



Stormwater Management Report and Servicing Brief

Site 3, Building E National Capital Business Park
4055 Russel Road/ Hunt Club Road
Ottawa, ON

Prepared for:

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Avenue 31 Capital Inc. to complete a Stormwater Management Analysis and Servicing Brief for the development of Block E at 4055 Russell Road. The parcel is within Site 3 of the National Capital Business Park, located at the intersection of Russell Road and Hunt Club Road in Ottawa ON.

The subject property is located within the geographic township of Gloucester-Southgate ward in the City of Ottawa. The site borders Russell Road to the south, Hunt Club road to the east, and the Mather Award Drain to the west and north. The Mather Award Drain is a constraint area of 2.3Ha. The site is zoned heavy industrial (IH). The total Building E site area is approximately **1.95Ha**.



Figure 1: Aerial View of Proposed Development

The proposed development includes a single industrial building with surface parking, vehicular maneuverability, at grade loading docks and associated site features, including gravel storage areas. The building is located central on the parcel, with car parking in front of the main entrances fronting the South property line along Russell Road. To the rear of the building, there is outdoor surface space allocated to at grade loading docks to provide optimum functionality to the end user of the proposed industrial building. The building has a proposed floor area of approximately 3,100m². Refer to the Site Plan included in **Appendix M** for more details.



This report has been prepared in consideration of the terms and conditions noted above and with the civil drawings prepared for the new development. Should there be any changes in the design features, which may relate to the stormwater and servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 BACKGROUND STUDIES AND GUIDELINES

The following guidelines were utilized in the preparation of this report:

- **Ottawa Sewer Design Guidelines**
City of Ottawa, SDG002, October 2012
 - Technical Bulletin ISDTB-2014-01
City of Ottawa, February 5, 2014
 - Technical Bulletin PIETB-2016-01
City of Ottawa, September 6, 2016
 - Technical Bulletin ISTB-2018-01
City of Ottawa, March 21, 2018
 - Technical Bulletin ISTB-2018-04
City of Ottawa, June 27, 2018
 - Technical Bulletin ISTB-2019-02
City of Ottawa, July 8, 2019
- **City of Ottawa Design Guidelines – Water Distribution**
City of Ottawa, WDG001, July 2010
 - Technical Bulletin ISD-2010-2
City of Ottawa, December 15, 2010
 - Technical Bulletin ISDTB-2014-02
City of Ottawa, May 27, 2014
 - Technical Bulletin ISDTB-2018-02
City of Ottawa, March 21, 2018
 - Technical Bulletin ISDTB-2021-03
City of Ottawa, August 18, 2021
 - Technical Bulletin IWSTB-2024-05
City of Ottawa, November 18, 2024
- DSEL – Site Servicing and Stormwater Management for Nation Capital Business Park, 4055 Russell Road – Site 3, dated February 2022 – Rev3.
- 4120 & 4055 Russell Road – Erosion Threshold and Exceedance Analysis Geo Morphix, May 25, 2021.



- Response to RVCA comments regarding 4120 & 4055 Russell Road – Erosion Threshold and Exceedance Analysis Mather Award Drain, McEwan Creek, and Ramsey Creek Ottawa, Geo Morphix, dated February 8, 2022.
- Geotechnical Investigation, National Capital Business Park, 4055 & 4120 Russell Road, Ottawa, Paterson Group, dated March 18, 2020, Revision 3.
- Geotechnical Investigation, National Capital Business Park, 4055 & 4120 Russell Road, Ottawa, Paterson Group, (PG4854-3 rev2) dated December 10, 2025.
- Phase I Environmental Site Assessment, 4055 & 4120 Russell Road, Ottawa, Paterson Group, dated October 7, 2019, and updated dated October 12, 2021.
- Phase II Environmental Site Assessment, 4055 & 4120 Russell Road, Ottawa, Paterson Group, dated November 2019.
- Archaeological Impact Assessment, 4055 & 4120 Russell Road, Ottawa, Paterson Group, dated October 10, 2019.
- Environmental Impact Statement for 4055 & 4120 Russell Road, Ottawa, Kilgour & Associates Ltd, dated March 30, 2020.
- Mather Award Drain / Erosion Assessment for Outlet A and B/C, JFSA, dated June 16, 2021.

3 EXISTING INFRASTRUCTURE AND DRAINAGE DESCRIPTION

The subject site measures **1.95 ha** and currently consists of Parcel C, Part Lots 4 & 5, Concession 6. The site is currently vacant and landscaped. The site generally slopes North to the Mather Award Drain, with elevation ranging from 71.00 at Russell Road and 69.00 at the Mather Award Drain Hazard limit per Patterson Group.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent right-of-ways:

Russell Road:

- 100mm dia. private watermain located along the south property line.
- 400mm PVC watermain, reduced to a 250mm dia watermain between Last Mile Drive and capped just before Hunt Club Road.
- One (1) 200mm dia. PVC water service connection, extended from the 400mm dia watermain into the site.
- One (1) 200mm dia PVC water service connection, extended from the 250mm dia watermain into the site.
- 250mm PVC sanitary sewer that extends from Belgreen Drive to Last Mile Drive; complete with one (1) 250mm dia. PVC service connection that extends into the site complete with a SAN control MH at the Property line.



There are no storm sewers located within Russell Road as the cross section is a rural right-of-way cross section with roadside ditches. The Mather Award Drain is located to the north of the site.

4 REGULATORY APPROVALS

A pre-consultation meeting was conducted on September 10, 2025, file no. PC2025-0230

The proposed development is subject to the Site Plan Control approval process within the City of Ottawa. Additionally, flow from the site ultimately drains to Mather Award Drain regulated by the Rideau Valley conservation Authority.

An MECP Environmental Compliance Approval is expected to be required for installation of the proposed storm sewers within the site. A Permit to Take Water is not anticipated to be required for pumping requirements for sewer installation. No other approval requirements from other regulatory agencies are anticipated.

Above reference regulatory approvals are included in **Appendix A**.

5 GEOTECHNICAL INVESTIGATION

A revised geotechnical investigation for the site was completed by Paterson Group Inc. (Report No. PG4854-3, Revision 2, dated December 10, 2025). Subsurface conditions generally consist of a thin layer of topsoil underlain by silty sand and/or hard to stiff silty clay, with compact to dense glacial till encountered at depths ranging from approximately 1.4 m to 9.0 m below existing grade. Practical refusal was encountered between approximately 2.2 m and 4.9 m depth in most locations.

Measured groundwater levels ranged from dry to approximately 3.9 m below grade, with long-term groundwater levels anticipated at approximately 2 to 3 m below grade, subject to seasonal variation.

The geotechnical assessment identified permissible grade raise constraints across the site, with grade raises in the vicinity of Site E generally being limited up to 3.0m, in accordance with the Permissible Grade Raise Plan provided in the geotechnical report.

The geotechnical report provides recommendations for excavation, trenching, pipe bedding, backfill, groundwater control, permissible grade raise, and slope stability, which will be implemented during detailed design and construction.

6 SCOPE OF WORK

As per applicable guidelines, and consultation with the City of Ottawa and RVCA staff, the following items will be completed, and conclusions will be considered during the detailed design of the site:



Water Supply

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Fire Underwriters Survey (FUS) method.
- Confirm the adequacy of water supply and pressure during peak flow and fire flow.
- Describe the proposed water distribution network and connection to the existing system.

Stormwater Management

- Calculate the allowable stormwater release rate.
- Calculate the anticipated post-development stormwater release rates.
- Demonstrate how the target quantity and quality objectives will be achieved.
- Demonstrate that the site will not increase the approved discharge and water flow requirements to the water balance completed by JFSA.
- Incorporate low impact development measures and additional infiltration on site to reduce the impact the flow from the development could have on erosion in the Mather Award Drain. This will also mitigate the impacts of the development on the water balance/infiltration in post development conditions.

Sanitary Discharge

- Describe the existing sanitary sewers available to receive wastewater from the building.
- Calculate peak flow rates from the development.
- Describe the proposed sanitary sewer system.

7 WATER SUPPLY AND FIRE PROTECTION

7.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 2W2C water distribution network pressure zone. There is an existing 400mm and 250 mm watermain within Russell Road. Two stubs have been extended from the existing watermain into the subject site for connection. There are currently four (4) existing fire hydrants within close proximity (75m or less) to the subject property. Refer to **Appendix D** for the location of fire hydrants.

7.2 Water Supply Servicing Design

It is proposed that one (1) industrial building will be constructed on this site. One (1) water service will be connected to one of the existing water services extending from Russell Road. It is determined that a single service (as per City as per Technical bulletin ISTB-20-03) will be required. Refer to *Site Servicing Plan C.401* in **Appendix L** for servicing layout and connection point.

Table 1 below summarizes the City of Ottawa Design Guidelines design parameters employed in the preparation of the water demand estimate.



Table 1: City of Ottawa Design Guidelines Design Parameters

Parameter	Value
Minimum Depth of Cover	2.4m
Desired operating pressure during maximum daily flow	345 kPa (50 psi) and 552 kPa (80 psi)
Minimum allowable pressure during peak hour flow	275 kPa (40 psi)
Minimum allowable pressure during maximum daily + fire flow	275 kPa (20 psi)
Average Day Demand	
Residential	280 L/c/d
Industrial - Light	35,000 L/gross ha/d
Industrial - Heavy	55,000 L/gross ha/d
Maximum Daily Demand	
Residential	2.5 x avg. day
Industrial	1.5 x avg. day
Commercial	1.5 x avg. day
Institutional	1.5 x avg. day
Maximum Hour Demand	
Residential	2.2 x max. day
Industrial	1.8 x max. day
Commercial	1.8 x max. day
Institutional	1.8 x max. day

The proposed gross area of the site is approximately 19,550 m². Based on the *City of Ottawa Design Guidelines for Consumption Rates*, to the building is considered **industrial - light** with a consumption rate of **35,000 L/gross ha/ day**.

The required water supply for the industrial buildings has been calculated using the following formula:

$$Q = (q \times A \times M)$$

Where,

q = average water consumption (L/gross ha/day for industrial space)

A = area (ha for industrial space)

M = Peak factor

The following factors were used in calculations as per Table 4.2 in the City of Ottawa Design Guidelines;

- Maximum Daily Demand Industrial Factor = **1.5 x Avg Day**
- Peak Hour Demand Industrial Factor = **1.8 x Max Day**

Using the above-mentioned factors and design parameters listed in Table 1, total anticipated demands were calculated as follows:



- Average daily domestic water demand is **0.79 L/s**,
- Maximum daily demand is **1.19 L/s**, and
- Maximum hourly is **2.14 L/s**.

Table 2 below summarizes anticipated demands. Refer to **Appendix C** for water demand calculations.

Table 2: Summary of Anticipated Demands

Design Parameter	Anticipated Demands
	(L/s)
Average Daily Demand	0.79
Max Day + Fire Flow (per FUS)	1.19 + 133.3
Peak Hour	2.14
<i>Water demand calculation per City of Ottawa Water Design guidelines. See Appendix C for details.</i>	

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand. Correspondence has been included in **Appendix D**.

The estimated fire flow for the proposed building was calculated in accordance with *ISTB-2018-02*. The following parameters were provided by the Architect, see **Appendix D** for collaborating correspondence and Fire Flow Calculations:

- Type of construction –Ordinary;
- Occupancy type –Combustible; and
- Sprinkler Protection – Automatic Sprinkler System.

The estimated fire flow demand was estimated to be **8,000 L/min**. There are four (4) existing fire hydrants located along Russell Road, in close proximity to the proposed building (within 75m), that are available to provide the required fire flow demands. Refer to **Appendix E** for fire flow calculations and fire hydrant locations. Table 4 below summarizes the aggregate fire flow of the contributing hydrants in close proximity to the proposed building based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 3: Fire Protection Summary Table

Fire Flow Demand (L/min)	Fire Hydrants(s) within 75m	Fire Hydrant(s) within 150m	Fire Hydrant(s) within 300m	Available Combined Fire Flow (L/min)
8000	4	/	/	(4 x 5678) = 22,712



The total available fire flow from the close proximity contributing hydrants is equal to **22,712 L/min**. This is sufficient to provide adequate fire flow for the proposed development. A certified fire protection system specialist will need to be employed to design the building's fire suppression system and confirm the actual fire flow demand.

8 SANITARY SERVICE

8.1 Existing Sanitary Sewer Services

The subject property is tributary to the Green Creek Collector trunk sewer. There is an existing 250 mm diameter sanitary sewer within Russell Road that outlets into the Green Creek Collector sewer at Belgreen Drive.

8.2 Sanitary Sewer Servicing Design

The sanitary flows from the industrial building is proposed to connect to the existing manhole MHSA77122 which extends into the subject site along the north property line from the existing 250mm diameter sanitary sewer within Russell Road. Refer to LRL drawing C.401, included in **Appendix L**, for the proposed sanitary servicing.

The total post-development wet flow for the site was calculated to be **6.19 L/s**. The parameters used to calculate the anticipated flows for the industrial portions of the building were an Average Light Industrial Flow of 35,000 L/ha/day as per the City of Ottawa Design Guidelines, an infiltration allowance of 0.33 L/s/ha and an industrial peak factor of 7.0.

Refer to **Appendix F** for further information on the calculated sanitary flows.

9 STORMWATER MANAGEMENT

9.1 Existing Stormwater Infrastructure

The subject property is currently undeveloped with no existing infrastructure on site. The site is a tributary to the Mather Award Watershed, with all overland flow from site ultimately making its way to the Mather Award drain.

In pre-development conditions, drainage from the subject site is depicted by existing watershed EWS-01 (1.955ha). The existing topography is generally sloped towards the north property line, ultimately conveying overland runoff from the site to the Mather Award drain.

Refer to plan C701 included in **Appendix L** for pre-development drainage characteristics.

9.2 Design Criteria

The stormwater management criteria for this development is based on the pre-consultation with City of Ottawa officials, RVCA, the City of Ottawa Sewer Design Guidelines including City of Ottawa Stormwater Management Design Guidelines, 2012 (City Standards), as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003 (SWMP Manual).



9.2.1 Water Quality

The subject property lies within the Ottawa River East sub-watershed and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). Enhanced treatment (80% TSS Removal) is required for stormwater runoff from the proposed development.

9.2.2 Water Quantity

Based on pre-consultation with the City, correspondence included in **Appendix A**, the following stormwater management requirements were identified for the subject site:

- Control post-development flows to pre-development flows.
- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site.

9.2.3 Water Balance Mitigation and Downstream Erosion Control

Based on correspondence with the NCC, the RVCA and the JFSA water balance document for Site 3 it was recommended that on site SWM controls be implemented to infiltrate 10mm of runoff by introducing a combination of best management practices and low impact design measures. This will result in an overall runoff volume reduction.

9.3 Stormwater Release Rate Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site to quantify the detention storage required for quantity control of the development. Refer to **Appendix I and Appendix J** for storage calculations.

9.4 Proposed Stormwater Management Design

9.4.1 Quantity Control

The site has been analyzed, and post-development watersheds have been allocated. To adhere to existing drainage characteristics, a single outlet has been proposed to the Mather Award Drain. The site has been analyzed and sixteen (16) post-development watersheds have been allocated. It is proposed that these watersheds will adhere to the drainage characteristics and pre-development flow rate of existing watershed EWS-01.

Table 4 below summarizes the 2-yr & 100-yr pre-development flows for EWS01 which would set the allowable release rates for the proposed outlet.

Table 4: Pre-development flows, Allowable Post Development Release

Drainage Area Name	2-yr Flow (L/s)	100-yr Flow (L/s)
EWS-01	56.56	130.38

As shown in Table 4, the sites calculated allowable release rates were identified as **56.56 L/s** and **130.38 L/s** for the 2-yr and 100-yr flows, respectively.

The post-development watersheds were allocated as follow;



Watershed CA-01 (0.311ha) consists of the proposed building's rooftop. Rainfall will be collected by the roofs drains, and conveyed via a network of storm services & MH-01 to the north stormwater management facility SWMF02.

Watershed CA-02 (0.147ha) consists of asphalt driveway and parking space, concrete sidewalk, and landscaped surface. Stormwater will be captured by CB-02 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-03 (0.050ha) consists of asphalt driveway and parking spaces and concrete sidewalk. Stormwater will be captured by CBMH-03 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-04 (0.050ha) consists of asphalt driveway and parking spaces, concrete sidewalk, and landscaped surface. Stormwater will be captured by CBMH-03 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-05 (0.050ha) consists of asphalt driveway and parking spaces and concrete sidewalk. Stormwater will be captured by CBMH-04 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-06 (0.074ha) consists of asphalt driveway and parking spaces, gravel storage area, concrete sidewalk, and landscaped surface. Stormwater will be captured by CBMH-05 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-07 (0.114ha) consists of asphalt driveway, gravel storage area & concrete sidewalk. Stormwater will be captured by CB-07 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-08 (0.135ha) consists of asphalt driveway and gravel storage area. Stormwater will be captured by CBMH-08 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-09 (0.075ha) consists of asphalt driveway and gravel storage area. Stormwater will be captured by CBMH-09 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-10 (0.043ha) consists of asphalt driveway. Stormwater will be captured by CBMH-10 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-11 (0.056ha) consists of asphalt driveway, gravel storage area, concrete sidewalk, and landscaped surface. Stormwater will be captured by CBMH-11 and ultimately conveyed to the north stormwater management facility SWMF02.

Watershed CA-12 (0.203ha) consists of gravel storage area. Stormwater will be captured by CB-12 and ultimately conveyed to the west stormwater management facility SWMF01.

Watershed CA-13 (0.152ha) consists of gravel storage area. Stormwater will be captured by CBMH-13 and ultimately conveyed to the west stormwater management facility SWMF01.



Watershed CA-14 (0.078ha) consists of the depressed grassed area allocated to stormwater management facility SWMF01. Stormwater within the SWMF will either infiltrate and evaporate during minor rain events, or be conveyed to SWMF02 in major storm events.

Watershed CA-15 (0.056ha) consists of the depressed grassed area allocated to stormwater management facility SWMF02. Stormwater within the SWMF will either infiltrate and evaporate during minor rain events, or be conveyed to the proposed flow control units within MH-14, prior to treatment & release to the Mather Award Drain.

Watershed CA-16 (0.360ha) consists of the remaining portion of the site. A significant area consists of an uncontrolled grassed buffer along the property lines, with slopes conveying runoff to the nearest property lines. The remaining uncontrolled grassed areas along the north and east property lines will accommodate SWMF03, a vegetated grassed swale promoting infiltration and evaporation.

The post development flows will be restricted to the allowable release rates and will be retained on-site with storage provided in two interconnected grass depressed areas SWMF01 and SWMF02, with 3:1 side slopes, and a flat bottom. These detention areas will also provide the opportunity for infiltration while providing the site quantity storage required. The depressed area has been sized to provide adequate detention for events greater than the 1:100year storm.

Refer to **Appendix I** and civil plan C702 **Appendix L** for watershed areas and a summary of the weighted runoff coefficients.

To attenuate flows to the allowable release rates, it is calculated that a total of **178.57 m³** and **582.15 m³** of storage will be required in the 2-yr and 100-yr storm respectively. The required storage is proposed to be met with ponding within SWMF01 and SWMF02. Captured flows will be restricted via the proposed dual orifice plates, located within MH-14 of SWMF02.

- ***Flow control system OP-01, consisting of a 135mm orifice plate located on the base outlet pipe of STM MH14, will serve to control the 100yr stormwater release rate to 53.60 L/s, and the 2yr stormwater release rate to 41.00 L/s.***
- ***Flow control system OP-02, consisting of a 135mm orifice plate located on the top outlet pipe of STM MH14, will serve to control the 100yr stormwater release rate to 32.00 L/s, working in tandem with OP-01 to provide a total controlled release rate of 85.60 L/s in the 100yr storm event.***

As summary of the 100-year and 2-year release rates and required storage has been included within Table 7 below.



Table 5: Stormwater Release Rate & Storage Volume Summary

Catchment Area	Drainage Area (ha)	2-year Release Rate (L/s)	2-Year Required Storage (m ³)	100-year Release Rate (L/s)	100-Year Required Storage (m ³)	Total Available Storage (m ³)
CA-16 (UNCONTROLLED)	0.360	15.44	0.0	44.68	0.0	0.0
CA-01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15 (CONTROLLED)	1.595	41.00	178.57	85.60	582.15	595.68
TOTAL	1.955	56.44	178.57	130.28	582.15	595.68

Refer to **Appendix I** for the detailed stormwater management calculations.

The required storage is proposed within SWMF01 and SWMF02 on site which is demonstrated on drawing “C601 – Stormwater Management Plan” of **Appendix L**.

9.4.2 Quality Treatment

To meet stormwater quality control identified by RVCA, a **Stormceptor EF06** Oil/Grit Separator is proposed to provide enhanced (80% TSS removal) treatment. Refer to **Appendix L** - civil plan C401 for location of the proposed stormwater treatment unit, and **Appendix K** for supporting sizing report and specifications.

9.4.3 LID Development Strategies

The site has been designed to provide additional TSS removal beyond what is proposed within the stormwater treatment unit. A combination of best management practices and low impact development strategies will be implemented to improve treatment of runoff from the catchments which are mainly comprised of parking lot, storage areas and vehicle circulating areas. These catchments correspond to an area of approximately 1.18 ha, representing nearly 74% of the total area contributing flow to this outlet. The remainder of the contributing flow will come from rooftop or greenspace, not requiring treatment as it would be considered relatively clean runoff.

The LID Guidelines provide several recommendations that were taken into consideration when designing the stormwater retention area for this site, such as:

- 1) Pre-treatment is provided through sumps present in the catch basins capturing the flow before conveying through sewers into the retention swale.
- 2) Swale side slopes are maintained as flat as to provide pre-treatment and maximize swale filtering surface.



- 3) Geometry of the retention swale provides width at the bottom, which prevents flows from concentrating once entering.
- 4) Flat longitudinal slopes are proposed along the grass swale to promote shallow flows, adequate water treatment and infiltration.
- 5) The Geotechnical Report as well as the Hydrogeological Study states that groundwater was not observed in the test pits, which were excavated to a maximum depth of 3.2 m bgs. Therefore, it is anticipated that sufficient clearance, exceeding 1.0m, will be achieved between bottom of LID measures and expected groundwater level as recommended per design guidelines.
- 6) Runoff conveyed through the retention area will be truncated as a result of outlet control which will increase infiltration into the ground prior to leaving the site.

By combining these various Low-Impact development (LID) approaches with the OGS treatment unit, it is believed that the targeted 80% TSS removal will be achieved.

9.4.1 Water Budget and Infiltration

To reduce impacts on erosion within the downstream Mather Award Drain, this site design is intended to capture and retain (infiltrate or abstract) the first 10 mm of rainfall. This 10 mm target, resulting in a required volume of **148.13m³**, can be partially achieved by the default initial abstraction as a result of depression storage, with the additional retention being obtained through on-site topsoil and planting, the three stormwater retention areas and a vegetated swale.

A summary of the calculations to determine the volume of storage required to retain the first 10mm of rainfall the site in its entirety is summarized on the following page. The Sewer Design Guideline outlines depression storage values of 4.67 mm on all soft landscaped surfaces and a 1.57 mm on all hardscaped surfaces which have also been considered.

$$\begin{aligned} \text{Landscaped Area Runoff} &= 0.538\text{ha} \times (10\text{mm} - 4.67\text{mm}) \times 10 \text{ m}^3/\text{ha} \times \text{mm} \\ \text{Volume} &= 28.68 \text{ m}^3 \\ \text{Impervious Runoff} &= 1.417\text{ha} \times (10\text{mm} - 1.57\text{mm}) \times 10 \text{ m}^3/\text{ha} \times \text{mm} \\ \text{Volume (Asphalt, Gravel,} &= 119.45 \text{ m}^3 \\ \text{concrete)} & \\ \text{Total} &= 148.13 \text{ m}^3 \end{aligned}$$

Retention is obtained within in the stormwater depressed areas at SWMF01 (**8.95m³**) and SWMF02 (**3.39m³**) at an elevation below the outlet control device, as well as retention provided within the retention area at SWMF03 (**88.55m³**) and the stepped vegetated swale proposed within the east grassed buffer (**67.11m³**). The combination of these retention systems will provide a design volume of **168.00 m³** for retaining rainfall on-site.



By implementing a combination of LID principles within the stormwater design, it can be concluded that infiltration & evaporation will be promoted on-site, and there will be a reduction on potential volume of runoff.

10 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction once it progresses.⁴

Mud mat's are proposed at the entrance/exit to the subject property to mitigate tracking of additional sediments and soil from construction vehicles off site and onto Last Mile drive and surrounding roadways.

Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS 577. Refer to LRL Associates drawing C.101 for erosion and sediment control details.

11 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at Site 3 of the National Capital Business Park presents the rationale and details for the servicing requirements for the subject property.

In accordance with the report objectives, the servicing requirements for the development are summarized below:

Water Service

- The required fire flow was calculated to be **8,000 L/min** using the FUS method for the proposed sprinklered building.
- There are four (4) existing fire hydrants, within close proximity to the site, also available to service the building. They will provide a combined fire flow of **22,712 L/min**.
- One (1) water service will be provided to the building via the 200mm watermain stub extended from the existing watermain located within Russell Road.

Sanitary Service

- The total calculated wet wastewater flow from the proposed development is **6.19 L/s**.
- The proposed development will be serviced via the 250mm diameter SAN stub provided for the property, connected to the existing sanitary manhole MHSA77122, and will discharge **6.19 L/s** to the existing downstream 250 mm dia. sanitary sewer within Russell Road.

Stormwater Management

- The site has been analyzed, and post-development watersheds have been allocated.



- Flows are restricted to allowable release rates of **56.56 L/s** and **130.38 L/s** in the 2-yr and 100-yr storm events respectively, with the use of twin orifice plates proposed within the stormwater manhole MH14, downstream of SWMF02.
- Stormwater storage requirements of **178.57 m³** and **582.15 m³**, in the 2-year and 100-year storm events respectively, will be accommodated within the detention areas proposed within SWMF01 and SWMF02.
- Controlled site runoff will be treated to a minimum of 80% TSS removal through the use of the Stormceptor EF06 stormwater treatment unit downstream of the flow control units, along with the implementation of other LID strategies.

Water balance

- To reduce impacts on erosion within the downstream Mather Award Drain, this site design is intended to capture and retain (infiltrate or abstract) the first 10 mm of rainfall, resulting in a required storage volume of **148.13m³**.
- With the use of storage within the stormwater management facilities detention areas (retention below outlet pipe inverts), a dedicated stormwater retention area and vegetated grassed swale, the site will provide a design volume of **168.00m³** for retaining the 10mm rainfall on-site.

12 REPORT CONDITIONS AND LIMITATIONS

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure compatibility with the recommendations contained in this document. If you have any questions or comments, please contact the undersigned.

Prepared by:
LRL Associates Ltd.



Kelly Paradis, P. Eng.
Civil Engineer

A handwritten signature in black ink, appearing to read "Kyle Herold".

Kyle Herold
Civil Project Manager



APPENDIX A
Pre-consultation / Correspondance



Technical Review Memorandum



3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504
F 613-692-0831 | www.rvca.ca

To Jamie Batchelor, MCIP, RPP, Planner, Watershed Science and Planning
From Claire Milloy, P.Geo, Watershed Engineering and Regulation
Date May 25, 2022

File National Capital Business Park – Site 3

File No RV8-1122
Type O. Reg. 174 Permit and RVCA sign-off of Environmental Compliance Approval

Subject proposed resolution of water budget considerations
Submission Water Balance for Site 3 (JFSA, February 4, 2022)

Status

Staff understand that RVCA will accept the applicant's, currently verbal, proposal in support of their application for permission to alter the watercourse receivers at the NCC Business Park Site 3, when select reports and plans are updated sufficiently. RVCA is requesting that the February 2022 engineering-style partial water budget assessment is updated to include infiltration of all 10 mm events from across the entire site (or as agreed upon) and that all related engineering plans and the stormwater management report are updated accordingly.

Background

There is a long history of stakeholder consultation pertaining to the hydrological functions of the future site of the National Capital Business Park (NCBP). RVCA has, in several different ways over the past two years, discussed the need to **maintain the hydrological cycle (water balance / budget)** at the site. This was emphasized for the following reasons.

- Minimization of change in the water balance has been intended to be standard practice in Ontario for at least the past 20 years, even if it has not been the practice in this region.
- The watercourse receivers are highly susceptible to complex erosion processes and the downgradient receivers are highly susceptible to small (but important) landslides, so total runoff volumes should not increase.
- Typical geomorphological and geotechnical assessments do not appear to acknowledge that these valley systems evolve via marine clay landslide action.
- Considerable funds have already been spent on remediating erosional issues along these receivers, including in the immediate vicinity.

This memorandum should be interpreted in reference to RVCA's former comments on the topic.

**Proudly working in partnership
with our 18 watershed municipalities**

Athens, Augusta, Beckwith, Central Frontenac, Clarence-Rockland,
Drummond/North Elmsley, Elizabethtown-Kitley, Merrickville-Wolford, Montague,
North Dundas, North Grenville, Ottawa, Perth, Rideau Lakes, Smiths Falls, South Frontenac, Tay Valley, Westport



Discussion

Stakeholders met on April 28th to further discuss water budget assessment issues for the application. At that meeting, JFSA indicated that the applicant could update their stormwater management plan **to infiltrate** up to and including all **10 mm events** within their end-of-pipe facilities (dry-ponds). Staff understand that RVCA will accept this approach when all relevant reports and plans are updated accordingly to RVCA's satisfaction.

RVCA staff understand that, although runoff volume retention targets need to be updated for various parts of our region, in general 27-28 mm of rain (from 12-hour events) should be retained on all sites in the Ottawa area. A component of that 27-28 mm would include on-site infiltration. The other retention components include evapotranspiration (e.g. vegetated areas) and harvesting / reuse (e.g. greywater systems etc.).

Paterson's May 2021 geotechnical report for this site indicates that much of the site is underlain by silty clay, which Thornthwaite and Mather and the MECP indicates has a water holding capacity of 200 mm for moderately rooted vegetation.

RVCA holds older (1939-2007) Environment Canada water budget model results for the Ottawa Airport climate station. Although these model results are outdated*, they would be fairly close to the results if remodelled using more current climate normal, so it is instructive to look at this water budget information. Based on the older results then, the following would result for the general soil and vegetation conditions for the site, on **average per year**: The *water surplus* would be 309 mm; and *actual evapotranspiration* would be 584 mm.

Ottawa Int'l A, ON		WATER BUDGET MEANS FOR THE PERIOD 1939-2007										DC20492
LAT.... 45.32		WATER HOLDING CAPACITY... .200 MM					HEAT INDEX... 36.39					
LONG... 75.67		LOWER ZONE.....120 MM					A..... 1.075					
DATE	TEMP (C)	PCPN	RAIN	MELT	PE	AE	DEF	SURP	SNOW	SOIL	ACC P	
31- 1	-10.8	63	11	12	0	0	0	17	88	183	297	
28- 2	-9.2	56	10	15	0	0	0	20	119	187	353	
31- 3	-2.9	66	30	81	5	5	0	95	75	198	419	
30- 4	5.6	71	66	80	31	31	0	112	0	200	490	
31- 5	12.9	76	76	0	80	80	0	15	0	181	566	
30- 6	18.3	81	81	0	116	116	0	4	0	142	648	
31- 7	20.8	86	86	0	136	132	-4	1	0	96	733	
31- 8	19.6	82	82	0	117	104	-13	1	0	73	816	
30- 9	14.7	82	82	0	75	69	-6	2	0	84	899	
31-10	8.2	75	75	0	37	36	0	6	0	116	75	
30-11	1.2	80	62	8	10	10	0	17	10	159	156	
31-12	-7.1	80	25	15	1	1	0	19	50	179	235	
AVE	6.0 TTL	898	686	211	608	584	-23	309				

Environment Canada, 2010

*Climate normal have shifted in the past ten to fifteen years, so water budget assessments need to be current for development / alteration approvals.

Based on MECP's standards from their 2003 stormwater manual, the water surplus can be reasonably partitioned into net infiltration and runoff with an infiltration factor of 0.6. That factor assumes flat and cultivated land with medium permeability soils. (These values are not verified for onsite conditions but are reasonable for illustrative purposes). In this scenario, **net infiltration** would be, on average, **185 mm** (0.6 x 309 mm) per year.

Total average **annual precipitation** (snow and rain) for **1939 to 2007** was **898 mm**. The estimated net infiltration (185 mm) would therefore be about **20 % of the average annual precipitation**.

RVCA estimates that by infiltrating up to all 10 mm rain events, as is proposed, this would be about **36% - 37% of the 27-28 mm rainfall retention targets for Ottawa**. (to be confirmed / revised by developer's consulting team) Therefore, the proposed 10 mm infiltration target, at face value, seems greater than the percentage of average annual net infiltration. There would also be additional infiltration from snowmelt which is unaccounted for. In addition, RVCA does not know how much evapotranspiration will occur from the dry ponds. Nonetheless, the proposed infiltration, additional infiltration from snowmelt, and the evapotranspiration from the dry ponds should **effectively reduce the increase in runoff to the receivers** which aligns with RVCA's regulatory goals.

Even so, RVCA would sidestep at this point to expand upon the comparison between natural net infiltration and infiltration of 10 mm rain events, since it is not direct. This will illustrate the uncertainty that RVCA is accepting as to help move the project forward, since the needed assessments have not been provided.

It is important to recognize that the comparison between the runoff volume retention targets and water budget is not direct, given the following.

- Runoff volume retention targets appear to pertain only to rain but water budgets account for rain and snow.
- The infiltration evaluated in MECP's standard approach is net infiltration, that which infiltrates below the root zone into the saturated sediment zone beyond the unsaturated sediment zone. It is not referring to that which infiltrates at the ground surface.
- Net infiltration only occurs when there is no soil moisture deficiency. In our climate, under natural conditions, soil storage is depleted throughout most of the growing season, so there is no net infiltration and no net runoff throughout most of the year. Therefore, under natural conditions, where there is ample overburden depth, net infiltration and net runoff only occur following the spring freshet and during the late autumn before the winter sets in. (These are average conditions and do not characterize the hydrology during localized high intensity events such as intense summer storms when both groundwater recharge and runoff may occur.)

- Infiltration from end-of-pipe stormwater system facilities does not accurately mimic the distribution or timing of natural infiltration. (This is relevant when the hydration of specific natural features should be maintained or when groundwater mounding near marine clay slopes should be of concern.)
 - Net-infiltration under the ponds may therefore occur more regularly throughout the year since the soil moisture deficiency under the dry ponds would likely be less.

To further elaborate, RVCA also would note the following .

- This approach is better than for many other recent developments across the region and is accepting it. However, it our expectation moving forward that water budget analyses will be fully aligned with the provincial guidance. RVCA can provide additional guidance to facilitate this, even though considerable resources are already available from across the province.
 - RVCA wants to work with the development and consulting industry to ensure that acceptable water budgets are completed to inform design and **to avoid delays** in the review and approval process.
- The province discusses the need to maintain the hydrological cycle, which is another way of referring to the water budget, throughout MECP's long-standing stormwater management planning and design manual ([link](#)), again in their 2015 *Interpretation Bulletin* (Expectations Re: Stormwater Management) ([link](#)) , and in their 2016 *Runoff Volume Control Targets for Ontario* ([link](#)). The standard is again repeated and elaborated upon in the new draft low impact design manual ([link](#)).
- The water budget analysis (pre and post) is really an integrated hydrological impact assessment, and it should always be **undertaken before** any stormwater management system is planned. It is intended to drive all stormwater design. It is not a separate analysis and certainly never should be undertaken following stormwater design.
 - Further, it is the predevelopment analysis that produces the **site-specific targets** that are needed to be met by the stormwater system design. RVCA would not therefore provide site-specific water budget targets as had been requested. It is the developer's responsibility to do this.
 - In addition, LIDs should never be interpreted to be distinct best practices. They should create the stormwater management system itself.

- RVCA had previously been told that this site would include numerous LIDs, such as green roofs and bioswales. These did not materialize. RVCA had also recommended pervious pavers be used in car parking areas, walkways etc. and that bioretention areas be incorporate into landscaped areas. Such measures should have been adopted to address the numerous climate change adaptation goals from provincial policy etc. Such measures would have mitigated much more than just groundwater infiltration.
- An example of how to evaluate the efficacy of LIDs, within a standard water budget analysis, using a scaling approach is discussed on page 246 of the new draft LID manual. The link to the document is above.
- An example of a monthly water budget analysis, which includes snowmelt etc., is also presented in that document, as Tables A5.2 and A5.3 etc.
- In the 2016 provincial background document, which sets the stage for Ontario to use runoff volume control targets, it is clear that this is within the context of maintaining the pre-development water budget partitioning. In that document, it says the following:

“As such, an appropriate performance target for managing runoff volume is to limit total runoff volume to 10% (or less) of total rainfall volume. This means that 90% of rainfall volume must be controlled and **returned to natural hydrologic pathways of the water balance in proportions in keeping with the conditions prior to development.** This requires the control of 90% of the annual average rainfall, commonly determined through the use of the 90th percentile storm.”
(Aqafor Beech, 2016, pg. 40)

- In the province’s draft LID manual, it is clearly stated that runoff retention is not referring just to capturing events up to the 90th percentile. The executive summary on page iii says that “Retention practices reduce runoff volume at the source and include practices that **infiltrate, evapotranspire or harvest and reuse** stormwater.” Again, this indicates that runoff should not increase.



Claire Milloy, M.Sc., P.Geo.
Groundwater Scientist / Hydrogeologist
Department of Engineering and Regulations
Etc. 1217 claire.milloy@rvca.ca

September 16, 2025

Matthew Blasioli
National Capital Business Park Inc.
Via email: mblasioli@ave31.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Revision Application – 4055 Russell
Road**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on September 10, 2025.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, please submit the required Application Form, together with the necessary studies and/or plans to planningcirculations@ottawa.ca, copy (cc:) to the file lead and planning support.
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 a subsequent pre-consultation application be submitted.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

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

Proposal Overview

It is staff's understanding that the proposal is to construct three new industrial buildings, each 3-storeys in height, and one 1-storey building, in addition to surface parking; Building A1 will contain one-storey of underground parking and Building A3 proposes a stand-alone greenhouse operation on the third floor and rooftop. The 1-storey industrial building (Building E) has an approximate footprint of 2,787 m² and is located east of the stream.

Planning

Comments:

1. Building E is a new development and was not part of the previous Site Plan approval. Therefore, Building E cannot be included in the Site Plan Revision application and a new Site Plan Control application will be required to facilitate the proposed development.
2. Only Phase 2 (Building A1 and Building A3) can proceed with a Site Plan Revision application.

It is staff's recommendation to submit one new Site Plan Control application, and include both Phase 2 and Building E. This would allow the proposed development to be reviewed as one application and share submission requirements.

3. The Site falls within the Ministry of Transportation (MTO) Permit Control Area and is subject to MTO approval.
 - a. During the pre-consultation meeting, it was asked that the City submit a request to MTO for preliminary comment on behalf of the applicant. Written consent from Avenue 31 was received September 12, 2025. The pre-consultation request was submitted September 16, 2025.
4. The site is designated Industrial and Logistics within the Outer Urban Transect in the Official Plan. This permits traditional light and heavy industrial uses, including warehouse, distribution and storage. In addition, offices that are accessory to the primary use are also permitted within this designation.
5. The Official Plan designates Highway 417 as a Scenic Capital Entry Route per Schedule C13 of the Official Plan. Section 4.6.2 of the Plan, specifically policies (4) and (5), provide direction for development abutting Scenic Routes.

- a. As Phase 1, adjacent to Highway 417 is complete, focus will be placed on ensuring Building E incorporates landscaping improvements to create a desirable context between the development and the Highway 417 off-ramp.
6. The subject site is zoned IH – Heavy Industrial.
- a. The IH Zone does not permit the roof-top greenhouse operation as a primary use.
 - b. A *garden nursery* is considered an operation that specializes in the cultivation and retail of plants for transplanting and/or to provide a range of products for gardening needs. Whereas, a greenhouse operation is considered an *agricultural use*, producing crops with the purpose of supplying a customer an end product, i.e., fresh produce.

As a stand-alone greenhouse operation is not a permitted use in the IH zone, a Major Zoning By-law Amendment will be required to facilitate the proposed greenhouse.
 - c. The maximum permitted height in the IH zone is 22 metres. The proposed development will require relief from the maximum permitted height as Building A1 proposes a height of 28.35 metres and Building A3 proposes a height of 29.26 metres.
 - i. As discussed during the pre-consultation meeting, a [Minor Zoning By-law Amendment](#) or [Minor Variance](#) can be sought to seek relief in height. To discuss the minor variance application, please contact panel2_planners@ottawa.ca.
 - ii. If the development proceeds with the Major Zoning By-law Amendment to add the greenhouse operation as a permitted use, the height relief and any other zoning relief which may be required can be added to the major amendment application.
7. Please take note of the following zoning provisions:
- a. The Zoning By-law requires a minimum 3-metre-wide landscape area around the perimeter of the site.
 - b. The minimum parking rate requirement for a warehouse is: 0.8 per 100 m² for the first 5000 m² of gross floor area and 0.4 per 100 m² above 5000 m² of gross floor area.
 - c. Based on the gross floor area shown on the concept plans, the following loading spaces will be required:
 - i. Building A1: Three (3) loading spaces.

- ii. Building A3: Three (3) loading spaces.
 - iii. Building E: One (1) loading space.
 - d. Building A1 and Building A3 will require each of their three (3) loading spaces to be oversized. Refer to Section 113 for dimension and aisle provisions.
 - e. Building E will require one (1) standard size loading space.
8. Preliminary Comments on the Concept Plan:
- a. Accessible parking spaces will be required. The number of required Type A and Type B spaces will depend on the total number of provided parking spaces. Refer to Section 3.0 of the City's [Accessibility Design Standards](#).
 - b. Bicycle parking spaces will be required as per [Section 111](#) of the Zoning By-law.
 - i. If bicycle parking is provided on the sidewalks along buildings, travel paths should be designed to be unobstructed, ensuring adequate space is provided on the sidewalk to accommodate both bicycle parking and pedestrian movement.
 - c. The number of provided parking spaces for Building A3 is less than the zoning requirement. Building A1 exceeds the number of parking spaces required, but does not provide enough parking spaces to compensate for Building's A3 deficiency. As Phase 1 exceeded the number of required parking spaces, the overall site may be able to comply with the parking requirement.
 - i. For the formal application, please confirm the number of required parking spaces for each building, per use and provide accurate gross floor area of the accessory offices. Furthermore, during the pre-consultation meeting, it was discussed that one-storey of underground parking may be provided under Building A1. Please provide underground parking plans and ensure parking calculations reflect the additional parking spaces.
 - d. Please confirm how garbage collection will be handled. If garbage is located outside, please provide enclosure details.
 - e. For future applications, the site plan is to show where the snow storage will be located.
 - f. The CO2 Tank Area is to be designed to mitigate potential conflicts with the surrounding traffic movement, this could mean the use of fencing or bollards around the perimeter of the tank area.

9. Submission Requirements

- a. An Archaeological Impact Assessment was completed in November 2019 as part of the previous Site Plan Control application. This assessment did not reveal any significant cultural resources. Therefore, an Archaeological Impact Assessment will be waived for the proposed Site Plan Control application.
- b. A Phase I and Phase II ESA were completed in 2019 and noted a limited Phase II ESA was conducted for 4120 Russell Road in 2002 in order to assess potential impacts resulting from a closed landfill located west of the site at 185, 4120 & 4224 Russell Road. However, the site is with 250 metres of the former non-operating site at 4000 Russell. The ESA should shall be updated to:
 - i. Confirm the results from the 2002 Phase II are still relevant; and
 - ii. Include analysis to demonstrate that there is no risk to health and safety resulting from the near-by former landfill site.

If you have any questions regarding the above comments, please feel free to contact Jaime Mallory, Planner I, at jaime.mallory@ottawa.ca and Wendy Tse, Planner III, at wendy.tse@ottawa.ca.

Urban Design

Comments:

10. An Urban Design Brief is not required.

11. Additional 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.

12. Preliminary Design Comments:

- a. The public realm should be improved with street tree planting and soft landscaping.

If you have any questions regarding the above comments, please contact Nader Kadri, Planner III Urban Design, at nader.kadri@ottawa.ca.

Engineering

Comments:

13. For the Zoning By-law Amendment, please demonstrate the site changes will not increase the approved discharge and water flow requirement with a servicing memo and an update to the water balance report from JFSA for site 3B. Additionally, for site 3B please ensure the limit of development is outside the most restrictive between the hazard lands and conservation authority setback.
14. The Stormwater Management Criteria, for the subject site, is to be based on the following:
 - a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
 - b. Please refer to the functional servicing report dated March 2020 from DSEL and the servicing and stormwater management report dated February 2022 from DSEL for stormwater servicing: The updated servicing report should be prepared with reference to Section 3.0 of the MOE Stormwater Manual to determine the environmental design criteria required for the site. This includes consideration of the water balance, water quality, erosion control/geomorphology, and water quantity. When it comes to water quantity, the manual itself says that “generally, accepted criteria are that maximum peak flow rates must not exceed pre-development values for storms with return periods ranging from 2 to 10 years”.
 - c. A calculated time of concentration (cannot be less than 10 minutes).
 - d. Storm sewer outlets should not be submerged.
 - e. Quality control criteria: Please ensure to follow the Rideau Valley Conservation Authority TSS removal requirements: The appropriate water quality criteria for this area is enhanced (80% TSS removal). The Conservation Authority encourages the use of LID technologies where feasible. Given that the outlets will likely be to the Mather Award Ditch portion which meanders and where erosion is likely a concern, the stormwater management plan will have to demonstrate that erosion will not be exacerbated. This will require confirmation that the stormwater will not exceed the erosion threshold for this section of the watercourse. Please refer to JFSA water balance report dated February 4, 2022, and update the information to include site 3B.

15. Deep Services (Storm, Sanitary and/or Water Supply)

- a. Provide existing servicing information and the recommended location for the proposed connections. There are existing sanitary (250mm diameter PVC pipe) and watermain (200mm diameter PVC pipe) lateral stubs for site 3B. Please refer to the approved site servicing plan for site 3A.
- b. Connections to trunk sewers and easement sewers are typically not permitted.
- c. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (i.e., not in a parking area).
- d. Sewer connections to be made above the springline of the sewermain 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 than 50% the diameter of the sewermain,
 - iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,
 - iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

16. The existing MECP Environmental Compliance Approval **Industrial Sewage Works** will need to be updated for the proposed development to reflect the design changes. A Ministry contact has been provided below but please work with City staff on the need of an application.

- a. Shannon Hamilton-Browne at (613) 521-3450 or Shannon.Hamilton-Browne@ontario.ca.

17. Water

- a. Please refer to the functional servicing report dated March 2020 from DSEL.
- b. Water Data Card will be provided at the end of site plan approval.

- 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. Location of service
 - ii. Type of development
 - iii. The amount of fire flow required (per OBC or FUS).
 - iv. Average daily demand: ___ l/s.
 - v. Maximum daily demand: ___ l/s.
 - vi. Maximum hourly daily demand: ___ l/s.
18. Sewer (sanitary and storm)
 - a. Please refer to the functional servicing report dated March 2020 from DSEL and the servicing and stormwater management report dated February 2022 from DSEL.
19. Existing infrastructure will have to be relocated to accommodate the new development.
20. Provide servicing, erosion control and grading plans.
21. Provide fire-fighting flow rate(s).
22. Provide a geotechnical investigation for the proposed site 3B, building E (including, where applicable, detailed sensitive marine clay investigation). For buildings A1 and A3, please update to the approved geotechnical investigation to reflect the design changes: Geotechnical Investigation, National Capital Business Park, Site 3 - 4055 Russell Road, Ottawa, Ontario, by Paterson Group, dated November 26, 2021.
23. A slope stability analysis will be required for site 3B, building E area next to the existing ravine. The newly proposed buildings A1 and A3 will need to be located outside the most restrictive between the hazard lands and conservation authority setback. Please refer to the approved geotechnical investigation: Geotechnical Investigation, National Capital Business Park, Site 3 - 4055 Russell Road, Ottawa, Ontario, by Paterson Group, dated November 26, 2021.
24. The ESAs will have to be updated since they are older than 18 months.

If you have any questions regarding the above comments, please contact Natasha Baird, Project Manager, at natasha.baird@ottawa.ca.

Transportation

Comments:

25. See [Schedule C16 of the Official Plan](#).
26. Any requests for exceptions to right-of-way (ROW) protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.
27. Please revise the original Transportation Impact Assessment (TIA) Report to include the “Site Plan Building E façade” additional building of 30,000 sq. ft. The Synchro Files are to be submitted in digital format.
28. Russell Road is designated as an Arterial Road within the City’s Official Plan, with a ROW protection limit of 30.0 metres. The ROW protection limit and the offset distance (15.0 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings.
29. ROW interpretation – Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the city. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.
30. The City’s policy for the provision of pedestrian facilities as set forth by the Official Plan (OP), the Transportation Master Plan (TMP) and the Pedestrian Plan (OPP) specifically direct pedestrian facilities on City roads that lead to areas of work and employment (“retail/commercial/employment”).
31. The Owner acknowledges and agrees that all private accesses to Roads shall comply with the City’s Private Approach By-Law being [By-Law No. 2003-447](#) as amended or as approved through the Site Plan control process.
32. The concrete sidewalk is to meet City standards and be 2.0 metres in width and to be continuous along property frontage and depressed through the proposed accesses (please refer to the City’s sidewalk and curb standard drawing SC7.1 for unsignalized entrance).
33. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.
34. Proposed road modifications and new signals will require the delegated authority approval from the Manager of Design Review, Transportation Engineering Services.

35. The Owner is responsible for identifying the type and location of existing signage that will be removed from within the Right-of-Way to accommodate the development site. The Owner is responsible for providing the General Manager with a detailed drawing identifying the type and position of the existing signs and roadway pavement markings along the site frontage.
36. The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.
37. Should the property Owner wish to use a portion of the City's Road allowance for construction staging, prior to obtaining a building permit, the property Owner must obtain an approved Traffic Management Plan from the Manager, Traffic Management, Transportation Services Department. The City has the right for any reason to deny use of the Road Allowance and to amend the approved Traffic Management Plan as required.
38. A construction Traffic Management Plan is to be provided for approval by the Senior Engineer, Traffic Management, Transportation Services Dept.
39. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be in safe, secure places near main entrances and preferably protected from the weather.

If you have any questions regarding the above comments, please contact Wally Dubyk, Transportation Project Manager, at wally.dubyk@ottawa.ca.

Environment

Comments:

40. An Environmental Impact Statement was submitted at Phase 1 of this development and handled all relevant environmental concerns. Staff do not object to the findings of this report, but the field work is now out of date.

A revised EIS must be submitted that includes new field work (species-at-risk screenings being the most pressing matter), as well as updates to the Site Plan and Landscape Plan.
41. A Landscape Plan was submitted as part of the Phase 1 application, but it did not include the Phase 2 lands. A Landscape Plan that includes reforestation between the development and the watercourse must be submitted. The landscaping on the other side of the drain, for Phase 1, would be a good guide for the extent of plantings expected on this site.
42. The Bird Safe Design Guidelines will apply to this development. The only concern at the moment is the glass staircases. Staff understand that bird-safe

mitigation are being pursued due to NCC requirements, but please indicate glazing treatments in building elevations.

43. Please note that the City prefers that all trees be of native and non-invasive species.

If you have any questions regarding the above comments, please contact Mark Elliott, Environmental Planner, at mark.elliott@ottawa.ca.

Forestry

Comments:

44. Tree preservation / Tree Removal

- a. A tree Conservation Report will be required if there are trees on-site that have a diameter of more than 10cm. Please contact Mark Richardson if this is the case.

45. Landscape Plan – tree planting requirements

- a. Please ensure all retained trees are shown on the Landscape Plan.
- b. Maintain 1.5m from sidewalk, MUP/cycle track, water service laterals.
- c. Maintain 2.5m from curb.
- d. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
- e. 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.
- f. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.
- g. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- h. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
- i. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; if possible, include watering and warranty as described in the specification.
- j. No root barriers, dead-man anchor systems, or planters are permitted.

- k. No tree stakes unless necessary.
- l. Hard surface planting.
- m. If there are hard surface plantings, a planting detail must be provided.
 - i. Curb style planter is highly recommended.
 - ii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- n. Trees are to be planted at grade.
- o. Soil Volume - Please demonstrate as per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the following:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- p. Sensitive Marine Clay - Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines.
- q. The City requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.
- r. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting. 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.
- s. Page 7 of the Landscape Plan Terms of Reference requires applicants to submit a digital, georeferenced CAD or GIS file of the final approved Landscape Plan. Please follow this link to review the submission requirements: [Landscape Plan Terms of Reference](#). The file can be sent to the Planning Forester or Planning File Lead.



If you have any questions regarding the above comments, please contact Mark Richardson, Planning Forester, at mark.richardson@ottawa.ca.

Parkland

Comments:

46. The City of Ottawa's Parkland Dedication By-Law No. 2022-208 (or as amended) applies. Parks and Facilities Planning will be requesting cash-in-lieu of parkland (CILP) for parkland dedication. The rate for commercial uses is 2% of the gross land area, as defined in the By-law. How CILP will be calculated is dependent on the details of the application.

If you have any questions regarding the above comments, please contact Donnelly, Parks Planner, at allison.donnelly@ottawa.ca.

Heritage

Comments:

47. The heritage building on this site has been demolished. Heritage Planning does not need to be involved in future applications.

If you have any questions regarding the above comments, please contact Lesley Collins, Heritage Planning, at lesley.collins@ottawa.ca.

Rideau Valley Conservation Authority

Comments:

48. A portion of the subject lands are within RVCA's regulated area due to the presence of a river/stream valley associated with McEwan Creek that traverses the southern end of the site. RVCA regulates any development activity within 15 metres of a river/stream valley.
49. RVCA has a delegated responsibility for representing the provincial interest on natural hazards matters, as outlined in Chapter 5 of the *Provincial Planning Statement*, in planning exercises where the province is not involved. Furthermore, RVCA has a mandate through provincial legislation to regulate development and site alteration within, and directly adjacent to, lands subject to natural hazards (e.g., flooding, erosion, and unstable soils/bedrock associated with steep slopes). The purpose of the legislation is to ensure people and property are being protected from natural hazards.

General Submission Requirements

50. As a part of a Site Development application for the subject property, RVCA would request the following materials:

- a. It is the expectation of RVCA staff that the development associated with Building E will be appropriately buffered from the limit of the erosion hazard on the site. RVCA policies require a 6-metre buffer from the furthest extent of the erosion hazard as determined through the applicable technical studies. The 6-metre access allowance setback should be an unencumbered area free and clear of any structures, both above and below ground. The purpose of the allowance is to provide space for machinery/equipment and workers to access a slope or flood plain area and undertake repairs/maintenance in the event that there is erosion or slope instability issues.
- b. Slope stability and erosion hazard assessment – To delineate the extent of the erosion hazard limit associated with apparent river/stream valley. It is the understanding of RVCA staff that an assessment was undertaken as a part of the previous Site Plan Control application process for the development on the north side of the river/stream valley. If the existing report is to be utilized, a letter or memo confirming that the previous assessment continues to be valid based on current site conditions should be provided (e.g., confirming that there has not been any recent erosion or stability issues that would impact the variables/inputs of the assessment).
- c. Stormwater management report – Outlining how the proposed stormwater management design conforms with requirements for water quantity (i.e., controls to protect downstream properties from flood increases due to upstream development) and erosion/water balance (i.e., matching the pre-development proportions of infiltration, runoff, and evapotranspiration in the post development condition) per the Ministry of Environment, Conservation and Parks' Stormwater Management Planning and Design Manual.
- d. Dewater plans - If dewatering is required as a component of the development, a plan/report should be submitted that identifies the applicable details (e.g., how long will dewatering occur, what are the anticipated volumes, where will water be discharged to and what method/set up will be used to discharge the water).
- e. Engineering Drawings/Plans – Including Site Plan, Grading Plan, Site Servicing Plan, Erosion and Sediment Control Plan, cross-sections and associated details.
- f. Restoration plans – Outlining how the disturbed areas in and around the river/stream valleys and riparian areas of the and watercourses will be stabilized/naturalized.

If you have any questions regarding the above comments, please contact Stephen Bohan, RVCA, at stephen.bohan@rvca.ca.

Other

51. 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 [High Performance Development Standards \(HPDS\) | City of Ottawa](#) for more information.

Submission Requirements and Fees

1. Please refer to the Site Plan Control Subtype Thresholds and fee related to Planning Applications on the City's Website: [Site Plan Control | City of Ottawa](#).
 - a. Additional information regarding the Zoning By-law Amendment can be found at: [Zoning By-law Amendment | City of Ottawa](#).
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,
Jaime Mallory

Encl. Study and Plan Identification List – Site Plan Control
Study and Plan Identification List – Zoning By-law Amendment
List of Technical Agencies
Pre-consultation Supplementary Development Information
Accessible Design Standards Checklist

APPENDIX B

Servicing Development Application Checklist



This design package has been prepared as an amendment to the approved Site Servicing and Stormwater Management report for National Capital Business Park, 4055 Russell Road – Site 3, prepared by Davide Shaeffer Engineer Ltd, dated February 2022, Rev 3. (*Further referenced as SPA-FEB-2022*) The intent of this design is to maintain the original stormwater management and servicing design.

Development Servicing Study Checklist

General Content	
<input type="checkbox"/>	Executive Summary (for larger reports only).
<input checked="" type="checkbox"/>	Date and revision number of the report.
<input checked="" type="checkbox"/>	Location map and plan showing municipal address, boundary, and layout of proposed development
<input checked="" type="checkbox"/>	Plan showing the site and location of all existing services
<input checked="" type="checkbox"/>	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
<input checked="" type="checkbox"/>	Summary of Pre-consultation Meetings with City and other approval agencies
<input checked="" type="checkbox"/>	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria
<input checked="" type="checkbox"/>	Statement of objectives and servicing criteria
<input checked="" type="checkbox"/>	Identification of existing and proposed infrastructure available in the immediate area.
<input type="checkbox"/>	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).
<input checked="" type="checkbox"/>	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
<input type="checkbox"/>	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
<input type="checkbox"/>	Proposed phasing of the development, if applicable.
<input checked="" type="checkbox"/>	Reference to geotechnical studies and recommendations concerning servicing.
<input checked="" type="checkbox"/>	All preliminary and formal site plan submissions should have the following information <ul style="list-style-type: none"> ◦ Metric scale ◦ North arrow (including construction North) ◦ Key plan ◦ Name and contact information of applicant and property owner ◦ Property limits including bearings and dimensions ◦ Existing and proposed structures and parking areas ◦ Easements, road widening and rights-of-way ◦ Adjacent street names

Development Servicing Report: Water		
<input type="checkbox"/>	Confirm consistency with Master Servicing Study, if available	
<input type="checkbox"/>	Availability of public infrastructure to service proposed development	
<input checked="" type="checkbox"/>	Identification of system constraints	
<input checked="" type="checkbox"/>	Identify boundary conditions	In disc w/ City
<input checked="" type="checkbox"/>	Confirmation of adequate domestic supply and pressure	
<input checked="" type="checkbox"/>	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	
<input checked="" type="checkbox"/>	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves	In disc w/ City
<input type="checkbox"/>	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	
<input type="checkbox"/>	Address reliability requirements such as appropriate location of shut-off valves	
<input type="checkbox"/>	Check on the necessity of a pressure zone boundary modification	
<input checked="" type="checkbox"/>	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	
<input checked="" type="checkbox"/>	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	
<input type="checkbox"/>	Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation	
<input checked="" type="checkbox"/>	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines	
<input checked="" type="checkbox"/>	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	

Development Servicing Report: Wastewater		
<input checked="" type="checkbox"/>	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	
<input type="checkbox"/>	Confirm consistency with Master Servicing Study and/or justifications for deviations	
<input type="checkbox"/>	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers	
<input type="checkbox"/>	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	
<input type="checkbox"/>	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	
<input type="checkbox"/>	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format	
<input type="checkbox"/>	Description of proposed sewer network including sewers, pumping stations, and forcemains	
<input type="checkbox"/>	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	
<input type="checkbox"/>	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	
<input type="checkbox"/>	Forcemain capacity in terms of operational redundancy, surge pressure and	

	maximum flow velocity	
<input type="checkbox"/>	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	
<input type="checkbox"/>	Special considerations such as contamination, corrosive environment etc	

Development Servicing Report: Stormwater Checklist		
<input checked="" type="checkbox"/>	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	
<input checked="" type="checkbox"/>	Analysis of available capacity in existing public infrastructure	
<input checked="" type="checkbox"/>	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern	
<input checked="" type="checkbox"/>	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects	
<input checked="" type="checkbox"/>	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements	
<input checked="" type="checkbox"/>	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	
<input type="checkbox"/>	Set-back from private sewage disposal systems	
<input type="checkbox"/>	Watercourse and hazard lands setbacks	
<input type="checkbox"/>	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed	
<input type="checkbox"/>	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists	
<input checked="" type="checkbox"/>	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	
<input type="checkbox"/>	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals	
<input checked="" type="checkbox"/>	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions	
<input type="checkbox"/>	Any proposed diversion of drainage catchment areas from one outlet to another	
<input type="checkbox"/>	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities	
<input type="checkbox"/>	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event	
<input type="checkbox"/>	Identification of potential impacts to receiving watercourses	
<input type="checkbox"/>	Identification of municipal drains and related approval requirements	
<input type="checkbox"/>	Descriptions of how the conveyance and storage capacity will be achieved for the development	
<input type="checkbox"/>	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading	
<input type="checkbox"/>	Inclusion of hydraulic analysis including hydraulic grade line elevations	
<input checked="" type="checkbox"/>	Description of approach to erosion and sediment control during construction for the protection dreceiving watercourse or drainage corridors.	
<input type="checkbox"/>	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	
<input type="checkbox"/>	Identification of fill constraints related to floodplain and geotechnical investigation.	

Approval and Permit Requirements: Checklist		
<input checked="" type="checkbox"/>	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act	
<input type="checkbox"/>	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act	
<input type="checkbox"/>	Changes to Municipal Drains	
<input type="checkbox"/>	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	

Conclusion Checklist		
<input checked="" type="checkbox"/>	Clearly stated conclusions and recommendations	
<input type="checkbox"/>	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency	
<input type="checkbox"/>	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

APPENDIX C
Water Supply Calculations





Water Supply Calculations

LRL File No. : 220346-04

Project: NCBP Site 3B Bldg E

Location: Russell Road, Ottawa

Date: March 6, 2026

Designed: K. Herold

Checked: K. Paradis

Dwg Reference: C401

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate (L/ha/d)	Area (ha)	Demand (L/d)
Industrial	35000	1.955	68425

Average Day Demand	68,425 L/d	0.792 L/s
Maximum Day Factor	1.5	(Design Guidelines-Water Distribution Table 4.2)
Maximum Daily Demand	102,638 L/d	1.188 L/s
Peak Hour Factor	1.8	(Design Guidelines-Water Distribution Table 4.2)
Maximum Hour Demand	184,748 L/d	2.138 L/s

TOTAL DEMAND			
Average Day Demand	68,425 L/d	0.79 L/s	
Maximum Daily Demand	102,638 L/d	1.19 L/s	
Maximum Hour Demand	184,748 L/d	2.14 L/s	

Water Service Pipe Sizing

$$Q = VA$$

Where: V = velocity (m/s)

A = area of pipe (m²)

Q = flow rate (L/s)

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

$$\begin{aligned} \text{Minimum pipe diameter (d)} &= (4Q/\pi V)^{1/2} \\ &= 0.039 \quad \text{m} \\ &= 39 \quad \text{mm} \end{aligned}$$

$$\begin{aligned} \text{Proposed pipe diameter (d)} &= 50 \quad \text{mm} \\ &= 2 \quad \text{Inches} \end{aligned}$$

*upsized to 150mm, as recommended by the sprinkler designer

APPENDIX D
City of Ottawa Boundary Conditions



Kyle Herold

From: Kyle Herold
Sent: February 17, 2026 9:00 AM
To: 'jeff.shillington@ottawa.ca'; 'golam.sharif@ottawa.ca'
Subject: 220346 - Avenue 31 Building E - 4055 Russell Road, Ottawa - Boundary Conditions

Good morning,

I am hoping you will be able to help us out, or at least point us in the right direction.

We are currently working on an industrial site & warehouse development for Avenue 31, to be developed at 4055 Russell Road, in Ottawa.

As the sprinklered building is intended to be serviced by the Russell Road watermain, we have been asked to request boundary conditions.

Please use the following data to provide the require boundary conditions:

Average Total Daily Demand = 0.79 L/s

Maximum Daily Demand = 1.19 L/s

Maximum Hourly Demand = 2.14 L/s

Required Fire Flow = 133.3 L/s

The water service connection to the Russell Road watermain will occur just north of Last Mile Road.

For your reference, I have included copies of the Water Supply Calculations, FUS Fire Flow Calculations and a clip of the site location along with this email.



Any questions, concerns or require additional information, please do not hesitate to reach out.

Thank you,

Kyle Herold, Civil Engineering Services



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APPENDIX E

FUS Fire Flow Calculations





Fire Flow Calculations

LRL File No. 220346-04
Project: NCBP Site 3B Building E
Location: Russell Road, Ottawa
Date: March 6, 2026
Method: Fire Underwriter's Survey (FUS)
Prepared by: K. Herold

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Construction Coefficient (C)								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame Construction (Type V)	1.5	Ordinary Construction (Type III)	1		
			Mass Timber Construction (Type IV-A)	0.8				
			Mass Timber Construction (Type IV-B)	0.9				
			Mass Timber Construction (Type IV-C)	1.0				
			Mass Timber Construction (Type IV-D)	1.5				
			Ordinary Construction (Type III)	1.0				
			Noncombustible Construction (Type II)	0.8				
Fire Resistive Construction (Type I)	0.6							
Floor Area (A)								
2	Total Effective Floor Area					3,100	m ²	
3	Obtain fire flow before reductions	Required fire flow (rounded to nearest 1000)	Fire Flow = 220 x C x A ^{0.5}				L/min	13,000
Occupancy and Contents Adjustment								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Noncombustible	-25%	Combustible	0%	L/min	13,000
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
Sprinkler Protection								
5	Choose reduction for sprinklers	Sprinkler reduction	Automatic sprinkler protection designed & installed in accordance with NFPA 13	-30%	True	-30%	L/min	7,800
			Water supply is standard for both the system and fire department hose lines	-10%	True	-10%		
			Fully supervised system	-10%	False	0%		
Exposure Adjustment								
6	Choose separation	Exposure distance	North side	>30m	0%	0%	L/min	7,800
			East side	>30m	0%			
			South side	>30m	0%			
			West side	>30m	0%			
Net Required Fire Flow								
7	Obtain fire flow and duration	Minimum required fire flow (rounded to nearest 1000)					L/min	8,000
		Minimum required fire flow					L/s	133.3
		Required duration of fire flow					hr	3



Ch. Hunt Club Rd.

CON 6
LOT 5

10
Gloucester-Southingate

CON 6
LOT 4

Prom. Belgreen Dr.

10600

APPENDIX F

Wastewater Collection Calculations



LRL Associates Ltd.
Sanitary Sewer Design Sheet



LRL File No.:
Project:
Location:
Designed:
Checked:
Date:
DWG. Reference: C401

Sanitary Design Parameters

Commercial & Institutional Flow = 28000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.5

Average Daily Flow = 280 L/p/day
Industrial Peak Factor = as per Appendix 4-B
Extraneous Flow = 0.33 L/s/ha

Pipe Design Parameters

Maximum Velocity = 3.00 m/s
Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL					COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW, Q	PIPE							
STREET	FROM	TO	AREA	POP.	ACCU.		PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FACT.	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA	ACCU. AREA		INFILT. FLOW	LENGTH	DIA.	SLOPE	MATERIAL	CAP. Q(FULL)	VEL. V(FULL)	RATIO Q /QFULL
			(Ha)		AREA	POP.													(L/s)								
	BLDG	Ex. SAN									1.955	1.96	7.0			5.54	1.955	1.955	0.65	6.19	31.3	150	2.00%	PVC	21.54	1.22	0.29

Notes: Existing inverts and slopes are estimated. They are to be confirmed on-site.

APPENDIX G

Pre and Post Development Watersheds



LRL Associates Ltd.

Storm Watershed Summary



LRL File No. 220346-04

Project: NCBP Site 3B Building E

Location: Russell Road, Ottawa

Date: March 6, 2026

Designed: K. Herold

Checked: K. Paradis

Dwg Reference: C701, C702

Pre-Development Catchments

Watershed	C = 0.20	C = 0.80	C = 0.90	Total Area (ha)	Combined C
ECA-01 (uncontrolled)	1.955	0.000	0.000	1.955	0.20
Total	1.955	0.000	0.000	1.955	0.20

Post-Development Catchments

Watershed	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
CA-01 (controlled)	0.000	0.000	0.311	0.311	0.90
CA-02 (controlled)	0.028	0.000	0.119	0.147	0.77
CA-03 (controlled)	0.000	0.000	0.050	0.050	0.90
CA-04 (controlled)	0.000	0.000	0.050	0.050	0.90
CA-05 (controlled)	0.000	0.000	0.050	0.050	0.90
CA-06 (controlled)	0.015	0.012	0.047	0.074	0.74
CA-07 (controlled)	0.000	0.069	0.045	0.114	0.84
CA-08 (controlled)	0.000	0.082	0.053	0.135	0.84
CA-09 (controlled)	0.000	0.022	0.053	0.075	0.87
CA-10 (controlled)	0.000	0.000	0.043	0.043	0.90
CA-11 (controlled)	0.000	0.016	0.040	0.056	0.87
CA-12 (controlled)	0.000	0.203	0.000	0.203	0.80
CA-13 (controlled)	0.000	0.152	0.000	0.152	0.80
CA-14 (controlled)	0.078	0.000	0.000	0.078	0.20
CA-15 (controlled)	0.057	0.000	0.000	0.057	0.20
CA-16 (uncontrolled)	0.360	0.000	0.000	0.360	0.20
Total	0.538	0.556	0.861	1.955	0.68

APPENDIX H

Storm Sewer Sizing



LRL Associates Ltd.
Storm Sewer Design Sheet



LRL File No. 220346-04
Project: NCBP Site 3B Building E
Location: Russell Road, Ottawa
Date: March 6, 2026
Designed: K. Herold
Checked: K. Paradis
Dwg. Ref.: C401,C601, C702

Rational Method
 $Q = 2.78CIA$
 $Q =$ Peak flow (L/s)
 $A =$ Drainage area (ha)
 $C =$ Runoff coefficient
 $I =$ Rainfall intensity (mm/hr)
Runoff coefficient (C)
 Grass = 0.2
 Gravel = 0.8
 Asphalt / rooftop = 0.9

IDF curve
 Ottawa Macdonald-Cartier International Airport
 Storm event: 5 Years
Intensity equation:
 $I_s = 998.071 / (Td + 6.053)^{0.814}$ (mm/hr)
Pipe Design Parameters
 Minimum velocity = 0.80 m/s
 Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
WATERSHED / STREET	From MH	To MH	C = 0.20	C = 0.80	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc.	Rainfall Intensity	Peak Flow (Q)	Controlled Flow (Q)	Pipe Dia.	Type	Slope	Length	Capacity Full (Q _{FULL})	Velocity Full	Time of Flow	Ratio Q / Q _{FULL}
									(mm/hr)	(L/s)	(L/s)								
CA-01	ROOF	STM CBMH10	0.000	0.000	0.311	0.78	0.78	10.00	104.19	81.07		300	PVC	2.00%	33.7	136.76	1.93	0.29	0.59
CA-02	STM CB02	STM CBMH03	0.028	0.000	0.119	0.31	0.31	10.00	104.19	32.64		300	PVC	0.34%	45.8	56.39	0.80	0.96	0.58
CA-03	STM CBMH03	STM CBMH04	0.000	0.000	0.050	0.13	0.44	10.96	99.40	43.58		300	PVC	0.34%	35.0	56.39	0.80	0.73	0.77
CA-04	STM CBMH04	STM CBMH05	0.000	0.000	0.050	0.13	0.56	11.69	96.05	54.12		375	PVC	0.34%	35.0	102.23	0.93	0.63	0.53
CA-05	STM CBMH05	STM CBMH06	0.000	0.000	0.050	0.13	0.69	12.32	93.36	64.29		375	PVC	0.34%	35.1	102.23	0.93	0.63	0.63
CA-06	STM CBMH06	STM CBMH11	0.015	0.012	0.047	0.15	0.84	12.95	90.82	76.40		375	PVC	0.34%	38.8	102.23	0.93	0.70	0.75
CA-07	STM CB07	STM CBMH08	0.000	0.069	0.045	0.27	0.27	10.00	104.19	27.72		300	PVC	0.34%	36.0	56.39	0.80	0.75	0.49
CA-08	STM CBMH08	STM CBMH09	0.000	0.082	0.053	0.31	0.58	10.75	100.38	58.32		375	PVC	0.34%	36.0	102.23	0.93	0.65	0.57
CA-09	STM CBMH09	STM CBMH10	0.000	0.022	0.053	0.18	1.54	11.40	97.34	149.96		450	PVC	0.34%	35.0	166.24	1.05	0.56	0.90
CA-10	STM CBMH10	STM CBMH11	0.000	0.000	0.043	0.11	1.65	11.96	94.87	156.38		525	PVC	0.34%	38.8	250.77	1.16	0.56	0.62
CA-11	STM CBMH11	SWMF02	0.000	0.016	0.040	0.14	2.63	13.65	88.19	231.52		600	PVC	0.34%	14.0	358.03	1.27	0.18	0.65
CA-12	STM CB12	STM CBMH13	0.000	0.203	0.000	0.45	0.45	10.00	104.19	47.04		300	PVC	0.34%	45.3	56.39	0.80	0.95	0.83
CA-13	STM CBMH14	SWMF01	0.000	0.152	0.000	0.34	0.79	10.95	99.45	78.51		375	PVC	0.34%	25.5	102.23	0.93	0.46	0.77
CA-14	SWMF01	SWMF02	0.078	0.000	0.000	0.04	0.83	11.41	97.31	81.05		450	PVC	0.34%	14.0	166.24	1.05	0.22	0.49
CA-15	SWMF02	MH15	0.057	0.000	0.000	0.03	4.24	13.83	87.53	370.78		600	PVC	0.50%	15.0	434.17	1.54	0.16	0.85
		OUTLET (VIA OP-01)					4.24	14.00	86.95		53.60	300	PVC	0.34%		56.39	0.80	0.00	0.95
		OUTLET (VIA OP-02)					4.24	14.00	86.95		32.00	300	PVC	0.34%		56.39	0.80	0.00	0.57

APPENDIX I

Stormwater Management Calculations





LRL File No. 220346-04
 Project: NCBP Site 3B Building E
 Location: Russell Road, Ottawa
 Date: March 6, 2026
 Designed: K. Herold
 Checked: K. Paradis
 Drawing Ref.: C601, C701, C702

Stormwater Management Design Sheet

STORM - 2 YEAR POST TO 2 YEAR PRE

Runoff Equation

$Q = 2.78CIA (L/s)$
 C = Runoff coefficient
 $I = \text{Rainfall Intensity (mm/hr)} = A / (T_d + C)^B$
 A = Area (ha)
 T_d = Time of duration (min)

Pre-Development Release Rate

IDF Curve Equations

$I_d = 732.951 / (T_d + 6.199)^{0.810}$ A = 732.951 B = 0.810 C = 6.199

C = 0.20 (max of 0.5 as per City Guidelines)
 I_d = 52.0 mm/hr
 T_d = 20 min *as per ToC design sheet
 A = 1.955 ha
 2 Year Release Rate = **56.56** L/s (Allowable Release Rate)

Post-development Stormwater Management

				$\sum R_{24h}$	$\sum R_{10p}$
	Total Site Area =	1.955	ha	R = 0.68	0.85
	CA-01 (controlled)	0.311	ha	R = 0.90	1.00
	CA-02 (controlled)	0.147	ha	R = 0.77	0.96
	CA-03 (controlled)	0.050	ha	R = 0.90	1.00
	CA-04 (controlled)	0.050	ha	R = 0.90	1.00
	CA-05 (controlled)	0.050	ha	R = 0.90	1.00
	CA-06 (controlled)	0.074	ha	R = 0.74	0.93
	CA-07 (controlled)	0.114	ha	R = 0.84	1.00
	CA-08 (controlled)	0.135	ha	R = 0.84	1.00
	CA-09 (controlled)	0.075	ha	R = 0.87	1.00
	CA-10 (controlled)	0.043	ha	R = 0.90	1.00
	CA-11 (controlled)	0.056	ha	R = 0.87	1.00
	CA-12 (controlled)	0.203	ha	R = 0.80	1.00
	CA-13 (controlled)	0.152	ha	R = 0.80	1.00
	CA-14 (controlled)	0.078	ha	R = 0.20	0.25
	CA-15 (controlled)	0.057	ha	R = 0.20	0.25
	Total (controlled)	1.595	ha	R = 0.79	0.98
	CA-16 (uncontrolled)	0.360	ha	R = 0.20	0.25
	Total (uncontrolled)	0.360	ha	R = 0.20	0.25
	Total (Controlled+Uncontrolled)	1.955	ha	R = 0.68	0.85

100 Year Post-development Stormwater Management

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m ³)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	77.11	269.11	136.86	41.00	15.44	56.44
15	61.96	216.21	157.69	41.00	12.40	53.40
20	52.16	182.03	169.23	41.00	10.44	51.44
25	45.26	157.95	175.42	41.00	9.06	50.06
30	40.12	139.99	178.18	41.00	8.03	49.03
35	36.12	126.04	178.57	41.00	7.23	48.23
40	32.91	114.85	177.24	41.00	6.59	47.59
45	30.28	105.66	174.59	41.00	6.06	47.06
50	28.07	97.97	170.91	41.00	5.62	46.62
55	26.20	91.42	166.40	41.00	5.24	46.24
60	24.58	85.78	161.22	41.00	4.92	45.92
70	21.93	76.53	149.25	41.00	4.39	45.39
80	19.84	69.25	135.61	41.00	3.97	44.97
90	18.16	63.36	120.73	41.00	3.63	44.63
100	16.76	58.48	104.85	41.00	3.35	44.35
120	14.57	50.84	70.87	41.00	2.92	43.92
140	12.93	45.13	34.68	41.00	2.59	43.59
160	11.66	40.68	0.00	41.00	2.33	43.33
180	10.63	37.10	0.00	41.00	2.13	43.13
200	9.79	34.15	0.00	41.00	1.96	42.96
240	8.48	29.58	0.00	41.00	1.70	42.70
280	7.50	26.19	0.00	41.00	1.50	42.50
320	6.75	23.55	0.00	41.00	1.35	42.35
360	6.15	21.45	0.00	41.00	1.23	42.23

On-site stormwater detention

Storage required = **178.57** m³
 Storage provided (NE SWMF) = 112.53 m³
 Storage provided (W SWMF) = 91.57 m³
Total Storage provided = 204.10 m³ (Refer to DWG C601)



LRL File No. 220346-04
 Project: NCBP Site 3B Building E
 Location: Russell Road, Ottawa
 Date: March 6, 2026
 Designed: K. Herold
 Checked: K. Paradis
 Drawing Ref.: C601, C701, C702

Stormwater Management Design Sheet

STORM - 100 YEAR POST TO 100 YEAR PRE

Runoff Equation

Q = 2.78CIA (L/s)
 C = Runoff coefficient
 I = Rainfall intensity (mm/hr) = A / (T_d + C)^B
 A = Area (ha)
 T_d = Time of duration (min)

Pre-Development Release Rate

IDF Curve Equations

I₁₀₀ = 1735.688 / (T_d + 6.014)^{0.820} A = 1735.688 B = 0.820 C = 6.014

C = 0.20 (max of 0.5 as per City Guidelines)
 I₂ = 120.0 mm/hr
 T_d = 20 min *as per ToC design sheet
 A = 1.955 ha
 100 Year Release Rate = 130.38 L/s (Allowable Release Rate)

Post-development Stormwater Management

				∑R _{24h}	∑R _{10p}
	Total Site Area =	1.955	ha	R = 0.68	0.85
	CA-01 (controlled)	0.311	ha	R = 0.90	1.00
	CA-02 (controlled)	0.147	ha	R = 0.77	0.96
	CA-03 (controlled)	0.050	ha	R = 0.90	1.00
	CA-04 (controlled)	0.050	ha	R = 0.90	1.00
	CA-05 (controlled)	0.050	ha	R = 0.90	1.00
	CA-06 (controlled)	0.074	ha	R = 0.74	0.93
	CA-07 (controlled)	0.114	ha	R = 0.84	1.00
	CA-08 (controlled)	0.135	ha	R = 0.84	1.00
	CA-09 (controlled)	0.075	ha	R = 0.87	1.00
	CA-10 (controlled)	0.043	ha	R = 0.90	1.00
	CA-11 (controlled)	0.056	ha	R = 0.87	1.00
	CA-12 (controlled)	0.203	ha	R = 0.80	1.00
	CA-13 (controlled)	0.152	ha	R = 0.80	1.00
	CA-14 (controlled)	0.078	ha	R = 0.20	0.25
	CA-15 (controlled)	0.057	ha	R = 0.20	0.25
	Total (controlled)	1.595	ha	R = 0.79	0.98
	CA-16 (uncontrolled)	0.360	ha	R = 0.20	0.25
	Total (uncontrolled)	0.360	ha	R = 0.20	0.25
	Total (Controlled+Uncontrolled)	1.955	ha	R = 0.68	0.85

100 Year Post-development Stormwater Management

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m ³)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	778.90	415.98	85.60	44.68	130.28
15	142.89	623.33	483.96	85.60	35.75	121.35
20	119.85	523.24	528.17	85.60	30.01	115.61
25	103.85	453.00	551.10	85.60	25.98	111.58
30	91.87	400.74	567.26	85.60	22.99	108.59
35	82.58	360.22	576.71	85.60	20.66	106.26
40	75.15	327.80	581.27	85.60	18.80	104.40
45	69.05	301.21	582.15	85.60	17.28	102.88
50	63.95	278.98	580.14	85.60	16.00	101.60
55	59.62	260.09	575.81	85.60	14.92	100.52
60	55.89	243.82	569.60	85.60	13.98	99.58
70	49.79	217.19	552.68	85.60	12.46	98.06
80	44.98	196.26	531.16	85.60	11.26	96.86
90	41.11	179.33	506.16	85.60	10.29	95.89
100	37.90	165.34	478.44	85.60	9.48	95.08
120	32.89	143.49	416.83	85.60	8.23	93.83
140	29.15	127.17	349.15	85.60	7.29	92.89
160	26.24	114.46	277.06	85.60	6.57	92.17
180	23.90	104.27	201.60	85.60	5.98	91.58
200	21.98	95.89	123.49	85.60	5.50	91.10
240	19.01	82.91	0.00	85.60	4.76	90.36
280	16.80	73.27	0.00	85.60	4.20	89.80
320	15.09	65.81	0.00	85.60	3.77	89.37
360	13.72	59.86	0.00	85.60	3.43	89.03

On-site stormwater detention

Storage required = 582.15 m³
 Storage provided (SWMF01) = 333.07 m³
 Storage provided (W SWMF) = 262.61 m³
 Total Storage provided = 595.68 m³ (Refer to DWG C601)



LRL File No. 220346-04
Project: NCBP Site 3B Bldg E
Location: Russell Rd, Ottawa
Date: March 6, 2026
Designed: K. Herold
Checked: K. Paradis
Drawing Ref.: C701

Stormwater Management
Time of Concentration Calc Sheet

Time of Concentration
Airport Equation (C<0.40)

$$T_c = \frac{3.26(1.1 - C)L^{0.5}}{S_w^{0.33}}$$

Where; T_c = time of concentration (mins)
 C = Rational method runoff coefficient
 L = catchment or watershed length (m)
 S_w = catchment or watershed slope (m/100m)

Time of Concentration

L (m) = 106.0
C = 0.20
S_w (m/100m) = 3.95

Time of Concentration 19.2 mins

APPENDIX J
Stormwater Flow Control Unit





LRL File No. 220346-04
Project: NCBP Site 3B Building E
Location: Russell Road, Ottawa
Date: March 6, 2026
Designed: K. Herold
Checked: K. Paradis
Drawing Ref.: C401, C601

**Stormwater Management
 Orifice Plate Design Sheet
 Orifice Plate OP-01**

Orifice Equation

$$Q = 0.61 * A * \text{sqrt} (2 * g * H)$$

Where; Q = release rate (in m3/s)
 0.61 = coefficient
 A = area of the orifice (m2)
 g = gravitational constant (9.81 m/s2)
 H = head above CL of orifice (m)

***Additional control in the 100y storm event to be provided with a secondary orifice plate installed above OP-01, refer to ICD Design Sheet - OP-02**

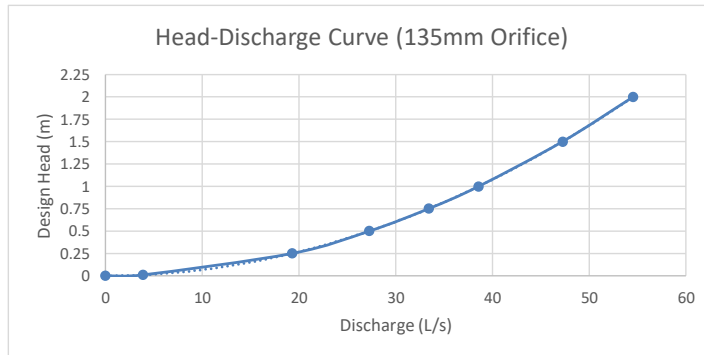
Orifice Plate (OP-01) Diameter Design

Storm - 100 year

Allowable Release Rate = 85.70 L/s
 Controlled Release Rate = 53.60 L/s*
 Q (m3/s) = 0.0536
 g (9.81m/s2) = 9.81
 A (m2) = 0.01427

H (m) =	1.93
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100yr STM Design Head = 1.93 m



Storm - 2 year

Allowable Release Rate = 41.12 L/s
 Controlled Release Rate = 41.00 L/s
 Q (m3/s) = 0.0410
 g (9.81m/s2) = 9.81
 A (m2) = 0.01427

H (m) =	1.13
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5yr STM Design Head = 1.13 m

SWM Design Parameters

Orifice Plate ø (m)	0.135
Host Pipe Invert	67.45
Head above C/L Orifice	67.52
100y High Water Level	69.45
100y Design Head	1.93
2y High Water Level	68.65
2y Design Head	1.13



LRL File No. 220346-04
Project: NCBP Site 3B Building E
Location: Russell Road, Ottawa
Date: March 6, 2026
Designed: K. Herold
Checked: K. Paradis
Drawing Ref.: C401, C601

**Stormwater Management
 Orifice Plate Design Sheet
 Orifice Plate OP-02**

Orifice Equation

$$Q = 0.61 * A * \text{sqrt} (2 * g * H)$$

Where; Q = release rate (in m3/s)
 0.61 = coefficient
 A = area of the orifice (m2)
 g = gravitational constant (9.81 m/s2)
 H = head above CL of orifice (m)

*OP-01 provides 53.60 L/s of flow control during the 100yr storm event. The total allowable release rate for the 100yr event is 85.70 L/s. OP-02 will serve to control the majority of the balance (32.00 L/s) of flow control.

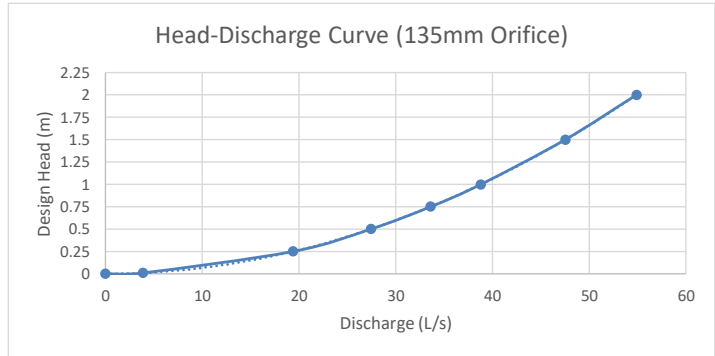
Orifice Plate (OP-02) Diameter Design

Storm - 100 year

Allowable Release Rate* = 85.70 L/s
 Allowable Release Rate incl. OP-01 = 32.10 L/s
 Controlled Release Rate = 32.00 L/s
 Q (m3/s) = 0.0320
 g (9.81m/s2) = 9.81
 A (m2) = 0.01436

H (m) =	0.68
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100yr STM Design Head = 0.68 m



SWM Design Parameters

Orifice Plate ø (m) 0.135
 Host Pipe Invert 68.70 *set above OP-01 2y high water level, strictly controlling 100yr flow
 Head above C/L Orifice 68.77
 100y High Water Level 69.45
 100y Design Head 0.68

APPENDIX K
Stormwater Treatment Unit



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

03/06/2026

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

Project Name:	Ave 31 Site E
Project Number:	220346
Designer Name:	Kyle Herold
Designer Company:	LRL Associates
Designer Email:	kherold@lrl.ca
Designer Phone:	613-915-2988
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Site Name:	Ave 31 - Site E
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Drainage Area (ha):	1.595
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Runoff Coefficient 'c':	0.79
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Particle Size Distribution:	Fine
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Target TSS Removal (%):	80.0
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Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	40.67
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	85.60
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	1436
Estimated Average Annual Sediment Volume (L/yr):	1167

Net Annual Sediment (TSS) Load Reduction Sizing Summary	
Stormceptor Model	TSS Removal Provided (%)
EFO4	68
EFO5	75
EFO6	81
EFO8	88
EFO10	93
EFO12	96

Recommended Stormceptor EFO Model: EFO6
Estimated Net Annual Sediment (TSS) Load Reduction (%): 81
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.

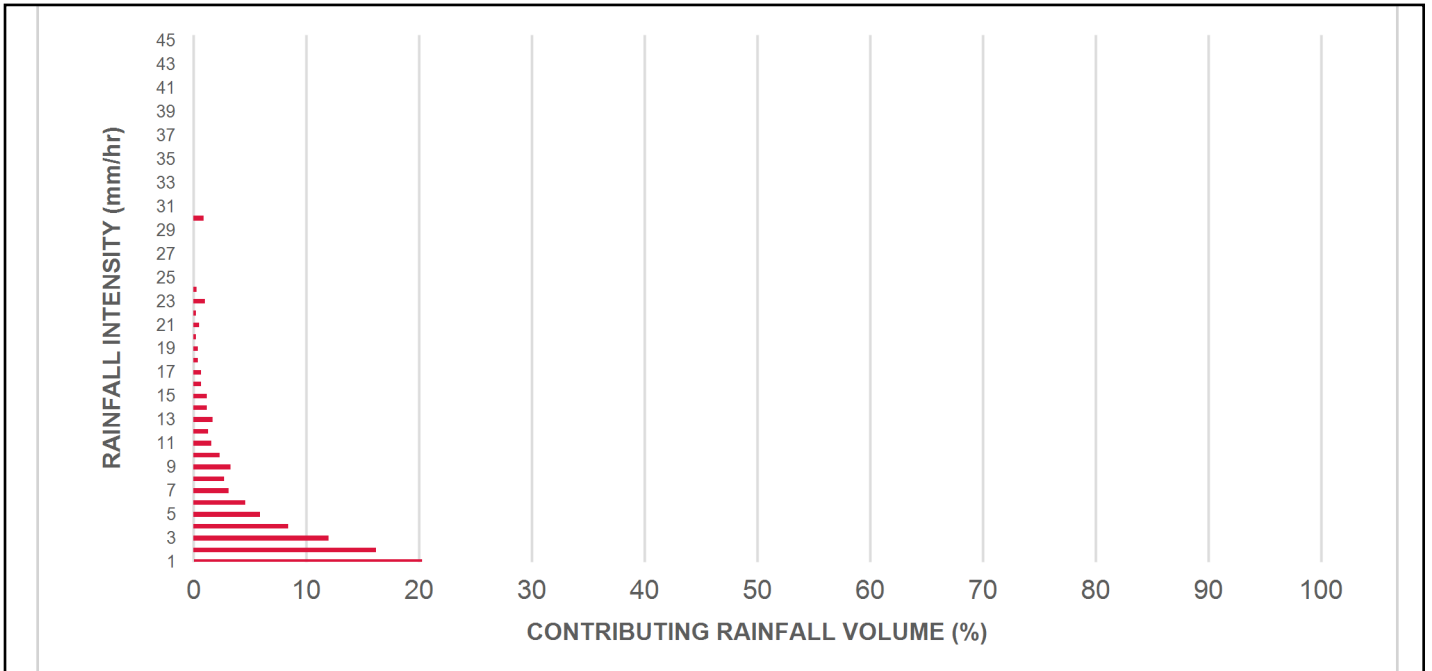
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Upstream Flow Controlled Results

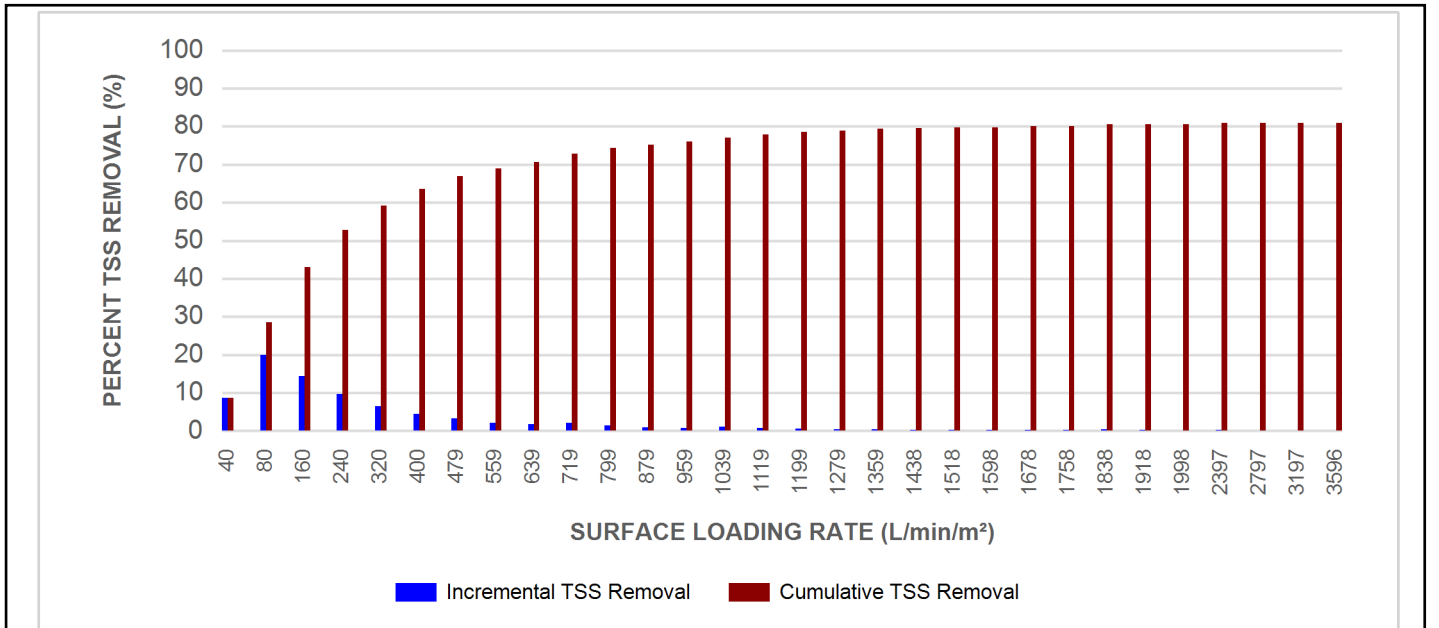
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m ²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	1.75	105.0	40.0	100	8.6	8.6
1.00	20.3	29.0	3.50	210.0	80.0	98	20.0	28.6
2.00	16.2	45.2	7.01	420.0	160.0	88	14.3	43.0
3.00	12.0	57.2	10.51	631.0	240.0	81	9.7	52.7
4.00	8.4	65.6	14.01	841.0	320.0	78	6.5	59.2
5.00	5.9	71.6	17.51	1051.0	400.0	74	4.4	63.6
6.00	4.6	76.2	21.02	1261.0	479.0	70	3.3	66.9
7.00	3.1	79.3	24.52	1471.0	559.0	66	2.0	68.9
8.00	2.7	82.0	28.02	1681.0	639.0	64	1.8	70.7
9.00	3.3	85.3	31.53	1892.0	719.0	64	2.1	72.8
10.00	2.3	87.6	35.03	2102.0	799.0	63	1.4	74.3
11.00	1.6	89.2	38.53	2312.0	879.0	62	1.0	75.2
12.00	1.3	90.5	42.04	2522.0	959.0	62	0.8	76.0
13.00	1.7	92.2	45.54	2732.0	1039.0	61	1.0	77.1
14.00	1.2	93.5	49.04	2942.0	1119.0	59	0.7	77.8
15.00	1.2	94.6	52.54	3153.0	1199.0	57	0.7	78.5
16.00	0.7	95.3	56.05	3363.0	1279.0	55	0.4	78.9
17.00	0.7	96.1	59.55	3573.0	1359.0	53	0.4	79.3
18.00	0.4	96.5	63.05	3783.0	1438.0	51	0.2	79.5
19.00	0.4	96.9	66.56	3993.0	1518.0	48	0.2	79.7
20.00	0.2	97.1	70.06	4204.0	1598.0	46	0.1	79.8
21.00	0.5	97.5	73.56	4414.0	1678.0	44	0.2	80.0
22.00	0.2	97.8	77.06	4624.0	1758.0	42	0.1	80.1
23.00	1.0	98.8	80.57	4834.0	1838.0	40	0.4	80.5
24.00	1.2	100.0	84.07	5044.0	1918.0	38	0.5	80.9
25.00	0.0	100.0	86.00	5160.0	1962.0	37	0.0	80.9
30.00	0.0	100.0	86.00	5160.0	1962.0	37	0.0	80.9
35.00	0.0	100.0	86.00	5160.0	1962.0	37	0.0	80.9
40.00	0.0	100.0	86.00	5160.0	1962.0	37	0.0	80.9
45.00	0.0	100.0	86.00	5160.0	1962.0	37	0.0	80.9
Estimated Net Annual Sediment (TSS) Load Reduction =								81 %

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



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

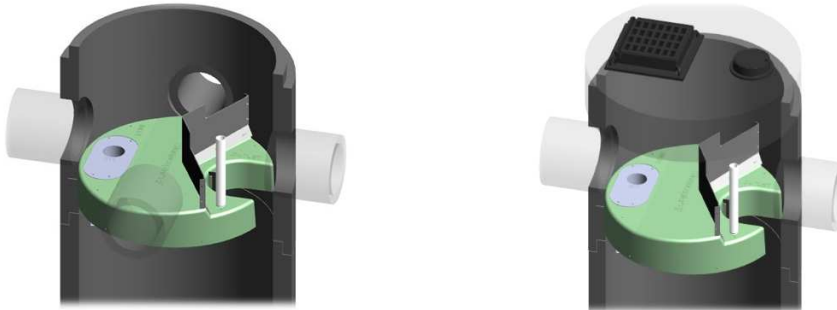
► Stormceptor® EF and EFO feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance 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.

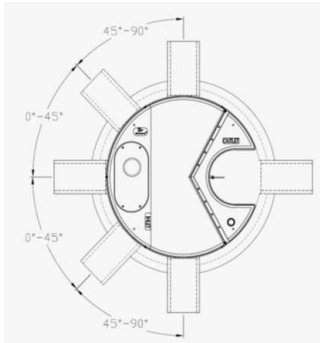
DESIGN FLEXIBILITY

► 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/ft³)

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 TREATMENT 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/m² to 1400 L/min/m², 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/m² and 1400 L/min/m² 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/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² 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/m².

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/m².

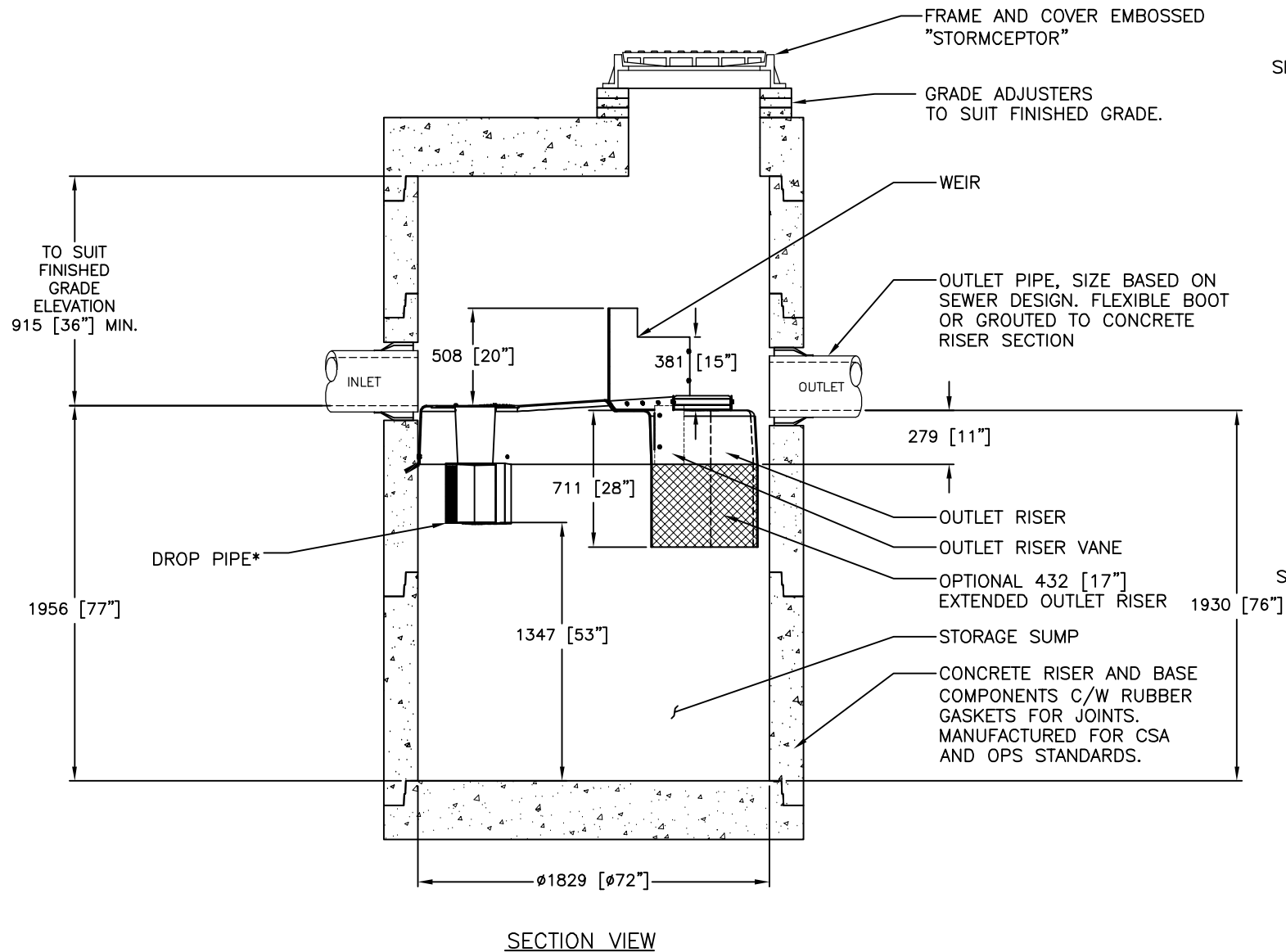
3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid

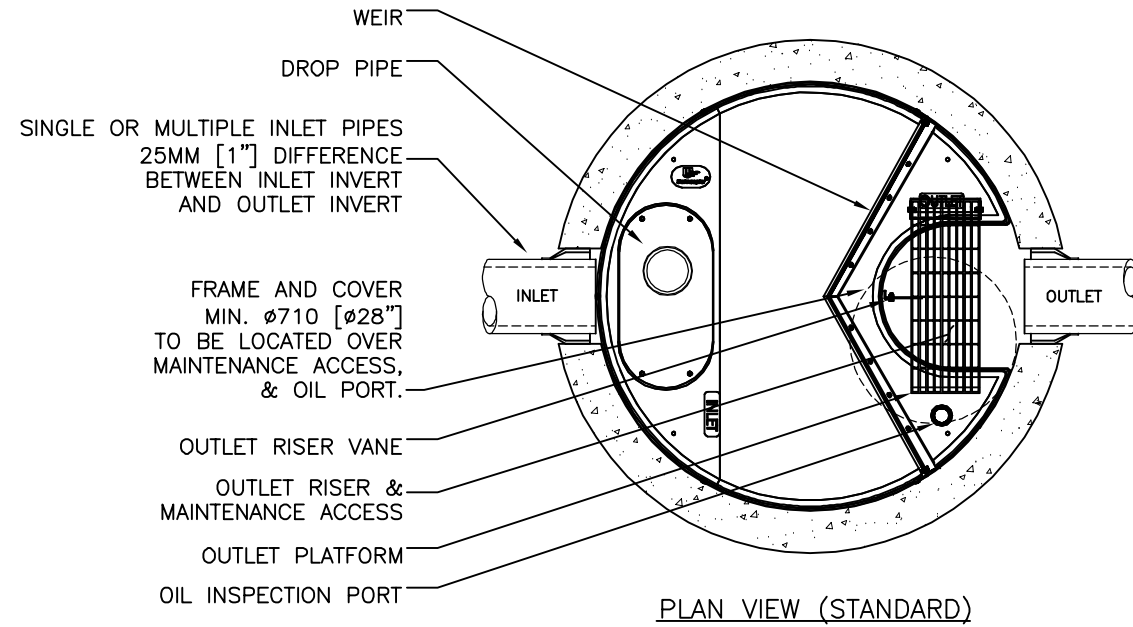
Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density 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/m² to 2600 L/min/m²) 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.

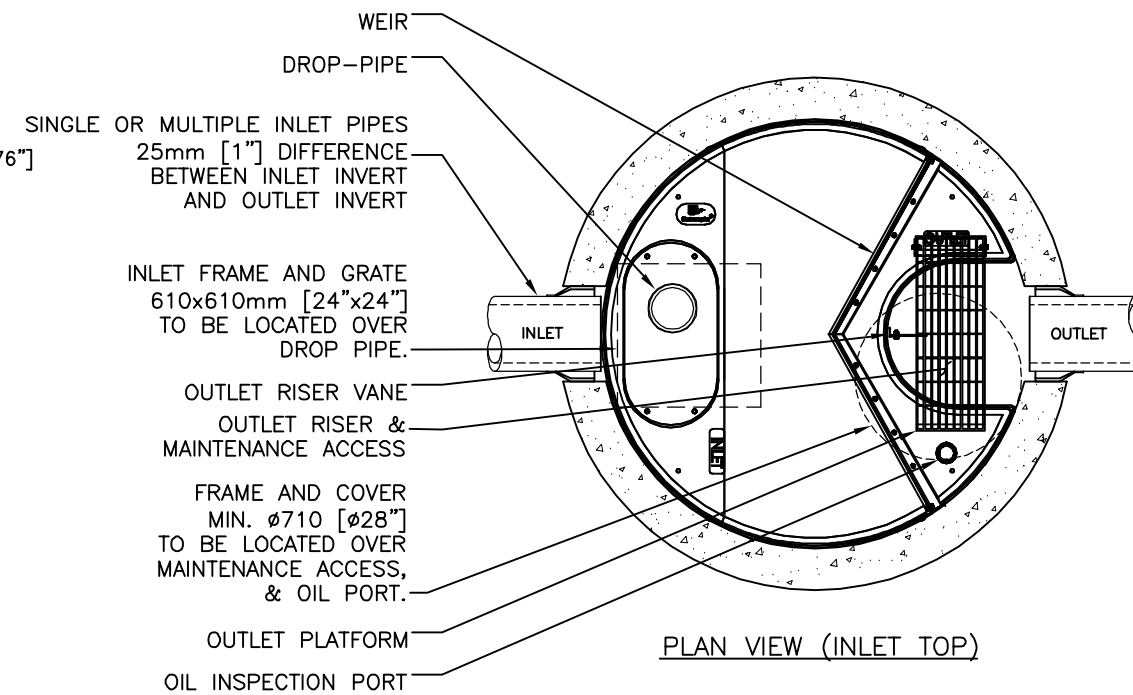
DRAWING NOT TO BE USED FOR CONSTRUCTION



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/m² (27.9 gpm/ft²) FOR STORMCEPTOR EF6 AND 535 L/min/m² (13.1 gpm/ft²) FOR STORMCEPTOR EFO6 (OIL CAPTURE CONFIGURATION).
- 1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
- 2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
- 3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
- 4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
- 5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

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.

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).

STANDARD DETAIL NOT FOR CONSTRUCTION

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

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MARK	DATE	REVISION DESCRIPTION	BY
###	###/###/###	OUTLET PLATFORM	JSK
###	###/###/###	INITIAL RELEASE	JSK
###	###/###/###		

407 FAIRVIEW DRIVE, WHITBY, ON L1N 3J8
 TEL: 800-585-4801 CA 416-960-9800 INTL +1-416-960-9800
 THE ENGINEER'S RESPONSIBILITY IS LIMITED TO THE DESIGN OF THE EXHAUSTION SYSTEM AS SHOWN ON THIS DRAWING. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER INSTALLATION AND MAINTENANCE OF THE EXHAUSTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF ALL WASTE MATERIALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT PROPERTIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT ROADS AND HIGHWAYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT ENVIRONMENTAL FEATURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT HISTORICAL MONUMENTS AND STRUCTURES. 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THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE PALEONTOLOGICAL REMAINS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE GEOLOGICAL FORMATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE SOILS AND ROCKS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE PLANTS AND ANIMALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE WATERSHEDS AND WATERWAYS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE AIR QUALITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE CLIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE SOUND AND VIBRATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE ELECTROMAGNETIC INTERFERENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE RADIO FREQUENCY INTERFERENCE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE TELECOMMUNICATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE POWER LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE GAS LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE WATER LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE SEWER LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE RAILROADS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE AIRPORTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE NAVIGATION CHANNELS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER PROTECTION OF ALL ADJACENT MARINE PORTS AND HARBOURS.

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APPENDIX L
Civil Engineering Drawings



SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

REVISION 04



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SITE 3B BUILDING E SITE PLAN APPLICATION
RUSSELL RD., OTTAWA, ON
REV.04 - ISSUED FOR SPC - MARCH 6TH, 2026
LRL PROJECT no: 220346



NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION, TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE. RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE CONTRACTOR AS DEFINED IN THE ACT.
6. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
7. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
8. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
9. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
10. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
11. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0M SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
12. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
14. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
15. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
16. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
17. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
18. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
19. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY. AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING AREA ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FOR EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BREACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL.

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR THAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STREAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
 - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
 - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
 - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEERS' RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN ON THIS DRAWING ARE TO BE PRIOR TO SITE WORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 300MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 19MM & BEVELLED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT.
16. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILED ON SITE AS DIRECTED BY THE MUNICIPAL AUTHORITY.
17. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
18. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).
19. CONCRETE RAMP C/W TACTILE WALKING SURFACE INDICATORS COMPONENT AS PER OPSD 310.039. TACTILE WALKING SURFACE INDICATORS TO BE INSTALLED AT ALL RAMPS. MATERIAL TO BE POLYMER COMPOSITE, COLOR GREY.

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED PER CITY STANDARD DRAWING S9. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL, COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDS IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.
17. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORMED OTHERWISE NOTED.
26. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
27. ALL STORM SEWER CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
28. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP.

WATERMAIN

29. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
30. ALL PVC WATERMANS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
31. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17, UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
32. ALL PVC WATERMANS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
33. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD W25.5 AND W25.6.
34. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
35. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. THRUST BLOCKING OF WATERMANS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
37. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
38. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25.2 AND W25, RESPECTIVELY.
39. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
40. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.9M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
41. ALL WATERMANS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
42. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
43. FIRE HYDRANT INSTALLATION AS PER STD DWG W19. ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W18.
44. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
45. ALL WATERMANS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
46. ALL WATERMANS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
47. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

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UNAUTHORIZED CHANGES

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03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 85% COORDINATION	K.H.	19 DEC 2025
01	ISSUED FOR 80% COORDINATION	K.H.	10 DEC 2025

No.	REVISIONS	BY	DATE
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www.lrl.ca | (613) 842-3434

CLIENT
**NATIONAL CAPITAL BUSINESS PARK LTD.
PARTNERSHIP**

DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT

**SITE 3B BUILDING E SITE PLAN APPLICATION
RUSSELL RD., OTTAWA, ON**

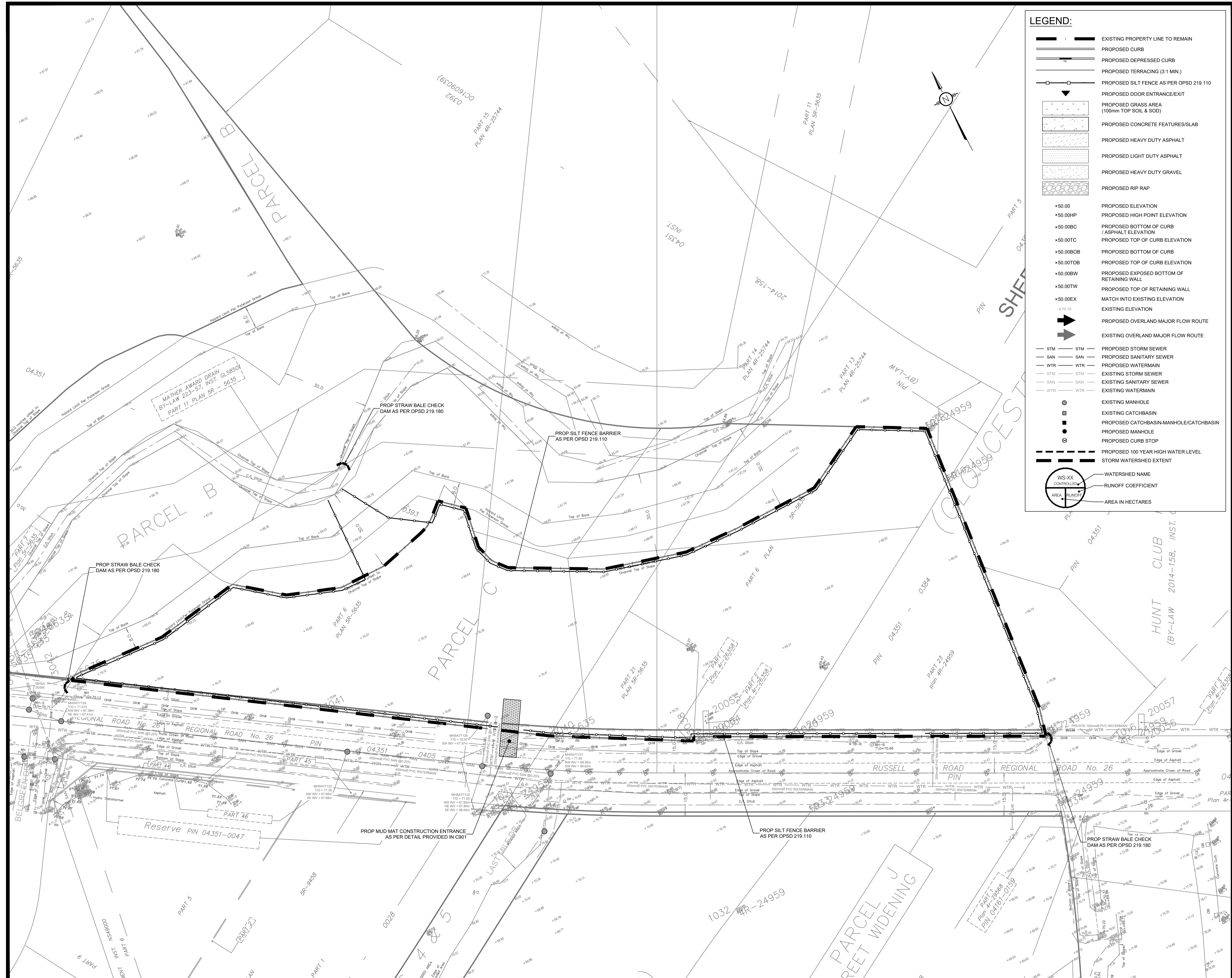
DRAWING TITLE

GENERAL NOTES

PROJECT NO.

220346

C001



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
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10m 5 10 20m
SCALE: 1:500

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No.	REVISIONS	BY	DATE
04	ISSUED FOR SPC	K.H.	06 MAR 2026
03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 60% COORDINATION	K.H.	19 DEC 2025
01	ISSUED FOR 30% COORDINATION	K.H.	10 DEC 2025



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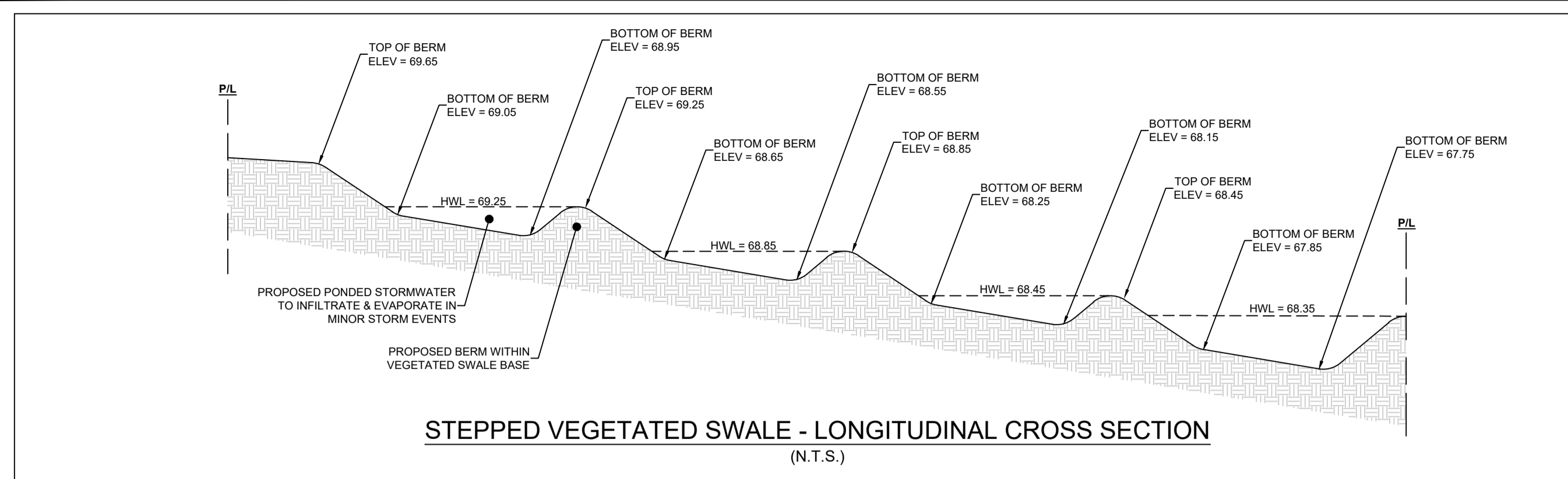
CLIENT: NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP

DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT: SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE: EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO. 220346 C101



PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm)	
		AUTOMOBILE PARKING	TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL 3 A/C (PG 58-34)	50	40
BINDER	HL 8 A/C (PG 58-34)	-	50
BASECOURSE	OPSS GRANULAR 'A'	150	150
SUBBASE	OPSS GRANULAR 'B' TYPE II	300	450

NOTE:
 IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED.

LEGEND:

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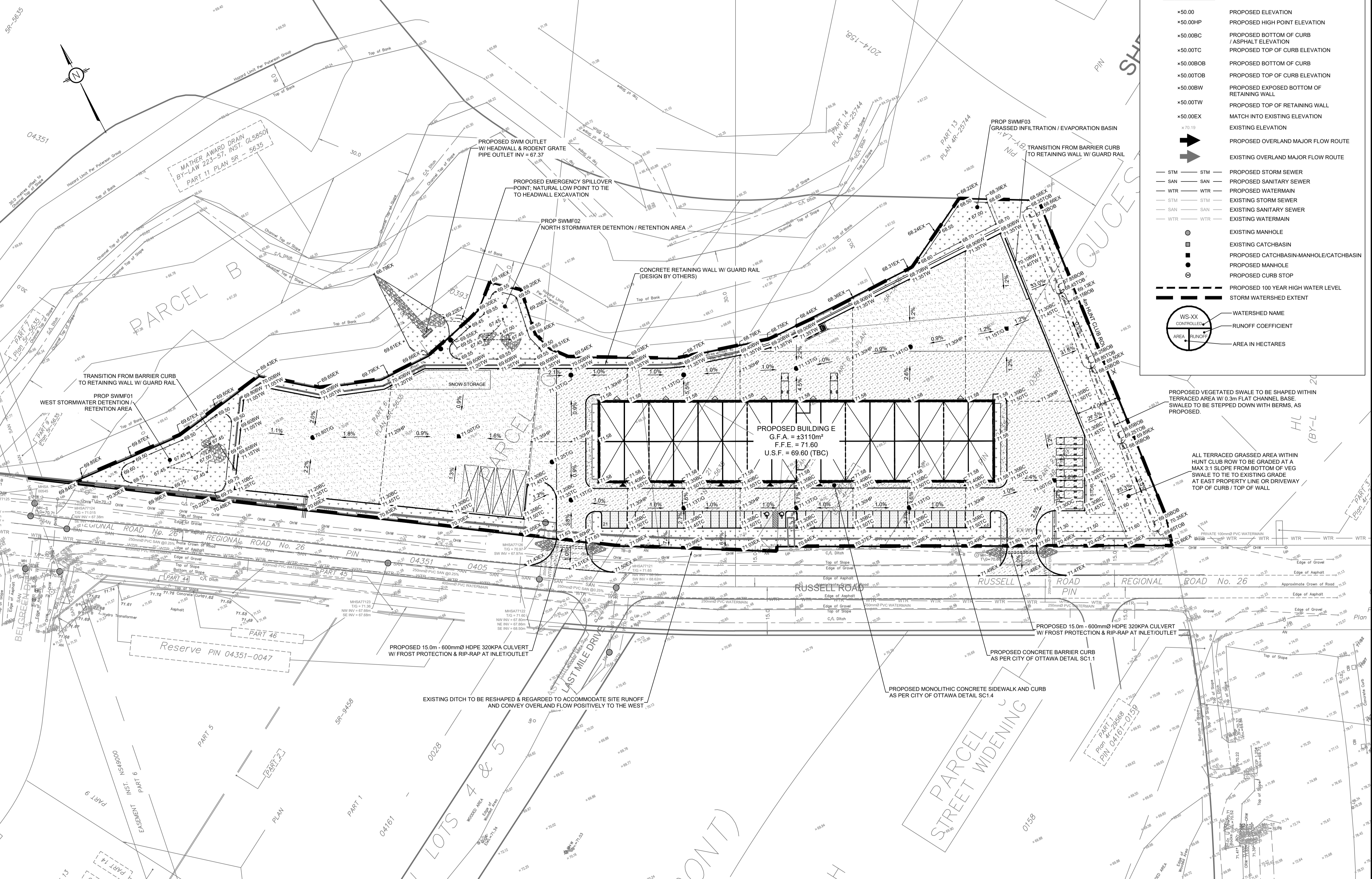
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CLIENT: NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP

DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT: SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE: GRADING AND DRAINAGE PLAN

PROJECT NO.: 220346 **C301**

Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
CUT/FILL 1.00	1.00	1.99hectares	953.47 Cu. M.	26152.68 Cu. M.	25199.21 Cu. M.	<Fill>
Totals		1.99hectares	953.47 Cu. M.	26152.68 Cu. M.	25199.21 Cu. M.	<Fill>

Elevations Table (Cut/Fill)

Number	Min Elevation	Max Elevation	Color	Area (ha)
1	-3.00	-2.00	Red	0.010
2	-2.00	-1.00	Orange	0.030
3	-1.00	0.00	Yellow	0.078
4	0.00	0.50	Light Green	0.219
5	0.50	1.00	Green	0.461
6	1.00	1.50	Light Blue	0.430
7	1.50	2.00	Blue	0.220
8	2.00	2.50	Dark Blue	0.441
9	2.50	3.00	Very Dark Blue	0.097
10	3.00	3.50	Purple	0.008

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UNAUTHORIZED CHANGES:

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10m 5 0 10 20m
SCALE: 1:600

NOT FOR CONSTRUCTION TENDER OR PERMIT

No.	REVISIONS	BY	DATE
04	ISSUED FOR SPC	K.H.	06 MAR 2026
03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 66% COORDINATION	K.H.	19 DEC 2025
01	ISSUED FOR 25% COORDINATION	K.H.	10 DEC 2025



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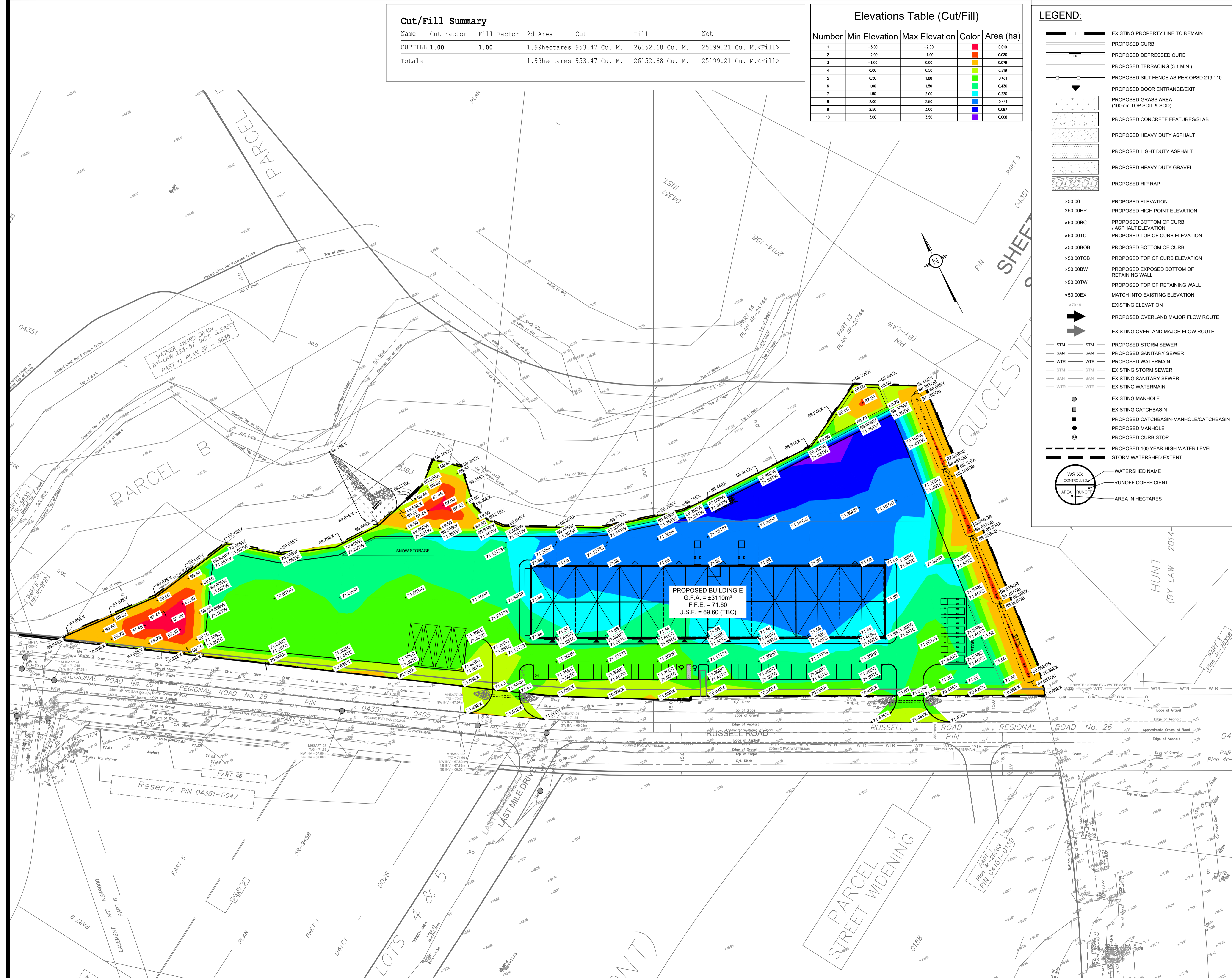
CLIENT
NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP

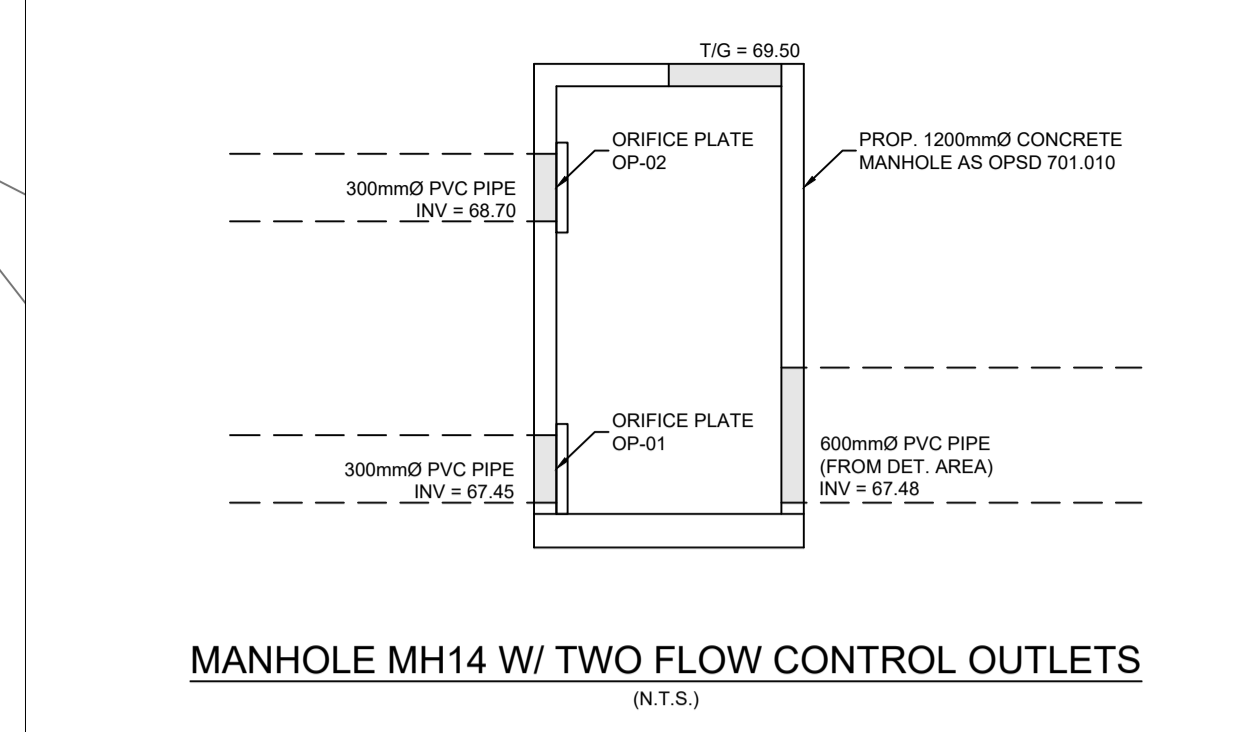
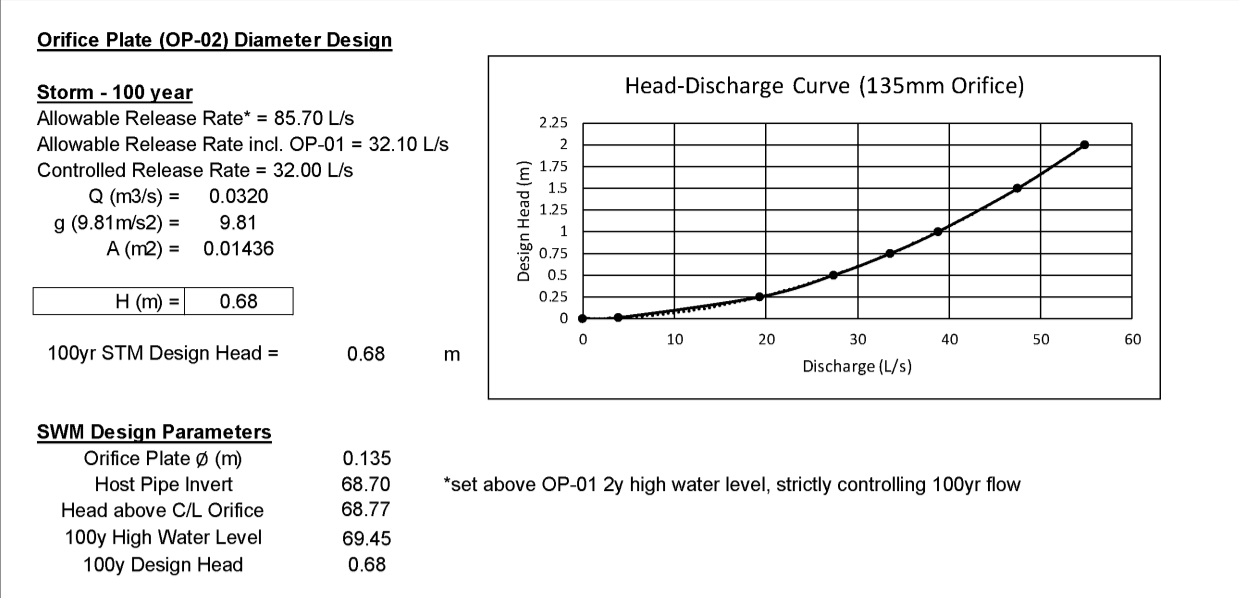
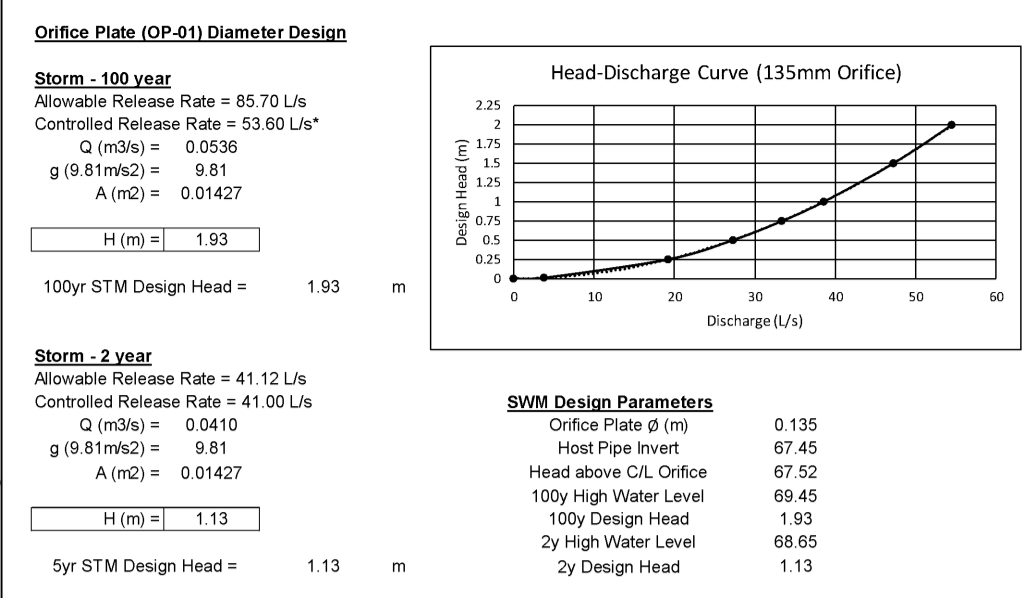
DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT
SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE
CUT / FILL PLAN

PROJECT NO.
220346 C302





LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY GRAVEL
- PROPOSED RIP RAP
- PROPOSED ELEVATION
- PROPOSED HIGH POINT ELEVATION
- PROPOSED 00HP
- PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED BOTTOM OF CURB
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- PROPOSED TOP OF RETAINING WALL
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

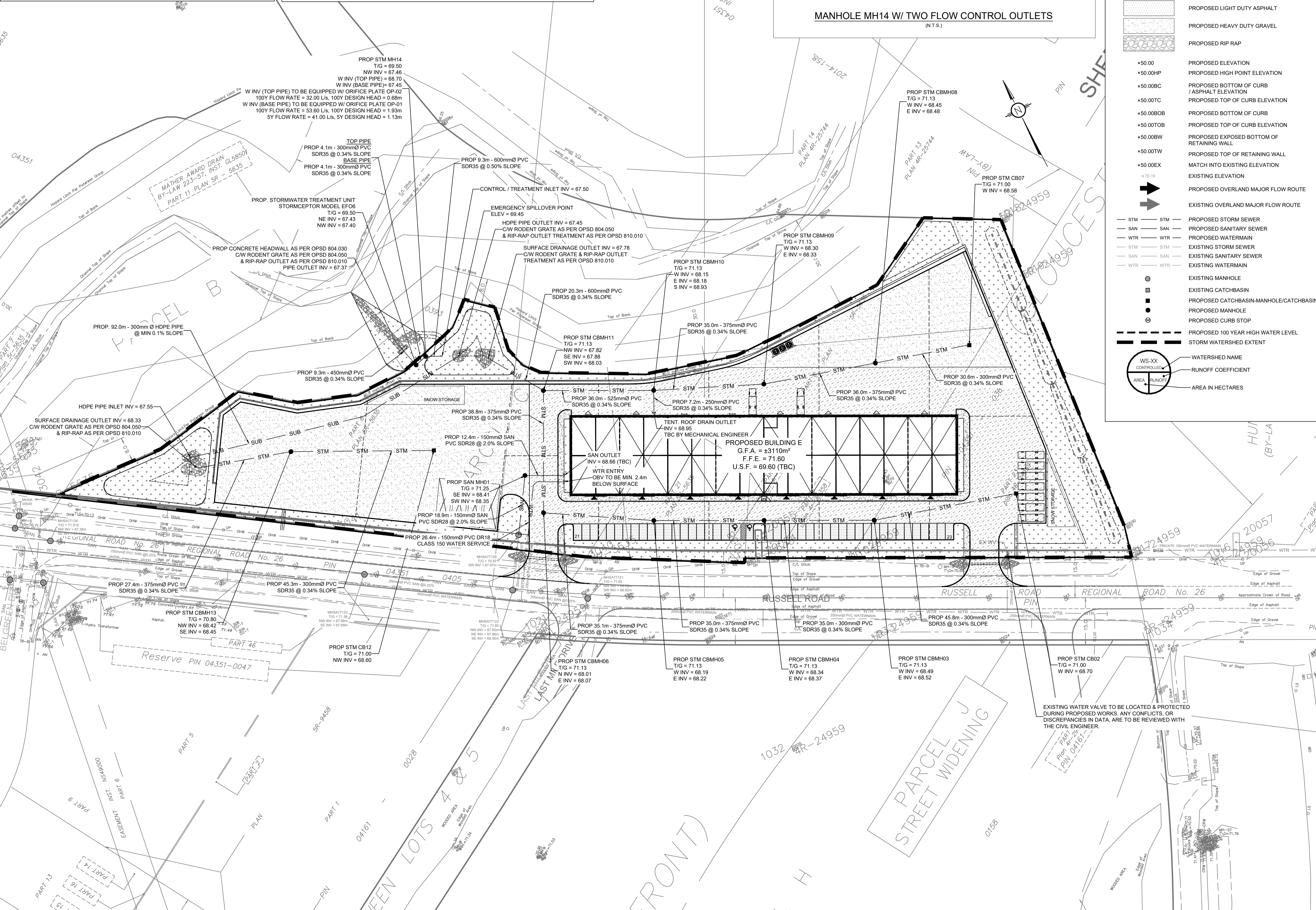
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NOT FOR CONSTRUCTION TENDER OR PERMIT



No.	REVISIONS	BY	DATE
04	ISSUED FOR SPC	K.H.	06 MAR 2026
03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 60% COORDINATION	K.H.	19 DEC 2025
01	ISSUED FOR 30% COORDINATION	K.H.	10 DEC 2025

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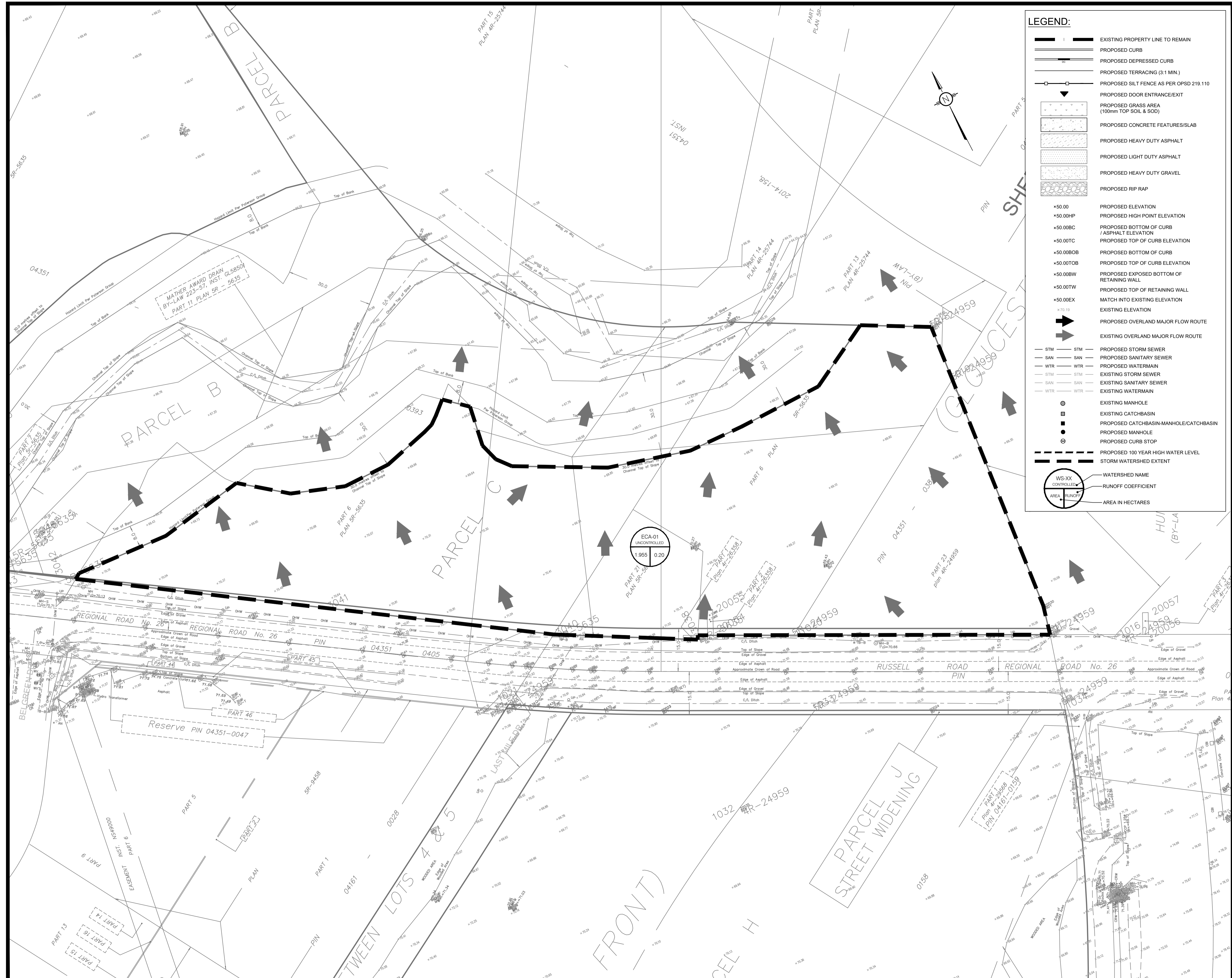
CLIENT: NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP

DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT: SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE: SERVICING PLAN

PROJECT NO.: 220346 C401



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACE (3.1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIST
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY GRAVEL
- PROPOSED RIP RAP
- PROPOSED ELEVATION
- PROPOSED HIGH POINT ELEVATION
- PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED BOTTOM OF CURB
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- PROPOSED TOP OF RETAINING WALL
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
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SCALE: 1:500

10m 5 10 20m

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03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 66% COORDINATION	K.H.	19 DEC 2025
01	ISSUED FOR 33% COORDINATION	K.H.	10 DEC 2025

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www.lrl.ca | (613) 842-3434

CLIENT: NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP

DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT: SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE: PRE-DEVELOPMENT WATERSHED PLAN

PROJECT NO. 220346 **C701**

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www.lrl.ca | (613) 842-3434

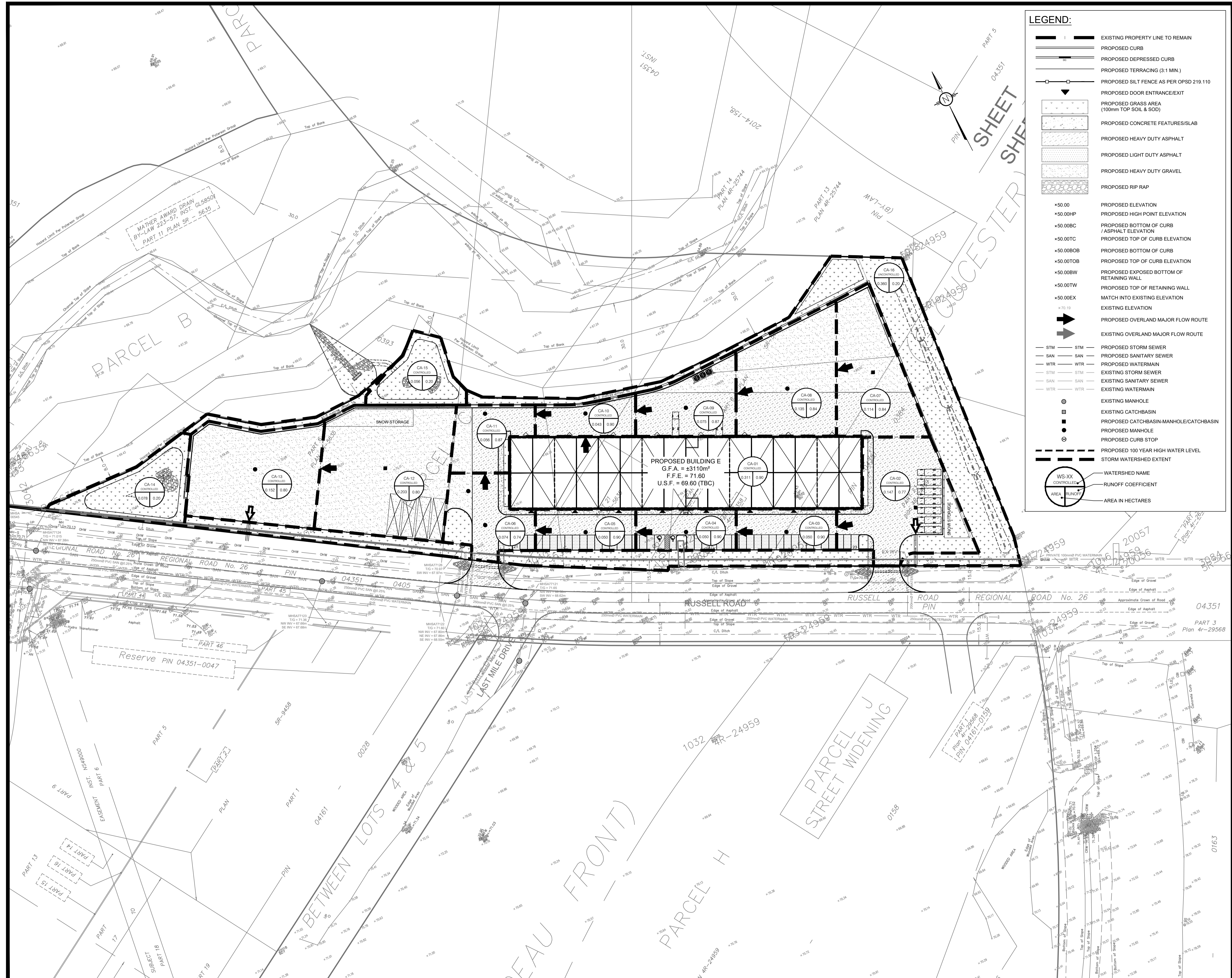
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DRAWING TITLE: PRE-DEVELOPMENT WATERSHED PLAN

PROJECT NO. 220346 **C701**



LEGEND:

- | — EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
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- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED HEAVY DUTY GRAVEL
- PROPOSED RIP RAP
- PROPOSED ELEVATION
- PROPOSED HIGH POINT ELEVATION
- PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED BOTTOM OF CURB
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- PROPOSED TOP OF RETAINING WALL
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- EXISTING OVERLAND MAJOR FLOW ROUTE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED WATERMAIN
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING MANHOLE
- EXISTING CATCHBASIN
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- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED 100 YEAR HIGH WATER LEVEL
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- WATERSHED NAME
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10m 5 10 20m
SCALE: 1:500

NOT FOR CONSTRUCTION TENDER OR PERMIT

No.	REVISIONS	BY	DATE
04	ISSUED FOR SPC	K.H.	06 MAR 2026
03	ISSUED FOR 90% COORDINATION	K.H.	27 FEB 2026
02	ISSUED FOR 80% COORDINATION	K.H.	19 DEC 2025
01	COORDINATION	K.H.	10 DEC 2025



NOT AUTHENTIC UNLESS SIGNED AND DATED

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www.lrl.ca | (613) 842-3434

CLIENT: NATIONAL CAPITAL BUSINESS PARK LTD. PARTNERSHIP
DESIGNED BY: K.H. DRAWN BY: K.H. APPROVED BY: K.P.

PROJECT: SITE 3B BUILDING E SITE PLAN APPLICATION RUSSELL RD., OTTAWA, ON

DRAWING TITLE: POST-DEVELOPMENT WATERSHED PLAN

PROJECT NO. 220346 **C702**

APPENDIX M
Proposed Site Plan



NCBP BUILDING E
4055 RUSSELL RD.
OTTAWA, ON K1G 6Y4

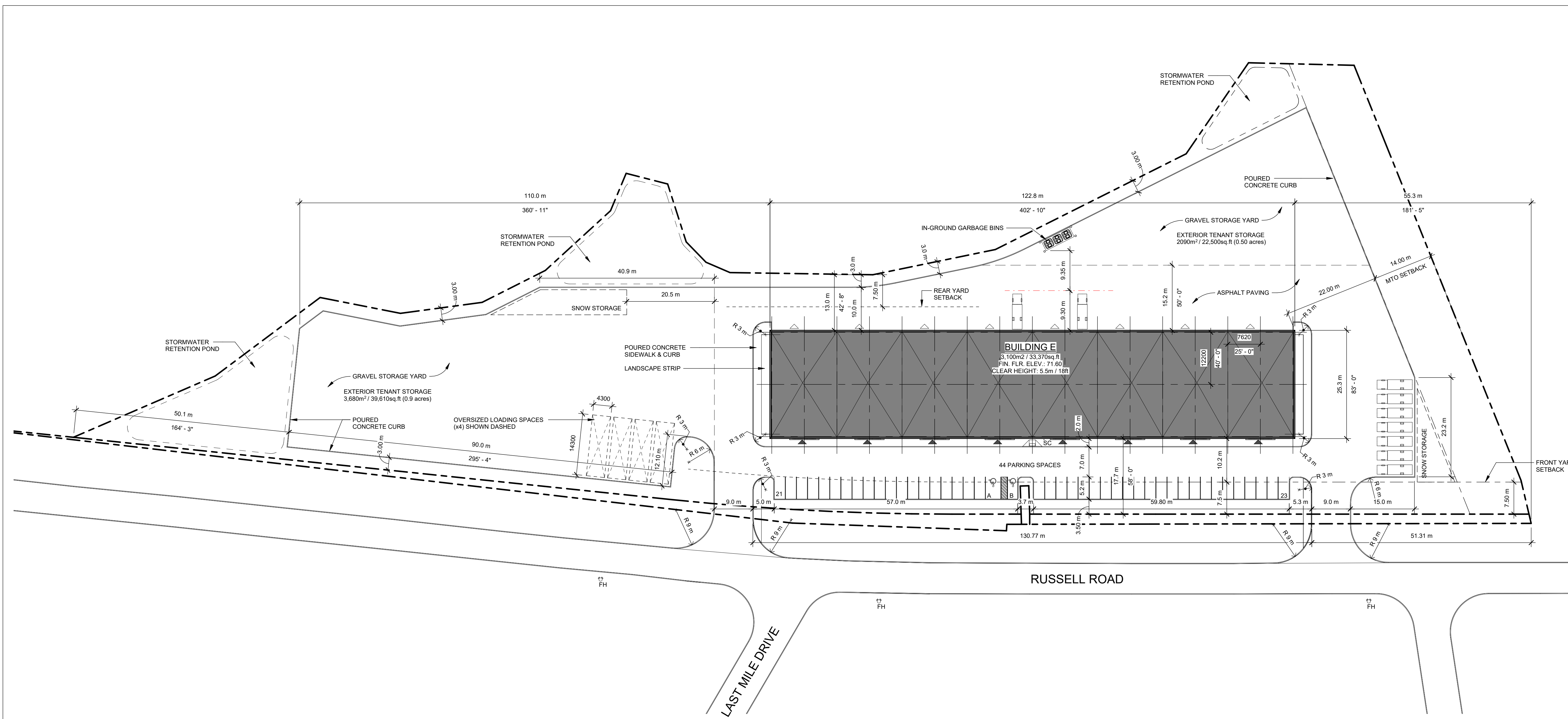
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2026-03-06

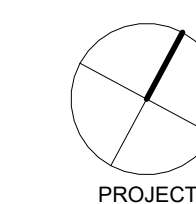
ARCHITECTURAL

SPA-01	LOCATION PLAN, SITE DATA, ZONING REVIEW & SITE PLAN
A101	GROUND LEVEL FLOOR PLAN & ROOF PLAN
A201	EXTERIOR ELEVATIONS

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS



North

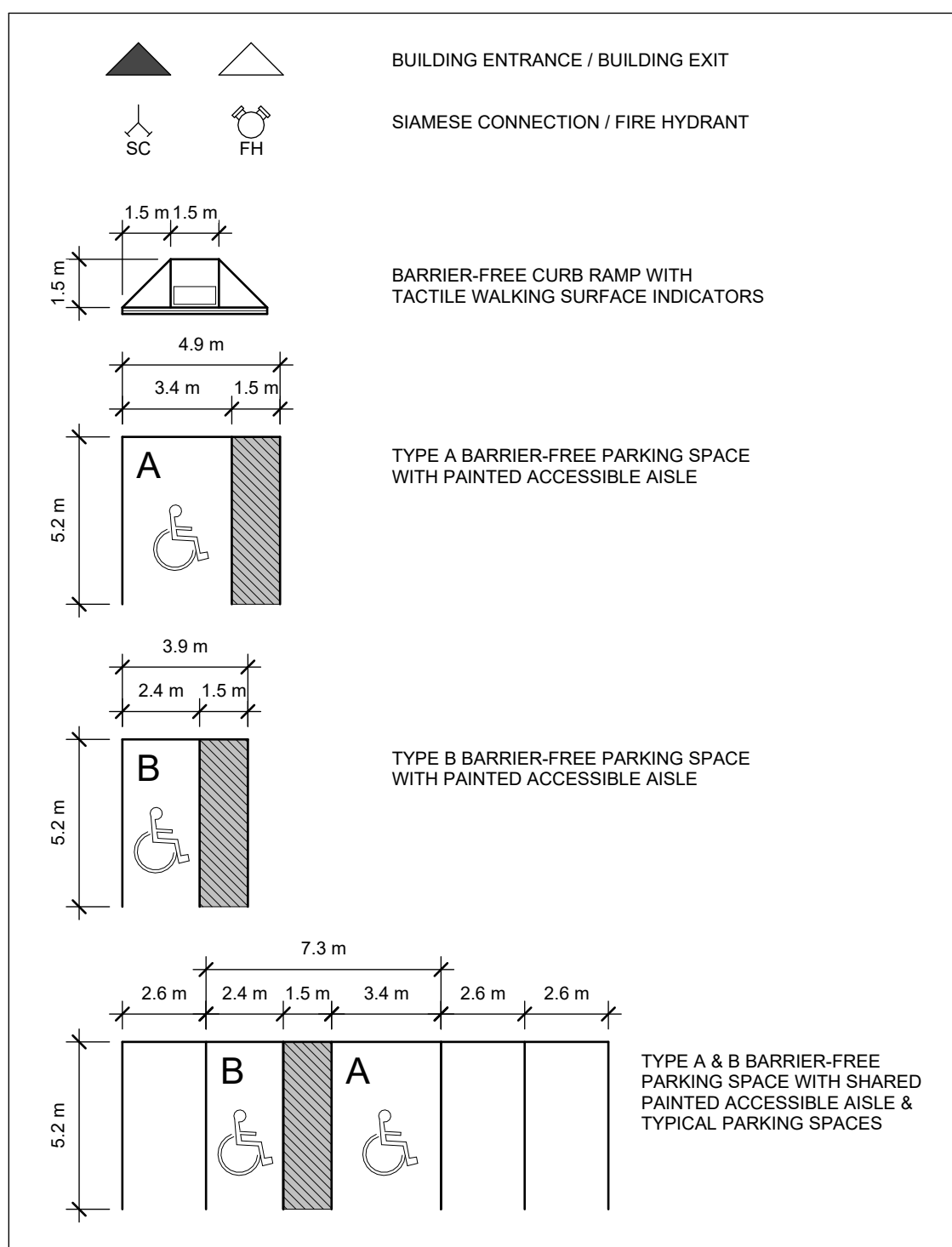


Revisions

Revision Number	Description	Date
1	ISSUED FOR REVIEW	2025-10-31
2	ISSUED FOR REVIEW	2025-11-17
3	ISSUED FOR REVIEW	2025-11-18
4	ISSUED FOR REVIEW	2025-11-19
5	ISSUED FOR COORDINATION	2025-11-27
6	ISSUED FOR COORDINATION	2025-12-11
7	ISSUED FOR COORDINATION	2026-02-09
8	ISSUED FOR COORDINATION	2026-02-20
9	ISSUED FOR SPA	2026-03-06

04 SITE PLAN

SPA-01 Scale: 1 : 500



01 SITE PLAN DRAWING LEGEND

SPA-01 Scale: N/A

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION	REQUIRED	PROVIDED
ZONING: IH HEAVY INDUSTRIAL ZONE	HEAVY INDUSTRIAL LIMITED COMMERCIAL	HEAVY INDUSTRIAL WAREHOUSE (N95)
MINIMUM LOT AREA:	0.4HA	1.99HA / 4.83 ACRES
MINIMUM LOT WIDTH:	NO MINIMUM	IRREGULAR LOT SHAPE
MINIMUM FRONT YARD:	7.5m	COMPLIANT WITH ZONING
MINIMUM CORNER SIDE YARD:	7.5m	COMPLIANT WITH ZONING
MINIMUM INTERIOR YARD SETBACKS:	15m WHEN ABUTTING R OR I ZONE 7.5m TYPICAL	COMPLIANT WITH ZONING
MINIMUM REAR YARD SETBACKS:	15m WHEN ABUTTING R OR I ZONE 7.5m TYPICAL	COMPLIANT WITH ZONING
MAXIMUM FLOOR SPACE INDEX:	2	COMPLIANT WITH ZONING (0.158)
MAXIMUM BUILDING HEIGHT:	22m	7m
MINIMUM LANDSCAPE BUFFER WIDTH:	7.5m WHEN ABUTTING R OR I ZONE 3m TYPICAL	COMPLIANT WITH ZONING

02 SITE DATA AND ZONING INFORMATION

SPA-01 Scale: N/A

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION	REQUIRED	PROVIDED
PARKING, TYPICAL - SECTION 101 AREA C WAREHOUSE (N95) OR HEAVY INDUSTRIAL USE (N42): 0.8 SPACES PER 100m ² FOR FIRST 5,000m ² 0.4 SPACES PER 100m ² AFTER FIRST 5,000m ²	BUILDING E: 3,100m ²	23 TYPICAL 1 TYPE A ACCESSIBLE 1 TYPE B ACCESSIBLE
PARKING, BARRIER FREE - SECTION 111 BYLAW 2017-301 2 WHEN TOTAL PARKING IS >25 BUT NOT >50	BUILDING E: 3,100m ²	42 TYPICAL 1 TYPE A ACCESSIBLE 1 TYPE B ACCESSIBLE
BICYCLE PARKING - SECTION 111 WAREHOUSE: 1 SPACE PER 2000m ²	BUILDING E: 3,100m ²	2 SPACES 4 SPACES LOCATION TBD
LOADING SPACE - SECTION 113 HEAVY INDUSTRIAL USE	BUILDING E: 3,100m ²	2 SPACES 4 SPACES OVERSIZE 13.4m x 4.3m

BUILDING CLASSIFICATION:

3.2.2.79 GROUP F, DIVISION 2, UP TO 4 STOREYS, SPRINKLERED

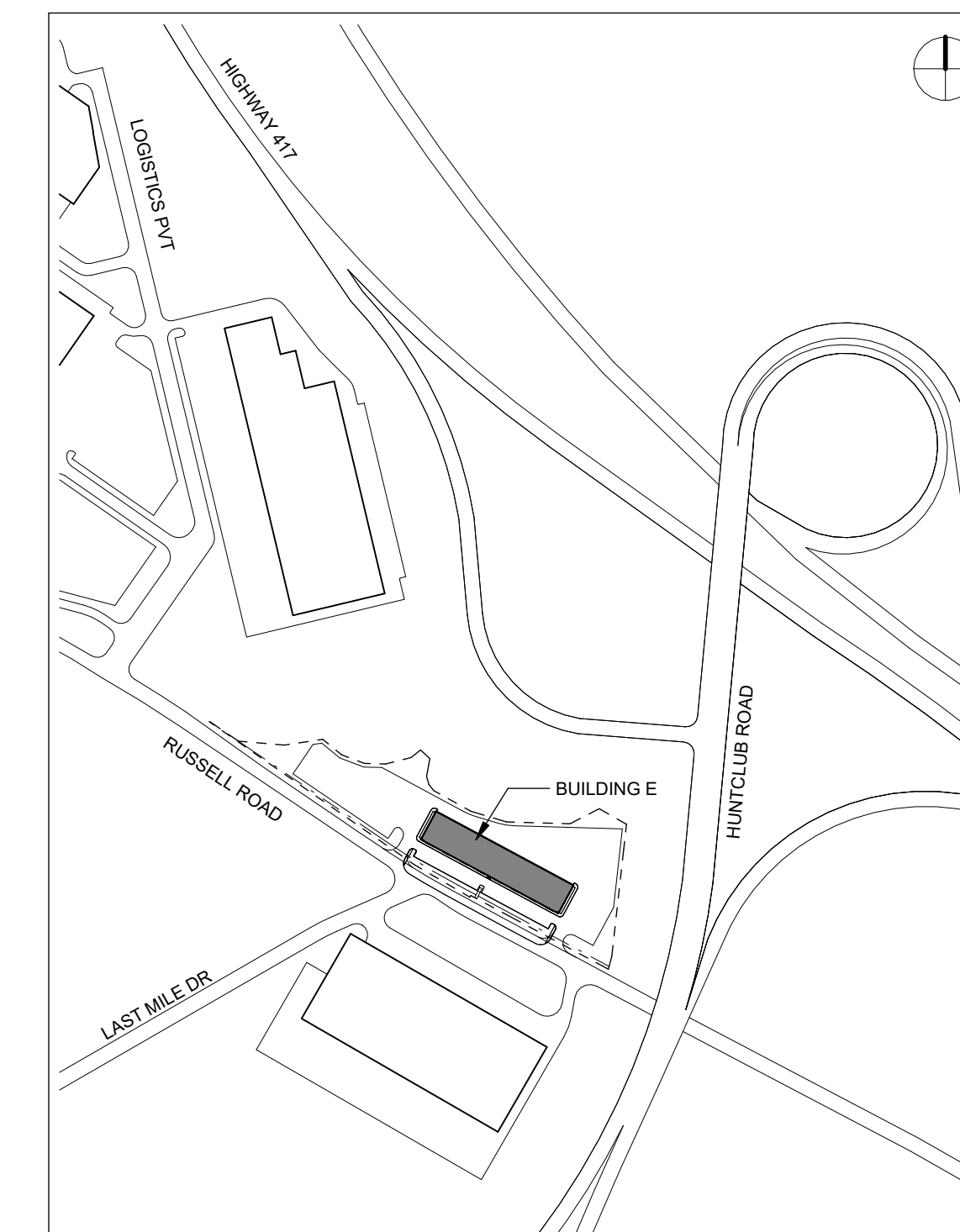
- COMBUSTIBLE CONSTRUCTION PERMITTED
- FLOOR ASSEMBLIES SHALL HAVE A MIN 45min FIRE RESISTANCE RATING
- MEZZANINES SHALL HAVE A MIN 45min FIRE RESISTANCE RATING
- LOAD BEARING WALLS AND COLUMNS SHALL HAVE A FIRE RESISTANCE RATING NOT LESS THAN SUPPORTED ASSEMBLIES

3.2.2.79 SPATIAL SEPARATION - TABLE 3.2.3.1 E

- 15m MINIMUM SPATIAL SEPARATION FOR 100% AREA OF UNPROTECTED OPENINGS (EBF > 200m²)
- 9m SPATIAL SEPARATION FOR 100% AREA OF UNPROTECTED OPENINGS WHEN FACING A STREET

3.4.2.5 LOCATION OF EXITS

- 45m MAXIMUM TRAVEL DISTANCE



03 LOCATION PLAN

SPA-01 Scale: 1 : 5000

Project

NCBP BUILDING E

4055 RUSSELL RD.
OTTAWA, ON K1G 6Y4

Drawing

LOCATION PLAN, SITE DATA, ZONING REVIEW & SITE PLAN

Scale As indicated Stamp

Drawn ERM

Checked ERM

Project No. 25-193 Drawing No. SPA-01

Date OCT 2025

APPENDIX N

Legal Survey



