



S. LLEWELLYN & ASSOCIATES LIMITED
CONSULTING ENGINEERS

July 11, 2019

File: 17080

City of Hamilton
71 Main Street West
Hamilton, ON, L8P 4Y5

Attention: Adam Lucas
Development Planning

RE: 299-307 John Street South and 97 St. Joseph's Drive (ZAC-18-009)
Hamilton, ON

Thank you for your comments in connection with the above noted project in regards to the review of the submitted engineering plans. We have had the opportunity to review your comments and offer the following response:

Water Demands:

- 5. The peak domestic water usage for the site, based on the approximate fixture units for the development, has been calculated as 58.54 L/s. This calculation is acceptable, and will be updated during site plan approval (when the commercial units are finalized).*

Domestic water demand has been updated based on the revised floor plans.

- 6. In table 4.1 Water Closet calculations are wrong, copy-pasted from row 1. Please correct these during future submission. (domestic demand is 33% underestimated).*

Domestic water demand has been updated based on the revised floor plans.

Required Fire Flow:

- 7. The RFF has been calculated as 317 L/s.*

The required fire flow calculation has been revised to reflect the updated building plans.

8. *Based on the included hydrant test information, only the watermain on Charlton Ave is capable of supplying the RFF. We note that a hydrant is proposed on this watermain to service the development, however this hydrant will not provide sufficient coverage for the entire building. As such, it must be demonstrated how sufficient fire flow and hydrant coverage will be provided for the entire development.*

The available fire flow supply is not defined as being delineated from a single fire hydrant, but is the aggregate fire flow capacity of all contributing fire hydrants within adequate distance of the building. For the purpose of this report a 90m distance is considered.

9. *As the flows required for this development are significant, a watermain hydraulic analysis will be required, which shall include the following:*
- a) modelled system pressures at pressure district (PD3) level under the following demand scenarios: Average Day Demand, Maximum Day Demand, Peak Hour Demand, and Maximum Day Demand plus Fire Flow under existing (2011) and ultimate (2031) demand conditions;*
 - b) comment on the impact of the proposed development on the existing system;*
 - c) demonstration that the proposed development will not cause pressures within the existing district to drop below acceptable levels;*
 - d) the modelled transient pressures and system flushing velocities, satisfying the requirements of the MOE Watermain Design Criteria (2012), to support any Form 1 application that will be required for any proposed future alteration of the municipal water distribution system (e.g. watermain addition, extension, etc.).*

The watermain hydraulic analysis will be provided for detailed design.

10. *The proponent should ensure that the Fire Department/Building Department is satisfied with the hydrant coverage, accessibility and firefighting provisions.*

Noted.

11. *City will prefer a private fire hydrants located on private as required.*

Additional private hydrants are not required as adequate hydrant coverage is provided from the existing hydrants surrounding the site.

Sanitary System and Minor Storm System:

12. *The population load should be 2 persons per sleeping room according to 2012 Building Code Section 3.1.17.1. (3 people for 2 bedroom units is a typo in table 3.1) Therefore, table 3.1 of Functional Servicing Report (FSR), completed by S. Llewellyn & Associates Limited should be revised accordingly. The total wastewater flow should consider the peaking factor.*

Table 3.1 of the FSR has been revised to indicate 4 persons for a 2 bedroom unit. A peaking factor is not applied to the OBC calculations.

13. *Please provide the rationale of the conversion between the impervious ratio and Run-off Coefficient listed Table 2.1 of FSR, completed.*

Please refer to Appendix A of the revised Functional Servicing Report for the Runoff Coefficient Calculations.

14. *The total discharge from the site should include the wastewater flow in Table 2.5 of FSR. Please revise the required storage volume calculations.*

The proposed development is proposed to be serviced from the existing municipal storm sewer along St. Joseph's Drive.

Stormwater Management:

15. *Figure 2.0 in the FSR shows the downstream pipe at MH2 as 250 mm @1.8% but Preliminary grading and servicing plan shows the pipe as 450 mm @2%. Please review and confirm.*

Please refer to the revised Preliminary Grading & Servicing Plan and the Functional Servicing Report.

16. *We recommend 'orifice tube' instead of 'orifice plate' between MH and stormceptor for providing required quantity control.*

Applying a 150mmØ orifice pipe would not provide sufficient quantity control to the subject lands to meet the 2-year pre-development discharge rate. Therefore, a 165mmØ orifice plate is proposed.

Following comments can be addressed at the time of Site Plan application

Preliminary Grading & Servicing Plan:

17. *Please provide mechanical connection details of area drains to the underground storage vault.*

This will be provided during Site Plan application with the detailed design.

18. *Please provide details of the underground storage vault on the drawing (cross section showing bottom & top invert, depth of cover, etc.).*

This will be provided during Site Plan application with the detailed design.

19. *Please provide groundwater table information demonstrated through the geotechnical/hydrogeological investigation to support that the proposed underground parking will not have any impact on the groundwater at the subject site.*

This will be provided during Site Plan application with the detailed design.

Yours truly,

S. LLEWELLYN & ASSOCIATES LIMITED



M. Colosimo, Dipl.T.