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MTE File No.: 46140-101

Building & Development  
Town of St. Marys  
408 James Street South  
St. Marys, ON N4X 1B6

Attention: Grant Brouwer

**RE: 1<sup>st</sup> Round SPA Comments - Public Works General Comment #6  
Sanitary Capacity for Development at 665 James Street North  
St. Marys, ON.**

## 1.0 Introduction

MTE was retained by the owner of 665 James Street North to complete the Civil design of the proposed residential apartment building located at the above noted property. The property is approximately 0.37 ha in size and is bounded by James Street North to the west, Trailside Court to the south, and existing residential properties to the east and north. MTE prepared the grading and servicing design of the site in consultation with the Town of St. Marys.

In October of 2021 comments were received from the Town indicating that the capacity of the existing sewers downstream of the site would need to be confirmed. This brief has been prepared to demonstrate that sufficient capacity is available in the existing sewers on Edison Street and Trailside Court to service the proposed development.

## 2.0 Sanitary Capacity Analysis

The proposed development is a 4-storey, 35 apartment building. Based on the Towns typical population allotment of 1.56 persons per unit a total population of 55 persons is expected. Available sanitary information from the surrounding developments was obtained from the City and examined by MTE. The information available showed that the downstream sewers were 200mm in size and had slopes of 0.5% and 1.78% on Trailside Court and Edison Street respectively. In comparing the sewers on Edison St. and Trailside Dr. the Trailside Dr. sewers receive effluent from the larger sewershed area and have a lower slope than the Edison St. Sewers. Thus, the Trailside Dr. sewers represent the worst case scenario and the analysis was limited to these sewers alone.

Based on the information obtained from the Town, the tributary areas of the sewer were documented and are summarized in the table below,

Subdivision	Total Area	Single Family / Semidetached Units	Apartment Units	Total Population
Proposed Development	0.37	0	35	55
North Ridge Subdivision	2.90	36	0	103
Grand Trunk Countryside Estates (2003)	8.86	76	0	216
Grand Trunk Countryside Estates (2000)	4.06	45	0	128
<b>TOTAL</b>	<b>15.93</b>	<b>157</b>	<b>35</b>	<b>501</b>

The Town's design criteria specify a design flow rate of 0.35m<sup>3</sup>/cap/day (avg), an infiltration allowance of 0.2 L/s/ha, and specify the harmon peaking factor be used to calculated the peak flow to the sewers. Thus, the peak flow was calculated as follows:

$$(501 \times 350 / 86400) \times 3.97 + 15.93 \times 0.2 = 11.24 \text{ L/s}$$

The harmon peaking factor was calculated as:

$$\text{Peaking Factor} = 1 + 14 / (4 + 0.501^{0.5}) = 3.97$$

Thus, the expected peak flow to the sewer will be approximately 11.3 L/s. As noted above, the sanitary sewer on Trailside Drive is 200mm in diameter and has a running slope of 0.5%. The capacity of the sewer was calculated to be 23 L/s using Manning's formula. Thus, there is sufficient capacity in the downstream sewers to convey the flow to the James Street sanitary sewers. The James Street sanitary sewers are 200mm in size and convey effluent south.

Considered alone, the proposed site would contribute a peak flow of approximately:

$$55 \times 350 \times 4 / 86400 + 0.37 \times 0.2 = 0.97 \text{ L/s.}$$

To the existing system. As the additional flow is expected to be relatively small in comparison to the existing flow and capacity of the sewers, no negative downstream impacts are anticipated.

The site was provided with a 150mm sanitary service connection with a running slope of approximately 7%. As the capacity of the existing connection (40 L/s) exceeds the expected peak flow rate (1 L/s) it is proposed to make use of the existing connection.

### 3.0 Conclusions

As per the request of the Town, the capacity of the existing sanitary connection and downstream sewers has been evaluated and demonstrated to have sufficient capacity to service the proposed development.

Please contact us should you have any comments or questions,

Yours Truly,  
**MTE Consultants Inc.**



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