

## Engineering

Land/Site  
Development

Municipal  
Infrastructure

Environmental/  
Water Resources

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Transportation

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## Planning

Land/Site  
Development

Planning Application  
Management

Municipal Planning

Urban Design

Expert Witness  
(LPAT)

Wireless Industry

## Landscape Architecture

Streetscapes &  
Public Amenities

Open Space, Parks &  
Recreation

Community &  
Residential

Commercial &  
Institutional

Environmental  
Restoration

## 5384 Boundary Road

### Conceptual Site Servicing and Stormwater Management Report

Prepared for: 11190300 Canada Inc.



**5384 BOUNDARY ROAD**

**CONCEPTUAL SITE SERVICING AND  
STORMWATER MANAGEMENT REPORT**

Prepared By:

**NOVATECH**  
Suite 200, 240 Michael Cowpland Drive  
Ottawa, Ontario  
K2M 1P6

May 2026

Novatech File: 124202  
Ref: R-2026-015

May 06, 2026

By Email  
[planningcirculations@ottawa.ca](mailto:planningcirculations@ottawa.ca)

City of Ottawa  
Planning, Development and Building Services Department  
110 Laurier Ave W.  
Ottawa, ON K1P 1J1

**Attention: Margot Linker, Planner II**

**Reference: Conceptual Site Servicing and Stormwater Management Report  
5384 Boundary Road  
City File No.: PC2024-0492  
Novatech File No.: 124202**

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Please find enclosed the Conceptual Site Servicing and Stormwater Management Report for the 5384 Boundary Road property, within the City of Ottawa.

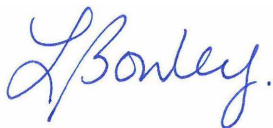
The report has been prepared to show the proposed servicing and stormwater management concept for the subject site. The report has been submitted in support of a Zoning By-law Amendment application.

A pre-consultation meeting was held for the proposed Zoning By-law Amendment on December 9, 2024. Notes from this meeting are included in Appendix A.

If you have any questions or comments, please contact us.

Sincerely,

**NOVATECH**



Lisa Bowley, P.Eng.  
Senior Project Manager  
Land Development Engineering

cc : 11190300 Canada Inc.

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Appendix A    Correspondence

Appendix B    Servicing Documentation

Appendix C    Stormwater Management Calculations  
                   Including  
                   124202-PRE, Pre-Development Stormwater Drainage Plan (revision 1)  
                   124202-POST, Post-Development Stormwater Drainage Plan (revision 1)

**LIST OF DRAWINGS**

124202-EX    Existing Conditions Plan (Survey 2026) (revision 1)

124202-CGS   Conceptual Grading, Servicing and Erosion and Sediment Control Plan  
                   (revision 1)

## 1.0 INTRODUCTION

Novatech has been retained by 11190300 Canada Inc. to prepare a Conceptual Site Servicing and Stormwater Management Report for the property located at 5384 Boundary Road, within the City of Ottawa. The report has been prepared to illustrate a proposed servicing and stormwater management concept for the subject site. This report has been prepared in support of a Zoning By-law Amendment application.

The purpose of the Zoning By-Law Amendment is to rezone the property to a Rural Commercial (RC) zone for future development. The lands are currently zoned Rural Countryside (RU). Details of the required Zoning Bly-Law Amendment application were discussed with City staff at a pre-consultation meeting held on December 9, 2024. Notes of the meeting are included in **Appendix A**.

### 1.1 Site Location

For the purpose of this report, Boundary Road is considered to run east to west. Project North is shown on the plans.

The site is legally described as Part of Lot 1, Concession 9 (Ottawa Front), City of Ottawa. The site is located approximately 200m west of Thunder Road. Refer to **Figure 1 - Key Plan** for the site location.

The total area of the site is approximately 1.93 hectares.

### 1.2 Reference Documents

This report should be read in conjunction with the following reference documents:

- Environmental Impact Statement report prepared by Gemtec, dated August 26, 2025
- Septic Impact Assessment report prepared by Gemtec, dated March 4, 2026

### 1.3 Existing Conditions

Presently, the site is developed with a single-story residential dwelling and accessory buildings, including two storage buildings, one garage, and various shipping containers used for commercial purposes. The ground surface is a mix of gravel and asphalt.

**Figure 2 – Existing Conditions** plan shows the current site condition with aerial imagery.

The topography of the site is relatively flat. The drainage is split with the south portion sloping towards Boundary Road and the north portion sloping towards the Provincially Significant Wetland (PSW). The Carlsbad Trickle Feed Water System runs along the site frontage on Boundary Road.

A survey was completed by Ontario Land Surveyor, Annis, O’Sullivan, Vollebekk Ltd. in January 2026. The current site features are detailed on the **Existing Conditions Plan (124202-EX)**.

The site is presently serviced by a private well and septic system.

## 1.4 Conceptual Development

While no development is proposed at this time, a developable area has been established based on zoning setbacks and site constraints. Refer to **Figure 3 – Developable Area** plan.

Novatech developed a Concept Plan which demonstrates a potential building footprint, parking area, septic system area, storm pond area and landscape buffer. The potential development areas shown are within the developable area. Refer to **Figure 4 – Concept Plan**.

Novatech has developed a **Conceptual Grading and Servicing Plan (124202-CGS)** based on this concept which provides proposed grading for the potential site features and services. This plan is intended to show a possible concept which would be allowed with the property zoned as Rural Commercial. A Site Plan Control application would be required for future development.

To proceed with future development, all houses, structures, shipping containers, trailers, quonset huts, shelters and vans would need to be removed from the property. The future developed site would be serviced by the Carlsbad Trickle Feed System and private septic system.

## 2.0 SITE CONSTRAINTS

An Environmental Impact Statement (EIS) report was prepared by Gemtec and identifies a number of constraints that may impact development. The constraints are described briefly below.

- Provincially Significant Wetlands (PSW) – A portion of the South Bear Brook Wetland is located within the northern portion of the property. A 15m setback is recommended from the wetland onto the property. The setback is shown on the Existing Conditions Plan.
- Significant Woodlands – Significant woodlands are present along the periphery of the subject property. The EIS suggests that the 15m setback for the PSW will be sufficient to protect significant woodlands onsite.
- Significant Wildlife Habitat (SWH) – The EIS indicates several species listed as significant wildlife habitat within the site area. The EIS suggests that the 15m setback for the PSW is sufficient to protect the SWH identified on-site. Exclusion fencing should be installed around the entirety of any construction areas prior to construction commencing.

The proposed zoning setbacks for a Rural Commercial zone are shown on the Concept Plan.

## 3.0 SITE SERVICING

The proposed concept shows one access to Boundary Road. Additional site entrances may be considered if they meet the City of Ottawa Access Design Requirements.

### 3.1 Water Servicing

The area is known to have poor water quality therefore, the Carlsbad Springs Trickle Feed Water System is available for potable water. The available capacity of the trickle feed system is capped at 2,700 L/day per lot. A conceptual location for a new water connection is shown on the Conceptual Grading and Servicing Plan. It is assumed that water storage for fire protection may be required depending on the proposed use and may dictate the need for on-site water storage.

There is an existing dug well on site that is recommended to be decommissioned when the site is developed in the future.

Refer to **Appendix B** for information on the Carlsbad Springs Trickle Feed Water System.

### 3.2 Sanitary Servicing

The site is currently serviced by private septic system. Depending on the development proposal, re-use of the existing system may be impractical. Conceptual Grading and Servicing Plan shows a conceptual location for a new septic bed. A Septic Impact Statement (SIS) report was prepared by Gemtec and confirms the site can accommodate loading requirements of a commercial development. The SIS report provides recommendations for a new system. The existing septic permit (Permit #82-286, issued on September 21, 1982 by the MECP) was issued for the is included in the SIS report.

Any future private sewage system(s) would be designed based on Ontario Building Code or Ministry of the Environment (MECP) standards, depending on the theoretical design flow of the proposed building. Design flows in excess of 10,000L/day require approval from the MECP.

## 4.0 CONCEPTUAL STORMWATER MANAGEMENT

A portion of the site that drains towards the Provincially Significant Wetland (PSW) would remain in its original state. The remainder of the site would be directed to a stormwater management facility (conceptual dry pond) and would ultimately outlet to the existing roadside ditch along Boundary Road. Therefore, only the developed portion of the lot is considered in the stormwater management design.

A review of the Municipal Drains in the areas including discussions with the City of Ottawa Municipal Drainage Program Officer have confirmed that this property is not part of a Municipal drain subcatchment and therefore, the roadside ditch is the receiver.

### 4.1 Stormwater Management Criteria

Based on City of Ottawa feedback from Appendix A, stormwater management design criteria are as follows:

- Quantity control of stormwater is required to 2-year pre-development levels for storms up to and including the 100-year event.
- Quality control of stormwater is required to a 'enhanced' level corresponding to 80% removal of Total Suspended Solids (TSS) is required.

## 4.2 Stormwater Quantity Control

### Pre-Development

Based on aerial imagery, and for the purposes of this report we are assuming that pre-development conditions are the site conditions in 1991. At that time the lot contained a house, garage and shed.

Under pre-development conditions, stormwater runoff for the 1.93 hectare drainage area is split across the property with 0.83 hectares (PRE-A) sheet draining towards the existing roadside ditch along Boundary Road and 1.10 hectares (PRE-B) sheet draining towards the PSW located at the back of the property.

Refer to **Pre-Development Drainage Area Plan (124202-PRE)** for details.

### Post-Development

Based on the concept, in the post-development condition, the developable portion of the site (POST-A) would ultimately outlet to the existing roadside ditch along Boundary Road.

A portion of the site that drains towards the PSW (POST-B), including the 15.0-meter setback, would remain in its original state.

The conceptual grading assumes a small portion (POST-DR) along the property line would sheet drain directly to the existing roadside ditch along Boundary Road.

Refer to **Post-Development Drainage Area Plan (124202-POST)** for details.

### Peak Flows

Peak flows were estimated using the Modified Rational Method. Supporting calculations are provided in **Appendix C**.

#### **Pre-Development vs. Post-Development Peak Flows**

Outlet Location	Drainage Area (ha)		Peak Flow (L/s)					
			2-year		5-year		100-year	
	PRE	POST	PRE	POST	PRE	POST	PRE	POST
Area A	0.83	1.23	<b>24</b>	134	32	182	68	<b>360</b>
Area B	1.10	0.56	<b>41</b>	25	56	34	118	<b>72</b>

## **Storage Requirements**

In the post-development condition, runoff in Area A would increase due to expanded hard surface areas toward the roadside ditch. Therefore, stormwater detention would be required for Area A.

The stormwater management quantity control for Area A can be provided by a stormwater management facility (dry pond). Area B would be reduced, remain uncontrolled and drain to the PSW.

The Area A preliminary storage requirements were calculated using the Modified Rational Method, to control 100-year post-development flows to the 2-year pre-development rate. Storage volumes are provided in **Appendix C** and outlined below.

<b>Outlet Location</b>	<b>Storage Required</b>	<b>Storage Provided</b>
Area A	552 m <sup>3</sup>	600 m <sup>3</sup>

There is sufficient area within the lot to provide adequate storage for stormwater quantity control. In storm events greater than the 100-year storm, stormwater will continue to drain to the existing roadside ditch and South Bear Brook Wetland, similar to existing conditions.

A dry pond is one option for quantity control. A future stormwater management design could include surface ponding, storage on building roofs and in surface detention areas such as grassed swales.

### **4.3 Stormwater Quality Control**

An Enhanced level of water quality control (corresponding to a long-term average TSS removal rate of 80%) is required for this site. Quality control can be provided by grassed swales as demonstrated on the Conceptual Grading and Servicing Plan. Other options for quality control, such as the installation of an OGS unit, would be reviewed at the Site Plan Control stage.

## **Best Management Practices**

The proposed development can use the following stormwater best management practices (BMPs) to mitigate the reduction in groundwater infiltration/recharge resulting from development:

- Surface drainage would sheet drain through the grassed areas and swales.
- Roof leaders would be discharged to the grassed rear yards.
- Construction of swales at minimal slopes where possible.

By implementing stormwater management BMPs as part of the storm drainage design, the impacts of development on the hydrologic cycle can be reduced. The use and implementation of BMPs will be reviewed again during the detailed design process.

## 5.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures would be implemented prior to, during and after construction in accordance with the Best Management Practices for Erosion and Sediment Control. This includes the following temporary measures:

- Silt fences around the area under construction placed as per OPSS 577 and OPSD 219.110;
- Straw bale check dams per OPSD 219.180;
- Storing and completing maintenance of all machinery away from the watercourses, wetlands, swales and ditches.

The proposed temporary erosion and sediment control measures would be implemented prior to construction and remain in place throughout each phase of construction and would be inspected regularly. Detailed design drawings would indicate that no control measure shall be permanently removed without prior authorization from the Engineer.

## 6.0 CONCLUSIONS

It is proposed to rezone the property to a Rural Commercial (RC) zone for future development. A servicing and stormwater management concept has been prepared for the subject site. The stormwater management design would be further refined at the Site Plan Control stage and would follow these recommendations.

### Site Servicing

- The existing residential dwelling would be removed and the existing well would be decommissioned.
- The site would be serviced by the Carlsbad Trickle Feed Water System and private septic system.
- The site can accommodate septic system loading requirements of a commercial development (based on findings in the Septic Impact Statement, Gemtec).

### Quantity Control

- Quantity control measures would be implemented to reduce post-development peak flows to 2-year pre-development flow rate.
- Quantity control storage could be provided by a stormwater management facility (dry pond).


### Quality Control

- Quality control measures would be implemented to achieve an Enhanced level of water quality control (corresponding to a long-term average TSS removal rate of 80%)
- Quality control of stormwater can be provided through grassed swales or the installation of an OGS unit.

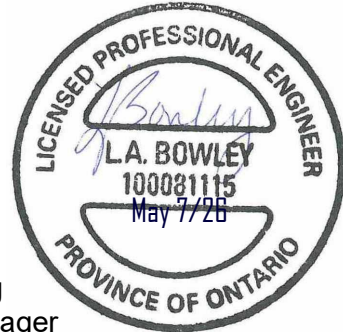
Erosion and Sediment Control

- Erosion and sediment control would be implemented prior to, during and after construction.

**NOVATECH**

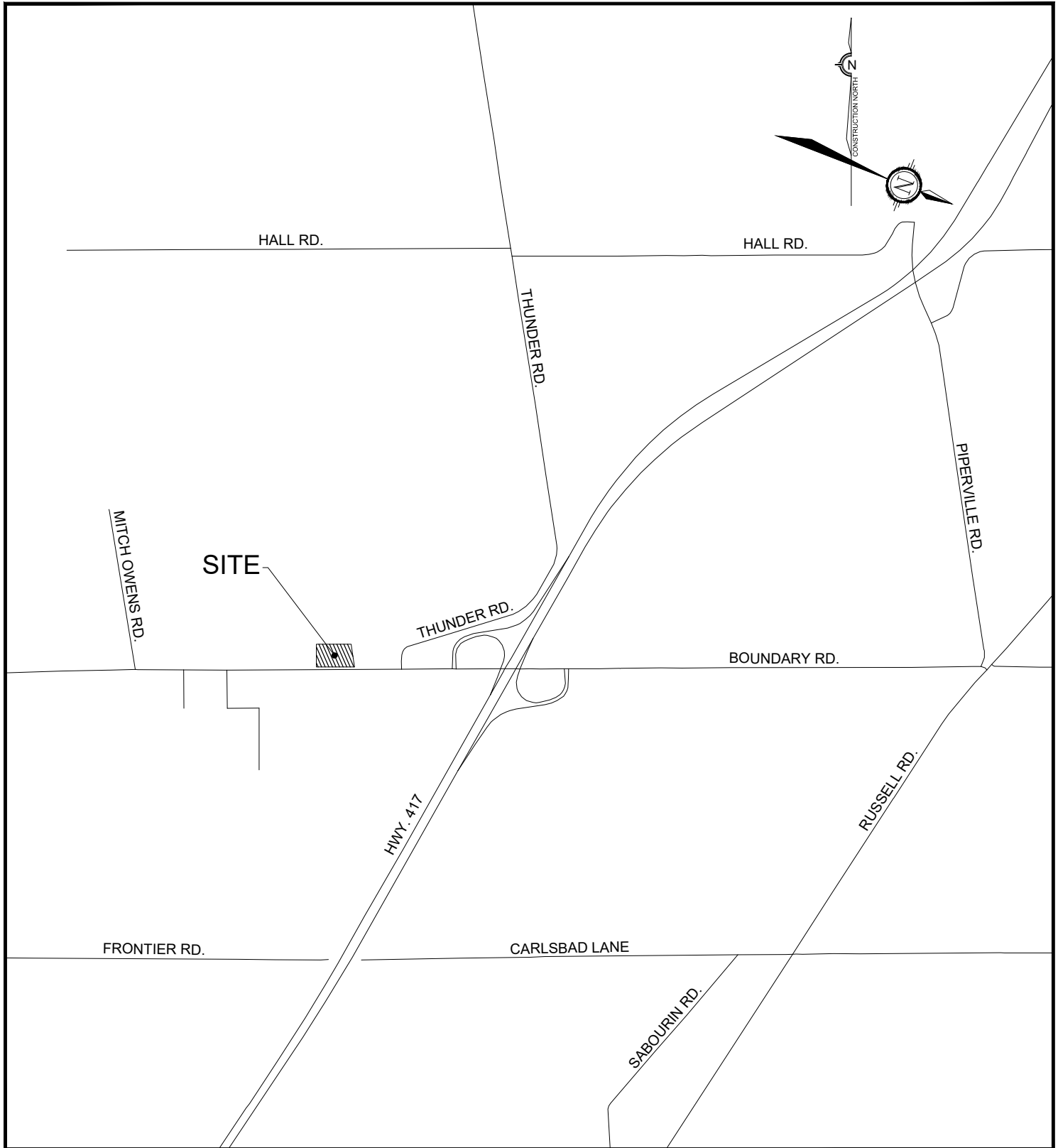


Lindsey Corry, C.E.T.  
Project Coordinator  
Land Development Engineering



Lisa Bowley, P.Eng  
Senior Project Manager  
Land Development Engineering

M:\2024\124202\CAD\Civil\Figures\124202-KP.dwg, 8x11 Keyplan, May 01, 2026 - 3:10pm, cdonaldson



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CITY OF OTTAWA  
 5384 BOUNDARY ROAD

KEY PLAN

DATE MAY 2026	JOB 124202	FIGURE FIGURE 1
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**LEGEND**

- PROPERTY LINE
- PROVINCIALLY SIGNIFICANT WETLAND (GEMTEC, 2025)
- 15m SETBACK WETLAND BUFFER (GEMTEC, 2025)

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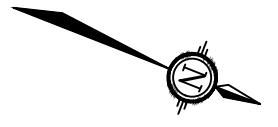
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5384 BOUNDARY ROAD

EXISTING CONDITIONS

SCALE 1 : 750

DATE MAY 2026 JOB 124202 FIGURE FIGURE 2



WETLAND BOUNDARY  
(GEMTEC, 2025)

15.0m  
SETBACK

AREA  
1.16ha

3.0m

3.0m

10.0m

BOUNDARY ROAD








MHO

MHO

MHO

MHO

### LEGEND

-  PROPERTY LINE
-  PROVINCIALLY SIGNIFICANT WETLAND (GEMTEC, 2025)
-  15m SETBACK WETLAND BUFFER (GEMTEC, 2025)
-  DEVELOPABLE AREA
-  DEVELOPABLE LIMIT
-  EXISTING CENTRE LINE DITCH
-  EXISTING BUSH LINE


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## 5384 BOUNDARY ROAD

### DEVELOPABLE AREA

SCALE 1 : 750 

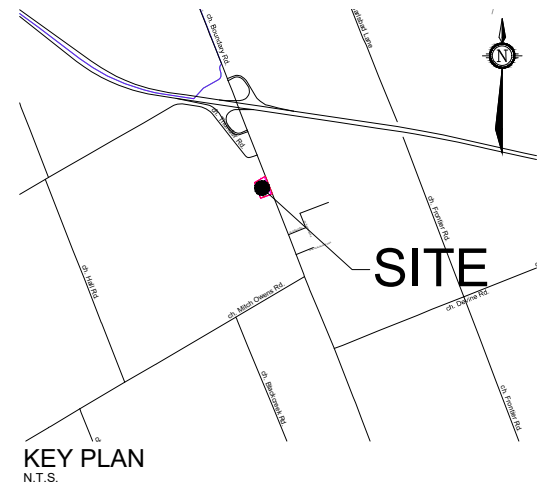
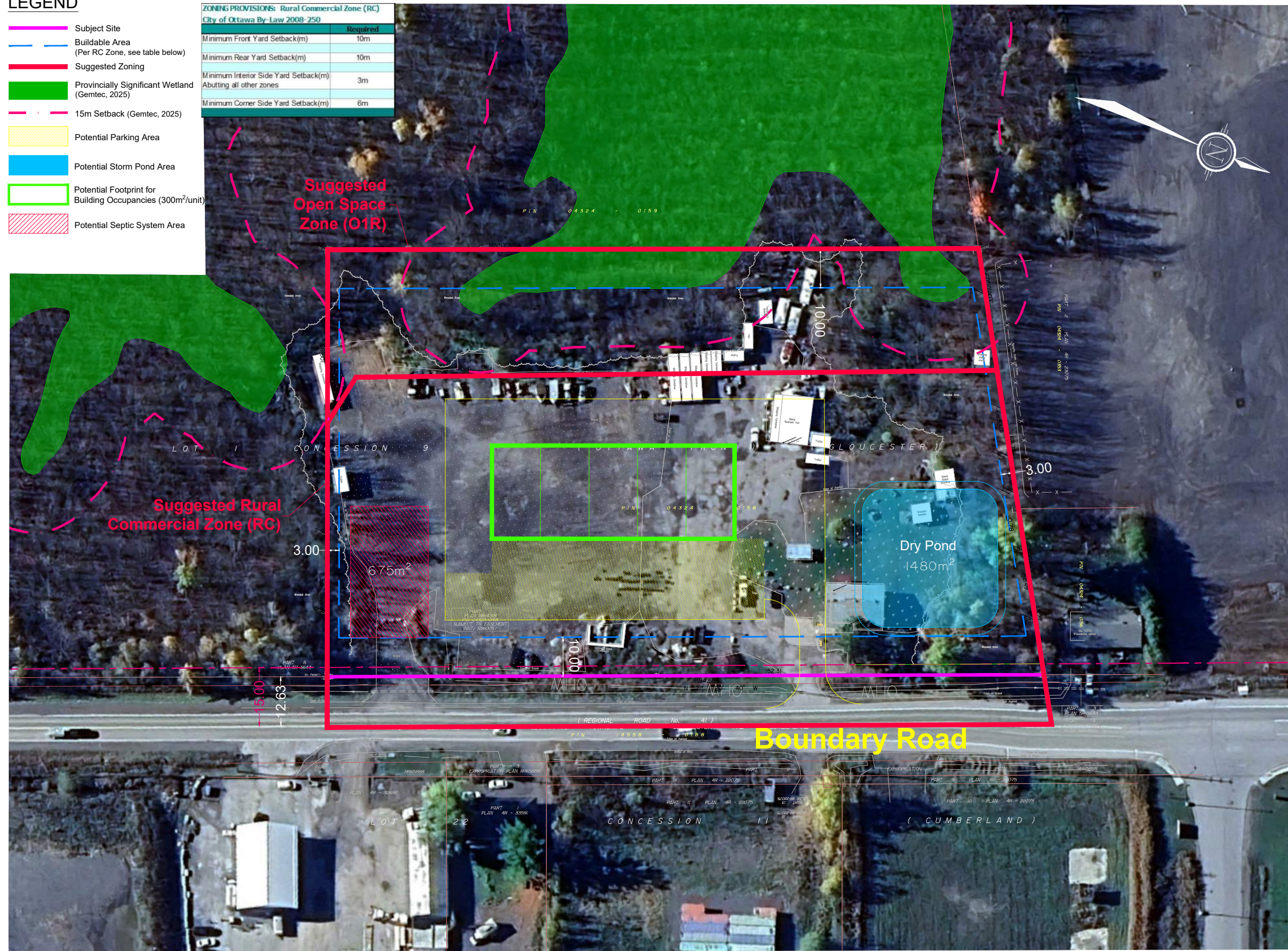
DATE MAY 2026 JOB 124202 FIGURE 3

**LEGEND**

- Subject Site
- Buildable Area (Per RC Zone, see table below)
- Suggested Zoning
- █ Provincially Significant Wetland (Gemtec, 2025)
- - - 15m Setback (Gemtec, 2025)
- Potential Parking Area
- Potential Storm Pond Area
- Potential Footprint for Building Occupancies (300m<sup>2</sup>/unit)
- Potential Septic System Area

**ZONING PROVISIONS: Rural Commercial Zone (RC)**  
City of Ottawa By-Law 2008-250

Minimum Front Yard Setback(m)	Required
Minimum Front Yard Setback(m)	10m
Minimum Rear Yard Setback(m)	10m
Minimum Interior Side Yard Setback(m) Abutting all other zones	3m
Minimum Corner Side Yard Setback(m)	6m

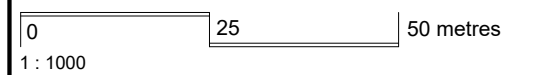


# CONCEPT PLAN

5384 BOUNDARY ROAD

PART OF LOT 1  
CONCESSION 9 (OTTAWA FRONT)  
Geographic Township of Gloucester  
CITY OF OTTAWA

FIGURE 4



No.	REVISION	DATE	BY
3.	SUGGESTED ZONING ADDED	MAY 08/26	NT
2.	POTENTIAL DEVELOPMENT AREAS ADDED	APR 28/26	LAB
1.	PREPARED FOR ZONING AMENDMENT	FEB 09/26	RP

<small>Engineers, Planners &amp; Landscape Architects Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario, Canada K2M 1P6 Telephone (613) 254-9643 Facsimile (613) 254-5867 Website www.novatech-eng.com</small>	ISSUED <b>MAY, 2026</b>
	PROJECT No. <b>124202</b>
	DRAWING No. <b>124202-CP-FIG</b>

**SOURCE REFERENCE:**  
Legal & Topographic Information: *Topographical Plan of Survey*  
Annis, O'Sullivan, Vollebakk Ltd. / Jan 16, 2026 / MTM Zone 9, NAD83 ORIG

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**APPENDIX A**  
**Correspondence**

December 18, 2024

Ryan Poulton  
Novatech  
Via email: r.poulton@novatech-eng.com

**Subject: Pre-Consultation: Meeting Feedback  
Proposed Zoning By-law Amendment Application – 5384 Boundary  
Road**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on December 9, 2024.

### **Pre-Consultation Preliminary Assessment**

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input checked="" type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
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One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

### **Next Steps**

A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. A second pre-consultation can be submitted if the development proposal changes significantly in scope or design or if the owner decides to apply for an urban boundary expansion application. When prepared, please proceed to make the [formal application](#) in accordance with direction provided online.

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

### **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](http://Ottawa.ca). These ToR and Guidelines outline

the specific requirements that must be met for each plan or study to be deemed adequate.

### **Consultation with Technical Agencies**

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

### **Planning**

Comments:

1. The site is zoned RU (Rural Countryside Zone)
2. Policy framework:
  - a. Rural Transect
  - b. Rural Countryside Designation (surrounded by Rural Industrial and Logistics)
  - c. Schedule C-11 Natural Heritage
  - d. Archaeological potential
3. 2.2km from Carlsbad Springs Village.
4. The South Bear Brook Wetland on and adjacent to the site was qualified as provincially significant. The City will begin the process to initiate an Official Plan Amendment to designate the South Bear Brook Wetland as Significant Wetlands and a corresponding Zoning By-law Amendment. If the studies and rationale determine that development is appropriate on this site, the file lead can coordinate with the policy team regarding the rezoning for this area to consider the subject site separately. [South Bear Brook Wetland Evaluation | City of Ottawa](#)
5. S.9.2.2(2)(b) notes that small scale light industrial and commercial uses where certain criteria are met. A Zoning By-law Amendment would include an exception to limit the industrial or commercial use to 300sqm per occupancy and limit uses to not impact the wetland. Please note that a Planning Rationale needs to speak to how the scale of development is suitable for a rural context.
6. A concept plan should show the developable area, considering setbacks of the proposed zone and the constraints of the site. Please refer to the TOR for a concept plan, and let the file lead know if you have any questions regarding any of the requirements.

7. Studies and plans are applicable for one year. If an application comes in after that, then we recommend that a new pre-consultation is completed with an updated studies and plans list.

### **Urban Design**

Comments:

8. Please ensure that the front yard setback is sufficient to ensure that tree planting can be provided along the road frontage. This should be rationalized in the Planning Rationale.

### **Engineering**

Comments:

#### **General:**

9. For a complete description of the Terms of Reference and application submission requirements, please reference the City's web site: Planning application submission information and materials | City of Ottawa.
10. All drawings and reports submitted for engineering review must be stamped and dated by a Professional Civil Engineer, Civil Engineering Technologist registered in the Province of Ontario, or Ontario Land Surveyor.
11. Nearby well logs indicate the presence of blue clay, also known as sensitive marine clay. While development is possible on sensitive marine clays, it may require special consideration and design.
12. This section of Boundary Road is known to have water quality problems.

#### **Environmental Site Assessment (Phase 1 & 2 ESA)**

13. A Phase One ESA is required for the rezoning of the site.
14. Environmental Site Assessments (ESA's) are required to ensure that development only takes place on sites where the environmental conditions are suitable for the proposed use in accordance with provincial legislation and regulations.
15. The Phase 1 ESA report will determine whether a Phase 2 ESA is required.

#### **Conceptual Servicing and Stormwater Management Study**

#### **Servicing:**

16. The City's 'Trickle Feed Main' is available along this stretch of Boundary Road. The Trickle Feed system is intended to supply the potable water demands of building itself; there is no allowance for firefighting or garden watering.

17. There are no City of Ottawa municipal stormwater or sanitary sewers in this area of the city. The site must be serviced with a private septic system.

Stormwater:

17. The stormwater requirement for this site will be 100-yr post to 2-yr predevelopment, and 80% TSS removal.

19. The consultant must demonstrate that this site has a legal and sufficient outlet for stormwater drainage.

Feel free to contact Brian Morgan and Kevin Hall, Project Manager, for follow-up questions.

Hydrogeology

Comments:

21. A **Hydrogeological and Terrain Analysis** will be required for the Zoning By-law Amendment application to establish that there is an adequate quantity and quality of groundwater to support the permitted uses in the proposed zoning and to determine the maximum allowable sewage flow that the site can accommodate. The requirements for the Hydrogeological and Terrain Analysis Report are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines (HTAG), 7.0 for Official Plan and Zoning By-law Amendments (Page 86). The study forms part of the requirements for Zoning By-law and Official Plan Amendment applications noted in the Studies and Plan Identification List, provided with the feedback documents.

- a. **Quantity:** The supply well(s) should be established to confirm that the water quality and quantity are suitable for the proposed use prior to site plan approval, but as part of the Zoning Amendment, a nearby technically representative well can be used. If a nearby, technically representative test well demonstrates poor quality or quantity, a well(s) may need to be drilled on site. On-site supply well(s), if required, must be established for any future site plan control application. A pumping test is required to confirm that the well(s) onsite can supply the required quantity and quality of water. For commercial/industrial operations, an 8-hour pump test is normally recommended, however a minimum of 6-hours is required in the City of Ottawa HGTA Guidelines.
  - i. If an existing well is proposed to be used, then a well inspection is required to confirm it meets the Wells Regulations (O.Reg.903); specifically, confirming that the well casing and grouting are sound,

grading is directed away from around the wellhead, and that the casing height is at least 40 cm above ground and meets the rest of the regulations.

- ii. The anticipated water demands (average day, maximum daily, and maximum hour) must be presented and justified for the pump test rate. The pumping rate should be the maximum daily demand rate. The pumping rate should consider the uses permitted under the proposed zoning. The Ottawa Design Guidelines – Water Distribution provide information for determining water demand rates for the proposed zoning or uses in Table 4.2 – Consumption Rates. Should an alternate method be proposed for determining the pump rate, the rate must be converted to a maximum daily demand value, such as the 120 minute peak demand, as demonstrated in Ministry of Environment, Conservation and Parks (MECP) D-5-5 guideline.
- b. **Quality:** The parameters of water quality that will be tested will be the “subdivision suite” known to local well testing companies, as well as trace metals, and Volatile organic compounds (VOC). Requirements are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines. The report should also provide an assessment of adjacent land uses and concerns and determine if any other parameters need to be tested (i.e. petroleum hydrocarbons, etc.).
- i. The site is within the East Ottawa Aquifer Screening Tool and identifies that water quality is poor with shallow and deep wells both having poor groundwater quality. Wells in this area are often mineralized which must typically be abandoned when observed, but specific approval can be obtained from the MECP. Aesthetic and operational water quality exceedances must be identified, treatment systems are to be specified, where they are recommended, and shown on the plans. The development may not be approved if health-related parameters are exceeded in the untreated groundwater.
  - ii. If well water is mineralized, then approval from the MECP will be needed to continue to use the well, as specified in Ontario Regulation 903 (Section 21). The consultant should also consider the other issues associated with the mineralized water including corrosivity of the water and shortened lifespan of plumbing fixtures and the septic system. Specialized plumbing and fixtures may provide some mitigation of issues.
- c. A **Septic System Impact Assessment** must be completed as part of the Hydrogeological and Terrain Analysis Report, as per the City’s Hydrogeological and Terrain Analysis Report Guidelines and MECP Guideline D-5-4, please refer to the HGTA for the predictive assessment



for commercial/industrial developments, pages 30 to 31 (not applicable for residential developments). The sewage system design must be submitted with the application.

- i. If the sewage system's daily design flow is 10,000 L/d or less, the septic permit from the Ottawa Septic System Office must be sent to the City prior to Site Plan Approval being granted.
  - ii. If the sewage system's design flow exceeds 10,000 L/d (per lot), a Reasonable Use Assessment must accompany the application to the City. Sewage systems with design flows exceeding 10,000 L/d require the issuance of an Environmental Compliance Approval (ECA) from the MECP prior to Site Plan Approval being granted (and the duration of approval is anticipated to be lengthy [many months]).
  - iii. Note that gravel will be considered impermeable in the septic impact assessment unless field testing results confirm alternative infiltration rates.
  - iv. If system isolation is contemplated, the technical pre-consultation with the reviewer is mandatory to ensure the assessment meets the minimum requirements identified in City Guidelines, and to convey the minimum onsite testing requirements.
- d. Technical consultation with the hydrogeological report reviewer is recommended for all site plan control applications. Please contact the reviewer assigned to the file to arrange for the consultation. The hydrogeological consultant should conduct a background review and provide a work plan for review prior to the meeting. Please see list below of factors where technical consultation is considered mandatory.
- i. Where system isolation argument is being put forward,
  - ii. Where septic design flows exceed 10,000 L/d.

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

### **Noise**

Comments:

22. Stationary Noise Study will be required at Site Plan to assess noise impact of the proposed sources of stationary noise of the development onto the surrounding residential area.

Feel free to contact Rochelle Fortier-Lesage, Transportation Project Manager, for follow-up questions.

## **Transportation**

Comments:

23. A Transportation Impact Assessment (TIA) will not be required at rezoning, but may be required for any future Site Plan application.
24. Right-of-way protection - see [Schedule C16 of the Official Plan](#).
  - a. There is ROW protected listed along the site frontage. It is acknowledged that ROW conveyance does not take place at rezoning, but the concept plan and setbacks must account for the future conveyance.
25. Please note that the nearby intersection of Boundary and Mitch Owens is listed on the DC Background Study for intersection control measures.
26. Nearby [planned construction and infrastructure projects](#) include:
  - a. Boundary Road resurfacing (4-7 years)
  - b. Thunder Road resurfacing (1-2 years)

Feel free to contact Rochelle Fortier-Lesage, Transportation Project Manager, for follow-up questions.

## **Environment**

Comments:

27. An Environmental Impact Statement will be required as part of this application. The triggering features are the presence of natural heritage features, provincially significant woodlands, and species-at-risk habitat.  
  
Note that for a ZBLA, a central component of the EIS will be the discussion of policy issues. Specifically, how the proposed change in use is in accordance with Official Plan policies and whether or not the change in use affects the likelihood of a negative impact to the protected features.
28. The provincially significant wetland on and around the site will impose a 30m no-development setback, per section 4.9.3 of the Official Plan.  
  
It is understood that the applicant wishes to ground-truth the exact boundaries of the wetland to help determine the developable area on site. As these are provincially significant wetlands, a full Ontario Wetland Evaluation System mapping update, conducted by a certified OWES practitioner, is required.

Development may have to be moved out of the PSW buffer, with disturbed land to be re-naturalized.

29. The EIS must also address potential significant woodlands on site.
30. Potential species-at-risk in the area include blanding's turtle, bobolink, butternut, and black ash. Other SAR should be addressed as determined by the environmental consultant.

Note that the wetlands on and adjacent to the site are recognized Category II Blanding's Turtle habitat. Further work must be done to determine if Category I habitat is present as well.

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

### **Forestry**

Comments:

31. Planning Forestry does not have concerns with the Zoning By-law Amendment proposed.
32. This property falls within the Additional Lands refer to part IV of the Tree Protection By-law (no. 2020-340). The Tree Protection By-law applies to private trees 10 cm in diameter or greater and City trees of any size. Future development on this site cannot impact City trees and must minimize impacts of existing trees. Prioritize retention over removal and replacement of trees when designing the site.
33. All City trees are protected. A tree removal permit will not be issued for a City tree unless justified. Design accesses, parking, services, and utility hook ups with the least impact to existing trees. Use existing accesses and locate services/utilities under drive isles.
34. A Tree Conservation Report and Landscape Plan are submission requirements of a future Site Plan Control application.

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

### **Parkland**

Comments:

35. The amount of parkland dedication required is to be calculated as per the City of Ottawa [Parkland Dedication By-law No. 2022-280](#). Calculated as 2% of the gross land area of the site being developed/redeveloped for commercial or industrial purposes, including buildings, roads, parking lot and other associated land.

36. Please provide the City with a surveyor's area certificate/memo which specifies the exact gross land area of the site being developed/redeveloped, but not including any hazard lands or natural heritage features identified in the official plan, an approved Secondary Plan, or through an environmental impact study accepted by the City.
37. Please note that the park comments are preliminary and will be finalized (and subject to change) upon receipt of the development application and any requested supporting documentation. Additionally, if the proposed land use changes, then the parkland dedication requirement will be re-evaluated accordingly.
38. For a Site Plan Control application, Parks and Facilities Planning will be requesting **cash-in-lieu of conveyance of parkland** for parkland dedication in accordance with the Parkland Dedication By-law No. 2022-280.

Feel free to contact Warren Bedford ([Warren.Bedford@ottawa.ca](mailto:Warren.Bedford@ottawa.ca)), Parks Planner, for follow-up questions.

### **Conservation Authority**

Comments:

39. South Nation Conservation's (SNC) review considers the impacts of the proposal on natural hazards, including flooding and erosion, upstream and downstream of the property. SNC also administers Regulation. 41/24 enacted under the Conservation Authorities Act.

#### Natural Hazards

40. There are no mapped natural hazards for the property. There is a regulated wetland (South Bear Brook Provincially Significant Wetland (PSW), 2024) which functions to mitigate drainage impacts within the catchment.

41. At the detailed design stage, SNC will provide a technical review of the quantity component of the stormwater management design, including the grading and drainage plan, and sediment and erosion control plan.

O.Reg.41/24, Prohibited Activities, Exemptions and Permits.

42. The areas within and 30m adjacent to the PSW are regulated by SNC. SNC's Regulation Policies state that development within this area must have no adverse hydrologic impacts to the wetland.

43. SNC recommends that an Environmental Impact Statement (EIS) be completed to obtain the approval of a Zoning Bylaw Amendment. The EIS must address this requirement and provide guidance for a future Site Plan application. SNC



will provide a technical review of the EIS in this context and to confirm changes if any to the Regulation Limit.

Feel free to contact James Holland, South Nation Conservation, for follow-up questions.

### Other

44. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.
  - a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.
  - b. Please refer to the HPDS information at [ottawa.ca/HPDS](http://ottawa.ca/HPDS) for more information.

### Submission Requirements and Fees

1. A Major Zoning By-law Amendment application planning fee is \$30,846.78 (January 1, 2024).
  - a. Additional information regarding fees related to planning applications can be found [here](#).
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
  - a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on [Ottawa.ca](http://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.

Sincerely,  
Margot Linker

c.c. Brian Morgan



Kevin Hall  
Rochelle Fortier  
Hayley Murray  
Lisa Stern  
Mark Elliot  
Warren Bedford  
James Holland



**APPENDIX B**  
**Servicing Documentation**

---

**From:** Hall, Kevin <Kevin.Hall@ottawa.ca>  
**Sent:** Wednesday, March 28, 2018 1:33 PM  
**To:** Lee Sheets  
**Subject:** FW: Carlsbad ICI connections  
**Attachments:** typical-set-up-schematic.pdf; RE Coach Houses - Recommendation 4; R-0024.pdf

Lee

I have been able to further clarify what the City would want for the water connection for the warehouse site on Boundary Road.

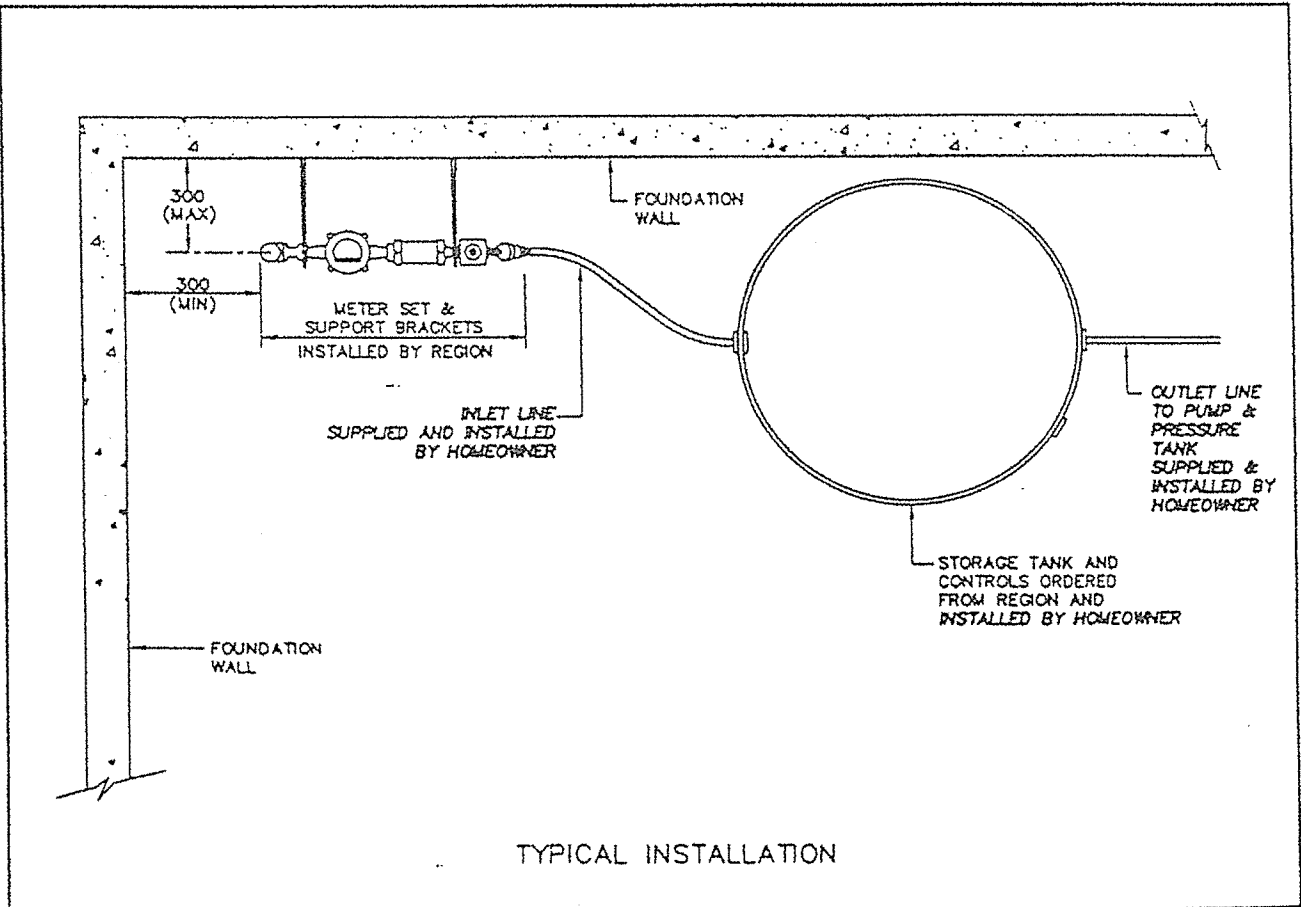
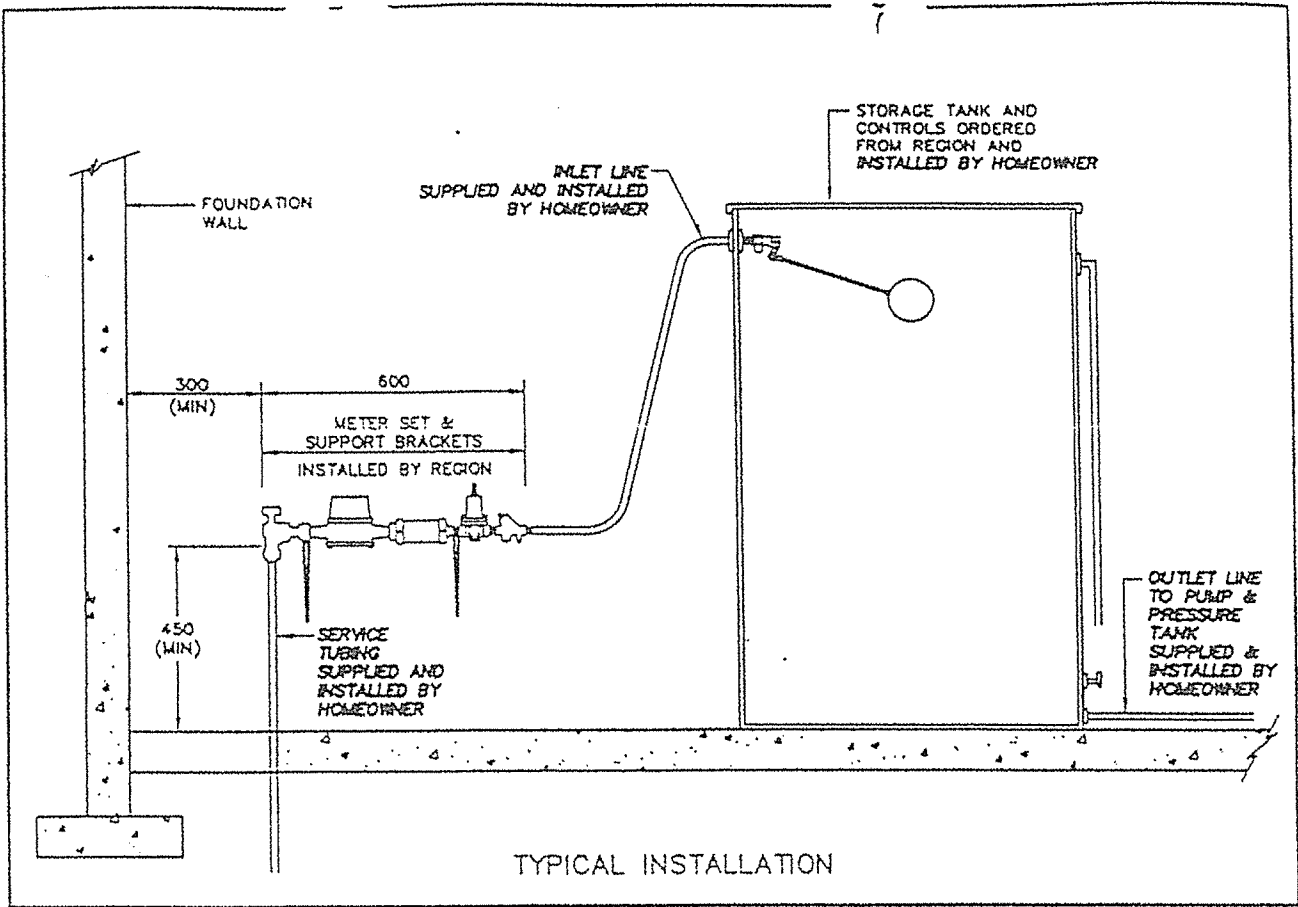
- Flow control equipment to be provided in chamber with the service valve
- Chamber to be located in ROW and will be owned and maintained by the City
- Proponent to submit chamber/equipment design to City for review.
- Equipment should allow for adjustment of flow control rate by City operations staff.

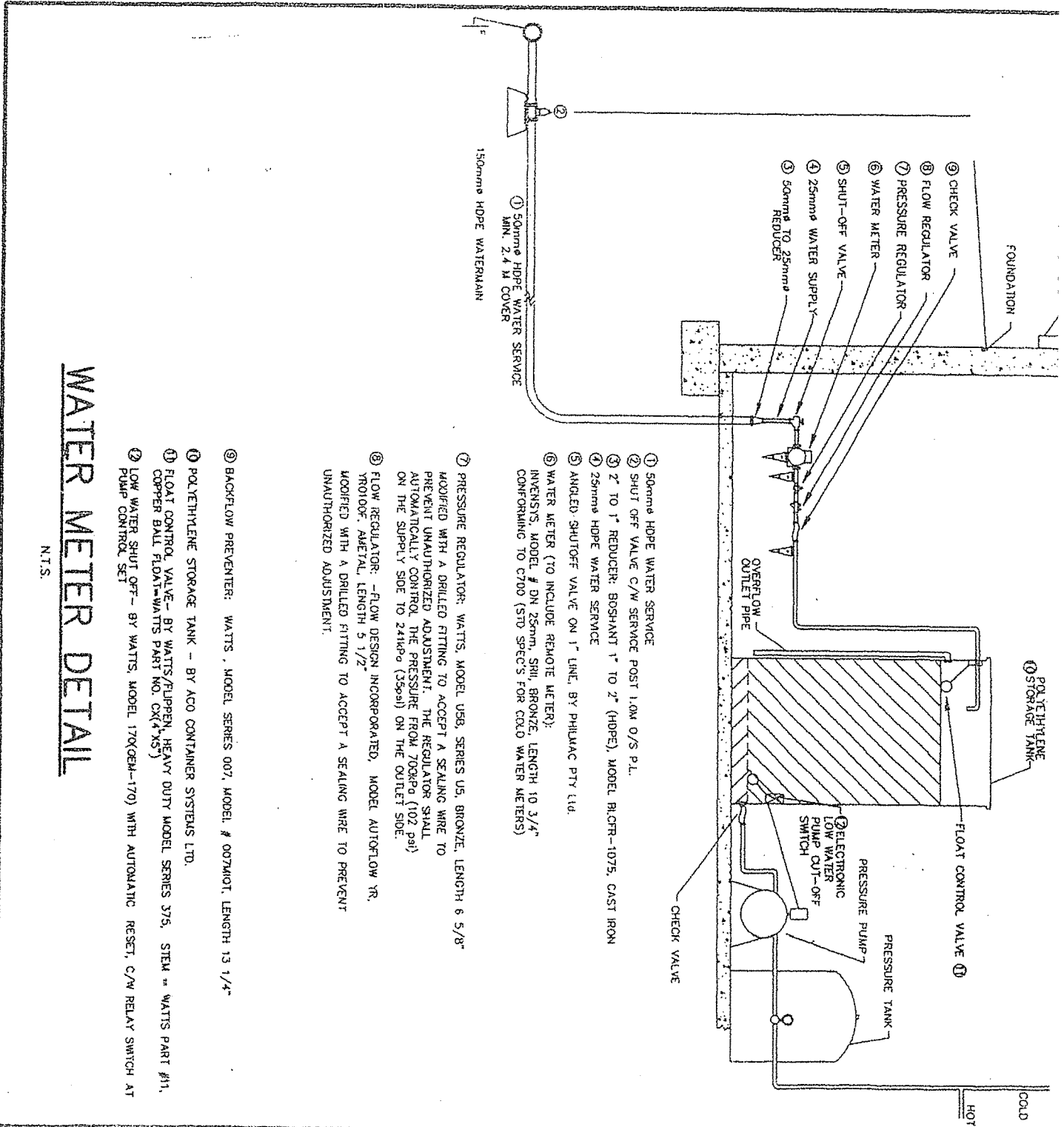
The above would be for the large ICI properties with multiple equivalent connections. Other future ICI properties could go with the standard Carlsbad connection, depending on the number of equivalent connections required.

Attached is information on standard residential connection, FYI. Pre-design report on original trickle feed system is also attached and has functional information for the connections which may be helpful. Arthur Melbourne (ROW) may be able to provide further information on recent residential installations.

This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

Le présent courriel a été expédié par le système de courriels de la Ville d'Ottawa. Toute distribution, utilisation ou reproduction du courriel ou des renseignements qui s'y trouvent par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.





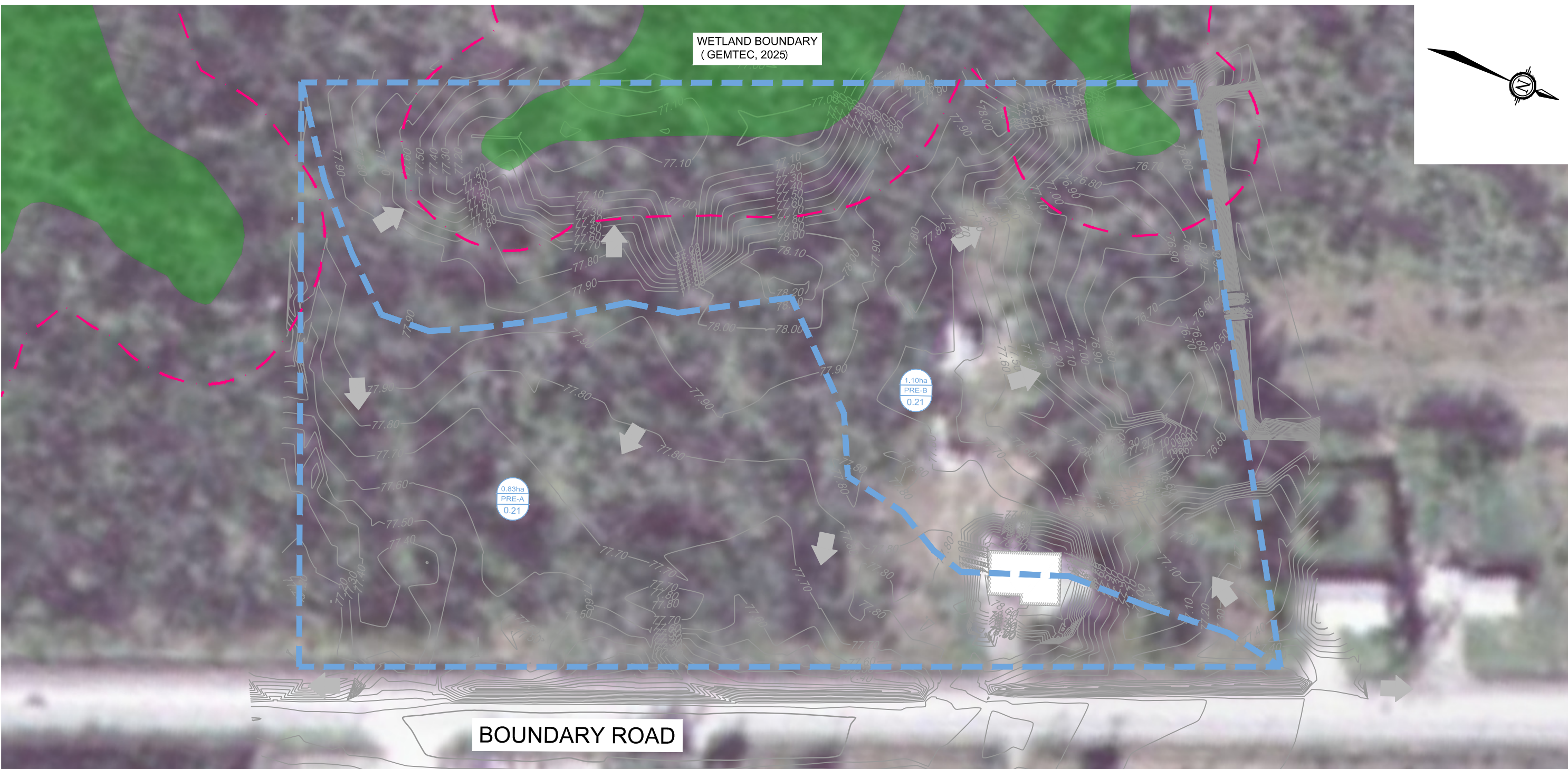
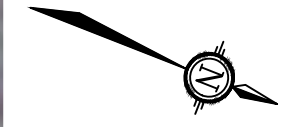
- ① 50mm HDPE WATER SERVICE
- ② 2" TO 1" REDUCER: BOSSHANT 1" TO 2" (HDPE), MODEL BLCR-1075, CAST IRON
- ③ 25mm HDPE WATER SERVICE
- ④ ANGLED SHUTOFF VALVE ON 1" LINE, BY PHILMAC PTY LTD.
- ⑤ WATER METER (TO INCLUDE REMOTE METER):  
INVENSTYS, MODEL # DN 25mm, SPII, BRONZE, LENGTH 10 3/4"  
CONFORMING TO C700 (STD SPECS FOR COLD WATER METERS)
- ⑥ 50mm HDPE WATER SERVICE
- ⑦ SHUT OFF VALVE C/W SERVICE POST 1.0M O/S P.L.
- ⑧ 2" TO 1" REDUCER: BOSSHANT 1" TO 2" (HDPE), MODEL BLCR-1075, CAST IRON
- ⑨ 25mm HDPE WATER SERVICE
- ⑩ ANGLED SHUTOFF VALVE ON 1" LINE, BY PHILMAC PTY LTD.
- ⑪ WATER METER (TO INCLUDE REMOTE METER):  
INVENSTYS, MODEL # DN 25mm, SPII, BRONZE, LENGTH 10 3/4"  
CONFORMING TO C700 (STD SPECS FOR COLD WATER METERS)
- ⑫ PRESSURE REGULATOR: WATTS, MODEL USB, SERIES US, BRONZE, LENGTH 6 5/8"  
MODIFIED WITH A DRILLED FITTING TO ACCEPT A SEALING WIRE TO  
PREVENT UNAUTHORIZED ADJUSTMENT. THE REGULATOR SHALL  
AUTOMATICALLY CONTROL THE PRESSURE FROM 700kPa (102 psi)  
ON THE SUPPLY SIDE TO 241kPa (35psi) ON THE OUTLET SIDE.
- ⑬ FLOW REGULATOR: -FLOW DESIGN INCORPORATED, MODEL AUTOFLOW YR,  
YR10100F, METAL, LENGTH 5 1/2"  
MODIFIED WITH A DRILLED FITTING TO ACCEPT A SEALING WIRE TO PREVENT  
UNAUTHORIZED ADJUSTMENT.
- ⑭ BACKFLOW PREVENTER: WATTS, MODEL SERIES 007, MODEL # 007A01, LENGTH 13 1/4"
- ⑮ POLYETHYLENE STORAGE TANK - BY ACO CONTAINER SYSTEMS LTD.
- ⑯ FLOAT CONTROL VALVE- BY WATTS/FLIPPEN HEAVY DUTY MODEL SERIES 575, STEM -- WATTS PART #11,  
COPPER BALL FLOAT-WATTS PART NO. CK44XS)
- ⑰ LOW WATER SHUT OFF- BY WATTS, MODEL 170GEM-170) WITH AUTOMATIC RESET, C/W RELAY SWITCH AT  
PUMP CONTROL SET

# WATER METER DETAIL

N.T.S.








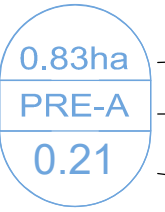


**APPENDIX C**  
**Stormwater Management Calculations**



**SOURCE REFERENCE:**  
 1. Legal & Topographic Information: *Topographical Plan of Survey*  
 Annis, O'Sullivan, Vollebakk Ltd. / Jan 16, 2026 / MTM Zone 9, NAD83 ORIG

THIS PLAN IS TO BE READ IN CONJUNCTION WITH SERVICING OPTIONS AND CONCEPTUAL STORMWATER MANAGEMENT REPORT R-2026-015 PREPARED BY NOVATECH.

**LEGEND**

-  PROPERTY LINE
-  PROVINCIALLY SIGNIFICANT WETLAND (GEMTEC, 2025)
-  15m SETBACK WETLAND BUFFER (GEMTEC, 2025)
-  PRE-DEVELOPMENT STORM DRAINAGE AREA
-  PRE DEVELOPMENT DRAINAGE DIRECTION
-  DRAINAGE AREA IN HECTARES
-  AREA I.D.
-  RUN-OFF COEFFICIENT




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 Suite 200, 240 Michael Cowpland Drive  
 Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643  
 Facsimile (613) 254-5867  
 Website www.novatech-eng.com

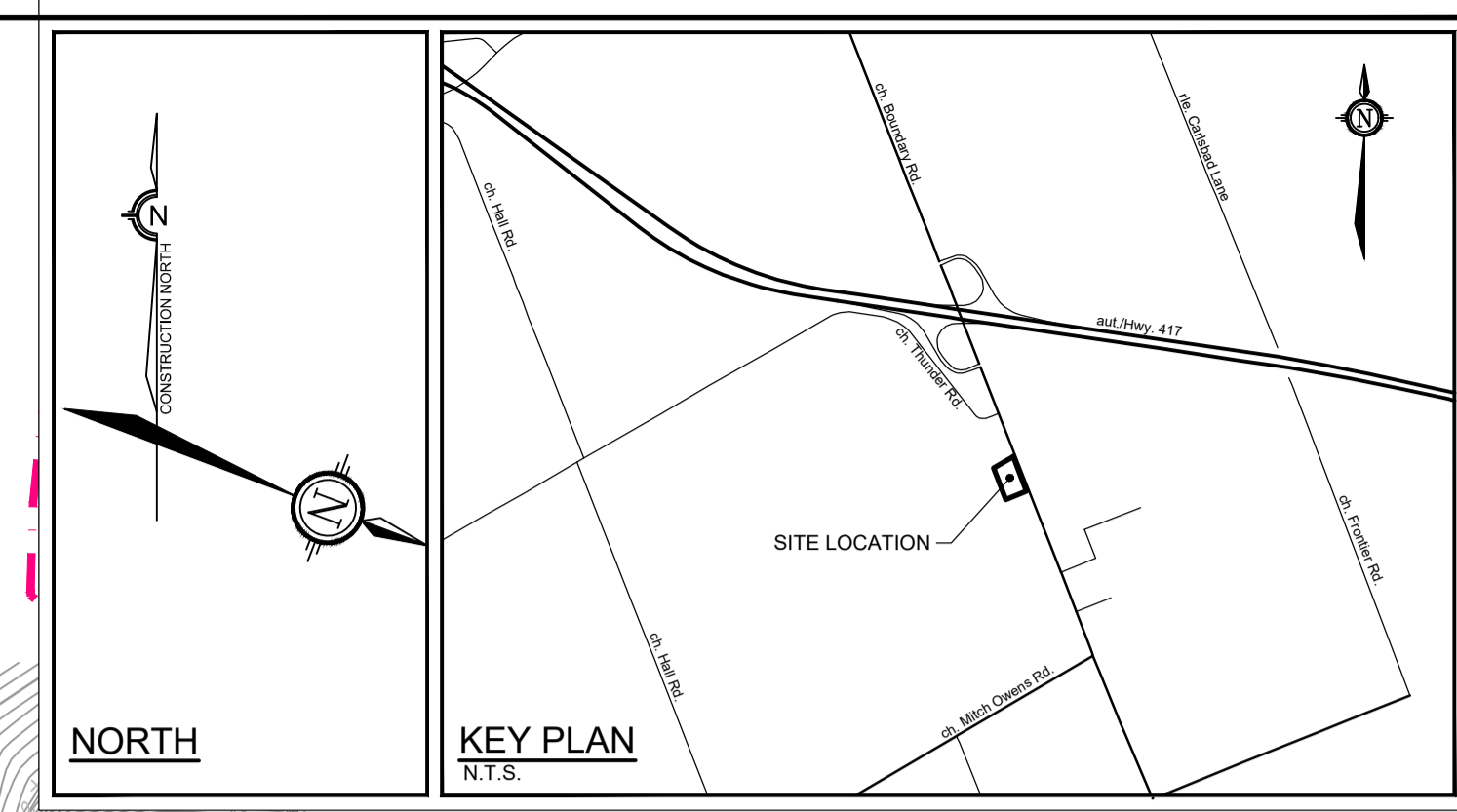
**5384 BOUNDARY ROAD (1991)**

**PRE-DEVELOPMENT DRAINAGE AREA PLAN**

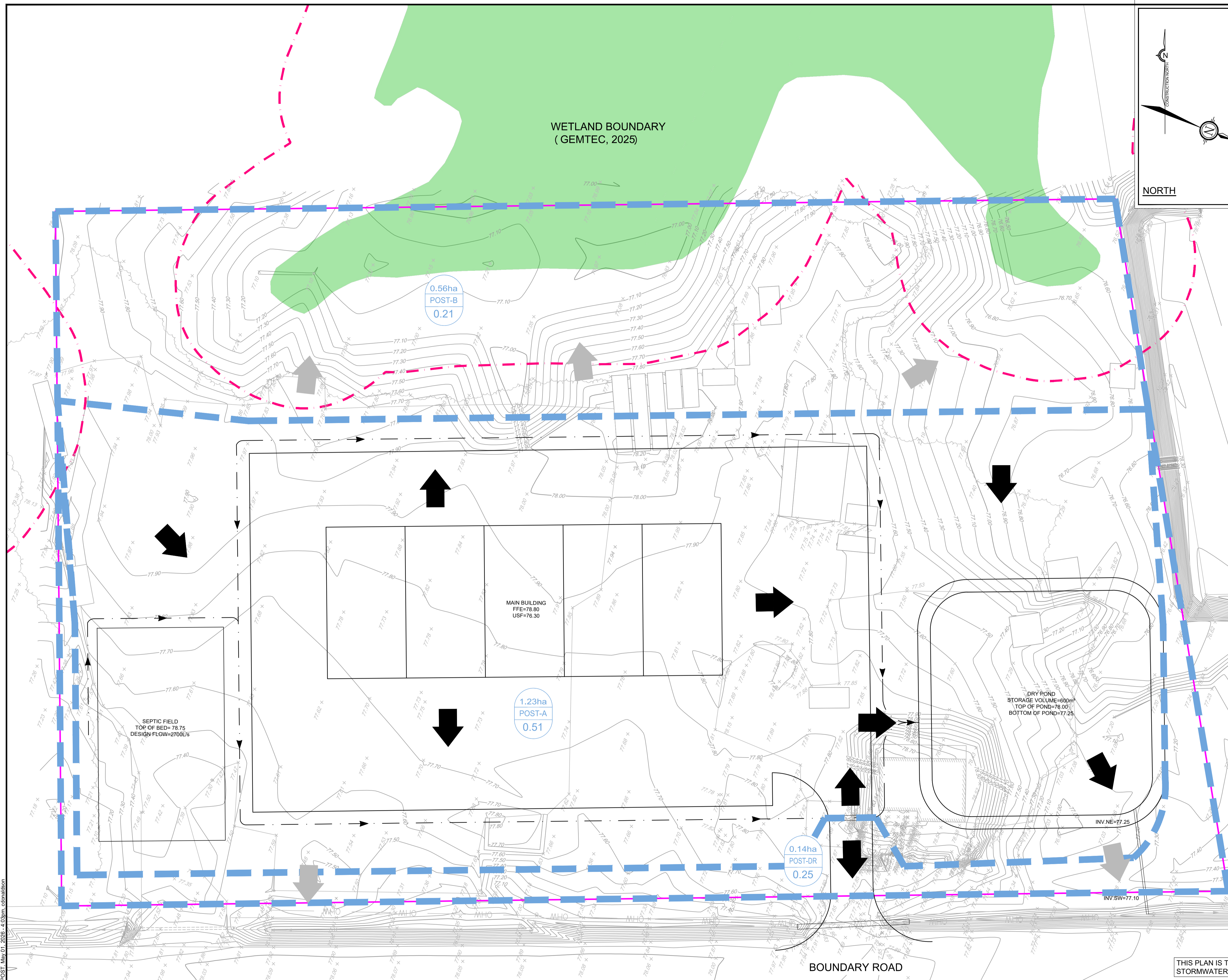
SCALE 1 : 750 

DATE MAY 2026 JOB 124202 FIGURE 124202-PRE

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- LEGEND**
- PROPERTY LINE
  - PROVINCIALLY SIGNIFICANT WETLAND (GEMTEC, 2025)
  - - - 15m SETBACK WETLAND BUFFER (GEMTEC, 2025)
  - - - POST-DEVELOPMENT STORM DRAINAGE AREA
  - POST-DEVELOPMENT DRAINAGE DIRECTION
  - PRE-DEVELOPMENT DRAINAGE DIRECTION
  - PROPOSED CULVERT
  - - - EXISTING CULVERT
- 1.23ha DRAINAGE AREA IN HECTARES  
POST-A AREA I.D.  
0.51 RUN-OFF COEFFICIENT

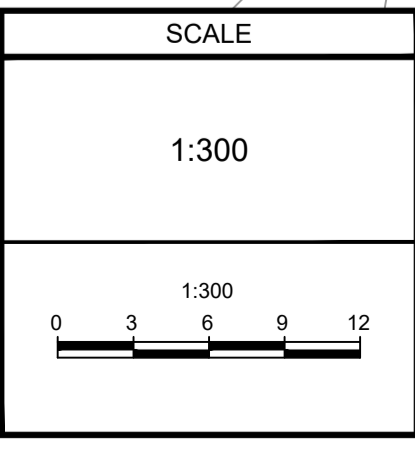


THIS PLAN IS TO BE READ IN CONJUNCTION WITH SERVICING OPTIONS AND CONCEPTUAL STORMWATER MANAGEMENT REPORT R-2026-015 PREPARED BY NOVATECH.

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

- SOURCE REFERENCE:**
- Legal & Topographic Information: Topographical Plan of Survey Annis, O'Sullivan, Vollebek Ltd. / Jan 16, 2026 / MTM Zone 9, NAD83 ORIG
  - Existing Trickle Feed / 5384 Boundary Road, Ottawa, ON K0A 1K0 / GeoOttawa 2022

No.	REVISION	DATE	BY
1.	ISSUED WITH SERVICING OPTIONS & CSWM REPORT	MAY 7/26	CABD



DESIGN	CABD
CHECKED	LAB
DRAWN	CABD
CHECKED	JLS
APPROVED	LAB

**FOR REVIEW ONLY**

LICENSED PROFESSIONAL ENGINEER

**L.A. BOWLEY**  
100081115  
May 7/26

PROVINCE OF ONTARIO

**NOVATECH**

Engineers, Planners & Landscape Architects  
Suite 200, 240 Michael Cowpland Drive  
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643  
Facsimile (613) 254-5867  
Website www.novatech-eng.com

LOCATION	CITY OF OTTAWA 5384 BOUNDARY ROAD
DRAWING NAME	POST-DEVELOPMENT DRAINAGE AREA PLAN
PROJECT No.	124202
REV	REV #1
DRAWING No.	124202-POST

M:\2024\124202\CAD\DWG\124202-SDA.dwg; POST - May 01, 2026 - 4:03pm, cdonaldson

TABLE A-1: Time of Concentration (Uplands Overland Flow Method)

Area ID	Overland Flow						Channel Flow			Overall	
	Length	Elevation U/S	Elevation D/S	Slope	Velocity (Uplands)	Travel Time	Length	Velocity (Uplands)	Travel Time	Time of Concentration	Time to Peak
	(m)	(m)	(m)	(%)	(m/s)	(min)	(m)	(m/s)	(min)	(min)	(min)
PRE-A	80	77.95	77.42	0.7%	0.06	22.2				22	15

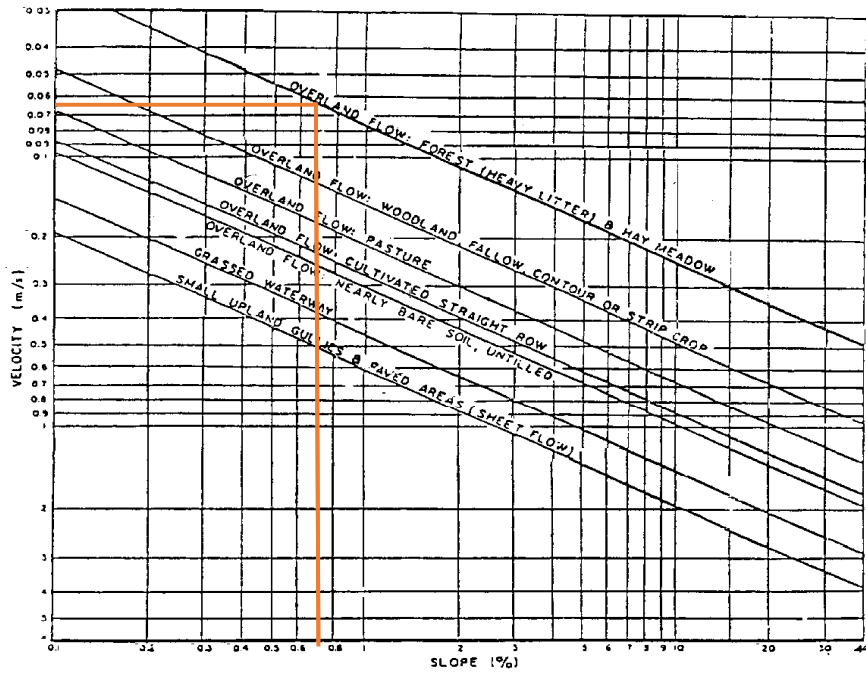


Figure A.5.2: Upland Method for Estimating Time of Concentration (SCS National Engineering Handbook, 1971)

**Table A-2: Pre-Development Runoff**

**Area PRE-A**

			2/5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.01	0.90	0.21	1.00	0.26
0.83	Soft	0.82	0.20		0.25	

\*C= Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**Pre-Development Release Rate**

Outlet Options	Area (ha)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
Roadside Ditch (PRE-A)	0.83	24	32	68
<b>Total</b>	<b>0.83</b>	<b>24</b>	<b>32</b>	<b>68</b>

Time of Concentration	T <sub>c</sub> =	22	min
Rainfall Intensity (2 Year Event)	I <sub>2</sub> =	49.02	mm/hr
Rainfall Intensity (5 Year Event)	I <sub>5</sub> =	66.15	mm/hr
Rainfall Intensity (10 Year Event)	I <sub>10</sub> =	77.39	mm/hr
Rainfall Intensity (25 Year Event)	I <sub>25</sub> =	91.53	mm/hr
Rainfall Intensity (50 Year Event)	I <sub>50</sub> =	102.08	mm/hr
Rainfall Intensity (100 Year Event)	I <sub>100</sub> =	112.88	mm/hr

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_{2/5} = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

**Table A-3: Post-Development Runoff**

**Area POST-A**

			2/5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.55	0.90	0.51	1.00	0.59
1.23	Soft	0.68	0.20		0.25	

\*C= Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**Post-Development Release Rate**

Outlet Options	Area (ha)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
Roadside Ditch (POST-A)	1.23	134	182	360
<b>Total</b>	<b>1.23</b>	<b>134</b>	<b>182</b>	<b>360</b>

Time of Concentration	T <sub>c</sub> =	10	min
Rainfall Intensity (2 Year Event)	I <sub>2</sub> =	76.81	mm/hr
Rainfall Intensity (5 Year Event)	I <sub>5</sub> =	104.19	mm/hr
Rainfall Intensity (10 Year Event)	I <sub>10</sub> =	122.14	mm/hr
Rainfall Intensity (25 Year Event)	I <sub>25</sub> =	144.69	mm/hr
Rainfall Intensity (50 Year Event)	I <sub>50</sub> =	161.47	mm/hr
Rainfall Intensity (100 Year Event)	I <sub>100</sub> =	178.56	mm/hr

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_{2/5} = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

**Table A-4: Post-Development Runoff**

**Area POST-DR**

			2/5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.01	0.90	0.25	1.00	0.30
0.14	Soft	0.13	0.20		0.25	

\*C= Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**Post-Development Release Rate**

Outlet Options	Area (ha)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
Roadside Ditch (POST-DR)	0.14	8	10	21
<b>Total</b>	<b>0.14</b>	<b>8</b>	<b>10</b>	<b>21</b>

Time of Concentration	T <sub>c</sub> =	10	min
Rainfall Intensity (2 Year Event)	I <sub>2</sub> =	76.81	mm/hr
Rainfall Intensity (5 Year Event)	I <sub>5</sub> =	104.19	mm/hr
Rainfall Intensity (10 Year Event)	I <sub>10</sub> =	122.14	mm/hr
Rainfall Intensity (25 Year Event)	I <sub>25</sub> =	144.69	mm/hr
Rainfall Intensity (50 Year Event)	I <sub>50</sub> =	161.47	mm/hr
Rainfall Intensity (100 Year Event)	I <sub>100</sub> =	178.56	mm/hr

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_{2/5} = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

**Table A-5: Post-Development Area Controlled Flow (POST-A)**

Area	Surface	Ha	2/5 Year Event		100 Year Event	
			"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.55	0.90	0.51	1.00	0.59
1.23	Soft	0.68	0.20		0.25	

**Site - Controlling POST 100-year to PRE 2-year**

**QUANTITY STORAGE REQUIREMENT - Allowable less direct runoff**

Allowable = (Pre-A Q<sub>2-year</sub>) - (Post-DR Q<sub>100-year</sub>)  
 = 24L/s - 21L/s  
 = 3L/s

1.23 = Area (ha)  
 0.59 = C

Return Period	Time (min)	Intensity (mm/hr)	Flow Q (L/s)	Allowable Runoff (L/s)	Net Flow to be Stored (L/s)	Storage Req'd (m <sup>3</sup> )
100 YEAR	700	8.01	16.15	3.0	13.15	552.42
	<b>710</b>	<b>7.91</b>	<b>15.97</b>	<b>3.0</b>	<b>12.97</b>	<b>552.42</b>
	720	7.83	15.79	3.0	12.79	552.40
	730	7.74	15.61	3.0	12.61	552.36
	740	7.65	15.44	3.0	12.44	552.29

∴ Storage Required = 552.42m<sup>3</sup>

TABLE B-1: Time of Concentration (Uplands Overland Flow Method)

Area ID	Overland Flow						Channel Flow			Overall	
	Length	Elevation U/S	Elevation D/S	Slope	Velocity (Uplands)	Travel Time	Length	Velocity (Uplands)	Travel Time	Time of Concentration	Time to Peak
	(m)	(m)	(m)	(%)	(m/s)	(min)	(m)	(m/s)	(min)	(min)	(min)
PRE-B	82	77.95	76.55	1.7%	0.10	13.7				14	9

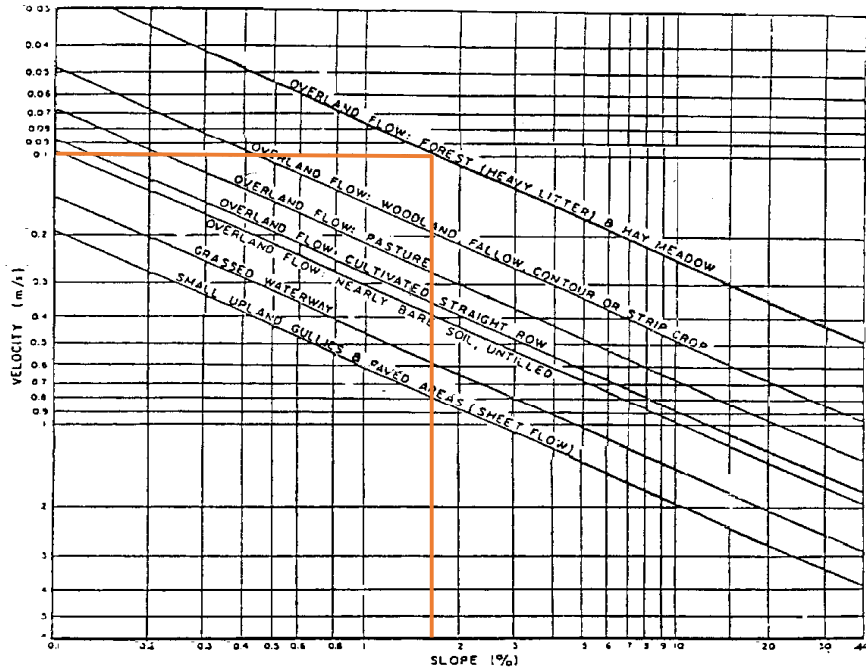


Figure A.5.2: Upland Method for Estimating Time of Concentration (SCS National Engineering Handbook, 1971)

**Table B-2: Pre-Development Runoff**

**Area PRE-B**

			2/5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.01	0.90	0.21	1.00	0.26
1.10	Soft	1.09	0.20		0.25	

\*C= Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**Pre-Development Release Rate**

Outlet Options	Area (ha)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
Significant Wetland (PRE-B)	1.10	41	56	118
<b>Total</b>	<b>1.10</b>	<b>41</b>	<b>56</b>	<b>118</b>

Time of Concentration	T <sub>c</sub> =	14	min
Rainfall Intensity (2 Year Event)	I <sub>2</sub> =	64.23	mm/hr
Rainfall Intensity (5 Year Event)	I <sub>5</sub> =	86.93	mm/hr
Rainfall Intensity (10 Year Event)	I <sub>10</sub> =	101.82	mm/hr
Rainfall Intensity (25 Year Event)	I <sub>25</sub> =	120.55	mm/hr
Rainfall Intensity (50 Year Event)	I <sub>50</sub> =	134.49	mm/hr
Rainfall Intensity (100 Year Event)	I <sub>100</sub> =	148.72	mm/hr

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$$C_{2/5} = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$

**Table B-3: Post-Development Runoff**

**Area POST-B**

			2/5 Year Event		100 Year Event	
Area	Surface	Ha	"C"	C <sub>avg</sub>	"C" + 25%	*C <sub>avg</sub>
Total	Hard	0.01	0.90	0.21	1.00	0.26
0.56	Soft	0.55	0.20		0.25	

\*C= Runoff Coefficient increases by 25% up to a maximum value of 1.00 for the 100-Year event

**Post-Development Release Rate**

Outlet Options	Area (ha)	Q <sub>2 Year</sub> (L/s)	Q <sub>5 Year</sub> (L/s)	Q <sub>100 Year</sub> (L/s)
Significant Wetland (POST-B)	0.56	25	34	72
<b>Total</b>	<b>0.56</b>	<b>25</b>	<b>34</b>	<b>72</b>

Time of Concentration	T <sub>c</sub> =	10	min
Rainfall Intensity (2 Year Event)	I <sub>2</sub> =	76.81	mm/hr
Rainfall Intensity (5 Year Event)	I <sub>5</sub> =	104.19	mm/hr
Rainfall Intensity (10 Year Event)	I <sub>10</sub> =	122.14	mm/hr
Rainfall Intensity (25 Year Event)	I <sub>25</sub> =	144.69	mm/hr
Rainfall Intensity (50 Year Event)	I <sub>50</sub> =	161.47	mm/hr
Rainfall Intensity (100 Year Event)	I <sub>100</sub> =	178.56	mm/hr

No storage is proposed for Post-Development Area POST-B.

Equations:

Flow Equation

$$Q = 2.78 \times C \times I \times A$$

Where:

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

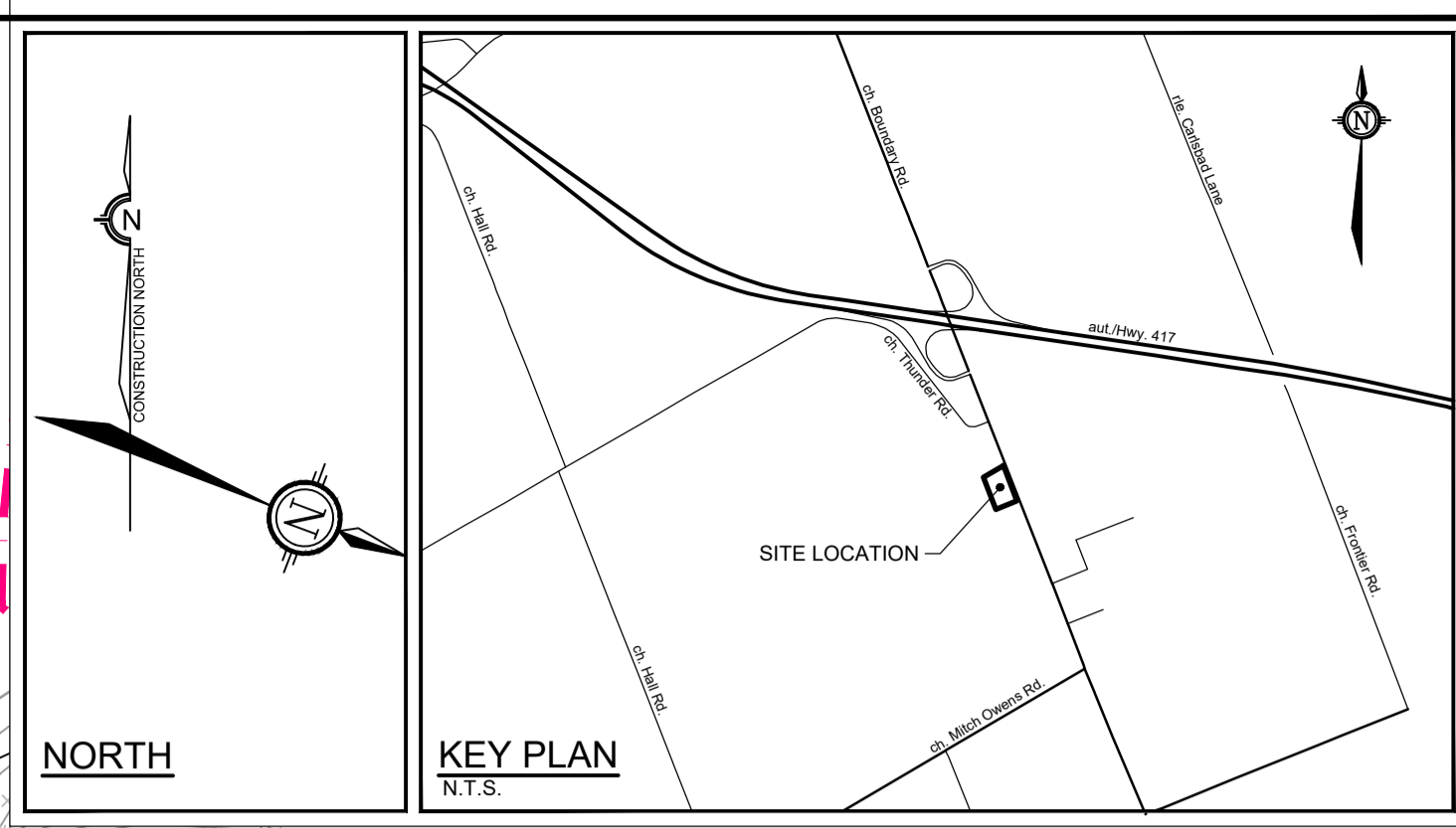
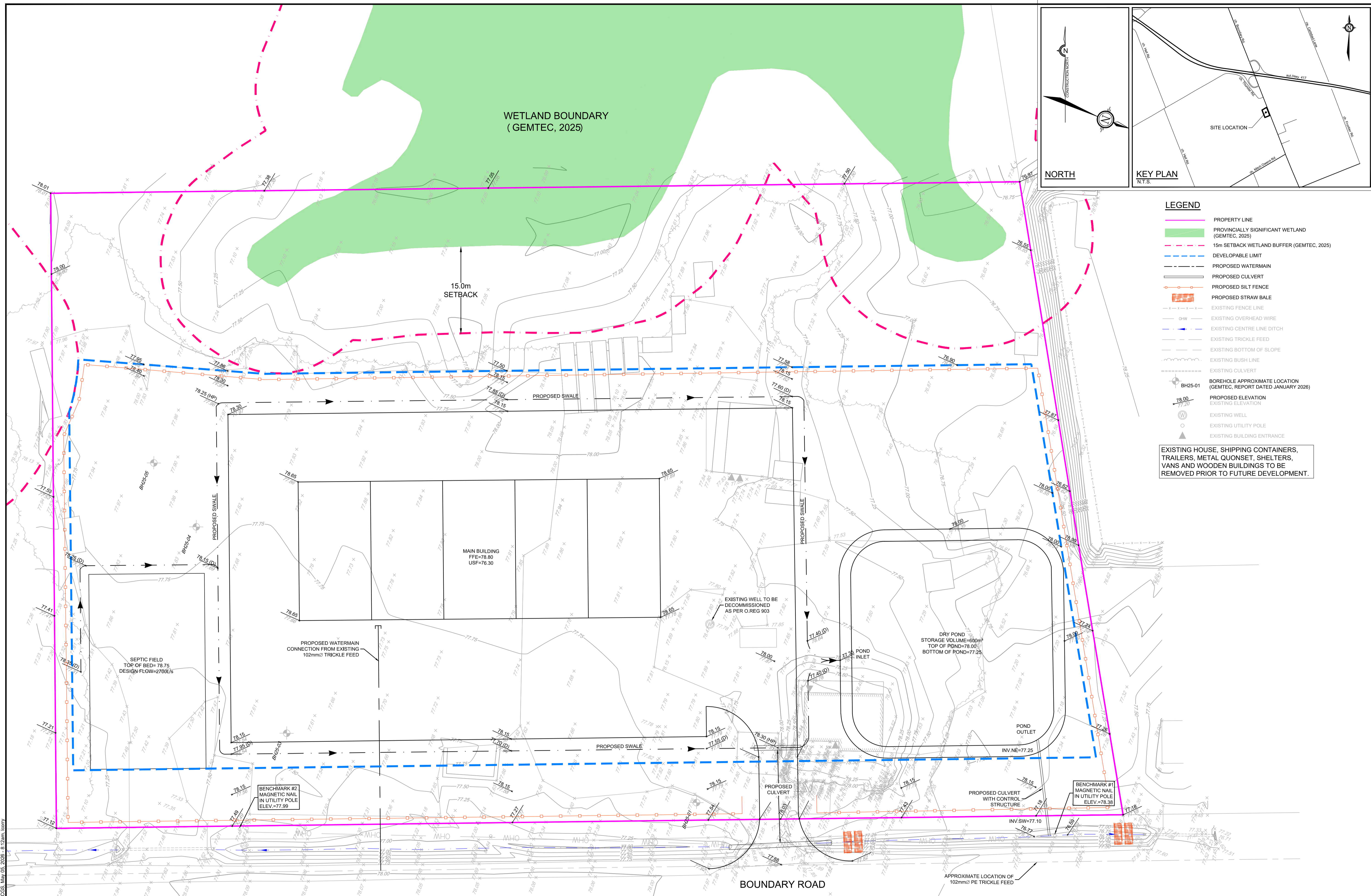
A is the total drainage area

Runoff Coefficient Equation

$$C_{2/5} = (A_{\text{hard}} \times 0.9 + A_{\text{soft}} \times 0.2) / A_{\text{Tot}}$$

$$C_{100} = (A_{\text{hard}} \times 1.0 + A_{\text{soft}} \times 0.25) / A_{\text{Tot}}$$





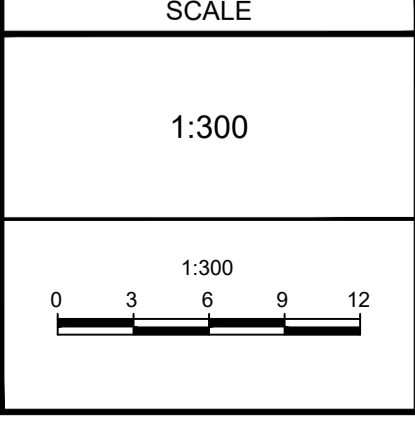
- LEGEND**
- PROPERTY LINE
  - PROVINCIALLY SIGNIFICANT WETLAND (GEMTEC, 2025)
  - - - 15m SETBACK WETLAND BUFFER (GEMTEC, 2025)
  - DEVELOPABLE LIMIT
  - PROPOSED WATERMAIN
  - PROPOSED CULVERT
  - PROPOSED SILT FENCE
  - PROPOSED STRAW BALE
  - EXISTING FENCE LINE
  - EXISTING OVERHEAD WIRE
  - EXISTING CENTRE LINE DITCH
  - EXISTING TRICKLE FEED
  - EXISTING BOTTOM OF SLOPE
  - EXISTING BUSH LINE
  - EXISTING CULVERT
  - BOREHOLE APPROXIMATE LOCATION (GEMTEC, REPORT DATED JANUARY 2026)
  - PROPOSED ELEVATION
  - EXISTING ELEVATION
  - EXISTING WELL
  - EXISTING UTILITY POLE
  - ▲ EXISTING BUILDING ENTRANCE
- EXISTING HOUSE, SHIPPING CONTAINERS, TRAILERS, METAL QUONSET, SHELTERS, VANS AND WOODEN BUILDINGS TO BE REMOVED PRIOR TO FUTURE DEVELOPMENT.

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

**SOURCE REFERENCE:**

- Legal & Topographic Information: Topographical Plan of Survey Annis, O'Sullivan, Vollebek Ltd. / Jan 16, 2026 / MTM Zone 9, NAD83 ORIG
- Existing Trickle Feed / 5384 Boundary Road, Ottawa, ON K0A 1K0 / GeoOttawa 2022

No.	REVISION	DATE	BY
1.	ISSUED WITH SERVICING OPTIONS & CSWM REPORT	MAY 7/26	CABD



**FOR REVIEW ONLY**

DESIGN	CABD
CHECKED	LAB
DRAWN	CABD
CHECKED	JLS
APPROVED	LAB

**L.A. BOWLEY**  
100081115  
May 7/26  
PROVINCE OF ONTARIO

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**LOCATION**  
CITY OF OTTAWA  
5384 BOUNDARY ROAD

**DRAWING NAME**  
CONCEPTUAL GRADING,  
SERVICING AND EROSION AND  
SEDIMENT CONTROL PLAN

PROJECT No. 124202  
REV #1  
DRAWING No. 124202-CGS

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