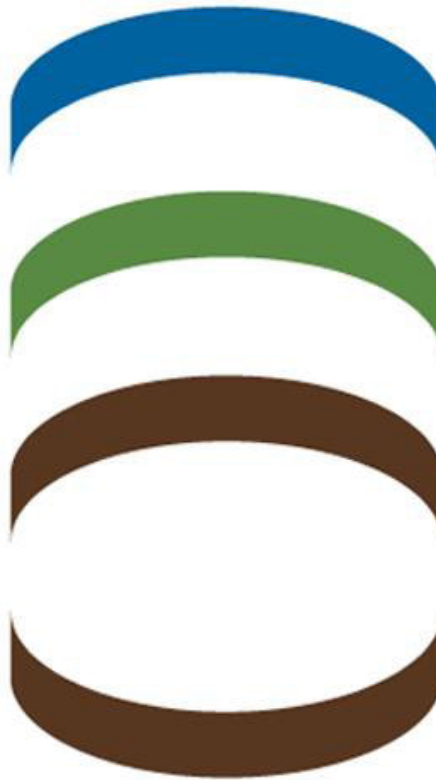


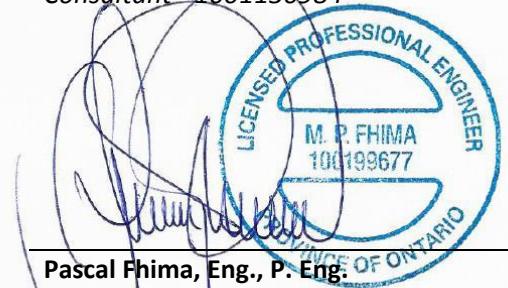
**FUNCTIONAL SERVICING DESIGN BRIEF  
SANITARY AND WATER SERVICE**

Property located at 1195 Newmarket Street, Ottawa

N/Réf.: **14166**



**Hui Chen Peng, P. Eng.**  
*Consultant - 1001130984*



**Pascal Fhima, Eng., P. Eng.**  
*President and CEO - 100199677*

**AUGUST 2021**

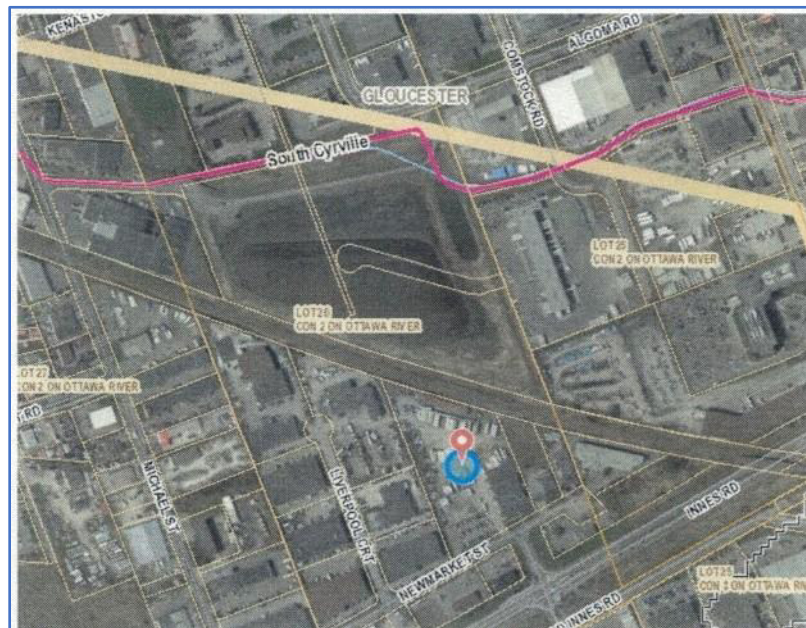
## TABLE OF CONTENT

|                       | Page |
|-----------------------|------|
| 1. INTRODUCTION ..... | 1    |
| 2. SANITARY .....     | 2    |
| 3. WATER .....        | 2    |

## 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.

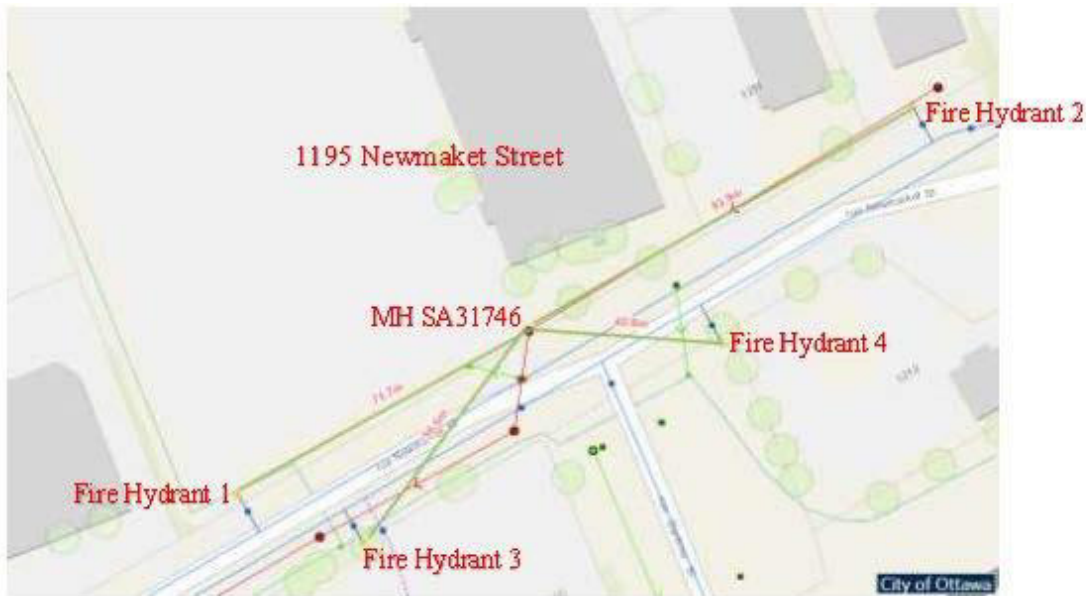


The plumbing fixtures and the number of plumbing fixtures indicated in Appendix A are eighteen (18) universal water closets within the proposed warehouse building.

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***

The calculations and recommendations for the sanitary and water are based on the current design concept for the site. A final report will be subject to change based on the final site design.



## APPENDICES

---



**APPENDIX I**

---

- ❖ Sanitary Sewer



**SANITARY SEWER**

| Unit Type             | Occupant Load<br>(Bedroom Area/Water Closet) | Volume (L)<br>(Table 8.2.1.3A/B) | Total Daily Volume (L) |
|-----------------------|--|----------------------------------|------------------------|
| Per water Closet, and | 18   | 950                              | 17,100                 |
| Per Loading Bay       | 19   | 150                              | 2850                   |
| <b>Total</b>          |  |                                  | <b>19,950</b>          |

| Fixture      | Fixture Units (FU)<br>(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                          |
| <b>Total</b> |                                       |                    | <b>102 (FU)</b>              |

Therefore, the total calculated sanitary flow is determined to be **19,950 L/day** with maximum propable drainage rate of **257.0 L/min**.

## APPENDIX II

---

- ❖ Domestic Water Supply





**DOMESTIC WATER SUPPLY**

| Fixture      | Fixture Units (FU)<br>(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                                |
| <b>Total</b> |   |                    | <b>84.6 (FU)</b>                  |

Therefore, the maximum domestic water demand is determined to be **254 L/min**.

**FIRE WATER SUPPLY**

|                            |                        |                           |              |
|----------------------------|------------------------|---------------------------|--------------|
| Building Type:             | Fire Resistive         |                           |              |
| Floor Area:                | 10,735 m <sup>2</sup>  |                           |              |
| Construction Type:         | Non-Combustible Const. | Construction Coefficient: | 0.8          |
| 1st Preliminary Fire Flow: | 18,500 L/min           |                           |              |
| Fire Hazard:               | Limited Combustible    | Fir Hazard Factor:        | -0.15        |
|                            |                        | Net Decrease:             | -2,775 L/min |
| 2nd Preliminary Fire Flow: | 15,725L/min            |                           |              |
| Sprinkler System:          | Sprinkler & Hose Lines | Sprinkler System Factor:  | -0.4         |
|                            |                        | Net Decrease:             | -6,290 L/min |
| Separation Factor          |                        |                           |              |
| North:                     | 45+m                   | 0                         |              |
| South:                     | 45+m                   | 0                         |              |
| East:                      | 18m                    | 0.15                      |              |
| West:                      | 45+m                   | 0                         |              |
|                            |                        | 0.15                      |              |
|                            |                        | Net Increase:             | 2,360 L/min  |
| <b>Final Fire Flow:</b>    | <b>12,000 L/min</b>    |                           |              |

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