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2000 CITY PARK DRIVE

Serviceability Report

2000 CITY PARK DRIVE

SERVICEABILITY REPORT

Prepared by:

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

July 15, 2026

Ref: R-2026-066
Novatech File No. 123006

NOVATECH
Engineers, Planners & Landscape Architects

July 15, 2025

City of Ottawa
Development Review - East Branch
Planning, Development and Building Services Department
110 Laurier Avenue West
Ottawa, Ontario

Attention: Kelsey Charrie

Dear Ms. Charrie:

Re: Serviceability Report
Proposed Residential Development
2000 City Park Drive, Ottawa, ON
Novatech File No.: 123006

Please find enclosed the complete pdf copy of the Serviceability Report for the above noted site. This report is submitted in support of a Draft Plan of Subdivision application and is hereby submitted for review and approval.

Please contact the undersigned, should you have any questions or require additional information.

Yours truly,

NOVATECH

Miroslav Savic, P. Eng.
Senior Project Manager

cc: Alex Gordon (Colonnade BridgePort)

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

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

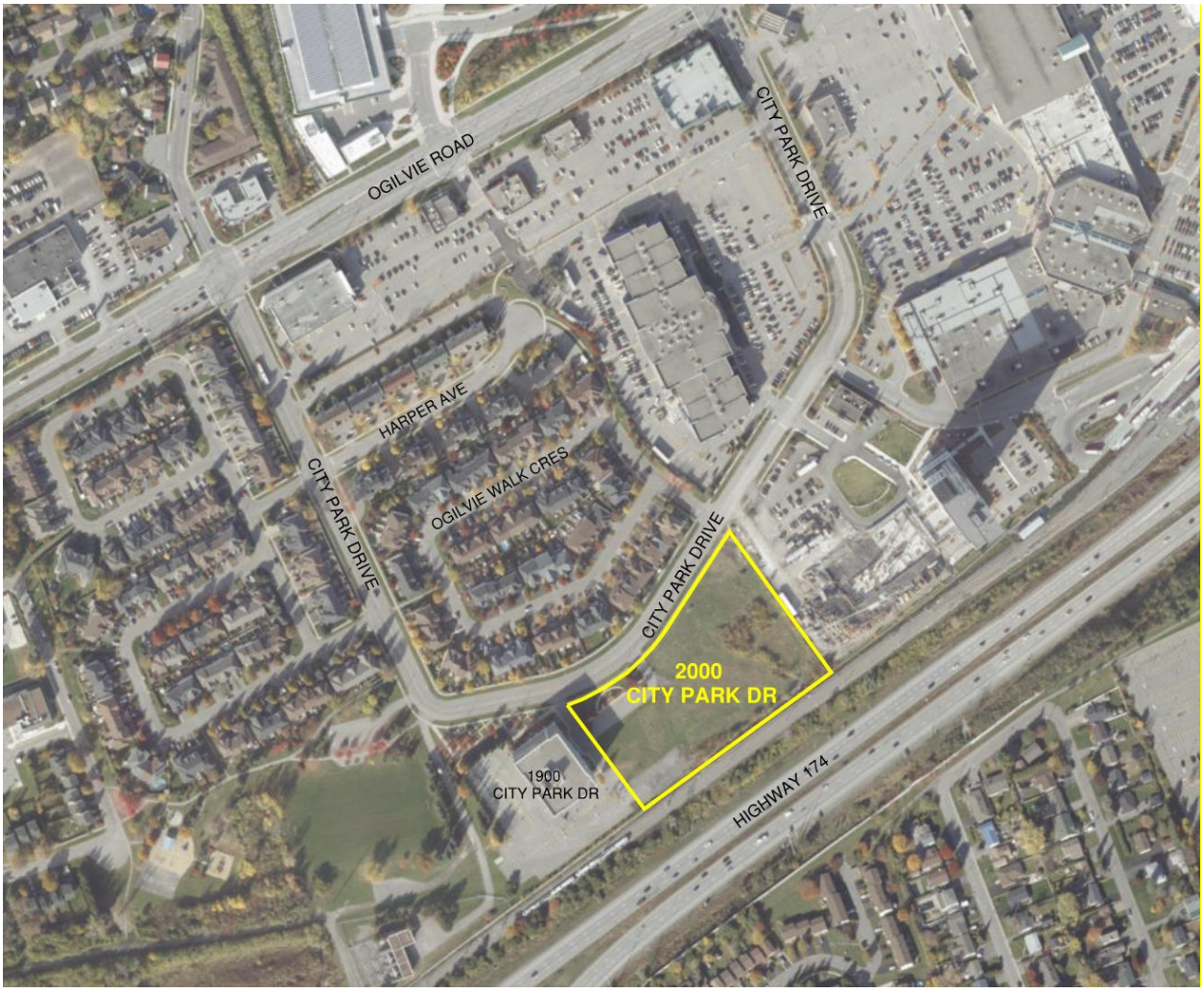
Novatech has been retained by Colonnade BridgePort to assess adequacy of the existing public services related to the proposed development at 2000 City Park Drive. The purpose of this report is to demonstrate that the proposed development can be serviced by the existing municipal infrastructure surrounding the subject site. The report also proposes a functional design for the municipal services. This report is being submitted in support of a Draft Plan of Subdivision application.

1.1 Location and Site Description

The subject site has an area of 1.57ha and is located on the south side of City Park Drive and north of Highway 174. The site is bordered by the existing office building to the west (1900 City Park Drive) and a high-rise residential development to the east. The legal description of the site is designated as Part of Block 2, Registered Plan 4M-649, City of Ottawa.

The 2000 City Park Drive site is currently undeveloped. The majority of the site is covered by natural green features (grass, bushes, and trees). Two surface parking lots servicing the adjacent office building are located at the northwest and southwest corner of the site.

Figure 1: Aerial View of the Subject Site



1.2 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa on March 10, 2026, at which time the client was advised of the general submission requirements. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

1.3 Proposed Development

The proposed development is to construct 5 (five) residential towers ranging from 12 to 30 storeys. The development will include 6 development blocks including a dedicated Park Block. The subdivision includes an 18m public right-of-way that that will be connected to City Park Drive at two locations. The parking for the proposed development will be provided underground.

Refer to **Appendix B** for the proposed Site Plan and the Draft Plan of Subdivision. ***Figure 2*** and ***Figure 3*** enclosed in **Appendix C** show the proposed 18m right-of-way typical cross sections.

The subject site is located within an LRT Transit Oriented Development (TOD) Area. A report entitled 'LRT Transit Oriented Development Study Areas Servicing Overview, TOD Study Areas: Lees, Hurdman, Train, St. Laurent, Cyrville and Blair, Final Report' (TOD Report) dated January 22, 2014 prepared by Stantec Consulting Ltd. provides a high-level assessment of the servicing of the listed TOD stations. The subject site is within the Blair TOD Study Area of the TOD Report which assisted in preparation of this report.

2.0 SITE SERVICING

The objective of this report is to demonstrate that proper sewage outlets (sanitary and storm) as well as a suitable domestic water supply and appropriate fire protection are available for the proposed development. The servicing criteria, the expected sewage flows, and water demands are to conform to the requirements of the City of Ottawa municipal design guidelines for sewer and water distribution systems. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa.

2.1 Water Servicing

There is an existing 305mm municipal watermain in City Park Drive. The City Park Drive watermain is connected to the 610mm diameter watermain in Ogilvie Avenue. The existing office building at 1900 City park Drive is currently serviced with a 203mm diameter watermain.

The TOD report indicated that the Blair TOD study area is located within Pressure Zone 1E of the City's central water distribution system. The existing 1220mm diameter watermain parallel and south of Highway 174 represents a major feed to this area. A 610mm diameter watermain running north/south along Blair Road connects the 610mm Ogilvie watermain to the 1220mm diameter feedermain.

It is proposed to service the development with a 200mm diameter watermain within the proposed public Street which will connect to the exiting 305mm diameter watermain in City Park Drive The anticipated daily water demand for the proposed development will be greater than 50m^3/day. Therefore, the proposed development will require two (2) water service connections to the municipal watermain system. The second service connection will be provided by looping the watermain through the site and connecting to the existing 203mm diameter private watermain currently servicing 1900 City Park Drive. This watermain is located within the proposed public Street and it will be converted into a public watermain. A new watermain valve on the existing

305m diameter watermain will be required between the two service connections to provide redundancy.

Refer to the ***Figure 4*** Conceptual Servicing Plan enclosed in **Appendix C** for the existing infrastructure and the proposed servicing for the subject development

Preliminary water demand and fire flow calculations have been prepared for the proposed development based on criteria in Section 4 of the City of Ottawa Design Guidelines for Water Distribution Systems. The fire flows are calculated using the Fire Underwriters Survey (FUS) method, based on general building assumptions, including building footprint, construction materials and fully sprinklered buildings. Refer to the table below for a summary of the water demands and fire flows and to **Appendix C** for detailed calculations.

Proposed Residential Development	Design Population	Avg. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Max. FUS Fire Flow (L/s)
Towers A, B, C. D, and E	2,146	6.9	17.4	38.2	100

The above domestic water demands, and fire flow requirements were provided to the City of Ottawa. These values were used to generate the municipal watermain network boundary conditions. **Table 2.2** summarizes the information provided by the City.

Table 3.1: Boundary Conditions (Both Connections)

Demand Scenario	Head (m) Connection 1	Head (m) Connection 2
Minimum HGL	110.2	110.2
Maximum HGH	117.1	117.1
Max Day + Fire Flow (100 L/s)	111.1	111.0

The following design criteria were taken from Section 4.2.2 – 'Watermain Pressure and Demand Objectives' of the City of Ottawa Design Guidelines for Water Distribution:

- Normal operating pressures are to range between 345 kPa (50 psi) and 483 kPa (70 psi)
- Minimum system pressures are to be 276 kPa (40 psi) under Peak Hour Demand.
- Minimum system pressures are to be 140 kPa (20 psi) under Max Day + Fire Flow demands.

The hydraulic model EPANET was used for the purpose of preliminary watermain analysis. The model is based on the watermain boundary conditions provided by the City of Ottawa.

A schematic representation of the hydraulic network in enclosed in **Appendix C**. The schematic depicts the junction and pipe numbers used in the model.

The modelling highlights the system pressures during 1) Maximum Day + Fire Flow Demand, 2) Peak Hour Demand, and 3) Average Day Demand conditions. The domestic water demands are applied at the building services (J1, J2, J4, and J6), the FUS fire flow demands are applied at

the fire hydrant locations (J3 and J5). The 1900 City Park water demands are applied at the existing building service location (J8)

Tables 2.3, **2.4**, and **2.5** summarize the demands and hydraulic model results under the various operating conditions. Refer to **Appendix C** for detailed modelling results.

Table 3.2: Hydraulic Model Results – Maximum Day + Fire Flow Demand

Operating Condition	Minimum Pressure
Max Day + Fire Flow Demand (100 L/s @J3)	338.0 kPa (49.0 psi)
Max Day + Fire Flow Demand (83 L/s @J5)	347.4 kPa (50.4 psi)

Table 3.3: Hydraulic Model Results – Peak Hour Demand

Operating Condition	Minimum Pressure
Peak Hour Demand	354.0 kPa (51.3 psi)

Table 3.4: Hydraulic Model Results – Average Day Demand

Operating Condition	Maximum Pressure
Average Day Demand	427.6 kPa (62.0 psi)

Based on the preceding analysis, the proposed watermain will provide adequate system pressures to the proposed development. Given the height of the proposed buildings, the booster pumps will be required to provide adequate water pressure to the upper floors.

Refer to **Appendix C** for preliminary watermain analysis, FUS fire flow calculations and correspondence with the City of Ottawa related to the municipal watermain boundary conditions.

2.2 Sanitary Servicing

There is a 250mm diameter sanitary sewer in City Park Drive in front of the site. It is proposed to service the development with a 250mm diameter sanitary sewer within the proposed public Street which will connect to the existing 250mm sanitary sewer that flows east along City Park Drive and ultimately discharges into 1050mm diameter Maxime Relief Trunk sewer. The Maxime Relief Trunk sewer outlets into the 1200mm diameter pipe crossing under the highway and eventually discharges into the1650mm diameter Greens Creek Collector.

It is proposed to service the development with a 250mm diameter sanitary sewer within the proposed Street right-of-way. Refer to ***Figure 4*** Conceptual Servicing Plan enclosed in **Appendix D** for the existing infrastructure and the proposed servicing for the subject development.

Based on criteria in Section 4 of the City of Ottawa Sewer Design Guidelines, the total theoretical peak sanitary flow, including infiltration, from the proposed development will be approximately 21.7 L/s. Refer to the **Table 2.6** below for a summary of the preliminary sanitary sewage flows and to **Appendix D** for detailed calculations.

Table 3.6: Peak Sanitary Flows

Proposed Residential Development	Unit Count	Design Population	Peak Residential Flow (L/s)	Infiltration Allowance (L/s)	Peak Sanitary Flow (L/s)
Towers A, B, C, D, and E	1,203	2,143	21.18	0.52	21.70

The proposed 250mm diameter sanitary sewer at minimum 0.3% slope has a full flow capacity of 34.0L/s. Refer to **Appendix C** for preliminary sanitary drainage area plan and the sanitary sewer design sheet.

Based on review of the City record drawings, the existing 250mm sanitary sewer in City Park Drive 0.45% slope has a full flow capacity of 41.6 L/s.

The preliminary sanitary flow calculations were provided to the City of Ottawa prior to the Zoning By-Law Amendment application for the purpose of capacity analysis of the downstream sanitary sewer system. The City asset management flagged some concerns; however no further comments were received during the Zoning By-Low Amendment approval process. Refer to **Appendix D** for email correspondence with the City (Marh 20, 2023 and April 11, 2023).

According to the TOD report, there is ample capacity in Maxime Relief Trunk Sewer for the ultimate TOD conditions. The Green Creek Collector the Maxime Relief Trunk outlets to does have a history of surcharging, but it is unknown how much spare capacity may exist.

2.3 Storm Servicing and Stormwater Management

Under current conditions, drainage from the existing office building site (1900 City Park Drive) is collected with an on-site stormwater system that outlets to the existing 1950mm diameter storm sewer located within the sewer easement along the west property line. The topography of the 2000 City Park Drive site gradually slopes from north to south towards the south property line. Drainage from the site is collected with the two on-site existing catch basins that are connected to the existing office building stormwater system.

Under post-development conditions, storm flows from the development are proposed to be connected to the existing 1500mm diameter storm sewer in City Park Drive that outlet to the 1950mm storm sewer running within the sewer easement along the west property line.

Refer to ***Figure 4*** Conceptual Servicing Plan enclosed in **Appendix C** for the existing infrastructure the proposed servicing for the subject development.

On-site stormwater management (SWM), including both quantity and quality control measures, will be required. The stormwater quantity control criteria have been provided at pre-consultation meetings with the City of Ottawa. Follow up discussions were held with the City of Ottawa and the Rideau Valley Conservation Authority (RVCA) with respect to the stormwater quality control requirements. Refer to **Appendix A** for notes from the pre-consultation meeting and the email correspondence with the City of Ottawa and RVCA.

Based on SWM criteria provided by the City of Ottawa, the allowable release rate from the site is calculated using the Rational Method, with a maximum allowable runoff coefficient equivalent to existing conditions, but in no case greater than C=0.5, a time of concentration of 10 minutes and

a 5-year rainfall intensity from City of Ottawa IDF curves. The allowable release rate for the site was calculated to be 132.7 L/s. The calculation is based on a pre-development runoff coefficient of 0.29. This release rate was then divided between the development blocks and the ROW based on percent area. Refer to **Appendix D** for Rational Method calculations.

Each block has been allocated a portion of this total release rate based on the following criteria:

- No 2-year surface ponding in the right-of-way.
- No stormwater management controls in the park block.
- Each development block was allocated a portion of the remaining release rate based on its area percentage of the total development block lands.

Quantity control of stormwater will be required for each of the development blocks and in the proposed right-of-way. It is assumed that stormwater within each development block can be stored on building roofs, on the surface or within underground storage tanks. Flow control roof drains and inlet control devices will be implemented into the design to control the release of stormwater to the allowable release rate. The allowable release rates and storage requirements for the development blocks is provided in **Table 2.7**.

Table 2.7: Allowable Release Rates and Storage Requirements Per Block

Block	Area (ha)	Area %	Allowable Release Rate (L/s)	Required Storage (m3)
ROW	0.406	N/A	72.8	69.2
Park	0.106	N/A	15.8	NA
Sub Total	**0.511**	**32.6%**	**91.1**	**69.2**
Block 1 (Lot A)	0.259	24.5%	10.8	105.7
Block 2 (Lot B)	0.205	19.4%	8.5	83.7
Block 3 (Lot C)	0.209	19.8%	8.7	85.3
Block 4 (Lot D)	0.210	19.9%	8.8	85.7
Block 5 (Lot E)	0.174	16.5%	7.3	71.1
Sub Total	**1.057**	**67.4%**	**44.1**	**431.6**
Total	**1.569**	**100%**	**132.7**	**500.8**

Note: Storage calculated assumes post development runoff coefficient of 0.90 for each development block.

Quantity control of stormwater will also be required within the public right-of-way. Inlet control devices will be installed in the roadside catchbasins to control the release of stormwater to the allowable release rate and stormwater will pond within the road allowance.

During storms in excess of the 100-year storm event, site grading will provide an overland flow route towards the existing ditch running along the south property line following the existing drainage pattern. ***Figure 6*** shows Conceptual Grading Plan.

Quality control of stormwater is required to an enhanced level or 80% total suspended solids removal as stipulated by the Rideau Valley Conservation Authority. However, if the block

development does not include any surface parking and there is only roof drainage and landscape drainage proposed then quality control of stormwater from the development block is not required.

Quality control will be required from the proposed public road right-of-way. This will be provided through the installation of an oil grit separator. The OGS unit sizes will be confirmed during detailed design. Should quality control of stormwater be required from any of the development blocks, each block would design and install their own system to provide the necessary quality control of stormwater.

In summary, the existing storm sewer infrastructure can service the proposed development and appropriate stormwater management methods can be used to meet the allowable release rate. Refer to **Appendix D** for preliminary stormwater management calculations and ***Figure 7*** for preliminary Storm Drainage Area Plan.

3.0 CONCLUSION

The conclusions of this report are as follows.

- Water servicing, including both domestic and fire protection, can be provided by connecting to the existing municipal watermain in City Park Drive. It is proposed to install a new watermain within the proposed right-of-way to service the proposed development blocks.
- Sanitary servicing can be provided by connecting to the existing sanitary sewer in City Park Drive. It is proposed to install new sanitary sewers within the proposed right-of-way to service the proposed development blocks.
- Storm servicing can be provided by connecting to the existing sanitary sewer in City Park Drive. It is proposed to install new storm sewers within the proposed right-of-way to service the proposed development blocks.
- Quantity control of stormwater can be provided within the proposed right-of-way using inlet control devices at the roadside catchbasins and ponding stormwater within the road right-of-way. Quantity control of stormwater will be provided by each individual development block through roof storage, on the surface, and/or underground storage tanks.
- Quality control of stormwater will be provided for the public road right-of-way through the installation of oil grit separator units. Quality control of stormwater is not required on the development blocks if the drainage is limited to roof and landscape drainage. No surface parking is being proposed within the development blocks.

NOVATECH

Prepared by:

Miroslav Savic, P. Eng.
Senior Project Manager

Reviewed by:

J. Lee Sheets, C.E.T.
Director

APPENDIX A

Correspondence

File No.: PC2026-0009

March 27, 2026

Jeff Kelly
Novatech
Via email: j.kelly@novatech-eng.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Plan of Subdivision
Application – 2000 City Park Drive

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on March 10, 2026.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

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

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. For your next submission, please submit the required Application Form, together with the necessary studies and/or plans to planningcirculations@ottawa.ca, copy (cc:) to the file lead and planning support.
2. In your subsequent pre-consultation or application submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed is requested with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
3. Please note, if your development proposal changes significantly in scope, design, or density it is recommended that a subsequent pre-consultation application be submitted.

4. If the Urban Design Review Panel (UDRP) Report is listed as a required submission material in the Study and Plan Identification List, the applicant must visit the UDRP prior to formally submitting the planning application. The UDRP report is required for the application to be considered complete.

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. Plan of Subdivision is supported by the policies and provisions of the PPS, OP and the Inner East Line 1 and 3 Station CDP.

2. The proposal is to subdivide 2000 City Park Drive to create individual development blocks. The site will be accessed via a roadway off City Park Drive.

3. The subject site is currently zoned TD3[3076] S519-h, TD2[3076] S519-h and O1 in the Zoning by-law 2008-250 and H2G[3076]S519-h and GRN in the New Zoning by-law 2026-50.

4. Per the Official Plan (2022) the subject property is in the Outer Urban Transect and designated Hub (Schedule A and B3).

5. Inner East Lines 1 and 3 Stations Secondary Plan

    a. The secondary plan designates the subject site as Area B: maximum height 20 storeys and minimum density 250 units per net hectare and/or 1.0 floor space index (non-residential)

6. Blair Transit Oriented Development Plan Area (TOD Plan)

    a. To the east of the subject property is Blair Transit station

    b. The Blair TOD Plan is implemented through the Inner East Lines 1 and 3 Station Secondary Plan (2022), which provides direction on maximum building heights and minimum densities

7. The subject property is within the Blair Protected Major Transit Station Area (PMTSA), Schedule C1.

8. The rear of the property is along the rapid transit station corridor and within the Development Zone of Influence for the Confederation Line, Annex 2. A Proximity Study will be required to support a site plan application, plan of subdivision or a similar development agreement process.

9. Road cross section is required.

10. Despite the provisions found in zoning exception we want to confirm that setbacks from any public street needs to be 3.0m for both above and below grade structures to promote a healthy public realm including space for street trees and wide sidewalks.

11. Staff recommend that the corridor for the North South MUP be will transferred to the City's ownership.

12. The City is interested in working out an arrangement for the construction of the East West MUP on the City's lands to the south of the site to tie in with the construction of the North South MUP.

13. Staff are open to the possible development of Block A through a severance and Site Plan Control application ahead of the registration of the plan of Subdivision. In order for staff to support this approach, we ask that you submit a detailed strategy of how you believe we could properly review how it would tie into the overall engineering design and conditioning for the subdivision as well as the transfer of the entire park block once these lands are no longer within the limits of the subdivision approval.

Feel free to contact Steve Belan, Planner II and/or Sera Celebi, Planner I, for follow-up questions.

Urban Design

Comments:

14. Urban design supports the new approach to development, which is through a plan of subdivision.

15. Urban design issues related to the mater site plan have been previously conceptually resolved. The plan of subdivision should implement the master site plan and create the required infrastructure to support phased development.

16. With respect to the new public street, urban design encourages the applicant to implement a streetscape design that supports the envisioned high-density development. Deviation from the current standard cross section for a local street may be appropriate. Our recent experience under similar circumstances is that a minimum 20m right-of-way may be required.

    a. The new street should have sidewalks on both sides.

    b. The width of the sidewalk should support the expected service level for pedestrian movement, likely similar to conditions of downtown given the approve density.

    c. In this instance, given that on street parking is proposed, it may be most appropriate to locate the sidewalks next to the curbs with rooms for snow storage and essential elements such as street lights.

    d. There should be sufficient rooms for street trees and soft landscaping. The design should ensure continuous tree canopies on both sides of the new street. If street trees are located next to the curbs engineered tree-planting solutions are likely required.

    e. The minimum space between the curb and the building face should be approximately 6m (without any balcony projections). This space may be provided within the right-of-way or a combination of right-of-way and building setbacks. Additional space for landscaping is desired for at grade units with outdoor private amenity spaces.

17. With respect to the new multi-use pathway, the width of the hard surface pavement should reflect the anticipated service level for pedestrians and cyclists. Continuous street canopy and soft landscaping should be provided between the pathway and the building. Addition space between the building and the pathway is desired to provide additional privacy for at-grade units with outdoor amenity spaces.

    Submission requirements:

    a. Concept roadway design for the new street

    b. Conceptual cross sections for the new street

    c. Conceptual streetscape design for the new street

    d. Conceptual cross sections for the proposed multi-use pathway

Feel free to contact Randolph Wang, for follow-up questions.

Engineering

Comments:

18. A significant portion of the preliminary servicing analysis and design development was completed as part of the zoning application. The requirements for the subdivision application will build on this work to finalize all servicing aspects through the detailed design submission.

19. During the pre-consultation meeting, clarification was requested regarding the requirements to initiate construction on an initial block. The requirements for this are that subdivision detailed design must be completed or sufficiently advanced for approval, and that a phased set of plans will be required to demonstrate that both the interim and ultimate servicing conditions will function.

20. General requirements for Detailed Design:

    a. Provide a Servicing and Stormwater Management Report (SWM) demonstrating the feasibility of all municipal services. All design shall conform to the City of Ottawa Sewer Design Guidelines and City of Ottawa Water Distribution Design Guidelines

    b. Confirm available water capacity and system pressures at key connection points. Provide a hydraulic analysis including peak domestic demand, maximum day demand, fire flow requirements, and water age analysis.

    c. Demonstrate compliance with minimum pressure requirements under both normal operating and fire flow conditions.

    d. Provide a hydrant coverage plan and fire access routes. Ensure hydrant spacing and access comply with applicable fire department requirements.

    e. Confirm downstream sanitary sewer capacity, including submission of pipe design sheets. Demonstrate that no surcharging will occur under design conditions and that there will be no adverse impacts on the existing system.

    f. Confirm that any proposed public sanitary or storm sewers meet City requirements, including maximum allowable depths for maintenance and constructability.

    g. Confirm that the stormwater management system functions as intended, including both quantity and quality control. Demonstrate acceptable outlet conditions and downstream capacity.

    h. Demonstrate safe conveyance of major system flows (e.g., 100-year event), including overland flow routing.

i. Provide pre- and post-development drainage plans that maintain or improve existing drainage patterns where feasible.

j. Ensure no ponding occurs adjacent to structures and address grading constraints associated with tower footprints and underground parking.

k. Ensure coordination with all applicable agencies (utility providers, conservation authority, etc.).

l. For public sewers an MECP Environmental Compliance Approval will be required for the proposed development.

Feel free to contact Kelsey Charie, for follow-up questions.

Transportation

Comments:

21. Geometric Road Design (GRD) drawings will be **required with the first submission of underground infrastructure and grading drawings.**

22. These drawings should include such items as, but is not limited to Road Signage and Pavement Marking for the subdivision, intersection control measure at new internal intersections, location of depressed curbs, PXOs and TWSIs.

23. Include traffic calming measures on roads within the limits of their subdivision to limit vehicular speed to 30 kph and improve pedestrian safety. These measures may include either vertical or horizontal features.

24. Any road works external to the subdivision require a Road Modification Approval (RMA) report.

25. Corner Sight Triangle as per below:

    a. Arterial/Collector: overlapping 5m x 15m triangles

    b. Collector/Collector: overlapping 5m x 15m triangles

    c. Arterial/Local: 3m x 9m with the longer dimension along the arterial road

    d. Collector/Local: 3m x 9m with the longer dimension along the collector road

    e. Local/Local: 3m x 3m

26. A TIA is warranted, please proceed to **Step 2; TIA Scoping report**. The application will not be deemed complete without Step 2 being submitted at least 14 calendar days prior to the formal application. A **TIA Strategy report (Step 3)** with Synchro files will be required at the formal application.

27. A detailed road noise study is required.

28. The public road must be constructed to City local road standard (18m row). Sidewalks on both sides and only one side parking.

Feel free to contact Mike Giampa, Transportation Project Manager, for follow-up questions.

Environment

Comments:

29. An EIS is not required.

30. Please Submit a Landscape Plan as per the City's Landscape Plan Terms of Reference. For example, a projection of the future canopy cover for the site to 40 years must be provided on the landscape plan to demonstrate no net loss and/or enhancements.

31. Official Plan (OP) Section 4.8.2 (2) specifies that forty percent (40%) urban forest canopy cover is a long-term goal to help with climate resiliency and other environmental factors.

32. Official Plan (OP) Section 2.2.4 - Healthy and Inclusive Communities, Policy 1 includes trees and shade as important public considerations. Policies 3 and 4 further identify the mental and physical benefits of trees and greenspace areas.

33. To support the city's long-term urban canopy cover target: replacement of lost tree canopy should be provided, at a minimum, and enhancement of tree canopy cover is preferred, especially along pathways and corridors such along the south portion of the subject parcel (Regional Road 174 and the O-Train System). It is important to provide space for trees along scenic routes, arterial roads, and highways (OP Section 4.6).

34. The urban heat island effect is an issue in this area. As per OP Section 5.1.1, Section 10.3, and Section 2.2.3, it may be reduced by means of incorporating green roofs, light coloured reflective materials, the retention of mature trees, as well as the addition of native tree species, and greenspace areas.

35. Please continue to consider the benefits of the City of Ottawa Bird-Safe Design Guidelines and incorporate measures as appropriate.

Feel free to contact Kim MacDonald, Environmental Planner, for follow-up questions.

Forestry

Comments:

36. A Tree Conservation Report is a requirement of the Plan of Subdivision Application submission.

37. Tree planting along streets is a direction provided by 4.1.3 of the Official Plan. To ensure there is space being provided for trees:

    a. Please also **provide a conceptual landscape plan** scoped to show the number and size (small, medium or large) of trees and soil volume available to accommodate tree planting along the proposed road.

    b. OP Section 4.6.2 Policy 4 directs development to provide screening along scenic routes, which applies to Highway 417, in the way of Landscape Buffers. Confirm there will be space to support tree planting on the southern edge of the site with at least minimum soil volume requirements being met. **Demonstrate on the conceptual landscape plan what space is available with the block lay out provided**.

    c. Please **provide a sample cross section with utility dimensions** of the proposed road. There is concern about the ability to fit trees with the “bump outs” proposed. At least 3.00m of soft landscape buffer width needs to be provided to support tree planting. This can be incorporated within the conceptual landscape plan, site plan, or civil plans.

38. If sensitive marine clay soils are present, please identify tree planting implications in the Geotechnical Investigation. If underground parking is proposed, discuss how this would influence tree planting restrictions in the Geotechnical Investigation.

39. Sufficient space must be provided on each lot to support tree planting. Please confirm the parking garage will not extend lot line to lot line, eliminating tree planting opportunities. The City of Ottawa is working towards a 40% canopy cover target (OP Section 4.8.2). Limiting tree planting opportunities with expansive underground parking garages will prevent the City from reaching the 40% target.

Tree Conservation Report requirements. The following Tree Conservation Report (TCR) requirements have been adapted from the Schedule E of the Urban Tree Protection Guidelines – for more information on these requirements please contact hayley.murray@ottawa.ca

- A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
- Any tree 10 cm in diameter or greater and City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

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

Tree Type/Size	Single Tree Soil Volume (m^3)	Multiple Tree Soil Volume (m^3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

These minimums do not apply where sensitive marine clay soils are present. Please refer to the "Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines Background: Existing" for soil volumes related to tree planting in the right of way

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

Parkland

Lucy Ramirez, Development Review Parks Planner | Lucy.Ramirez@ottawa.ca

Submission Requirements and Fees

1. Make an application for Plan of Subdivision. As the ultimate number of residential units within the planned are is greater than 251 dwelling units the fee will be $159,362.84.
    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.

Regards,

Steve Belan

Encl. Study and Plan Identification Form

c.c. Katie Turk, Senior Planner
Sera Celebi, Planner
Justin Armstrong, Senior Project Manager, Infrastructure Approvals
Kelsey Charie, Project Manager, Infrastructure Approvals

Terenzo Giovannitti, Project Manager, Infrastructure Approvals
Mike Giampa, Project Manager, Infrastructure Approvals – Transportation
Randolph Wang, Senior Urban Designer
Hayley Murray, Planning Forester
Kim Macdonald, Environmental Planner
Lucy Ramirez, Parks Planner

APPENDIX B

Site Plan
Draft Plan of Subdivision

GENERAL NOTES

1. These architectural documents are the exclusive property of NEUF ARCHITECTS INC. and cannot be used, copied or reproduced without written pre-authorisation.
2. All dimensions which appear on the documents must be verified by the contractor prior to commencement of work.
3. The architect must be notified of all errors, omissions and discrepancies between these documents and those of the other professionals
4. The dimensions on these documents must be read and not measured.

LANDSCAPE ARCHITECT
Company Name
Company Adress
Telephone and company website

CIVIL
Company name
Company Adress
Telephone and Company website

ARCHITECTS
NEUF ARCHITECTS INC.
10, rue Rideau, 4e étage, Ottawa, ON K1N 9J1
T 613 234 2274 | www.NEUF.ca

SEAL

NEUF
ARCHITECT(E)S

Project Name
13048 - 2000 CITY PARK

Location

PROJET No.
13048

NO	REVISION	DATE (aa-mm-jj)

Preliminary
DO NOT USE FOR CONSTRUCTION

Drawn by
RD

Checked by
CI

DATE (aa.mm.jj)
2026.06.24

Scale
1 : 200

Drawing Title
SUBDIVISION SITE PLAN

Revision

Dwg Number
A100

OVERALL SITE PLAN (SUBDIVISION)
1 : 200
1 / A100

1m 10m 50m

C:\Fichiers Revit Locaux\13048_CTPK_ARCH_R24_cllg.rvt

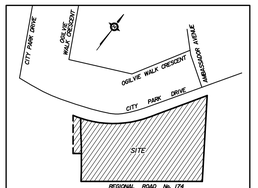
Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from control monument No. 019680132 having an elevation of 66.127 metres.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

SUBJECT TO CONDITIONS, IF ANY,
SET FORTH IN OUR LETTER DATED _____2026, THIS
DRAFT PLAN IS APPROVED BY THE CITY OF OTTAWA UNDER
SECTION 9 OF THE CONDOMINIUM ACT
AND SECTION 51 OF THE PLANNING ACT
THIS _____ DAY OF _____, 2026.

JOHN SEVIGNY, MCIP, RPP, ACTING MANAGER
DEVELOPMENT REVIEW-EAST
PLANNING, DEVELOPMENT AND BUILDING SERVICES
DEPARTMENT, CITY OF OTTAWA



KEY PLAN (Not To Scale)

DRAFT PLAN OF SUBDIVISION OF

PART OF BLOCK 2
REGISTERED PLAN 4M-648
CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebekk Ltd

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

Metric

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

Surveyor's Certificate

I CERTIFY THAT the boundaries of the Lands to be subdivided and their relationship to the adjacent lands are accurately and correctly shown.

Date — E. H. Herweyer, Ontario Land Surveyor

Owner's Certificate

This is to certify that I am the owners / agent of the lands to be subdivided and that this plan was prepared in accordance my instructions.

Date — XXXXXX XXXXXX (Authorized Signing Officer)

I have the authority to bind the corporation.

Owner's Certificate

This is to certify that I am the owners / agent of the lands to be subdivided and that this plan was prepared in accordance my instructions.

Date — XXXXXX XXXXXX (Authorized Signing Officer)

I have the authority to bind the corporation.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51-17 OF THE PLANNING ACT

(a) see plan
(b) see plan
(c) see plan
(d) see plan
(e) see plan
(f) see plan
(g) see plan
(h) municipal water available
(i) see soils report
(j) see plan
(k) municipal services available
(l) none known

Notes & Legend

Denotes

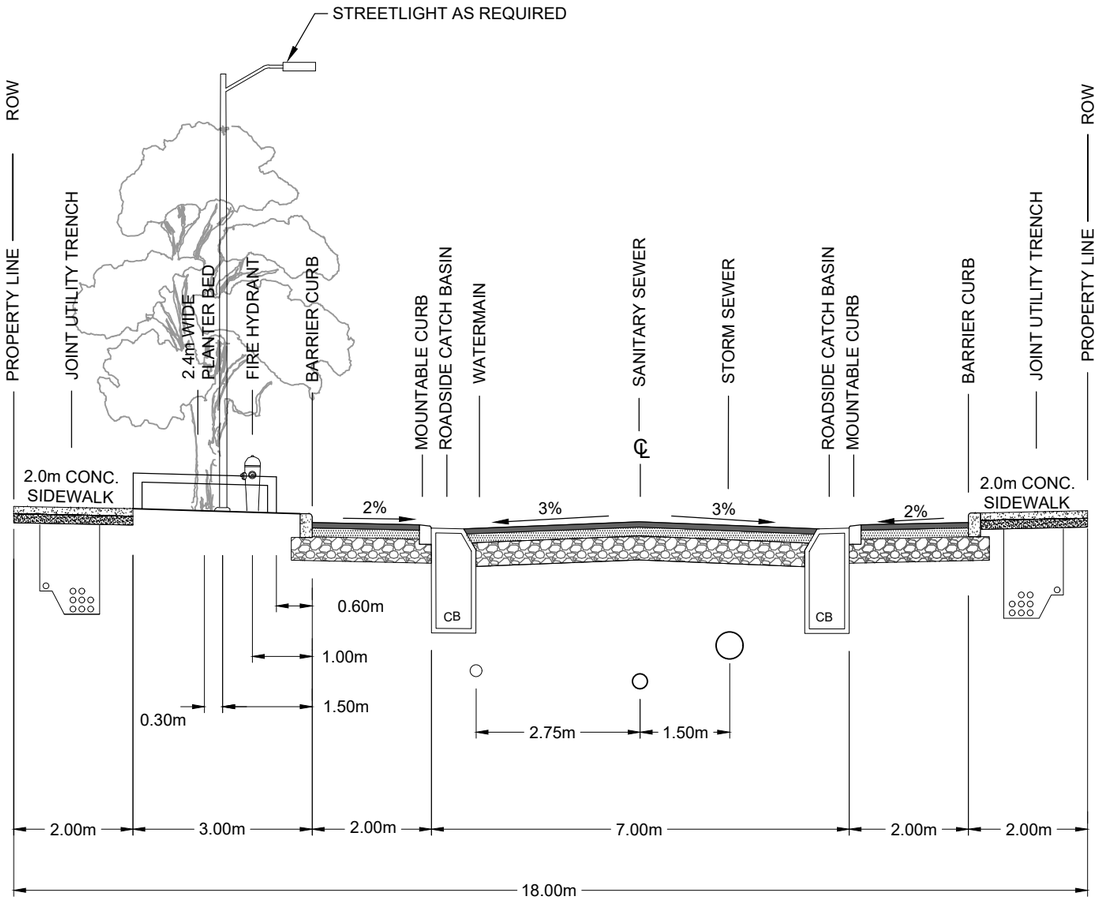
- Deciduous Tree
- FH — Fire Hydrant
- WV — Water Valve
- MH-ST — Maintenance Hole (Storm Sewer)
- MH-S — Maintenance Hole (Sanitary)
- MH-H — Maintenance Hole (Hydro)
- VC — Valve Chamber (Watermain)
- CB — Catch Basin
- LS — Light Standard
- H-T — Hydro Transformer
- TOS — Top of Slope
- C/L — Centreline
- Ø — Diameter
- +65.00 — Location of Elevations
- +65.00 — Top of Concrete Curb / Retaining Wall Elevation
- B — Bollard
- S — Sign
- BH — Borehole
- SP — Water Stand Post
- CLF — Chain Link Fence

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

Job No. N-24886 05 — FS

APPENDIX C

Typical Cross Sections



M:\2023\123006\CAD\Civil\123006-GP.dwg, FIG 2, Jul 13, 2026 - 1:00pm, lcolbran

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

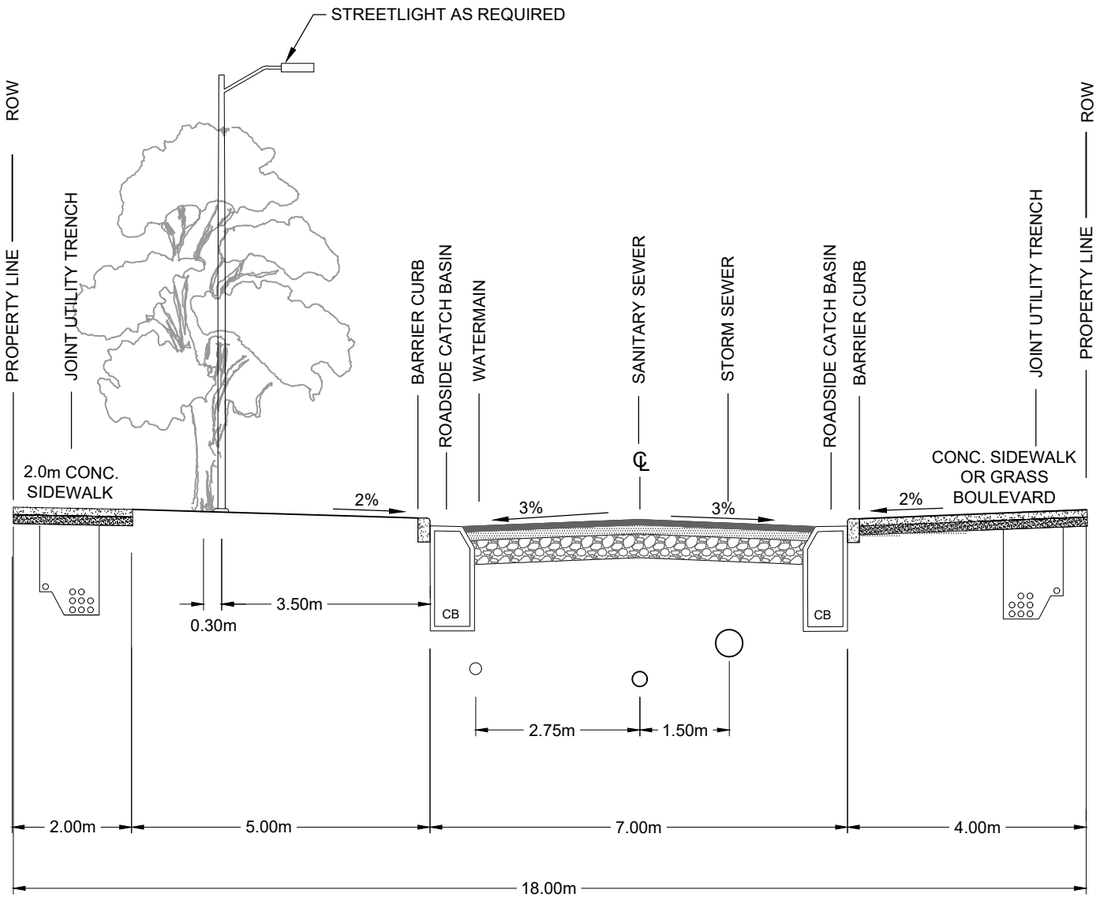
2000 CITY PARK DRIVE

CROSS SECTION - LAYBY

SCALE 1 : 100

DATE JULY 2026 | JOB 123006 | FIGURE 2

SHT11X17.DWG - 279mm X 432mm



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

2000 CITY PARK DRIVE

CROSS SECTION - NARROW

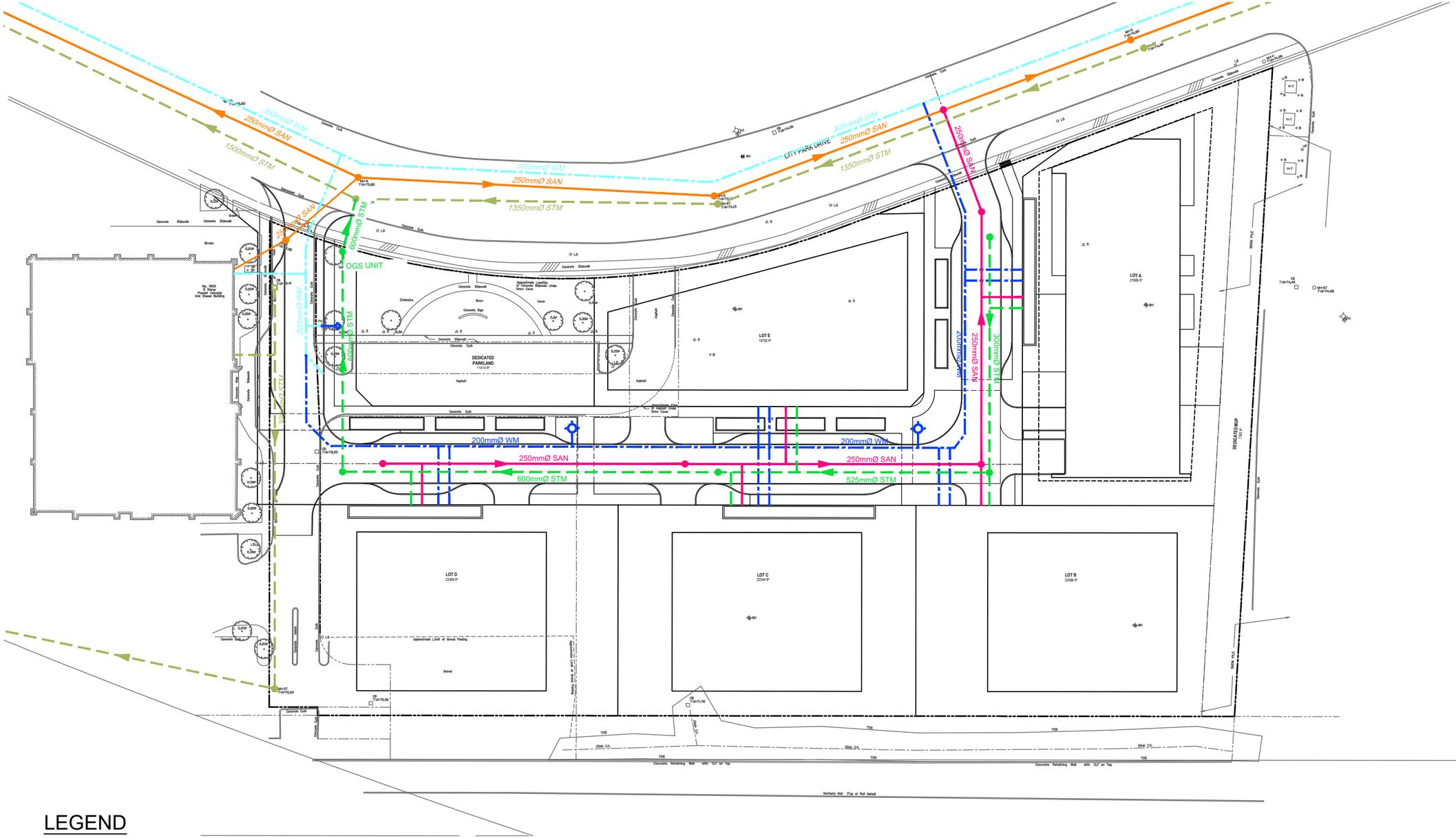
SCALE 1 : 100

DATE JULY 2026 | JOB 123006 | FIGURE 3

M:\2023\123006\CAD\Civil\123006-GP.dwg, FIG 3, Jul 13, 2026 - 1:00pm, lcolbran

APPENDIX D

Conceptual Servicing Plan



LEGEND

- PROPERTY LINE
- EXISTING WATERMAIN
- EXISTING SANITARY SEWER AND DIRECTION OF FLOW
- EXISTING STORM SEWER AND DIRECTION OF FLOW
- PROPOSED WATERMAIN
- PROPOSED SANITARY SEWER AND DIRECTION OF FLOW
- PROPOSED STORM SEWER AND DIRECTION OF FLOW
- PROPOSED HYDRANT C/W VALVE AND VALVE BOX

NOVATECH
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Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

2000 CITY PARK DRIVE

CONCEPTUAL SERVICING PLAN

SCALE 1 : 750 (0, 10, 20, 30)
DATE JULY 2026
JOB 123006
FIGURE 4

SHT11X17.DWG - 279mm X 432mm

M:\2023\123006\CAD\Civil\123006-GP.dwg, FIG 4, Jul 13, 2026 - 1:00pm, lcalbran

APPENDIX E

Water Servicing Calculations

2000 CITY PARK DR
DOMESTIC WATER DEMAND

TOWER A

Number of Units		
Studio	15	
1 Bedroom	94	
2 Bedroom	72	
Perons per Unit		
Studio	1.4	
1 Bedroom	1.4	
2 Bedroom	2.1	

TOWERS B, C, D, and E

Number of Units		
Building B	301	
Building C	299	
Building D	301	
Building E	121	
Total Number of Units	1022	
Persons per Unit	1.8	
Total Population	2,143	
Average Day Demand per Person	280	L/c/day
Average Day Demand	**6.9**	**L/s**
Maximum Day Demand (2.5 x avg. day)	**17.4**	**L/s**
Peak Hour Demand (2.2 x max. day)	**38.2**	**L/s**

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123006
Project Name: 2000 City Park Drive
Date: 6/9/2026
Input By: MS
Reviewed By:
Drawing Reference:

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: Building A - 16 Storey Building with 5 Storey Podium
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1410			
		Total Floors/Storeys (Podium)	5			
		Tower Footprint (m^2)	850			
		Total Floors/Storeys (Tower)	11			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**2,115**	
	F	**Base fire flow without reductions**				**8,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**6,800**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,720**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**-40%**	
		Area of Sprinklered Coverage (m^2)	16400	100%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	>30m		0%	**1,700**
		East Side	>30m		0%	
		South Side	10.1 - 20 m		15%	
		West Side	20.1 - 30 m		10%	
				Cumulative Total	**25%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**6,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**100**
				or	USGPM	1,585

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123006
Project Name: 2000 City Park Drive
Date: 6/9/2026
Input By: MS
Reviewed By:
Drawing Reference:

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: Building B - 30 Storey Building with 6 Storey Podium
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1050			
		Total Floors/Storeys (Podium)	6			
		Tower Footprint (m^2)	750			
		Total Floors/Storeys (Tower)	24			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,575**	
	F	**Base fire flow without reductions**				**7,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**5,950**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,380**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**-40%**	
		Area of Sprinklered Coverage (m^2)	24300	100%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	10.1 - 20 m		15%	**1,488**
		East Side	>30m		0%	
		South Side	>30m		0%	
		West Side	20.1 - 30 m		10%	
				Cumulative Total	**25%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**5,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**83**
				or	USGPM	1,321

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123006
Project Name: 2000 City Park Drive
Date: 6/9/2026
Input By: MS
Reviewed By:
Drawing Reference:

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Building C - 30 Storey Buidlign with 6 Storey Podium
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1050			
		Total Floors/Storeys (Podium)	6			
		Tower Footprint (m^2)	750			
		Total Floors/Storeys (Tower)	24			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,575**	
	F	**Base fire flow without reductions**				**7,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**5,950**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,380**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**-40%**	
		Area of Sprinklered Coverage (m^2)	24300	100%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**1,785**
		East Side	20.1 - 30 m		10%	
		South Side	>30m		0%	
		West Side	20.1 - 30 m		10%	
				Cumulative Total	**30%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**5,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**83**
				or	USGPM	1,321

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123006
Project Name: 2000 City Park Drive
Date: 6/9/2026
Input By: MS
Reviewed By:
Drawing Reference:

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: Building D - 30 Storey Building with 6 Storey Podium
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction **C**	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1050			
		Total Floors/Storeys (Podium)	6			
		Tower Footprint (m^2)	750			
		Total Floors/Storeys (Tower)	24			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,575**	
	F	**Base fire flow without reductions**				**7,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**5,950**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,380**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**-40%**	
		Area of Sprinklered Coverage (m^2)	24300	100%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	>30m		0%	**595**
		East Side	20.1 - 30 m		10%	
		South Side	>30m		0%	
		West Side	>30m		0%	
				Cumulative Total	**10%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**4,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**67**
				or	USGPM	1,057

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

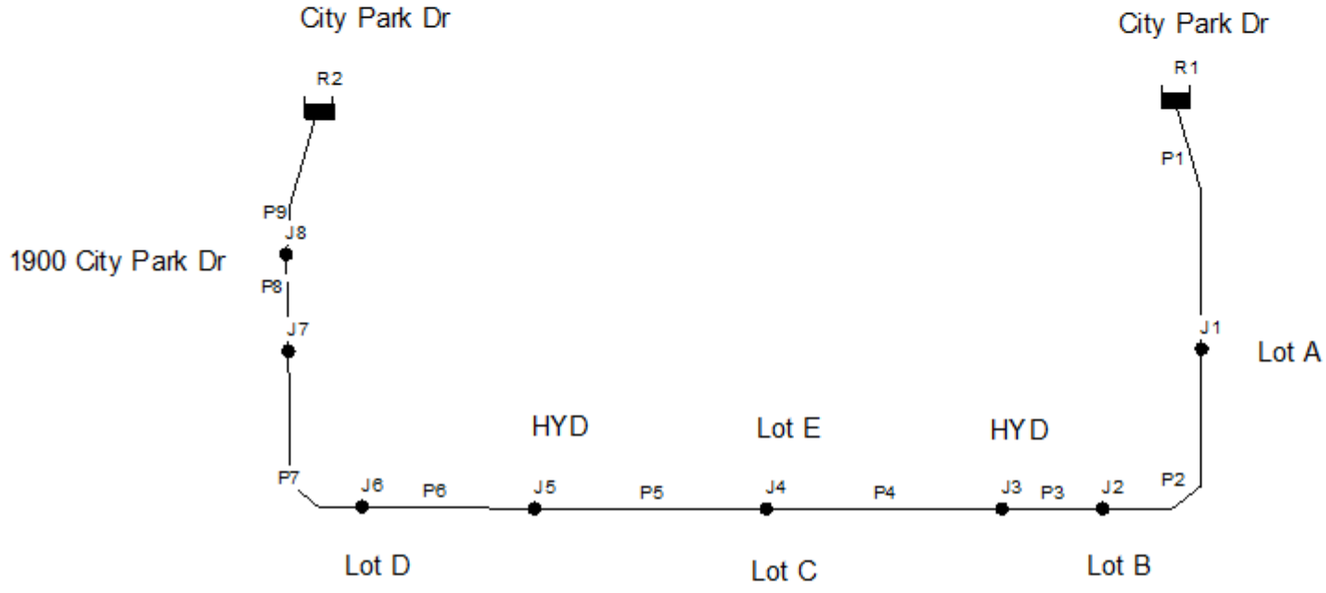
Novatech Project #: 123006
Project Name: 2000 City Park Drive
Date: 6/9/2026
Input By: MS
Reviewed By:
Drawing Reference:

Legend: Input by User / No Input Required
Reference: Fire Underwriter's Survey Guideline (2020) Formula Method

Building Description: Building E - 12 Storey Building with 5 Storey Podium
Type II - Non-combustible construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Podium Level Footprint (m^2)	1180			
		Total Floors/Storeys (Podium)	5			
		Tower Footprint (m^2)	750			
		Total Floors/Storeys (Tower)	7			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**1,770**	
	F	**Base fire flow without reductions**				**7,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**5,950**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-2,380**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Sub-Total	**-40%**	
		Area of Sprinklered Coverage (m^2)	11150	100%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	>30m		0%	**1,190**
		East Side	20.1 - 30 m		10%	
		South Side	20.1 - 30 m		10%	
		West Side	>30m		0%	
				Cumulative Total	**20%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**5,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**83**
				or	USGPM	1,321

2000 CITY PARK DRIVE



2000 CITY PARK DRIVE
WATERMAIN MODELING RESULTS

Maximum Day + Fire Flow Demand @J3
Network Table - Nodes

Node ID	Elevation m	Demand LPS	Head m	Pressure m	kPa	psi
Junc J1	74.3	2.5	110.06	35.76	350.8	50.9
Junc J2	74	4.4	108.54	34.54	338.8	49.1
Junc J3	73.9	100	108.35	34.45	338.0	49.0
Junc J4	73.7	6.2	108.67	34.97	343.1	49.8
Junc J5	73.7	0	109.27	35.57	348.9	50.6
Junc J6	73.5	4.4	109.63	36.13	354.4	51.4
Junc J7	73.7	0	110.47	36.77	360.7	52.3
Junc J8	73.7	1.2	110.8	37.1	364.0	52.8
Resvr R1	111	-64.92	111	0	0.0	0.0
Resvr R2	111.1	-53.78	111.1	0	0.0	0.0

Maximum Day + Fire Flow Demand @J3
Network Table - Links

Link ID	Length m	Diameter mm	Roughness	Flow LPS	Velocity m/s	Unit Headloss m/km
Pipe P1	32.8	200	110	69.33	2.2	32.0
Pipe P1	33	200	110	64.92	2.1	28.4
Pipe P2	58	200	110	62.42	2.0	26.4
Pipe P3	8	200	110	58.02	1.9	23.0
Pipe P4	25	200	110	-41.98	1.3	12.6
Pipe P5	37	200	110	-48.18	1.5	16.3
Pipe P6	22	200	110	-48.18	1.5	16.3
Pipe P7	44	200	110	-52.58	1.7	19.2
Pipe P8	17	200	110	-52.58	1.7	19.2
Pipe P9	15	200	110	-53.78	1.7	20.0

Maximum Day + Fire Flow Demand @J5
Network Table - Nodes

Node ID	Elevation m	Demand LPS	Head m	Pressure m	kPa	psi
Junc J1	74.3	2.5	110.52	36.22	355.3	51.5
Junc J2	74	4.4	109.75	35.75	350.7	50.9
Junc J3	73.9	0	109.66	35.76	350.8	50.9
Junc J4	73.7	6.2	109.39	35.69	350.1	50.8
Junc J5	73.7	83	109.11	35.41	347.4	50.4
Junc J6	73.5	4.4	109.5	36	353.2	51.2
Junc J7	73.7	0	110.42	36.72	360.2	52.2
Junc J8	73.7	1.2	110.77	37.07	363.7	52.7
Resvr R1	111	-45.45	111	0	0.0	0.0
Resvr R2	111.1	-56.25	111.1	0	0.0	0.0

Maximum Day + Fire Flow Demand @J5
Network Table - Links

Link ID	Length m	Diameter mm	Roughness	Flow LPS	Velocity m/s	Unit Headloss m/km
Pipe P1	33	200	110	45.45	1.5	14.7
Pipe P2	58	200	110	42.95	1.4	13.2
Pipe P3	8	200	110	38.55	1.2	10.8
Pipe P4	25	200	110	38.55	1.2	10.8
Pipe P5	37	200	110	32.35	1.0	7.8
Pipe P6	22	200	110	-50.65	1.6	17.9
Pipe P7	44	200	110	-55.05	1.8	20.9
Pipe P8	17	200	110	-55.05	1.8	20.9
Pipe P9	15	200	110	-56.25	1.8	21.7

2000 CITY PARK DRIVE
WATERMAIN MODELING RESULTS

Peak Hour Demand
Network Table - Nodes

Node ID	Elevation m	Demand LPS	Head m	Pressure m	kPa	psi
Junc J1	74.3	5.4	110.39	36.09	354.0	51.3
Junc J2	74	9.7	110.27	36.27	355.8	51.6
Junc J3	73.9	0	110.27	36.37	356.8	51.7
Junc J4	73.7	13.5	110.26	36.56	358.7	52.0
Junc J5	73.7	0	110.29	36.59	358.9	52.1
Junc J6	73.5	9.7	110.3	36.8	361.0	52.4
Junc J7	73.7	0	110.41	36.71	360.1	52.2
Junc J8	73.7	2.2	110.45	36.75	360.5	52.3
Resvr R1	110.5	-20.69	110.5	0		
Resvr R2	110.5	-19.81	110.5	0		

Peak Hour Demand
Network Table - Links

Link ID	Length m	Diameter mm	Roughness	Flow LPS	Velocity m/s	Unit Headloss m/km
Pipe P1	33	200	110	20.69	0.7	3.4
Pipe P2	58	200	110	15.29	0.5	2.0
Pipe P3	8	200	110	5.59	0.2	0.3
Pipe P4	25	200	110	5.59	0.2	0.3
Pipe P5	37	200	110	-7.91	0.3	0.6
Pipe P6	22	200	110	-7.91	0.3	0.6
Pipe P7	44	200	110	-17.61	0.6	2.5
Pipe P8	17	200	110	-17.61	0.6	2.5
Pipe P9	15	200	110	-19.81	0.6	3.2

2000 CITY PARK DRIVE
WATERMAIN MODELING RESULTS

Average Day Demand
Network Table - Nodes

Node ID	Elevation m	Demand LPS	Head m	Pressure m	kPa	psi
Junc J1	74.3	1	117.09	42.79	419.8	60.9
Junc J2	74	1.8	117.09	43.09	422.7	61.3
Junc J3	73.9	0	117.09	43.19	423.7	61.5
Junc J4	73.7	2.6	117.09	43.39	425.7	61.7
Junc J5	73.7	0	117.09	43.39	425.7	61.7
Junc J6	73.5	1.8	117.09	43.59	427.6	62.0
Junc J7	73.7	0	117.09	43.39	425.7	61.7
Junc J8	73.7	2.2	117.1	43.4	425.8	61.8
Resvr R1	117.1	-4.05	117.1	0		
Resvr R2	117.1	-5.35	117.1	0		

Average Day Demand
Network Table - Links

Link ID	Length m	Diameter mm	Roughness	Flow LPS	Velocity m/s	Unit Headloss m/km
Pipe P1	33	200	110	4.05	0.1	0.2
Pipe P2	58	200	110	3.05	0.1	0.1
Pipe P3	8	200	110	1.25	0.0	0.0
Pipe P4	25	200	110	1.25	0.0	0.0
Pipe P5	37	200	110	-1.35	0.0	0.0
Pipe P6	22	200	110	-1.35	0.0	0.0
Pipe P7	44	200	110	-3.15	0.1	0.1
Pipe P8	17	200	110	-3.15	0.1	0.1
Pipe P9	15	200	110	-5.35	0.2	0.3

Miro Savic

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Monday, June 29, 2026 10:04 AM
To: Miro Savic
Cc: Lee Sheets
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request
Attachments: 2000 City Park Drive June 2026.pdf

Hi Miro,

The water boundary condition came in this morning. Please see below results.

Regards,
Kelsey

Good morning Kelsey,

The following are boundary conditions, HGL, for hydraulic analysis at 2000 City Park Drive (zone 1E) assumed to be connected via two (2) connections as identified below: (see attached PDF for location).

Connection 1 – 305 mm on City Park Drive (West)
Minimum HGL = 110.5 m
Maximum HGL = 117.1 m
Max Day + Fire Flow (100 L/s) = 111.1 m

Connection 2 – 305 mm on City Park Drive (East)
Minimum HGL = 110.5 m
Maximum HGL = 117.1 m
Max Day + Fire Flow (100 L/s) = 111.0 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

From: Miro Savic <m.savic@novatech-eng.com>
Sent: June 25, 2026 9:53 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request

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Hi Kelsey,

Have you heard back from the water resources?

Thank you,

Miroslav Savic, 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 x 205
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From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Thursday, June 18, 2026 12:49 PM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request

Hi Miro,

Just wanted to let you know that I've followed up with water resources and they are still working on your request. I am hoping they'll get back to me early next week.

Regards,

Kelsey Charie
Project Manager | Gestionnaire de projet
Development Review - East Branch | Direction de l'examen des projets d'aménagement, Est
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
110 Laurier Avenue West | 110 avenue Laurier ouest
City of Ottawa | Ville d'Ottawa

From: Miro Savic <m.savic@novatech-eng.com>
Sent: June 11, 2026 3:56 PM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request

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Hello Charie,

We are working on the servicing report for the draft plan of subdivision and would like to request the updated boundary conditions for the project.

The Tower A has been upsized in the latest site plan, which has consequently increased the project FUS fire flow requirement. Tower A now requires a fire flow of 100 L/s (6,000 L/min).

The domestic water demands are approximately the same as previously:

- Average Day Demand = 6.9 L/s
- Maximum Day Demand = 17.4 L/s
- Peak Hour Demand = 38.2 L/s

The FUS and the domestic water demand calculations are attached for refence.

Regards,

Miroslav Savic, 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 x 205
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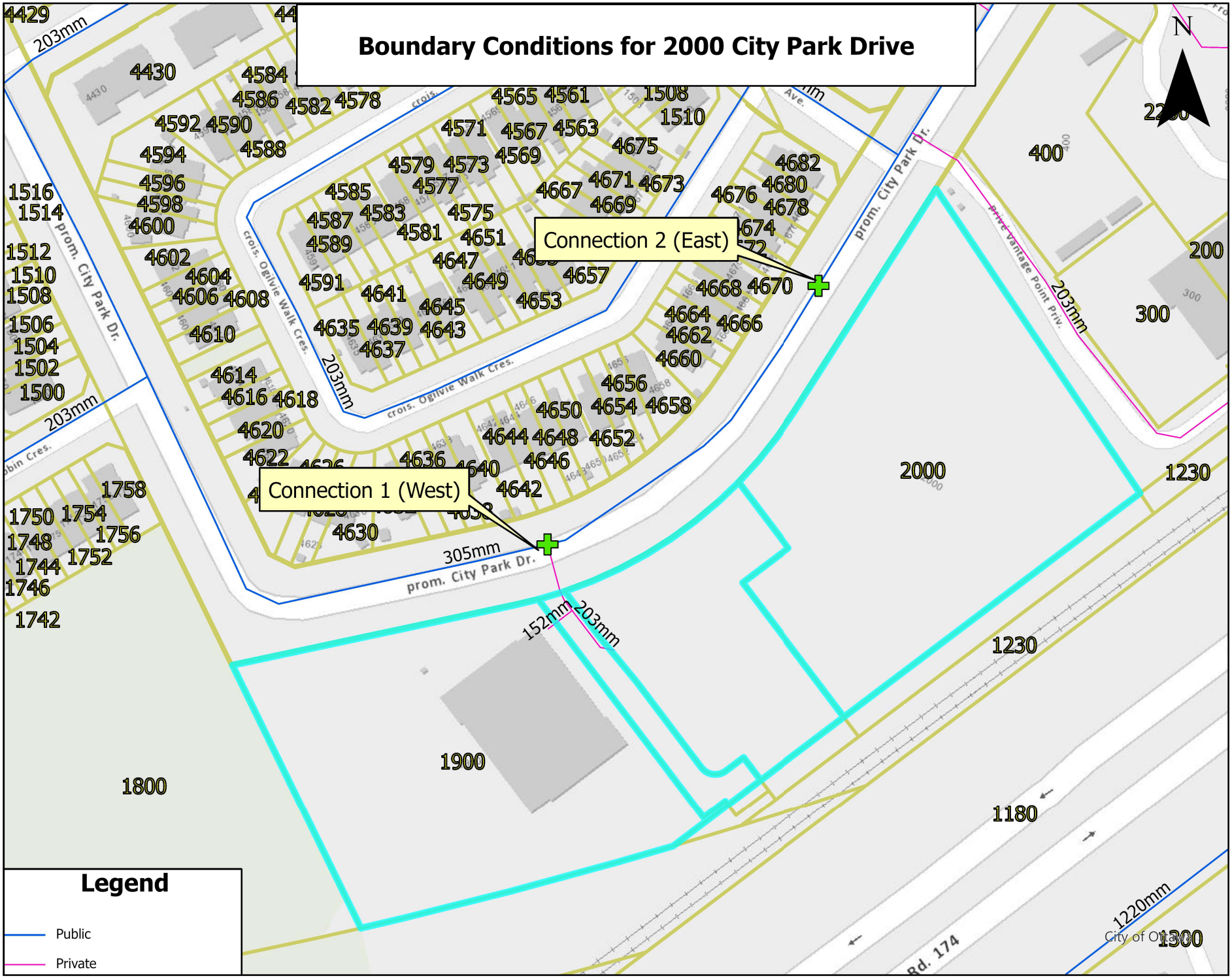

Boundary Conditions for 2000 City Park Drive
N
Connection 2 (East)
Connection 1 (West)
prom. City Park Dr.
crois. Ogilvie Walk Cres.
Private Vantage Point Priv.
203mm
305mm
152mm
1220mm
2000
1900
1800
1230
1180
1300
200
300
400
Legend
Public
Private
City of Ottawa

APPENDIX F

Sanitary Servicing Calculations

2000 CITY PARK DRIVE
SANITARY FLOW

TOWER A

Number of Units			
Studio	15		
1 Bedroom	94		
2 Bedroom	72		
Perons per Unit			
Studio	1.4		
1 Bedroom	1.4		
2 Bedroom	2.1		303.8

TOWER B, C, D, and E

Number of Units		
Tower B	301	
Tower C	299	
Tower D	301	
Tower E	121	
Total Number of Units	1022	
Persons per Unit	1.8	
Total Population	2,143	
Average Daily Flow	280	L/c/day
Peak Factor (Harmon Formula)	3.05	
Peak Sanitary Flow	**21.18**	**L/s**
Site Area	1.57	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	**0.52**	**L/s**
Total Sanitary Flow	**21.70**	**L/s**

SANITARY SEWER DESIGN SHEET

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 123006
Project Name: 2000 City Park DR
Date: *June 15/26
Input By: LSC
Reviewed By: MS
Drawing Reference: 123006-GP

Legend: Design Input by User
As-Built Input by User
Cumulative Cell
Calculated Design Cell Output
Reference: City of Ottawa - Sewer Design Guidelines (2025 and TBs)
MOE - Design Guidelines for Sewage Works (2008)

Location				Demand													Design Capacity							
				Residential Flow										Extraneous Flow Area Method		Total Design Flow	Proposed Sewer Pipe Sizing / Design							
Street	Area ID	From MH	To MH	2 bedroom	1 Bedroom/Studio	Apts	Park Area	Population (in 1000's)	Cumulative Population (in 1000's)	Average Pop. Flow Q(q) (L/s)	Design Peaking Factor M	Peak Design Pop. Flow Q(p) (L/s)	Res. Drainage Area (ha.)	Cumulative Res. Drainage Area (ha.)	Cumulative Extraneous Drainage Area (ha.)	Design Extraneous Flow Q(e) (L/s)	Total Peak Design Flow Q(D) (L/s)	Pipe Length (m)	Pipe Size (mm) and Material	Pipe ID Actual (m)	Roughness n	Design Grade So (%)	Capacity Qfull (L/s)	Full Flow Velocity (m/s)	Q(D) / Qfull
Street	A-1	100	101			301		0.542	0.542	1.76	3.36	5.91	0.444	0.444	0.444	0.15	6.05	55.2	250 PVC	0.254	0.013	0.65	50.0	0.99	12.1%
Street	A-2	101	102			420		0.756	1.298	4.21	3.18	13.37	0.488	0.932	0.932	0.31	13.68	54.1	250 PVC	0.254	0.013	0.30	34.0	0.67	40.3%
Street	A-3	102	103	72	109	301		0.846	2.143	6.95	3.05	21.18	0.633	1.565	1.565	0.52	21.70	46.1	250 PVC	0.254	0.013	0.30	34.0	0.67	63.9%
Street	A-4	103	104					0.000	2.143	6.95	3.05	21.18	0.000	1.565	1.565	0.52	21.70	19.9	250 PVC	0.254	0.013	0.30	34.0	0.67	63.9%
Totals				**72**	**109**	**1022**	**0.000**	**2.143**	**2.143**	**6.95**	**3.05**	**21.18**	**1.565**	**1.565**	**1.565**	**0.52**	**21.70**	**175.3**							

Demand Equation / Parameters

1. **Q(D) =** Q(p) + Q(ici) + Q(e)
2. **Q(p) =** (P x q x M x K / 86,400)
3. **q =** 280 L/per person/day (design)
4. **M = Harmon Formula (maximum of 4.0)**
5. **K =** 0.8 (design)
6. **Park flow is considered equivalent to a single unit / ha**
   Park Demand = 4 single unit equivalent / park ha (~ 3,600 L/ha/day)
7. **Q(ici) =** ICI Area x ICI Flow x ICI Peak
8. **Q(e) =** 0.33 L/s/ha (design)

Definitions

Q(D) = Peak Design Flow (L/s)
Q(p) = Peak Design Population Flow (L/s)
Q(q) = Average Population Flow (L/s)

	2 Bedroom	1 bedroom/Studio	Apt
P = Residential Population =	2.1	1.4	1.8

q = Average Capita Flow
M = Harmon Formula
K = Harmon Correction Factor
Q(ici) = Industrial / Commercial / Institutional Flow (L/s)
Q(e) = Extraneous Flow (L/s)

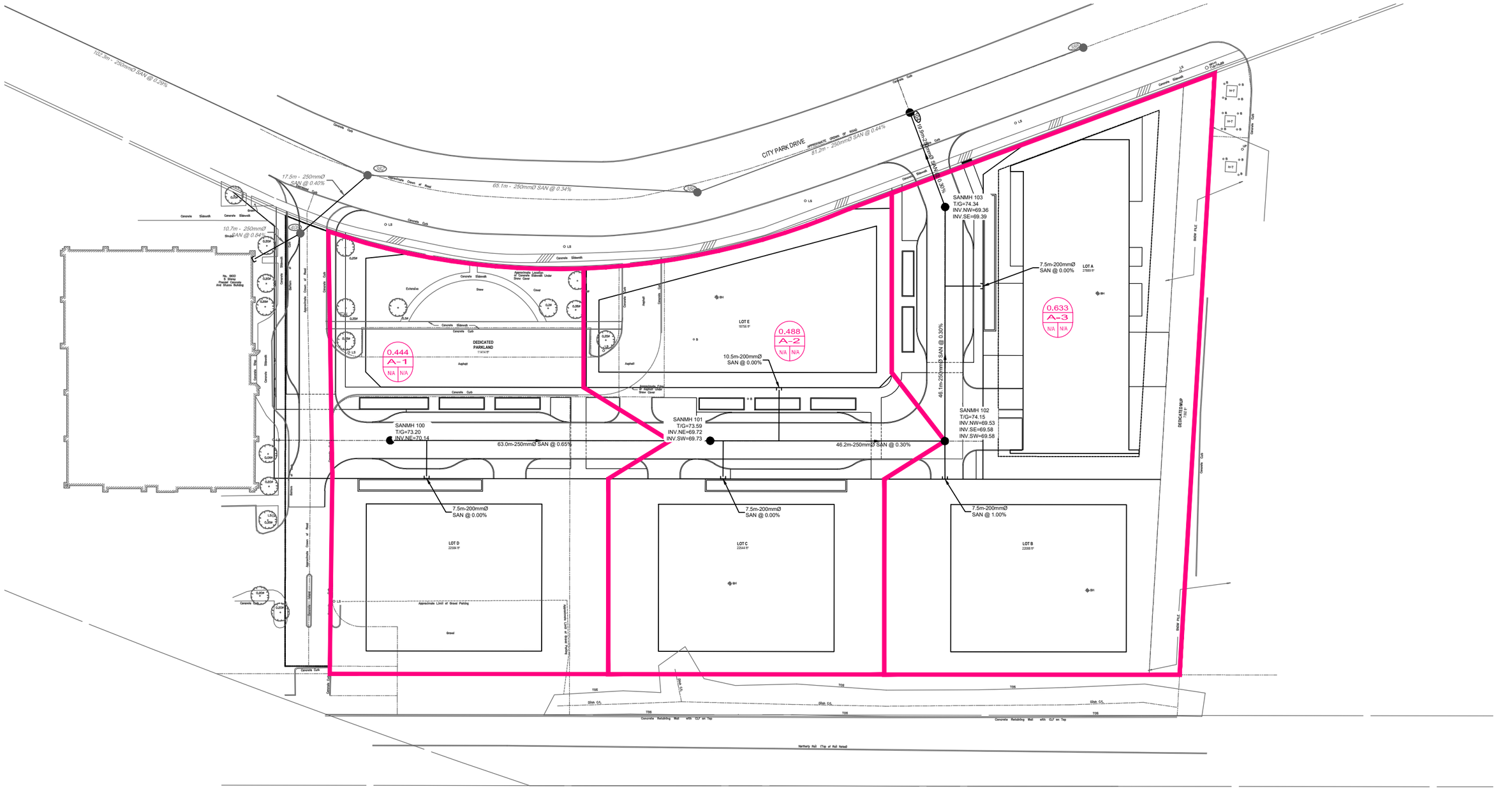
Institutional / Commercial / Industrial	Industrial	Commercial / Institutional	
Design =	35000	28000	L/gross ha/day
ICI Peak *			
Design =	1.0	1.5	* ICI Peak = 1.0 Default, 1.5 if ICI in contributing area is >20% (design only)

Capacity Equation

Q full = $1000*(1/n)*A_p*R^{2/3}*So^{0.5}$

Definitions

Q full = Capacity (L/s)
n = Manning coefficient of roughness (0.013)
A_p = Pipe flow area (m^2)
R = Hydraulic Radius of wetted area (dia./4 for full pipes)
So = Pipe slope/gradient



LEGEND

- PROPERTY LINE
- PROPOSED SANITARY SEWER AND MANHOLE
- DIRECTION OF FLOW
- SAN MH — EXISTING SANITARY MANHOLE & SEWER
- SANITARY SEWER DRAINAGE AREA BOUNDARY
- 6.388 / A-1 / N/A N/A — DRAINAGE AREA (ha) / SAN SEWER PIPE RUN / POPULATION / NO. UNITS

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

2000 CITY PARK DRIVE

SANITARY DRAINAGE AREA PLAN

SCALE 1 : 750 (0 10 20 30)

DATE JULY 2026 | JOB 123006 | FIGURE 5

SHT11X17.DWG - 279mmX432mm

M:\2023\123006\CAD\Civil\123006-SAN.dwg, FIG 5, Jun 30, 2026 - 12:35pm, cvisser

Miro Savic

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Tuesday, April 11, 2023 8:18 AM
To: Miro Savic
Cc: Lee Sheets
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request

Hi Miro,

I have followed up with water resources twice with no response. I have no control over when they will get to your water boundary request.

For sewer capacity, asset management flagged some concerns but will review in further detail when the zoning application is submitted.

For your reference, Jeff is the senior engineer for the South Branch, would you like me to include Natasha who is the senior engineer for the East Branch on future emails?

Kelsey

From: Miro Savic <m.savic@novatech-eng.com>
Sent: April 10, 2023 11:09 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Shillington, Jeffrey <jeff.shillington@ottawa.ca>
Subject: RE: 1900 & 2000 City Park Drive - Watermain Boundary Conditions Request

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Hi Kelsey,

Following up on my voicemail, I really need to know when we can expect to receive boundary conditions and sanitary analysis information for 1900 & 2000 City Park Drive.
It's been three and a half weeks since we ordered boundary conditions, and we cannot advance Adequacy of Public Services report without this information.

Thank you,

Miroslav Savic, 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 x 265
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Miro Savic

From: Miro Savic
Sent: Monday, March 20, 2023 12:20 PM
To: Charie, Kelsey
Cc: Lee Sheets
Subject: 1900-2000 City Park Drive - Sanitary Capacity Constraints Conformation
Attachments: 123006-Sanitary Flow.pdf; Conceptual_San.pdf

Hello Kelsey,

I'm sending this e-mail to request a capacity analysis of the municipal sanitary sewer system in relation to the proposed development at 1900 & 2000 City Park Drive. I have attached a conceptual sanitary servicing sketch and the theoretical sanitary sewer flow calculations.

The proposed development will be phased and is expected to include a total eight residential towers: five towers in Phase 1 (Buildings A, B, C, D, and E) and three towers in Phase 2 (Buildings F, G, and H). The sanitary flows are calculated based on 1400 units in Phase 1 and 850 units in Phase 2.

Please confirm whether there are any downstream capacity constraints in the municipal sanitary sewer system.

Regards,

Miroslav Savic, 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 x 265
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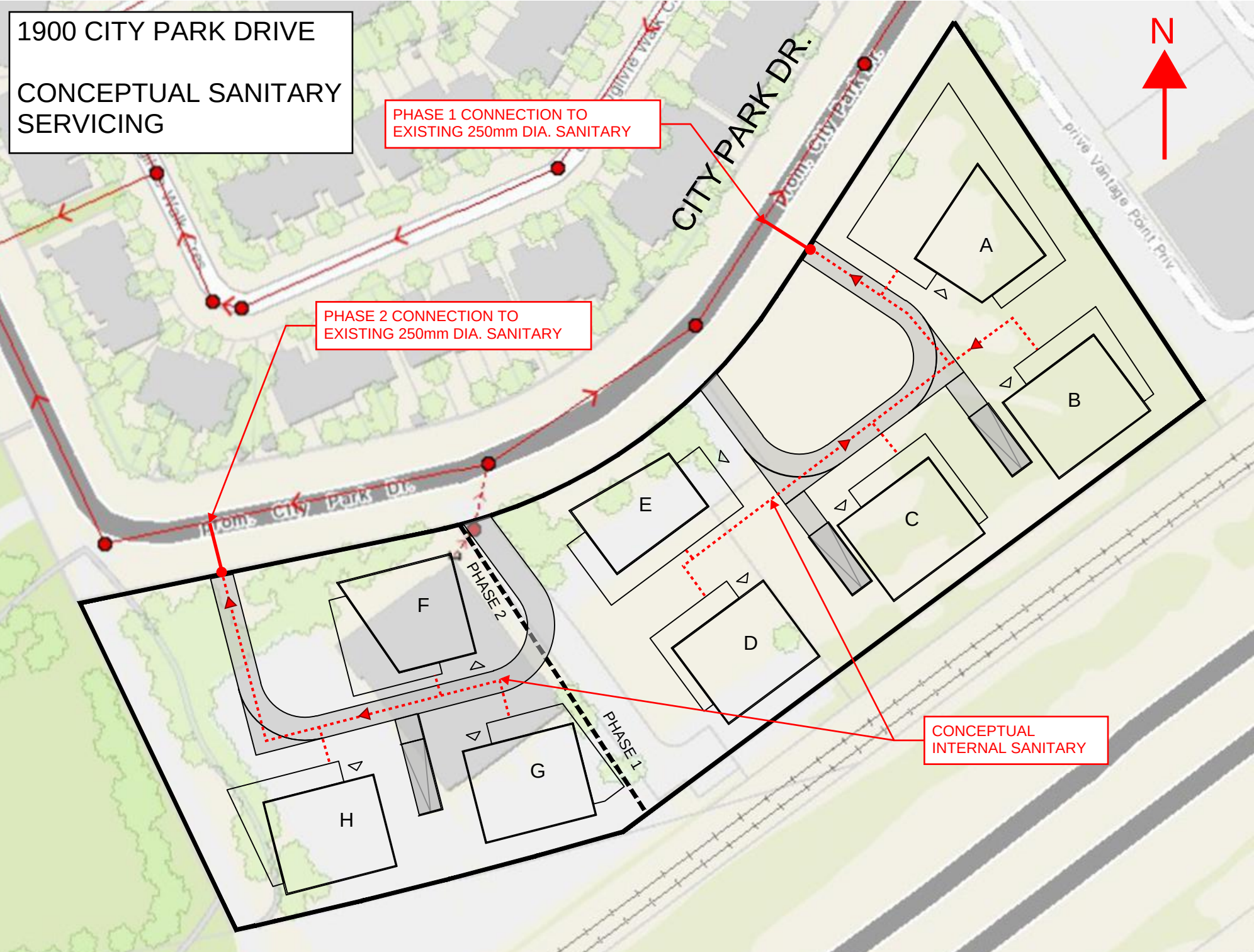
1900 & 2000 CITY PARK DRIVE
SANITARY FLOW

PHASE 1 (BUILDINGS A, B, C, D, and E)

Number of Units		
Building A	250	
Building B	300	
Building C	300	
Building D	300	
Building E	250	
Total Number of Units	1400	
Persons per Unit	1.8	
Total Population	2,520	
Average Daily Flow	280	L/c/day
Peak Factor (Harmon Formula)	2.80	
Peak Sanitary Flow	**22.90**	**L/s**
Site Area	1.55	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	**0.51**	**L/s**
Total Phase 1 Sanitary Flow	**23.42**	**L/s**

PHASE 2 (BUILDINGS F, G, and H)

Number of Units		
Building F	250	
Building G	300	
Building H	300	
Total Number of Units	850	
Persons per Unit	1.8	
Total Population	1,530	
Average Daily Flow	280	L/c/day
Peak Factor (Harmon Formula)	2.94	
Peak Sanitary Flow	**14.57**	**L/s**
Site Area	1.09	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	**0.36**	**L/s**
Total Phase 1 Sanitary Flow	**14.93**	**L/s**


1900 CITY PARK DRIVE
CONCEPTUAL SANITARY SERVICING
PHASE 1 CONNECTION TO EXISTING 250mm DIA. SANITARY
PHASE 2 CONNECTION TO EXISTING 250mm DIA. SANITARY
CITY PARK DR.
Proms City Park Dr
Private Vantage Point Priv
N
A
B
C
D
E
F
G
H
PHASE 2
PHASE 1
CONCEPTUAL INTERNAL SANITARY

APPENDIX G

Storm Servicing and Stormwater Management Calculations

2000 City Park
1:2 yr Storm Design Sheet

PROJECT NO: 123006
DESIGNED BY: LC
CHECKED BY: MS
DATE: July 15, 2026

AREA	FROM MH	TO MH	AREA (ha)			INDIV 2.78 AC	ACCUM 2.78 AC	TIME OF CONC. (min)	RAINFALL INTENSITY (mm/hr)	CONTROLLED FLOW* Q (L/s)	PEAK FLOW Q (L/s)	PROPOSED SEWER								
			Total Area	C= 0.20	C = 0.90							TYPE OF PIPE	PIPE SIZE (mm)	PIPE ID (mm)	GRADE (%)	LENGTH (m)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW (min)	PERCENTAGE OF CAPACITY
A1, ROW 1	STMMH 200	STMMH 201	0.338	0.015	0.323	0.82	0.82	10.00	76.81		62.7	PVC	300	304.8	0.50	43.0	**71.3**	0.98	0.73	88%
A2, A3, A5	STMMH 201	STMMH 202	0.588	0.000	0.588	1.47	2.29	10.73	74.10		169.5	PVC	525	533.4	0.25	42.2	**224.3**	1.00	0.70	76%
ROW 2 & 3, PARK, A4	STMMH 202	STMMH 203	0.604	0.290	0.314	0.95	3.23	11.43	71.71		231.9	PVC	600	609.6	0.25	75.9	**320.3**	1.10	1.15	72%
ROW 4	STMMH 203	OGS UNIT	0.039	0.015	0.024	0.07	3.30	12.59	68.12		225.0	PVC	600	609.6	0.25	40.2	**320.3**	1.10	0.61	70%
	OGS UNIT	EX STMMH					3.30	13.20	66.38		219.2	PVC	600	609.6	0.25	9.9	**320.3**	1.10	0.15	68%
		TOTAL	**1.569**																	

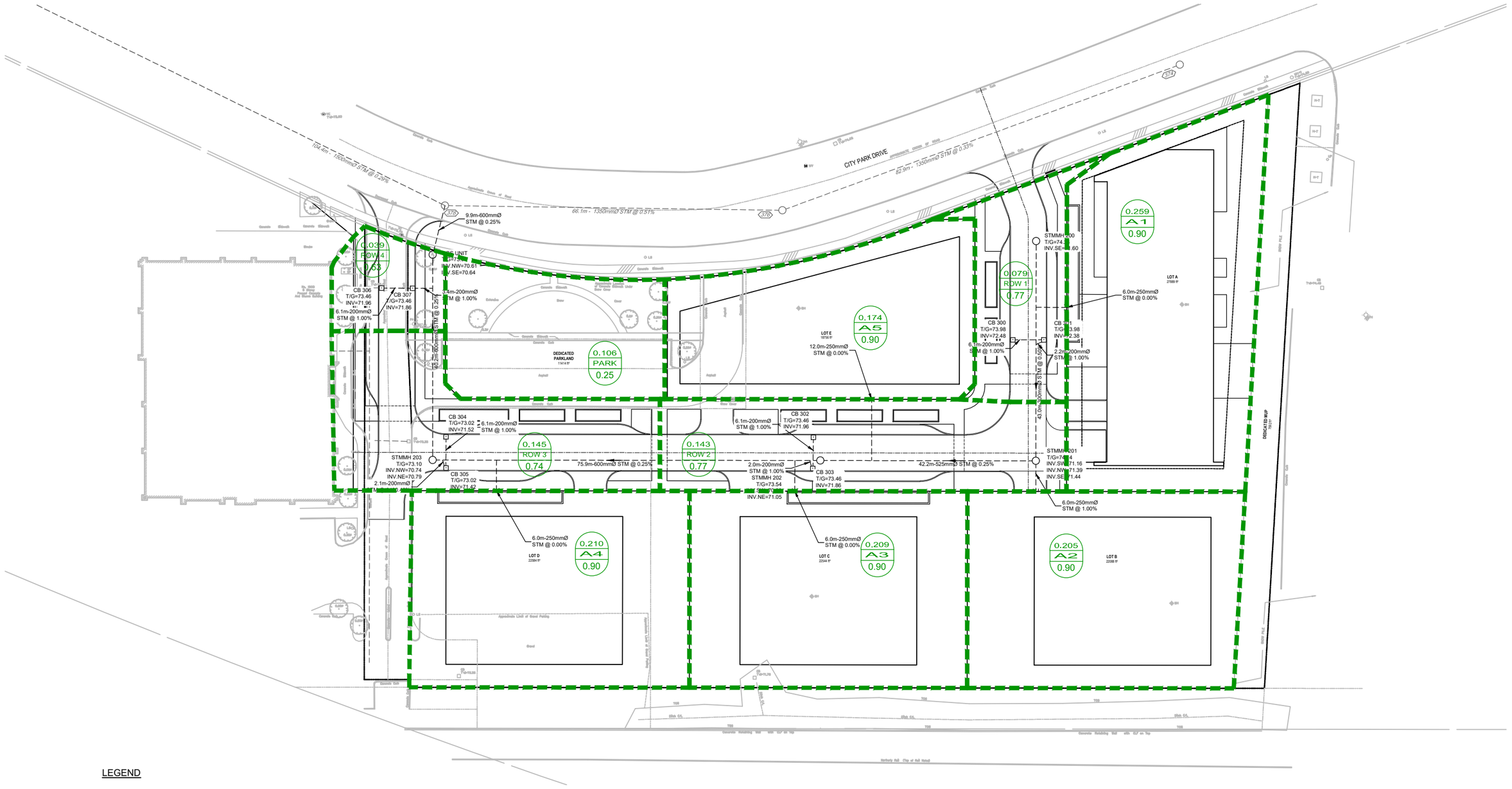
NOTES:

1) Refer to Novatech Drawing 123006-GP for storm structure designations, storm pipe details and control structure tables.
2) Refer to Novatech Drawing 123006-STM for the on-site tributary drainage areas

Definitions
Q = 2.78 AIR
Q = Peak Flow, in Litres per second (L/s)
A = Area in hectares (ha)
I = Rainfall Intensity (mm/h)
R = Runoff Coefficient

Notes:

1) City of Ottawa Rainfall-Intensity Curve
2) Min Velocity = 0.80 m/sec.
3) 2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$



LEGEND

- PROPERTY LINE
- PROPOSED STORM SEWER AND MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- STM MH — EXISTING STORM MANHOLE & SEWER
- EXISTING CATCHBASIN
- DRAINAGE AREA LIMITS
- A-3 / 0.11 / 0.71 — POST-DEVELOPMENT AREA ID; POST-DEVELOPMENT DRAINAGE AREA (ha); 1:5 YEAR WEIGHTED RUNOFF COEFICIENT
- DIRECTION OF MAJOR OVERLAND FLOW
- DIRECTION OF FLOW

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

2000 CITY PARK DRIVE

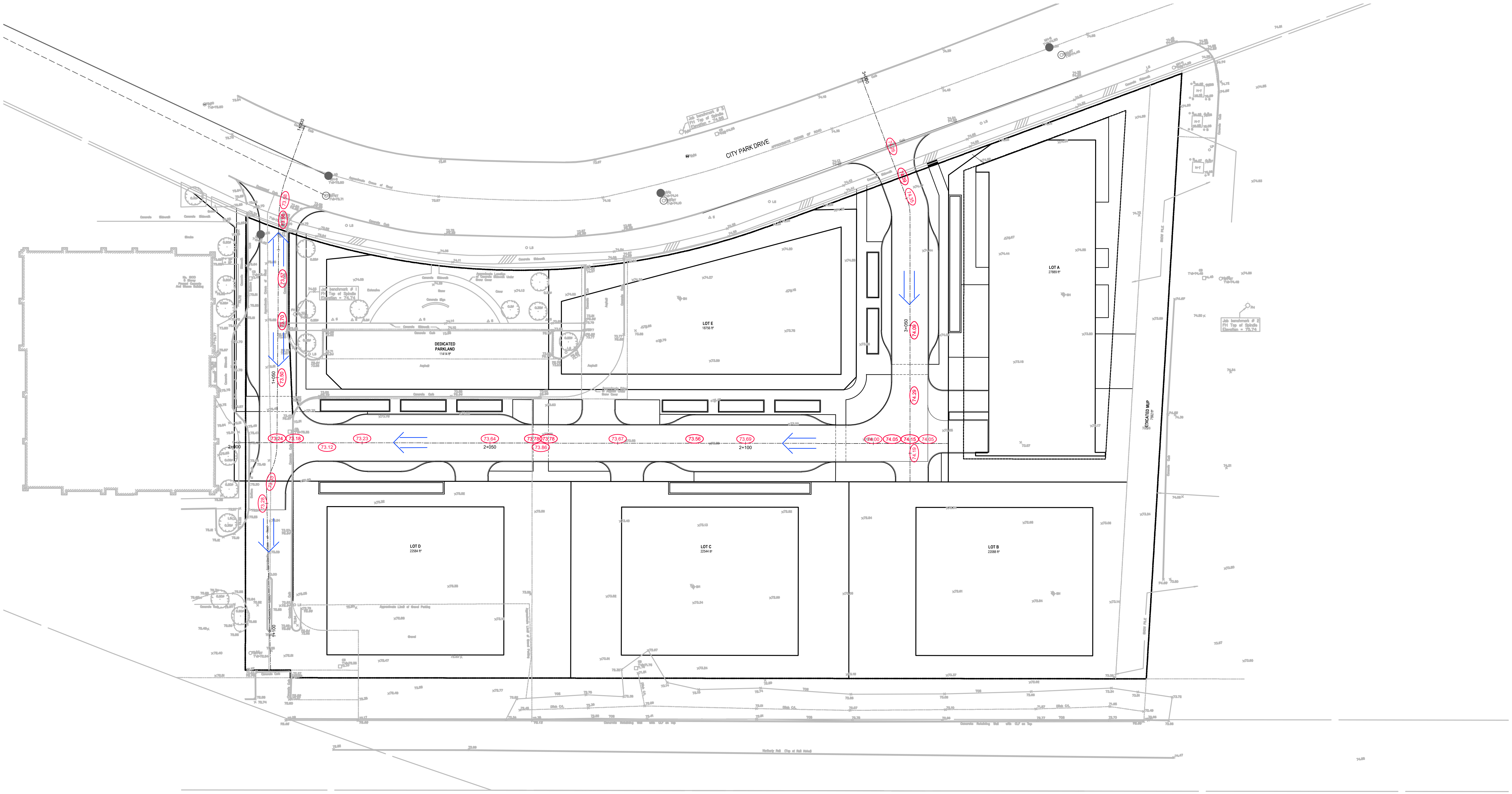
STORM DRAINAGE AREA PLAN

SCALE 1 : 750 (0, 10, 20, 30)

DATE JULY 2026 | JOB 123006 | FIGURE 7

SHT11X17.DWG - 279mmX432mm

M:\2023\123006\CAD\Civil\123006-STM.dwg, FIG 7, Jul 14, 2026 - 8:02am, lcolbran



LEGEND

PROPERTY LINE

71.11 PROPOSED CENTRELINE OF ROAD ELEVATION

DIRECTION OF MAJOR OVERLAND FLOW

NOVATECH
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Website www.novatech-eng.com

2000 CITY PARK DRIVE

CONCEPTUAL GRADING PLAN

SCALE 1 : 750 (0, 10, 20, 30)

DATE JULY 2026 | JOB 123006 | FIGURE 6

M:\2023\123006\CAD\Civil\123006-GR.dwg, FIG 6, Jul 14, 2026 - 10:39am, lcolbran
SHT11X17.DWG - 279mmX432mm

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 1A: Pre-Development Runoff Coefficient "C"

Area	Surface	Ha	"C"	C_{avg}	*C_{100}
Total	Hard	0.159	0.90	0.29	0.32
1.569	Gravel	0.066	0.70		
	Soft	1.344	0.20		

Runoff Coefficient Equation

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

* Runoff

TABLE 1B: Pre-Development Flows

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)
Pre-Development	1.569	0.29	10	**97.8**	**132.7**	**245.7**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = 1735.688 / (Time in min + 6.014)$^{0.820}$
5 year Intensity = 998.071 / (Time in min + 6.053)$^{0.814}$
2 year Intensity = 732.951 / (Time in min + 6.199)$^{0.810}$

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

PROJECT #: 121028
PROJECT NAME: Hill Property
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: NOV 2022

TABLE 2A: Post-Development Runoff Coefficient "C" - PARK

Area	Surface	Ha	"C"	C_{avg}	*C_{100}
Total	Hard	0.007	0.90	0.25	0.30
0.106	Soft	0.099	0.20		

Runoff Coefficient Equation

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

* Runoff

TABLE 2B: Post-Development Flows - PARK

Outlet Options	Area (ha)	C_{avg}	Tc (min)	$Q_{2\ Year}$ (L/s)	$Q_{5\ Year}$ (L/s)	$Q_{100\ Year}$ (L/s)
	0.106	0.25	10	**5.6**	**7.6**	**15.8**

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr
Intensity (5 Year Event)	I_5=	104.19	mm/hr
Intensity (100 Year Event)	I_{100}=	178.56	mm/hr

100 year Intensity = $1735.688 / (\text{Time in min} + 6.014)^{0.820}$
5 year Intensity = $998.071 / (\text{Time in min} + 6.053)^{0.814}$
2 year Intensity = $732.951 / (\text{Time in min} + 6.199)^{0.810}$

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

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 3A: Post-Development Runoff Coefficient "C" - ROW 1

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.077	0.90	0.88	1.00	0.98
0.079	Roof	0.000	0.90		1.00	
	Soft	0.002	0.20		0.25	

TABLE 3B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - ROW 1

0.079 =Area (ha)
0.98 = 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^3)
100 YEAR	0	398.62	85.88	19.4	66.51	0.00
	5	242.70	52.29	19.4	32.92	9.88
	10	**178.56**	**38.47**	**19.4**	**19.10**	**11.46**
	15	142.89	30.79	19.4	11.41	10.27
	20	119.95	25.84	19.4	6.47	7.76

Equations:

Flow Equation

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

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

Orifice Control Sizing

$Q = 0.62 \times A \times (2gh) \times 0.5$

Q is the release rate in m^3/s

A is the orifice area in m^2

g is the acceleration due to gravity, 9.81 m/s^2

h is the head of water above the orifice centre in m

d is the diameter of the orifice in m

CB Information

T/G= 74.06 m
Invert= 72.46 m

TABLE 3C: Orifice Sizing information - ROW 1

Control Device
Round Plate Orifice 83 mm

Design Event	Flow (L/S)	Head (m)	Elev (m)	Outlet dia. (mm)	Volume (m^3)	Area (m^2)	Dia. (mm)
1:100 Year	19.4	1.70	74.26	200	0.00	0.0054	83.0

**The design Head is calculated based on the centre of the pipe

PROJECT #: 123006
PROJECT NAME: 2000 City park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 4A: Post-Development Runoff Coefficient "C" - ROW 2

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.141	0.90	0.89	1.00	0.99
0.143	Roof	0.000	0.90		1.00	
	Soft	0.003	0.20		0.25	

TABLE 4B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - ROW 2

0.143 =Area (ha)
0.99 = 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^3)
100 YEAR	10	178.56	70.05	19.9	50.17	30.10
	15	142.89	56.06	19.9	36.18	32.56
	20	**119.95**	**47.06**	**19.9**	**27.18**	**32.62**
	25	103.85	40.74	19.9	20.86	31.29
	30	91.87	36.04	19.9	16.16	29.09

Equations:

Flow Equation

Q = 2.78 x C x I x A

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

Orifice Control Sizing

Q = 0.62 x A x (2gh) x 0.5

Q is the release rate in m^3/s

A is the orifice area in m^2

g is the acceleration due to gravity, 9.81 m/s^2

h is the head of water above the orifice centre in m

d is the diameter of the orifice in m

CB Information

T/G= 73.46 m

Invert= 71.86 m

TABLE 4C: Orifice Sizing information - ROW 2

Control Device
Round Plate Orifice 83 mm

Design Event	Flow (L/S)	Head (m)	Elev (m)	Outlet dia. (mm)	Volume (m^3)	Area (m^2)	Dia. (mm)
1:100 Year	19.9	1.79	73.75	200	0.00	0.0054	83.0

**The design Head is calculated based on the centre of the pipe

PROJECT #: 123006
PROJECT NAME: 2000 City park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 5A: Post-Development Runoff Coefficient "C" - ROW 3

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.112	0.90	0.74	1.00	0.83
0.145	Roof	0.000	0.90		1.00	
	Soft	0.033	0.20		0.25	

TABLE 5B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - ROW 3

0.145 =Area (ha)
0.83 = 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^3)
100 YEAR	10	178.56	59.69	19.8	39.87	23.92
	15	**142.89**	**47.77**	**19.8**	**27.94**	**25.15**
	20	119.95	40.10	19.8	20.27	24.33
	25	103.85	34.72	19.8	14.89	22.34
	30	91.87	30.71	19.8	10.89	19.60

Equations:

Flow Equation

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

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

Orifice Control Sizing

$Q = 0.62 \times A \times (2gh) \times 0.5$

Q is the release rate in m^3/s

A is the orifice area in m^2

g is the acceleration due to gravity, 9.81 m/s^2

h is the head of water above the orifice centre in m

d is the diameter of the orifice in m

CB Information

T/G= 73.02 m

Invert= 71.42 m

TABLE 5C: Orifice Sizing information - ROW 3

Control Device
Round Plate Orifice 83 mm

Design Event	**Flow (L/S)**	**Head (m)**	**Elev (m)**	**Outlet dia. (mm)**	**Volume (m^3)**	**Area (m^2)**	**Dia. (mm)**
1:100 Year	19.8	1.78	73.30	200	0.00	0.0054	83.0

**The design Head is calculated based on the centre of the pipe

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 6A: Post-Development Runoff Coefficient "C" - ROW 4

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	$*C_{avg}$
Total	Hard	0.024	0.90	0.63	1.00	0.71
0.039	Roof	0.000	0.90		1.00	
	Soft	0.015	0.20		0.25	
		0.03				

TABLE 6B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - ROW 4

0.039 =Area (ha)
0.71 = 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^3)
100 YEAR	**10**	**178.56**	**13.77**	**13.8**	**0.00**	**0.00**
	15	142.89	11.02	13.8	-2.75	-2.47
	20	119.95	9.25	13.8	-4.52	-5.42
	25	103.85	8.01	13.8	-5.76	-8.64
	30	91.87	7.09	13.8	-6.68	-12.03

Equations:

Flow Equation

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

C is the runoff coefficient

I is the rainfall intensity, City of Ottawa IDF

A is the total drainage area

Runoff Coefficient Equation

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

Orifice Control Sizing

$Q = 0.62 \times A \times (2gh) \times 0.5$

Q is the release rate in m^3/s

A is the orifice area in m^2

g is the acceleration due to gravity, 9.81 m/s^2

h is the head of water above the orifice centre in m

d is the diameter of the orifice in m

CB Information

T/G= 73.46 m

Invert= 71.86 m

TABLE 7A: Allowable release rate

Area ID	Area (ha)	Allowable Flow	
EX1	1.569	132.7	Pre-development runoff coefficient 5-year design storm
Total	**1.569**	**132.7**	**L/s**

TABLE 7B: Calculated Allowable Release Rate Per Block

Zone	Area (ha)	% Area	Release Rate (L/s)	Storage Required (m^3)	Comments
ROW	0.406	N/A	72.8	69.23	* Based on an 83mm ICD at each set of interconnected CB's at ROW1, ROW 2, and ROW 3 draiage areas, and uncontrolled flow from ROW 4.
Park	0.106	N/A	15.8	N/A	* Park releases uncontrolled to the ROW
Sub Total	**0.512**	32.6%	88.6	69.23	
Block 1 (Lot A)	0.259	24.5%	10.8	105.76	* Release Rate allocated by % area for remaining flow
Block 2 (Lot B)	0.205	19.4%	8.5	83.71	
Block 3 (Lot C)	0.209	19.8%	8.7	85.34	
Block 4 (Lot D)	0.210	19.9%	8.8	85.75	
Block 5 (Lot E)	0.174	16.5%	7.3	71.05	
Sub Total	1.057	67.4%	44.1	431.62	
Total	**1.569**	**100%**	**132.70**	**500.85**	

PROJECT #: 12306
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 8A: Post-Development Runoff Coefficient "C" - Block 1

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	*C_{avg}
Total	Hard	0.259	0.90	0.90	1.00	1.00
0.259	Roof	0.000	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 8B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - Block 1

0.259 =Area (ha)
1.00 = 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^3)
100 YEAR	40	75.15	54.11	10.8	43.31	103.95
	45	69.05	49.72	10.8	38.92	105.09
	50	**63.95**	**46.05**	**10.8**	**35.25**	**105.76**
	55	59.62	42.93	10.8	32.14	106.05
	60	55.89	40.25	10.8	29.45	106.02

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

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 9A: Post-Development Runoff Coefficient "C" - Block 2

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	*C_{avg}
Total	Hard	0.205	0.90	0.90	1.00	1.00
0.205	Roof	0.000	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 9B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - Block 2

0.205 =Area (ha)
1.00 = 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^3)
100 YEAR	40	75.15	42.83	8.5	34.28	82.28
	45	69.05	39.35	8.5	30.81	83.18
	50	**63.95**	**36.45**	**8.5**	**27.90**	**83.71**
	55	59.62	33.98	8.5	25.44	83.94
	60	55.89	31.85	8.5	23.31	83.92

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

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

PROJECT #: 12306
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 10A: Post-Development Runoff Coefficient "C" - Block 3

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	*C_{avg}
Total	Hard	0.209	0.90	0.90	1.00	1.00
0.209	Roof	0.000	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 10B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - Block 3

0.209 =Area (ha)
1.00 = 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^3)
100 YEAR	40	75.15	43.66	8.7	34.95	83.88
	45	69.05	40.12	8.7	31.41	84.81
	50	**63.95**	**37.16**	**8.7**	**28.45**	**85.34**
	55	59.62	34.64	8.7	25.93	85.58
	60	55.89	32.48	8.7	23.77	85.56

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

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 11A: Post-Development Runoff Coefficient "C" - Block 4

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	*C_{avg}
Total	Hard	0.210	0.90	0.90	1.00	1.00
0.210	Roof	0.000	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 11B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - Block 4

0.21 =Area (ha)
1.00 = 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^3)
100 YEAR	40	75.15	43.87	8.8	35.12	84.28
	45	69.05	40.31	8.8	31.56	85.21
	50	**63.95**	**37.34**	**8.8**	**28.58**	**85.75**
	55	59.62	34.81	8.8	26.06	85.99
	60	55.89	32.63	8.8	23.88	85.97

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

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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

PROJECT #: 123006
PROJECT NAME: 2000 City Park Drive
LOCATION: OTTAWA

NOVATECH
Engineers, Planners & Landscape Architects

DATE PREPARED: July 2026

TABLE 12A: Post-Development Runoff Coefficient "C" - Block 5

			5 Year Event		100 Year Event	
Area	0.4	Ha	"C"	C_{avg}	"C" + 25%	*C_{avg}
Total	Hard	0.174	0.90	0.90	1.00	1.00
0.174	Roof	0.000	0.90		1.00	
	Soft	0.000	0.20		0.25	

TABLE 12B: 100 YEAR EVENT QUANTITY STORAGE REQUIREMENT - Block 5

0.174 =Area (ha)
1.00 = 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^3)
100 YEAR	40	75.15	36.35	7.3	29.10	69.83
	45	69.05	33.40	7.3	26.15	70.60
	50	**63.95**	**30.94**	**7.3**	**23.68**	**71.05**
	55	59.62	28.84	7.3	21.59	71.25
	60	55.89	27.04	7.3	19.79	71.23

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

$C_5 = (A_{hard} \times 0.9 + A_{soft} \times 0.2)/A_{Tot}$

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