

November 25, 2024

VIA EMAIL [mtoussaint@mraa.ca](mailto:mtoussaint@mraa.ca)MRA Architecture + Design  
443 Saint-Claude,  
Montréal, QC  
H2Y3B6**Attention: Maxime Toussaint, Project executive assistant****RE: Site Servicing Adequacy Letter  
388 Richmond Road, Ottawa, ON**

## INTRODUCTION

**Parsons Inc. (Parsons)** is pleased to provide this letter regarding the adequacy of municipal services (drinking water, sanitary and stormwater) for the existing building at 388 Richmond Road, Ottawa, ON. This letter documents the existing municipal infrastructure in the vicinity of the property and the expected servicing requirements for the proposed building. The servicing requirements will address converting the existing Scotiabank to a McDonalds restaurant. We will also identify any constraints/risks we observe in terms of municipal servicing. This letter will not address other utilities such as gas, hydro, telecom, etc.

## BACKGROUND INFORMATION

The following documents were reviewed to understand the existing conditions and proposed plans:

- GeoOttawa, the City of Ottawa's interactive web panning application;
- Existing and Proposed site plan, by MRAA, dated June 25, 2024;
- City of Ottawa Sewer Design Guidelines, October 2012; and
- City of Ottawa Design Guidelines – Water Distribution, July 2010.

## EXISTING CONDITIONS

The existing Scotiabank at 388 Richmond was originally constructed in circa 1912 on a 0.04 ha property. The building is connected to a residential apartment building (386 Richmond Rd).

## DRINKING WATER

### Existing Conditions

According to the City of Ottawa's GIS mapping, there is a 305mm diameter PVC watermain installed in 2004 along Richmond Road. The building is served by a 25mm soft copper water line, with the installation date unknown. Multiple fire hydrants are present along Richmond Road, including one directly in front of the building. Water pressure inside the building is measured at 52 psi. Additionally, a fire flow hydrant test shows an available 211 l/s at 20 PSI, with the results provided in the appendix.

### Proposed Servicing Solution

The existing water service is deemed adequate for both domestic and fire demands. Fire demand, based on the Fire Underwriters Survey and City of Ottawa standards, remains at 67 l/s, which can be managed by the existing hydrant. The existing water service connection is expected to be sufficient.

## SANITARY SERVICE

### Existing Conditions

A CCTV survey indicates a 100mm cast iron sanitary service pipe in fair condition, connected to a 300mm sanitary sewer along Carling Avenue, installed in 2004. The 300mm main has an approximate slope of 0.4%.

## Potential Servicing Solution

The 100mm sanitary service is adequate for the increased demands of the new building use. An oil/grease interceptor will be added in the kitchen to comply with the Ontario Building Code (OBC), specified by the mechanical engineer during the Building permit submission.

## STORM WATER

### Existing Conditions

The existing building roof is a flat roof drained by two roof drains. The outlet for the storm system is connected to an The building has a flat roof with two roof drains connected to a 600mm concrete storm sewer on Richmond Road. The storm sewer has a slope of approximately 0.3%. A CCTV inspection of the storm sewer was attempted but was inconclusive due to debris.

### Proposed Servicing Solution

The storm sewer will be cleaned and reused. No additional storm flows are anticipated as the building footprint remains unchanged.

## CONCLUSION

The existing water, sanitary, and storm water services are deemed adequate for the proposed development, with minor modifications such as the addition of an oil/grease interceptor. The existing infrastructure is expected to meet the demands of the building without significant upgrades.

Please don't hesitate to contact us if you have any questions or concerns.

Sincerely  
Parsons



Mathew Theiner, P.Eng., Ing.  
Senior Municipal Engineer

### Attachment:

- Fire Flow Calculation
- Water Service Demands Calculation
- Sanitary Design Flows
- Sanitary Sewer Design Sheet
- CCTV Inspection Report
- Hydrant Fire Flow Testing



## 388 Richmond Rd - Estimated Water Demands

Area	Seats	Population	Gross Floor Area (m <sup>2</sup> )	Average Daily Demand (ADD) (L/s)	Maximum Daily Demand (MDD) (L/s)	Peak Hourly Demand (PHD) (L/s)	Fire Flow (FF) (L/s)	MDD + FF (L/s)
<b>Existing Building</b>								
Bank	NA	NA	366	0.03	0.05	0.09	67	67.05
<b>Proposed Building</b>								
Restaurant (24 hrs)	28	NA	366	0.16	0.25	0.45	67	67.25

### Average Daily Demand

Based on Ottawa Design Guidelines - Water Distribution, 2010 and MOE Design Guidelines for Drinking-Water Systems, 2008

Average Residential Daily Flow =	280 L/p/d
Institutional Flow =	28,000 L/gross ha/d
Commercial Flow =	28,000 L/gross ha/d
Light Industrial Flow =	35,000 L/gross ha/d
Heavy Industrial Flow =	55,000 L/gross ha/d
Hotel Daily Flow =	225 L/bed/d
Office/Warehouse Daily Flow =	75 L/person/d
Office/Warehouse Daily Flow =	8.06 L/m <sup>2</sup> /day
Restaurant (Ordinary not 24 Hours) =	125 L/seat/d
Restaurant (24 Hours) =	200 L/seat/d
Shopping Centres =	2,500 L/(1000m <sup>2</sup> /d)
Amenity Area =	5 L/m <sup>2</sup> /d

### **Maximum Daily Demand**

Residential =	2.5 x Average Daily Demand
	4.9 x Average Daily Demand **
Industrial =	1.5 x Average Daily Demand
Commercial =	1.5 x Average Daily Demand
Institutional =	1.5 x Average Daily Demand

### **Peak Hourly Demand**

Residential =	2.2 x Maximum Daily Demand
	7.4 x Maximum Daily Demand **
Industrial =	1.8 x Maximum Daily Demand
Commercial =	1.8 x Maximum Daily Demand
Institutional =	1.8 x Maximum Daily Demand

388 Richmond Rd

Building	Type of Construction	Total Floor Area (m <sup>2</sup> )	Fire Flow (min. 2,000) (L/min)	Adjusted (nearest 1,000) (L/min)	Occupancy Factor	Reduction / Increase due to Occupancy	Fire Flow with Occupancy (min. 2,000) (L/min)	Sprinklers Factor	Reduction due to Sprinklers (L/min)	Exposure Factor %	Increase due to Exposure (L/min)	Fire Flow (L/min)	Roof Contribution (L/min)	Required Fire Demand	
														Adjusted to the nearest 1000 (min. 2,000, max. 45,000) (L/min)	Minimum 33 (L/s)
	C	A	F		O			S		E			R	F	
Existing Building B	0.8	366	3,367	3,000	0%	0	3,000	0%	0	25%	750	4,000	0	4,000	67
Proposed Building A	0.8	366	3,367	3,000	0%	0	3,000	0%	0	25%	750	4,000	0	4,000	67

References

Water Supply for Public Fire Protection, 2020 by Fire Underwriters Survey (FUS) and

Reference: Ottawa Design Guidelines - Water Distribution, July 2010 and subsequent Technical Bulletins

C Type of Construction

Wood Frame (Type V)	1.5
Mass Timber (Type IV-A) - Encapsulated Mass Timber	0.8
Mass Timber (Type IV-B) - Rated Mass Timber	0.9
Mass Timber (Type IV-C) - Ordinary Mass Timber	1.0
Mass Timber (Type IV-D) - Unrated Mass Timber	1.5
Ordinary Construction (Type III also known as joisted masonry)	1.0
Non-Combustible Construction (Type II - minimum 1 hour fire resistance rating)	0.8
Fire resistive Construction (Type I - minimum 2 hour fire resistance rating)	0.6

S Sprinklers

	Complete Coverage	Partial Coverage
Automatic Sprinklers NFPA Standards	30%	30% * x%
Standard Water Supply	10%	10% * x%
Full Supervision	10%	10% * x%

(x%: percentage of total protected floor area)

Additional Reductions for Community Level Automatic Sprinkler Protection of Area

Buildings located within communities or subdivisions that are completely sprinkler protected may apply up to a maximum additional 25% reduction in required fire flows beyond the normal maximum of 50% reduction for sprinkler protection of an individual building.

Adjustment of Sprinkler Reductions for Community Level Oversight of Sprinkler Maintenance, Testing, and Water Supply Requirements

The reduction in required fire flow for sprinkler protection may be reduced or eliminated if:  
 - The community does not have a Fire Prevention Program that provides a system of ensuring that the fire sprinkler systems are inspected, tested, and maintained in accordance with NFPA 25  
 - The community does not maintain the pressure and flow rate requirements for fire sprinkler installations, or otherwise allows the fire rates and pressure levels that were available during sprinkler system design to significantly degrade, increasing the probability of inadequate water supply for effective sprinkler operation.

E Exposure

The maximum exposure adjustment that can be applied to a building is 75% when summing the percentages of all sides of the building.

Separation Distance (m)	Maximum Exposure Adjustment	N	E	S	W
0 to 3	25%				
3.1 to 10	20%				
10.1 to 20	15%				
20.1 to 30	10%				
Greater than 30	0%				

Table 6: Exposure Adjustment Charges for Subject Building Considering Construction Type of Exposed Building Face

Distance to the Exposure (m)	Length-Height Factor of Exposing Building Face	Type V	Type III-IV <sup>2</sup>	Type III-IV <sup>3</sup>	Type II <sup>2</sup>	Type II <sup>3</sup>
		0 to 3	0-20: 20%	21-40: 21%	41-60: 22%	61-80: 23%
3.1 to 10	0-20	15%	10%	3%	6%	0%
	21-40	16%	11%	4%	7%	0%
	41-60	17%	12%	5%	8%	1%
	61-80	18%	13%	6%	9%	2%
	81-100	19%	14%	7%	10%	3%
	Over 100	20%	15%	8%	11%	4%
10.1 to 20	0-20	10%	5%	0%	3%	0%
	21-40	11%	6%	1%	4%	0%
	41-60	12%	7%	2%	5%	0%
	61-80	13%	8%	3%	6%	1%
	81-100	14%	9%	4%	7%	2%
	Over 100	15%	10%	5%	8%	3%
20.1 to 30	0-20	0%	0%	0%	0%	0%
	21-40	2%	1%	0%	0%	0%
	41-60	4%	2%	0%	1%	0%
	61-80	6%	3%	1%	2%	0%
	81-100	8%	4%	2%	3%	0%
	Over 100	10%	5%	3%	4%	0%
Over 30m	All Sizes	0%	0%	0%	0%	0%

<sup>2</sup> with unprotected openings  
<sup>3</sup> without unprotected openings

Automatic Sprinkler Protection in Exposed Buildings

- If the exposed building is fully protected with an automatic sprinkler system (see note Recognition of Automatic Sprinkler), the exposure adjustment charge determined from Table 6 may be reduced by up to 50% of the value determined.

Automatic Sprinkler Protection in both Subject and Exposed Buildings

- If both the subject building and the exposed building are fully protected with automatic sprinkler systems (see note Recognition of Automatic Sprinkler), no exposure adjustment charge should be applied.

Exposure Protection of Area Between Subject and Exposed Buildings

- If the exposed building is fully protected with an automatic sprinkler system (see note Recognition of Automatic Sprinkler), and the area between the buildings is protected with an exterior automatic sprinkler system, no exposure adjustment charge should be applied.  
**Reduction of Exposure Charge for Type V Buildings**  
 - If the exposed building face of a Type V building has an exterior cladding assembly with a minimum 1 hour fire resistive rating, then the exposure charge may be treated as a Type III/IV building for the purposes of looking up the appropriate exposure charge in Table 6.

A Total Effective Floor Area (m<sup>2</sup>)

Buildings Classified with a Construction Coefficient from 1.0 to 1.5  
 100% of all Floor Areas

Buildings Classified with a Construction Coefficient below 1.0  
 Vertical Openings Unprotected  
 Two (2) Largest Adjoining Floor Areas  
 Additional Floors (up to eight (8)) at 50%

Vertical Openings Properly Protected  
 Single Largest Floor  
 Additional Two (2) Adjoining Floors at 25%

High One Storey Building

When a building has a large single storey space exceeding 3m in height, the number of storeys to be used in determining the total effective area depends upon the use being made of the building.

Subdividing Buildings (Vertical Firewalls)

Minimum two (2) hour fire resistance rating and meets National Building Code requirements.

- Up to 10% can be applied if there is severe risk of fire on the exposed side of the firewall due to hazard conditions.  
 - An exposure charge of up to 10% can be applied if there are unprotected openings in the firewall

Basement

Basement floor excluded when it is at least 50% below grade.

Open Parking Garages

Use the area of the largest floor.

O Occupancy

Non-Combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

- Table 3 provides recommended Occupancy and Contents Adjustment Factors for Example Major Occupancies from the National Building Code of Canada.

- Adjustment factors should be adjusted accordingly to the specific fire loading and situation that exists in the subject building.

- Values can be interpolated from the examples given considering fire loading and expected combustibility of contents if the subject building is not listed.

- Values can be modified by up to 10% (+/-) depending on the extent to which the fire loading is unusual for the building.

- Buildings with multiple major occupancies should use the most restrictive factor or interpolate based on the percentage of each occupancy and its associated fire loading.

Table 3 Values for Subject Building

Group:	E
Division:	
Description of Occupancy:	Shops/Stores
Occupancy and Contents:	Combustible
Adjustment Factor:	0%

R Roof

Shake Roof	2,000 to 4,000 L/min	additional should be added to the fire flow
Wood Shingle	2,000 to 4,000 L/min	additional should be added to the fire flow

F Fire Flow (L/Min)

220°C\*(A<sup>0.5</sup>)

# SANITARY DESIGN FLOWS

Area	RESTAURANT						AUTOMOTIVE SERVICE CENTRE				COMMERCIAL/RETAIL			TOTAL	INFILTRATION			Total
	Rest. Area (m <sup>2</sup> )	Seats	Flow per seat (L/seat/d)	Rest. Flow (L/s)	Peak Factor over 6-hr	Peak Flow (L/s)	Number of Bays	Average Car Wash Flow	Peak Factor	Peak Flow (L/s)	Retail Area (m <sup>2</sup> )	Peak Factor	Peak Flow (L/s)	Peak Flow (L/s)	Site Area (ha)	Infiltration Allowance (L/s/ha)	Infil. Flow (L/s)	Total Peak Flow (L/s)
<b>Subject Site</b>															0.04	0.33	0.01	0.013
<b>Proposed Restaurant</b>	366	28	200.00	0.1	1.5	0.247				299	1.5	0.015	0.262					0.262
																		<b>0.27</b>

<b>Design:</b>	PC	<b>Project:</b>	McDonalds
<b>Check :</b>	MT	<b>Location:</b>	388 Richmond Rd Ottawa, Ontario
<b>Dwg reference:</b>		<b>Project # :</b>	479270
		<b>Date:</b>	25-Nov-24
		<b>Sheet:</b>	1 of 1

**Average Daily Demands**

(Based on City of Ottawa Sewer Design Guidelines 2012 and MOE Water Design Guidelines)

Average Residential Daily Flow =	280	L/p/d
Institutional Flow =	28,000	L/ha/d
Commercial Flow =	28,000	L/ha/d
Light Industrial Flow =	35,000	L/ha/d
Heavy Industrial Flow =	55,000	L/ha/d
Hotel Daily Flow =	225	L/bed/d
Office/Warehouse Daily Flow =	75	L/empl/d
Shopping Centres =	2,500	L/(1000m <sup>2</sup> /d)

**Population Densities**

Average suburban residential dev.	60	p/ha
Single family	3.4	p/unit
Semi-detached	2.7	p/unit
Duplex	2.3	p/unit
Townhouse	2.7	p/unit
Apartment average	1.8	p/unit
Bachelor	1.4	p/unit
1 Bedroom	1.4	p/unit
2 Bedrooms	2.1	p/unit
3 Bedrooms	3.1	p/unit
Hotel room, 18 m <sup>2</sup>	1	p/unit
Restaurant, 1 m <sup>2</sup>	1	p/unit
Office	1	p/25m <sup>2</sup>
Warehouse	1	p/90m <sup>2</sup>
Automotive Service Centre, per bay	1	p/bay (plus management)

**Peak Factors**

Commercial =	1.5	if commercial contribution > 20%, otherwise
Institutional =	1.5	if institutional contribution > 20%, otherwise
Industrial =		per Appendix 4-B.0 Graph
Residential :		Hammon Equation
		$1 + (14/(4+(Capital/1000) \wedge 0.5))^8$
		min =
		max =

Infiltration allowance (dry weather)	0.05	L/s/ha
Infiltration allowance (wet weather)	0.28	L/s/ha

I/I (total) 0.33 L/s/ha

(Based on the Ontario Building Code / Sewage System Design Flows - Section 8.2.1.3)

**Food Service Operations**

Restaurant (not 24 hour), per seat	125	(L/seat/d)
Restaurant (24 hour), per seat	200	(L/seat/d)

# SANITARY SEWER DESIGN SHEET

Drainage Area	From	To	Peak Flow Q (L/sec)	Sewer Data										REMARKS
				Type of Pipe	Pipe Dia.		Slope (%)	Length (m)	Capacity full (L/sec)	Velocity		Time of Flow (min)	Q(d) / Q(f)	
					nom. (mm)	actual (mm)				full (m/sec)	actual (m/sec)			
	Proposed Building	Main	0.26	DI	100	101.6	1.0	10.9	5.4	0.66	0.32	0.57	0.05	
Manning's n = 0.013										<b>Design:</b> P. Charlebois <b>Check:</b> M. Theiner <b>Date:</b> November, 2024	<b>Project Name:</b> 388 Richmond Rd <b>Parsons Project #:</b> 479270 <b>Client:</b> MRAA <b>Client Project #:</b> McDonalds			



Sébastien Labelle  
Plomberie Environord Inc

# 388 RICHMOND

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Friday, November 15, 2024

Prepared Fro Foucault Construction

10 Issues Identified





## ROOF DRAIN



## ROOF DRAIN



## ROOF DRAIN

Tuyauterie de drainage pluviale ne peut être inspecter car toute la tuyauterie est bloquer et remplis.

Un flush est nécessaire pour identifier le diamètre sous dalle et valider si la tuyauterie est en bonne état

2 colonnes pluviale a l'intérieur ayant un diamètre de 4" chacune



## TUYAUTERIE SANITAIRE

La condition actuel de la tuyauterie est bonne



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## TUYAUTERIE SANITAIRE



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## TUAYUTERIE SANITAIRE

La tuyauterie sanitaire ayant un diametre de 4" est en bonne etat et a deux leger bas fond comme Identifier sur les photos

Le sanitaire et pluviale ne sont pas combiner



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## TUYAUTERIE SANITAIRE

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## ENTREE D EAU

L entree d eau domestique est de 1" cuivre avec un DAR et compteur d eau

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## PRESSION DE L EAU

La pression a l'interieur du batiment est de 52 psi

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## GAZ NATUREL

Aucune tuyauterie de gaz a l interieur du batiment

Tuyauterie au compteur est de 1-1/4



DATE 13-Nov-24

CLIENT	MRA Architecture + Design	INSPECTOR NAME	Ilyas Omari
BUILDING NAME	388 Richmond Road	COMPANY	Avangard Fire & Life Safety
STREET	388 Richmond Road	STREET	2979 Merivale Road
CITY	Ottawa, Ontario	CITY	Ottawa, Ontario
SITE CONTACT		PHONE #	(613) 223-2223
PHONE #		LICENSE #	13866906

**FIRE HYDRANT FLOW TEST RESULTS**

**HYDRANT #1 FLOW TEST**

FLOW HYDRANT LOCATION: 388 RICHMOND ROAD (HYDRANT ID#362027H173)  
 PRESSURE GAUGE HYDRANT LOCATION: 366 RICHMOND ROAD (HYDRANT ID#362027H174)  
 DEVICES USED TO MEASURE FLOW/PRESSURE: HOSE MONSTER

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)
68	2.5"	20	3354	65

**HYDRANT #2 FLOW TEST**

FLOW HYDRANT LOCATION: \_\_\_\_\_  
 PRESSURE GAUGE HYDRANT LOCATION: \_\_\_\_\_  
 DEVICES USED TO MEASURE FLOW/PRESSURE: \_\_\_\_\_

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

**HYDRANT #3 FLOW TEST**

FLOW HYDRANT LOCATION: \_\_\_\_\_  
 PRESSURE GAUGE HYDRANT LOCATION: \_\_\_\_\_  
 DEVICES USED TO MEASURE FLOW/PRESSURE: \_\_\_\_\_

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

**HYDRANT #4 FLOW TEST**

FLOW HYDRANT LOCATION: \_\_\_\_\_  
 PRESSURE GAUGE HYDRANT LOCATION: \_\_\_\_\_  
 DEVICES USED TO MEASURE FLOW/PRESSURE: \_\_\_\_\_

STATIC PRESSURE (PSI)	NOZZLE SIZE (INCH)	PITOT READING (PSI)	GPM	RESIDUAL PRESSURE (PSI)

