NOVATECH

Engineers, Planners & Landscape Architects

Engineering

- Land/Site Development
- Municipal Infrastructure
- Environmental/ Water Resources
- Traffic/ Transportation
- Recreational

Planning

- Land/Site Development
- Planning Application Management
- Municipal Planning
- Urban Design
- Expert Witness (OLT)
- Wireless Industry

Landscape Architecture

- Streetscapes & Public Amenities
- Open Space, Parks & Recreation
- Community & Residential
- Commercial & Institutional
- Environmental Restoration

The Marshes Pickleball Courts
318 Terry Fox Drive
Stormwater Management Brief

Prepared for: The Marshes Golf Club

Engineers, Planners & Landscape Architects

The Marshes Pickleball Courts

318 Terry Fox Drive, Ottawa

Stormwater Management Brief

Prepared By:

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

October 2026

Novatech File: 126074
Ref: R-2026-087

NOVATECH
Engineers, Planners & Landscape Architects

October 19, 2026

By email: Jean-Miguel.Roy@ottawa.ca

City of Ottawa
Development and Building Services
110 Laurier Avenue West, 4th Floor
Ottawa ON K1P 1J1

Attention: **Jean-Miguel Roy P.Eng., Senior Project Manager, Infrastructure Approvals**

Reference: **318 Terry Fox Drive**
Stormwater Management Brief
Novatech File No.: 126074
City File No.: PC2026-0103

Novatech has prepared this Stormwater Management Brief, on behalf of the Marshes Golf Club, in support of an application for Site Plan Control.

The report addresses how the development will be serviced and the stormwater management approach.

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

Yours truly,

NOVATECH



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

cc: Phil Auger - The Marshes Golf Club

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

Table of Contents

1.0 INTRODUCTION 1
1.1 Background 1
1.2 Proposed Development 2
1.3 City of Ottawa Site Plan Application Requirements 2
1.4 Reference Documents 2
1.5 City Approvals 3
2.0 SITE GRADING AND SERVICING 3
2.1 Grading 3
2.2 Servicing 3
3.0 STORMWATER MANAGEMENT 3
3.1 Stormwater Management Criteria 3
3.2 Pre-Development Condition 3
3.3 Proposed Stormwater Management 4
3.4 Quality Control 5
3.5 Major Overland Flow Route 5
4.0 EROSION AND SEDIMENT CONTROL 5
5.0 CONCLUSIONS 6

Figures

Figure 1 Key Plan
Figure 2 Pre-Development Conditions

Appendices

Appendix A Correspondence
Appendix B Development Servicing Study Checklist
Appendix C Stormwater Management Calculations
Including Pre & Post-Development Drainage Area plan (126074-SDA, revision 1)

Engineering Drawings

Grading, Drainage and Stormwater Management Plan (126074-GS, revision 2)

1.0 INTRODUCTION

Novatech has been retained to prepare a Stormwater Management Brief for the proposed recreational development located at 318 Terry Fox Dive within the City of Ottawa. This report will support a Site Plan Control application for the proposed development. **Figure 1** is a Key Plan showing the site location within the Kanata Research Park (KRP).

Figure 1. Key Plan

1.1 Background

The subject site is approximately 1.34 hectares in area is surrounded by the Marshes Golf Clubhouse to the west, the Ottawa Central Railway corridor to the north, vacant lands to the west and Terry Fox Drive and the Marshes Golf Course to the south.

The proposed recreational development includes pickleball courts and associated parking which were constructed in 2024. Based on the documents prepared as part of this Site Plan Control application, alterations to the site will be required to meet City guidelines.

For the purposes of this report the pre-development site conditions are assumed to be the site conditions in 2024, prior to the construction of the pickleball courts and associated parking lot.

A mini putt is located on the property. The mini putt was constructed in 2014 and did not require City approvals.

Refer to **Figure 2** for an arial image depicting the pre-development conditions.

Figure 2. Pre-Development Conditions



Air Photo source: GeoOttawa, 2024

1.2 Proposed Development

The works included in the Site Plan Control application include an asphalt parking lot with 15 spaces, and 8-pickleball courts in a fenced enclosure. These works were constructed in 2024.

The new proposed works to be constructed include ditching and a stormwater facility.

Refer to the enclosed Grading, Drainage and Stormwater Management Plan (**126074-GS**) showing the site works.

1.3 City of Ottawa Site Plan Application Requirements

A pre-consultation meeting was held with the City of Ottawa on May 26, 2026, to discuss the submission requirements. The Meeting Feedback notes are included in **Appendix A** for reference. A subsequent email from the City of Ottawa (Jean-Miguel Roy, dated August 10, 2026) was sent with further stormwater criteria clarification and is included in **Appendix A.**

1.4 Reference Documents

Various preceding reports have been reviewed which show the development lands. The following excerpts and plans are included for reference:

- Kanata Research Park - Helmsdale preliminary SWM Report, Tributary Drainage Area plan (Figure 2, May 1992)
- Kanata Research Park - Storm Drainage Plan (93036-STM2, revision 8)

1.5 City Approvals

The City of Ottawa Servicing Study Guidelines for Development Applications requires that a Development Servicing Study Checklist be included to confirm that each applicable item is deemed complete and ready for review by City of Ottawa Planning, Development and Building Services Department. The completed checklist is enclosed in **Appendix B** of the report.

2.0 SITE GRADING AND SERVICING

2.1 Grading

The majority of the property is generally flat at elevations between approximately ±78.0 and ±79.5. The northern limit of the site slopes sharply down to the Ottawa Central Railway corridor which sits at an elevation of approximately ±74.0. The parking lot and pickleball courts are sloped to sheet drain toward the north as in pre-development conditions.

The remaining undeveloped portion of the site will remain as per existing conditions. Existing contours and proposed grades are shown on the Grading, Drainage and Stormwater Management Plan (**126074-GS**).

2.2 Servicing

No sanitary or water services are proposed. Storm servicing is addressed in subsequent sections.

3.0 STORMWATER MANAGEMENT

In the pre-development condition, the site drainage is split with the north portion of the site draining to the rail corridor to the north, and the south portion of the site draining to the existing storm sewer system on Terry Fox Drive. The drainage split in the post-development condition will be maintained.

3.1 Stormwater Management Criteria

Based on the City of Ottawa's Meeting Feedback notes (**Appendix A**) and further discussions with the City on existing drainage patterns, the site is being developed with the following Stormwater Management Criteria:

- Post-development release rates must meet pre-development release rates for each major storm event up to the 100-year storm event.
- Flows to a storm sewer or ditch in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site.
- 80% Total Suspended Solids (TSS) removal is required for quality control.

3.2 Pre-Development Condition

Under pre-development conditions, storm runoff from the site is directed to one of two outlets as shown on the Pre & Post-Development Storm Drainage Area Plan (**126074-SDA**).

PRE-A: The north portion of the site drains the Ottawa Central Railway corridor (Lands owned by the City of Ottawa) to the north of the property. This drainage is directed to The Duck Pond (as referenced in the Helmsdale report).

PRE-B: The south portion of the site drains to an existing storm sewer system on Terry Fox Drive which is ultimately directed to a stormwater management facility located on the Marshes Golf Course lands (Pond 2, as shown on the Kanata Research Park [KRP] – Storm Drainage Plan).

The pre-development site flows are calculated and provided in **Appendix C**.

3.3 Proposed Stormwater Management

Existing drainage patterns will be maintained under post-development conditions. All runoff from the north portion of the site (Area A) will continue to drain to the railway corridor and all runoff from the south portion of the site (Area B) will continue to drain to the existing storm sewer system on Terry Fox Drive.

A self-contained mini putt area was developed on the south portion of the site. The estimated runoff coefficient was calculated and is consistent with the allocated runoff coefficient from the KRP report. Pond 2 provides both quality and quantity control.

Only the developed portion will be considered in the stormwater management design. The remaining undeveloped portion of the site will remain as per existing conditions.

Stormwater management for Area A will be provided with a vegetated filter strip and level spreader berm north of the pickleball courts. Stormwater will sheet drain across the courts to the grass swales along the north edge of the court. The grass swales will drain the stormwater towards a filter strip/level spreader berm. Stormwater will collect and be stored in a grassed area in front of the level spreader berm.

Stormwater will infiltrate into the soil as well as filter through a sand layer and subdrain at the bottom of the level spreader and then sheet drain to the railway corridor. Refer to the Grading, Drainage and Stormwater Management Plan (**126074-GS**).

In less frequent and up to the 100-year storm event, stormwater would be contained within the grass swales. In larger storm events, when the ponding water exceeds the height of the level spreader, stormwater is conveyed over the berm as sheet flow maximizing the contact area with vegetation while draining to the railway corridor. Stormwater management design criteria for the level spreader berm and vegetated filter strip is provided in the MOE Stormwater Management Design Guideline in Section 4.5.12 (relevant sections are provided in **Appendix C** for reference).

A Pre & Post-Development Drainage Plan is provided in **Appendix C** which shows the proposed drainage areas. Stormwater management calculations including runoff coefficients, flows, storage required, and storage provided for each of the drainage areas are provided in **Appendix C**. There is sufficient area to provide adequate storage for stormwater quantity control. The proposed development will meet the MOE design guidelines (Section 4.5.12) for vegetated filter strips including minimum filter strip width and maximum drainage area size. **Table 1** summarizes these calculations for the 100-year storm event.

Table 1: Post-Development Stormwater Management Summary (Area A)

Area ID	Area (ha)	Weighted C_{100}	100-Year Storm		
			Flow (L/s)	Volume Required (m^3)	Volume Provided (m^3)
Area A	0.31	0.93	143.4	114.3	121.2

The maximum ponding elevation is 78.10 (depth 0.6m) before the flow would crest the level spreader.

The approximate draw down on the contact area (i.e. pond bottom) would allow the detention area to drain over a 10-to-16-hour period, with sandy soils, as designed.

3.4 Quality Control

Stormwater quality treatment is provided through a treatment train approach. This includes sheet drainage of stormwater across the parking lot and pickleball courts into grass swales and through a sand layer at the bottom of the level spreader berm. Stormwater then travels through the vegetated filter strip prior to outletting to the railway corridor. The combination of these components will provide adequate quality control of stormwater.

3.5 Major Overland Flow Route

A major overland flow route will be provided for storms greater than the 100-year storm event. Stormwater from the northern portion of the site will overflow from the parking lot and courts at 78.25 to the level spreader and flow over the berm towards the railway corridor. The major overland system is shown on the Grading, Drainage and Stormwater Management Plan **(126074-GS)**.

Stormwater from the southern portion of the site will continue to overflow towards Terry Fox Drive and the existing golf course lands.

4.0 EROSION AND SEDIMENT CONTROL

Temporary erosion and sediment control measures will be implemented during 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 (the northern property limit, down grade from construction) placed as per OPSS 577 and OPSD 219.110;
- Rip-rap placed at storm pipe outlets per OPSD 810.010.
- Seed the swales as soon as possible to reduce the sediment runoff to the railway corridor.

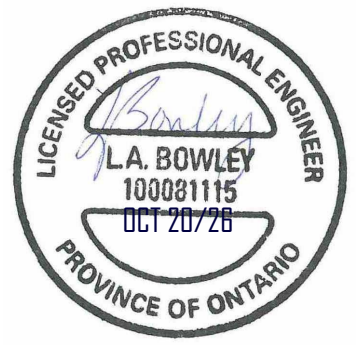
The erosion and sediment control measures are to be installed to the satisfaction of the engineer, and the City prior to construction and will remain in place during construction until vegetation is established. The erosion and sediment control measure will also be subject to regular inspection to ensure measures are operational.

5.0 CONCLUSIONS

- Quantity control of stormwater will be provided to pre-development levels through the construction of a level spreader and filter strip berm.
- Quality control of stormwater will be provided through a treatment train approach with sheet drainage of stormwater across grass areas to grass swales which drain to a level spreader and filter strip berm adjacent to the proposed parking lot.
- Overland flow routes will be provided to both Terry Fox Drive and the Ottawa Central Railway corridor.
- Erosion and sediment control measures will be required during construction.

This report is respectfully submitted for review and approval. Please contact the undersigned should you have questions or require additional information.

NOVATECH



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

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

Engineers, Planners & Landscape Architects

Appendix A

Correspondence

File No.: PC2026-0103

May 29, 2026

Phil Auger
The Marshes Golf Club
Via email: pauger@marshesgolfclub.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 318 Terry Fox Dr.

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on May 26, 2026.

Pre-Consultation Preliminary Assessment

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, 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 (Amanda Davidson, Stream Shen).

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.

Planning

Comments:

1. The subject site is located within the Suburban (West) Transect and is designated Kanata North Economic pursuant to Schedule B5 of the City's Official Plan.

2. The subject site is zoned EDK2[1548] (Kanata North Special Economic District, Subzone 2) in Zoning By-law 2026-050, and IP6[1548] (Business Park Industrial, Subzone 6, Urban Exception 1548) in Zoning By-law 2008-250. Please note that at this time, both zoning by-laws 2008-250 and 2026-050 are in effect, with the most restrictive provision applying.

3. Per information received during the pre-consultation meeting held on May 26, 2026, it is understood that the pickleball courts were established in 2025. Pickleball courts would be considered a "recreational and athletic facility". Zoning By-Law 2008-250 was the in-effect by-law at the time and permits a recreational and athletic facility. The recreational and athletic facility use does not trigger a site plan control application. Note however that the use is not permitted under Zoning By-law 2026-050. This is noted for any future expansions/alterations to the use as a zoning by-law amendment or permission application may be required to expand the non-conforming use.

4. Please confirm if 318 Terry Fox Drive and 320 Terry Fox Drive are considered/operated as One Lot For Zoning Purposes. Please refer to Section 93 in Zoning By-law 2008-250 (One Lot for Zoning Purposes (Section 93) and Section 144 in Zoning By-law 2026-050 (Interpretation - Section 124 - 147 | City of Ottawa). Please include a note on the submission materials (such as the site plan) to confirm the one lot for zoning status.

5. Dimensions of parking spaces, drive aisles, and landscape buffers around the parking/paved area will be required in order to confirm zoning conformity. Please ensure these dimensions are included on the site plan with your formal submission. Refer to Sections Parking Space Dimensions (Section 106), Aisle and Driveway Provisions (Section 107), and Landscaping Provisions for Parking Lots (Section 110) for the required dimensions, aisle widths for parking, and required landscape buffers in Zoning By-law 2008-250 and Sections 605 and 607 Part 6 - Parking, Queueing and Loading Provisions | City of Ottawa in Zoning By-law 2026-050.

    a. It is noted that the parking along the west side of the side is angled, and may be subject to different aisle width requirements. Please ensure the

angle of the parking is included on the site plan in order to verify the required aisle widths.

b. Note that the location of the required landscape buffers will be subject to confirmation regarding whether the property is One Lot for Zoning Purposes with 320 Terry Fox.

6. You are encouraged to seek opportunities to provide new tree planting on site.

Required Applications

7. Site Plan Control, Standard

    a. Site Plan Control is required for the expanded parking area, and should reflect the overall site alteration.

    b. It has been confirmed that a reduced application fee of $6,000 will be applicable to this application relating to a business license renewal.

Feel free to contact Amanda Davidson, Planner, for follow up questions.

Urban Design

Comments:

Submission Requirement:

1. Site Plan
2. Landscape Plan (Conceptual)

Urban Design comments:

8. Urban Design encourages exploring opportunities for additional tree planting throughout the site, wherever feasible, to help minimize the urban heat island affect.

9. Encourages to provide a pedestrian connection from Terry Fox Drive to improve accessibility to the site.

Feel free to contact Karanpreet Kaur, Urban Design, for follow up questions.

Engineering

Comments:

10. A stormwater management memo or report is required to address the proposed increase in stormwater release rates resulting from the proposed development, including the parking lot, pickleball courts and revised area east of the courts, following the increase in impervious area on the site.

11. To support the required stormwater management memo/report for this site, pre-development and post-development drainage plans, accompanied by grading and servicing plans, must be provided. The submitted plans must demonstrate that existing drainage patterns are being maintained, unless it can be demonstrated that any proposed alterations to drainage patterns will not negatively impact the downstream drainage system.

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

    a. Under previous and new conditions, the site seems to discharge to the existing ditch located to the north of the site, running along the rail corridor.

       If the civil engineering consultant confirms that the above is true, post-development release rates must meet pre-development release rates for each major storm event up to the 100-year storm event.

       If the site did not discharge to the northern ditch under pre-development conditions, please reach out to our team for potential additional stormwater management criteria.

    b. A calculated time of concentration (cannot be less than 10 minutes).

    c. Flows to a storm sewer or ditch in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site.

    d. Storm sewer outlets should not be submerged.

    e. 80% Total Suspended Solids (TSS) removal is required for quality control.

Sewer Design

    a. Provide existing servicing information and the recommended location for the proposed connections.

    b. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).

    c. 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 that 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 that 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.

13. An Environmental Activity and Sector Registry (EASR) may be required for the proposed stormwater management works discharging to a ditch.

14. The City's Environmental Remediation Unit confirmed that, based on the current nature of the proposal and the fact that this property is located in a low contamination risk zone, a Phase I Environmental Site Assessment is not required for this application.

15. Due to the current nature of this proposal, a geotechnical investigation is not required as part of this application. **However**, a recommendation from a professional geotechnical engineer shall still be provided to support the pavement design used for the parking lot that has been constructed.

Feel free to contact Jean-Miguel Roy, Project Manager, for follow-up questions.

Transportation

Comments:

16. A Transportation Impact Assessment (TIA) is not required.

17. Nearby planned construction and infrastructure projects include sidewalk renewal along Terry Fox planned this year. The project manager is Kyle Delaney.

18. Consider providing an internal pedestrian pathway from the Terry Fox sidewalk to the pickleball courts.

19. A Surface Transportation Noise Study is not required.

20. As the proposed site is commercial/institutional/industrial and for general public use, AODA legislation applies.

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

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

21. On site plan:

    a. Show all details of the roads abutting the site; include such items as pavement markings, signage, accesses, on-street parking, and/or sidewalks.

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

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Comments:

22. There is no trigger for an environmental impact statement.

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

Forestry

Comments:

23. The effort to retain the existing significant tree on site is much appreciated.

24. A TCR will only be required if any further works are needed on site within proximity of existing trees, (e.g. for stormwater management, servicing, etc).

25. Any further on-site works must be designed to minimize impacts to remaining protected trees.

26. A Landscape Plan should be provided, including several large-growing trees to address the heat island that has been created through increasing the asphalt on site, and to provide shade for those using the site.

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

Parkland

Comments:

27. If no increase in Gross Floor Area is proposed as part of the addition of the parking lot and pickleball courts, then parkland dedication is not required.

28. Please note, if the proposed land use change or gross floor area changes, then the parkland dedication requirement, and form will be re-evaluated accordingly.

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

Other

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

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

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

Submission Requirements and Fees

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

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

Yours Truly,
Amanda Davidson

Encl. Studies and Plans Identification List, List of Technical Agencies, Supplementary Development Information

c.c. Stream Shen, Planner III
Jean-Miguel Roy, Infrastructure Approvals Project Manager
Josiane Gervais, Transportation Project Manager
Karanpreet Kaur, Planner, Urban Design
Sahara Shrestha, Planner, Urban Design
Matthew Hayley, Environmental Planner
Samantha Gatchene, Parks Planner
Nancy Young, Planning Forester

From: Roy, Jean-Miguel <Jean-Miguel.Roy@ottawa.ca>
Sent: Monday, August 10, 2026 10:22 AM
To: Lisa Bowley <l.bowley@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Greg Winters <G.Winters@novatech-eng.com>
Subject: RE: 318 Terry Fox (PickleBall)- Stormwater (126074)

Hi Lisa,

Apologies for the delay.

If you clearly demonstrate in your submission that, under pre-development conditions, the site used to drain to the ditch to the north, then I do not have an issue that it continues to follow existing drainage patterns, as long as there isn't additional flows and volumes sent there, and that the water is treated for quality control. As noted in the feedback form, we would like to see pre-development and post-development drainage plans to support this.

Therefore, for quantity control for this site: you should slightly over control to compensate for the increase in imperviousness under post-development conditions that will create additional volume of water that no longer infiltrates. Let me know if you have any questions.

Quality control (80% TSS removal) is required as per the feedback form.

Thank you,
Jean-Miguel Roy, P.Eng
Senior Project Manager, Infrastructure Approvals
Development and Building Services |
Direction générale des services de la planification, de l'aménagement et du bâtiment
110 Laurier Avenue West | 110 avenue Laurier Ouest
City of Ottawa | Ville d'Ottawa
613.580.2424 x 30902

From: Lisa Bowley <l.bowley@novatech-eng.com>
Sent: July 30, 2026 2:27 PM
To: Roy, Jean-Miguel <Jean-Miguel.Roy@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Greg Winters <G.Winters@novatech-eng.com>
Subject: RE: 318 Terry Fox (PickleBall)- Stormwater (126074)

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Jean-Miguel,

Thank you for reviewing the Pickleball court project with us.

As discussed the client proceeded with construction with the understanding that drainage patterns were intended to drain as in pre-development conditions. Together we reviewed the City mapping, the topographic survey and KRP reports which indicate that the rear of the property drain to the Ottawa Central Railway corridor. We understand that the City will allow the drainage to continue to drain in towards the north with the addition of quantity and quality measures.

Novatech will review options such as a level spreader in the area north of the trees. This will require some tree removal. Should additional storage be required, there is an open area on the east side of the courts where additional storage could be proposed.

Based on the City's feedback form would we proceed with the following Stormwater Management Criteria:

a. Post-development release rates must meet pre-development release rates for each major storm event up to the 100-year storm event.
b. A calculated time of concentration (cannot be less than 10 minutes).
c. Flows to a storm sewer or ditch in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site.
d. Storm sewer outlets should not be submerged.
e. 80% Total Suspended Solids (TSS) removal is required for quality control.

For your reference we have included the following plans which were referenced during our call:

1. Kanata Research Park - Helmsdale preliminary SWM Report excepts (June 1998) including Tributary Drainage Area plan
2. Kanata Research Park - Storm Drainage Plan (93036-STM2, revision 8)
3. KRP Club House – Grading Plan (100038-GR, revision 7)
4. KRP Club House – General Plan of Services (100038-GP, revision 9)

Lisa Bowley, P.Eng., Senior Project Manager | Land Development Engineering
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 246
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Lisa Bowley
Sent: Tuesday, July 21, 2026 10:47 AM
To: Roy, Jean-Miguel <jean-miguel.roy@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Greg Winters <G.Winters@novatech-eng.com>
Subject: 318 Terry Fox (PickleBall)- Stormwater (126074)

City File – PC2026-0101

Jean-Miguel,

Novatech is working with the Marshes Golf Club to prepare a Site Plan Control Application for 318 Terry Fox (PickleBall courts).

As you had noted in the pre-consultation notes (May, 29/26, attached), the stormwater drainage direction is not as per the subdivision design. I have attached the Kanata Research Park - Storm Drainage Plan (93036-STM2, revision 8) for reference.

Could we discuss further? Please provide a couple of dates/times that work for you.

Thanks,

Lisa Bowley, P.Eng., Senior Project Manager | Land Development Engineering
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 246
The information contained in this email message is confidential and is for exclusive use of the addressee.

'

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.

'

Engineers, Planners & Landscape Architects

Appendix B

Development Servicing Study Checklist

318 Terry Fox Drive, Ottawa
The Marshes Pickleball Courts
DEVELOPMENT SERVICING STUDY CHECKLIST

4.1 General Content	**Addressed (Y/N/NA)**	**Comments**
Executive Summary (for larger reports only).	N/A	
Date and revision number of the report.	Y	
Location map and plan showing municipal address, boundary, and layout of proposed development.	Y	Refer to Report Figures
Plan showing the site and location of all existing services.	Y	Refer to Grading, Drainage and Stormwater Management Plan
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.	Y	Refer to Site Plan
Summary of Pre-consultation Meetings with City and other approval agencies.	Y	Refer to Appendix A
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 defendable design criteria.	Y	
Statement of objectives and servicing criteria.	Y	Report Section 2.0 Site Grading and Servicing
Identification of existing and proposed infrastructure available in the immediate area.	Y	
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).	N/A	
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 neighboring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Y	Refer to Grading, Drainage and Stormwater Management Plan

318 Terry Fox Drive, Ottawa
The Marshes Pickleball Courts
DEVELOPMENT SERVICING STUDY CHECKLIST

4.1 General Content	**Addressed (Y/N/NA)**	**Comments**
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.	N/A	
Proposed phasing of the development, if applicable.	N/A	
Reference to geotechnical studies and recommendations concerning servicing.	N/A	
All preliminary and formal site plan submissions should have the following information:		
Metric scale	Y	
North arrow (including construction North)	Y	
Key plan	Y	
Name and contact information of applicant and property owner	Y	
Property limits including bearings and dimensions	Y	
Existing and proposed structures and parking areas	Y	
Easements, road widening and rights-of-way	Y	
Adjacent street names	Y	

318 Terry Fox Drive, Ottawa
The Marshes Pickleball Courts
DEVELOPMENT SERVICING STUDY CHECKLIST

4.2 Water	**Addressed (Y/N/NA)**	**Comments**
Confirm consistency with Master Servicing Study, if available.	N/A	
Availability of public infrastructure to service proposed development.	N/A	
Identification of system constraints.	N/A	
Identify boundary conditions.	N/A	
Confirmation of adequate domestic supply and pressure.	N/A	
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.	N/A	
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.	N/A	
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design.	N/A	
Address reliability requirements such as appropriate location of shut-off valves.	N/A	
Check on the necessity of a pressure zone boundary modification.	N/A	
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.	N/A	
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.	N/A	
Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A	
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	N/A	
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A	

318 Terry Fox Drive, Ottawa
The Marshes Pickleball Courts
DEVELOPMENT SERVICING STUDY CHECKLIST

4.3 Wastewater	Addressed (Y/N/NA)	**Comments**
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).	N/A	
Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A	
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.	N/A	
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	N/A	
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)	N/A	
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	N/A	
Description of proposed sewer network including sewers, pumping stations, and forcemains.	N/A	
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).	N/A	
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A	
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A	
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A	
Special considerations such as contamination, corrosive environment etc.	N/A	

318 Terry Fox Drive, Ottawa
The Marshes Pickleball Courts
DEVELOPMENT SERVICING STUDY CHECKLIST

4.4 Stormwater	Addressed (Y/N/NA)	Comments
Description of drainage outlets and downstream constraints including legality of outlet (i.e. municipal drain, right-of-way, watercourse, or private property).	Y	Report Section 3.0 Stormwater Management
Analysis of the available capacity in existing public infrastructure.	N/A	
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns and proposed drainage patterns.	Y	Refer to Pre & Post-Development Drainage Area Plan
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.	Y	Report Section 3.0 Stormwater Management
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Y	Report Section 3.0 Stormwater Management
Description of stormwater management concept with facility locations and descriptions with references and supporting information.	Y	Report Section 3.0 Stormwater Management
Set-back from private sewage disposal systems.	N/A	
Watercourse and hazard lands setbacks.	N/A	
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A	
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Y	Refer to Appendix C
Storage requirements (complete with calcs) and conveyance capacity for 5 yr and 100 yr events.	Y	Refer to Appendix C
Identification of watercourse within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A	
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.	Y	Refer to Appendix C
Any proposed diversion of drainage catchment areas from one outlet to another.	N/A	
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and SWM facilities.	Y	Refer to Grading, Drainage and Stormwater Management Plan
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.	N/A	

4.4 Stormwater	**Addressed (Y/N/NA)**	**Comments**
Identification of potential impacts to receiving watercourses.	N/A	
Identification of municipal drains and related approval requirements.	N/A	
Description of how the conveyance and storage capacity will be achieved for the development.	Y	Report Section 3.0 Stormwater Management
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Y	Refer to Grading, Drainage and Stormwater Management Plan
Inclusion of hydraulic analysis including HGL elevations.	N/A	
Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Y	Report Section 4.0 Erosion and Sediment Control
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.	N/A	
Identification of fill constrains related to floodplain and geotechnical investigation.	N/A	

4.5 Approval and Permit Requirements	**Addressed (Y/N/NA)**	**Comments**
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.	N/A	
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A	
Changes to Municipal Drains.	N/A	
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A	

4.6 Conclusion	**Addressed (Y/N/NA)**	**Comments**
Clearly stated conclusions and recommendations.	Y	Report Section 5.0 Conclusions
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.	N/A	First Submission
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	

Engineers, Planners & Landscape Architects

Appendix C

Stormwater Management Calculations

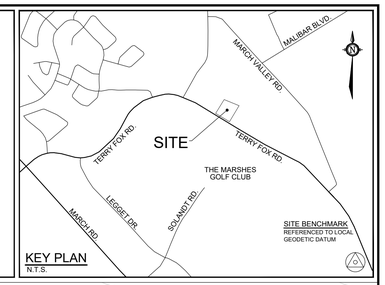
LEGEND

- PROPERTY LINE (APPROXIMATE)
- EXISTING SWALE
- PRE-DEVELOPMENT STORM DRAINAGE AREA
- POST-DEVELOPMENT STORM DRAINAGE AREA
- EXISTING DRAINAGE DIRECTION
- 0.60 / PRE-A / 0.45 — PRE-DEVELOPMENT DRAINAGE AREA / PRE-DEVELOPMENT AREA ID / PRE-DEVELOPMENT C-VALUE
- 0.60 / POST-A / 0.45 — POST-DEVELOPMENT DRAINAGE AREA / POST-DEVELOPMENT AREA ID / POST-DEVELOPMENT C-VALUE

SOURCE REFERENCE:
TOPOGRAPHIC INFORMATION:
1. NOVATECH TOPOGRAPHIC SURVEY / JULY 6, 2026 / 318 TERRY FOX DRIVE, KANATA, ON K2K 3J1
2. CONTOURS: OTTAWA BASE MAPPING

PROPERTY LINE INFORMATION:
1. GEOTTAWA 2022 / 318 TERRY FOX DRIVE, KANATA, ON K2K 3J1

NORTH



KEY PLAN
N.T.S.



PRE-DEVELOPMENT
SCALE = 1:400



POST-DEVELOPMENT
SCALE = 1:400

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

No.	REVISION	DATE	BY
1.	ISSUED WITH STORMWATER MANAGEMENT BRIEF	OCT 19/26	LKC

SCALE
1:400
1:400
0 4 8 12 16

DESIGN LKC
CHECKED LAB
DRAWN LKC
CHECKED JLS
APPROVED LAB

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
L.A. BOWLEY
100081115
OCT 20/26
PROVINCE OF ONTARIO

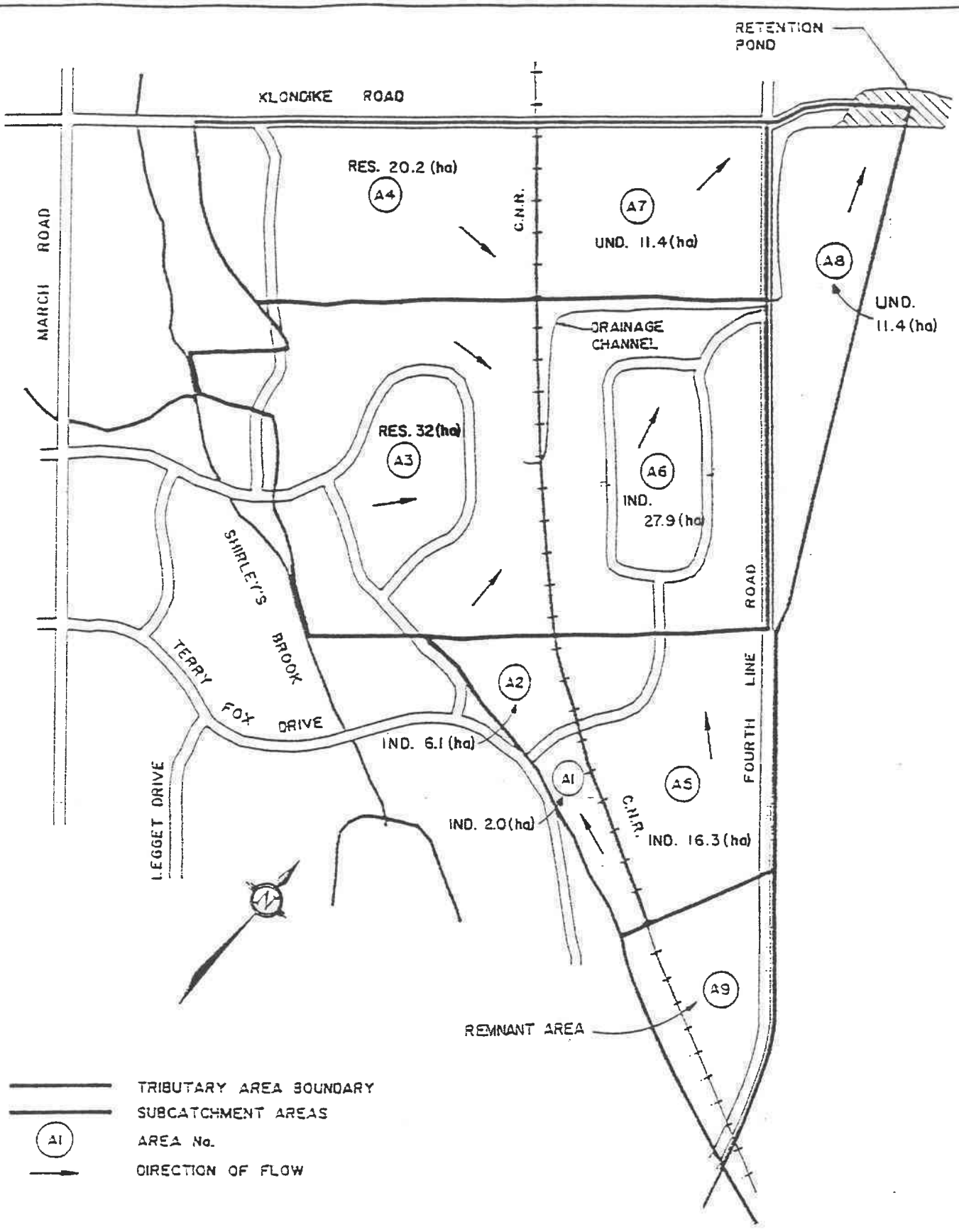
NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
318 TERRY FOX DRIVE

DRAWING NAME
PRE & POST-DEVELOPMENT
STORM DRAINAGE AREA PLAN

PROJECT No. 126074
REV REV # 1
DRAWING No. 126074-SDA

M:\2026\126074\CAD\CIVIL\126074-SDA.DWG 10/20/2026 1:09 PM - LCOAREY



NOVATECH
ENGINEERING CONSULTANTS LTD
OTTAWA, ONTARIO

RIDDELL VILLAGE

STORM WATER OUTLET

TRIBUTARY DRAINAGE AREAS

DATE: MAY 1992

SCALE : N.T.S

FIG. No. FIGURE 2



REFER TO DRAWING 93063–STM1

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

KANATA RESEARCH PARK
Kanata Research Park Corporation
555 Legget Drive, Suite 204, Kanata, Ontario, Canada, K2K 2X3
(613)591-0594

No.	REVISION	DATE	BY
8.	STORM AREA REVISION	MAR.02/01	AS
7	STORM AREA REVISION	FEB.8/01	AS
6	SEWER SIZE REDUCED	NOV 23/00	DHI
5	REVISED PER RMOC COMMENTS	AUG. 2000	RS
4	REVISED	JULY 2000	RS
3.	ISSUED FOR MOEE	APR 13/00	RS
2	ISSUED FOR MOEE	FEB. 2000	LSM
1	ISSUED FOR COMMENTS	DEC. 1999	LSM

LICENSED PROFESSIONAL ENGINEER — A. R. STEWART — PROVINCE OF ONTARIO

REGISTERED PROFESSIONAL ENGINEER — J.G. RIDDELL — PROVINCE OF ONTARIO

NOVATECH
CONSULTING ENGINEERS & PLANNERS
Suite 17, 77 Auriga Drive
Nepean, Ontario, Canada
K2E 7Z7
Telephone (613)727-1658
Facsimile (613)727-6972
Email: novainfo@novatech-eng.com

DESIGN	RRS
CHECKED	UB
DRAWN	DU
CHECKED	RRS
APPROVED	UB

SCALE: 1 : 1500

CITY OF KANATA
KANATA RESEARCH PARK
STORM DRAINAGE PLAN

PROJECT No. 93063
DATE DECEMBER 1999
DRAWING No. 93063–STM2

Apr 04, 2001 - 09:44:07 DWG Name: K:\K R P\93063\design\stm\Dgnset\93063STM2.dwg Updated By: MKO

PLANBLDWG - 1000mmX707mm

Project #: 126074
Project Name: The Marshes Pickleball Courts
Location: Ottawa

NOVATECH
Engineers, Planners & Landscape Architects

Date Prepared: October 15, 2026

The Marshes Pickleball Courts
318 Terry Fox Drive

Pre - Development Site Flows												
Area	Description	Area (ha)	A_{imp} (ha) C=0.9	A_{gravel} (ha) C=0.7	A_{perv} (ha) C=0.2	Weighted C_w	Weighted C_{w100}	1:2 Year Flow (L/s)	1:5 Year Flow (L/s)	1:100 Year Flow (L/s)	Allowable C_w	Allowable Flow 2-year (L/s)
Pre-A	North Outlet	0.31	-	-	-	0.20	0.25	13.2	18.0	38.5	0.20	**13.2**
Pre-B	South Outlet	0.73	-	-	-	0.45	0.45	70.1	95.1	163.1	0.45	**70.1**

T_c = 10mins

Post - Development Site Flows															
Area	Description	Area (ha)	A_{imp} (ha) C=0.9	A_{gravel} (ha) C=0.7	$A_{mini\ putt}$ (ha) C=0.5	A_{perv} (ha) C=0.2	C_5	C_{100}	Uncontrolled Flow (L/s)			Storage Required (m^3)			Storage Provided (m^3)
									2-year	5-year	100-year	2-year	5-year	100-year	
Post-A	Controlled Site Flows	0.31	0.268	0.015	0.000	0.032	0.83	0.93	55.1	74.7	143.4	-	45.8	114.3	121.2
Post-B	Uncontrolled Site Flows	0.73	0.021	0.020	0.216	0.474	0.32	0.40	50.2	68.1	144.6	-	-	-	-
	Totals :	1.04	-	-		-	-	-	**105.3**	**142.8**	**288.0**	**0.0**	**45.8**	**114.3**	**121.2**

T_c = 10mins

Project #: 126074
Project Name: The Marshes Pickleball Courts
Location: Ottawa

Date Prepared: October 15, 2026

REQUIRED STORAGE - 1:100 YEAR EVENT

AREA POST-A 0.31

OTTAWA IDF CURVE

Area =	0.31	ha	Qallow =	13.2	L/s
C =	0.93		Vol(max) =	114.3	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	242.70	194.88	181.64	54.49
10	178.56	143.37	130.13	78.08
15	142.89	114.73	101.50	91.35
20	119.95	96.31	83.07	99.69
25	103.85	83.38	70.14	105.22
30	91.87	73.76	60.53	108.95
35	82.58	66.31	53.07	111.44
40	75.15	60.34	47.10	113.04
45	69.05	55.44	42.20	113.95
50	63.95	51.35	38.11	114.34
55	59.62	47.87	34.64	114.30
60	55.89	44.88	31.64	113.91
65	52.65	42.27	29.03	113.23
70	49.79	39.98	26.74	112.31
75	47.26	37.94	24.70	111.17
80	44.99	36.12	22.89	109.86
85	42.95	34.49	21.25	108.38
90	41.11	33.01	19.77	106.76

Project #: 126074
Project Name: The Marshes Pickleball Courts
Location: Ottawa

Date Prepared: October 15, 2026

PROVIDED STORAGE

Elevation	Incremental Volume (m^3)	Cumulative Volume (m^3)
77.50	2.98	2.98
77.60	13.92	16.9
77.70	16.12	33.02
77.80	18.42	51.44
77.90	20.79	72.23
78.00	23.23	95.46
78.10	25.75	121.21

One of the benefits of pervious catchbasins which are located off-line is that they can be plugged until construction has finished and the development has been stabilized. This helps to prolong the life of the exfiltration storage.

Pre-treatment of road drainage before it reaches the pervious catchbasins will enhance the longevity of the system and reduce the potential for groundwater contamination. Frequent catchbasin cleaning is required to ensure the longevity of this SWMP. Eventually, the exfiltration storage will become clogged and need to be replaced.

4.5.12 Vegetated Filter Strips

Vegetated filter strips are engineered stormwater conveyance systems which treat small drainage areas. Generally, a vegetated filter strip consists of a level spreader and planted vegetation. The level spreader ensures uniform flow over the vegetation which filters out pollutants, and promotes infiltration of the stormwater.

There are two types of vegetated filter strips: grass filter strips, and forested filter strips. There is a need for further research comparing the efficiency of these two systems for water quality enhancement, since the research to date has focussed on their individual assessment.

Vegetated filter strips are best utilized adjacent to a buffer strip, watercourse or drainage swale since the discharge will be in the form of sheet flow, making it difficult to convey the stormwater downstream in a normal conveyance system (swale or pipe).

Design Guidance

Drainage Area

Vegetated filter strips are feasible for small drainage areas (< 2 ha).

Slope and Width

Vegetated filter strips should be located in flat areas (< 10%) to promote sheet flow and maximize the filtration potential. The ideal slope in a vegetated filter strip is < 5% (1% - 5%).

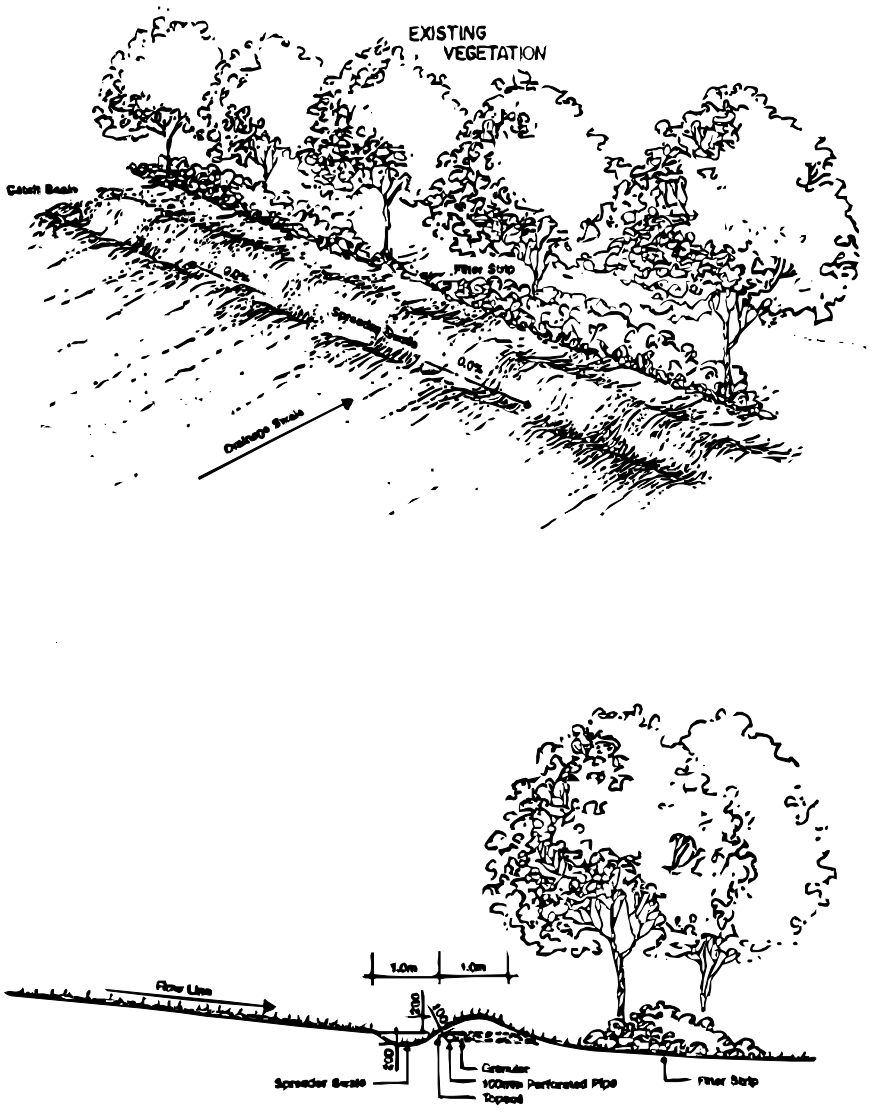
The vegetated filter strip should be 10 m - 20 m wide in the direction of flow to provide sufficient stormwater quality enhancement (Osborne et al., 1993; Metropolitan Washington Council of Governments, 1992; Minnesota Pollution Control Agency, 1989). The slope of the vegetated filter strip should dictate the actual width. Shorter vegetated filter strip widths (10 m - 15 m) are appropriate for flat slopes, whereas longer vegetated filter strips (15 m - 20 m) are required in areas with a higher slope (5% - 10%).

Level Spreader

The level spreader consists of a raised weir constructed perpendicular to the direction of flow. Water is conveyed over the spreader as sheet flow to maximize the contact area with the vegetation. Although the spreader can be engineered using concrete, more natural spreader designs/materials are recommended to maintain a natural appearance.

Figure 4.16 illustrates a typical level spreader design. A small berm is used as the level spreader. It creates a damming effect, preventing stormwater from entering the vegetation until the water level exceeds the height of the spreader. A perforated pipe (100 mm diameter) is installed in the spreader berm to ensure that any water which is trapped behind the berm after a storm can be drained. The perforated pipe should be wrapped in a filter sock to ensure that native material does not infiltrate the pipe.

Figure 4.16: Typical Filter Strip



The length of the level spreader should be chosen based on site specifics (topography, outlet location, drainage area configuration). It should be recognized, however, that a shorter level spreader necessitates the trade-off of greater upstream storage to maintain the desired flow depth over the vegetation. It is recommended that the level spreader length, and hence vegetated filter strip length, be as large as possible.

Flow Depth

The level spreader and vegetated filter strip should be designed such that the peak flow from a 4 hour Chicago 10 mm storm results in a flow depth of 50 - 100 mm through the vegetation. The flow depth over the level spreader can be calculated using a standard broad crested weir equation (Equation 4.4).

$$Q = \alpha L H^{1.5}$$ **Equation 4.4: Weir Flow**

where Q = discharge
α = coefficient
L = length of crest of weir
H = head

Storage

Storage will be required behind the level spreader depending on the level of control desired, and the length of the level spreader itself. The amount of storage required should be based on the excess runoff from a 4 hour Chicago distribution of a 10 mm storm, accounting for the flow over the weir. The 10 mm storm was chosen recognizing that 70% of all daily precipitation depths are less than or equal to this amount.

Vegetation

Species such as red fescue, tall fescue and redtop can be introduced in addition to the natural surrounding vegetation to filter out stormwater pollutants. Species native to the area should be used, where commercially available, in the planting strategy.

Technical Effectiveness

Vegetated filter strips have limited effectiveness for water quality control due to the difficulty of maintaining sheet flow (i.e., preventing channelization) through the vegetation. They are best implemented as one in a series of SWMPs in a stormwater management plan.

4.5.13 Stream and Valley Corridor Buffer Strips

Buffer strips are simply natural areas between development and the receiving waters. There are two broad resource management objectives associated with buffer strips:

- The protection of the stream and valley corridor system to ensure their continued ecological form and functions; and

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
6. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO STORMWATER MANAGEMENT REPORT(R-2026-087) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
9. PROVIDE LINE/PARKING PAINTING.

GRADING NOTES:

1. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
3. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
4. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
5. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
6. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
7. ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
8. REFER TO LANDSCAPE PLAN (126074-L) PREPARED BY NOVATECH FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.
9. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

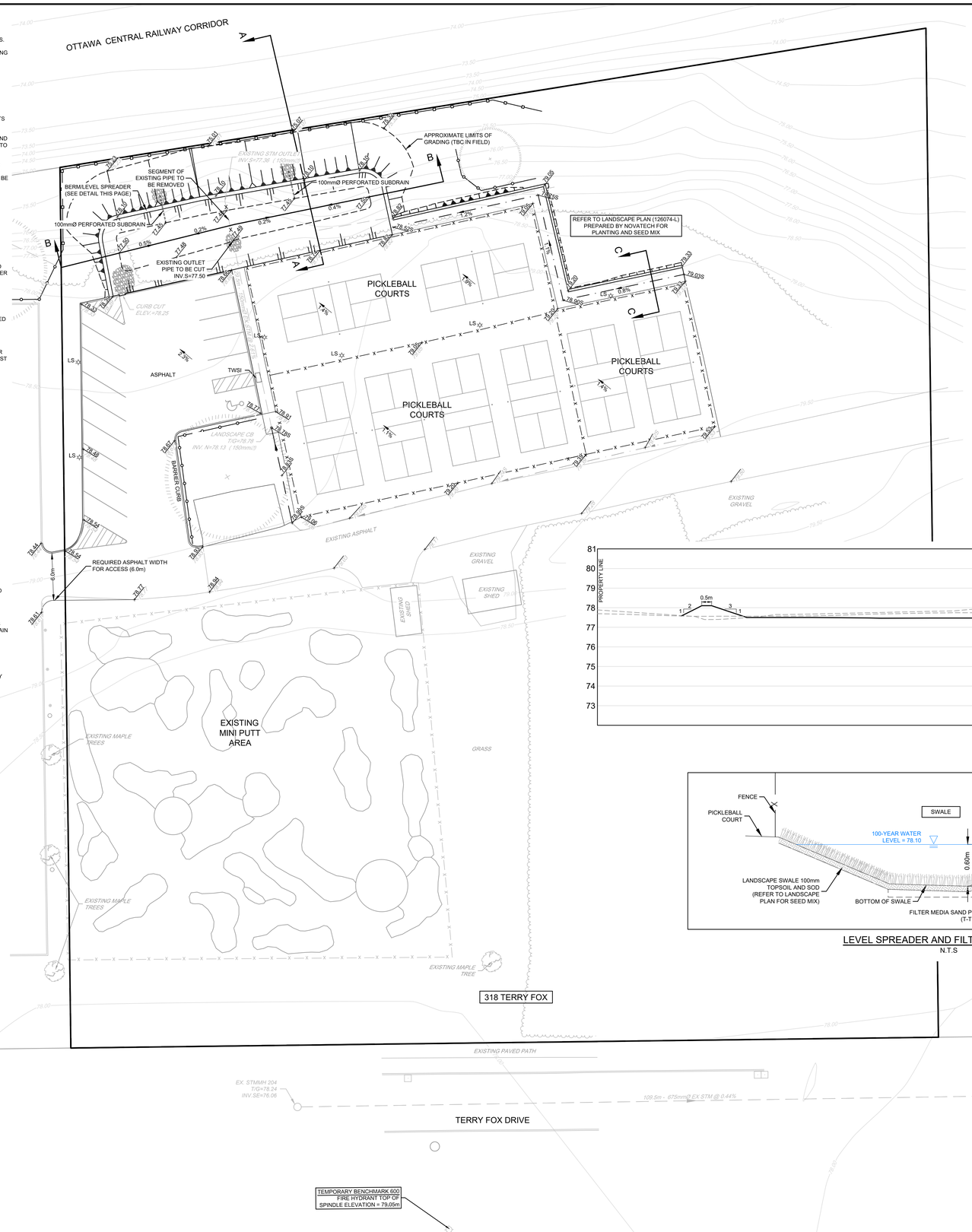
PAVEMENT STRUCTURE (AS CONSTRUCTED):

PICKLEBALL COURTS
50mm HL3 FINE WITH PGAC 5834
300mm GRANULAR "A"
*PER CITY OF OTTAWA SDD SR31

PARKING LOT
60mm HL3 FINE WITH PGAC 5834
150mm GRANULAR "A"
300mm GRANULAR "B" TYPE II

EROSION AND SEDIMENT CONTROL NOTES:

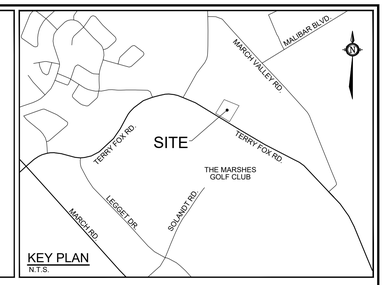
1. THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
2. SILT FENCING FOR ENTIRE PERIMETER OF SITE, SHALL BE UTILIZED TO CONTROL EROSION FROM THE SITE DURING CONSTRUCTION.
3. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.



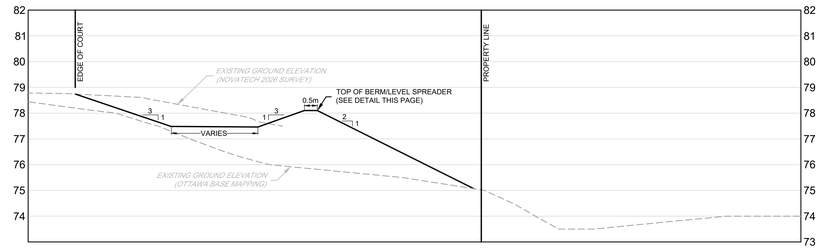
LEGEND

- PROPERTY LINE
- PROPOSED ELEVATION (78.66)
- EXISTING ELEVATION
- BARRIER CURB
- FENCE
- TERRACING
- BOTTOM OF SLOPE
- PERFORATED SUBDRAIN
- SILT FENCE (OPSD 219.110)
- RIP-RAP (OPSD 810.010)
- EXISTING TREE TO REMAIN (REFER TO TREE COMPENSATION PLAN 126074-TCR, PREPARED BY NOVATECH)
- TREE PROTECTION FENCE
- EXISTING BUSHLINE
- EXISTING CHAIN LINK FENCE
- EXISTING SWALE
- EXISTING STORM MANHOLE
- EXISTING STORM SEWER
- EXISTING SANITARY MANHOLE
- EXISTING CATCH BASIN
- EXISTING LANDSCAPE CATCH BASIN
- EXISTING HYDRANT
- LS EXISTING LIGHT STANDARD

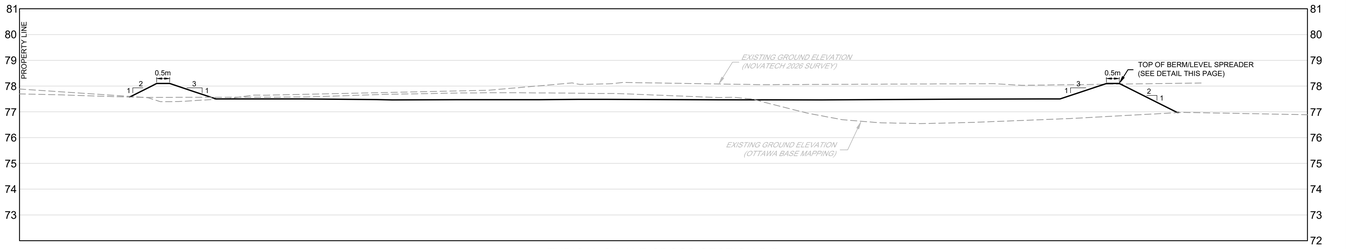
NORTH



KEY PLAN
N.T.S.

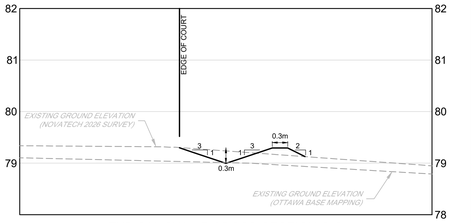


TYPICAL SWALE CROSS-SECTION A-A
SCALE = 1:100



TYPICAL SWALE CROSS-SECTION B-B
SCALE = 1:100

LEVEL SPREADER AND FILTER STRIP DETAIL
N.T.S



TYPICAL SWALE CROSS-SECTION C-C
SCALE = 1:50

SOURCE REFERENCE:
TOPOGRAPHIC INFORMATION:
1. NOVATECH TOPOGRAPHIC SURVEY / JULY 6, 2026 / 318 TERRY FOX DRIVE, KANATA, ON K2K 3J1
2. CONTOURS: OTTAWA BASE MAPPING

PROPERTY LINE INFORMATION:
1. GEOTTAWA 2022 / 318 TERRY FOX DRIVE, KANATA, ON K2K 3J1

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

NOT FOR CONSTRUCTION

No.	REVISION	DATE	BY
2.	ISSUED WITH STORMWATER MANAGEMENT BRIEF	OCT 19/26	LKC
1.	ISSUED FOR DISCUSSION	SEP 11/26	LKC

SCALE
1:250
1:250
0 2 4 6 8 10

DESIGN LKC
CHECKED LAB
DRAWN LKC
CHECKED JLS
APPROVED LAB

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
L.A. BOWLEY
100081115
OCT 20/26
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
318 TERRY FOX DRIVE

DRAWING NAME
GRADING, DRAINAGE AND STORMWATER MANAGEMENT PLAN

PROJECT No. 126074
REV REV # 2
DRAWING No. 126074-GS

M:\2026\126074\CAD\CIVIL\126074-GS.DWG - 10/20/2026 1:02 PM - LCONRY