

File 421374

July 22, 2022

Gord Mason  
President  
Mason Homes Limited  
70 Innovator Ave, Unit 1  
Stouffville, Ontario L4A 0Y2  
gmason@masonhomes.ca

Re: Young Street & Little Avenue Residential Development, City of Barrie  
Servicing Brief

Dear Gord:

Tatham Engineering Limited (Tatham) has prepared the following Servicing Brief in support of the Site Plan Approval (SPA) application for the proposed residential development at the intersection of Yonge Street and Little Avenue in the City of Barrie.

This servicing brief was prepared to summarize the feasibility of the proposed development in respect to servicing including sewage collection and treatment, water supply and distribution, stormwater management, site grading, transportation and utility distribution. This servicing brief also provides a summary of the Stormwater Management Report, prepared by Tatham under separate cover.

## **SITE DESCRIPTION**

The subject property is comprised of two adjacent lots: 410 Yonge Street and 343 Little Avenue. The total site area is approximately 2.28 ha, bound by Little Avenue to the north, Young Street to the east, Firman Drive to the west and Hardwood Drive to the south.

The site is currently a vacant lot, sodded and gently sloping to the east. The site sheet flows to a low point on Firman Drive which serves as the overland flow outlet to an existing municipal stormwater management facility referred to as WK-01.

An existing 4.0 m sanitary sewer and servicing easement is located along the south property line, allowing for a sanitary sewer connection from Harwood Drive to Firman Drive. The easement includes an existing asphalt pathway connection between the two streets.

The subject property was previously included as a commercial block in the Southgate Village Subdivision. The subdivision has since been developed and a Zoning By-law Amendment was passed in May 2019 to re-zone the property to "Residential Multiple Dwelling Second Density (RM2)(SP-565)(H-139)".

## **PROPOSED DEVELOPMENT**

The proposed medium density residential development includes: 25 Rear Lane Towns, 54 Back-to-Back Towns, 18 Standard Towns, and 20 Live-Work Rear Lane Towns for a total of 117 residential units.

The site plan includes a condo road network (6.4 m width) with the main access provided from Firman Drive and an emergency access (chained off) from Hardwood Drive. The site includes pedestrian circulation via sidewalks with connections to Firman Drive and Little Avenue.

Refer to the Conceptual Site Plan prepared by Innovative Planning Solutions.

## **SANITARY SERVICING**

### **Existing Sanitary System**

The subject site is located within an area of the City which is serviced with municipal sanitary sewers. An existing 150 mm dia. sanitary service was stubbed to the property line from the existing sanitary MH34A located in Firman Drive. Sewage flows from MH34A drain south via a 250 mm dia. sewer. Sewage from the site is ultimately conveyed to the City's Wastewater Treatment Plant located on Lakeshore Drive.

### **Design Flows**

Proposed sewage flows from the site have been calculated in accordance with the City of Barrie Sanitary Sewage Collection System Policies and Design Guidelines (2017). The population of the proposed development has been estimated by applying a rate of 2.34 persons per unit (ppu) for medium density units, as per City guidelines, resulting in a total population of 274 persons. Utilizing the City's average daily domestic flow of 225 L/person/day, the average day flow from the site is 61,344 L/day. Refer to the Sanitary Sewer Catchment Plan, Drawing SAN-1 provided in the engineering drawing set for sanitary catchment areas and populations.

A Sanitary Sewer Design Sheet has also been prepared to adequate size site sewers and is provided on Drawing SAN-2 in the engineering drawing set for reference. The peak flow (including infiltration) from the site is 3.21 L/s.

### **Proposed Sanitary System**

The site will be serviced with 200 mm dia. PVC sanitary sewers which generally follow the alignment of the internal road network. Each unit will be provided with a 100 mm service connection, in accordance with City guidelines. A new sanitary maintenance hole will be provided on the property line, and the 150 mm sanitary service will be removed and replaced with a 200 mm diameter main.

Actual sewer velocities were determined to range between 0.26 m/s to 1.0 m/s based on pipe slopes between 0.4% to 6.0%.



## WATER SERVICING

### Existing Water System

The site is located within an area of the City serviced by the municipal watermain system. The adjacent roads surrounding the subject site are provided with the following:

- 300 mm dia. PVC watermain on Little Avenue;
- 300 mm dia. PVC watermain on Young Street;
- 200 mm dia. PVC watermain on Firman Drive; and
- 150 mm dia. PVC watermain on Harwood Drive.

### Proposed Water System

Water servicing will be provided by a connection to the existing 200 mm dia. watermain in Firman Drive. A 200 mm dia. proposed watermain will be looped through the site. The internal water distribution system is illustrated on the Site Servicing Plan, Drawing SS-1, provided in the engineering drawing set. Each individual unit will be provided with a 25 mm dia. water service.

Hydrant flow tests were completed in June 2018 at hydrant #1175 on Firman Drive which determined the static pressure to be 88 psi. Results of the hydrant flow tests and theoretical available fire flow calculations are appended to the Water Model Analysis letter.

### Water Demands

Proposed water demands from the site have been calculated in accordance with the City of Water Transmission and Distribution Policies and Design Standard (2022). The population of the proposed development has been estimated by applying a rate of 2.57 persons per unit (ppu) for medium density units, as per City guidelines, resulting in a total population of 301 persons. Per the Water Model Analysis letter the water demands for the site are:

- Average Day Demand (ADD) =  $68.2 \text{ m}^3 = 0.79 \text{ L/s}$ .
- Max Day Demand (MDD) =  $204.7 \text{ m}^3 = 2.37 \text{ L/s}$ .
- Peak Hour Demand (PHD) =  $3.55 \text{ L/s}$ .

### Fire Protection Requirements

Firefighting water demands have been estimated using the *Water Supply for Fire Protection* (1999) prepared by Fire Underwriters Survey (FUS) for the largest townhouse block (assuming fire walls are not provided to separate the units). The required fire flow has been estimated at 150 L/s. This is consistent with the minimum required fire flow for townhouse developments of 155 L/s in accordance with section 4.3.1 of the City's water design guide. Detailed calculations provided the Water Model Analysis letter.



### Model Analysis Summary

The model analyzed flows, pressures and pipe velocities in the distribution systems under:

- ADD;
- MDD;
- PHD;
- Available Fire Flow; and
- Fire Flow plus MDD.

The model results predict the proposed internal water distribution system will provide an adequate supply of water for domestic use and fire protection for the development that meets the City of Barrie's requirements for pressures and fire flows.

### DRAINAGE & STORMWATER MANAGEMENT

Site runoff is collected by a series of catch basins and storm sewers and is conveyed to the existing storm service provided to the site from existing storm maintenance structure STM MH37 in Firman Drive. A storm sewer catchment plan (drawing STM-1) is provided in the engineering drawing set for reference.

Stormwater management controls will be provided via an underground storage chamber, pipe and structure storage, infiltration chamber and oil grit separator unit to ensure post-development peak flows do not exceed pre-development levels and enhanced level quality control is provided. Additional details are provided in the Stormwater Management Report.

### ROADS

The internal roadway is designed with a minimum paved width of 6.4 m. The roadway generally follows the City's typical 18.0 m cross section detail, with some modifications as depicted on the Private Road - 6.0 m Platform Typical Section Detail on Drawing DE-1 provided in the engineering drawing set. Granular and pavement structure has been specified based on geotechnical investigation and reports prepared by Cambium Inc.

### GRADING

The site grading has been designed to generally be within City standards (road grades at a minimum of 0.5% and maximum of 8%). Due to relatively steep existing topography, in select areas a maximum road grade of 6.0% is utilized. Minimum cover of 1.5 m below the centreline of the road to obvert is provided for storm sewers in accordance with City standards.

The site will match into the existing grades at property lines.



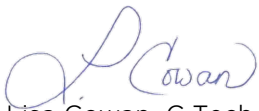
A hydrogeological Assessment was completed by Cambium Inc. which found groundwater conditions to be shallow. Groundwater levels were found to range in depth between 0.62 mbgs (metres below ground surface) to 4.0 mbgs.

## CONCLUSION

We trust the above demonstrates how the proposed development can be adequately serviced and, that no external works will be required in support of the proposed development. However, if you have any questions or require additional information, please do not hesitate to contact us.

Yours truly,

**Tatham Engineering Limited**



Lisa Cowan, C.Tech.

Senior Technologist, Project Manager

LC:lc:ha

copy: Alphonso

Mason Homes

ayau@masonhomes.ca

T:\2021 PROJECTS\421374 - Yonge & Little Residential Development - Barrie\Documents\Correspondence\L - Mason01 - Servicing Brief.docx

