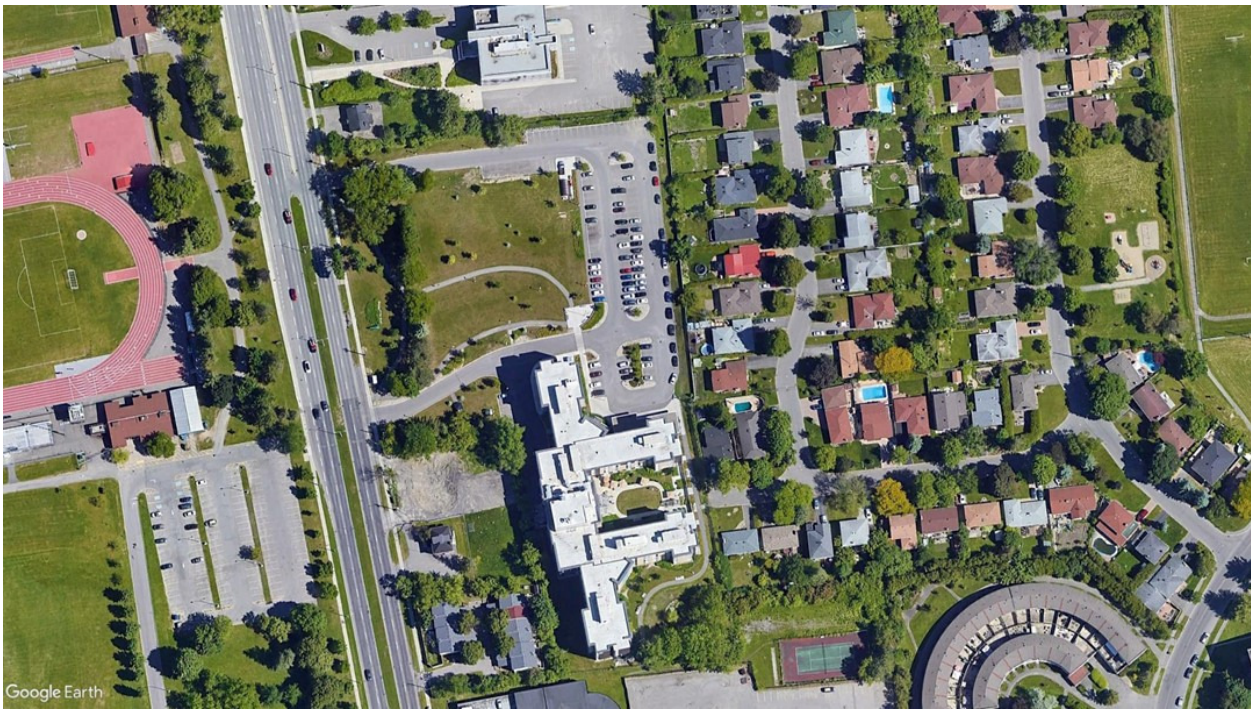
EDWARD J. CUHACI AND ASSOCIATES ARCHITECTS INC.

ST. PATRICK'S HOME DEVELOPMENT
SERVICING REPORT

JULY 8, 2024

CONFIDENTIAL



ST. PATRICK'S HOME DEVELOPMENT

SERVICING REPORT

EDWARD J. CUHACI AND ASSOCIATES ARCHITECTS INC.

Issued for Final Site Plan Control

PROJECT NO.: 221-08396-00
DATE: JULY 2024

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July 8, 2024

CONFIDENTIAL

David Bull
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Edward J. Cuhaci and Associates Architects Inc.

Attention: David Bull

Dear Sir:

Subject: St. Patrick's Home Development - Servicing Report

Please find attached our servicing report to support the final Site Plan Control Application, including the civil engineering design drawings and supporting calculations.

Yours sincerely,

Winston Yang, P.Eng., PMP
Senior Engineer

WSP ref.: 221-08396-00

QUALITY MANAGEMENT

ISSUE/REVISION	1ST ISSUE	2ND ISSUE	3RD ISSUE
Remarks	Issued for Site Plan Control Review	Issued for Site Plan Control Review	Issued for Site Plan Control Review
Date	January 24, 2024	April 12, 2024	April 26, 2024
Prepared by	Marina St. Marseille, EIT	Marina St. Marseille, EIT	Marina St. Marseille, EIT
Reviewed by	Michael Flowers, P.Eng	Michael Flowers, P.Eng	Michael Flowers, P.Eng
Project number	221-08396-00	221-08396-00	221-08396-00

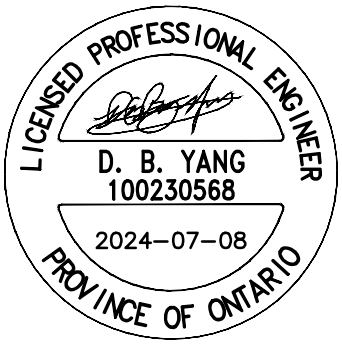
ISSUE/REVISION	4TH ISSUE
Remarks	Issued for Final Site Plan Control
Date	July 8, 2024
Prepared by	Steve Davidson, P.Eng.
Reviewed by	Winston Yang, P.Eng., PMP
Project number	221-08396-00

SIGNATURES

PREPARED BY

Steve Davidson, P.Eng., OLS (Ret.), MBA
Senior Engineer
Land Development & Municipal Engineering

REVIEWED BY



Winston Yang, P.Eng., PMP
Senior Engineer
Land Development & Municipal Engineering

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APPENDICES

1 INTRODUCTION

WSP Canada Inc. (WSP) was retained by Edward J. Cuhaci and Associates Architects Inc. to complete a Servicing Report for the proposed development of an apartment building at 2865 Riverside Drive in Ottawa, Ontario. The purpose of this report is to summarize the servicing requirements for the Site Plan Control Agreement Application, including a review of the following:

- Transportation System
- Water Distribution System
- Sanitary Sewer Collection System

1.1 DATE AND REVISION NUMBER

This version of the report is the fourth revision, dated July 8, 2024.

1.2 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with zoning and related requirements prior to approval and construction.

1.3 PRE-CONSULTATION MEETINGS

Pre-consultation correspondence from the City of Ottawa, along with the servicing guidelines checklist, is located in **Appendix A**.

1.4 HIGHER LEVELS STUDIES AND REPORTS

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

- Geotechnical Investigation Report (Stantec | Draft Report, Dated October 2022)
- Conceptual Servicing and Grading Plan (Novatech | Drawing, Dated April 13, 2021)
- 2685 Riverside Drive – Adequacy of Public Services (Novatech | Technical Memorandum, Dated April 15, 2021)
- St. Patrick's Home 2865 Riverside Drive Stormwater Management Report (Novatech | Dated June 9, 2011)
- Sawmill Creek Subwatershed Study Update (CH2M HILL | May 2003)

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

- City of Ottawa Official Plan – Section 4 – Review of Development Applications
- Geotechnical and Reporting Guidelines for Development Applications in the City of Ottawa
- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including:
    - Technical Bulletin ISDTB-2012-4 (20 June 2012)
    - Technical Bulletin ISDTB-2014-01 (05 February 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)
    - Technical Bulletin ISDTB-2018-01 (21 March 2018)
    - Technical Bulletin ISDTB-2018-04 (27 June 2018)

- City of Ottawa Stormwater Management Policies
- City of Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
    - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
    - Technical Bulletin ISTB-2018-02 (21 March 2018)
- City of Ottawa Design Specifications
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM). Ontario Building Code
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020.

1.5 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed modification of the site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines.

2 EXISTING CONDITIONS

2.1 OVERVIEW / EXISTING LAND USE

The project site area (outlined in blue in Figure 1) is approximately 1.09 hectares in size and is located on the east side of Riverside Drive. The site is described as Part of Lots 45, 46, and Registered Plan 66 and Part of Lot 23 Junction Gore in the Geographic Township of Gloucester, City of Ottawa.

Figure 1: Project Site Area (geoOttawa)

The property is currently zoned 'Neighborhood' per the Official Plan, Schedule B3 Outer Urban Transect (November 2021). It is bound by residential properties to the east, the Canadian Labor Congress building to the north, St. Patrick's Home Long Term Care Facility to the south, and Riverside Drive to the west. The current site contains green space and is developed with an existing surface parking lot to the east with road access from Riverside Drive. There is also an asphalt walking pathway that connects a concrete walkway from the existing St. Patrick's Home to the concrete sidewalk along the Riverside Drive.

2.2 ACCESS AND PARKING

There are two (2) existing paved entrances to the site from Riverside Drive. Both entrances loop around to the main entrance of the existing St. Patrick's Home Long-Term Care Facility, around the parking lots, to Riverside Drive. The northerly entrance provides full movement access to the site while the southerly entrance provides right-in, right-out access only. Currently, there are approximately 116 existing paved parking spots along the east side of the property.

2.3 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

There are existing sanitary sewer and watermains servicing the site. Per the existing as-built drawing and geoOttawa, there is an existing 250 mm diameter sanitary (in red) sewer along Riverside Drive and a 225 mm diameter sanitary sewer along Garner Avenue. The existing LTC facility connects to the sanitary sewer along Garner Avenue.

There is an existing 600 mm diameter storm sewer (in green) along Riverside Drive as well as a 300 mm diameter sewer on Garner Avenue. The existing development outlets to the Garner Street storm sewer.

Similarly, there is an existing 300 mm diameter watermain (in blue and purple) along Riverside Drive and 150 mm diameter watermain on Garner Avenue. The existing facility connects to the 150 mm diameter watermain on Garner Avenue and is routed around the building to two (2) private fire hydrants on the site. Figure 2 shows the existing sanitary and water services.

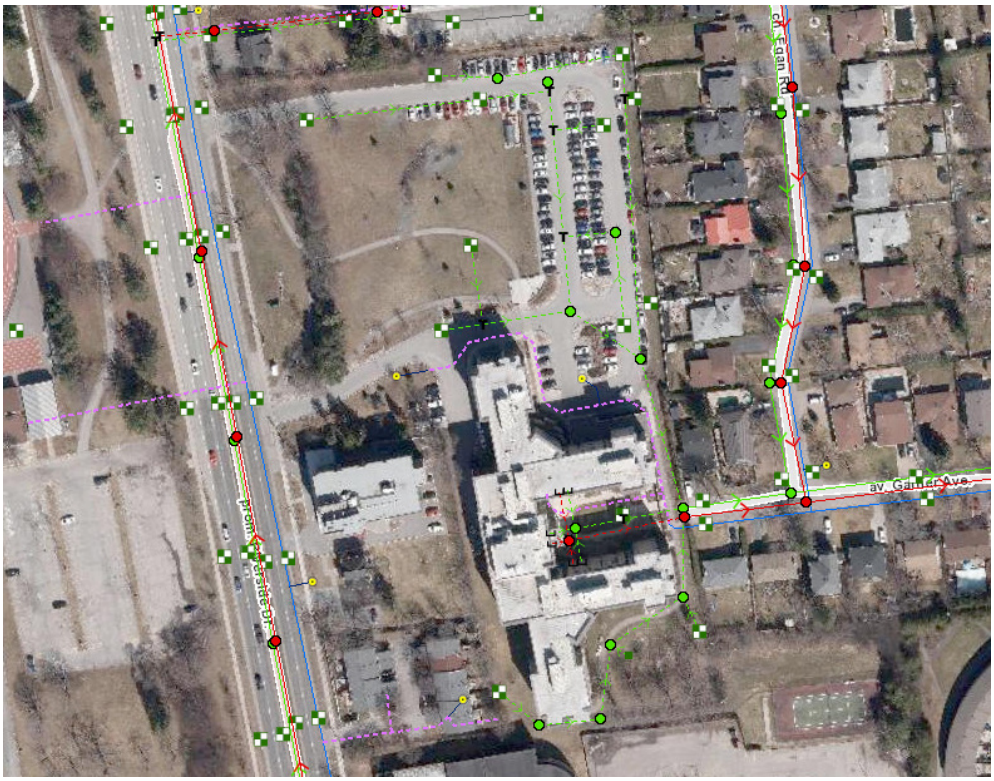

Figure 2: Existing Sanitary, Storm and Water Services (geoOttawa)

2.4 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS

The development is within the Sawmill Creek Subwatershed. As per the attached Site Plan Pre-Application Consultation Notes (February 9, 2023), the Stormwater Management Criteria is based off of the study. There are no known environmentally significant areas, watercourses or municipal drains on the property.

3 PROPOSED DEVELOPMENT

The proposed development includes the construction of a new 7-storey building that accommodates 119 studio/1-bedroom units and 14 2-bedroom units that measures approximately 10,890 m^2. The development includes the addition of new parking spaces.

3.1 ACCESS AND PARKING

The two main entrances to the proposed St. Patrick's Home Development and existing Long-Term Care Facility will remain from Riverside Drive. The parking for the site will be accommodated through the existing 116 spots as well as new spots on the north and south side of the new development. The fire route will remain as existing and the parking configuration for the site will be confirmed as the design progresses. Civil drawings have been provided in **Appendix E**.

3.2 CONCEPT LEVEL MASTER GRADING PLAN

A detailed grading plan for entire site for the final proposed construction has been developed and is included in the Civil drawing package.

The master grading plan includes smooth transitions from the new work areas to existing grades with an emphasis made towards ensuring grades are below 5% slope to ensure accessibility along walking areas. No changes will be made to grades at the development perimeter and tie-in locations.

3.3 IMPACTS ON PRIVATE SERVICES

There are no existing septic systems or wells located on the site. No impacts to surrounding private services will occur.

The existing St. Patrick's Home Long Term Care Facility to the south has existing service connections. The proposed development will be serviced for water by introducing a looping network, however there will be no negative impacts on the available flow to the Long Term Care Facility. No impacts to the existing sanitary and storm services to the Long Term Care Facility will occur.

3.4 DEVELOPMENT PHASING

Development phasing is not anticipated in the current scope of work.

3.5 DRAWING REQUIREMENT

The Civil engineering plans submitted for site plan approval are in compliance with City requirements. Refer to the drawing package in Appendix E for details.

4 WATER DISTRIBUTION

4.1 PROPOSED SYSTEM DESCRIPTION

Per the City of Ottawa's Water Distribution Guidelines, the site is required to be serviced with two (2) watermain connections for redundancy as the average day demand is greater than 50 m^3/day (0.58 L/s). Therefore, it is proposed that the water service is connected to the 300 mm diameter watermain along Riverside Drive and connected to the 150 mm diameter watermain on Garner Avenue. Refer to **Appendix E** for the servicing layout and connection locations.

4.2 DESIGN CRITERIA & DOMESTIC DEMANDS

Private watermains and water services for the subject site were designed in accordance with the following publications:

- Design Guidelines – Water Distribution (2010) | City of Ottawa
- Design Guidelines for Drinking-Water Systems (2008) | Ministry of the Environment, Conservation, and Parks

Design domestic water demands were calculated using the following methods, which are further detailed in **Appendix D**:

- Ontario Building Code (2012) – Table 8.2.1.3.B

Table 1 summarizes the water supply analysis for the proposed development. Refer to **Appendix D** for detailed calculations.

Table 1 – Domestic Potable Water Demand

	Proposed Development
Average Day Demand	0.64 L/s
Maximum Day Demand	1.60 L/s
Maximum Hour Demand	3.51 L/s

Therefore, the average day demand for the proposed development is 0.64 L/s, with a maximum day demand of 1.60 L/s and a maximum hour demand of 3.51 L/s.

4.3 FIRE FLOW DEMANDS

Required fire flow for the proposed development was determined in accordance with FUS (2020). Input information provided by the architect and used for the purpose of calculating required fire flow have been summarized in Table 2.

Table 2: Fire Flow Calculation Inputs (FUS Method)

	PROPOSED BUILDING
Type of Construction	Non-combustible Construction
Sprinkler System	Yes
Major Occupancy	Non-Combustible

As summarized in Appendix E, the resultant FUS fire flow demand was calculated to be 100.0 L/s for the proposed building.

4.4 WATERMAIN MODELLING & RESULTS

In order to appropriately design the water supply system for the site, a WaterGEMS (version 10.03.05.05) steady-state hydraulic model was constructed.

The model layout was based on the proposed watermain configuration detailed in the Civil design drawings (Refer to **Appendix D**). It was assumed that the watermain elevation is 2.0m below original grade for existing watermain and 2.0m below finished grade for proposed watermain.

Two groups of scenarios were setup in the model. One for the purpose of comparing existing and proposed conditions (under maximum day) at the neighbouring supply connection, and the second to demonstrate appropriate level of service for the new apartment building under a variety of typical design demand scenarios.

A total of five (5) scenarios were simulated. All five (5) scenarios have corresponding requirements for residual pressures (under specific demands) in the system which are dictated by applicable local standards or by the sprinkler system design. Refer to Table 3 for a summary of model scenarios, assigned demands, and associated pressure objectives.

Table 3 – Watermain Assigned Demand & Pressure Objectives

ID	SCENARIOS	DEMANDS	SYSTEM RESIDUAL PRESSURE THRESHOLDS (HGL AT BOUNDARY)
EXISTING CONDITIONS			
1	Maximum Day Demand (MDD)	2.25 L/s	123.9m - 132.0 m
PROPOSED CONDITIONS[1]			
2	Average Daily Demand (ADD)	2.14 L/s	123.9m - 132.0 m
3	Maximum Day Demand (MDD)	3.85 L/s	123.5m - 131.8 m
4	Maximum Hour Demand (MHD)	7.56 L/s	122.9m - 131.2 m
5	Maximum Hour Demand + FUS Fire Flow Demand (MHD+FUS)	107.56 L/s	121.2m - 124.1 m

1 – Proposed conditions include existing building demands plus proposed building demands where both buildings will use the same looped watermain.

4.5 FIRE DEMAND ESTIMATION

The fire demand was calculated based on the criteria in Section 4.3.1 and the architectural concept design of the apartment building. The following information was provided by the Architect and Mechanical Designer and used to determine the required fire flow. It should be noted that some items are to be confirmed as detailed design progresses.

4.6 ADEQUACY OF MUNICIPAL INFRASTRUCTURE

To determine the adequacy of existing services, Novatech confirmed that the watermain system with connections along Garner Avenue and Riverside Drive can provide adequate pressure and flow to meet the domestic and fire flow demands (Refer to **Appendix C** for details). The following scenarios were analyzed to verify available flow and pressure:

- Average Day Flow, maximum system pressure
- Maximum Hourly Flow, minimum system pressure
- Maximum Day Demand + Fire Flow, minimum system pressure during fire scenario

The analysis completed by Novatech assumed a population of 196 persons for the proposed development (project site) with a maximum day plus fire flow of 134.98 L/s on Riverside Drive and Garner Avenue. The fire flow calculation by Novatech was completed using the Fire Underwriters Survey (1999) however, using the updated version of the FUS (2020), the fire flow was calculated to measure 100 L/s and therefore, the maximum day demand plus fire flow is estimated to measure 101.6

L/s. Additionally Novatech used an average day demand of 350 L/cap/d however, per Technical Bulletin ISTB-2021-03 the average day demand for the purposes of this design brief was 280 L/cap/d.

There are two (2) existing fire hydrants located on site adjacent to the proposed building and one hydrant located on Riverside Street along the north-western property line which provides fire service coverage for the site.

5 WASTEWATER SERVICING

The sanitary sewer analysis was completed using a population-based calculation to determine the expected daily design flows per the City of Ottawa Sewer Design Guidelines.

5.1 DESIGN CRITERIA

The sanitary sewer demand was calculated based on the architectural conceptual design of the site to estimate the number of studio, 1-bedroom and 2-bedroom units. The domestic domain criteria are from the City of Ottawa Sewer Design Guidelines (2012) and City of Ottawa Technical Bulletin ISTB-2018-01 (2018), summarized in Table 1.

Table 4 – Sanitary Sewer Flow Design Criteria

Demand	Value	Unit
Apartment Building Average Day Sewage Flow	280	L/cap/d
Peaking Factor (Harmon Equation)	$PF = 1 + \left(\frac{14}{4 + \sqrt{\frac{Population}{1000}}} \right) * 0.8$ (Min. 2.0; Max. 4.0)	N/A

The infiltration rate in Table 2 is per the City of Ottawa Sewer Design Guidelines (2012), Technical Bulletin (SDG-ISTB-2018-01, 2018).

Table 5 – Peak Infiltration Allowance

Demand	Value	Unit
Peak Infiltration Allowance	0.33	L/s/ha

5.2 SEWAGE FLOW ESTIMATION

The sanitary sewer flow was calculated based on the design criteria in Section 4.2.1 and the architectural conceptual design of the apartment building. The summary of the number of units, and capita per unit is summarized in Table 3.

Table 6 – Population Estimation from Conceptual Design

Population	Number	Average Occupancy (Persons/Unit)	Total Capita
Studio	62 units	1.4	87
1-Bedroom Units	57 units	1.4	80
2-Bedroom Units	14 units	2.1	30
Total	**133 units**	**-**	**197**

Using the population provided, the sanitary sewer flow was calculated and is summarized in Table 4. Refer to Appendix D for detailed calculations.

Table 7 – Sanitary Sewer Residential Demand

	Value
Average Day Sewage Flow	0.64 L/s
Peaking Factor (Calculated)	3.5
Peak Sewage Flow	2.25 L/s
Peak Extraneous Infiltration Flow	0.36 L/s
Total Design Sewage Flow	**2.61 L/s**

Therefore, the average day sewage flow for the proposed redevelopment is 0.64 L/s, with a peak sewage flow of 2.25 L/s (using a peaking factor of 3.5), and total design flow of 2.61 L/s including extraneous infiltration flow of 0.36 L/s.

5.3 PROPOSED SERVICE CONNECTION

Per the City's Sewer Design Guidelines, the sewer lateral should be designed with a minimum diameter of 135 mm, minimum slope of 1.0%. The sanitary sewer lateral size has been confirmed with the mechanical designer to measure 250 mm in diameter.

A 250 mm diameter sanitary sewer with a minimum slope of 1.0% will be sufficient to convey the sanitary flow to Riverside Drive with design velocities within 0.6 m/s to 3.0 m/s. The sanitary sewer connection has been proposed at the existing maintenance hole within the ROW. Refer to Appendix E for the servicing layout.

5.4 EXISTING CAPACITY

Comparing the design capacity of the existing 250 mm diameter sanitary sewer along Riverside Drive of 30.9 L/s based on a slope of 0.27%, the addition of sewage flow measuring approximately 2.61 L/s from the proposed development is approximately 8% of the design capacity. Refer to the Adequacy Report for additional details on existing capacity of the sanitary sewer.

5.1 REVIEW OF SOIL CONDITIONS

There are no specific local subsurface conditions that suggest the need for a higher extraneous flow allowance. The site is underlain by 1.5m to 3.8 m thick, compressible deposit of Champlain Sea clay. The clay deposit is stiff to very stiff consistency and has limited capacity to support new loads including site grade fill placement. Any groundwater material discharged from an onsite groundwater remediation system is required to be directed to the sanitary sewer system as per the Sewer Use By-law.

The Champlain Sea clay layer is highly frost susceptible and frost protection is necessary for shallow installations and to prevent frost heave. The geotechnical report recommends full clay layer removal as necessary where frost heave movements can not be tolerated. Refer to Geotechnical Report for additional information.

6 STORMWATER MANAGEMENT

Refer to the Stormwater Management Report prepared by WSP which has been prepared under a separate cover.

7 APPROVAL AND PERMIT REQUIREMENTS

7.1 GENERAL

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

No approvals are anticipated to be required from the Conservation Authority.

No application for Certificate of Approval (CofA) under the Ontario Water Resources Act is required.

No approvals related to municipal drains are required.

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

8 CONCLUSION CHECKLIST

8.1 CONCLUSIONS AND RECOMMENDATIONS

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

8.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

Comments received from all submission have been reviewed and revisions to the report and drawings have been incorporated into this report as applicable.

APPENDIX A – PRE-APPLICATION CONSULTATION MEETING MINUTES

Pre-Application Consultation Meeting Notes - 2865 Riverside Drive

Property Address: 2865 Riverside Drive
PC2023-0024
February 9th, 2023 (9am -10am), MS Teams

Attendees:

- David Bull (Senior Project Architects, Edward J Cuhaci & Associate Architects Inc.)
- Maggie Ottenhof (Civil Engineer, WSP)
- Burl Walker (Parks Planner, City of Ottawa)
- Danna See-Har (Housing Developer, City of Ottawa)
- Christopher Moise (Urban Designer, City of Ottawa)
- Hayley Murray (Forester Planner, City of Ottawa)
- Josiane Gervais (Project Manager Infrastructure - Transportation & Approvals, City of Ottawa)
- Tyler Cassidy (Project Manager, City of Ottawa)
- Wendy Tse (File Lead, Planner II, City of Ottawa)
- Adwoa Achireko (Student Planner, City of Ottawa)

Regrets:

- Jamie Batchelor (Planner, RVCA)
- Matthew Haley (Rural Planner, City of Ottawa)

Subject: 2865 Riverside Drive - 7 Storey New Senior Apartment

Meeting notes:

Opening & attendee introduction

- **Introduction of meeting attendees**
- **Overview of proposal:** The development proposed is a 7-story new senior apartment building that is within proximity to a pre-exiting long term care building (St Pats). The development will require an expansion and revision to the existing parking lot area.
    - Approximately 133 Units
- **Projected timing including construction:**
    - Hoping for spring of this year, has been delayed

Relevant OP Policies (No Community Design Plan/Secondary Plan applicable):
Official Plan Transect: Outer Urban
Designation: Neigbhourhood, Riverside Drive is a Minor Corridor

Although the OP document should be read as a whole, the following policies are highlighted for information purposes:

4.1.2. Promote Healthy 15 Minute Neighbourhoods

- ii) In the Outer Urban and Suburban Transects and in villages, shall include sidewalks on at least one side, and sidewalks on both sides of the street wherever needed to create continuous and direct connections to destinations on both sides of the street such as public transit stops or stations, schools, public parks, pathways, recreation centres, public buildings and institutions and

16) The timing and phasing of:

- b) Major development in the Downtown Core and Inner Urban transects, and along Mainstreets in the Outer Urban and Suburban transects will be considered by the City to ensure the provision of additional transit service frequency and, if needed, capacity as a priority means of addressing mobility needs and impacts.

4.4.1- Identify Park Priorities within Ottawa's Growth Areas

3) For Site Plan Control applications in the Downtown, Inner Urban, Outer Urban and Suburban Transects, where the development site is more than 4,000 square metres, the City shall place a priority on acquisition of land for park(s) as per the Planning Act and the Parkland Dedication By-law.

4.3.2 Design large-scale institutions and facilities to coordinate with the existing urban fabric

1) Development that will establish a new or expand an existing large-scale institution or facility shall be evaluated on the basis of all of the policies below

a)Downtown Core, Inner Urban, Outer Urban or Suburban Transect policies and overlay policies where applicable, shall apply to the built form and site plan;

b)Institutions and facilities of this scale are about city-building and shall enhance quality of life for the surrounding neighbourhood and the city as a whole through means such as:

i) Providing public parks and privately-owned public spaces, tree planting and enhanced landscaping;
ii) Large buildings are recognized as priority locations in support of their rooftop photovoltaic electricity potential to generate local renewable energy while reducing greenhouse gas emissions;
iii) Consistent with the City's Public Art Policy, one percent of eligible municipal or public-private partnership construction budgets, including for new large-scale institutions and facilities, shall be for public art commissions. For large-scale institutions and facilities not subject to this requirement, an equivalent contribution to public art commissions will be encouraged; and

c) Co-locating or providing a mix of land uses at a density that is transit supportive may be required;

3) For Site Plan Control applications in the Downtown, Inner Urban, Outer Urban and Suburban Transects, where the development site is more than 4,000 square metres, the City shall place a priority on acquisition of land for park(s) as per the Planning Act and the Parkland Dedication By-law.

4.4.4. – Emphasize on larger parks within the outer urban and suburban areas

1) For areas with a Future Neighbourhood Overlay in Outer Urban and Suburban areas, the City has the following preferences:

a) Larger Park properties that offer the widest range of activity spaces, such as sports fields are preferred;

b) In Hubs and Corridors in the Outer Urban and Suburban transects, urban parkette and plazas will provide central gathering space and recreational components. These are intended to complement larger parks;

c) For greater land efficiency, the co-location of parks with housing components, schools and other institutions or stormwater management facilities, may be considered in the planning of such parks;

and
d) For lands with facilities such as recreation centres and libraries, the opportunity for co-location of housing, especially affordable housing, above the facility should be considered, or at least where an immediate co-development is unfeasible, the facility development should be designed to consider the loading of the addition of residential storeys above through future development.

Section 5 Transects

Outer Urban Transect - Minimum & Maximum Height Requirements Based on Official Plan Policy

Outer Urban Transect	**5.3.3(1)**	**Hubs**	Low-rise, Mid-rise and High-rise: minimum 3 storeys and maximum 40 storeys
	5.3.3(3)	**Mainstreet Corridors**	Low-rise, Mid-rise and High-rise: minimum 2 storeys and maximum 40 storeys, dependent on road width and transition
	5.3.3(4)	**Minor Corridors**	Low-rise: minimum 2 storeys and maximum of 6 storeys
	5.3.4(1)	**Neighbourhoods**	Low-rise: no minimum and generally, zoning will permit at least 3 storeys but no more than 4 storeys

5.3.1 Recognize a suburban pattern of built form and site design

2) The Outer Urban Transect is generally characterized by low- to mid-density development. Development
shall be:
a) Low-rise within Neighbourhoods and along Minor Corridors;
b) Generally Mid- or High-rise along Mainstreets, except where the lot is too small to provide a suitable
transition to abutting low-rise areas, in which case only low-rise development shall be permitted; and
c) Mid- or High-rise in Hubs
3) In the Outer Urban Transect, the City shall support the rapid transit system and begin to introduce urban environments through the designation and overlay policies of this Plan, by: 146
a) Supporting the introduction of mixed-use urban developments at strategic locations close to rapid transit stations; and
b) Targeting Hubs and selected segments of Mainstreets for mid-density and mixed-use development to reinforce or establish an urban pattern as described in Table 6.

5.3.2 - Enhance Mobility Options and Street Connectivity in the Outer Urban Transect

1) The transportation network for the Outer Urban Transect shall:
a) Acknowledge the existing reality of automobile-dependent built form that characterizes the Outer Urban Transect while taking opportunities as they arise to improve the convenience and level of service for walking, cycling and public transit modes;
b) Further to a), introducing mid-block connections to, from and within residential areas, particularly where doing so would materially reduce walking and cycling distances imposed by discontinuous street
networks; and
c) Reducing automobile trips into the Inner Urban and Downtown Core Transects while improving first and last-kilometre transportation options at the Outer Urban trip ends by:

i) Establishing park-and-ride facilities at strategic locations near rapid transit stations; and
ii) Maximizing direct pedestrian access from residential areas to street transit stops

3) In the Outer Urban Transect areas, all streets within Hubs and within an Evolving Overlay shall be identified as access streets.

5.3.3 Provide direction to the Hubs and Corridors located within the Outer Urban Transect

2) Parking in Outer Urban Hubs shall be managed as follows:
a) Minimum parking requirements may be reduced or eliminated; and
b) Surface parking within 300 metre radius or 400 metres walking distance, whichever is greatest, of an existing or planned rapid transit station, shall be located in the interior of the block, behind or beside the building and if located beside, shall not introduce a built-edge gap along the street that is wider than the widest building along the same frontage on the same site

Zoning-R5A[2753]H(24)

Additional permitted uses

- residential care facility
- retail store, limited to a pharmacy

Development is subject to specific provision as detailed in the exception

Preliminary comments and questions from staff and agencies, including follow-up actions:

Planning

1. Section 37 requirements / Community Benefits Charge
   - The former Section 37 regime has been replaced with a "Community Benefits Charge", By-law No. 2022-307, of 4% of the land value. This charge will be required for ALL buildings that are 5 or more storeys and 10 or more units and will be required at the time of building permit unless the development is subject to an existing registered Section 37 agreement. Long term care homes, retirement homes and non-profit housing are exempt. Questions may be directed to Ranbir.Singh@ottawa.ca
2. Consider reducing the number of parking spaces, particularly adjacent to the front yard area and those closer to Riverside Drive
3. Consider a covered drop-off area
4. Provide pedestrian connection(s) the building to Riverside Drive
5. Would it be possible to also provide as an amenity, pedestrian connections within the site, to provide a safe walking environment for those who may wish to walk around the property, provide periodic amenities such as shaded sitting areas
6. Bicycle parking to be provided in accordance with Section 111
7. Ensure there is adequate space for vehicle movement in the refuse and delivery area, loading space to be in accordance with Section 113
8. Could the stairwell be moved from the front of the building to the south side (adjacent to the parking), so the cards/games room could be adjacent to the front lawn and potentially the street facing façade (see Urban design comment below), creates a better quality view for occupants
9. Site/landscaping plans to indicate snow storage areas

10. HPDS-High Performance Design Standards are being implemented as a requirement for planning applications submitted after June 1, 2023. This reviews applications by a variety of metrics, including energy, health, ecology, resiliency, waste and transportation. Please review and complete the High Performance Development Standard attachments if the application is to be submitted post June 1 of this year.
11. Bill 23 requires site plan control approval within 60 days. Although Staff have not implemented a process, this is the timeline we will be working toward. In order to achieve this, issues not resolved may be addressed through conditions. This may also be considered a High Social Impact Project with a reduced circulation timeline.

Urban Design

1. This proposal does not run along or does not meet the threshold in one of the City's Design Priority Areas and need not attend the City's UDRP. Staff will be responsible for evaluating the proposal and providing design direction.
2. **Street facing facade**: We understand that the relationship to the existing building and to the large parking area to the east presents as desire to locate the primary entrance on the east facade, however, we recommend the applicant investigate locating some kind of entrance with canopy facing the public right of way. This could be a through connection of the lobby that also provides direct access to the internal courtyard.
3. **Existing trees**: We recommend the existing trees be preserved, especially where they may be removed due to conflict with new parking stalls.
4. **Courtyard**: We recommend the courtyard design be illustrated on the landscaping plan.
    a. We recommend that the courtyard have direct access from a public space in the building.
    b. We recommend some consideration be made for how the courtyard will be protected from the busy/noisy right of way.
5. **Parking close to the right of way:** We recommend, if the parking requirement can be reduced, that the parking closest to the public right of way be removed as much as possible.
6. The **Design Brief** submittal should have a section which addresses these pre-consultation comments;
7. This is an exciting project in an area full of potential. We look forward to helping you achieve its goals with the highest level of design resolution. We are happy to assist and answer any questions regarding the above.

Engineering

Please see attachment.

Transportation

1. Follow Transportation Impact Assessment Guidelines:
    a. As per the 2020 TRANS trip generation calculator, the trip generation trigger is not met. The site access is also existing, and therefore not considered a 'proposed' new driveway. As such, a TIA is not required. Please revise screening form and re-submit.
    b. An update to the *TRANS Trip Generation Manual* has been completed (October 2020). A copy of this document can be provided upon request.
2. ROW protection on Riverside between Brookfield and CN Rail Line is 37.5m even – please confirm this ROW has already been taken at the 2010 SPA.
3. Since the site is proposing 133 new units, and the site is already accessed by the existing long term care home, a 25m clear throat length is to be provided, show this distance on the site plan.

4. TMP includes transit signal priority and queue jump lanes along Riverside Dr between Hunt Club Road and Heron Road (2031 Network Concept)
5. As the proposed site is institutional, AODA legislation applies.
    a. Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.
    b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).
    c. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements. https://ottawa.ca/en/city-hall/creating-equal-inclusive-and-diverse-city/accessibility-services/accessibility-design-standards-features#accessibility-design-standards
6. On site plan:
    a. Ensure site access meets the City's Private Approach Bylaw.
    b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
    c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
    d. Turning movement diagrams required for internal movements (loading areas, garbage).
    e. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
    f. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)
    g. Sidewalk is to be continuous across access as per City Specification 7.1.
    h. Parking stalls at the end of dead-end parking aisles require adequate turning around space
    i. Grey out any area that will not be impacted by this application.
7. Roadway Noise Study required, as the site is within proximity to Riverside
8. Stationary Noise Study required, due to the proximity to neighboring exposed mechanical equipment and/or if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

Environmental

1. Please ensure the Planning Foresters are consulted as this site to ensure the number of trees that can be planted is achieved.

2. Urban Heat Island-Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.

3. Bird-safe Design-Bird-safe glass or integrated protection measures may be required through conditions of site plan approval for projects involving large expanses of glazing. However, it is important that the Bird-Safe Design Guidelines do not have a significant impact on the affordability or timelines of the respective project. Recognize that corporate standards or other design requirements may limit or preclude use of bird-safe glass or integrated protection measures in cases of small-scale commercial buildings (e.g. restaurant, retail pads).

Parks

1. Please see attached. If you would like to schedule a meeting to discuss, please advise.

Forestry (Planning)

1. Update the TCR to meet the Tree Protection By-law Guidelines. Two discrepancies include:
    a. ·Extent of excavation isn't shown on the plan
    b. ·Reason for removal isn't described
2. ·Reconsider tree removal because of parking spots not required under the zoning, particularly the three freeman maple on the west side
3. ·Consider transplanting opportunities for smaller, young trees in good health
4. **TCR requirements**
    a. .The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
        i. please identify trees by ownership – private onsite, private on adjoining site, city owned, boundary (trees on a property line)
    b. .If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
    c. .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
    d. .The location of tree protection fencing must be shown on the plan
    e. .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.
    f. .For more information on the process or help with tree retention options, contact Hayley Murray hayley.murray@ottawa.ca or on City of Ottawa

5. **LP tree planting requirements**-For additional information on the following please contact tracy.smith@Ottawa.ca
    a. Minimum *Setbacks*
        i. ·Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
        ii. ·Maintain 2.5m from curb
        iii. ·Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
        iv. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when **planting around overhead primary conductors.**
    b. Tree specifications
        i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
        ii. ·Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
        iii. ·Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
        iv. ·Plant native trees whenever possible

v. ·No root barriers, dead-man anchor systems, or planters are permitted.
vi. ·No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

c. **Hard surface planting**
   i. Curb style planter is highly recommended
   ii. ·No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
   iii. ·Trees are to be planted at grade

d. **Soil Volume**
   i. ·Please document on the LP that adequate soil volumes can be met:

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

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

   ii. ·Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

e. **Tree Canopy**
   i. ·The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
   ii. ·At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate.
   iii. ·Indicate on the plan the projected future canopy cover at 40 years for the site.

City Surveyor

1. The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.

2. Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

3. Questions regarding the above requirements can be directed to the City's Surveyor, Bill Harper, at Bill.Harper@ottawa.ca

Waste Services

1. If City waste collection services will be requested, as of June 1, 2022, to participate in the City's Green Bin program, it is to be in accordance with Council's approval of the multi-residential waste diversion strategy. The development must include adequate facilities for the proper storage of allocated garbage, recycling, and green bin containers and such facilities built in accordance with the approved site design. Questions regarding this change and requirements can be directed to Andre.Laplante@ottawa.ca.
2. It is noted that the existing facility does not receive City waste/recycling collection services.

Conservation Authority

1. No current concerns, there are no natural hazards on the site

Submission requirements and fees

1. The required application is for a 'complex site plan'. The planning portion of the application fee exempt, but the Conservation Authority and Engineering Design Review and Inspection fee are required. Please submit charitable status information with application in order to have the planning portion of the fee waived upon submission.
2. Additional information regarding fees related to planning applications can be found here.
3. All PDF submitted documents are to be unlocked and flattened.

Next steps

1. The applicant is encouraged to discuss the proposal with Councillor Riley Brockington, community groups and neighbours prior to the submission of the application.

MEETING NOTES

JOB TITLE	St. Patrick's SWM City Meeting		
DATE	June 07, 2024	**VENUE**	Online Teams Meeting
TIME	1:30pm – 2:00pm		
SUBJECT	SWM Discussion for 2865 Riverside		
CLIENT	City of Ottawa		

ATTENDEES		
Name	**Company**	**Email**
Bryan Orendorff	WSP	bryan.orendorff@wsp.com
David Bull	Edward J. Cuhaci and Associates Architects Inc.	davidb@cuhaci.com
Ishaque Jafferjee	WSP	Ishaque.Jafferjee@wsp.com
Jyotsna Jyotsna	WSP	Jyotsna.jyotsna@wsp.com
Steve Davidson	WSP	Steve.p.davidson@wsp.com
Tyler Cassidy	City of Ottawa	tyler.cassidy@ottawa.ca

ITEMS DISCUSSED	**ACTION**
1.0 REVIEW OF HISTORY AND EXISTING CONDITIONS:	
1.1 We understand in 2010 Novatech completed a SWM report for the construction of the currently developed south portion of the site. That report identified the total allowable release rate of 239.6 L/s. This report was provided to WSP a few weeks ago. 1.2 Following that the Egan Storm Sewer through the existing easement was decommissioned, and flows were redirected to the site's storm sewer system out letting Garner Avenue. The superpipe was extended to 75m (its current length), but to the City's knowledge there are no report or information on the analysis or the elevation/size of a new orifice plate (if a new one was proposed). This report identifies total flows for the existing site is 99.9 L/s.	
2.0 EMAIL FROM TYLER ON EGAN ABANDONMENT:	

4.2.5 Summary of the Total Flow

The following table is a comparison of the allowable flow and the post-development flow for both the 1:5 year and the 1:100 year design events.

Design Event	Allowable Flow (L/s)	Post-Development Flow (L/s)				
	Site Area	Area A-1	Area A-2	Area A-3	Area A-4	Site Area
1:5 yr	239.6	19.0	4.9	60.4	67.6	151.9
1:100 yr	239.6	39.8	5.0	94.9	99.9	239.6

201-1224 Gardiners Road
Kingston, ON
Canada K7P 0G2

T: +1 613 634-7373
F: +1 613 634-3523
wsp.com

2.1	In 2021 Novatech prepared an adequacy of services report for the rezoning application for the current development. That report indicates: o *The total allowable release rate from the site was calculated in the existing Stormwater Management Report to be 239.6 L/s. The allowable flow to the Garner Ave. storm sewer was determined to be 104.6 L/s based on available capacity.*	
2.2	In February 2023 there was a pre-consultation meeting for the SPCA at which time the allowable release rate was specified to match the 2010 SWM report value of 239.6 L/s and identified the 300mm Garner Avenue storm sewer as the receiver.	
2.3	We understand through subsequent email correspondence the City indicated there is no capacity in the existing Riverside storm sewer system as that storm sewer was not designed to accommodate development flows, just road flow.	
2.4	We understand this was communicated to WSP in late 2023, but we recently understand 25 L/s is available for out letting major overland flow.	
3.0	**NOVATECH'S 2010 REPORT:**	
3.1	Existing south development (A2 and A3 – shown in purple) is controlled by a pond and roof storage and throttles flows to 99.9 L/s. Based on Novatech's 2010 SWM Report.	
3.2	The existing uncontrolled flow going to the abandoned Egan (A1 in Green) is 39.8 L/s.	
3.3	The existing controlled flow from the superpipe (A4 in yellow) is 99.9 L/s.	
3.4	Based on this report, the allowable release rate from the north portion of the site would be limited to 4.7 L/s, which is a 97% reduction in flows if we were just considering stormwater controls on the north portion of the site.	
4.0	**SITE VISIT**	
4.1	Following this review, we completed a site visit earlier in the week to confirm the presence of ICDs, as well as to confirm if Superpipe or rooftop storage was considered (the 2010 report was not clear). Our site visit concluded that there was a 75m superpipe on the north site, the Egan storm sewer was capped, there is an ICD in the pond outlet, and there are controlled roof drains.	
4.2	Following that we reached out to Novatech to get a full copy of the 2010 report, and they provided the 2011 revision that confirms some findings.	
5.0	**REVIEW OF NOVATECH 2011 REPORT**	
5.1	The report determines the available capacity on Garner Avenue by calculating full flow capacity of the 300mm sewer at 1.49% (123.4 L/s), less the contributing flow from the residential properties (18.8 L/s) results in an available capacity of 104.6 L/s.	
5.2	The report allows for uncontrolled overland flow to Riverside (17.7 L/s – Area A-1).	
5.3	The report discusses that the uncontrolled perimeter flow to the north and east that drained to the Egan Sewer easement was redirected to the subject site but was left uncontrolled (Area A-2).	
5.4	The dry pond was throttled to 5 L/s with a Hydro vex ICD (Area A-3 - same as 2010 report).	
5.5	The roof was flow controlled to 23.5 L/s (Area A-4. Note the flow for this catchment was 94.9 L/s in the provided 2010 report).	
5.6	The 75m superpipe was controlled with an 108mm orifice plate, and the total allowable flow to the Garner Avenue storm sewer for the north portion of the site is 76.1 L/s (A-2 + A-5).	

4.2.6 Summary of the Total Flow

The following table is a comparison of the allowable flow and the post-development flow for both the 1:5 year and the 1:100 year design events.

Riverside | Garner Avenue

Design Event	Allowable Flow (L/s)	Post-Development Flow (L/s)					
	Site	Area A-1	Area A-2	Area A-3	Area A-4	Area A-5	Total
1:5 yr	104.6	8.8*	17.8	4.9	19.5	30.4	81.4
1:100 yr	104.6	17.7*	35.5	5.0	23.5	40.6	122.3

*Direct runoff collected by roadside catchbasins along Riverside Dr. This flow does not enter the Garner Ave storm sewer therefore the total 1:100 year flow entering the Garner Ave storm sewer is 104.6L/s (122.3L/s – 17.7L/s).

6.0 FOLLOWING THE REVIEW, CITY CONFIRMED AS BELOW:

6.1 Confirmation that the city will accept WSP's revised SWM report to report the flows for the south site per the 2011 report (28.5 L/s)?
Confirmation the City will accept WSP's revised SWM report using an allocation of 28.5 L/s per Novatech's 2011 report provided by Tyler Cassidy, June 7, 2024.

6.2 Confirmation that the allowable release rate for the north portion of the site is 76.1 L/s?
Confirmation that the allowable release rate for the north portion of the site is 76.1 L/s (104.6 – 28.5 = 76.1 L/s) provided by Tyler Cassidy, June 7, 2024.

6.3 Confirmation that the total allowable release rate to the Garner Avenue storm sewer is 104.6 L/s (and the above design criteria and report updates will demonstrate that).
Confirmation that the total allowable release rate to the Garner Avenue storm sewer (300 mm dia.) is 104.6 L/s provided by Tyler Cassidy, June 7, 2024.

6.4 Confirmation that 25 L/s is allowed to flow overland to Riverside (if required based on revised grading)?
Confirmation that 25 L/s overland flow to Riverside Drive during the 100-year storm is permitted, provided by Tyler Cassidy, June 7, 2024.

These minutes are considered to be accurate recording of all items discussed. Written notice of discrepancies, errors or omission must be given within seven (7) days, otherwise the minutes will be accepted as written.

NEXT MEETING

An invitation will be issued if an additional meeting is required.

APPENDIX B – SERVICING STUDY GUIDELINES CHECKLIST

SERVICING STUDY CHECKLIST

Included?	Requirement	Comments
	General Requirements	
NO	Executive Summary (for larger reports only).	N/A
YES	Date and revision number of the report.	Section 1.1
YES	Location map and plan showing municipal address, boundary, and layout of proposed development.	Section 2.1
YES	Plan showing the site and location of all existing services.	Section 2.3
YES	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 2.1
YES	Summary of Pre-consultation Meetings with City and other approval agencies.	Appendix A
YES	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Section 1.4
YES	Statement of objectives and servicing criteria.	Section 1.5
YES	Identification of existing and proposed infrastructure available in the immediate area.	Section 2.3
NO	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A
YES	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Appendix E (Drawings)
YES	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	
NO	Proposed phasing of the development, if applicable.	N/A
YES	Reference to geotechnical studies and recommendations concerning servicing.	
YES	All preliminary and formal site plan submissions should have the following information: -Metric scale -North arrow (including construction North) -Key plan -Name and contact information of applicant and property owner -Property limits including bearings and dimensions -Existing and proposed structures and parking areas -Easements, road widening and rights-of-way -Adjacent street names	Appendix E (Drawings)

Included?	Requirement	Comments
	Water Requirements	
YES	Confirm consistency with Master Servicing Study, if available	N/A
YES	Availability of public infrastructure to service proposed development	Section 4.1
YES	Identification of system constraints	Section 4.1
YES	Identify boundary conditions	Section 4.4
YES	Confirmation of adequate domestic supply and pressure	Section 4.4
YES	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Section 4.5
YES	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Section 4.4
NO	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
YES	Address reliability requirements such as appropriate location of shut-off valves	Appendix E (Drawings)
NO	Check on the necessity of a pressure zone boundary modification.	N/A
YES	Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Section 4.4
YES	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Section 4.1
NO	Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
YES	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 4.2
YES	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Section 4.4
	Wastewater Requirements	
YES	Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Section 5.1
YES	Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A

Included?	Requirement	Comments
YES	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	Section 5.5
YES	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 5.4
YES	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 5.4
YES	Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 5.2
YES	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 5.3
NO	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
NO	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
NO	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
NO	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
NO	Special considerations such as contamination, corrosive environment etc.	N/A
	Stormwater Requirements	
YES	Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Refer to SWM Report (Under Separate Cover)
YES	Analysis of available capacity in existing public infrastructure.	Refer to SWM Report (Under Separate Cover)
YES	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Refer to SWM Report (Under Separate Cover)
YES	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Refer to SWM Report (Under Separate Cover)

Included?	Requirement	Comments
YES	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Refer to SWM Report Section 1.4 (Under Separate Cover)
YES	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Refer to SWM Report Section 3 (Under Separate Cover)
NO	Set-back from private sewage disposal systems.	N/A
NO	Watercourse and hazard lands setbacks.	N/A
NO	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
NO	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
YES	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Refer to SWM Report Section 2 (Under Separate Cover)
NO	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
YES	Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Refer to SWM Report Section 2 and 3 (Under Separate Cover)
NO	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
YES	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Refer to SWM Report Section 3.1 (Under Separate Cover)
YES	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	Refer to SWM Report Section 3.1 (Under Separate Cover)
YES	Identification of potential impacts to receiving watercourses	N/A
YES	Identification of municipal drains and related approval requirements.	Section 2.4
YES	Descriptions of how the conveyance and storage capacity will be achieved for the development.	N/A
YES	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Refer to SWM Report Section 3.1 (Under Separate Cover)
YES	Inclusion of hydraulic analysis including hydraulic grade line elevations.	Refer to SWM Report Section 3.2 (Under Separate Cover)
YES	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Refer to SWM Report Section 3.2 (Under Separate Cover)

Included?	Requirement	Comments
YES	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
YES	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A
	Approval and Permit Requirements	
NO	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A, Section 7
NO	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A, Section 7
NO	Changes to Municipal Drains.	N/A, Section 7
NO	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A, Section 7
	Conclusion Requirements	
YES	Clearly stated conclusions and recommendations	
NO	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	N/A (1st submission)
YES	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

APPENDIX C – ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES

NOVATECH
Engineers, Planners & Landscape Architects

T E C H N I C A L M E M O R A N D U M

DATE: **APRIL 15, 2021**

TO: **GREG WINTERS**

FROM: **MIRO SAVIC**

RE: **2865 RIVERSIDE DRIVE – ADEQUACY OF PUBLIC SERVICES**

Novatech has been retained to review the Adequacy of Existing Services for the Re-Zoning application for the property at 2865 Riverside Drive in the City of Ottawa. Refer to **Figure 1 – Keyplan** for the site location. The property is approximately 2.5ha and is currently partially developed with the St Patrick's long-term care facility. It is proposed to develop the remaining vacant portion of the site with a 7-storey apartment building with associated surface parking and amenity space.

The purpose of this technical memorandum is to review the water, sanitary and storm servicing requirements for the proposed development. This memo will provide an analysis of the existing infrastructure surrounding the site to ensure there is adequate capacity for the proposed development.

WATER SERVICING

There is an existing 150mm dia. watermain in Garner Ave. that currently services the subject site. There is also and existing 300mm dia. watermain fronting the development in Riverside Dr. Refer to **Figure 2 – Existing Services** for details on the existing water servicing infrastructure**.** The domestic water demands for the proposed 7-storey apartment building were calculated based on criteria provided in the City of Ottawa Water Design Guidelines. The domestic water demands for the proposed development were calculated based on a theoretical population of 196 people and are as follows:

- Average Daily Demand: 0.79 L/s
- Maximum Day Demand: 1.98 L/s
- Peak Hour Demand: 4.37 L/s

The proposed apartment building is to be sprinklered with a Siamese connection located near the front of the building within 45m of a fire hydrant. The existing hydrants on Riverside Dr. along with two private hydrants on site will provide fire protection for the proposed development. The required fire demand was calculated using the Fire Underwriters Survey (FUS) Guidelines. The required fire demand for the site was based on a 7-storey fire-resistive constructed building. The FUS calculations indicate that a fire flow of 133 L/s is required for the proposed development. Refer to **Appendix A** for a copy of the FUS fire flow calculations. Refer to **Figure 2 – Existing Services** for the existing hydrant locations.

The water demand and fire flow requirements for the site were submitted to the City for boundary conditions from the City's water model. The proposed boundary conditions from the City assumes

NOVATECH
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Website www.novatech-eng.com

2865 RIVERSIDE DRIVE

KEYPLAN

SCALE		
N.T.S.		
DATE	JOB	FIGURE
APR 2021	120199	1

M:\2020\120199\CAD\Design\Figures\Report Figures\120199-EX.dwg, 11x17 landscape, Apr 06, 2021 - 2:11pm, mhrehoriak

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Website www.novatech-eng.com

2865 RIVERSIDE DRIVE

EXISTING SERVICES

SCALE 1 : 1000 (0, 10, 20, 30, 40)

DATE APR 2021 | JOB 120199 | FIGURE 2

SHT11X17.DWG 279mmX432mm

that the site will be looped and connected to the 300mm dia. watermain in Riverside Dr. and the 150mm dia. Watermain in Garner Ave. which is in the 2W2C pressure zone of the City of Ottawa water distribution network. Refer to **Table 1** for a summary of the proposed boundary conditions and hydraulic analysis.

Table1: Water Demand Summary

Condition	Water Demand	Min/Max Allowable Operating Pressures	Limits of Design Operating Pressures
Average Day	0.79 L/s	80 psi (Max)	72.2
Max Day + Fire (Riverside Dr)	134.98 L/s	20 psi (Min)	62.5
Max Day + Fire (Garner Ave)	134.98 L/s	20 psi (Min)	48.0
Peak Hour	4.37 L/s	40 psi (Min)	63.2

To confirm the adequacy of the municipal water services City of Ottawa boundary conditions were used to analyze the municipal watermain system for three theoretical conditions:

1) High Pressure check under Average Day conditions
2) Peak Hour demand
3) Maximum Day + Fire Flow demand.

The hydraulic analysis indicates that the system can provide adequate pressures and flow to meet the domestic and fire flow requirements for the site. Refer to **Appendix A** for detailed water demand calculations, watermain schematics and City of Ottawa boundary conditions.

SANITARY SERVICING

The existing development is currently serviced by a private 200mm dia. sanitary service which connects to the existing 225mm dia. sanitary sewer within Garner Ave. There is also an existing 250mm dia. sanitary sewer fronting the development in Riverside Dr. Refer to **Figure 2 – Existing Services Plan** for details on the existing sanitary servicing infrastructure. The peak sanitary flow from the proposed 7-storey apartment building was calculated based on criteria provided in the City of Ottawa Sewer Design Guidelines. The proposed peak sanitary flow was calculated for a theoretical population of 196 people to be 2.6 L/s. Refer to **Appendix B** for detailed calculations.

A downstream sanitary sewer analysis was completed for the Garner Ave. sanitary sewer as part of existing St Patrick's development. According to the sanitary sewer analysis there is 17.3 L/s of available capacity in the Garner Ave. sewer. Therefore, there is adequate capacity in the Garner Ave. sanitary sewer to service the proposed development. Refer to **Appendix B** for report excerpts from the existing St Patrick's development. The theoretical capacity of the existing 250mm dia. sanitary sewer in Riverside Dr. is 32.8 L/s based on a slope of 0.28%. An increase in flow of 2.6 L/s is minimal and it is anticipated that the existing sewer in Riverside Dr. would have capacity for the proposed development. Capacity constraints on the existing Riverside Dr. sewer have been requested from City and will be provided once available.

STORM SERVICING AND STORMWATER MANAGEMENT

The existing development is currently serviced by a private 375mm dia. storm sewer which connects to the existing 300mm dia. storm sewer within Garner Ave. There is also an existing 600mm dia. storm sewer fronting the development in Riverside Dr. Refer to **Figure 2 – Existing Services Plan** for details on the existing servicing infrastructure.

The existing St Patrick's development implements stormwater management controls to limit the release rate of stormwater from the site to the municipal storm sewer system. The total allowable release rate from the site was calculated in the existing Stormwater Management Report to be 239.6 L/s. The allowable flow to the Garner Ave. storm sewer was determined to be 104.6 L/s based on available capacity. Its is anticipated that the proposed building will implement flow control roof drains with an outlet directly to the storm sewer in Riverside Dr. A review of the existing stormwater management system will be required during detailed design to ensure the proposed development doesn't increase stormwater flows from the site beyond the allowable release rates outlined above.

CONLUSION

Based on the foregoing, the existing sanitary sewer, storm sewer and watermain infrastructure can adequately service the proposed development at 2865 Riverside Dr.

NOVATECH

Prepared by:

Matt Hrehoriak, P.Eng
Project Engineer | Land Development

List of Appendices:

Appendix A: Water Calculations
Appendix B: Sanitary Sewer Calculations

APPENDIX A

Water Calculations

St. Patrick's Home - 7-Storey Building
WATER ANALYSIS

DOMESTIC WATER DEMAND

Residential	Post-Development	
Number of Studio / 1bed Apartments	119	
Number of 2 Bed Apartments	14	
Number of Persons per 1 bed apartment	1.4	
Number of Persons per 2 bed apartment	2.1	
Design Population	196	
Average Daily Flow per resident	350	L/c/day
Average Day Demand	**0.79**	**L/s**
Maximum Day Demand (2.5 x avg. day)	**1.98**	**L/s**
Peak Hour Demand (2.2 x max. day)	**4.37**	**L/s**

BOUNDAY CONDITIONS (Values provided by the City of Ottawa)

Maximum HGL =	132.0	m
Minimum HGL =	125.7	m
Max Day + Fire Flow (Riverside Dr) =	125.2	m
Max Day + Fire Flow (Garner Ave) =	115.0	m

PRESSURE TESTS

Potential Finished Floor Elevation 81.25 m

High Pressure Test = (Max HGL - Avg.Ground Elev.) x 1.42197 PSI/m < 80 PSI

72.2 PSI

Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42197 PSI/m > 40 PSI

63.2 PSI

Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42197 PSI/m > 20 PSI

62.5 PSI

Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42197 PSI/m > 20 PSI

48.0 PSI

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines

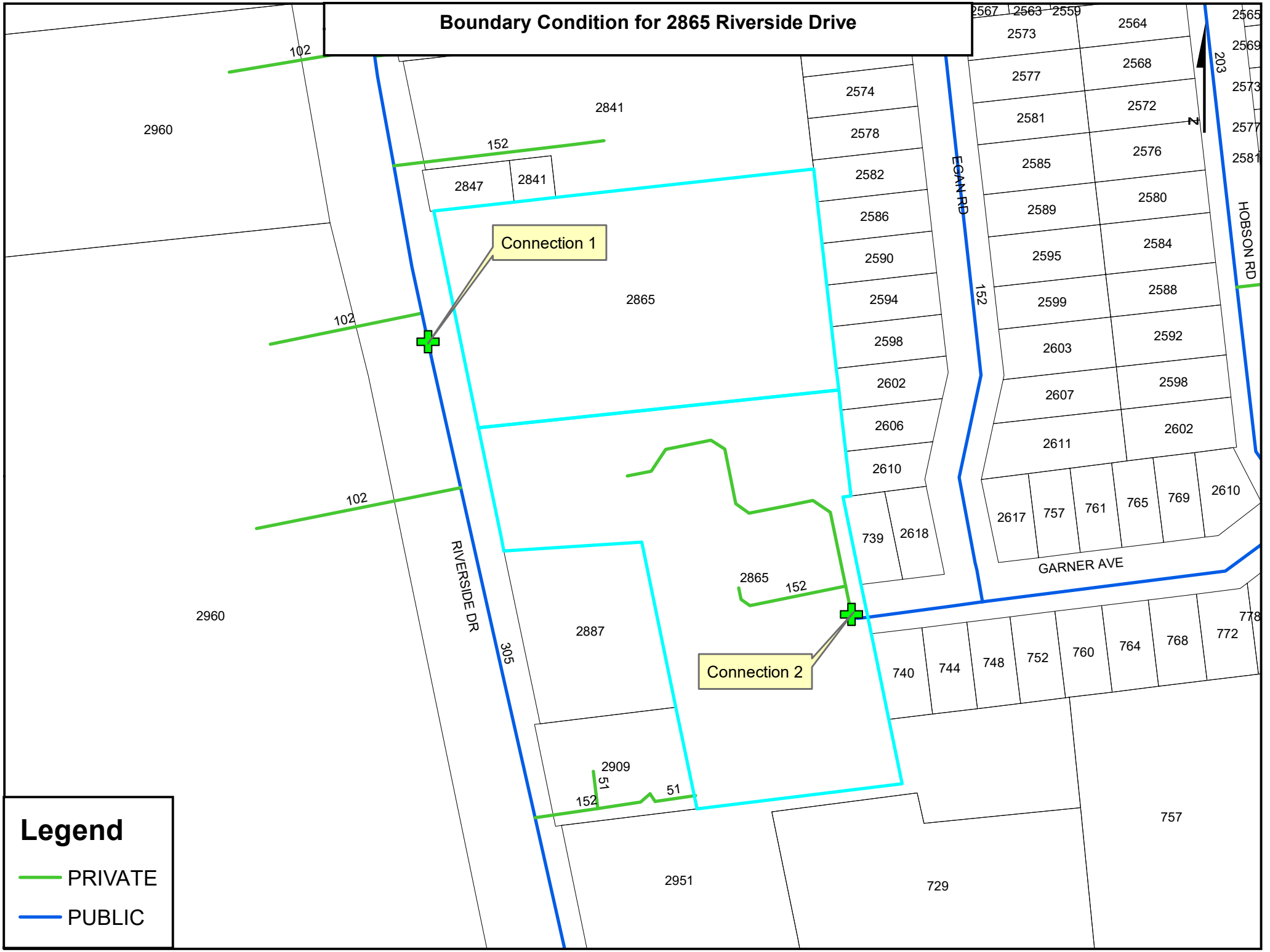
NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 120191
Project Name: 2685 Riverside Drive
Date: 4/1/2021
Input By: Matt Hrehoriak
Reviewed By: Miro Savic

Legend: Input by User; No Information or Input Required

Building Description: St Pats 7 Storey Seniors Apartments
Fire Resistive Construction

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Wood frame		1.5	0.6	
		Ordinary construction		1		
		Non-combustible construction		0.8		
		Modified Fire resistive construction (2 hrs)	Yes	0.6		
		Fire resistive construction (> 3 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	1425			
		Number of Floors/Storeys	7			
		Protected Openings (1 hr)	No			
		Area of structure considered (m^2)			**6,413**	
	F	**Base fire flow without reductions**				**11,000**
		$F = 220\ C\ (A)^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**			**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**9,350**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**			**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-3,740**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	No	-10%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge (cumulative %)**				**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**2,805**
		East Side	> 45.1m		0%	
		South Side	20.1 - 30 m		10%	
		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**	**8,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**133**
				or	USGPM	2,114
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	960


Boundary Condition for 2865 Riverside Drive
Connection 1
Connection 2
2865
2887
2841
2847
2960
2951
729
757
102
152
305
51
2909
RIVERSIDE DR
EGAN RD
HOBSON RD
GARNER AVE
2574
2578
2582
2586
2590
2594
2598
2602
2606
2610
2573
2577
2581
2585
2589
2595
2599
2603
2607
2611
2564
2568
2572
2576
2580
2584
2588
2592
2598
2602
2610
739
2618
2617
757
761
765
769
740
744
748
752
760
764
768
772
778
203
N
Legend
PRIVATE
PUBLIC

Matthew Hrehoriak

From: Sharif, Golam <sharif.sharif@ottawa.ca>
Sent: Tuesday, April 13, 2021 2:47 PM
To: Matthew Hrehoriak
Subject: RE: Boundary Condition Request
Attachments: 2865 Riverside April 2021.pdf

Hi Matthew,

Here is the updated boundary condition:

The following are boundary conditions, HGL, for hydraulic analysis at 2865 Riverside (zone 2W2C) assumed to be looped and connected to the 305 mm on Riverside Drive and 152mm on Garner Avenue (see attached PDF for location).

Both Connections:

Minimum HGL = 125.7 m

Maximum HGL = 132.0 m

Connection 1: Max Day + Fire Flow (133 L/s) = 125.2 m

Connection 2: Max Day + Fire Flow (133 L/s) = 115.0 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.

Sharif.

From: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Sent: April 13, 2021 11:14 AM
To: Sharif, Golam <sharif.sharif@ottawa.ca>
Cc: Miro Savic <m.savic@novatech-eng.com>; Baker, Adam <adam.baker@ottawa.ca>
Subject: RE: Boundary Condition Request

Disregard the last email to simplify we will provide looping from Garner Ave to Riverside Dr. See Attached servicing sketch. Please provide boundary conditions for the looped watermain scenario.

Thanks,

Matthew Hrehoriak, P.Eng., Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867

From: Matthew Hrehoriak
Sent: Tuesday, April 13, 2021 10:06
To: Baker, Adam <adam.baker@ottawa.ca>; Sharif, Golam <sharif.sharif@ottawa.ca>
Cc: Miro Savic <m.savic@novatech-eng.com>
Subject: RE: Boundary Condition Request

Hi Adam/ Golam,

Can the modeling provide boundary conditions for both scenarios. See attached sketch showing the potential loop from Garner Ave to Riverside Dr. Let me know if there are any further questions.

Regards,

Matthew Hrehoriak, P.Eng., Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Thursday, April 8, 2021 10:55
To: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Cc: Sharif, Golam <sharif.sharif@ottawa.ca>; Miro Savic <m.savic@novatech-eng.com>
Subject: RE: Boundary Condition Request

Hi Matthew,

Yes I've forwarded it along. There was a question from the water modelling team – will this site be looped between Garner and Riverside with a private watermain? This would affect the boundary conditions. A water servicing sketch/redline would be ideal if you could provide that.

Thanks,
Adam

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26552, Adam.Baker@ottawa.ca

From: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Sent: April 08, 2021 9:57 AM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Sharif, Golam <sharif.sharif@ottawa.ca>; Miro Savic <m.savic@novatech-eng.com>
Subject: RE: Boundary Condition Request

An additional storey has been added to the building which has affected the water demands. The updated water demands are as follows:

Connection to 300mm dia. in Riverside Dr. (Proposed Water Demands Only)

- Average Day Demand = 0.79 L/s
- Maximum Day Demand = 1.98 L/s
- Peak Hour Demand = 4.37 L/s
- Maximum Fire Flow Demand = 133 L/s (see attached FUS calculations for details)

Connection 150mm dia. in Garner Ave. (Proposed and Existing development Water Demands)

- Average Day Demand = (0.79 + 3.04) = 3.83 L/s
- Maximum Day Demand = (1.98 + 4.56) = 6.54 L/s
- Peak Hour Demand = (4.37 + 8.21) = 12.58 L/s
- Maximum Fire Flow Demand = 133 L/s (see attached FUS calculations for details)

In addition to boundary conditions we require information on the sanitary sewer capacity in Riverside Dr. The proposed peak sanitary flow to the existing 250mm sanitary sewer fronting the development in Riverside Dr. was calculated to be **2.6 L/s**. Please advise if there are any servicing constraints and if there is available capacity for the proposed development.

Regards,

Matthew Hrehoriak, P.Eng., Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867

From: Baker, Adam <adam.baker@ottawa.ca>
Sent: Tuesday, April 6, 2021 13:54
To: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Cc: Sharif, Golam <sharif.sharif@ottawa.ca>; Miro Savic <m.savic@novatech-eng.com>
Subject: RE: Boundary Condition Request

Hi Matthew,

Yes, I've sent it in. It will most likely be Sharif who follows-up with your boundary conditions.

Thanks,
Adam

Adam Baker, EIT
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - South Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 26552, Adam.Baker@ottawa.ca

From: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>
Sent: April 05, 2021 2:45 PM
To: Baker, Adam <adam.baker@ottawa.ca>
Cc: Sharif, Golam <sharif.sharif@ottawa.ca>; Miro Savic <m.savic@novatech-eng.com>
Subject: FW: Boundary Condition Request

I see Golam is away from the office, can you please forward these water demands off to the modeling group?

Thanks,

Matthew Hrehoriak, P.Eng., Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867

From: Matthew Hrehoriak
Sent: Monday, April 5, 2021 14:42
To: sharif.sharif@ottawa.ca
Subject: Boundary Condition Request

Hi Golam,

I have calculated the proposed water demands for the development at 2865 Riverside Drive. I am sending you this e-mail to request watermain boundary conditions for the 300mm dia. municipal WM fronting the subject property in Riverside Dr and the 150mm dia. watermain to the east in Garner Avenue.

The anticipated water demands for the proposed development are as follows:

Connection to 300mm dia. in Riverside Dr. (Proposed Water Demands Only)

- Average Day Demand = 0.68 L/s
- Maximum Day Demand = 1.69 L/s
- Peak Hour Demand = 3.72 L/s
- Maximum Fire Flow Demand = 167 L/s (see attached FUS calculations for details)

Connection 150mm dia. in Garner Ave. (Proposed and Existing development Water Demands)

- Average Day Demand = (0.68 + 3.04) = 3.72 L/s
- Maximum Day Demand = (1.69 + 4.56) = 6.25 L/s
- Peak Hour Demand = (3.72 + 8.21) = 11.93 L/s
- Maximum Fire Flow Demand = 167 L/s (see attached FUS calculations for details)

See attached figure for potential connection locations.

We are trying to have a compiled report for the end of this week will it be possible to get a quick turn around on the Boundary Conditions. Please let me know if there are any questions.

Regards,

Matthew Hrehoriak, P.Eng., Project Engineer | Land Development Engineering
NOVATECH Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 273 | Fax: 613.254.5867

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APPENDIX B

Sanitary Sewer Calculations

NOVATECH
Engineers, Planners & Landscape Architects

St. Patrick's Home - 7 Storey Building
SANITARY SEWER ANALYSIS

Residential	Post-Development	
Number of Studio / 1 Bed Apartments	119	
Number 2 Bed Apartments	14	
Number of Persons per Average Apartment	1.4	
Number of Persons per Average Apartment	2.1	
Design Population	196	
Average Daily Flow per resident	280	L/c/day
Peak Factor (Harmon Formula)	3.52	
Peak Residential Flow	2.24	L/s
Extraneous Flow		
Site Area	1.09	ha
Infiltrationn Allowance	0.33	L/s/ha
Peak Extraneous Flows	0.36	L/s
Total Peak Sanitary Flow	**2.6**	**L/s**

FIGURE 2

EXISTING SITE AND SANITARY SEWERS

ST PATRICK'S HOME OF OTTAWA
SANITARY SEWER CAPACITY ANALYSIS - EXISTING CONDITIONS

LOCATION			RESIDENTIAL AREA AND POPULATION								IND			COMM/INST		ICI	INFILTRATION			FLOW	PIPE						
Street	From	To	Area	Dwellings		Pop.	Cumulative		Peak	Peak	Area	Accu.	Peak	Area	Accu.	Peak	Total	Accu.	Infiltration	Total	Length	Dia	Dia	Slope	Velocity	Capacity	Ratio
	Node	Node		SFH	TH		Area	Pop.	Factor	Flow		Area	Factor		Area	Flow	Area	Area	Flow	Flow		Act	Nom		(Full)	(Full)	Q/Qfull
			(ha)				(ha)			(l/s)	(ha)	(ha)		(ha)	(ha)	(l/s)	(ha)	(ha)	(l/s)	(l/s)	(m)	(mm)	(mm)	(%)	(m/s)	(l/s)	(%)
Egan Rd.	MH1	MH2	0.47	8		27.2	0.47	27.2	4.00	0.44							0.5	0.5	0.13	0.6	50.3	254	250	0.520	0.88	44.7	1%
Egan Rd.	MH2	MH3	0.43	7		23.8	0.90	51.0	4.00	0.83							0.4	0.9	0.25	1.1	51.5	254	250	0.270	0.64	32.2	3%
Egan Rd.	MH3	MH4	0.27	4		13.6	1.17	64.6	4.00	1.05							0.3	1.2	0.33	1.4	39.9	254	250	0.190	0.53	27.0	5%
Egan Rd.	MH5	MH4	2.45	0		0	2.45	0.0	4.00	3.15							2.5	2.5	0.69	3.8	40.8	228	225	0.800	1.02	41.6	9%
Egan Rd.	MH4	MH7	0.08	0		0	3.70	64.6	4.00	4.20							0.1	3.7	1.04	5.2	41.1	228	225	0.360	0.68	27.9	19%
Garner Ave.	MH6	MH7	0.27	4		13.6	0.27	13.6	4.00	0.22							0.3	0.3	0.08	0.3	40.8	228	225	0.390	0.71	29.0	1%
Garner Ave.	MH7	MH8	0.70	11		37.4	4.67	115.6	4.00	5.02							0.7	4.7	1.31	6.3	92.4	228	225	0.420	0.74	30.1	21%
Garner Ave.	MH8	MH9	0.16	2		6.8	4.83	122.4	4.00	5.13							0.2	4.8	1.35	6.5	35.4	228	225	0.370	0.69	28.3	23%

DESIGN PARAMETERS

Average Daily Flow=	350	L/cap/day	Industrial Peak Factor=	per MOE graph
Comm/Inst Flow=	50000	L/ha/day	Extraneous Flow=	0.28 L/s/ha
Industrial Flow=	35000	L/ha/day	Minimum Velocity=	0.60 m/s
Max Res Peak Factor=	4.00		Manning's n=	0.013
Comm/Inst Peak Factor=	1.50			
Average Daily Flow (St Patrick's)=	450	L/bed/day		

Designed: CJO

Checked: MS

Dwg. Reference:

PROJECT:
St. Patrick

CLIENT:

Date: February 10, 2010

APPENDIX D –
CALCULATIONS AND SKETCHES

Table A1 - Proposed Development

DESIGNED BY: Maggie Ottenhof, P.Eng.
CHECKED BY: Zhidong Pan, P.Eng., M.Eng.

Proposed Building Space Allocation

Unit Type	No. of Units	Total Capita
Studio Unit	62	87
1 Bedroom Unit (1.4 Persons/Unit)	57	80
2 Bedroom Unit (2.1 Persons/Unit)	14	30
Total	**133**	**197**

Table A2 - Sanitary Sewer Calculation

DRAINAGE DESCRIPTION												OUTLET PIPE DATA				
			Contributing Area		Average Daily Flow	Average Daily Flow	M	Peak Flow	Peak Flow	Peak Extraneous Flow	Q	SIZE	Slope	CAP	Q/Qfull	Velocity
AREA DESCRIPTION	FROM	TO	No.	Ha	(L/d)	(L/s)		(L/d)	(L/s)	(L/s)	(L/s)	(mm)	(%)	(L/s)		(m/s)
Apartment Building	Manhole	Street	1	1.09	55160	0.64	3.5	194182	2.25	0.36	**2.61**	**250**	**1.00%**	**59.5**	**0.04**	**1.21**
(Total to ROW)																

DESIGN PARAMETER			
Manning's n =	0.013		City of Ottawa Sewer Design Guidelines (2012), Technical Bulletins
Studio and 1 Bedroom Daily Flow (q)	280	L/cap/d	
2 Bedroom Daily Flow (q)	280	L/cap/d	
Infiltration Rate (I) =	0.33	L/s/Ha	
Peaking Factor (M) = $1+14/(4+P^{0.5})*0.8$	3.5	Harmon Formula	

Notes: Refer to Table A1 for population calculations

Designed By:
Maggie Ottenhof, P.Eng.

Checked By:
Zhidong Pan, P.Eng., M.Eng.

Project Number: 221-08396-00

PROJECT:
St. Patricks Home

LOCATION:
Ottawa, Ontario

Date: October 7, 2022

Table A3 - Proposed Domestic Demands
St. Patrick's Home Development

PROPOSED DOMESTIC DEMANDS			REFERENCES
Average Day Demand			
Apartment Building	55160	L/day	Ottawa Sewer Design Guidelines (October 2012)
ADF =	0.638426	L/s	Technical Bulletins to Water Design Guidelines
ADF_{TOTAL} =	0.64	L/s	Sum of ADD
Maximum Day Demand (MDD):			
Maximum Day $Factor_{Apartment\ Building}$ =	2.5 x $ADD_{Residential}$		Ottawa Design Guidelines - Water Distribution (July 2010), Table 4.2
$MDD_{Apartment\ Building}$ =	1.60	L/s	Average Day Demand x Maximum Day Factor
MDD_{TOTAL} =	1.60	L/s	Sum of MDD
Maximum Hour Demand (MHD):			
Maximum Day $Factor_{Apartment\ Building}$ =	2.2 x $MDD_{Residential}$		Ottawa Design Guidelines - Water Distribution (July 2010), Table 4.2
$MHD_{Apartment\ Building}$ =	3.51	L/s	Maximum Day Demand x Maximum Hour Factor
MHD_{TOTAL} =	3.51	L/s	Sum of MHD

Designed By:	**Project:**
Maggie Ottenhof, P.Eng.	**St. Patricks Home Development**
Checked By:	**Location:**
Zhidong Pan, P.Eng., M.Eng.	**Ottawa, Ontario**
Project Number:	**Dwg. Reference:**
221-08396-00	N/A

Fire Flow Calculation

St. Patrick's Home Development
FIRE UNDERWRITERS SURVEY FIRE FLOW CALCULATION

A = 6370 sq.m 68566 sq.ft (Total Effective Area per FUS 2020)

Formula F = 220 x c x Sq. Root "A"

F = the required fire flow in litres per minute c = the coefficient related to type of construction
A = Floor Area (Per FUS (2020), Total Effective Area, 2(a), 2 largest adjoining floor areas plus 50% of each of above adjoining floors)

STEP 1: TYPE OF CONSTRUCTION TO DETERMINE "c" COEFFICIENT

c: 1.5 for Wood Frame Construction c: 1.0 for Ordinary Construction
c: 0.8 for Non-Combustible Construction c: 0.6 for Fire-Resistive Construction

F= 220 x c 0.8 **x Sq. Root "A"** 79.8 **=** 14047.0

STEP 2: INCREASE OR DECREASE FOR OCCUPANCY

Non-Combustible (-0.25%) Charge: Limited Combustible (-15%) Charge: Combustible (0%)
Free Burning (+15%) Charge: Rapid Burning (+25%) Charge
"APPLY ONE OF THESE CHARGES TO THE VALUE OBTAINED IN STEP 1 ROUNDED OFF TO THE NEAREST 1000"

Value from Step 1 14000.0 **x** **Charge** 0.85 **=** 11900

STEP 3: DETERMINE THE DECREASE FOR SPRINKLER SYSTEM (See FUS for Details)

Adequately Designed System (NFPA 13) -30%, Partial Building Coverage 30% x % of Total Floor Area Serviced
Standard Water Supply -10%, Partial Building Coverage 10% x % of Total Floor Area Serviced
Fully Supervised System -10%, Partial Building Coverage 10% x % of Total Floor Area Serviced

Value from Step 2	11900	x	**Above Value**	0.5	=	5950
Value from Step 2	11900	-	**Answer from Above**	5950	=	5950

STEP 4: INCREASE FOR EXPOSURE FROM OTHER BUILDINGS

Maximum Exposure: 0 to 3 m (+ 25%); 3.1 to 10 m (+20%), 10.1 to 20 m (+ 15%); 20.1 to 30 m (+ 10%); 30.1 to 45 m (0%)
Exposure Adjustment Charges per Table 6 (FUS, 2020)
THE TOTAL % SHALL BE THE SUM OF THE % FOR ALL SIDES, BUT SHALL NOT EXCEED 75%

Value from Step 2	11900	x	North Side Step Charge	0.00	=	0
Value from Step 2	11900	x	East Side Step Charge	0.00	=	0
Value from Step 2	11900	x	South Side Step Charge	0.04	=	476
Value from Step 2	11900	x	West Side Step Charge	0.00	=	0
			Total	0.04	=	476

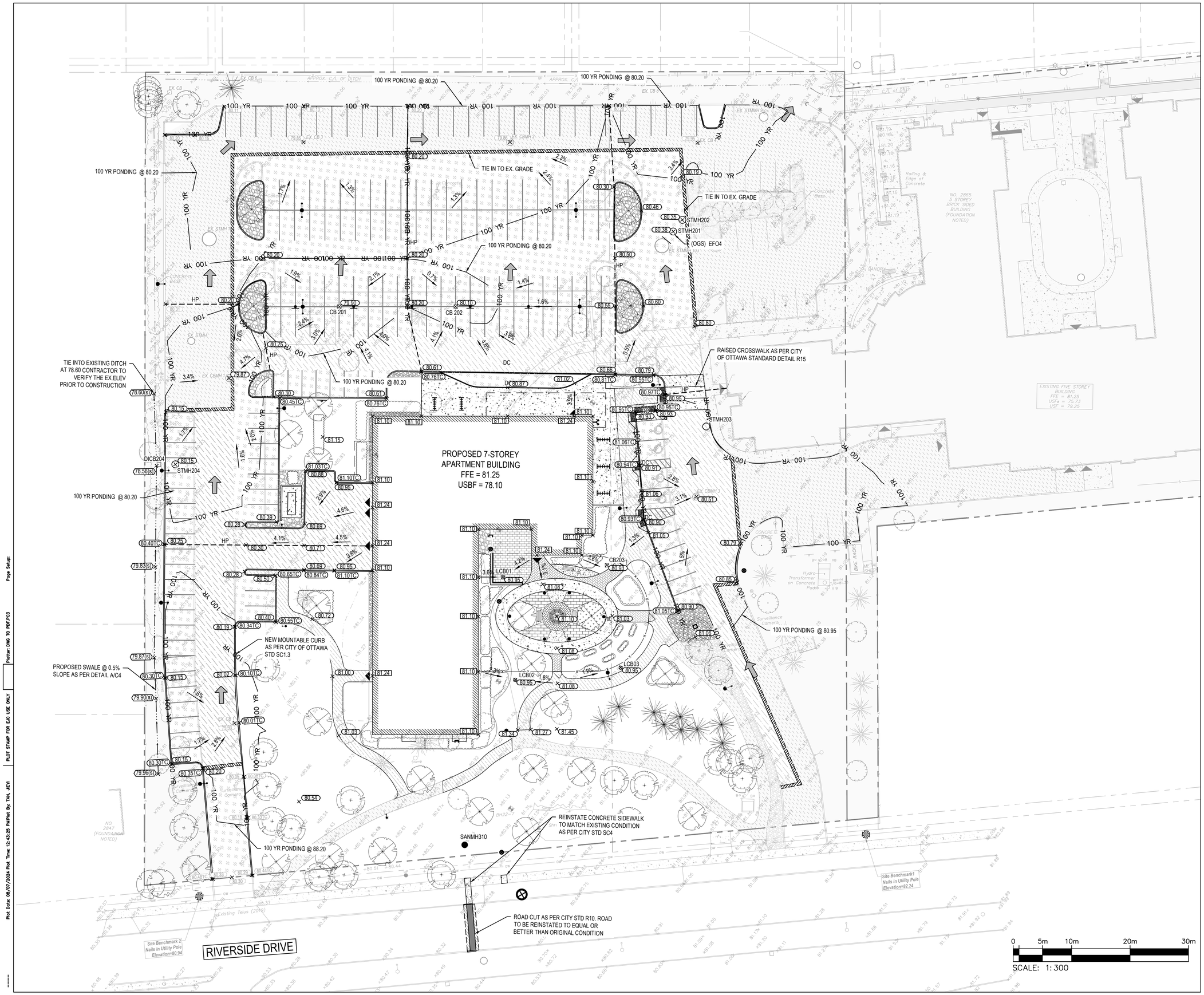
Value from Step 3 5950 + Total 476 = 6426

STEP 5: TO DETERMINE THE FIRE FLOW

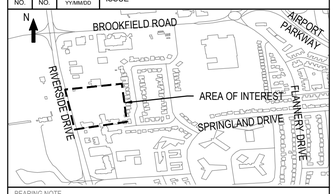
Round to nearest 1000

Take Value from Step 4 6000 Divide by 60 = 100.0 L/S

APPENDIX E –
CIVIL DRAWINGS



ISSUE NO.	REV. NO.	DATE YY/MM/DD	ISSUE
5		24/07/08	ISSUED FOR FINAL SITE PLAN CONTROL
4		24/04/26	RESUBMISSION FOR SPC PH 3 PRE-CONSULATION
3		24/04/15	RESUBMISSION FOR SPC PH 3 PRE-CONSULATION
2		24/01/23	ISSUED FOR SITE PLAN CONTROL REVIEW
1		23/08/30	ISSUED FOR COSTING
0		22/10/07	ISSUED FOR CONCEPT DESIGN



BEARING NOTE

BEARING ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 1968091, CENTRAL MERIDIAN, 76°30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL)
SITE BENCHMARK 1 N:5025855.730 E:368247.808 ELEVATION=82.24
SITE BENCHMARK 2 N:5025967.857 E:368224.569 ELEVATION=80.94

WSP CANADA INC.
2611 QUEENSVIEW DRIVE, SUITE 300
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LICENSED PROFESSIONAL ENGINEER
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2024-07-08
PROVINCE OF ONTARIO

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171 Slater St, Suite 100, Ottawa, Ontario, K1P 5H7
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PROJECT TITLE/TITRE DU PROJET
ST. PATRICK'S HOME
NEW SENIOR APARTMENT BUILDING

2865 RIVERSIDE DR.#226
OTTAWA, ONTARIO K1V 8N5

DRAWING TITLE/TITRE DU DESSIN

GRADING PLAN

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DRAWN BY / DESSINE PAR	JT	ISSUE No	5
CHECKED BY / VERIFIE PAR	DY	REV. No	0
DATE	JULY 2024	DRAWING/DESSIN	C4
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PROPOSED 7-STOREY
APARTMENT BUILDING
FFE = 81.25
USBF = 78.10

STMH201
(OGS)EF04
T/G =80.38m
INV. NW = 77.390m
INV. SE = 77.390m

STMH202
T/G =80.35m
INV. W = 78.100m
INV. SE = 77.340m
INV. NW = 77.370m

INV.=78.263

INV.=78.462

NEW 10.83m - 250mmØ CB LEAD @ 0.35%

REMOVE EX.ICD AND REPLACE
WITH 50mm CIRCULAR ORIFICE
H=2.34m
Q=8.0 L/s

NEW 10.65m - 250mmØ CB LEAD @ 0.35%

CB 201
T/G =79.90m
INV. E = 78.300m

CB 202
T/G =80.10m
INV. E = 78.500m

NEW 35.57m - 250mmØ PVC STM @ 1.0%

CONTRACTOR TO PROTECT
UNDERGROUND UTILITY DURING
CONSTRUCTION

RAISED CROSSWALK AS PER CITY
OF OTTAWA STANDARD DETAIL R15

SIAMESE CONNECTION

PROPOSED ROOF DRAIN
CONNECTION @78.84m REFER
TO MECH DWG FOR
CONTINUATJION

NEW 19.40m - 250mmØ PVC STM @ 1.0%

STMH203
T/G =80.89m
INV. N = 78.646m
INV. E = 78.460m

NEW 2.81m - 200mmØ PVC STM @ 1.42%

DICB204
T/G =79.09m
INV. S = 78.200m

STMH204
T/G =80.15m
INV. E = 78.100m
INV. N = 78.160m

PROPOSED WATER BUILDING
CONNECTION @ INV: 78.70m. REFER TO
MECH DWG FOR CONTINUATION.

NEW 19.27m - 250mmØ CB LEAD STM @ 0.5%

NEW 17.92m - 250mmØ HDPE STM @ 1.4%

CB203
T/G =80.93m
INV. W = 79.590m
INV. N = 79.700m
INV. SE = 78.980m

LCB01
T/G =80.95m
INV. S = 79.950m

CONNECT TO EXISTING 150mmØ WATERMAIN.

PROPOSED UG CONDUIT AND VAULT. REFER
TO ELECTRICAL DRAWINGS FOR DETAILS.

150mmØ PVC DR18 WATERMAIN

NEW 17.65m - 250mmØ HDPE STM @ 1.0%

NEW 18.18m - 250mmØ HDPE STM @ 1.0%

LCB03
T/G =80.95m
INV. N = 79.770m
INV. E = 79.770m

LCB02
T/G =80.95m
INV. S = 79.950m

PROPOSED SANITARY BUILDING CONNECTION.
SAN INV: 77.96m.
REFER TO MECH DWG FOR CONTINUATION.

NEW 17.92m - 250mmØ SANITARY
SEWER @ 1.0%

SANMH310
T/G =80.55m
INV. W = 78.753m
INV. E = 78.783m

NEW 19.07m - 250mmØ SANITARY
SEWER @ 1.0%

INSTALL VALVE CHAMBER ON EX.305mm W/M
AS PER CITY STD W3 BY CITY FORCE

CONNECT TO EXISTING 300mmØ WATERMAIN WITH
150 x 300 TEE. BY CITY FORCE

CONNECT TO EXISTING SANMH200
@ INV ELEV: 77.56m AND MODIFY
EXISTING MANHOLE BENCHING

RIVERSIDE DRIVE

EXISTING FIVE STOREY
BUILDING
FFE = 81.25
USFF = 75.73
USF = 79.25

0 5m 10m 20m 30m
SCALE: 1:300

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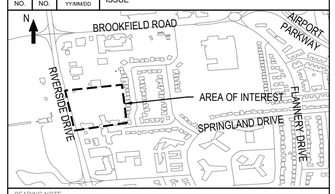

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