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**Proposed Residential Development
100 Argyle Avenue**
Assessment of Adequacy of Existing
Municipal Services Report

**Proposed Residential Development
100 Argyle Avenue**

**Assessment of Adequacy of Existing
Municipal Services Report**

Prepared by:

NOVATECH

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

November 12, 2018

Ref: R-2018-089
Novatech File No. 118116

November 12, 2018

Colonnade BridgePort
100 Argyle Avenue, Suite 100
Ottawa, Ontario
K2P 1B6

Attention: Ms. Kelly Rhodenizer

Dear Ms. Rhodenizer:

**Re: Assessment of Adequacy of Existing Municipal Services
Proposed Residential Development
100 Argyle Avenue, Ottawa
Novatech File No.: 118116**

Enclosed is a copy of the 'Assessment of Adequacy of Existing Municipal Services Report' for the proposed development located at 100 Argyle Avenue in the City of Ottawa.

This report addresses the adequacy of the existing municipal services in relation to the proposed residential development and is submitted in support of a Zoning By-Law Amendment application.

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

Yours truly,

NOVATECH



François Thauvette, P. Eng.
Senior Project Manager
Land Development & Public-Sector Engineering

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1.0 INTRODUCTION

Novatech has been retained by Colonnade BridgePort to complete an assessment of adequacy of existing municipal services for the proposed residential development located at 100 Argyle Avenue in the City of Ottawa.

1.1 Purpose

The purpose of this assessment is to confirm that the proposed development can be adequately serviced by the existing municipal services within the vicinity of the site. This assessment has been prepared in support of a Zoning By-Law Amendment application.

The City of Ottawa design guidelines for sewer systems and water distribution including relevant technical bulletins have been used to estimate the theoretical servicing requirements of the site. GeoOttawa has been used to establish the existing municipal services adjacent to the subject site.

1.2 Location and Site Description

The subject site is located at 100 Argyle Avenue, between Metcalfe Street and Elgin Street in the City of Ottawa, as shown in **Figure 1 (Aerial Plan)**. The property is approximately 0.16 hectares (ha) in area.

The site is bordered by Argyle Street and the Canadian Museum of Nature to the north, existing office and residential buildings to the west and the Ottawa Police Services building to the south and east.

Figure 1 – Aerial Plan provides an aerial view of the site.



Image Source: geoOttawa (City of Ottawa)

The subject site is currently occupied by a 3-storey building with a variety of office uses. There are street level parking lots on the eastern and southern sides of the site. A shared laneway located on the west side of the building currently provides access to the neighbouring property's rear parking lot.

The legal description of the site is Lot 3 and Part of Lot 4, Registered Plan 30, City of Ottawa.

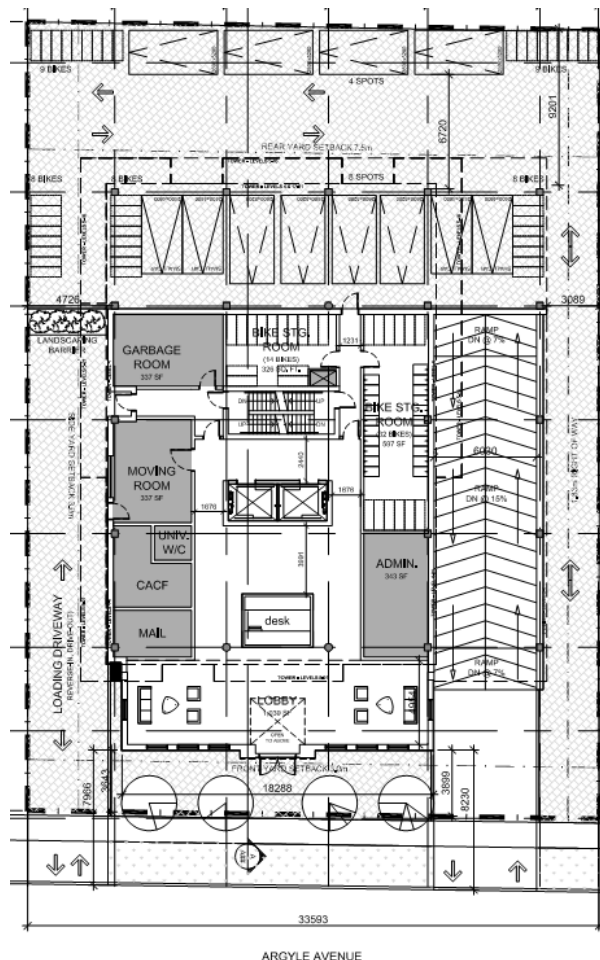
The current zoning of the site is General Mixed-Use (GM5).

1.3 Proposed Redevelopment

The proposed redevelopment is intended to be a new 21-storey residential development. Approximately 156 residential units are anticipated. **Figure 2 (Conceptual Ground Floor Plan)** shows the proposed development.

Underground parking is proposed, with access via a two-way entry from Argyle Avenue. A shared laneway on the west side of the building, a loading driveway on the east side of the building and twelve (12) surface parking spots at the rear of the property are proposed. A separate Transportation Impact Assessment (TIA) has been prepared and submitted with this application.

Figure 2 – Conceptual Ground Floor Plan (by Roderick Lahey Architects Inc.) provides a conceptual layout of the ground floor of the proposed redevelopment.



2.0 WATER SERVICING

An existing 203mm dia. municipal watermain is located adjacent to the site in Argyle Avenue. The existing building is assumed to be connected to this watermain. A new connection is anticipated to service the proposed development.

2.1 Existing Site Conditions

The theoretical water demands for the existing site are summarized in **Table 2.1**.

Table 2.1: Theoretical Water Demands for the Existing Site

Demand Type	Average Day Demand ¹	Maximum Day Demand	Peak Hour Demand
Commercial – Office (75 employees)	0.20 L/s	0.30 L/s	0.54 L/s

¹ Based on an average 8-hour work day.

Refer to **Appendix A** for design criteria and detailed calculations.

2.2 Proposed Domestic Water Demand

The theoretical water demands for the proposed development are summarized in **Table 2.2**.

Table 2.2: Theoretical Water Demands for the Proposed Development

Demand Type	Average Day Demand	Maximum Day Demand	Peak Hour Demand
Residential (104 x Studio/1-bdrm, 52 x 2-bdrm)	1.03 L/s	2.58 L/s	5.68 L/s

Refer to **Appendix A** for design criteria and detailed calculations.

Due to the anticipated water demand of the proposed development (>50 m³/day), two water services will be required. The proposed water services will be sized at the detailed design stage and will provide both the required domestic water demand and fire flow.

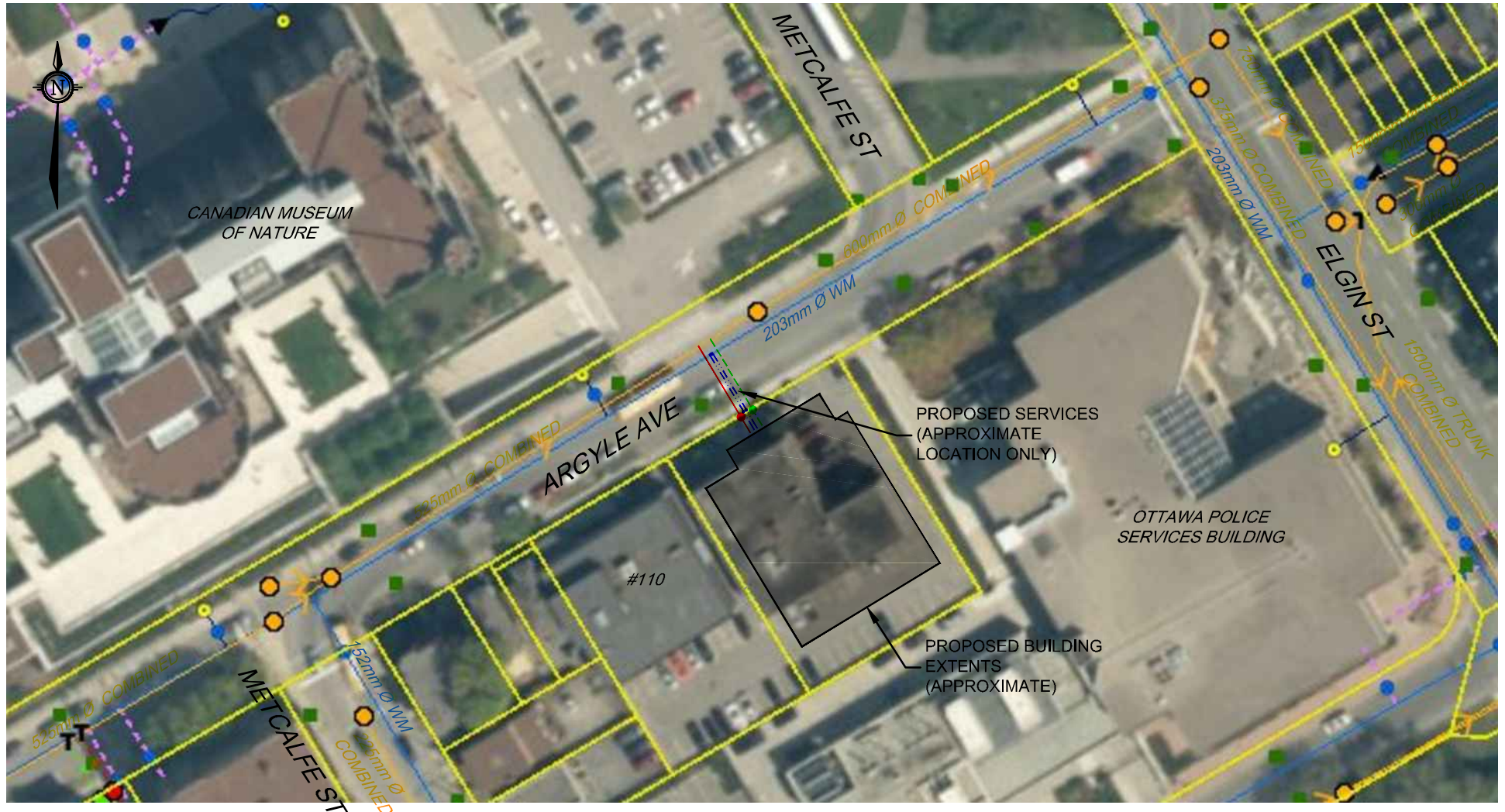
Refer to **Figure 3 (Conceptual Servicing)** for details of the existing municipal watermains and the approximate location of the proposed water services.

2.3 Water Supply for Fire Fighting

The Fire Underwriter's Survey (FUS) was used to estimate fire flow demands for the proposed development. The proposed building will be sprinklered. In the absence of detailed architectural information, some assumptions were made regarding the buildings construction. A fully fire resistive construction was assumed due to the large size and type of occupancy for the proposed building.

The calculated fire flow demand for the proposed development is 167 L/s (10,000 L/min). Refer to **Appendix A** for detailed calculations.

M:\2018\118116\CAD\Design\Figures\Fig_3-Conceptual_Servicing.dwg, FIG 3 8x11 Landscape, Nov 08, 2018 - 12:57pm, lbofam



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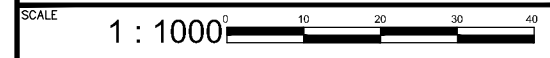
Telephone (613) 254-9643
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LEGEND

- EXISTING MUNICIPAL SERVICES:
- EX WATERMAIN
 - EX COMBINED SEWER
 - EX CATCHBASIN
- PROPOSED PRIVATE SERVICES:
- - - PR WATER SERVICE
 - - - PR SANITARY
 - - - PR STORMWATER

100 ARGYLE AVENUE

PRELIMINARY SERVICING



DATE NOV 2018	JOB 118116	FIGURE 3
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The building would require a siamese connection, to be located near the main building entrance. The siamese connection will be within 45m of a fire hydrant, as there is an existing municipal fire hydrant located approximately 30m from the center of the property frontage. There are approximately four (4) other existing fire hydrants within 150m of the center of the property frontage.

2.4 Municipal Boundary Conditions

Preliminary water demand and fire flow calculations were provided to the City of Ottawa. These values were used to generate municipal watermain network boundary conditions.

Table 2.4-A summarizes the boundary conditions provided by the City of Ottawa for the existing municipal watermain network. Refer to **Appendix A** for correspondence with the City of Ottawa.

Table 2.4-A: Hydraulic Boundary Conditions Provided by the City

Condition	Municipal Watermain Boundary Condition
Minimum HGL	106.5m
Maximum HGL	114.9m
Max Day + Fire Flow	100.0m

At this stage it is assumed that hydraulic losses in the private water services will be negligible and that the proposed development will require booster pumps to increase pressure for the upper floors of the tower.

Table 2.4-B summarizes the water demands for the proposed development under the various operating conditions and compares the anticipated operating pressures in the private water service to the normal operating pressures outlined in the City of Ottawa Water Distribution Design Guidelines.

Table 2.4-B: Preliminary Water Analysis Results Summary

Condition	Total Water Demand (L/s)	Approximate Design Operating Pressures (psi) / (Relative Head) (m) ¹	Normal Municipal Operating Pressures (psi)
Average Demand	1.03	62 psi (43.6m)	50-70 psi (desired range) > 40 psi (min.) < 80 psi (max.)
Peak Hour Demand	5.68	50 psi (35.2m)	
Max Day + Fire Flow Demand	169.58	41 psi (28.7m)	> 20 psi (min.)

¹ The proposed building is assumed to have a finished floor elevation similar to the finished floor elevation of the existing building, approximately 71.3m.

Based on the preliminary information provided by the City of Ottawa, the existing municipal watermain in Argyle Avenue will be able to adequately service the proposed development. The exact size, location and elevation of the proposed water services will be determined at the detailed design stage.

3.0 SANITARY SERVICING

A municipal combined sewer located in Argyle Avenue currently provides an outlet for sanitary and stormwater flows from the site. This combined sewer varies in size between 525mm to 600mm dia. across the site's frontage.

Approximately 130m downstream of the site at the intersection of Elgin Street and Argyle Avenue (E.), the combined sewer connects into the 1500mm dia. Arlington-Isabella-Cartier trunk sewer. Refer to **Figure 3 (Preliminary Servicing)** for details of the existing sewers.

3.1 Existing Zoning

Under the site's current zoning, General Mixed-Use (GM5[68] F(2.0) H(18.5)), the maximum permitted development scenario for the site is a residential building up to 5-storeys high with a total gross floor area of approximately 3,140m². This has been estimated to be equivalent to approximately 28 one-bedroom units.

The theoretical sanitary flows for the existing site assuming maximum permitted development conditions under the site's current zoning are summarized below in **Table 3.1**.

Table 3.1: Theoretical Sanitary Flows for the Site Under Maximum Permitted Development Scenario

Use	Unit Count	Design Population	Average Flow (L/s)	Peak Flow ^{1,2} (L/s)
Residential	28 x Studio/1-bdrm	39 people	0.13 L/s	0.52 L/s

¹ Residential Peaking Factor = 3.67 (per Harmon Equation) with K=0.8.

² Flows are Average Dry Weather (DW) and Peak Wet Weather (WW) Flows which include infiltration allowances of 0.05 L/s/gross ha and 0.33 L/s/gross ha respectively.

Refer to **Appendix B** for design criteria and detailed calculations. These were taken from Section 4 – 'Sanitary Sewer Systems' and Appendix 4-A - 'Daily Sewage Flow for Various Types of Establishments' of the City of Ottawa Sewer Design Guidelines, incorporating the revisions as per Technical Bulletin ISTB-2018-01.

3.2 Proposed Development Conditions

The proposed development will be serviced via a new sanitary connection to the existing 525mm dia. combined sewer in Argyle Avenue. The exact connection point, sanitary service size and slope will be confirmed during the detailed design stage.

Refer to **Figure 3 (Preliminary Servicing)** for the approximate location of the proposed sanitary service.

Based on sewer invert information from GeoOttawa, gravity drainage to the existing combined sewer would be provided. Sanitary sewage collected from the underground parking garage floor drains would require pumping. The theoretical sanitary flows from proposed development are summarized below in **Table 3.2**.

Table 3.2: Theoretical Sanitary Flows for the Proposed Development

Use	Unit Count	Design Population	Average Flow	Peak Flow ^{1,2}
Residential	104 x Studio/1-bdrm, 52 x 2-bdrm	255 people	0.83 L/s	2.93 L/s

¹ Residential Peaking Factor = 3.49 (per Harmon Equation) with K=0.8.

² Flows are Average Dry Weather and Peak Wet Weather Flows, which include infiltration allowances of 0.05 L/s/gross ha and 0.33 L/s/gross ha respectively.

Refer to **Appendix B** for design criteria and detailed calculations.

The theoretical peak sanitary flow from the redeveloped site is estimated to be approximately 2.4 L/s higher than the theoretical peak sanitary flow from the estimated current maximum permitted development. Refer to **Section 5.0 (Combined Flow to the Municipal Combined Sewer)** for details about the anticipated combined (sanitary and stormwater) flow to the municipal combined sewer from the redeveloped site.

4.0 STORMWATER MANAGEMENT AND DRAINAGE

The stormwater management and drainage design will be developed as part of the Site Plan approval application. The approach for the on-site stormwater management (SWM) design would be to meet the requirements of the City of Ottawa and the Rideau Valley Conservation Authority (RVCA).

The existing municipal combined sewer located in Argyle Avenue currently provides an outlet for stormwater and sanitary flows from the site.

4.1 Stormwater Management Design Criteria

The anticipated design criteria and objectives for the proposed stormwater management design are as follows:

- Provide a dual drainage system (i.e. minor and major system flows).
- Control the combined flows (stormwater and sanitary flows) from the redeveloped site to as close as possible to the target allowable release rate specified by the City of Ottawa, corresponding to the 2-year peak flow using a runoff coefficient of 0.4 and a 10-minute rainfall intensity derived from City of Ottawa IDF curves.
- Control peak flows for storms up to and including the 100-year design event, prior to being released into the municipal combined sewer in Argyle Avenue.
- Any requirements for stormwater quality treatment would be confirmed with the RVCA at the detailed design stage.

The quantity control design criteria are based on preliminary correspondence with the City of Ottawa. Refer to **Appendix C** for correspondence.

4.2 Existing Conditions

The existing site is highly impervious and relatively flat. There is an existing catch basin in the rear parking lot which is assumed to connect to the 525mm / 600mm dia. municipal combined sewer adjacent to the site in Argyle Avenue. Stormwater runoff from the rest of the site is assumed to be directed to the municipal combined sewer via overland flow. It is unlikely that there are any existing stormwater management (i.e. quantity or quality) controls on the site.

4.3 Proposed Stormwater Management Measures and Drainage Design

The following stormwater management measures are anticipated to provide adequate flow attenuation to control stormwater flows from the redeveloped site to meet the target allowable release rate:

- Flat roofs with controlled rooftop drains, where possible;
- Surface ponding in the exterior parking spaces and loading driveway with the use of inlet control devices (ICD) or restrictor pipes;
- Underground storage where required, with storage pipes and/or a stormwater storage tank.

Refer to **Figure 3 (Preliminary Servicing)** for the approximate location of the proposed storm service to the existing municipal combined sewer in Argyle Avenue. Foundation drainage will likely require pumping.

Stormwater flows from the redeveloped site are anticipated to be significantly less than stormwater flows from the existing site.

5.0 COMBINED FLOW TO THE MUNICIPAL COMBINED SEWER

For the proposed redevelopment, the theoretical peak sanitary flow from the site is estimated to moderately increase, however the peak stormwater flows from the site for storms up to and including the 100-year design event are anticipated to significantly decrease due to the proposed on-site stormwater management quantity control measures. The peak combined flows to the municipal combined sewer will be controlled, if possible, to the target allowable release rate specified by the City of Ottawa.

The peak combined flows to the municipal combined sewer from the redeveloped site will be less than the peak combined flows from the existing site, therefore it is anticipated that the existing combined municipal sewer can adequately service the proposed development.

6.0 CONCLUSION

This assessment of adequacy of existing municipal services has been prepared in support of a Zoning By-Law Amendment application for the proposed redevelopment located at 100 Argyle Avenue in the City of Ottawa.

The conclusions are as follows:

- The existing commercial building and parking lot is proposed to be redeveloped into a 21-storey residential development. The proposed development is anticipated to include approximately 156 residential units with a combination of underground and surface parking.
- Boundary conditions in the existing municipal watermain adjacent to the site were received from the City based on preliminary domestic water demand and fire supply calculations. These indicate that the existing municipal watermain can adequately service the development.
- The theoretical peak sanitary flow from the site will increase.
- On-site stormwater management would be provided to meet the requirements of the City of Ottawa and the Rideau Valley Conservation Authority (RVCA). The stormwater management design will be developed as part of the Site Plan approval application.
- Post-development stormwater flows from the redeveloped site would be controlled prior to being discharged to the municipal combined sewer system.
- The combined (sanitary and stormwater) peak flows to the existing municipal combined sewer in Argyle Avenue will be less than the combined peak flows from the existing site.
- Based on the above, it is anticipated that the proposed development can be adequately serviced by the existing municipal watermain and combined sewer services.

It is recommended that the assessment of adequacy of existing municipal services be approved in support of the Zoning By-Law Amendment application.

NOVATECH

Prepared by:



Lydia Bolam, B.Eng.
E.I.T.

Reviewed by:



François Thauvette, P. Eng.
Senior Project Manager
Land Development & Public-Sector Engineering

APPENDIX A

Water Demand Calculations, Boundary Conditions Correspondence and FUS Calculations

**100 Argyle Ave
PRELIMINARY WATER
DEMAND
CALCULATIONS**

Water Demand (Existing)							
Building	Residential			Commercial	Demands (L/s)		
	Units		Total Pop'n (pers)	Office Employees (pers)	Average Day	Max. Daily	Peak Hour
	1 Bed	2 Bed					
Existing	0	0	0	75	0.20	0.30	0.54
Total	0	0	0	75	0.20	0.30	0.54

Notes:

Residential Densities (from City of Ottawa data):

- Studio/1 Bedroom Apartmen 1.4 cap/unit
- 2 Bedroom Apartment = 2.1 cap/unit

Avg. Day Demand:

- Residential = 350 L/cap/day
 - Commercial = 75 L/cap/day
- (8-hour work day assumed)

Max. Daily Demand:

- Residential = 2.5 x Avg. Day
- Commercial = 1.5 x Avg. Day

Peak Hour Demand:

- Residential = 2.2 x Max. Day
- Commercial = 1.8 x Max. Day

**100 Argyle Avenue
PRELIMINARY WATER
DEMAND
CALCULATIONS**

Water Demand (Proposed)							
Building	Residential			Commercial	Demands (L/s)		
	Units		Total Pop'n (pers)	Office Employees (pers)	Average Day	Max. Daily	Peak Hour
	Studio / 1 Bdrm	2 Bdrm					
Proposed	104	52	255	0	1.03	2.58	5.68
Total	104	52	255	0	1.03	2.58	5.68

Notes:

Residential Densities (from City of Ottawa data):

- 1 Bedroom Apartment = 1.4 cap/unit
- 2 Bedroom Apartment = 2.1 cap/unit

Avg. Day Demand:

- Residential = 350 L/cap/day
- Commercial = 2.50 L/m²/day (2500 L/1000m²/day)

Max. Daily Demand:

- Residential = 2.5 x Avg. Day
- Commercial = 1.5 x Avg. Day

Peak Hour Demand:

- Residential = 2.2 x Max. Day
- Commercial = 1.8 x Max. Day

FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 118116

Project Name: 100 Argyle Avenue

Date: 8/11/2018

Input By: LGB

Reviewed By: ARM / FST

Legend

Input by User

No Information or Input Required

Building Description: 21-Storey Building with 3 Storey Podium
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	Podium Level Footprint (m ²)	910			4,887
		Total Floors/Storeys (Podium)	3			
		Tower Footprint (m ²)	653			
		Total Floors/Storeys (Tower)	18			
		Protected Openings (1 hr)	No			
		Area of structure considered (m ²)		4,887		
F	Base fire flow without reductions			9,000		
	$F = 220 C (A)^{0.5}$					
Reductions or Surcharges						
3	Occupancy hazard reduction or surcharge		Reduction/Surcharge		7,650	
	(1)	Non-combustible		-25%		-15%
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
Rapid burning			25%			
4	Sprinkler Reduction		Reduction		-3,060	
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%		-30%
		Standard Water Supply	Yes	-10%		-10%
		Fully Supervised System	No	-10%		
	Cumulative Total		-40%			
5	Exposure Surcharge (cumulative %)		Surcharge		4,973	
	(3)	North Side	20.1 - 30 m			10%
		East Side	3.1 - 10 m			20%
		South Side	10.1 - 20 m			15%
		West Side	3.1 - 10 m			20%
	Cumulative Total		65%			
Results						
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min		L/min	10,000	
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	167
				or	USGPM	2,642
7	Storage Volume	Required Duration of Fire Flow (hours)		Hours	2	
		Required Volume of Fire Flow (m ³)		m ³	1200	

Lydia Bolam

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Tuesday, August 28, 2018 11:12 AM
To: Lydia Bolam
Cc: Mottalib, Abdul; Francois Thauvette
Subject: RE: 100 Argyle Ave - Boundary Conditions Request
Attachments: 100 Argyle Aug 2018.pdf

Good morning

Please find requested information below:

Please refer to Guidelines and Technical bulletin ISDTB-2014-02 concerning basic day demands greater than 0.5 L/s.

The following are boundary conditions, HGL, for hydraulic analysis at 100 Argyle (zone 1W) assumed to be connected to the 203mm on Argyle (see attached PDF for location).

Minimum HGL = 106.5m

Maximum HGL = 114.9m

MaxDay + FireFlow (167 L/s) = 100.0m

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.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l’examen des projets d’aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l’infrastructure et du développement économique
City of Ottawa | Ville d’Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
shawn.wessel@ottawa.ca

 Please consider the environment before printing this email

From: Wessel, Shawn
Sent: Thursday, August 23, 2018 4:27 PM
To: 'Lydia Bolam' <l.bolam@novatech-eng.com>
Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: RE: 100 Argyle Ave - Boundary Conditions Request

Thank you Ms. Bolam

I have sent your request on to the Water Resource department as required.

Once I have received their response, I will pass it on to you for your design.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l’examen des projets d’aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l’infrastructure et du développement économique
City of Ottawa | Ville d’Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
shawn.wessel@ottawa.ca

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From: Lydia Bolam <l.bolam@novatech-eng.com>
Sent: Thursday, August 23, 2018 3:47 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>; Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: 100 Argyle Ave - Boundary Conditions Request

Hi Shawn,

We are working on a proposed multi-storey residential development located at 100 Argyle Avenue. We would like to request the watermain boundary conditions for the site based on the following preliminary demands.

- Average Day Demand = 1.10 L/s
- Peak Hour Demand = 6.05 L/s
- Max Daily + Fire Flow = 169.75 L/s (FUS fire flow allowance of 167 L/s)

Attached is a geoOttawa map showing the approximate proposed water service connection in purple.

Please let me know if you require any further information.

Kind regards,

Lydia Bolam, B.Eng., EIT

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext:276 | Fax: 613.254.5867

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Boundary Condition for 100 Argyle



Legend

Pipe Ownership

- Private
- Public

APPENDIX B
Sanitary Flow Calculations

LOCATION			RESIDENTIAL FLOW					COMMERCIAL FLOW				EXTRANEOUS FLOW		TOTAL FLOWS				
Area ID	Use	Total Area (ha)	Number of Units		Design Population (persons)	Avg Flow (l/s)	Peak Factor -	Res. Peak Flow (l/s)	Usage		Avg Flow (l/s)	Peak Factor -	Comm. Peak Flow (l/s)	Infiltration Allowance		Average Dry Weather Flow (ADWF) (l/s)	Peak Dry Weather Flow (PDWF) (l/s)	Peak Wet Weather Flow (PWWW) (l/s)
			Studio /1-bdrm	2-bdrm					Office Gross Floor Space (m2)	Gross Floor Space (m2)				Dry Weather (l/l dry) (l/s)	Wet Weather (l/l wet) (l/s)			
THEORETICAL MAXIMUM PERMITTED ZONING (EXISTING)																		
Site	General Mixed Use (assumed all residential, 2 x Site Area at 110m2 per unit)	0.16	28	0	39	0.13	3.67	0.46	0	0.00	1.5	0.00	0.01	0.04	0.13	0.47	0.52	
THEORETICAL PROPOSED RE-DEVELOPMENT																		
Site	21-storey Residential	0.16	104	52	255	0.83	3.49	2.88	0	0.00	1.0	0.00	0.01	0.04	0.83	2.89	2.93	
Design Parameters:												Designed: LGB Checked: FST						
Residential Population Densities			1.40 people / unit		1.40 people / unit		Peak Extraneous Flows		0.05		L/s/effective gross							
1-bedroom/Studio Apartment			2.10 people / unit		2.10 people / unit		Infiltration Allowance (Dry Weather)		0.28		ha (for all areas)							
2-bedroom Apartment							Infiltration Allowance (Wet Weather)		0.33									
Average Sanitary Flows			280 L/c/d		280 L/c/d		Infiltration Allowance (Total l/l)											
Residential			28,000 L/gross ha/d		28,000 L/gross ha/d													
Commercial - General office																		
Peaking Factors			Harmon Equation, K=0.8, Max. = 4.0		Harmon Equation, K=0.8, Max. = 4.0													
Residential			1.0 if commercial contribution <20%		1.0 if commercial contribution <20%													
Commercial			1.5 if commercial contribution >20%		1.5 if commercial contribution >20%													
												Date: August 11, 2018						

APPENDIX C

SWM Design Criteria Correspondence

Lydia Bolam

From: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Sent: Tuesday, August 28, 2018 8:51 AM
To: Francois Thauvette
Cc: Lydia Bolam; Wessel, Shawn; Mottalib, Abdul
Subject: RE: 100 Argyle Ave - Boundary Conditions Request

Hi Francois,

Please see revised SWM criteria below:

Stormwater Management criteria connecting into the combined sewer system (Quantity control criteria)

- Total (storm +sanitary) allowable release rate will be 2 year pre-development rate.
- C Coefficient of runoff will need to be determined **as per existing conditions** but in no case more than 0.4
- TC =20 minutes or can be calculated ,
- TC should not be less than 10 minute, since the IDF curves become unrealistic less than 10min.
- Any storm events greater than 2 year, up to 100 year, and including 100-year storm event must be detained on site.

--

Thanks,

Abdul Mottalib, P. Eng.

From: Wessel, Shawn
Sent: August 27, 2018 3:16 PM
To: 'Francois Thauvette' <f.thauvette@novatech-eng.com>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Lydia Bolam <l.bolam@novatech-eng.com>
Subject: RE: 100 Argyle Ave - Boundary Conditions Request

Good afternoon Mr. Thauvette.

For this site please use the following:

Tc= 10 min.
C = 0.5 (Combined Sewer)

Please note that I am awaiting the requested boundary conditions from the Water Resources Dept. and will provide this information once obtained.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l’examen des projets d’aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l’infrastructure et du développement économique
City of Ottawa | Ville d’Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
shawn.wessel@ottawa.ca

 Please consider the environment before printing this email

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Monday, August 27, 2018 10:23 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>; Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Cc: Lydia Bolam <l.bolam@novatech-eng.com>
Subject: RE: 100 Argyle Ave - Boundary Conditions Request

Hi Shawn and Abdul,

In addition to the information requested in the e-mail below, can you please provide us with the stormwater management (quantity control) criteria applicable to the proposed residential development on this site?

We will contact the RVCA directly to confirm if any on-site stormwater quality controls are required. We anticipate that nothing will be required as this will be a residential development, with UG parking and more importantly, all flows will be directed to a combined sewer system.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Lydia Bolam
Sent: Thursday, August 23, 2018 3:47 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Abdul.Mottalib@ottawa.ca; Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: 100 Argyle Ave - Boundary Conditions Request

Hi Shawn,

We are working on a proposed multi-storey residential development located at 100 Argyle Avenue. We would like to request the watermain boundary conditions for the site based on the following preliminary demands.

- Average Day Demand = 1.10 L/s
- Peak Hour Demand = 6.05 L/s
- Max Daily + Fire Flow = 169.75 L/s (FUS fire flow allowance of 167 L/s)

Attached is a geoOttawa map showing the approximate proposed water service connection in purple.

Please let me know if you require any further information.

Kind regards,

Lydia Bolam, B.Eng., EIT

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext:276 | Fax: 613.254.5867

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