FUNCTIONAL SERVICING DESIGN BRIEF
SANITARY AND WATER SERVICE

Property located at 1195 Newmarket Street, Ottawa

N/Réf.: **14166**

ORTAM groupe

RBQ : 8353-4917-04

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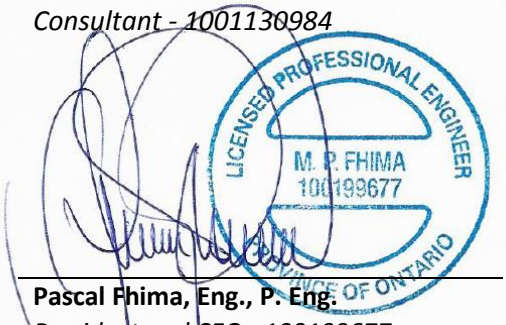

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1. INTRODUCTION

The proposed warehouse building development is located at 1195 Newmarket Street, situated on the north side of Newmarket Street in the City of Ottawa, ON.

The existing site consists of three commercial spaces, an asphalt parking lot, granular trailers parking areas and an existing warehouse building. The existing warehouse building has been demolished. The purpose of the service assessment is to determine the functional sizing of water and sanitary services to adequately service the site as well as the impact on the existing municipal infrastructure.

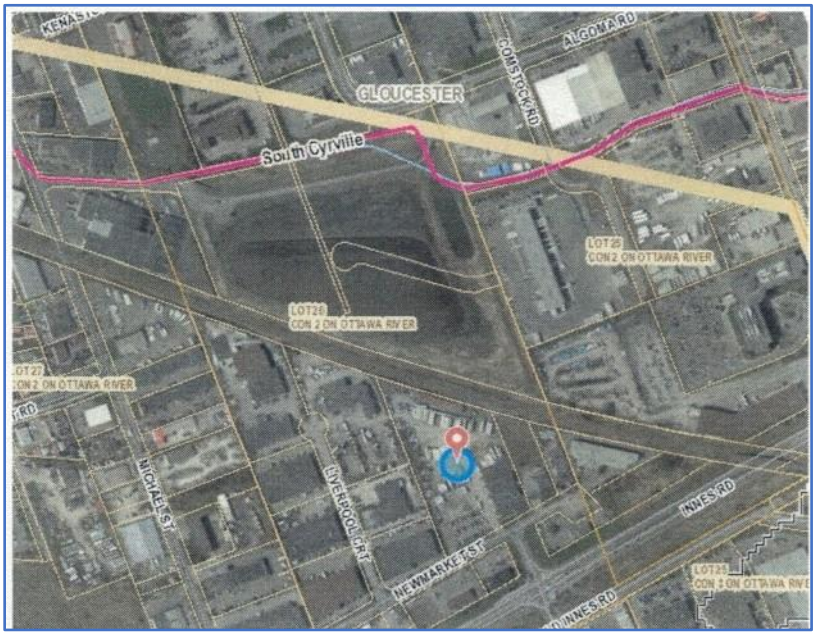

Figure 1 - Site Location

2. SANITARY

There is an existing 375 mm diameter municipal sanitary sewer and a maintenance hole on Newmarket Street near the subject site for the connection from the proposed warehouse building to the municipal sanitary sewer.

The proposed warehouse site is currently in the concept phase; therefore, the following assumptions are made in carrying out the calculations based on the site plan drawing.

The plumbing fixtures and the number of plumbing fixtures indicated in Appendix A are eighteen (18) water closets within the proposed warehouse building.

The wastewater generation for the proposed warehouse building development is determined to be **19,950 L/day** using *table 8.2.1.3.B. of the Ontario Building Code*. The peak drainage rate for the proposed development is determined to be **257.0 L/min** based on the fixtures and fixture units shown in Appendix A, attached. *Table 7.4.10.5 in the Ontario Building Code* is used to determine probable peak drainage rates for the total fixture units.

Based on the assumptions above, we recommend that a **200 mm** diameter sanitary service pipe will connect from the existing municipal maintenance hole MH SA31746 and **375 mm** sanitary sewer at Newmarket Street.

3. WATER

There is an existing 200 mm diameter municipal watermain along the frontage of the site at Newmarket Street for the connection from the proposed warehouse building to the municipal watermain system.

The proposed warehouse building is currently in the concept phase; therefore, the following assumptions are made in carrying out the calculations based on the site plan drawing.

The warehouse is assumed to be of non-combustible construction and will have a sprinkler system with hose cabinets, as per applicable standards.

The plumbing fixtures and the number of plumbing fixtures indicated in Appendix A are eighteen (18) universal water closets within the proposed warehouse building.

The domestic water demand for the proposed warehouse building development is determined to be **254.0 L/min** based on the fixtures and fixture units shown in Appendix A, attached. *Table 7.4.10.5 in the Ontario Building Code* is used to determine water demands for the total fixture units.

Using the calculations provided in the Fire Underwriters Survey - 1999 Water Supply for Public Fire Protection the minimum water supply flow rate for fire protection is determined to be **12,000 L/min** as shown in Appendix B, attached.

There are four (4) existing municipal fire hydrants located near the subject development. Please see the figure 2 below. As such, no proposed new fire hydrant are recommended for the subject site.

Figure 2 *– Municipal water and sanitary sewer system*

According to Section 4.2.2 of the Ottawa Design Guidelines – Water Distribution, the maximum pressure at any point in the distribution system shall not exceed 689 kPa (100 psi). Where the maximum static pressures shall exceed 550 KPa (80 psi), in which case pressure reducing valves (PRV) are required before the meter. The pressure during maximum hourly demand shall not fall below 276 KPa (40 psi). The pressure during simultaneous maximum day demand & fire flow shall not fall below 140 KPa (20 psi). A volve chamber control system is designed before the building.

APPENDICES

APPENDIX I

- Sanitary Sewer

Appendix A-1

Sanitary Sewer Calculation Sheet of City of Ottawa

Manning's n=0.013

Location			Industrial				Pipe				
Street	From MH	To MH	Area (ha)	Accu. Area (ha)	Peak Factor (per MOE)	Peak Flow (l/s)	Length (m)	Dia (mm)	Slope (%)	Cap (Full) (l/s)	Vel (Full) (m/s)
Newmarket	MH1	MH SA31746	2.062	2.062	5.5	5.8	9.4	200	1.0	32.78	1.044

According 4.4.1.3 of Ottawa Sewer Design Guidelines
Industrial Flow=35,000L/gross ha/day

*This table is extracted from the Appendix 5B of Ottawa Sewer Design Guidelines

APPENDIX A-2

SANITARY SEWER

Unit Type	Occupant Load (Bedroom Area/Water Closet)	Volume (L) (Table 8.2.1.3A/B)	Total Daily Volume (L)
Per water Closet, and	18	950	17100
Per Loading Bay	19	150	2850
		Total	19950

Fixture	Fixture Units (FU) (Table 7.4.9.3)	Total Fixtures (#)	Total Sanitary Fixture Units
Sinks	1.5	9	13.5
Water Closet	4	18	72
Urinal	2	6	12
Floor Drain	1.5	3	4.5
		Total	102 (FU)

Therefore the total calculated sanitary flow is determined to be 19950 L/day with maxmum propable drainage rate of 257.0 L/min.

APPENDIX II

- Domestic Water Supply

APPENDIX B

DOMESTIC WATER SUPPLY

Fixture	Fixture Units (FU) (Table 7.6.3.2.A)	Total Fixtures (#)	Total Sanitary Fixture Units (FU)
Sinks	1.4	9	12.6
Water Closet	3.0	18	54
Urinal	3.0	6	18
		Total	84.6 (FU)

Thereore the maxmum domestic water demand is determined to be 254 L/min.

FIRE WATER SUPPLY

Bulding Type:	Fire Resistive		
Floor Area:	10735m2		
Construction Type:	Non-Conbustible Const.	Construction Coefficient:	0.8
1st Perliminary Fire Flow:	18500L/min		
Fire Hazard:	Limited Combustible	Fir Hazard Factor:	−0.15
		Net Decrease:	−2775 L/min
2nd Preliminary Fire Flow:	15725L/min		
Sprinkler System:	Sprinkler & Hose Lines	Sprinkler Systen Factor:	−0.4
		Net Decrease:	−6290 L/min

Separation Factor		
North:	45+m	0
South:	45+m	0
East:	18m	0.15
West:	45+m	0
		0.15

Net Increse:	2360 L/min

Final Fire Flow: 12000 L/min

Minimum Water Supply Flow Rate for Fire Protection as determined by the Water Supply for Public Fir Protection, dated 1999, by the Fire Underwriter's Survey.