the Master servicing study for the subdivision, a block specific update memo will be required to support the design.

g. Please provide confirmation and documentation of available capacity in the receiving and downstream sewer system. If the estimated wastewater flow is determined to be in excess of the allowable (as defined in the subdivision level MSS) for the site it shall be demonstrated that the receiving and downstream wastewater system has adequate residual capacity to support and accommodate any increase in wastewater flow.

h. 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.

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

j. 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.

k. A backwater valve is required on the sanitary service for protection.

12. Water:

a. An existing stub for a 203mm dia. PVC watermain is available at the North-West area of the site at the intersection of Kugagami Rd and Findley Creek Dr.

b. 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.

c. 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:

   i. Plan showing the proposed location of service(s).

   ii. Type of development and the amount of fire flow required (L/min). **Note: A maximum of 15000 L/min (250 L/s) fire flow was allocated for this school site as per the master study.**

   iii. Average daily demand: __L/s.

   iv. Maximum daily demand: __L/s.

   v. Maximum hourly daily demand: __L/s.

   vi. 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.

d. 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.**

e. Fire Underwriters Survey fire flow calculations must be accompanied by communications with the architect which corroborate the assumptions used in the calculation such as building components, sprinkler systems, etc**.**

f. Anticipated water demand and fire flow capacity must be consistent with higher level master servicing studies. Provide excerpts from the studies to demonstrate conformance.

g. A Water Data Card will have to be submitted to size the water meter.

h. Any proposed emergency route is to be to the satisfaction of Fire Services. Please note that a siamese connection needs to be within 45m from an existing fire hydrant as per (OBC 2024 – 3.2.5.15 Fire Department Connections).

13. General Servicing

a. Additional site-specific servicing criteria not mentioned in this feedback form may be required as per the subdivision level master studies. Please review and reference the master studies within the report.

b. 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.

c. If multiple buildings are proposed within one parcel of land, only one set of services (Storm, Sanitary and Water) will be allowed to connect to city infrastructure. Each building will have to be serviced from this one set of services. The one exception to this rule is for sites requiring water supply redundancy, where we will allow a second water connection to city watermain to meet this requirement.

d. 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.

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

f. 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.

g. Connections to trunk sewers, easement sewers and backbone watermains are typically not permitted.

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

i. If severance is planned, this needs to be addressed in servicing to satisfy severance requirements. Where a large parcel with multiple buildings is planned, City will require an ultimate servicing plan so as to appropriately understand how severance requirements are being met.

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

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

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

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

iv. No submerged outlet connections.

k. See Terms of Reference for Site Servicing Study: https://documents.ottawa.ca/sites/default/files/site_servicing_tor_en.pdf

l. See Servicing study guidelines for development applications: https://documents.ottawa.ca/sites/default/files/service_guide_dev_apps_en.pdf

m. See Servicing and Grading Plan Requirements: https://documents.ottawa.ca/sites/default/files/servicing_grading_require_en-AODA.pdf

14. Water Balance

a. Confirm with higher level studies if required.

15. Grading and Erosion

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

b. Erosion and sediment control plan must be provided.

c. Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site, please indicate this on the plan(s).

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

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

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

g. Rear yard at grade parking to be permeable pavement. Refer to City Standard Detail Drawings SC26 (maintenance/temp parking areas), SC27 or permeable asphalt materials. No gravel or stone dust parking areas permitted.

h. See Terms of Reference for Grading and Drainage Plan Submission: https://documents.ottawa.ca/sites/default/files/grading_drainage_plan_tor_en.pdf

16. Environmental

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

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

c. 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.

d. See Terms of Reference for ESA (1 & 2) submission: https://documents.ottawa.ca/sites/default/files/environmental_assess_1and2_en.pdf

e. See section 10.1.6 within the official plan for more information. Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)

17. Geotechnical

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

b. The geotechnical investigation must be in conformance with the higher level study and any associated recommendations.

c. 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.

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

e. 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)

18. Slope Stability Assessment Reports

a. The site seems mostly flat and therefore will not require a slope stability analysis. However, if any part of the site falls within the parameters below, then this study will be required. Please verify these requirements.

b. A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 meter in height.

c. A report is also required for sites having retaining walls greater than 1 meter high, that addresses the global stability of the proposed retaining walls.

d. See Terms of Reference for Slope Stability Submission: https://documents.ottawa.ca/sites/default/files/slope_stability_tor_en.pdf

19. Exterior Site Lighting

a. Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must be designed using only fixtures that meet the criteria for full cut-off (sharp cut-

off) classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES); and it 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.

20. Regarding Quantity Estimates

    a. Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

    b. Quantity estimates dollar values are to be consistent with the most up to date Master Spec Code List provided by the City of Ottawa.

21. General

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

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

    c. As-built plans and reports (if available) can be requested for a fee by contacting geoinformation@ottawa.ca.

    d. 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.

    e. If information provided in this feedback contradicts the information within the subdivision master studies, please contact the undersigned to clarify which requirement shall govern.

    f. **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 guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Feel free to contact Terenzo Giovannitti, Infrastructure Project Manager, for follow-up questions.

Noise

Comments:

22. Noise Impact Studies required for the following:

    a. Road, as the site is within proximity to Findlay Creek Drive (collector).

    b. Stationary, if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

Feel free to contact Rochelle Fortier, TPM, for follow-up questions.

Transportation

Comments:

23. Follow Transportation Impact Assessment Guidelines:

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

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

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

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

a. Corner triangles on the final plan will be required (measure on the property line/ROW protected line; no structure above or below this triangle). The development proponent should protect the corner triangles to accommodate protected intersections per policies 2.1.1 (e) & (f). The City requires a 3 metre x 9 metre corner triangles at collector/local intersection, with the longer portion on the higher road segment.

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

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

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

26. Bank Street Widening and Reconstruction (South of Leitrim Road to South of Blais Road) is ongoing and will include full reconstruction of the Bank/Findlay Creek intersection. Please visit the City's website for more information.

27. There is an existing transit stop (#3990) along the property frontage. Communications with OC Transpo's Transit Planners are underway, additional information will be provided as soon as it is available.

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

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

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

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

29. On site plan:

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

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

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

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

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

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

g. Sidewalk is to be continuous across access as per City Specification 7.1.

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

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

Feel free to contact **Rochelle Fortier**, TPM, for follow-up questions.

Environment

Comments:

30. There are no natural heritage features, surface water features, or species-at-risk habitat present on or near the site that would trigger the need for an Environmental Impact Statement (EIS).

    An EIS is not required for this application.

31. This site is located in the Leitrim Development Area Environmental Management Plan and must conform to the recommendations within that document.

    Initial review by City staff did not find any pressing concerns beyond further support for additional tree plantings. However, it is the applicant's responsibility to review the document and ensure compliance.

32. Additional plantings are always welcome to help meet the City's urban forest canopy goals, as well as helping to reduce the impacts of climate change and the urban heat island effect. Please note that the City prefers that all plantings be of native and non-invasive species.

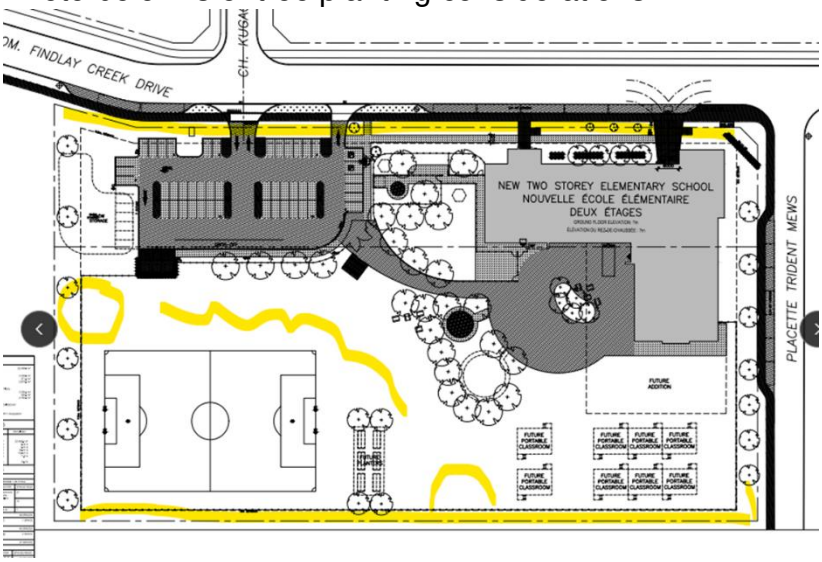
Feel free to contact Mark Elliott, Environmental Planner, for follow-up questions.

Forestry

Comments:

33. A Tree Conservation Report and Landscape Plan are submission requirements. If there are no private trees (10 cm in diameter or greater) or City owned trees of any size in proximity to the site, the Tree Conservation Report requirement can be removed.

34. Trees need to be incorporated along all street frontages as directed by OP section 4.1.3. Ensure there is adequate space and soil volume provided for tree planting along all streets.
35. Add tree planting along the entire frontage of Findlay Creek Road, preferrable in the ROW if all setbacks (see below), can be met.
36. Increase the quantity of tree planting along Trident Mews
37. The Official Plan has a policy, 4.10.3, titled "Make trees an important component of school's outdoor space". Provide large canopy shade trees, a diversity of species, and regular groupings of trees throughout the school yard and along street frontages.
38. Line the property boundary around the site with trees.
39. Increase tree planting between the building/parking lot and soccer field. Create more clusters of trees.
40. Space for mature shade trees must be provided regularly throughout surface parking areas. Reference section 4.1.4, policy 11 of the Official Plan.
41. Reduce the amount of hard scaping on site. Where hardsurface is necessary, provide regular tree planting to help offset the urban heat island effect and create shade for users.
42. Photo below is of tree planting considerations:



43. Tree Conservation Report requirements. The following Tree Conservation Report (TCR) requirements have been adapted from the Schedule E of the Urban Tree

Protection Guidelines – for more information on these requirements please contact **hayley.murray@ottawa.ca**

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
- Any tree 10 cm in diameter or greater and City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The TCR must contain 2 separate plans/maps:
- Plan/Map 1 - show existing conditions with tree cover information.
- Plan/Map 2 - show proposed development with tree cover information.
- The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition. Please note that averages can be used if there are forested areas.
- Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
- The removal of trees on a property line will require the permission of both property owners.
- All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
- The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- Removal of a City tree is not permitted unless justified. If justified, monetary compensation for the value of the tree must be paid before a tree removal permit is issued.

44. Landscape Plan (LP) requirements.

- Landscape Plan Terms of Reference must be adhered to for all tree planting: Click Here. For more information on these requirements please contact hayley.murray@ottawa.ca

Additional Elements for Tree Planting in the Right of Way:

- Please ensure any retained trees are shown on the LP
- Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.
- Soil Volume - Please demonstrate as per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the minimum soil volumes requested.
- The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

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

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and if possible, include watering and warranty as described in the specification.
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Parkland

Comments:

45. N/A

Feel free to contact Steve Gauthier, Parks Planner, for follow-up questions.

Conservation Authority

Comments:

46. N/A

Feel free to contact South Nation River Conservation Authority, for follow-up questions.

Other

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

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

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

Submission Requirements and Fees

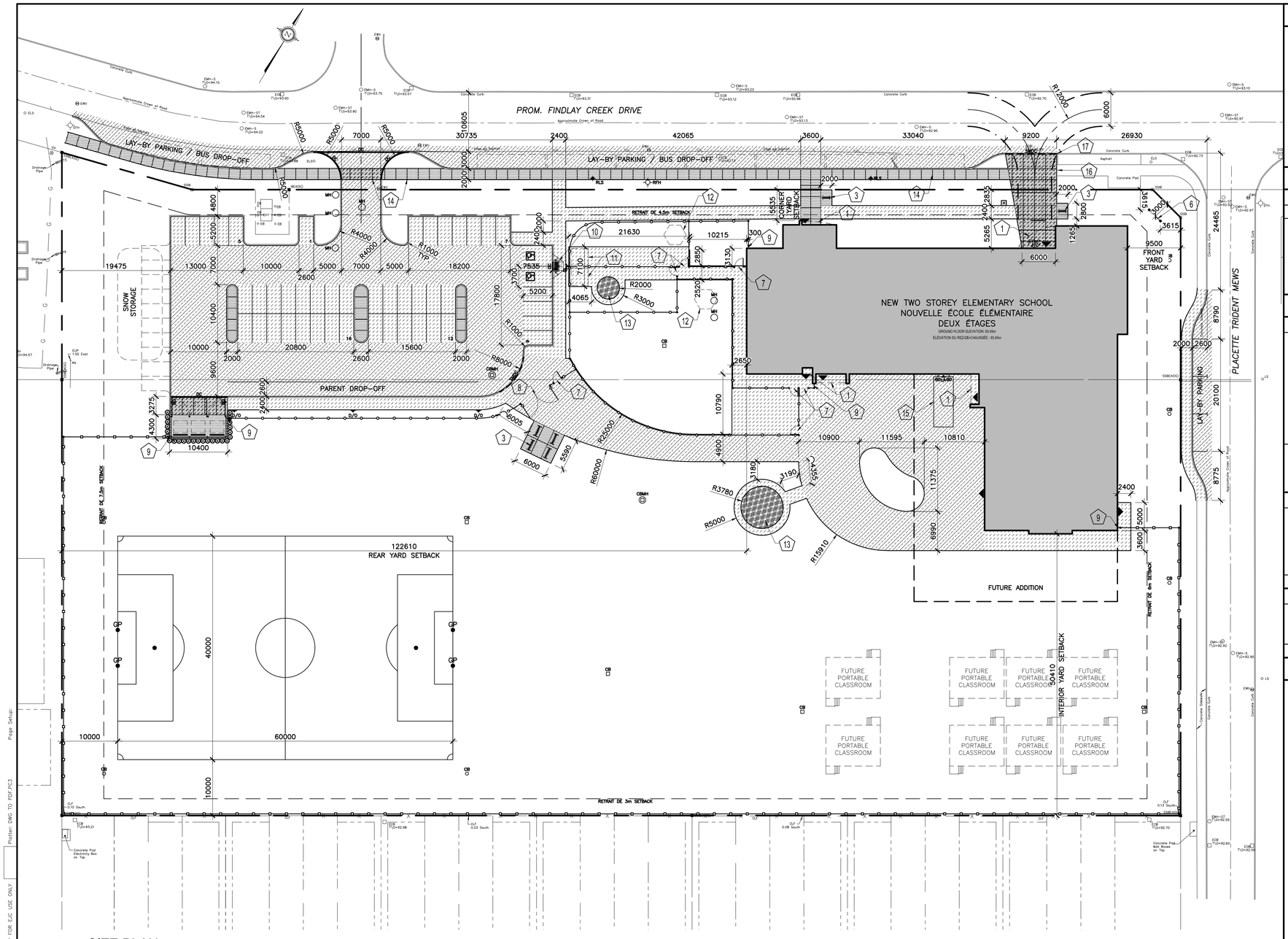
1. This proposal triggers a Site Plan Control – Complex application, with public consultation.
    a. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified 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,
Shoma Murshid

Encl. List Applicable Information

c.c. James Ireland, Terenzo Giovannitti, Nader Kadri, Steve Gauthier, Mark Elliott, Hayley Murray, Rochelle Fortier, Anton Chetrar



1 SITE PLAN
A001 1:400

SITE PLAN NOTES

1. CANOPY OR 2nd FLOOR ABOVE.
2. ALIGN WITH BUILDING WALLS.
3. BICYCLE RACK, SEE DETAILS ON DRAWING A004.
4. EXISTING TRANSFORMER/SWITCHGEAR.
5. GAS STATION CONCRETE PAD C/W CHAIN LINK FENCE AND TOP AS PER ENBRIDGE STANDARDS. COORDINATE LOCATION AND SIZE WITH MECHANICAL DRAWINGS AND ENBRIDGE.
6. SCHOOL SIGN.
7. NEW 1500mm WIDE GATE IN CHAIN LINK FENCE, SEE DETAIL 7/A003.
8. NEW 6000mm WIDE DOUBLE GATE IN CHAIN LINK FENCE, C/W FOOTBOLT REST, SEE DETAIL 7/A003.
9. CHAIN LINK FENCE CANTILEVERED END SECTION, SEE DETAIL 8/A003.
10. CURB RAMP WITH FLARED SIDES AND DETECTABLE HAZARD INDICATOR, CONSTRUCTED TO CITY OF OTTAWA STANDARDS, SEE DETAIL 7/A004.
11. FUTURE STORAGE SHED N.I.C.
12. FUTURE SAND BOX N.I.C.
13. ENGINEERED WOOD FIBER PLAY AREA, SEE DETAIL 6/A004.
14. TYPICAL CONCRETE PAVING SAW-CUT JOINT AT MAXIMUM 2400mm OR AS SHOWN ON DRAWINGS.
15. LOADING AREA, 3.5m X 9.0m
16. TIE NEW SIDEWALK TO EXISTING SIDEWALK.
17. TIE NEW CONCRETE CURB TO EXISTING CONCRETE CURB.
18.
19.
20.
21.
22.
23.
24.
25.
26.

LEGEND

- NEW TWO STOREY SECONDARY SCHOOL
- UNIT PAVERS WITH HEAVY DUTY BASE, SEE SPECIFICATIONS
- CONCRETE WALK
- CONCRETE WALK WITH HEAVY DUTY BASE
- TYPE 1 ASPHALT: HEAVY DUTY
- TYPE 2 ASPHALT: LIGHT DUTY
- NEW SEED AND TOPSOIL (REFER TO LANDSCAPE DRAWING)
- NEW SOD AND TOPSOIL (REFER TO LANDSCAPE DRAWING)
- MULCH (REFER TO LANDSCAPE DRAWING)
- ENGINEERED WOOD FIBER

SITE DATA

SITE AREA	22,498.5 m²
FOOTPRINT	
NEW SCHOOL FOOTPRINT	2,308.8 m²
PORTABLES FOOTPRINT	571.0 m²
SCHOOL W/ PORTABLES FOOTPRINT	2,879.8 m²
GROSS FLOOR AREA (AS PER CITY OF OTTAWA ZONING BY-LAW DEFINITION)	
NEW SCHOOL G.F.A. (INCLUDING DAYCARE)	2,290.5 m²
PORTABLES GROSS FLOOR AREA	492.0 m²
SCHOOL W/ PORTABLES GROSS FLOOR AREA	2,782.5 m²

TOPOGRAPHICAL AND SURVEY INFORMATION PROVIDED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
File: 25548-25 Blk258 PL1659 & Blk224 PL1624 O F
LEGAL DESCRIPTION: BLOCK 258; REGISTERED PLAN 4M-1659; BLOCK 224; REGISTERED PLAN 4M-1624, CITY OF OTTAWA
P.I.N.: 04345-1624, 04345-1114

CITY OF OTTAWA ZONING

INSTITUTIONAL ZONE I1A (AREA D ON SCHEDULE 1)

CRITERIA	REQUIREMENT	PROVIDED
LOT WIDTH	MIN. 15 m	112.0 m
LOT AREA	MIN. 400 m²	22,498.6 m²
FRONT YARD SETBACK	MIN. 6.0 m	9.50 m
REAR YARD SETBACK	MIN. 7.5 m	122.61 m
INTERIOR SIDE YARD SETBACK	MIN. 3.0 m	50.41 m
CORNER SIDE YARD SETBACK	MIN. 4.5 m	5.53 m
HEIGHT OF BUILDING	MAX. 15 m	11.0 m
LANDSCAPING PROVISION FOR PARKING LOTS	MIN. 15%	25.2%

PARKING CALCULATIONS

MOTOR VEHICLE PARKING (TABLE 101)

REQUIRED	18 CLASSROOMS + 8 PORTABLE CLASSROOMS = 26 TOTAL			
	USE	No. CLASS	SPACES PER	SPACES REQ'D
	ELEMENTARY SCHOOL	18	1.5/classroom (includes portables)	27
	FUTURE PORTABLE CLASSROOMS	8		12
	DAYCARE	302.6 m²	2/ 100 m²	7
	TOTAL REQUIRED PARKING SPACES			46 SPACES
	TOTAL REQUIRED ACCESSIBLE PARKING SPACES			1 SPACE
PROVIDED	SPACES @ 5.2 m D X 2.6 m W			45 SPACES
	TYPE A ACCESSIBLE PARKING SPACES @ 5.2 m D X 3.7 m W			2 SPACE
	TOTAL SPACES PROVIDED			47 SPACES

BICYCLE PARKING (TABLE 111A)

REQUIRED	USE	G.F.A.	SPACES PER	SPACES REQ'D
	SCHOOL	2,560.2 m²	1 per 100 m² of GFA	26 SPACES
	DAYCARE	302.6 m²	1 per 250 m² of GFA	2 SPACES
	PORTABLES	492 m²	1 per 100 m² of GFA	5 SPACES
	TOTAL REQUIRED BICYCLE PARKING SPACES			33 SPACES
PROVIDED	TOTAL BICYCLE SPACES PROVIDED			42 SPACES

LOADING SPACES

REQUIRED	USE	GROSS AREA	TABLE 113A	SPACES REQ'D
	SCHOOL	2,560.2 m²	COLUMN V	1
	TOTAL REQUIRED PARKING SPACES			1 SPACE
PROVIDED	TOTAL SPACES PROVIDED (3.5x7.0m)			1 SPACE

LEGEND

- BARRIER FREE PARKING
- BUILDING ENTRANCE/EXIT
- CURB
- DC — DEPRESSED CURB
- SMDC — SEMI-MOUNTABLE DEPRESSED CURB
- NEW VINYL COATED CHAIN LINK FENCE, 1220mm HIGH
- NEW VINYL COATED CHAIN LINK FENCE, 1830mm HIGH
- ROAD CENTER LINE
- FIRE ROUTE
- SET BACK LINE
- PROPERTY LOT LINE
- FR — FIRE ROUTE SIGN
- BF — BARRIER-FREE PARKING SIGN, SEE 10/A004
- D/O — DROP-OFF SIGN
- OW — ONE WAY SIGN
- LA — LOADING AREA SIGN
- LS — NEW LIGHT STANDARD, SEE DETAIL 7/A004
- RLS — RELOCATED EXISTING LIGHT STANDARD
- IB/SIB/SSIB — EXISTING IRON BAR (REFER TO SURVEY)
- FDC — NEW FIRE DEPARTMENT CONNECTION
- FH — NEW FIRE HYDRANT
- RFH — RELOCATED EXISTING FIRE HYDRANT
- MH — NEW MAN HOLE (REFER TO CIVIL)
- CB — NEW CATCH BASIN (REFER TO CIVIL)
- FP — NEW FLAG POLE, SEE DETAIL 8/A004
- BD — NEW BOLLARD, SEE DETAIL 9/A004
- EXISTING TREES TO REMAIN (REFER TO LANDSCAPE DOCUMENTS)
- NEW TREES (REFER TO LANDSCAPE DOCUMENTS)
- EFH — EXISTING FIRE HYDRANT TO REMAIN
- UP — EXISTING UTILITY POLE TO REMAIN
- AN — EXISTING GUY WIRE ANCHOR TO REMAIN
- CLF — EXISTING CHAIN LINK FENCE TO REMAIN
- ECB — EXISTING CATCH BASIN TO REMAIN
- EMH — EXISTING MANHOLE TO REMAIN
- EB — EXISTING BOLLARD TO REMAIN
- EHT — EXISTING HYDRO TRANSFORMER TO REMAIN
- X — X — EXISTING FENCE TO REMAIN

Écoles catholiques Centre-Est

ISSUE NO.	REV. NO.	DATE YYMMDD	ISSUE
0	1	2025/11/30	ISSUED FOR COORDINATION
1	1	2025/08/05	ISSUED FOR SITE PLAN CONSTRUCTION APPROACH
1	0	2025/06/02	ISSUED FOR SITE PLAN PRE-CONSULTATION 1

TRUE NORTH | PLAN NORTH

EDWARD J. CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 236-7135 E-mail: info@cuhaci.com

PROJECT TITLE/TITRE DU PROJET
ÉCOLE ÉLÉMENTAIRE CATHOLIQUE
LEITRIM
3290 FINDLAY CREEK DRIVE
OTTAWA, ONTARIO, K1T 0T2

CECCE
4000 LABELLE STREET
OTTAWA, ON, K1J 1A1

DRAWING TITLE/TITRE DU DESSIN
SITE PLAN

SCALE / ÉCHELLE 1:500	PROJ. No 2527	ISSUE No -	REV. No -
DRAWN BY / DESSINÉ PAR S.R.	DRAWING/DESSIN A001		
CHECKED BY / VÉRIFIÉ PAR Z.J.			
DATE JUNE 2025	FICHIER ACAD FILE: 2527-A001SPC.dwg		

Plot Date: 2022-06-27 Plot Time: 15:07:27 | Plot By: SIMON PROUX | PLOT STAMP FOR EXE USE ONLY | Plotter: DWG TO PDF.PC3 | Page Setup:

ELEVATION NOTES

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

UTILITY NOTES

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

TOPOGRAPHIC PLAN OF SURVEY OF

BLOCK 258
REGISTERED PLAN 4M-1659
BLOCK 224
REGISTERED PLAN 4M-1624
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

Metric

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

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 24th day of October, 2025.

Oct 29/25
Date

J. Andrew Shelp
Ontario Land Surveyor

Notes & Legend

Denotes

—○—	-	Survey Monument Planted
—■—	-	Survey Monument Found
SIB	-	Standard Iron Bar
SSIB	-	Short Standard Iron Bar
SSIB*	-	Short Standard Iron Bar (0.3 Long)
IB	-	Iron Bar
(WIT)	-	Witness
Meas.	-	Measured
(AOG)	-	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	-	Registered Plan 4M-1659
(P2)	-	Registered Plan 4M-1624
(P3)	-	(AOG) Plan Dated March 12, 2025
(P4)	-	Plan 4R-32996
○ MH-ST	-	Maintenance Hole (Storm Sewer)
○ MH-S	-	Maintenance Hole (Sanitary)
○ MH-H	-	Maintenance Hole (Hydro)
○ MH	-	Maintenance Hole (Unidentified)
□ CB	-	Catch Basin
□ CBI	-	Catch Basin Inlet
FH	-	Fire Hydrant
WV	-	Water Valve
UP	-	Utility Pole
AN	-	Anchor
○ LS	-	Light Standard
GV	-	Gas Valve
TB-B	-	Bell Terminal Box
TOS	-	Top of Slope
BOS	-	Bottom of Slope
—— G ——	-	Underground Gas
—— P ——	-	Underground Power
—— B ——	-	Underground Bell
+ 95.00	-	Location of Elevations
+ 95.00TC	-	Top of Concrete Curb Elevation
C/L	-	Centreline
CLF	-	Chain Link Fence
○ B	-	Bollard

Bearings are grid, derived from Southerly limit of Block 224 Registered Plan 4M-1624 shown to be N59°24'20"E and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-117286

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

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

Ontario Land Surveyors

Job No. 25048-27 Bk258 PLn659 & Bk224 PLn624 O F FS

WATERMAIN DEMAND CALCULATION SHEET

IBI GROUP
333 PRESTON STREET
OTTAWA, ONTARIO
K1S 5N4

PROJECT : LILYTHORNE
AT FINDLAY CREEK
LOCATION : CITY OF OTTAWA

FILE: 105202-5.7
DATE PRINTED: 21-Oct-18
DESIGN: LME

NODE	RESIDENTIAL				NON-RESIDENTIAL (ICI)			AVERAGE DAILY DEMAND (l/s)			MAXIMUM DAILY DEMAND (l/s)			MAXIMUM HOURLY DEMAND (l/s)			FIRE DEMAND
	SINGLE FAMILY UNITS	TOWN/SEMI UNITS	MIXED USED (ha)	POPULATION	INDUST. (ha)	COMM. (ha)	INSTIT. (ha)	RESIDENTIA	ICI	TOTAL	RESIDENTIA	ICI	TOTAL	RESIDENTIA	ICI	TOTAL	(l/min)
LILYTHORNE																	
S13-010		11		30				0.12		0.12	0.30		0.30	0.66		0.66	10,000
S13-020	1	4		14			2.25	0.06	1.30	1.36	0.14	1.95	2.10	0.32	3.52	3.83	15,000
S13-021	7			24				0.10		0.10	0.24		0.24	0.53		0.53	10,000
S13-022			1.96	255				1.03		1.03	2.58		2.58	5.68		5.68	13,500
S13-025		12	2.85	403				1.63		1.63	4.08		4.08	8.98		8.98	13,500
S13-030		9		24				0.10		0.10	0.25		0.25	0.54		0.54	10,000
S13-031	5	4		28				0.11		0.11	0.28		0.28	0.62		0.62	10,000
S13-032	7	8		45				0.18		0.18	0.46		0.46	1.01		1.01	10,000
S13-040		19		51				0.21		0.21	0.52		0.52	1.14		1.14	10,000
S13-041		21		57				0.23		0.23	0.57		0.57	1.26		1.26	10,000
S13-050		14		38				0.15		0.15	0.38		0.38	0.84		0.84	10,000
S13-051		24		65				0.26		0.26	0.66		0.66	1.44		1.44	10,000
S13-060	15			51				0.21		0.21	0.52		0.52	1.14		1.14	10,000
S13-065		23		62				0.25		0.25	0.63		0.63	1.38		1.38	10,000
S13-066		16		43				0.18		0.18	0.44		0.44	0.96		0.96	10,000
S13-070		20		54				0.22		0.22	0.55		0.55	1.20		1.20	10,000
S13-080		20		54				0.22		0.22	0.55		0.55	1.20		1.20	10,000
S13-090		18		49				0.20		0.20	0.49		0.49	1.08		1.08	10,000
S13-115	10	4		45				0.18		0.18	0.45		0.45	1.00		1.00	10,000
S13-125	11			37				0.15		0.15	0.38		0.38	0.83		0.83	10,000
S13-126	14			48				0.19		0.19	0.48		0.48	1.06		1.06	10,000
S13-135	10			34				0.14		0.14	0.34		0.34	0.76		0.76	10,000
S13-136	15			51				0.21		0.21	0.52		0.52	1.14		1.14	10,000
S13-145	9			31				0.12		0.12	0.31		0.31	0.68		0.68	10,000
S13-155	12			41				0.17		0.17	0.41		0.41	0.91		0.91	10,000
S13-165	11			37				0.15		0.15	0.38		0.38	0.83		0.83	10,000
S13-175	6			20				0.08		0.08	0.21		0.21	0.45		0.45	10,000
S13-185	10			34				0.14		0.14	0.34		0.34	0.76		0.76	10,000
S13-186	8			27				0.11		0.11	0.28		0.28	0.61		0.61	10,000
S13-195	8			27				0.11		0.11	0.28		0.28	0.61		0.61	10,000
S13-205	18			61				0.25		0.25	0.62		0.62	1.36		1.36	10,000
S13-215	4	5		27				0.11		0.11	0.27		0.27	0.60		0.60	10,000
S13-225		21		57				0.23		0.23	0.57		0.57	1.26		1.26	10,000
S13-235		17		46				0.19		0.19	0.46		0.46	1.02		1.02	10,000
S13-236		16		43				0.18		0.18	0.44		0.44	0.96		0.96	10,000
S13-245	2	21		64				0.26		0.26	0.64		0.64	1.41		1.41	10,000
S13-246		18		49				0.20		0.20	0.49		0.49	1.08		1.08	10,000
S13-255	7	8		45				0.18		0.18	0.46		0.46	1.01		1.01	10,000
S13-265		16		43				0.18		0.18	0.44		0.44	0.96		0.96	10,000

POPULATION DENSITY

Single Family	3.4 persons/unit
Semi Detached & Townhouse	2.7 persons/unit
High Density	1.8 persons/unit
Mixed Used	130 persons/ha

WATER DEMAND RATES

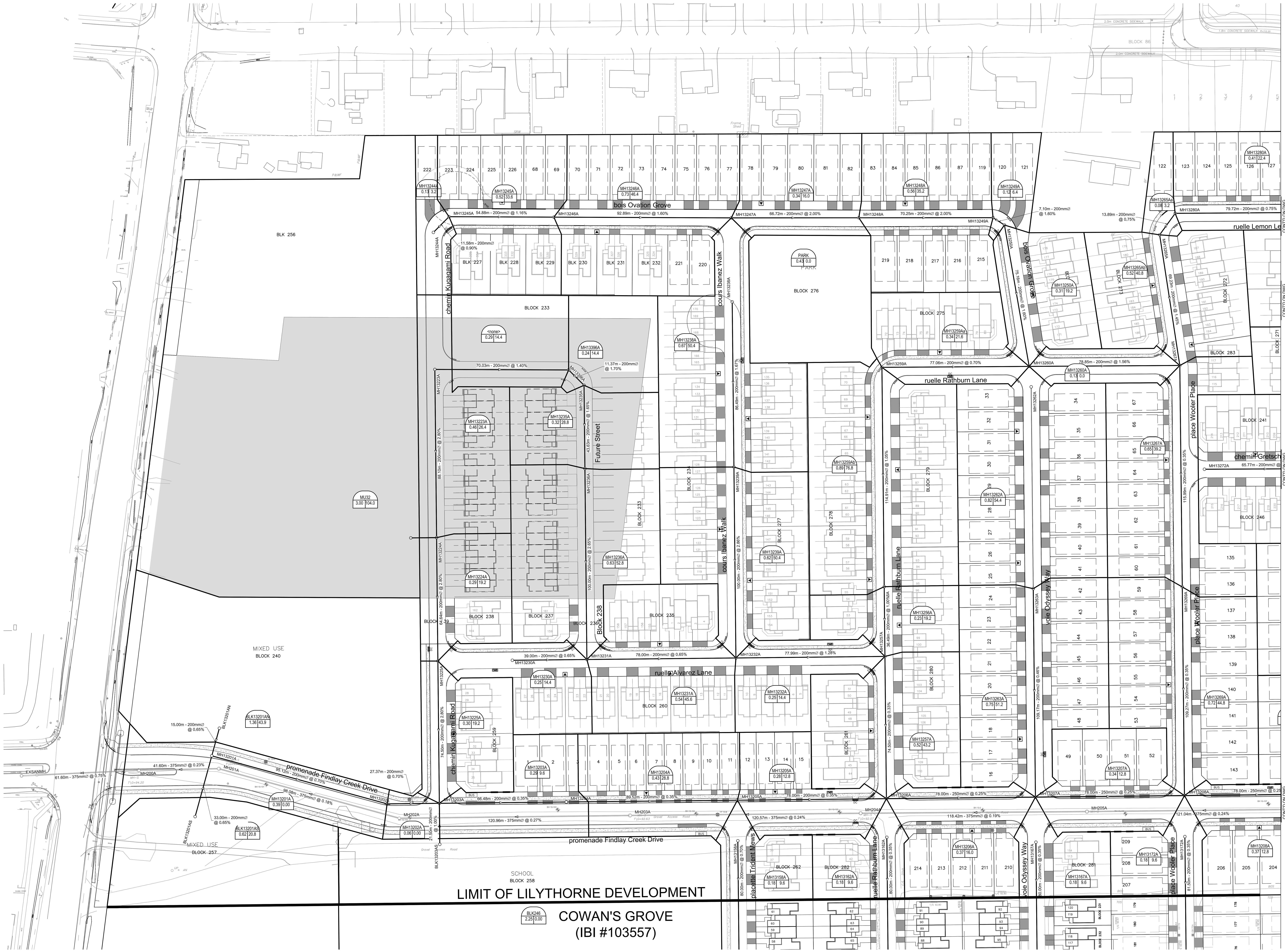
Residential	350 l/cap/day
ICI	50,000 l/ha/day

PEAKING FACTORS

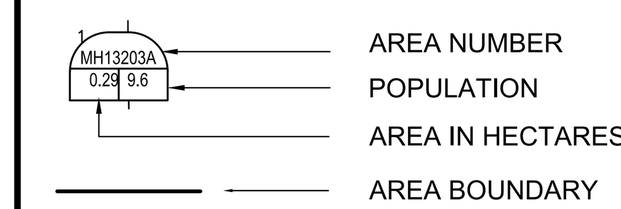
Maximum Daily	
Residential	2.5 x avg. day
ICI	1.5 x avg. day
Maximum Hourly	
Residential	2.2 x max. day
ICI	1.8 x max. day

FIRE DEMANDS

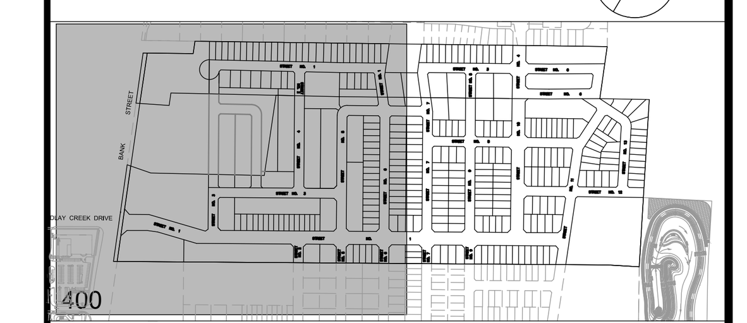
Single Family & Townhouses	10,000 l/min (166.7 l/s)
Mixed Use	13,500 l/min (225 l/s)
High Density	15,000 l/min (250 l/s)
ICI	15,000 l/min (250 l/s)



LEGEND :



SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN
NTS

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5	SUBMISSION TO MECP	J.I.M.	2020:04:15
4	REVISED PER NEW LEGAL 2020:01:15	J.I.M.	2020:02:28
3	SUBMISSION NO. 3 FOR CITY REVIEW	J.I.M.	2018:11:28
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OTTAWA, ON
K2P 0Y6
613–233–6030

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

Project Title

LILYTHORNE
AT FINDLAY CREEK

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2020/04/15
PROVINCE OF ONTARIO

Drawing Title

SANITARY DRAINAGE AREA PLAN

Scale 1:1000

Design	Date
K.H./S.T./M.M.	FEBRUARY 2018
Drawn	Checked
D.D./M.M./E.H.	J.I.M.
Project No.	Drawing No.
105202	400

D07-16-17-0007

#17777

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400-333 Preston Street
Ottawa, Ontario K1S 5N4 Canada
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LEGEND
MH13223A Potential Future Design (for information only)
EXMH138A Existing Infrastructure (for information only)

SANITARY SEWER DESIGN SHEET

Lilythorne at Findlay Creek
CITY OF OTTAWA
Claridge Homes

LOCATION				RESIDENTIAL										ICI AREAS							INFILTRATION ALLOWANCE			FIXED FLOW (L/s)		TOTAL FLOW	PROPOSED SEWER DESIGN						
				AREA	UNIT TYPES				AREA	POPULATION		PEAK	PEAK	AREA (Ha)						PEAK	AREA (Ha)		FLOW				CAPACITY	LENGTH	DIA	SLOPE	VELOCITY	AVAILABLE	
STREET	AREA ID	FROM MH	TO MH	w/ Units (Ha)	SF	SD	TH	APT	w/o Units (Ha)	IND	CUM	FACTOR	FLOW (L/s)	INSTITUTIONAL		COMMERCIAL		INDUSTRIAL		FLOW (L/s)	IND	CUM	(L/s)	IND	CUM	(L/s)						CAPACITY	
														IND	CUM	IND	CUM	IND	CUM											(full) (m/s)	L/s	(%)
Gretsch Road	MH13272A	MH13272A	MH13273A	0.48			16			38.4	38.4	4.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.48	0.13	0.00	0.00	0.76	27.59	65.77	200	0.65	0.851	26.83	97.26%
Shuttleworth Drive	MH13399A	MH13399A	MH13398A	0.44			14			33.6	33.6	4.00	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.44	0.12	0.00	0.00	0.67	27.59	36.50	200	0.65	0.851	26.92	97.58%
Shuttleworth Drive	MH13398A	MH13398A	MH13273A	0.35			10			24.0	57.6	4.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.79	0.22	0.00	0.00	1.15	27.59	76.04	200	0.65	0.851	26.43	95.81%
Gretsch Road	MH13273A	MH13273A	MH13218A	0.54			16			38.4	38.4	4.00	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.54	1.02	0.29	0.00	0.00	0.91	20.24	87.30	200	0.35	0.624	19.33	95.52%
Gretsch Road	MH13287A	MH13287A	MH13218A	0.87			24			57.6	57.6	4.00	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.87	0.87	0.24	0.00	0.00	1.18	27.59	107.70	200	0.65	0.851	26.41	95.73%
Rotary Way	MH13218A	MH13218A	MH13219A	0.34	4					12.8	337.6	4.00	5.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.34	5.50	1.54	0.00	0.00	7.01	20.24	88.76	200	0.35	0.624	13.23	65.37%
Rosales Ridge	MH13285A	MH13285A	MH13219A	0.69	11					35.2	92.8	4.00	1.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69	0.69	0.19	0.00	0.00	1.70	37.48	87.77	200	1.20	1.156	35.79	95.47%
Rotary Way	MH13219A	MH13219A	MH13210A	0.35	4					12.8	443.2	4.00	7.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35	6.54	1.83	0.00	0.00	9.01	20.24	81.15	200	0.35	0.624	11.23	55.48%
Tahoe Heights	MH13295A	MH13295A	MH13296A	0.25	4					12.8	12.8	4.00	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.25	0.07	0.00	0.00	0.28	27.59	34.47	200	0.65	0.851	27.31	98.99%
Tahoe Heights	MH13296A	MH13296A	MH13297A	0.16	2					6.4	19.2	4.00	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.41	0.11	0.00	0.00	0.43	27.59	8.91	200	0.65	0.851	27.16	98.46%
Tahoe Heights	MH13297A	MH13297A	MH13298A	0.29	5					16.0	35.2	4.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.70	0.20	0.00	0.00	0.77	27.59	43.05	200	0.65	0.851	26.82	97.22%
Tahoe Heights	MH13298A	MH13298A	MH13299A	0.53	9					28.8	64.0	4.00	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	1.23	0.34	0.00	0.00	1.38	27.59	80.00	200	0.65	0.851	26.20	94.99%
Rosales Ridge	MH13299A	MH13299A	MH13300A	0.36	5					16.0	80.0	4.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.36	1.59	0.45	0.00	0.00	1.74	20.24	81.62	200	0.35	0.624	18.50	91.40%
Rosales Ridge	MH13300A	MH13300A	*EXMH140A*	0.01						0.0	80.0	4.00	1.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.60	0.45	0.00	0.00	1.74	20.24	12.52	200	0.35	0.624	18.50	91.38%
DRAFT 2016 UPDATED SERVICEABILITY REPORT																																	
Zone 10 Future			*EXMH138A*	7.86	158		89	72	0.93	856.0	856.0	3.84	13.32	0.52	0.52	1.11	1.11	0.00	0.00	0.28	10.42	10.42	2.92			16.52							
Zone 10 Existing (Modified Peaking Factor)			*EXMH138A*	23.91	79		121		0.82	543.2	543.2	1.90	3.34	1.89	1.89	0.00	0.00	0.00	0.00	1.09	26.62	26.62	7.45			11.89							
Highgarden Terrace	EXMH138A	*EXMH138A*	*EXMH139A*	0.30	3					9.6	1408.8	3.70	21.11	0.00	2.41	0.00	1.11	0.00	0.00	3.06	0.30	37.34	10.46	0.00	0.00	34.62	95.04	*104.24*	375	*0.27*	0.834	60.42	63.57%
Highgarden Terrace	EXMH139A	*EXMH139A*	*EXMH140A*	0.27	3					9.6	1418.4	3.70	21.24	0.00	2.41	0.00	1.11	0.00	0.00	3.06	0.27	37.61	10.53	0.00	0.00	34.83	87.72	*81.23*	375	*0.23*	0.769	52.89	60.30%
Highgarden Terrace	EXMH140A	*EXMH140A*	*EXMH141A*						0.15	0.0	1498.4	3.68	22.34	0.00	2.41	0.00	1.11	0.00	0.00	3.06	0.15	39.36	11.02	0.00	0.00	36.41	91.46	*88.63*	375	*0.25*	0.802	55.04	60.19%
Trident Mews	MH13158A	MH13158A	BLK13158A	0.18			4			9.6	9.6	4.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.05	0.00	0.00	0.21	28.63	31.26	200	0.70	0.883	28.42	99.28%
Rathburn Lane	MH13162A	MH13162A	BLK13162A	0.18			4			9.6	9.6	4.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.05	0.00	0.00	0.21	20.24	32.26	200	0.35	0.624	20.04	98.98%
Odyssey Way	MH13167A	MH13167A	BLK13167A	0.18			4			9.6	9.6	4.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.05	0.00	0.00	0.21	20.24	28.89	200	0.35	0.624	20.04	98.98%
Wooler Place	MH13172A	MH13172A	BLK13172A	0.18	3					9.6	9.6	4.00	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.18	0.05	0.00	0.00	0.21	20.24	31.00	200	0.35	0.624	20.04	98.98%
COWAN'S GROVE 2017 SANITARY DESIGN SHEET																																	
Highgarden Terrace			*EXMH141A*	24.02					3.87	1574.5	1574.5	3.66	23.37	0.00	0.00	2.11	2.11	0.00	0.00	1.83	30.00	30.00	8.40	0.00	0.00	33.60							
Street 1		*EXMH141A*	*EXMH207A*							0.0	3072.9	3.43	42.74	0.00	2.41	0.00	3.22	0.00	0.00	4.89	0.00	69.36	19.42	0.00	0.00	67.05	87.72	*61.40*	375	*0.23*	0.769	20.67	23.57%
Street 1		*EXMH207A*	*EXMH206A*							0.0	3072.9	3.43	42.74	0.00	2.41	0.00	3.22	0.00	0.00	4.89	0.00	69.36	19.42	0.00	0.00	67.05	91.46	*118.68*	375	*0.25*	0.802	24.41	26.69%
Block 242	BLK13201AN	BLK13201AN	MH13201A	0.34						43.9	43.9	4.00	0.71	0.00	0.00	1.01	1.01	0.00	0.00	0.88	1.35	1.35	0.38	0.00	0.00	1.97	27.59	9.00	200	0.65	0.851	25.62	92.87%
Block 243	BLK13201AS	BLK13201AS	MH13201A	0.16						20.8	20.8	4.00	0.34	0.00	0.00	0.48	0.48	0.00	0.00	0.42	0.64	0.64	0.18	0.00	0.00	0.93	27.59	21.50	200	0.65	0.851	26.65	96.62%
Findlay Creek Drive	MH13201A	MH13201A	MH13202A	0.36						0.0	64.7	4.00	1.05	0.00	0.00	0.00	1.49	0.00	0.00	1.30	0.36	2.35	0.66	0.00	0.00	3.00	28.63	95.12	200	0.70	0.883	25.63	89.52%
Findlay Creek Drive	MH13202A	MH13202A	MH13203A	0.07						0.0	64.7	4.00	1.05	0.00	0.00	0.00	1.49	0.00	0.00	1.30	0.07	2.42	0.68	0.00	0.00	3.02	28.63	27.37	200	0.70	0.883	25.61	89.45%
School Block 244	BLK246	MH13203AS	MH13203A							0.0	0.0	4.00	0.00	2.25	2.25	0.00	0.00	0.00	0.00	1.95	2.25	2.25	0.63	0.00	0.00	2.58	34.22	21.50	200	1.00	1.055	31.63	92.45%
Findlay Creek Drive	MH13203A	MH13203A	MH13204A	0.29	3					9.6	243.4	4.00	3.94	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.29	9.22	2.58	0.00	0.00	11.86	20.24	78.03	200	0.35	0.624	8.38	41.39%
Findlay Creek Drive	MH13204A	MH13204A	MH13205A	0.43	9					28.8	272.2	4.00	4.41	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.43	9.65	2.70	0.00	0.00	12.45	20.24	77.97	200	0.35	0.624	7.79	38.49%
Findlay Creek Drive	MH13205A	MH13205A	MH13206A	0.28	4					12.8	285.0	4.00	4.62	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.28	9.93	2.78	0.00	0.00	12.74	20.24	78.00	200	0.35	0.624	7.51	37.08%
Findlay Creek Drive	MH13206A	MH13206A	MH13207A	0.37	5					16.0	725.8	3.89	11.42	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.37	15.75	4.41	0.00	0.00	21.17	31.02	78.00	250	0.25	0.612	9.85	31.74%
Findlay Creek Drive	MH13207A	MH13207A	MH13208A	0.34	4					12.8	844.2	3.85	13.15	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.34	17.66	4.94	0.00	0.00	23.44	31.02	78.00	250	0.25	0.612	7.58	24.45%
Findlay Creek Drive	MH13208A	MH13208A	MH13209A	0.37	4					12.8	1163.4	3.76	17.70	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.37	23.10	6.47	0.00	0.00	29.51	31.02	78.00	250	0.25	0.612	1.51	4.86%
Findlay Creek Drive	MH13211A	MH13211A	MH13210A	0.66	11					35.2	35.2	4.00	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	0.66	0.18	0.00	0.00	0.76	31.73	74.42	200	0.86	0.978	30.98	97.62%
Findlay Creek Drive	MH13210A	MH13210A	MH13209A	0.66	12					38.4	516.8	3.97	8.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.66	7.86	2.20	0.00	0.00	10.51	20.24	86.29	200	0.35	0.624	9.74	48.10%
Findlay Creek Drive		MH13209A	*EXMH206A*							0.0	1734.6	3.63	25.53	0.00	2.25	0.00	3.90	0.00	0.00	5.34	0.00	31.81	8.91	0.00	0.00	39.77	90.23	11.24	300	0.80	1.237	50.46	55.92%
Findlay Creek Drive		*EXMH206A*	*EXMH205A*							0.0	4807.5	3.26	63.50	0.00	4.66	0.00	7.12	0.00	0.00	10.23	0.00	101.17	28.33	0.00	0.00	102.06	89.61	*121.04*	375	*0.24*	0.786	-12.45	-13.89%

Design Parameters:

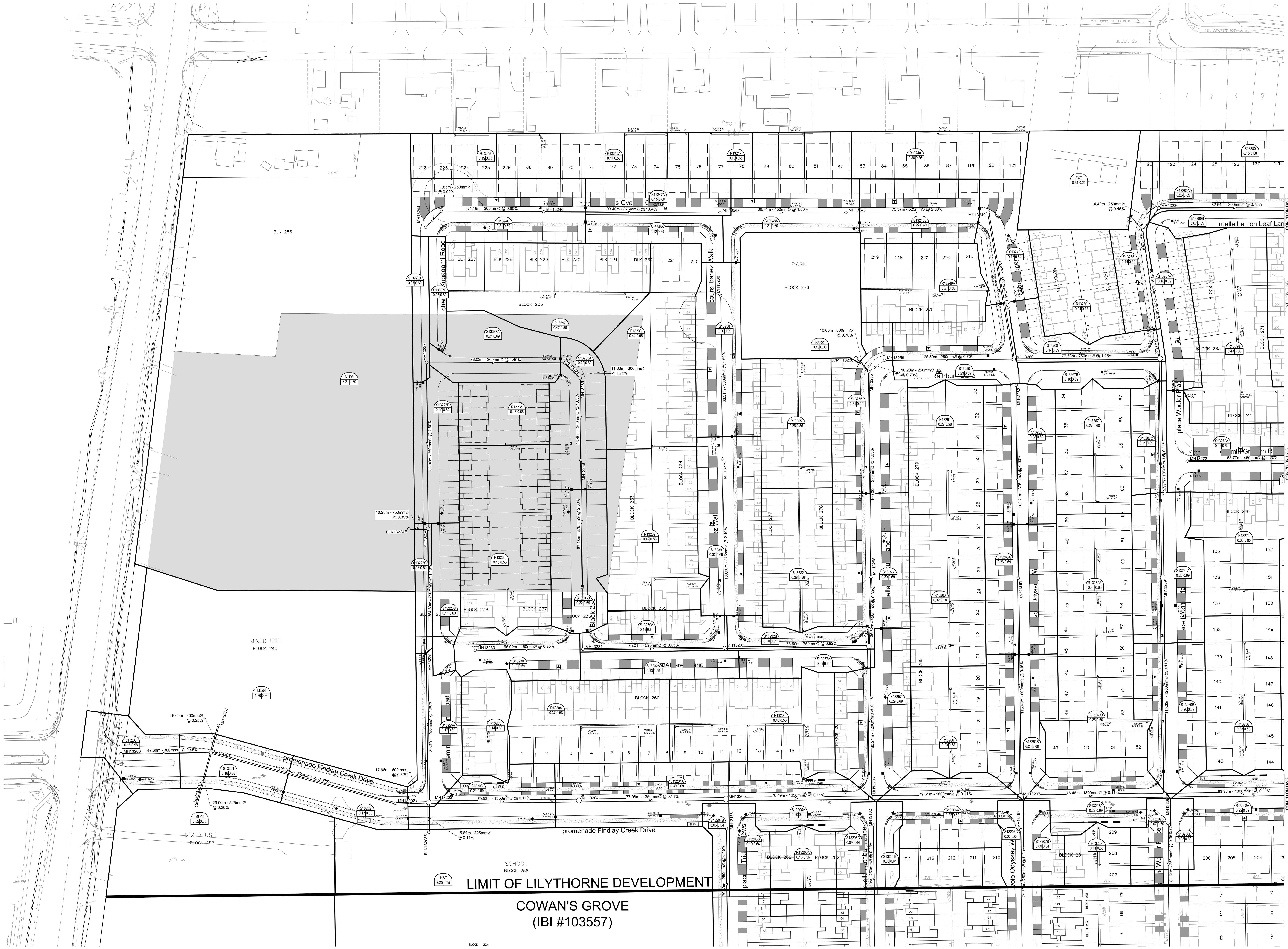
Residential			ICI Areas			
SF	3.2	p/p/u				Peak Factor
TH/SD	2.4	p/p/u	INST	50,000	L/Ha/day	1.5
APT	1.9	p/p/u	COM	50,000	L/Ha/day	1.5
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart
MU	130	p/p/Ha		17000	L/Ha/day	

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 350 L/day 300 L/day
3. Infiltration allowance: 0.28 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5))
where P = population in thousands

Designed: KH
Checked: JIM
Dwg. Reference: 105202-400/401

No.	Revision	Date
1	Submission No. 1 for City Review	2018-09-05
2	Submission No. 2 for City Review	2018-10-24
3	Submission No. 3 for City Review	2018-11-28
4	Revised per new legal	2020-02-13
5	Submission to MECP	2020-04-15

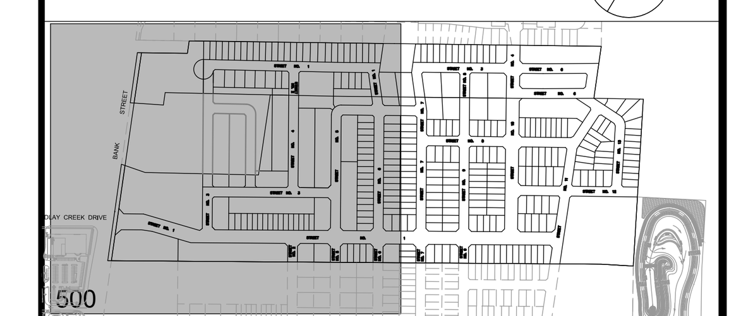
File Reference: 105202.5.7.1
Date: 2020-04-15
Sheet No: 2 of 2



LEGEND :

- AREA NUMBER
- RUN OFF COEFFICIENT
- AREA IN HECTARES
- AREA BOUNDARY

SEE 010, 011, 012 FOR NOTES, LEGEND, CB TABLE, STREET SECTIONS AND DETAILS



KEY PLAN
NTS

No.	REVISIONS	By	Date
14			
13			
12			
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8			
7			
6			
5	SUBMISSION TO MECP	J.I.M.	2020:04:15
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CLARIDGE HOMES (BANK ST.) INC.
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613-233-6030

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ibigroup.com

Project Title

LILYTHORNE

LICENSED PROFESSIONAL ENGINEER
J. I. MOFFATT
2020/04/15
PROVINCE OF ONTARIO

Drawing Title

STORM DRAINAGE AREA PLAN

Scale	
1:1000	
Design: K.H./S.T./M.M.	Date: FEBRUARY 2018
Drawn: D.D./M.M./E.H.	Checked: J.I.M.
Project No.: 105202	Drawing No.: 500

D07-16-17-0007

#17777

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Ottawa, Ontario K1S 5N4 Canada
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LEGEND

Black text	2 year event curve design	*MH13223*	Potential Future Design (for information only)
Blue text	5 year event curve design	*MH141*	Existing Infrastructure (for information only)
Red text	10 year event curve design		
Green text	100 year event curve design		

STORM SEWER DESIGN SHEET

Lilythorne at Findlay Creek
City of Ottawa
Claridge Homes

LOCATION				AREA (Ha)										RATIONAL DESIGN FLOW														SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.30	C= 0.56	C= 0.58	C= 0.60	C= 0.64	C= 0.69	C= 0.35	C= 0.75	C= 0.25	C= 0.80	IND 2.78AC	CUM 2.78AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	PIPE SIZE (mm) W	PIPE SIZE (mm) H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (2yr) (L/s)	AVAIL CAP (2yr) (%)
Lemon Leaf Lane		MH13265	MH13280											0.00	0.00	10.00	0.29	10.29	76.81	104.19	122.14	178.56	0.00					0.00	41.62	14.40	250			0.45	0.821	41.62	100.00%
Lemon Leaf Lane	S13280A-B, R13280	MH13280	MH13281		0.15				0.33					0.87	0.87	10.29	1.15	11.44	75.70	102.67	120.35	175.93	65.60					65.60	87.37	82.54	300			0.75	1.197	21.77	24.92%
Lemon Leaf Lane	S13281, R13281	MH13281	MH13216						0.21					0.40	1.27	11.44	1.39	12.83	71.68	97.15	113.85	166.38	90.99					90.99	122.70	89.61	375			0.45	1.076	31.71	25.84%
Rotary Way	S13215, R13215	MH13215	MH13216		0.13				0.05					0.30	0.30	10.00	0.57	10.57	76.81	104.19	122.14	178.56	22.91					22.91	60.47	41.00	250			0.95	1.193	37.56	62.11%
Lemon Leaf Lane	S13306A-B, R13306	MH13306	MH13307			0.21			0.50					1.30	1.30	10.00	1.32	11.32	76.81	104.19	122.14	178.56	99.67					99.67	133.02	64.33	450			0.20	0.810	33.35	25.07%
Lemon Leaf Lane	S13307, R13307	MH13307	MH13216			0.30			0.11					0.69	1.99	11.32	1.41	12.73	72.07	97.69	114.48	167.30	143.60					143.60	184.99	70.00	525			0.17	0.828	41.39	22.37%
Rotary Way	S13216A-D	MH13216	MH13217						0.27					0.52	4.08	12.83	0.84	13.67	67.42	91.30	106.96	156.26	274.93					274.93	496.66	45.50	825			0.11	0.900	221.74	44.65%
Tahoe Heights	S13290A-B	MH13290	MH13291						0.14					0.27	0.27	10.00	0.70	10.70	76.81	104.19	122.14	178.56	20.63					20.63	59.68	34.56	300			0.35	0.818	39.06	65.44%
Tahoe Heights	S13291	MH13291	MH13217						0.39					0.75	1.02	10.70	1.92	12.62	74.20	100.62	117.93	172.37	75.44					75.44	224.33	115.56	525			0.25	1.004	148.89	66.37%
Rotary Way	S13217B-C, R13217	MH13217	MH13218		0.41				0.30					1.21	6.31	13.67	1.47	15.14	65.09	88.11	103.21	150.76	410.63					410.63	775.41	88.68	975			0.11	1.006	364.79	47.04%
Shuttleworth Drive	S13399	MH13399	MH13398						0.29					0.56	0.56	10.00	0.68	10.68	76.81	104.19	122.14	178.56	42.72					42.72	71.33	40.00	300			0.50	0.978	28.61	40.11%
Shuttleworth Drive	S13398A-B, R13398	MH13398	MH13273		0.43				0.25					1.15	1.71	10.68	0.95	11.63	74.28	100.72	118.06	172.56	126.67					126.67	210.32	72.71	450			0.50	1.281	83.65	39.77%
Gretsch Road	S13272A-B	MH13272	MH13273						0.26					0.50	0.50	10.00	1.25	11.25	76.81	104.19	122.14	178.56	38.31					38.31	133.02	60.77	450			0.20	0.810	94.71	71.20%
Gretsch Road	S13273A-C	MH13273	MH13218						0.29					0.56	2.76	11.63	1.41	13.04	71.07	96.31	112.86	164.93	196.18					196.18	478.86	88.80	750			0.17	1.050	282.68	59.03%
Gretsch Road	S13287A-B, R13287	MH13287	MH13218		0.48				0.35					1.42	1.42	10.00	1.89	11.89	76.81	104.19	122.14	178.56	108.96					108.96	264.11	102.75	600			0.17	0.905	155.15	58.75%
Rotary Way	S13218	MH13218	MH13219						0.28					0.54	11.02	15.14	1.18	16.32	61.44	83.11	97.32	142.12	677.32					677.32	1,846.76	88.76	1350			0.11	1.250	1169.44	63.32%
Rosales Ridge	S13285A-B, R13285	MH13285	MH13219			0.39			0.31					1.22	1.22	10.00	1.54	11.54	76.81	104.19	122.14	178.56	93.97					93.97	200.65	82.77	525			0.20	0.898	106.68	53.17%
Rotary Way	S13219, R13219A-B	MH13219	MH13210				0.68		0.28					1.67	13.92	16.32	1.16	17.48	58.81	79.51	93.09	135.91	818.58					818.58	1,846.76	86.98	1350			0.11	1.250	1028.18	55.67%
Findlay Creek Drive	S13200	MH13200	MH13201			0.15								0.24	0.24	10.00	0.86	10.86	76.81	104.19	122.14	178.56		25.20				25.20	67.67	47.60	300			0.45	0.927	42.47	62.76%
Block 242	MU 04	MH13320	MH13201										1.30	2.89	2.89	10.00	0.15	10.15	76.81	104.19	122.14	178.56	222.06					222.06	320.28	10.02	600			0.25	1.097	98.22	30.67%
Block 243	MU 01	BLK13201S	MH13201										0.62	1.38	1.38	10.00	0.32	10.32	76.81	104.19	122.14	178.56	105.90					105.90	200.65	17.48	525			0.20	0.898	94.74	47.22%
Findlay Creek Drive		MH13201	MH13202											0.00	4.27	10.86	0.98	11.83	73.67	99.88	117.06	171.10	314.57					364.50	504.38	101.34	600			0.62	1.728	139.88	27.73%
Findlay Creek Drive	S13201	MH13201	MH13202			0.16								0.26	0.50	10.86	0.98	11.83	73.67	99.88	117.06	171.10		49.93				364.50	504.38	101.34	600			0.62	1.728	139.88	27.73%
Findlay Creek Drive		MH13202	MH13203											0.00	4.27	11.83	0.17	12.00	70.42	95.42	111.81	163.38	300.69					374.54	504.38	17.66	600			0.62	1.728	129.84	25.74%
Findlay Creek Drive	S13202	MH13202	MH13203			0.17								0.27	0.77	11.83	0.17	12.00	70.42	95.42	111.81	163.38		73.85				374.54	504.38	17.66	600			0.62	1.728	129.84	25.74%
Block 244	INST	BLK13203S	MH13203								2.25			4.69	4.69	10.00	0.29	10.29	76.81	104.19	122.14	178.56	360.31					360.31	496.66	15.59	825			0.11	0.900	136.35	27.45%
Findlay Creek Drive		MH13203	MH13204											0.00	17.25	12.00	1.06	13.06	69.88	94.68	110.94	162.11	1,205.59					1,335.83	1,846.76	79.53	1350			0.11	1.250	510.92	27.67%
Findlay Creek Drive	S13203, R13203	MH13203	MH13204		0.14				0.20					0.60	1.38	12.00	1.06	13.06	69.88	94.68	110.94	162.11		130.24				1,335.83	1,846.76	79.53	1350			0.11	1.250	510.92	27.67%
Findlay Creek Drive		MH13204	MH13205											0.00	17.25	13.06	1.04	14.10	66.75	90.38	105.88	154.68	1,151.54					1,389.84	1,846.76	77.98	1350			0.11	1.250	456.91	24.74%
Findlay Creek Drive	S13204A-B, R13204	MH13204	MH13205			0.37		0.05	0.30					1.26	2.64	13.06	1.04	14.10	66.75	90.38	105.88	154.68		238.30				1,389.84	1,846.76	77.98	1350			0.11	1.250	456.91	24.74%
Findlay Creek Drive		MH13205	MH13206											0.00	17.25	14.10	0.89	15.00	63.97	86.57	101.40	148.10	1,103.53					1,471.65	3,153.62	76.49	1650			0.11	1.429	1681.97	53.33%
Findlay Creek Drive	S13205A-B-C, R13205-A	MH13205	MH13206		0.16	0.40		0.19	0.20					1.62	4.25	14.10	0.89	15.00	63.97	86.57	101.40	148.10		368.12				1,471.65	3,153.62	76.49	1650			0.11	1.429	1681.97	53.33%
Findlay Creek Drive		MH13206	MH13207											0.00	26.88	15.00	0.88	15.87	61.78	83.57	97.87	142.92	1,660.37					2,099.85	3,977.22	79.51	1800			0.11	1.514	1877.37	47.20%
Findlay Creek Drive	S13206A-B-C, R13206	MH13206	MH13207			0.23		0.12	0.22					1.01	5.26	15.00	0.88	15.87	61.78	83.57	97.87	142.92		439.47				2,099.85	3,977.22	79.51	1800			0.11	1.514	1877.37	47.20%
Findlay Creek Drive		MH13207	MH13208											0.00	29.32	15.87	0.84	16.71	59.79	80.85	94.66	138.21	1,753.16					2,250.56	3,977.22	76.48	1800			0.11	1.514	1726.66	43.41%
Findlay Creek Drive	S13207A-B-C, R13207	MH13207	MH13208			0.11		0.09	0.29					0.89	6.15	15.87	0.84	16.71	59.79	80.85	94.66	138.21		497.40				2,250.56	3,977.22	76.48	1800			0.11	1.514	1726.66	43.41%
Findlay Creek Drive		MH13208	MH13209											0.00	37.71	17.02	0.92	17.94	57.38	77.56	90.79	132.54	2,164.07					2,751.94	3,977.22	83.98	1800			0.11	1.514	1225.28	30.81%
Findlay Creek Drive	S13208A-B-C, R13208	MH13208	MH13209				0.33		0.30					1.13	7.58	17.02	0.92	17.94	57.38	77.56	90.79	132.54		587.87				2,751.94	3,977.22	83.98	1800			0.11	1.514	1225.28	30.81%
Findlay Creek Drive		MH13210	MH13209											0.00	13.92	17.48	1.15	18.64	56.47	76.31	89.33	130.39	785.95					835.72	1,846.76	86.33	1350			0.11	1.250	1011.04	54.75%
Findlay Creek Drive	S13210A-B	MH13210	MH13209						0.34					0.65	0.65	17.48	1.15	18.64	56.47	76.31	89.33	130.39		49.77				835.72	1,846.76	86.33	1350			0.11	1.250	1011.04	54.75%
Shuttleworth Dr		*MH13209*	*MH13175*											*0.00*	*53.15*	*18.64*	*18.64*	*37.27*	*54.34*	*73.40*	*85.91*	*125.37*	*2,888.01*					*3,492.22*	*6,745.44*	*50.70*		*2400*	*1800*	*0.10*	1.561	3253.21	48.23%
Shuttleworth Dr		*MH13209*	*MH13175*											*0.00*	*8.23*	*18.64*	*18.64*	*37.27*	*54.34*	*73.40*	*85.91*	*125.37*		*604.21*				*3,492.22*	*6,745.44*	*50.70*		*2400*	*1800*	*0.10*	1.561	3253.21	48.23%
Findlay Creek Drive		MH13392	MH13393											0.00	0.00	10.00	0.84	10.84	76.81	104.19	122.14	178.56	0.00					124.09	243.46	75.00	450			0.67	1.483	119.37	49.03%
Findlay Creek Drive	S13392, R13392	MH13392	MH13393				0.30		0.36					1.19	1.19	10.00	0.84	10.84	76.81	104.19	122.14	178.56		124.09				124.09	243.46	75.00	450			0.67	1.483	119.37	49.03%
Findlay Creek Drive		MH13393	*MH 141*											0.00	0.00	10.84	0.04	10.89	73.71	99.94	117.13	171.20	0.00					119.03	420.63	6.50	450			2.00	2.562	301.61	71.70%
Findlay Creek Drive		MH13393	*MH 141*											0.00	1.19	10.84	0.04	10.89	73.71	99.94	117.13	171.20		119.03				119.03	420.63	6.50	450			2.00	2.562	301.61	71.70%

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

Notes:
1. Mannings coefficient (n) = 0.013

Designed: KH
Checked: JIM
Dwg. Reference: 105202-500/501

No.	Revision	Date
1	Submission No. 1 for City Review	2018-09-05
2	Submission No. 2 for City Review	2018-10-24
3	Submission No. 3 for City Review	2018-11-28
4	Revised per new legal	2020-02-13
5	Submission to MECP	2020-04-15

File Reference: 105202.5.7.1
Date: 2020-04-15
Sheet No: 2 of 3

Drainage Area ID	Continuous/ Sag (1)(2)	Road Type	Minor System Design Target (Based On Road Type)		ICD (l/s)	Notes
			Minor System Design Storm	Generated Flow On Individual Segment Simulated (l/s)		
R13109B	Sag	Rear Yard	5	32	43	
R13110B	Sag	Rear Yard	5	30	31	
R13156	Sag	Rear Yard	5	26	28	

(1) Capture on continuous grade is limited to capacity of grate.

(2) The minor flow restriction has been increased in sags to allow full capture of overflow from upstream segments on continuous grade during the design storm event without ponding.

For those areas within Cowan's Grove which will require a separate site stormwater design and analysis, the following table summarizes the assumed inflow rate and minimum on-site storage required for their design.

Table 5.4 Summary of Minimum On-Site Storage and Minor System Inflow Rate for External Development Lands to Cowan's Grove

Drainage Area Id	Area (Ha)	Land Use	Imp Ratio	Minimum On-Site Storage Required (cu-m)*	Minor System Inflow Rate (l/s)
West Model (Street No 1 only from Lilythorne at Findlay Creek)					
MU04	1.32	Mixed Use/High Density	0.86	150.00	270
East Model (Street No 1 only from Lilythorne at Findlay Creek)					
PARK2	1.51	Park	0.14	353.00	146
FPARK2	1.60	Park	0.20	Total flow conveyed to PARK2 where it is stored and captured	
Centre Model					
INST	2.25	School	0.86	253.00	454
MU01	0.67	Mixed Use/High Density	0.86	80.00	135
MU05	1.39	Mixed Use/High Density	0.86	180.00	281
South Model					
MU02	0.95	Mixed Use/High Density	0.86	125.00	191
MU03	0.48	Mixed Use/High Density	0.86	60.00	96
PARK1	0.37	Park	0.14	60.00	16

** The on-site storage noted was used to evaluate Cowan's Grove. As a minimum this on-site storage should be provided.*

The storage available on-site and its maximum depth and the results of the DDSWMM evaluation for the subject site are presented in **Table 5.5**. The ponding plan for the subject site is presented on **Drawings 103557-600 and 103557-601**. The DDSWMM output files are presented in **Appendix E**.

Rear yards

Similar to street segments, rear yards for the subject site were considered independently and rear yard catch basins were also incorporated into the DDSWMM model. Storage volume in rear yards was not accounted for as available on-site storage. Inlet restriction was also proposed for rear yards and overflow from the rear yards cascades to a major system street segment via swales.

Major System Storage Attenuation and Routing (Double Routing)

For street segments, the cascading overflow to the next segment or low point, utilizes the static storage available plus an additional amount of storage equivalent to the depth required for the flow to carry over the high point. The attenuation in street sags was evaluated to account for static storage and, if overflow occurs, dynamic storage. Within this report it is referred to as double routing.

The DDSWMM model does not have a direct way of coding double routing since it does not allow the user to code dynamic storage over the high point. For this analysis, an alternative method was employed where the overflow from a street segment (regular static storage at a sag) is conveyed to a dummy segment. In other words, a regular low point segment was provided with a downstream dummy segment for further flow attenuation to account for the dynamic ponding during overflow.

The dummy segment does not have any drainage area attributes associated with it since it is a segment for routing. In addition, there is no inflow to the minor system from these dummy segments. The overflow hydrograph from the upstream catchment is routed in the dummy segment to the next “real” downstream segment. The dummy segments have specific characteristics which are noted below:

- Segment Length – equivalent to length of maximum static storage from the street segment contributing to it.

- Road Type – equivalent to appropriate right-of-way characteristics from the segment contributing to it, and with a minimum longitudinal slope of 0.01% (0.0001 m/m).

The double routing method noted above applied to DDSWMM, is a feasible method outlined in the February 2014 Technical Bulletin ISDTB 2014-01.

The dummy segments for major system routing were applied to the analysis of the subject site. The segments are referenced as D1, D2, D3, etc. within the DDSWMM modelling file. The overall DDSWMM schematic presented in **Drawing 103557-700** does not show the dummy segments, but DDSWMM computer output file shows the dummy segments immediately following the corresponding major segment which cascades into that dummy segment.

Future Lands

In addition to the above noted assumptions with respect to Cowan’s Grove, the following assumptions were used to model the minor and major system flow from the future areas which are tributary to and contribute flow (minor and major) to the subject site. A summary of the areas, storages and parameter assumptions are provided in **Table 5.2**.

- School Site (DDSWMM ID: INST)

  This school site was assumed to be restricted to the 5 year modeled flow. It was also assumed that full on-site storage will be provided on-site (all major flow contained on-site up to and

including the 100 year event). Emergency overflow will be routed to Trident Mews (DDSWMM ID S13159).

- Park Sites (DDSWMM ID: PARK1 and PARK2)

  There are two park sites located on Cowan's Grove. Both park areas are assumed to be restricted to the 5 year modeled flow. It was also assumed that full on-site storage will be provided on each park site (all major flow contained on-site up to and including the 100 year event). For the park site on the southern portion of the site (DDSWMM ID PARK1), emergency overflow will be routed to Shuttleworth Drive (DDSWMM ID S13108). For the park site on the eastern portion of the site (DDSWMM ID PARK2), emergency overflow will be routed to the expansion of the Findlay Creek Village Stormwater Facility.

- High Density Sites (DDSWMM ID: MU01, MU02, MU03, MU04 and MU05)

  There are four high density sites located on Cowan's Grove. All these areas are assumed to be restricted to the 5 year modeled flow. It was also assumed that full on-site storage will be provided on each site (all major flow contained on-site up to and including the 100 year event). The emergency overflow for each high density area is summarized below:

  - MU01, south of Street No 1, will be directed to MU05;
  - MU02, north of Shuttleworth Drive, will be directed to Shuttleworth Drive (DDSWMM ID S13100);
  - MU05, between MU01 and MU02, will be directed to Longworth Avenue (DDSWMM ID S13123A);
  - MU04, north of Street No 1, will be directed to Street No 1 (DDSWMM S13201); and,
  - MU03, south of Shuttleworth Drive, will be directed to Shuttleworth Drive (DDSWMM ID S13100).

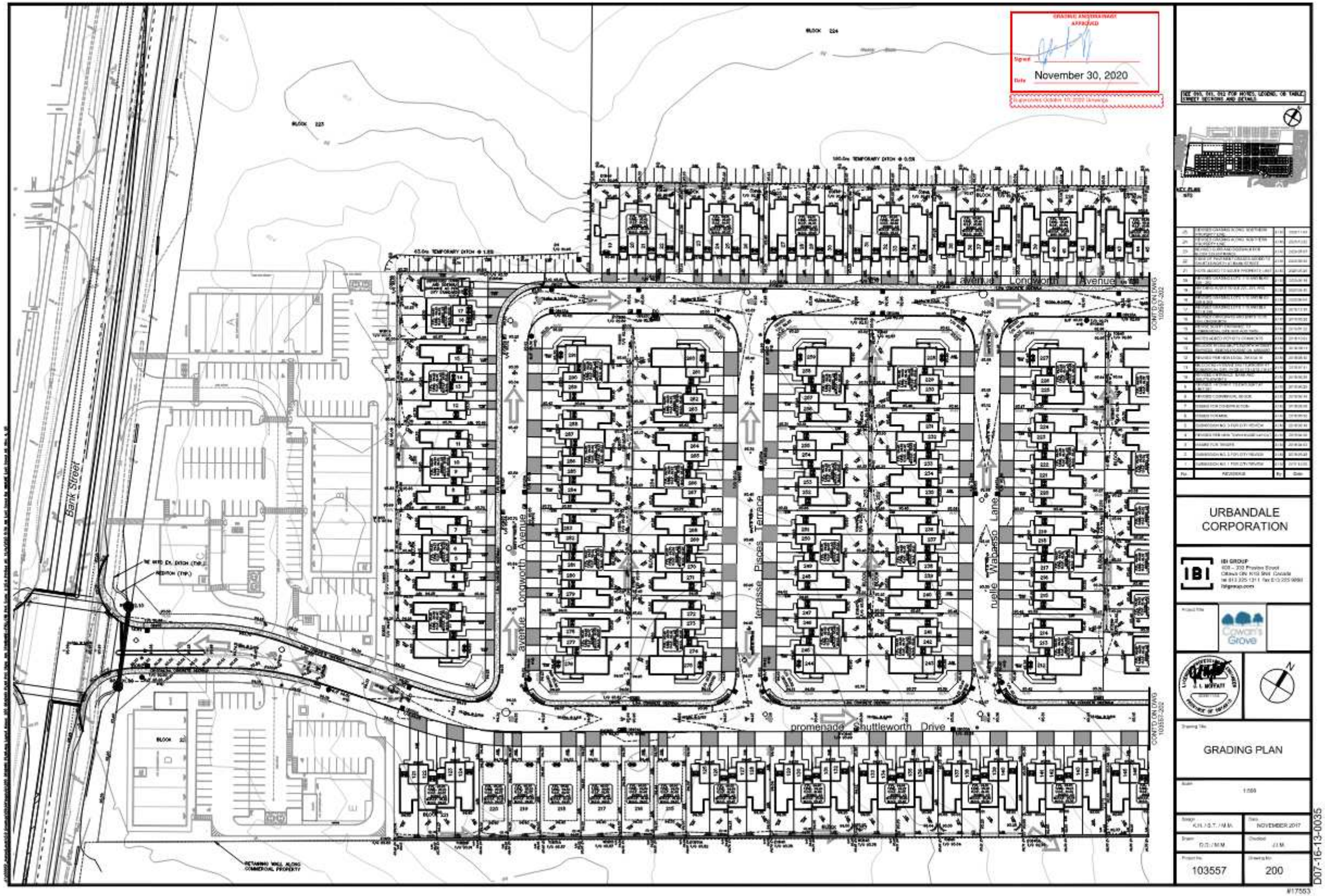
  The evaluation of the future areas was undertaken in DDSWMM. The future area minor system flows were imported directly into XPSWMM for hydraulic evaluation. A summary of future area parameters and assumed inflow are provided in **Tables 5.2 and 5.3**.

Drawing 103557-700 presents the future external areas contributing major and minor flow to the subject site including their segment IDs.

Table 5.2 summarizes the main hydrological parameters used in the DDSWMM models. The drainage area plan (DDSWMM schematic) is presented in **Drawing 103557-700** summary of the determination of the parameters used in the DDSWMM model and model output files are enclosed in **Appendix E**.

Summary of Hydrology Modeling Output Files

For ease of review, the following is a reference list of the computer modeling output files including names and storm event evaluated. The modeling output files are on the enclosed CD in **Appendix E**.



SEE DWG. 201, 202 FOR NOTES, LEGEND, OB TABLE, STREET SECTIONS AND DETAILS

URBANDALE CORPORATION

IBI GROUP
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tel 613 225 1311 fax 613 225 9868
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Cowan's Grove

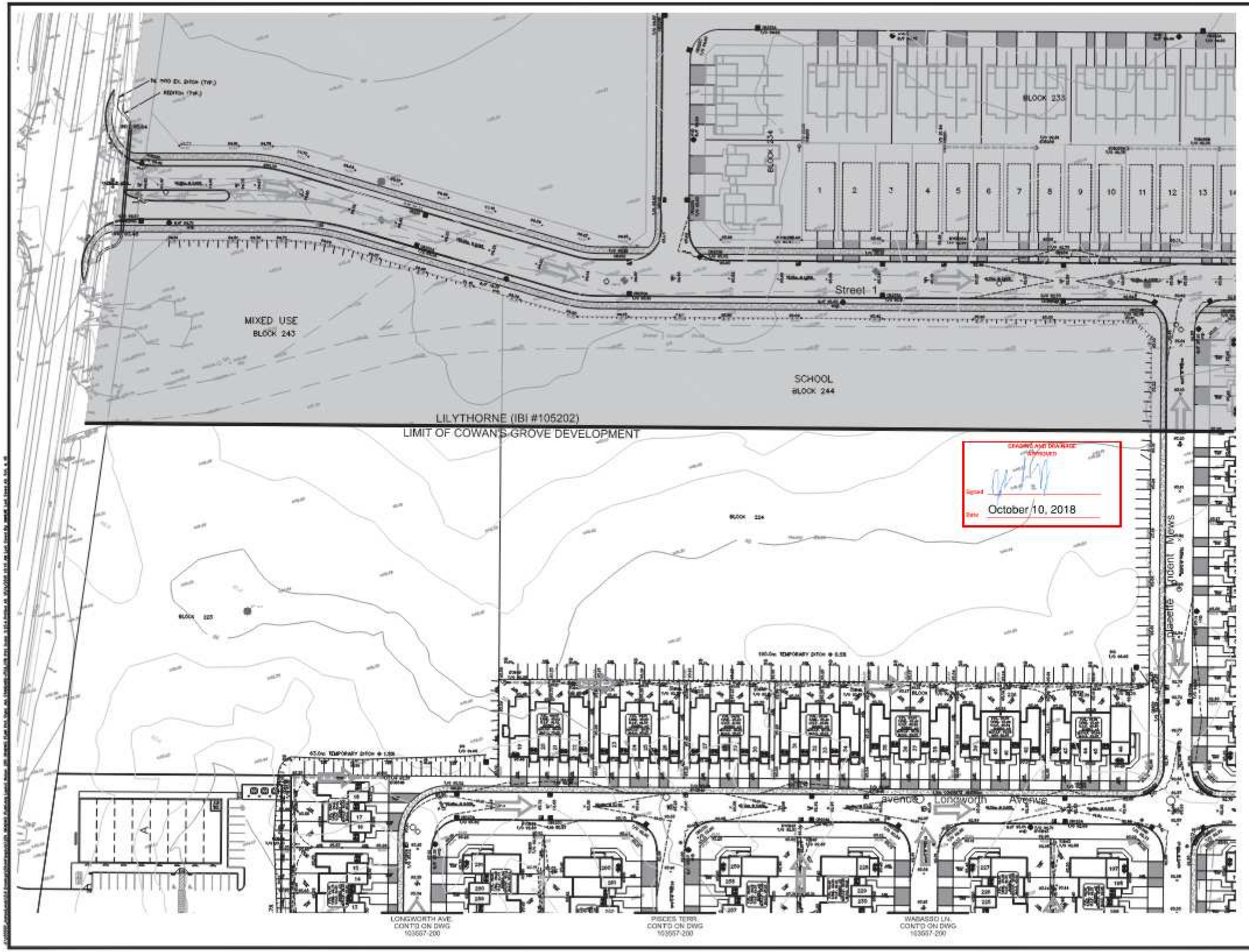
GRADING PLAN

1:500

Design	Date
K.H. / S.T. / M.M.	NOVEMBER 2017
Drawn	Checked
D.D. / M.M.	J.I.M.
Project No.	Drawing No.
103557	200

D07-16-13-0035

#17553



SEE SHT. SHT. SHT FOR NOTES, LEGEND, OR TABLE
STREET SECTIONS AND DETAILS

KEY PLAN

No.	REVISIONS	By	Date
14			
13			
12			
11			
10			
9			
8			
7			
6			
5			
4			
3			
2			
1			

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Cowan's Grove

J. I. MOFFAT
PROVINCE OF ONTARIO

GRADING PLAN

Scale: 1:500

Design	Date
K.H. / G.T. / M.M.	NOVEMBER 2017
Drawn	Checked
D.D. / M.M.	J.I.M.
Project No.	Drawing No.
103557	201

D07-16-13-0035

#17563

APPENDIX

B

- FIRE UNDERWRITERS SURVEY – FIRE FLOW CALCULATION FOR BUILDING
- FIRE UNDERWRITERS SURVEY – FIRE FLOW CALCULATION FOR PORTABLE CLASSROOM
- WATER DEMAND CALCULATION
- WATER BOUNDARY CONDITIONS
- HYDRANT COVERAGE FIGURE
- CONFIRMATION FROM ARCHITECT REGARDING FIRE FLOW ASSUMPTIONS

Fire Flow Design Sheet (FUS)
3290 Findlay Creek Drive
Ottawa, Ontario
CA0058595.7684

Date: 2025-11-28
Input By: Amy Zhuang
Reviewed By: Winston Yang

CECCE Leitrim Elementary School - Portable Classrooms
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 2020

To estimate the amount of water required to confine and control a fire, FUS uses the following base formula:

F = 220 x C x √A

F = Required Fire Flow in litres per minute
C = Construction Coefficient related to the type of construction of the building
A = Total Effective Floor Area in square meters of the building

1. Construction Material

			Input	Coefficient	Value Used
C	**Type V**	Wood Frame Construction		1.5	1
	Type IV-A	Mass Timber Construction		0.8	
	Type IV-B	Mass Timber Construction		0.9	
	Type IV-C	Mass Timber Construction	Yes	1.0	
	Type IV-D	Mass Timber Construction		1.5	
	Type III	Ordinary Construction		1.0	
	Type II	Non-combustible Construction		0.8	
	Type I	Fire Resistive Construction		0.6	

2. Floor Area

		Input	Value Used
A	Building Footprint (m²)	220	220
	Number of Floors	0	
	Protected Openings (1-hr)	No	
	Total Effective Floor Area (m²) *	220	

* 100% of all Floor Areas are considered

3. Base fire flow without adjustments

F

F = 220 x C x √A = 3,000 **L/min**

4. Occupancy and Contents Adjustment Factor

		FUS Table 3	Adjustment	Value Used
(1)	Non-combustible		-25%	-15%
	Limited combustible	Yes	-15%	
	Combustible		+0%	
	Free Burning		+15%	
	Rapid Burning		+25%	

Adjustment of F due to Occupancy and Contents = 2,550 **L/min**

5. Automatic Sprinkler Protection

		FUS Table 4	Adjustment	Value Used
	% of Sprinkler Coverage	0%		
(2)	Adequately Designed System (NFPA 13)	No	-30%	+0%
	Standard Water Supply	No	-10%	
	Fully Supervised System		-10%	

Credit for Automatic Sprinkler Protection = 0 **L/min**

6. Exposure Surcharge

		Separation	FUS Table 5	Value Used
(3)	North Exposure (m)	10	+20%	+55%
	East Exposure (m)	12.4	+15%	
	South Exposure (m)	4.8	+20%	
	West Exposure (m)	0	+0%	

Surcharge for Exposure = +1,403 **L/min**

7. Total Required Fire Flow

F

F = (1) + (2) + (3) = 4,000 **L/min**
or 67 **L/sec**
or 1,057 **GPM (US)**

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 2020
by Fire Underwriters Survey

Fire Flow Design Sheet (FUS)
3290 Findlay Creek Drive
Ottawa, Ontario
CA0058595.7684

Date: 2025-11-11
Input By: Amy Zhuang
Reviewed By: Winston Yang

CECCE Leitrim Elementary School
Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 2020

To estimate the amount of water required to confine and control a fire, FUS uses the following base formula:

F = 220 x C x √A

F = Required Fire Flow in litres per minute
C = Construction Coefficient related to the type of construction of the building
A = Total Effective Floor Area in square meters of the building

1. Construction Material

			Input	Coefficient	Value Used
C	**Type V**	Wood Frame Construction		1.5	0.8
	Type IV-A	Mass Timber Construction		0.8	
	Type IV-B	Mass Timber Construction		0.9	
	Type IV-C	Mass Timber Construction		1.0	
	Type IV-D	Mass Timber Construction		1.5	
	Type III	Ordinary Construction		1.0	
	Type II	Non-combustible Construction	Yes	0.8	
	Type I	Fire Resistive Construction		0.6	

2. Floor Area

		Input	Value Used
A	Building Footprint (m²)	2,309	2,886
	Number of Floors	2	
	Protected Openings (1-hr)	Yes	
	Total Effective Floor Area (m²) *	2,886	

* Single largest floor area + 25% of each of the two immediately adjoining floors

3. Base fire flow without adjustments

F

F = 220 x C x √A = 9,000 **L/min**

4. Occupancy and Contents Adjustment Factor

		FUS Table 3	Adjustment	Value Used
(1)	Non-combustible		-25%	-15%
	Limited combustible	Yes	-15%	
	Combustible		+0%	
	Free Burning		+15%	
	Rapid Burning		+25%	

Adjustment of F due to Occupancy and Contents = 7,650 **L/min**

5. Automatic Sprinkler Protection

		FUS Table 4	Adjustment	Value Used
	% of Sprinkler Coverage	100%		
(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-40%
	Standard Water Supply	Yes	-10%	
	Fully Supervised System		-10%	

Credit for Automatic Sprinkler Protection = -3,060 **L/min**

6. Exposure Surcharge

		Separation	FUS Table 5	Value Used
(3)	North Exposure (m)	35	+0%	+15%
	East Exposure (m)	36	+0%	
	South Exposure (m)	12.5	+15%	
	West Exposure (m)	0	+0%	

Surcharge for Exposure = +1,148 **L/min**

7. Total Required Fire Flow

F

F = (1) + (2) + (3) = 6,000 **L/min**
or 100 **L/sec**
or 1,585 **GPM (US)**

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 2020
by Fire Underwriters Survey

Water Demand Calculation Sheet

Project:	**CECCE Leitrim Elementary School**	**Date:**	**2025-11-11**
Location:	**3290 Findlay Creek Drive, Ottawa, Ontario**	**Design:**	**Amy Zhuang**
WSP Project No.	**CA0058595.7684**	**Page:**	**1 of 1**

Proposed Buildings	Residential			School	Non-Residential			Avg Day			Max Day			Peak Hour			Fire
	Units			Students+Staff	Industrial	Institutional	Commercial	Demand (L/s)			Demand (L/s)			Demand (L/s)			Demand
	SF	APT	ST		(ha)	(ha)	(ha)	Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total	(L/min)
New School				443					1.11	1.11		1.66	1.66		2.99	2.99	
Daycare				60					0.15	0.15		0.23	0.23		0.41	0.41	6,000
Future Addition (Estimate)				250					0.63	0.63		0.94	0.94		1.69	1.69	
Portables				200					0.50	0.50		0.75	0.75		1.35	1.35	
Total				953					2.38	2.38		3.57	3.57		6.43	6.43	6,000

Population Densities

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

Avg Day Demand

Residential	280	L/cap/day
Light Industrial	35000	L/ha/day
Institutional	28000	L/ha/day
Commercial	28000	L/ha/day
School	90	L/day/person

Notes: * Existing student and staff count as per Genivar Servicing & SWM Report 2013

Max Day Demand

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

Peak Hour Demand

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

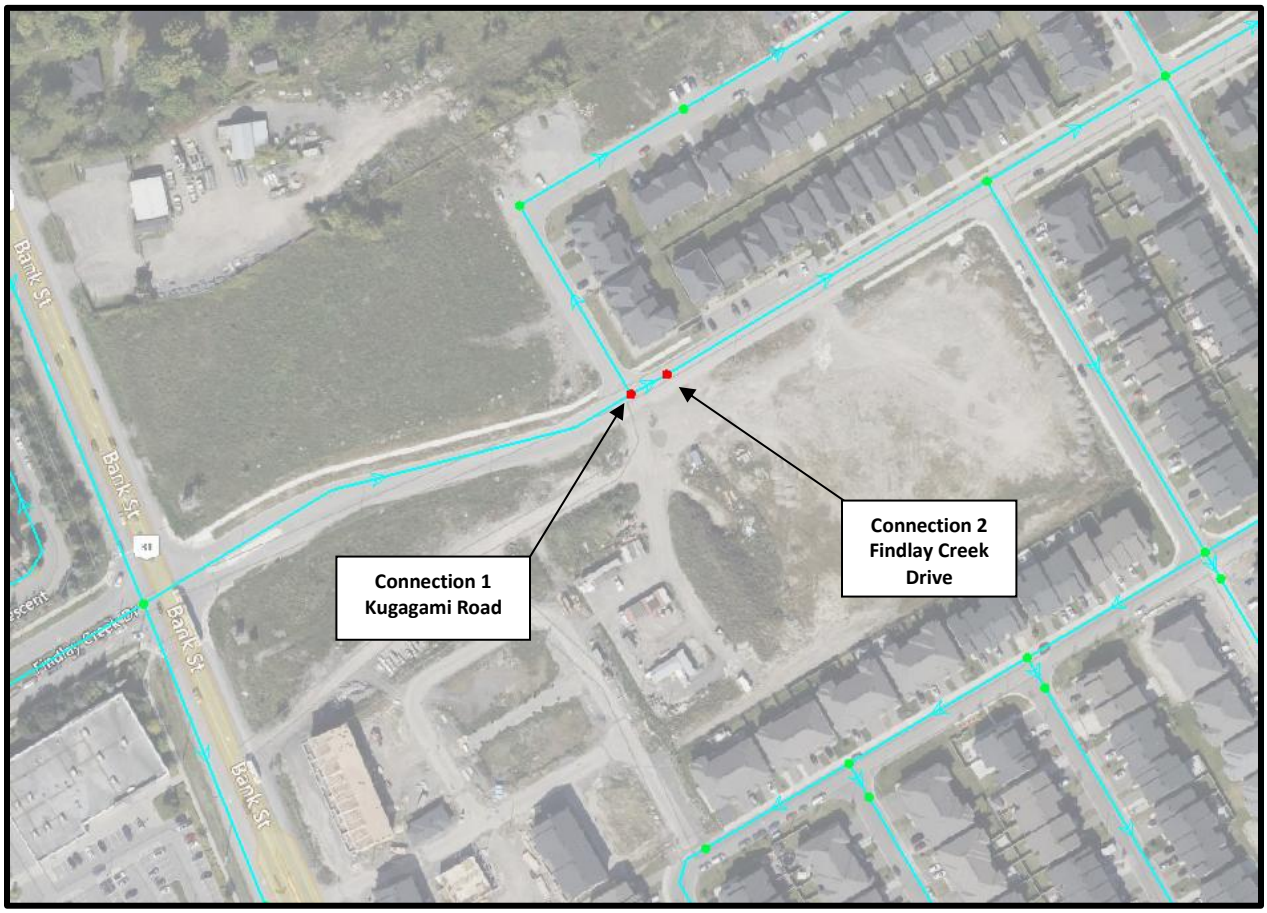
References: Ottawa Water Distribution Design Guidelines - Section 4
2020 Fire Underwriters Survey

Boundary Conditions
3290 Findlay Creek

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	143	2.38
Maximum Daily Demand	214	3.57
Peak Hour	386	6.43
Fire Flow #1	6,000	100.00

Location



Results

Existing Conditions

Connection 1 – Kugagami Road

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.8	86.8
Peak Hour	144.9	72.7
Max Day plus Fire Flow #1	144.9	72.7
[1] Ground Elevation =	93.8	m

Connection 2 – Findlay Creek Drive

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	154.8	86.9
Peak Hour	144.9	72.8
Max Day plus Fire Flow #1	144.9	72.8
[1] Ground Elevation =	93.7	m

Future SUC

Connection 1 – Kugagami Road

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	147.0	75.7
Peak Hour	139.5	65.0
Max Day plus Fire Flow #1	138.8	64.0
[1] Ground Elevation =	93.8	m

Connection 2 – Findlay Creek Drive

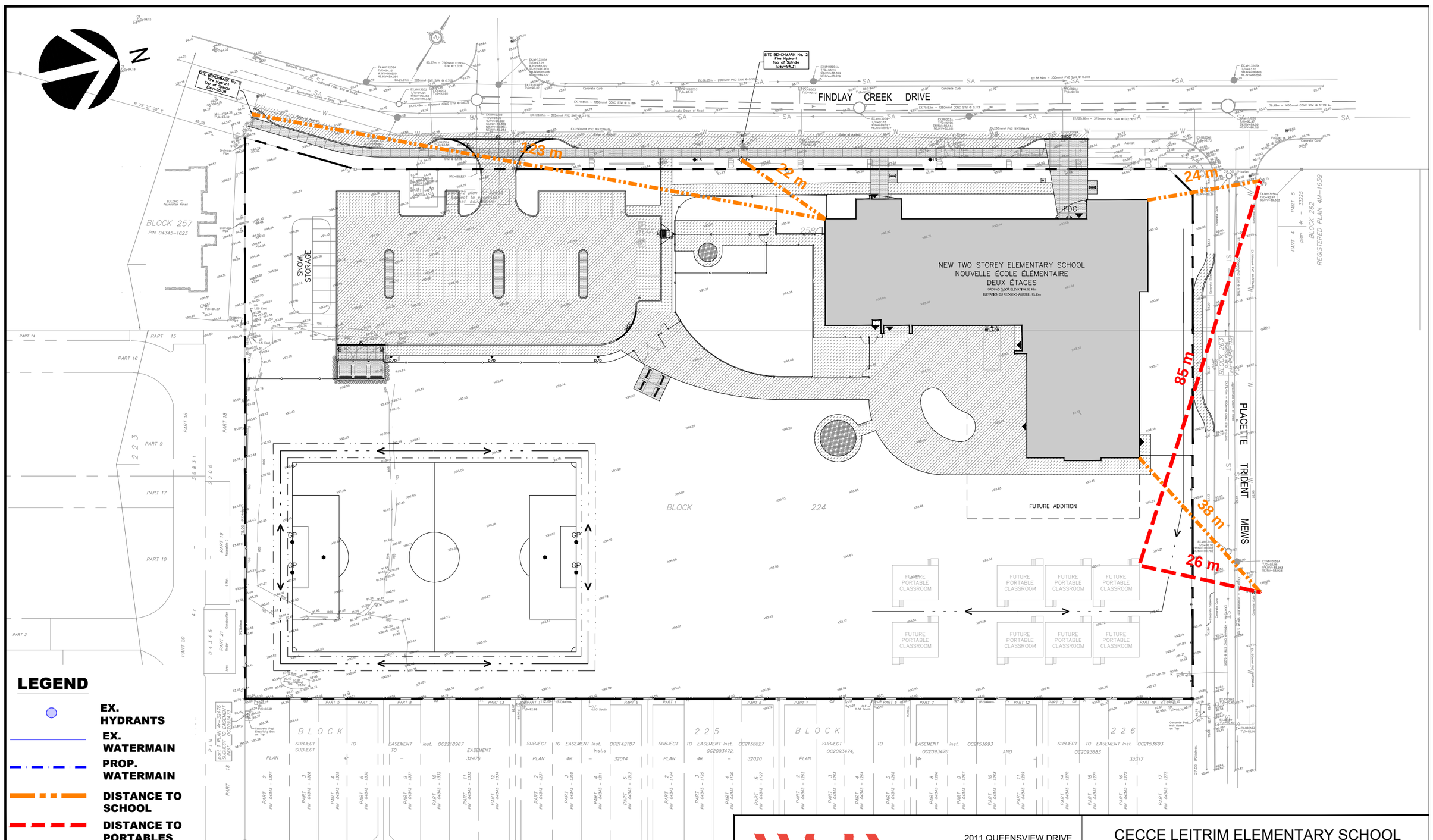
Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	147.0	75.8
Peak Hour	139.5	65.1
Max Day plus Fire Flow #1	138.7	64.0
[1] Ground Elevation =	93.7	m

Notes

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

Disclaimer

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



LEGEND

- EX. HYDRANTS
- EX. WATERMAIN
- PROP. WATERMAIN
- DISTANCE TO SCHOOL
- DISTANCE TO PORTABLES

2011 QUEENSVIEW DRIVE
OTTAWA, ONTARIO
CANADA K2B 8K2
T. 613.829.2800
F. 613.829.8299
WWW.WSP.COM

CECCE LEITRIM ELEMENTARY SCHOOL

HYDRANT COVERAGE FIGURE

SCALE:	DATE:	SKETCH No.
1:750	NOVEMBER 28, 2025	SKETCH 1

Zhuang, Amy

From: Simon Rioux <simon@cuhaci.com>
Sent: November 11, 2025 12:00 PM
To: Zhuang, Amy
Cc: Yang, Winston
Subject: RE: Leitrim School - Site Plan

Hi Amy,
The population of the school is as follow:

- School students: 412
- School staff: 31
- Daycare children: 49
- Daycare staff: 11

I'm confirming that:

- Construction meets OBC classification 3.2.2.24.
- Building is sprinklered.
- Fire separations are as per OBC SB-2 and/or ULC-listed designs.

Regards,

Simon Rioux, architecte
Principal / Architecte principal
Edward J. Cuhaci and Associates Architects Inc.
Office : (613) 236-7135 #242
Cell : (613) 797-0887

From: Zhuang, Amy <Amy.Zhuang@wsp.com>
Sent: 11 novembre 2025 10:55
To: Simon Rioux <simon@cuhaci.com>
Cc: Yang, Winston <Winston.Yang@wsp.com>
Subject: RE: Leitrim School - Site Plan

Hi Simon,

Could you provide the student and staff count for the school?

Also, could you provide a letter confirming the following –

1. If the type of construction for the proposed building will be non-combustible with non-combustible exterior finish as per OBC classification 3.2.2.24.
2. If the building will be equipped with an automatic sprinkler protection in conformance with NFPA13.
3. If the design of the interior fire separations within the building shall be in accordance with all requirements from OBC SB-2 and/or ULC-listed. This includes addressing all closures and openings as well as ensuring the protection of exterior openings as per appropriate OBC requirements.

We will need the information to request water boundary conditions from the City. It will be much appreciated if you can get back to us at your earliest convenience. Thanks!

APPENDIX

C

- STORM SEWER DESIGN SHEET
- STORM DRAINAGE AREA PLAN C07
- STORMWATER MANAGEMENT CALCULATIONS
- OGS DETAILS
- DWG C04 – GRADING PLAN
- DWG C05 – SERVICING PLAN

STORM SEWER DESIGN SHEET

CECCE Leitrim Elementary School
3290 Findlay Creek Drive, Ottawa
Project: CA0058595.7684
Date: December 2025

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED SEWER DATA								
STREET	AREA ID	FROM	TO	C= 0.25	C= 0.35	C= 0.40	C= 0.70	C= 0.80	C= 0.90	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	i (2) (mm/hr)	i (5) (mm/hr)	i (100) (mm/hr)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	CONTROLLED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (5yr) (L/s)	AVAIL CAP (5yr) (%)
POST-DEVELOPMENT																														
	A-1, A-2, A-3, A-4	CB01	CB02	0.239					0.011	0.194	0.194	10.00	11.19	76.81	104.19	178.56	14.87				14.87		PVC DR-35	250	0.50	61.18	42.09	0.86	1.19	27.22	64.67%
	A-5	CB02	CBMH100	0.222					0.068	0.324	0.518	11.19	11.84	72.52	98.30	168.36	37.55				37.55		PVC DR-35	250	1.00	47.51	59.53	1.21	0.65	21.97	36.91%
	A-6	CB03	CBMH100	0.180						0.125	0.125	10.00	10.51	76.81	104.19	178.56	9.61				9.61		PVC DR-35	200	1.00	31.72	32.83	1.04	0.51	23.22	70.73%
	A7	CBMH100	CBMH101	0.106					0.084	0.284	0.927	11.84	12.51	70.38	95.37	163.29	65.26				65.26		PVC DR-35	375	0.30	34.99	96.13	0.87	0.67	30.87	32.12%
	A-8, A-9, A-10, A-11	CB05	CBMH101	0.550						0.382	0.382	10.00	10.43	76.81	104.19	178.56	29.36				29.36		PVC DR-35	200	1.00	26.71	32.83	1.04	0.43	3.47	10.58%
	A-12	CB04	STMH101	0.087					0.023	0.117	0.117	10.00	10.50	76.81	104.19	178.56	9.02				9.02		PVC DR-35	200	1.00	31.29	32.83	1.04	0.50	23.81	72.52%
	A13	STMH101	STMH102	0.688					0.242	1.084	2.511	12.51	13.23	68.33	92.55	158.43	171.55				171.55		PVC DR-35	600	0.15	36.13	238.05	0.84	0.72	66.50	27.93%
		CTMH102 (OGS)	STMH103							0.000	2.511	13.23	13.35	66.29	89.75	153.58	166.41				166.41		PVC DR-35	600	0.15	6.24	238.05	0.84	0.12	71.63	30.09%
	ROOF	BUILDING	STMH105						0.230	0.575	0.575	10.00	10.06	76.81	104.19	178.56	44.20				44.20		PVC DR-35	300	1.00	4.82	96.80	1.37	0.06	52.60	54.34%
		STMH105	STMH103							0.000	0.575	10.06	11.16	76.58	103.88	178.02	44.07				44.07		PVC DR-35	300	0.60	70.31	74.98	1.06	1.11	30.91	41.23%
		STMH103	STMH104							0.000	3.086	13.35	13.41	65.95	89.28	152.78	203.51				203.51		PVC DR-35	600	0.20	3.27	274.87	0.97	0.06	71.36	25.96%
		STMH104	*EX.STMH13203*							0.000	3.086	13.41	13.71	65.79	89.07	152.41	203.04				203.04		PVC DR-35	825	0.11	15.89	476.56	0.89	0.30	273.52	57.40%
										3.086	TRUE													825						

Definition:
Q=2.78CiA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (Ha)
i = Rainfall Intensity in millimeters per hour (mm/hr)
i = 732.951/(TC+6.199)^0.810 — 2 Year
i = 1174.184/(TC+6.014)^0.816 — 5 Year
i = 1735.688/(TC+6.014)^0.820 — 100 Year

Notes:
1. Mannings coefficient (n) = 0.013

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

No.	L (m)	S %	C	Tc (min)
1				#DIV/0!
2				#DIV/0!
3				#DIV/0!
4				#DIV/0!

Designed: WZ
Checked: D.B.Y.
Dwg. Reference: C05

No.	Revision	Date
1.	City Submission No. 1	2025-12-03

File Reference:
Date: 2024-11-22
Sheet No: 1 of 1

FINDLAY CREEK DRIVE

PLACETTE TRIDENT MEWS

SITE BENCHMARK No. 2
Fire Hydrant
Top of Spindle
Elev=94.31

SITE BENCHMARK No. 1
Fire Hydrant
Top of Spindle
Elev=93.08

NEW TWO STOREY ELEMENTARY SCHOOL
NOUVELLE ÉCOLE ÉLÉMENTAIRE
DEUX ÉTAGES
GROUND FLOOR ELEVATION: 93.45m
ÉLÉVATION DU REZ-DE-CHAUSSÉE : 93.45m

FUTURE ADDITION

FUTURE PORTABLE CLASSROOM

STMH104
T/G = 94.07m
INV. SE = 90.05m
INV. NW = 89.83m

SANMH201
T/G = 93.82m
INV. E = 91.18m
INV. NW = 91.12m

NEW 3.27m - 600mmØ CONC STM @ 0.20%

STMH103
T/G = 94.01m
INV. SE = 90.08m
INV. NW = 90.06m
INV. E = 90.36m

NEW 6.24m - 600mmØ CONC STM @ 0.15%

STMH102(OGS)
T/G = 93.75m
INV. E = 90.12m
INV. NW = 90.09m

NEW 66.61m - 200mmØ PVC SAN @ 0.35%

NEW 70.31m - 300mmØ PVC STM @ 0.60%

NEW 35.13m - 600mmØ CONC STM @ 0.15%

NEW 3.40m - 200mmØ PVC SAN @ 1.00%

SANMH200
T/G = 93.13m
INV. NE = 91.43m
INV. W = 91.41m

CONNECT TO BUILDING SANITARY SERVICE,C/W BACKFLOW PREVENTOR (REFER TO MECH DWG FOR CONTINUATION)
INV.=91.50

NEW 4.82m - 300mmØ PVC STM @ 1.00%

CONNECT TO BUILDING FOUNDATION DRAIN (REFER TO MECH DWGFOR CONTINUATION)
INV.=90.85

CONNECT ROOF DRAIN TO BUILDING STORM SERVICE C/W BACKFLOW PREVENTOR (REFER TO MECH DWGFOR CONTINUATION)
INV.=90.85

NEW 5.5m - 300mmØ PVC STM @ 1.00%

STMH105
T/G = 93.07m
INV. NE = 90.80m
INV. W = 90.78m
INV. E = 90.80m

CBMH101
T/G = 92.75m
INV. E = 89.99m
INV. W = 90.17m
INV. NE = 90.99m
INV. S = 90.63m

NEW 31.29m - 200mmØ PVC STM @ 1.00%

CB04
T/G = 92.70m
INV. SW = 91.30m

NEW 26.71m - 200mmØ PVC STM @ 1.00%

NEW 37.98m - 375mmØ PVC STM @ 0.65%

CBMH100
T/G = 92.50m
INV. E = 90.63m
INV. S = 90.78m
INV. W = 90.22m

NEW 47.51m - 300mmØ PVC STM @ 1.00%

NEW 31.71m - 200mmØ PVC STM @ 1.00%

CB03
T/G = 92.50m
INV. N = 91.10m

CB02
T/G = 92.50m
INV. W = 91.10m
INV. NE = 91.11m

NEW 61.18m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

CB01
T/G = 92.50m
INV. N = 91.42m

LD06
T/G = 92.50m
INV. SE = 91.28m
INV. NE = 91.28m

NEW 64.97m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

CB05
T/G = 92.50m
INV. N = 90.90m
INV. SE = 90.95m
INV. SW = 90.95m

NEW 45.60m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

NEW 45.60m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

NEW 64.98m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD07
T/G = 92.50m
INV. NE = 91.50m
INV. NW = 91.50m

LD08
T/G = 92.50m
INV. NW = 91.18m
INV. SW = 91.18m

NEW 27.49m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD09
T/G = 92.90m
INV. SE = 91.83m

NEW 30.23m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD10
T/G = 92.95m
INV. NW = 91.69m
INV. SE = 91.69m

NEW 23.51m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD11
T/G = 92.85m
INV. NW = 91.54m
INV. S = 91.54m

A-1 CONTROLLED 0.02 | 0.25
A-2 CONTROLLED 0.03 | 0.25
A-3 CONTROLLED 0.03 | 0.29
A-4 CONTROLLED 0.17 | 0.28
A-5 CONTROLLED 0.30 | 0.38
A-6 CONTROLLED 0.18 | 0.25
A-7 CONTROLLED 0.19 | 0.52
A-8 CONTROLLED 0.12 | 0.25
A-9 CONTROLLED 0.15 | 0.25
A-10 CONTROLLED 0.16 | 0.25
A-11 CONTROLLED 0.10 | 0.25
A-12 CONTROLLED 0.11 | 0.37
A-13 CONTROLLED 0.38 | 0.68
A-14 UNCONTROLLED 0.09 | 0.47
B-1 UNCONTROLLED 0.23 | 0.90

BLOCK 224 | BLOCK 225 | BLOCK 226

SUBJECT TO EASEMENT inst. OC2218967
SUBJECT TO EASEMENT inst. OC2142187
SUBJECT TO EASEMENT inst. OC2138827 OC2093472
SUBJECT TO EASEMENT inst. OC2153693 OC2093474, OC2093476
SUBJECT TO EASEMENT inst. OC2153693 AND OC2093683

PART PIN 04345 – 1327 … PART PIN 04345 – 1334
PART PIN 04345 – 1231 … PART PIN 04345 – 1233
PART PIN 04345 – 1194 … PART PIN 04345 – 1269

Meters
15 0 15 30
1:300

CLIENT:
Écoles catholiques Centre-Est

CLIENT REF. #:

ARCHITECT:
EDWARD J CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
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OTTAWA ONTARIO CANADA K2B 8K2
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PROJECT:
CECCE LEITRIM ELEMENTARY SCHOOL
3290 FINLAY CREEK
OTTAWA, ON
CONSEIL DES ÉCOLES CATHOLIQUES DU CENTRE-EST 4000, RUE LABELLE,
OTTAWA, ON K1J 1A1

KEY PLAN:


SEAL:
LICENSED PROFESSIONAL ENGINEER
W. ZHUANG
100231427
2025-12-05
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

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BEARING NOTE
BEARINGS ARE GRID, DERIVED FROM SOUTHERLY LIMIT OF BLOCK 224 REGISTERED PLAN 4M-1624 SHOWN TO BE N59°24'20"E AND ARE REFERRED TO THE CONTRAL MERIDIAN OF MTM ZONE 9 (76°30 WEST LONGITUDE) NAD-83 (ORIGINAL).
BENCHMARK #1 N:5020504.33 E:370078.61 Z:95.08
BENCHMARK #2 N:5020551.41 E:376070.89 Z:94.31

NORTHING:

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2025-12-05	ISSUED FOR SPA

PROJECT NO: CA0058595.7684
DATE: 2025-12-05
ORIGINAL SCALE: 1:300
DESIGNED BY: A.Z.
DRAWN BY: J.T.
CHECKED BY: D.B.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE
25mm

DISCIPLINE: CIVIL

TITLE: POST-DRAINAGE AREA PLAN

SHEET NUMBER: C07
SHEET #: OF

ISSUE: ISSUED FOR SPA
REV #: 1
DATE OF: 2025-12-05

CECCE Leitrim Elementary School
3290 Findlay Creek Drive, Ottawa
Project: CA0058595.7684
Date: December 2025
Revised:

TABLE 1 - Pre-Development Area

Pre Dev run-off Coefficient "C"

			2 & 5 Year Event		100 Year Event	
Area	**Surface**	**Ha**	**"C"**	**C_{avg}**	**"C"+25%**	***C_{avg}**
Total	Gravel	0.000	0.70		0.88	
2.250	Asphalt	0.000	0.90	0.25	0.99	0.31
	Soft	2.250	0.25		0.31	
				0.50		**0.50**

Per City of Ottawa criteria pre development runoff coefficient shall be no greater than 0.5

Runoff Coefficient Equation
$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{tot}$
$*C = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{tot}$

*Runoff coefficients increased by 25% up to a maximum value of 1.0 for the 100-Year event

Pre Dev Free Flow - 5 Year Event

Pre Dev.	C	Intensity	Area
5 Year	0.25	104.19	2.250
2.78CIA=	162.93		
162.90	L/S		

**Use a 10 minute time of concentration for 5 year

Pre Dev Free Flow - 100 Year Event

Pre Dev.	C	Intensity	Area
100 Year	0.31	178.56	2.250
2.78CIA=	346.23		
346.20	L/S		

**Use a 10 minute time of concentration for 100 year

Allowable Release Rate from High Level Study = 454.0 L/s

Equations:

Flow Equation

Q = 2.78 x C x I x A

Where:

C is the runoff coefficient

I is the intensity of rainfall, City of Ottawa IDF

i = 732.951/(TC+6.199)^0.810 2-year
i = 998.071/(TC+6.053)^0.814 5-year
i = 1735.688/(TC+6.014)^0.820 100-year

A is the total drainage area

CECCE Leitrim Elementary School
3290 Findlay Creek Drive, Ottawa
Project: CA0058595.7684
Date: December 2025

TABLE 2 - Uncontrolled Flow (Area A-14)

Post Dev run-off Coefficient "C"

			2 & 5 Year Event		100 Year Event	
Area	**Surface**	**Ha**	**"C"**	**C_{avg}**	**"C"+25%**	***C_{avg}**
Total	Gravel	0.00	0.70		0.88	
0.09	Asphalt	0.03	0.90	**0.47**	1.00	**0.54**
	Soft	0.06	0.25		0.31	

Runoff Coefficient Equation

$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{tot}$

$*C = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{tot}$

*Runoff coefficients increased by 25% up to a maximum value of 1.0 for the 100-Year event

Post Dev Free Flow

5 Year Event

Pre Dev.	**C**	**Intensity**	**Area**
5 Year	0.47	104.19	0.090
2.78CIA=	12.25		
12.30	L/S		

**Use a 10 minute time of concentration for 5 year

100 Year Event

Pre Dev.	**C**	**Intensity**	**Area**
100 Year	0.54	178.56	0.090
2.78CIA=	24.12		
24.10	L/S		

**Use a 10 minute time of concentration for 100 year

Equations:

Flow Equation

Q = 2.78 x C x I x A

Where:

C is the runoff coefficient

I is the intensity of rainfall, City of Ottawa IDF

A is the total drainage area

CECCE Leitrim Elementary School
3290 Findlay Creek Drive, Ottawa
Project: CA0058595.7684
Date: December 2025

TABLE 3 - Uncontrolled Flow (Area B-1)

Post Dev run-off Coefficient "C"

			2 & 5 Year Event		100 Year Event	
Area	**Surface**	**Ha**	**"C"**	**C_{avg}**	**"C"+25%**	***C_{avg}**
Total	Gravel	0.00	0.70		0.88	
0.23	Asphalt	0.23	0.90	**0.90**	1.00	**1.00**
	Soft	0.00	0.25		0.31	

Runoff Coefficient Equation

$C = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{tot}$

$*C = (A_{hard} \times 1.0 + A_{soft} \times 0.25)/A_{tot}$

*Runoff coefficients increased by 25% up to a maximum value of 1.0 for the 100-Year event

Post Dev Free Flow

5 Year Event

Pre Dev.	**C**	**Intensity**	**Area**
5 Year	0.90	104.19	0.230
2.78CIA=	59.96		
60.00	L/S		

**Use a 10 minute time of concentration for 5 year

100 Year Event

Pre Dev.	**C**	**Intensity**	**Area**
100 Year	1.00	178.56	0.230
2.78CIA=	114.17		
114.20	L/S		

**Use a 10 minute time of concentration for 100 year

Equations:

Flow Equation

Q = 2.78 x C x I x A

Where:

C is the runoff coefficient

I is the intensity of rainfall, City of Ottawa IDF

A is the total drainage area

CECCE Leitrim Elementary School
3290 Findlay Creek Drive, Ottawa
Project: CA0058595.7684
Date: December 2025
Revised:

TABLE 4 - Controlled Flow (Areas A-1 to A-13)

Maximum Allowable Release Rate for the Site	454.00	l/s
Uncontrolled Release Rate	24.10	l/s
Uncontrolled Roof Drain	114.17	l/s
Maximum Allowable Release Rate to Municipal Sewer:	315.73	l/s
Proposed release rate:	**302.95**	**l/s**

Post Dev run-off Coefficient "C"

			2 & 5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C_{avg}	"C" x 1.25	$C_{100\ avg}$
Total	Gravel	0.00	0.70		0.88	
1.94	Asphalt	0.42	0.90	**0.39**	1.00	**0.46**
	Grass	1.52	0.25		0.31	

*Areas are approximate based on Architectural site plan and Storm Drainage Area Plan

Runoff Coefficient Equation
$C = (A_{hard} \times 0.9 + A_{soft} \times 0.25)/A_{tot}$
$*C = (A_{hard} \times 1.0 + A_{soft} \times 0.31)/A_{tot}$

*Runoff coefficients increased by 25% up to a maximum value of 1.0 for the 100-Year event

QUANTITY STORAGE REQUIREMENTS - 2 Year

1.940 = Area(ha)
0.39 = C
315.7 l/s = max allowable release rate

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Controlled Runoff (L/s)	Net Runoff To Be Stored (L/s)	Storage Req'd m^3	Storage Avail m^3
	0.5	157.04	330.31	289.54	40.77	1.22	253.00
	1	**148.14**	**311.60**	**289.54**	**22.06**	**1.32**	**253.00**
	1.5	140.30	295.10	289.54	5.57	0.50	253.00
2 YEAR	2	133.33	280.44	289.54	-9.10	-1.09	253.00
	2.5	127.09	267.31	289.54	-22.23	-3.33	253.00
	3	121.46	255.48	289.54	-34.06	-6.13	253.00

QUANTITY STORAGE REQUIREMENTS - 100 Year

1.940 = Area(ha)
0.46 = *C
315.7 l/s = max allowable release rate

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Controlled Runoff (L/s)	Net Runoff To Be Stored (L/s)	Storage Req'd m^3	Storage Avail m^3
	1	351.38	871.73	302.95	568.79	34.13	253.00
	3	286.05	709.65	302.95	406.70	73.21	253.00
100 YEAR	5	242.70	602.12	302.95	299.17	89.75	253.00
	7	**211.67**	**525.12**	**302.95**	**222.17**	**93.31**	**253.00**
	9	188.25	467.03	302.95	164.09	88.61	253.00
	11	169.91	421.52	302.95	118.57	78.26	253.00
	13	155.11	384.80	302.95	81.85	63.85	253.00

Orifice Sizing
STMH109

Event	Flow (L/s)	Head (m)	ORIFICE AREA(m^2)	SQUARE (1-side mm)	CIRC (mmØ)
2 Year	289.54	2.11	0.075	274	309
100 Year	302.95	2.31	0.075	274	309

Orifice Control Sizing
$Q = 0.6 \times A \times (2gh)1/2$
Where:
Q is the release rate in m^3/s
A is the orifice area in m^2
g is the acceleration due to gravity, $9.81 m/s^2$
h is the head of water above the orifice centre in m
d is the diameter of the orifice in m

Orifice Invert =	90.235	m
Ponding Elevation @ 100 year=	92.700	m
Top of grate elevation	92.500	m

Equations:

Flow Equation
$Q = 2.78 \times C \times I \times A$
Where:
C is the runoff coefficient
I is the intensity of rainfall, City of Ottawa IDF
A is the total drainage area

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

11/29/2025

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Site Name:	OGS

Drainage Area (ha):	1.94
Runoff Coefficient 'c':	0.39

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	24.42
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	329
Estimated Average Annual Sediment Volume (L/yr):	267

Project Name:	3290 Findlay Creek Drive
Project Number:	-
Designer Name:	Jessica Steffler
Designer Company:	Rinker Materials
Designer Email:	jessica.steffler@RinkerPipe.com
Designer Phone:	519-239-6958
EOR Name:	Amy Zhuange
EOR Company:	WSP Canada Group Ltd.
EOR Email:	amy.zhuange@wsp.com
EOR Phone:	519-760-2335

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	77
EFO5	83
EFO6	88
EFO8	93
EFO10	96
EFO12	98

Recommended Stormceptor EFO Model:	EFO5
Estimated Net Annual Sediment (TSS) Load Reduction (%):	83
Water Quality Runoff Volume Capture (%):	> 90

THIRD-PARTY TESTING AND VERIFICATION

► Stormceptor® EF and Stormceptor® EFO are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators and performance has been third-party verified in accordance with the ISO 14034 Environmental Technology Verification (ETV) protocol.

PERFORMANCE

► Stormceptor® EF and EFO remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

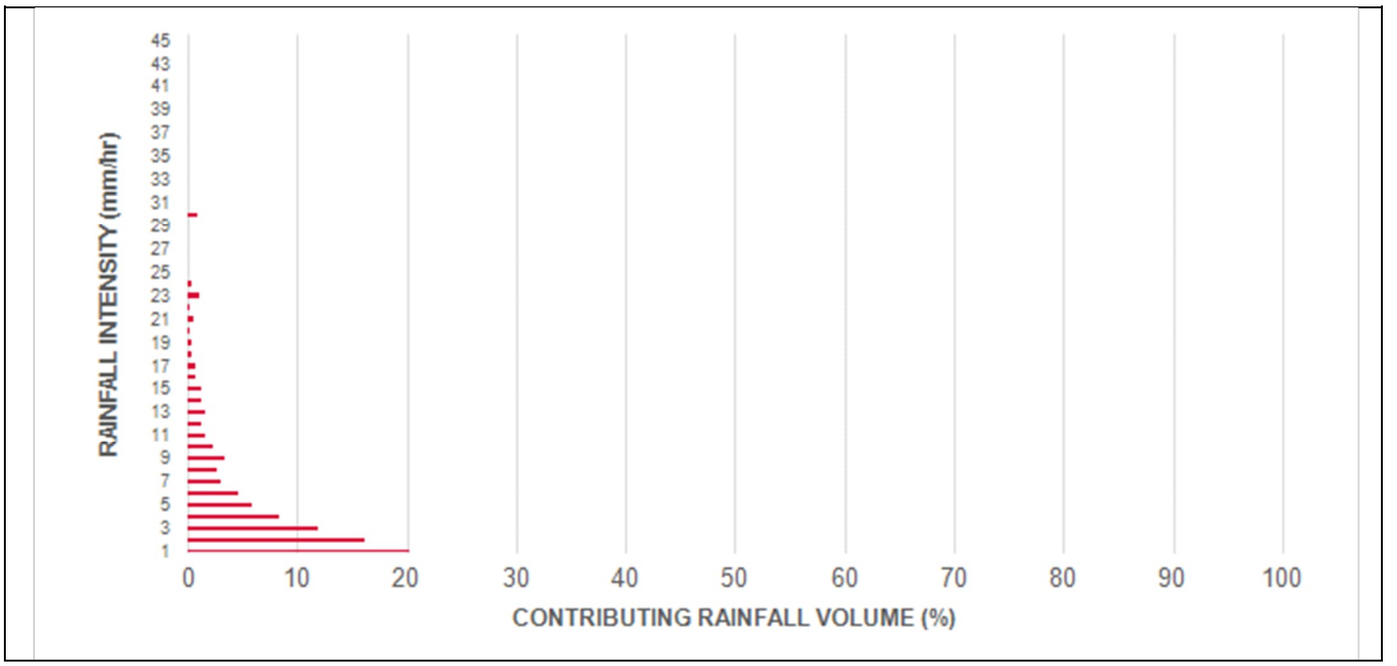
► The Canadian ETV PSD shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

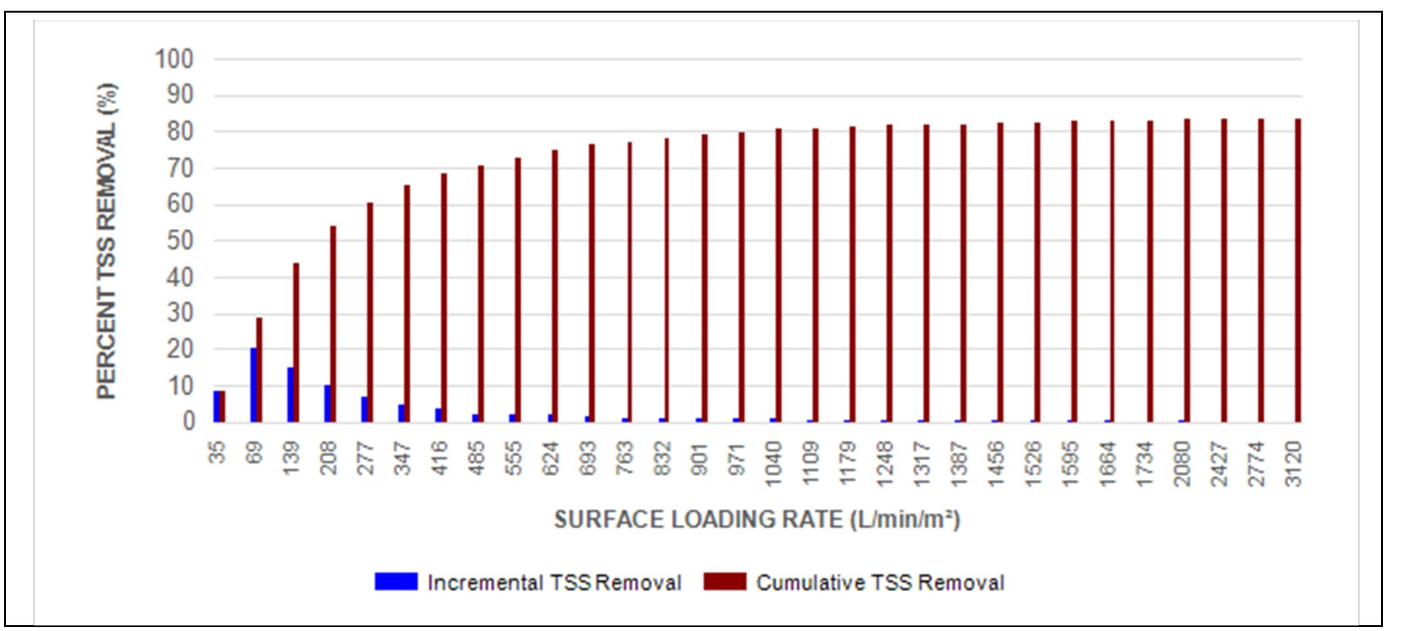
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	1.05	63.0	35.0	100	8.6	8.6
1.00	20.3	29.0	2.10	126.0	69.0	100	20.3	29.0
2.00	16.2	45.2	4.21	252.0	139.0	92	14.9	43.9
3.00	12.0	57.2	6.31	379.0	208.0	83	10.0	53.9
4.00	8.4	65.6	8.41	505.0	277.0	80	6.7	60.6
5.00	5.9	71.6	10.52	631.0	347.0	77	4.6	65.2
6.00	4.6	76.2	12.62	757.0	416.0	73	3.4	68.6
7.00	3.1	79.3	14.72	883.0	485.0	70	2.1	70.7
8.00	2.7	82.0	16.83	1010.0	555.0	67	1.8	72.5
9.00	3.3	85.3	18.93	1136.0	624.0	64	2.1	74.7
10.00	2.3	87.6	21.03	1262.0	693.0	64	1.5	76.2
11.00	1.6	89.2	23.14	1388.0	763.0	63	1.0	77.1
12.00	1.3	90.5	25.24	1514.0	832.0	63	0.8	78.0
13.00	1.7	92.2	27.34	1641.0	901.0	62	1.1	79.0
14.00	1.2	93.5	29.45	1767.0	971.0	62	0.8	79.8
15.00	1.2	94.6	31.55	1893.0	1040.0	61	0.7	80.5
16.00	0.7	95.3	33.65	2019.0	1109.0	59	0.4	80.9
17.00	0.7	96.1	35.76	2145.0	1179.0	58	0.4	81.3
18.00	0.4	96.5	37.86	2272.0	1248.0	56	0.2	81.6
19.00	0.4	96.9	39.96	2398.0	1317.0	54	0.2	81.8
20.00	0.2	97.1	42.07	2524.0	1387.0	53	0.1	81.9
21.00	0.5	97.5	44.17	2650.0	1456.0	51	0.2	82.1
22.00	0.2	97.8	46.27	2776.0	1526.0	48	0.1	82.3
23.00	1.0	98.8	48.38	2903.0	1595.0	46	0.5	82.7
24.00	0.3	99.1	50.48	3029.0	1664.0	44	0.1	82.8
25.00	0.0	99.1	52.58	3155.0	1734.0	42	0.0	82.8
30.00	0.9	100.0	63.10	3786.0	2080.0	35	0.3	83.2
35.00	0.0	100.0	73.62	4417.0	2427.0	30	0.0	83.2
40.00	0.0	100.0	84.13	5048.0	2774.0	27	0.0	83.2
45.00	0.0	100.0	94.65	5679.0	3120.0	24	0.0	83.2
Estimated Net Annual Sediment (TSS) Load Reduction =								83 %

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL
FOR THE RECOMMENDED STORMCEPTOR® MODEL



imbrium

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

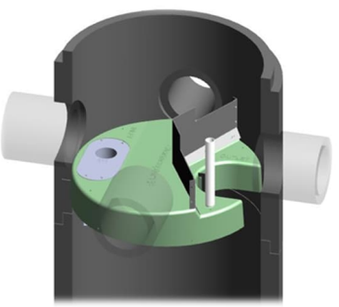
► Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

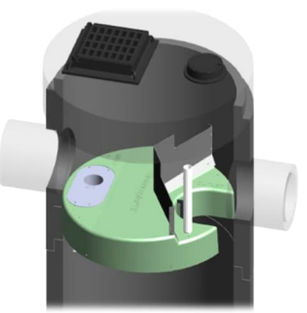
DESIGN FLEXIBILITY

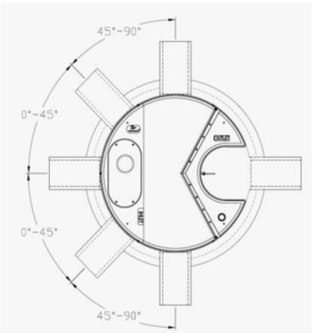
► Stormceptor® EF and EFO offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, Stormceptor® EFO has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV Procedure for Laboratory Testing of Oil-Grit Separators. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

* Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/ EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/ EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m^3 sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

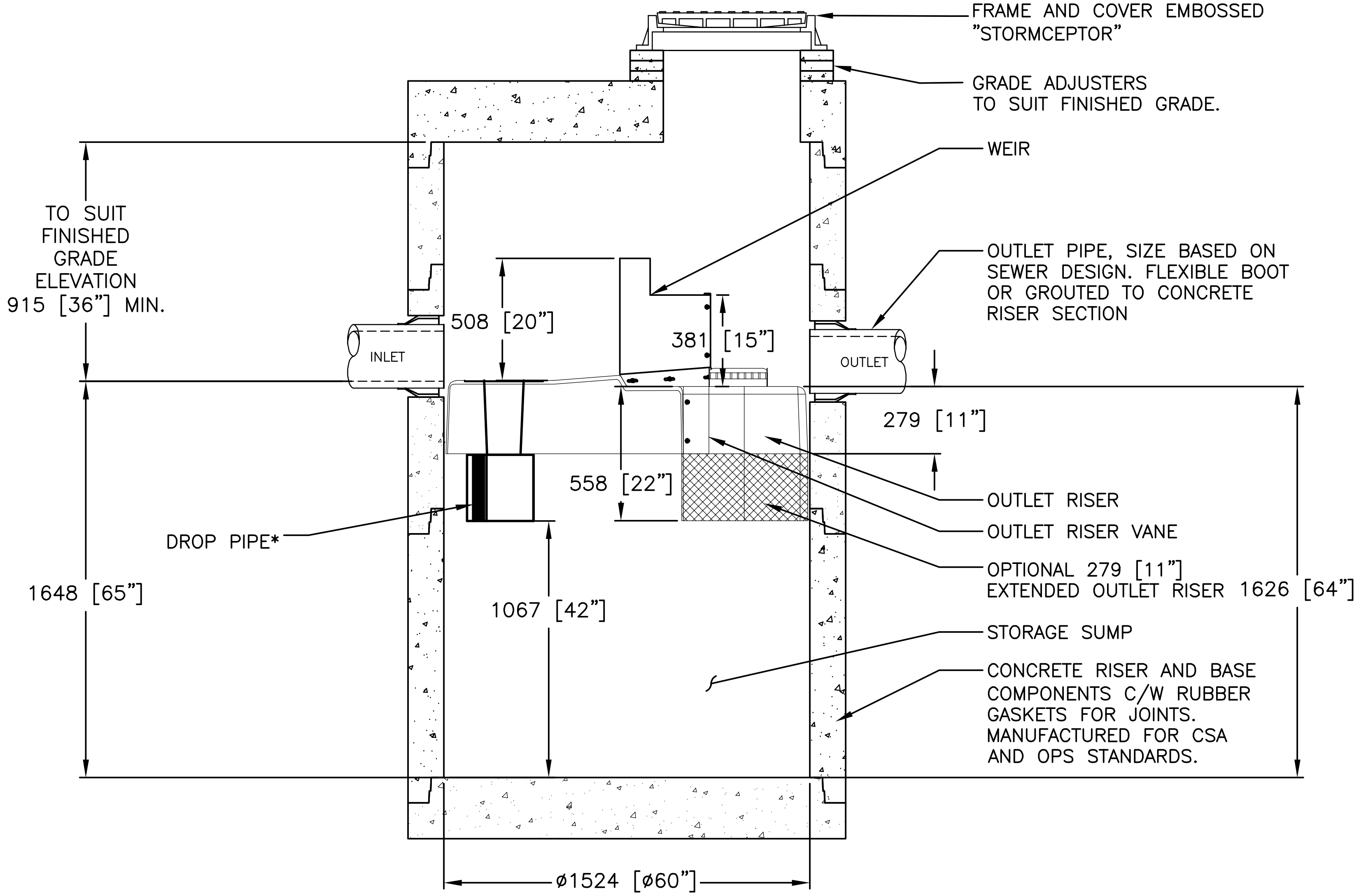
3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

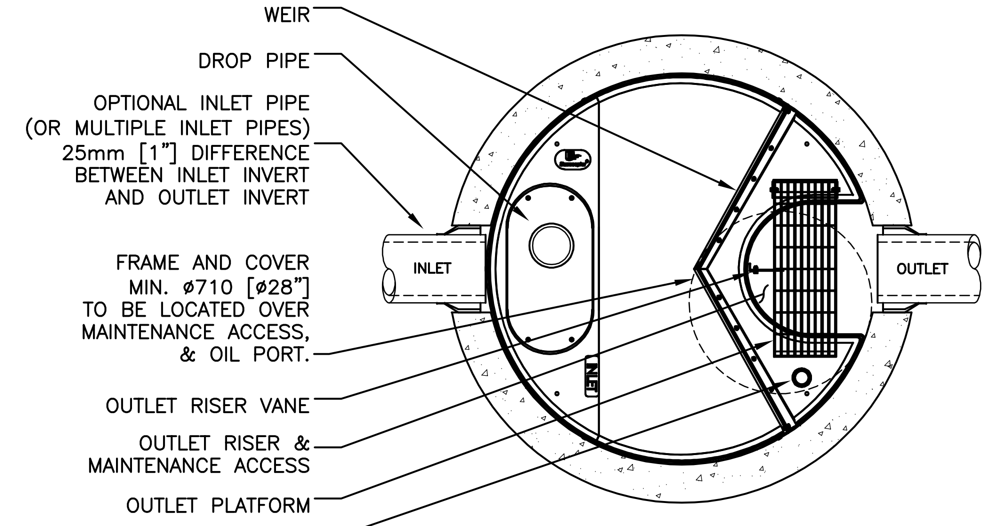
3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance

results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

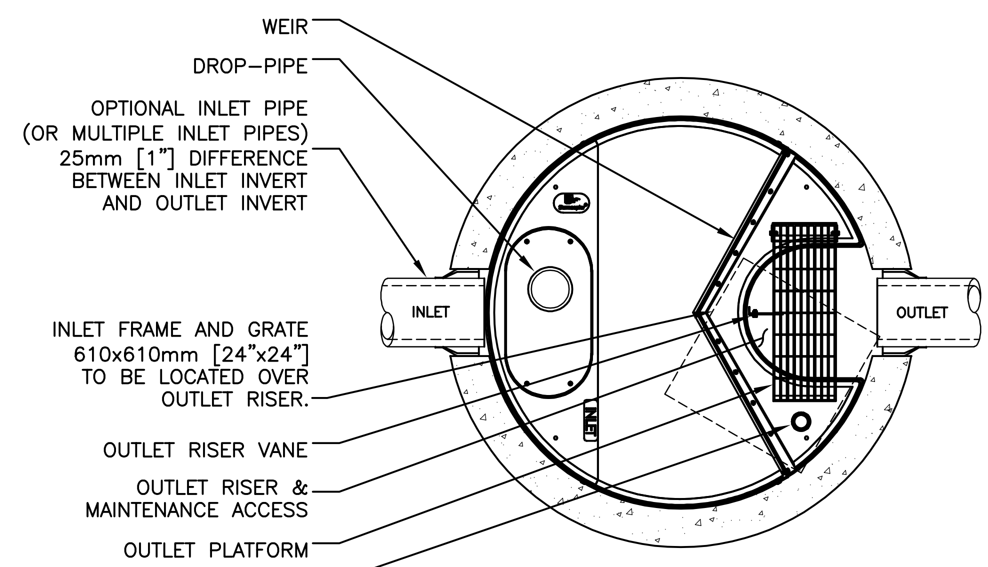
DRAWING NOT TO BE USED FOR CONSTRUCTION



SECTION VIEW



PLAN VIEW (STANDARD)



PLAN VIEW (INLET TOP)

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF5 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EFO5 (OIL CAPTURE CONFIGURATION).

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

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

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

STANDARD DETAIL
NOT FOR CONSTRUCTION

SITE SPECIFIC DATA REQUIREMENTS

STORMCEPTOR MODEL	EFO5				
STRUCTURE ID	*				
HYDROCARBON STORAGE REQ'D (L)	*				
WATER QUALITY FLOW RATE (L/s)	*				
PEAK FLOW RATE (L/s)	*				
RETURN PERIOD OF PEAK FLOW (yrs)	*				
DRAINAGE AREA (HA)	*				
DRAINAGE AREA IMPERVIOUSNESS (%)	*				
PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

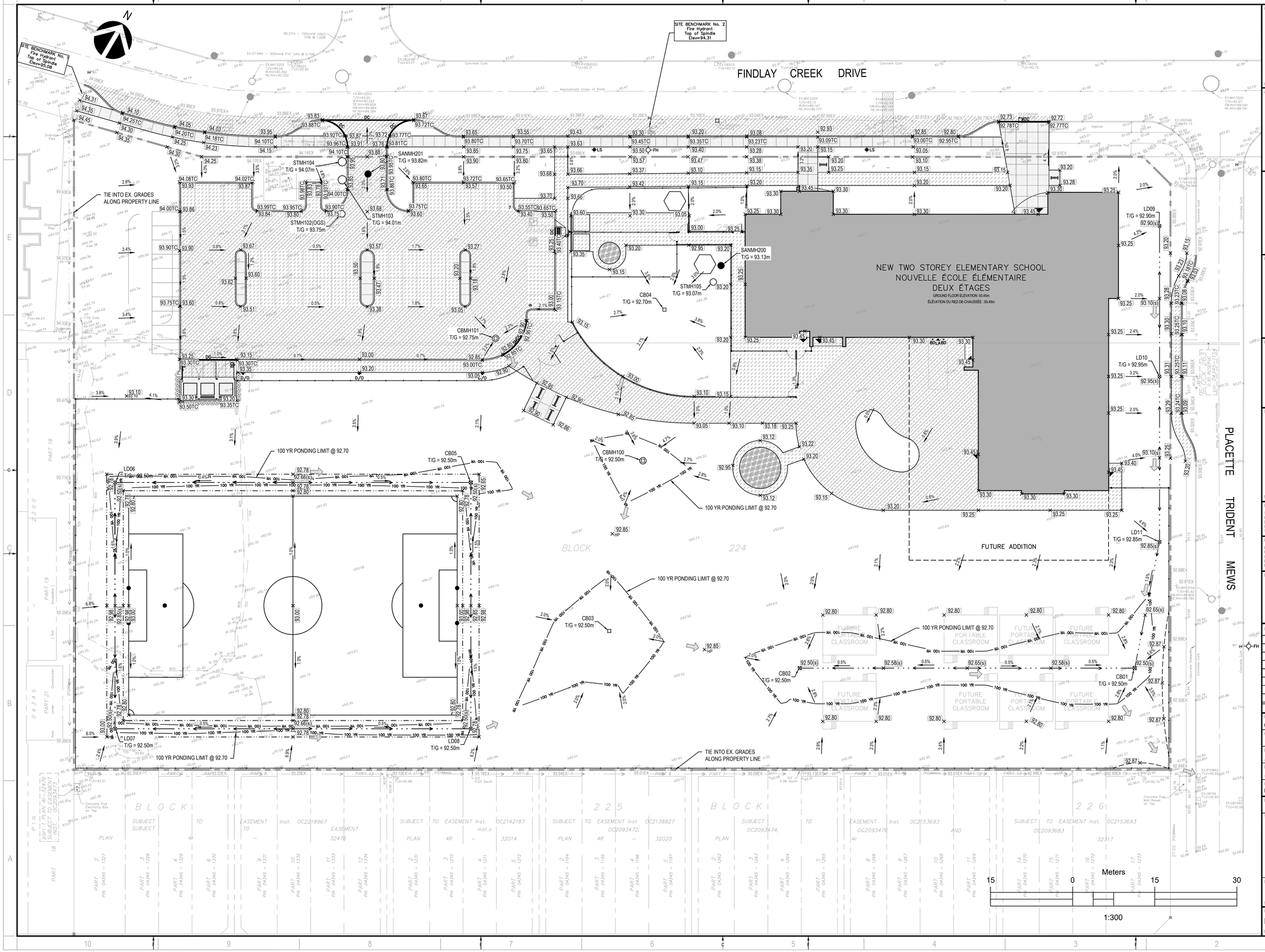
MARK	DATE	REVISION DESCRIPTION	BY
####	####	####	####
####	####	####	####
####	####	####	####
####	####	####	####
0	08/22/24	INITIAL RELEASE	EC

Stormceptor® EF

SCALE = NTS

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

DATE: 8/22/2024	
DESIGNED: JSK	DRAWN: EC
CHECKED: BSF	APPROVED:
PROJECT No.: EFO5	SEQUENCE No.: *
SHEET: 1 OF 1	



CLIENT:

Écoles catholiques Centre-Est

CLIENT REF. #:

ARCHITECT:

EDWARD J CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 238-7155 E-mail: info@cuhaci.com

wsp
300-2611 QUEENSVIEW DRIVE
OTTAWA ONTARIO CANADA K2B 8K2
TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

PROJECT:

CECCE LEITRIM ELEMENTARY SCHOOL

3290 FINLAY CREEK
OTTAWA, ON

CONSEIL DES ÉCOLES CATHOLIQUES DU
CENTRE-EST 4000, RUE LABELLE,
OTTAWA, ON K1J 1A1

KEY PLAN:

SEAL:

LICENSED PROFESSIONAL ENGINEER
W. ZHUANG
100231427
2025-12-05
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

BEARING NOTE:

BEARING ARE GRID, DERIVED FROM SOUTHERLY LIMIT OF BLOCK 224 REGISTERED PLAN 4M-1624 SHOWN TO BE N59°24'20"E AND ARE REFERRED TO THE CONTRAL MERIDIAN OF MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-83 (ORIGINAL).
BENCHMARK #1 N:5020504.33 E:375978.61 Z:95.08
BENCHMARK #2 N:5020587.41 E:376070.89 Z:94.31

NORTHING:

ISSUED FOR - REVISION:

ID	RE	DATE	DESCRIPTION
1		2025-12-05	ISSUED FOR SPA

PROJECT NO: CA0058595.7684
DATE: 2025-12-05
ORIGINAL SCALE: 1:300
DESIGNED BY: A.Z.
DRAWN BY: J.T.
CHECKED BY: D.B.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

DISCIPLINE: CIVIL

TITLE: GRADING PLAN

SHEET NUMBER: C04
SHEET #: OF

ISSUE: ISSUED FOR SPA
DATE OF: 2025-12-05
REV #: 1

SITE BENCHMARK No. 1
Fire Hydrant
Top of Spindle
Elev=93.08

SITE BENCHMARK No. 2
Fire Hydrant
Top of Spindle
Elev=94.31

FINDLAY CREEK DRIVE

ROAD CUTAREA OF 14.76m² TO BE REINSTATED AS PER CITY STANDARD R10

CONNECT TO EXISTING 250mmØ WATERMAIN WITH 250mm x 200mm TEE CONNECTION AS PER CITY DETAIL W25.1 BY CITY FORCE.

RELOCATE EXISTING CB, CHANGE C/CB GRATE TO STREET CB GRATE AS PER CITY STD S19.1. NEW T/G=93.10.

RELOCATE EX. HYDRANT

RELOCATE EX. STREETLIGHT

RELOCATE EX. STREETLIGHT

RELOCATE EXISTING CB, CHANGE C/CB GRATE TO STREET CB GRATE AS PER CITY STD S19.1. NEW T/G=92.92.

NEW 200mmØ PVC WATERMAIN

200mm VB

NEW 200mmØ PVC WATERMAIN

STMH104
T/G = 94.07m
INV. SE = 90.05m
INV. NW = 89.83m

NEW 3.27m - 600mmØ CONC STM @ 0.20%

SANMH201
T/G = 93.82m
INV. E = 91.18m
INV. NW = 91.12m

STMH103
T/G = 94.01m
INV. SE = 90.08m
INV. NW = 90.06m
INV. E = 90.36m

NEW 6.24m - 600mmØ CONC STM @ 0.15%

STMH102(OGS)
T/G = 93.75m
INV. E = 90.12m
INV. NW = 90.09m

NEW 66.61m - 200mmØ PVC SAN @ 0.35%

NEW 70.31m - 300mmØ PVC STM @ 0.60%

NEW 35.13m - 600mmØ CONC STM @ 0.15%

NEW 3.40m - 200mmØ PVC SAN @ 1.00%

SANMH200
T/G = 93.13m
INV. NE = 91.43m
INV. W = 91.41m

CONNECT TO BUILDING SANITARY SERVICE,C/W BACKFLOW PREVENTOR (REFER TO MECH DWG FOR CONTINUATION)
INV.=91.50

CONNECT TO BUILDING WATER SERVICE (REFER TO MECH DWG FOR CONTINUATION)
TOP OF WATERMAIN = 91.05

NEW 4.82m - 300mmØ PVC STM @ 1.00%

CONNECT TO BUILDING FOUNDATION DRAIN (REFER TO MECH DWGFOR CONTINUATION)
INV.=90.85

CONNECT ROOF DRAIN TO BUILDING STORM SERVICE C/W BACKFLOW PREVENTOR (REFER TO MECH DWGFOR CONTINUATION)
INV.=90.85

NEW TWO STOREY ELEMENTARY SCHOOL
NOUVELLE ÉCOLE ÉLÉMENTAIRE
DEUX ÉTAGES
GROUND FLOOR ELEVATION: 93.45m
ÉLÉVATION DU REZ-DE-CHAUSSÉE : 93.45m

NEW 5.5m - 300mmØ PVC STM @ 1.00%

CBMH101
T/G = 92.75m
INV. E = 89.99m
INV. W = 90.17m
INV. NE = 90.99m
INV. S = 90.63m

NEW 31.29m - 200mmØ PVC STM @ 1.00%

CB04
T/G = 92.70m
INV. SW = 91.30m

STMH105
T/G = 93.07m
INV. NE = 90.80m
INV. W = 90.78m
INV. E = 90.80m

NEW 24.39m - 375mmØ PVC STM @ 0.65%

NEW 26.71m - 200mmØ PVC STM @ 1.00%

CBMH100
T/G = 92.50m
INV. E = 90.63m
INV. S = 90.78m
INV. W = 90.22m

NEW 47.51m - 300mmØ PVC STM @ 1.00%

NEW 31.71m - 200mmØ PVC STM @ 1.00%

CB03
T/G = 92.50m
INV. N = 91.10m

CB02
T/G = 92.50m
INV. W = 91.10m
INV. NE = 91.11m

NEW 61.18m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

CB01
T/G = 92.50m
INV. N = 91.42m

NEW 23.51m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD09
T/G = 92.90m
INV. SE = 91.83m

NEW 27.49m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD10
T/G = 92.95m
INV. NW = 91.69m
INV. SE = 91.69m

NEW 30.23m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD11
T/G = 92.85m
INV. NW = 91.54m
INV. S = 91.54m

FUTURE ADDITION

FUTURE PORTABLE CLASSROOM

LD06
T/G = 92.50m
INV. NE = 91.28m
INV. NW = 91.28m

NEW 64.97m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

CB05
T/G = 92.50m
INV. N = 90.90m
INV. SE = 90.95m
INV. SW = 90.95m

NEW 45.00m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

NEW 45.00m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD07
T/G = 92.50m
INV. NE = 91.50m
INV. NW = 91.50m

NEW 64.98m - 250mmØ HDPE PERFORATED SUDRAIN @ 0.50%

LD08
T/G = 92.50m
INV. NW = 91.18m
INV. SW = 91.18m

PLACETTE TRIDENT MEWS

BLOCK 224

BLOCK 225

BLOCK 226

PART 18
PART 19
PART 21
PART 04345

SUBJECT TO EASEMENT inst. OC2218967
SUBJECT TO EASEMENT 32476
SUBJECT TO EASEMENT inst. OC2142187 inst.s 32014
SUBJECT TO EASEMENT inst. OC2138827 OC2093472, 32020
SUBJECT TO EASEMENT inst. OC2153693 OC2093474, OC2093476 AND OC2093683 32317

Meters
15 0 15 30
1:300

CLIENT:
Écoles catholiques Centre-Est

CLIENT REF. #:

ARCHITECT:
EDWARD J CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 236-7135 E-mail: info@cuhaci.com

wsp
300-2611 QUEENSVIEW DRIVE
OTTAWA ONTARIO CANADA K2B 8K2
TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

PROJECT:

CECCE LEITRIM ELEMENTARY SCHOOL

3290 FINLAY CREEK
OTTAWA, ON

CONSEIL DES ÉCOLES CATHOLIQUES DU CENTRE-EST 4000, RUE LABELLE,
OTTAWA, ON K1J 1A1

KEY PLAN:

SEAL:

LICENSED PROFESSIONAL ENGINEER
W. ZHUANG
100231427
2025-12-05
PROVINCE OF ONTARIO

NOT VALID UNLESS SIGNED AND DATED

BEARING NOTE
BEARINGS ARE GRID, DERIVED FROM SOUTHERLY LIMIT OF BLOCK 224 REGISTERED PLAN 4M-1624 SHOWN TO BE N59°24'20"E AND ARE REFERRED TO THE CONTRAL MERIDIAN OF MTM ZONE 9 (76°30 WEST LONGITUDE) NAD-83 (ORIGINAL).
BENCHMARK #1 N:5020504.33 E:376078.61 Z:95.08
BENCHMARK #2 N:5020551.41 E:376070.89 Z:94.31

NORTHING:

ISSUED FOR - REVISION:

IS	RS	DATE	DESCRIPTION
1		2025-12-05	ISSUED FOR SPA

PROJECT NO: CA0058595.7684
DATE: 2025-12-05
ORIGINAL SCALE: 1:300
DESIGNED BY: A.Z.
DRAWN BY: J.T.
CHECKED BY: D.B.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE
25mm

DISCIPLINE: CIVIL

TITLE: SERVICING PLAN

SHEET NUMBER: C05
SHEET #: OF

ISSUE: ISSUED FOR SPA
DATE OF: 2025-12-05
REV #: 1

APPENDIX

D

- DWG C06 - EROSION AND SEDIMENTATION CONTROL PLAN

SITE BENCHMARK No. 1
Fire Hydrant
Top of Spindle
Elev=93.08

SITE BENCHMARK No. 2
Fire Hydrant
Top of Spindle
Elev=94.31

FINDLAY CREEK DRIVE

ROAD CUTAREA OF 14.76m² TO BE REINSTATED AS PER CITY STANDARD R10

CONNECT TO EXISTING 250mmØ WATERMAIN WITH 250mm x 200mm TEE CONNECTION AS PER CITY DETAIL W25.1 BY CITY FORCE.

MUD MAT REFER TO DETAIL 1/C02

LIGHT DUTY SILT FENCE AS PER OPSD 219.110

RELOCATE EX. HYDRANT

RELOCATE EXISTING CB, CHANGE C/CB GRATE TO STREET CB GRATE AS PER CITY STD S19.1. NEW T/G=93.10.

RELOCATE EX. STREETLIGHT

RELOCATE EXISTING CB, CHANGE C/CB GRATE TO STREET CB GRATE AS PER CITY STD S19.1. NEW T/G=92.92.

NEW 200mmØ PVC WATERMAIN

200mm VB

NEW 200mmØ PVC WATERMAIN

CONNECT TO BUILDING WATER SERVICE (REFER TO MECH DWG FOR CONTINUATION) TOP OF WATERMAIN = 91.05

STMH104

STMH103

STMH102(OGS)

SANMH201

SANMH200

STMH105

CB04

CBMH101

CBMH100

CB03

CB02

CB01

NEW TWO STOREY ELEMENTARY SCHOOL
NOUVELLE ÉCOLE ÉLÉMENTAIRE
DEUX ÉTAGES
GROUND FLOOR ELEVATION: 93.45m
ÉLÉVATION DU REZ-DE-CHAUSSÉE : 93.45m

FUTURE ADDITION

FUTURE PORTABLE CLASSROOM

LD06 LD07 LD08 LD09 LD10 LD11

CB05

PLACETTE TRIDENT MEWS

BLOCK 224 BLOCK 225 BLOCK 226

PART 18 PART 19 (Not Accessible) PART 21 Access Under Construction

PLAN 4R – 32476 PLAN 4R – 32014 PLAN 4R – 32020 PLAN 4R – 32317

SUBJECT TO EASEMENT inst. OC2218967
SUBJECT TO EASEMENT inst.s OC2093472, OC2093474, OC2093476 AND OC2093683
SUBJECT TO EASEMENT inst. OC2142187
SUBJECT TO EASEMENT inst. OC2138827
SUBJECT TO EASEMENT inst. OC2153693
SUBJECT TO EASEMENT inst. OC2153693

P.I.N 04345 – 0247 (LT) PART 1 PLAN 4R – 32476 SUBJECT TO EASEMENT INST. OC2093472

Meters
15 0 15 30
1:300

CLIENT:
Écoles catholiques Centre-Est

CLIENT REF. #:

ARCHITECT:
EDWARD J CUHACI & ASSOCIATES ARCHITECTS Inc.
171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
Fax: (613) 236-1944 Telephone: (613) 236-7135 E-mail: info@cuhaci.com

wsp
300-2611 QUEENSVIEW DRIVE
OTTAWA ONTARIO CANADA K2B 8K2
TEL.: 1-613-829-2800 | FAX: 1-613-829-8299 | WWW.WSPGROUP.COM

PROJECT:
CECCE LEITRIM ELEMENTARY SCHOOL
3290 FINLAY CREEK
OTTAWA, ON

CONSEIL DES ÉCOLES CATHOLIQUES DU CENTRE-EST 4000, RUE LABELLE,
OTTAWA, ON K1J 1A1

KEY PLAN:


SEAL:
I CERTIFY THAT I AM A LICENSED PROFESSIONAL ENGINEER
W. ZHUANG
100231427
2025-12-05
PROVINCE OF ONTARIO
NOT VALID UNLESS SIGNED AND DATED

DISCLAIMER: COPYRIGHT:
THIS DRAWING AND DESIGN IS COPYRIGHT PROTECTED WHICH SHALL NOT BE USED, REPRODUCED OR REVISED WITHOUT WRITTEN PERMISSION BY WSP. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND UTILITY LOCATIONS AND REPORT ALL ERRORS AND OMISSIONS PRIOR TO COMMENCING WORK.
THIS DRAWING IS NOT TO SE SCALED.

BEARING NOTE
BEARING ARE GRID, DERIVED FROM SOUTHERLY LIMIT OF BLOCK 224 REGISTERED PLAN 4M-1624 SHOWN TO BE N59°24'20"E AND ARE REFERRED TO THE CONTRAL MERIDIAN OF MTM ZONE 9 (76°30' WEST LONGITUDE) NAD-83 (ORIGINAL).
BENCHMARK #1 N:5020504.33 E:376078.61 Z:95.08
BENCHMARK #2 N:5020551.41 E:376070.89 Z:94.31

NORTHING:

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2025-12-05	ISSUED FOR SPA

PROJECT NO: CA0058595.7684
DATE: 2025-12-05
ORIGINAL SCALE: 1:300
DESIGNED BY: A.Z.
DRAWN BY: J.T.
CHECKED BY: D.B.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE
25mm

DISCIPLINE: CIVIL

TITLE:
EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER: C06
SHEET #: OF

ISSUE: ISSUED FOR SPA
DATE OF: 2025-12-05
REV #: 1

APPENDIX

E

- SUBMISSION CHECK LIST

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Proposed Site Plan Control Application – 465 Trident Mews – PC2025-0176

Legend: **R** = Required, the study or plan is required with application submission
A = Advised, the study or plan is advised to evaluate the application or satisfy a condition of approval/draft approval
1 - OPA, **2** - ZBA, **3** - Plan of Subdivision, **4** - Plan of Condominium, **5** - SPC

Core studies required for certain applications all the time (Remaining studies are site specific)

For information and guidance on preparing required studies and plans refer here:

ENGINEERING										
R	**A**	**Study/ Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☒	☐	1. Environmental Site Assessment (Phase 1 & Phase 2)	Ensures development only takes place on sites where the environmental conditions are suitable for the proposed use	☒	☒	☒	☒	☒	Record of Site Condition Yes ☐ No ☐
				Study Trigger Details: All cases					
☒	☐	2. Geotechnical Study	Geotechnical design requirements for the subsurface conditions	☒	☒	☒	☒	☒	
				Study Trigger Details: All cases					
☒	☐	3. Grading and Drainage Plan	Grading relationships between connecting (or abutting) properties and surface runoff control	☐	☐	☒	☐	☒	
				Study Trigger Details: All cases					
☐	☐	4. Hydrogeological and Terrain Analysis	A scientific study or evaluation that includes a description of the ground and surface hydrology, geology, terrain, affected landform and its susceptibility	☐	☐	☒	☒	☒	Reasonable Use Study Yes ☐ No ☐ Groundwater Impact Study Yes ☐ No ☐
				Study Trigger Details: When developing on private services or when urban development is in close proximity to existing private serviced development					
☒	☐	5. Noise Control Study	Potential impacts of noise on a development	☒	☒	☒	☒	☒	Vibration Study Yes ☐ No ☐
				Study Trigger Details: See Terms of Reference for full details.					

☐	☐	6. Rail Proximity Study	Development on land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 of the Official Plan, to follow rail safety and risk mitigation best practices	☐	☒	☒	☒	☒	Rail Safety Report Yes ☐ No ☐ O-Train Network Proximity Study Yes ☐ No ☐
				Study Trigger Details: Within the Development Zone of Influence for existing and future rapid transit stations and corridors, as shown on Annex 2 of the OP OR on land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 of the Official Plan					
☒	☐	7. Site Servicing Study	Provides servicing details based on proposed scale of development with an engineering overview taking into consideration surrounding developments and connections.	☐	☒	☒	☒	☒	Fluvial Geomorphological Report Yes ☐ No ☐ Assessment of Adequacy of Public Services Yes ☒ No ☐ Servicing Options Report Yes ☐ No ☐ Erosion and Sediment Control Plan / Brief Yes ☒ No ☐ Hydraulic Water Main Analysis Yes ☐ No ☐ Stormwater Management Report and Detailed Design Brief Yes ☒ No ☐
				Study Trigger Details: All cases					
☐	☐	8. Slope Stability Study	Assessment of slope stability and measures to provide safe set-back.	☐	☒	☒	☒	☒	Retrogressive Landslide Analysis Yes ☐ No ☐
				Study Trigger Details: Where the potential for Hazard Lands exists on a site.					
☒	☐	9. Transportation Impact Assessment	Identify on and off-site measures to align a development with City transportation objectives.	☐	☒	☒	☒	☒	Roadway Modification Functional Design Yes ☒ No ☐
				Study Trigger Details: If the development generates 60 person-trips or more; or if the development is located in a Location Trigger; or if the development has a Safety Trigger.					

☐	☐	10. Water Budget Assessment	Identify impact of land use changes on the hydrologic cycle and post-development mitigation targets.	☐	☒	☒	☒	☒	
				Study Trigger Details: May be required for site plan control applications for sites with private servicing and / or proximity to hydrogeologically-sensitive areas. Draft plans of subdivision are required to integrate water budget assessments into supporting stormwater management plans and analysis for the study area.					
☐	☐	11. Wellhead Protection Study	Delineate a Wellhead Protection Area (WHPA) and characterize vulnerability for new communal residential drinking water well systems, in accordance with Technical Rules under *Clean Water Act.*	☐	☒	☒	☒	☒	
				Study Trigger Details: Required for all new communal residential drinking water well systems; including new municipal wells, new private communal wells (small water works) that require a Municipal Responsibility Agreement (MRA), expansions or increased water takings from an existing municipal well or existing private communal well and new private communal wells.					

PLANNING									
R	**A**	**Study/Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☐	☐	12. Agrology and Soil Capability Study	Confirm or recommend alterations to mapping of agricultural lands in the City.	☒	☐	☐	☐	☐	
				Study Trigger Details: For the expansion of a settlement area or identification of a new settlement area through a comprehensive review; or where it is demonstrated that the land does not meet the requirements for an Agricultural Resource Area.					
☐	☐	13. Archaeological Assessment	Discover any archaeological resources on site, evaluate cultural heritage value and conservation strategies	☒	☒	☒	☒	☒	
				Study Trigger Details: When the land has either: a known archaeological site; or the potential to have archaeological sites; or where the City's Archaeological Resource Potential Mapping Study indicates archaeological potential, outside of the historic core; or upon discovery of any archaeological resource during construction in the City's historic core area.					
☒	☐	14. Building Elevations	Visual of proposed development to understand facing of building including direction of sunlight, height, doors, and windows.	☒	☒	☐	☐	☒	
				Study Trigger Details: Site Plan: for residential buildings with 25 or more residential units; or for residential buildings with less than 25 residential units, if the units are within the Urban area or the High-performance Development Standard threshold in the rural area. Official Plan or Zoning By-law: if staff deem it necessary to determine compliance with OP policies, the Zoning By-law or City of Ottawa Urban Design Guidelines.					

☐	☐	15. Heritage Impact Assessment	Determine impacts of proposed development on cultural heritage resources.	☒	☒	☒	☒	☒	Study Trigger Details: Where development or an application under the Ontario Heritage Act is proposed on, adjacent to, across the street from or within 30 metres of a protected heritage property; or for any development adjacent to the Rideau Canal UNESCO World Heritage Site and its landscaped buffer.	Conservation Plan Yes ☐ No ☐
☐	☐	16. Heritage Act Acknowledgement Report	A submission requirement to demonstrate that the *Ontario Heritage Act* requirements have been satisfied, to ensure that multiple applications are considered currently.	☐	☒	☒	☒	☒	Study Trigger Details: Where the subject property is listed on the Heritage Register and the applicant must submit a Heritage Permit Application (designated heritage property listed on the Heritage Register) or provide notice of intent to demolish or remove a building (non-designated property listed on the Heritage Register).	Heritage Permit Application Yes ☐ No ☐ Notice of Intent to Demolish Yes ☐ No ☐
☐	☐	17. Impact Assessment Study – Mineral Aggregate	Mineral aggregate extraction activities; and to protect known high quality mineral aggregate resources from development and activities that would preclude or hinder their existence (ability to be extracted) or expansion.	☒	☒	☒	☒	☒	Study Trigger Details: New Development within 500 metres of lands within the Bedrock Overlay , or within 300 metres of lands within the Sand and Gravel Resource Area Overlay.	
☐	☐	18. Impact Assessment Study – Mining Hazards	To identify or confirm known mineral deposits or petroleum resources and significant areas of mineral potential. To protect mineral and petroleum resources from development and activities which would preclude or hinder the establishment of new operations or access to the resources.	☒	☒	☒	☒	☒	Study Trigger Details: For all applications in proximity to mining operations.	

☐	☐	19. Impact Assessment Study – Waste Disposal Sites / Former Landfill Sites	To identify or confirm known proximity of existing or former waste disposal sites. To ensure issues of public health, public safety and environmental impact are addressed.	☒	☒	☒	☒	☒	Study Trigger Details: For the establishment of any new Solid Waste Disposal Site or for a footprint expansion of an operating Solid Waste Disposal Site; or development within three kilometers of an operating or non-operating Waste Disposal Site.	
☒	☐	20. Landscape Plan	A plan to demonstrate how the canopy cover, urban design, health, and climate change objectives of Official Plan will be met through tree planting and other site design elements.	☒	☒	☒	☒	☒	Study Trigger Details: Site Plan, Plan of Subdivision, and Plan of Condominium: always required, except where it is demonstrated that the landscape component of a project is not relevant to the review of the application. A high-level conceptual Landscape Plan may be required to support Zoning By-law and Official Plan Amendment applications.	
☐	☐	21. Mature Neighbourhood Streetscape Character Analysis	In the Mature Neighbourhoods a Streetscape Character Analysis is required to determine the applicable zoning requirements.	☐	☒	☐	☐	☐	Study Trigger Details: Zoning By-law amendment application in areas covered by the Mature Neighbourhoods zoning overlay for applications of residential development of four storeys or less located in a R1, R2, R3, or R4 zone.	
☐	☐	22. Minimum Distance Separation	Provincial land use planning tool that determines setback distances between livestock barns, manure storages or anaerobic digesters and surrounding land uses, with the objective of minimizing land use conflicts and nuisance complaints related to odour.	☒	☒	☒	☒	☒	Study Trigger Details: Applications in the Rural Area, outside of a village.	

☐	☐	23. Parking Plan	A tool to assess the sufficiency of on-street parking in plans of subdivision.	☐	☐	☒	☒	☐	
				Study Trigger Details: For new or revised plans of subdivision with public streets.					
☒	☐	24. Plan of Survey	A Plan of Survey depicts legal boundaries and is a specialized map of a parcel of land and it delineates boundary locations, building locations, physical features and other items of spatial importance.	☒	☒	☒	☒	☒	
				Study Trigger Details: Required for all *Planning Act* applications.					
☐	☐	25. Plan of Subdivision	Proposed subdivision layout to be used for application approval	☐	☒	☒	☐	☐	
				Study Trigger Details: Always required with the submission of plan of subdivision application. Only required with a Zoning By-law Amendment application, where such ZBLA is in response to enable a subdivision.					
☐	☐	26. Plan of Condominium	Proposed condominium layout to be used for application approval	☐	☐	☐	☒	☐	
				Study Trigger Details: With the submission of plan of condominium application.					
☐	☐	27. Planning Rationale	Provides the planning justification in support of the *Planning Act* application and to assist staff and the public in the review of the proposal.	☒	☒	☒	☐	☐	Integrated Environmental Review Summary Yes ☐ No ☐
				Study Trigger Details: For all Official Plan amendment, Zoning By-law amendment, or plan of subdivision applications.					
☐	☐	28. Preliminary Construction Management Plan	A checklist that shows a development proposal's anticipated impacts to all modes of transportation and all elements in the right of way during construction.	☐	☐	☒	☐	☒	
				Study Trigger Details: For all Site Plan and plan of subdivision applications.					

☐	☐	29. Public Consultation Strategy	Proposal to reach and collect public input as part of development application.	☒	☒	☒	☒	☒	Study Trigger Details: Official Plan Amendment, Zoning By-law Amendment and Subdivision: Always required. Condominium: Vacant Land only Site Plan: At the discretion of the City's file lead in consultation with the Business and Technical Support Services Manager.	
☐	☐	30. Shadow Analysis	A visual model of how the proposed development will cast its shadow.	☐	☒	☐	☐	☐	Study Trigger Details: When there is an increase in height or massing proposed for a residential, commercial or office use. Two triggers: 1. Inside the Greenbelt: proposed development is over 5 storeys in height (≤15 meters). If a development proposal is 5 storeys or less, but is proposing an increase in height and/or massing and is in close proximity to a shadow sensitive area, a shadow analysis may be requested. 2. Outside the Greenbelt: proposed development is over 3 storeys in height (≤9 meters) and is in close proximity to a shadow sensitive area. Where a proposed development is not in close proximity to a shadow sensitive area (e.g. industrial development) the trigger for a shadow analysis is over 5 storeys in height (≤15 meters).	
☒	☐	31. Site Plan	A Site Plan is a visual drawing that illustrates the proposed development of a site in two dimensions.	☒	☒	☒	☒	☒	Study Trigger Details: Site Plan: All Other applications: where a layout of the	Site Plan Yes ☐ No ☐ Concept Plan Yes ☐ No ☐

				public realm, building massing, heights, densities or massing of the proposal provides changes to the planned context; sites proposing multiple land uses; sites with multiple landowners; sites with two or more buildings, on-site park dedication, and/or a new public or private street(s); sites with proposed changes to connectivity (such as active transportation networks, vehicular circulation or access to transit); sites where the development potential on adjacent properties may be impacted by or could be integrated into the proposed site.	Facility Fit Plan Yes ☐ No ☐
☐	☐	32. Urban Design Brief	Illustrate how a development proposal represents high-quality and context sensitive design that implements policies of the Official Plan, relevant secondary plans, and Council approved plans and guidelines.	☒ ☒ ☒ ☐ ☒ Study Trigger Details: For all Official Plan amendment, Zoning By-law amendment, and plan of subdivision applications. For SPC applications: proposals for residential buildings with 25 or more residential units, or for proposals for residential buildings with less than 25 residential units, if the units are within the Urban area or the High-performance Development Standard threshold in the rural area where OP Policy 11.3 (3) is relevant; for non-residential and mixed-use proposals.	
☐	☐	33. Urban Design Review Panel Report	Demonstrates that a development proposal has attended an Urban Design Review Panel formal review meeting, received, and responded to the associated recommendations, if applicable	☒ ☒ ☒ ☒ ☒ Study Trigger Details: Required for all planning act applications subject to UDRP review, in accordance with the UDRP Panel Terms of Reference.	
☐	☐	34. Wind Analysis	A visual model and a written evaluation of how a proposed development will impact pedestrian-level wind conditions.	☐ ☒ ☐ ☐ ☒ Study Trigger Details: Applications seeking an increase in height and/or massing which is either: a tall building(s), 10 storeys or more or a proposed building that is more than twice the height of	

				adjacent existing buildings and is greater than five storeys in height and is adjacent to existing or planned low rise development, open spaces, water bodies and large public amenity areas.					
☒	☐	35. Zoning Confirmation Report	The purpose of the Zoning Confirmation Report (ZCR) is to identify all zoning compliance issues, if any, at the outset of a planning application.	☐	☒	☐	☐	☒	
				Study Trigger Details: Required for all SPC and ZBLA applications.					

ENVIRONMENTAL									
R	**A**	**Study / Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☐	☐	36. Community Energy Plan	Includes a community energy analysis, alongside mitigation measures, and other associated information. The community energy analysis refers to the overall assessment process to identify on and off-site measures to align the design of the development with City climate objectives.	☐	☐	☐	☐	☐	
				NOT IMPLEMENTED & NOT REQUIRED					
☐	☐	37. Energy Modelling Report	The Energy Modeling Report is a Site Plan Control application submission requirement to show how climate change mitigation, and energy objectives will be met through exterior building design elements.	☐	☐	☐	☐	☐	
				NOT IMPLEMENTED & NOT REQUIRED					
☐	☐	38. Environmental Impact Study	Assessment of environmental impacts of a project and documents the existing natural features, identifies the potential environmental impacts,	☒	☒	☒	☐	☒	Assessment of Landform Features Yes ☐ No ☐ Integrated Environmental Review Yes ☐ No ☐
				Study Trigger Details: Is required when development or site alteration is proposed in or within a					

			recommends ways to avoid and reduce the negative impacts, and proposes ways to enhance natural features and functions.	specified distance of environmentally designated lands, natural heritage features, the City's Natural Heritage System, or hazardous forest types for wildland fire. The EIS Decision Tool (Appendix 2 of the Environmental Impact Study Guidelines) provides a checklist of the natural heritage features and adjacent areas within which an EIS is required to support development applications under the *Planning Act.*	Protocol for Wildlife Protection during Construction Yes ☐ No ☐ Significant Woodlands Guidelines for Identification, Evaluation, and Impact Assessment Yes ☐ No ☐
☐	☐	39. Environmental Management Plan	A comprehensive environmental planning document that identifies, evaluates, and mitigates the potential impacts of proposed development on the natural environment and its ecological functions at local planning stage.	☒ ☐ ☐ ☐ ☐ Study Trigger Details: Official Plan amendments for local plans (area-specific policy or secondary plan, where: there is significant change in the conditions upon which the original study was based; there are proposed changes to planned infrastructure needed to service a subdivision that would have a significant impact on the infrastructure needs of another subdivision within the EMP study area, or the applicable Class Environmental Assessment approval has expired.	
☐	☐	40. High-performance Development Standard	A collection of voluntary and required standards that raise performance of new building projects to achieve sustainable and resilient design	☐ ☐ ☐ ☐ ☐ NOT IMPLEMENTED & NOT REQUIRED	
☒	☐	41. Tree Conservation Report	Demonstrates how tree cover will be retained and protected on the site, including mature trees, stands of trees, and hedgerows.	☐ ☐ ☒ ☒ ☒ Study Trigger Details: Where there is a tree of 10 centimeters in diameter or greater on the site and/or if there is a tree on an adjacent site that has a Critical Root Zone (CRZ) extending onto the development site.	