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06 December 2013 DSEL File No.: 13-680

City of Ottawa
Infrastructure Services and Community Sustainability
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: IAD Review Officer

Re: Water Supply Addendum
1445/1451 Wellington Street

Please find below an updated Sections 3.2 and 3.3 of our Functional Servicing Report for 1445/1451 Wellington Street. This section of report has been updated to include the water main boundary conditions received on November 12, 2013.

3.2 Water Supply Servicing Design

It is proposed that the development be serviced via an independent 200mm diameter water service connection to the existing 300mm watermain within Wellington Street. Servicing details are illustrated by ***SSGP-1*** included with this report.

An existing municipally owned hydrant is located at the intersection of Island Park Drive and Wellington Street.

Table 1 summarizes the ***Water Supply Guidelines*** employed in the preparation of the water demand estimate.

Table 1
Water Supply Design Criteria

Design Parameter	Value
Residential Average Apartment	1.8 P/unit
Residential Average Daily Demand	350 L/d/P
Residential Maximum Daily Demand**	3.6 x Average Daily
Residential Maximum Hourly**	5.4 x Average Daily
Minimum Watermain Size	150mm diameter
Restaurant	125 L/seat/d
Commercial floor space	2.5 $L/m^2/d$
Commercial Maximum Daily Demand	1.5 x Average Daily
Commercial Maximum Hourly	1.8 x Maximum Daily
Minimum Depth of Cover	2.4m from top of watermain to finished grade

During Peak Hourly Demand desired operating pressure is within	350kPa and 480kPa
During normal operating conditions pressure must not drop below	275kPa
During normal operating conditions pressure must exceed	552kPa
During fire flow operating pressure must not drop below	140kPa
Daily average based on Appendix 4-A from **City Standards* ***Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons.* *-Table updated to reflect ISD-2010-2*	

Table 2 summarizes the anticipated water demand and boundary conditions for the proposed development based on the ***Water Supply Guidelines***.

Table 2
Water Demand and Boundary Conditions

Design Parameter	Anticipated Water Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)
Average Daily Demand	62.7	49.5 / 485.6
Max Day + Fire Flow	191.5 + 6,000 = 6,191.5	42.4 / 415.9
Peak Hour	294.5	42.4 / 415.9

1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa. Assumed ground elevation __m. See ***Appendix A.***

Fire flow requirements are to be determined in accordance with Local Guidelines (***FUS***), City of Ottawa ***Water Supply Guidelines***, and the Ontario Building Code. For the proposed development, the ***FUS*** estimates that approximately ***6000L/s*** in addition to maximum daily demand is required for fire protection. A certified fire protection system specialist shall be employed to design the building fire suppression system(s) and confirm the actual fire flow demand. Detailed calculations are provided in ***Appendix B***.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand as indicated in ***Table 2***. Correspondence with the City is included in ***Appendix B***.

The minimum water pressure is available within the City's desired pressure range during peak hour demand (ie between 350kPa and 480kPa) at the ground floor level. During the average daily demand the maximum water pressure slightly exceeds the desired operating pressure but does not exceed maximum allowable pressure (552kPa). The building will need to be equipped with a booster pump to meet desired pressure ranges at the higher floors.

Water for the purpose of firefighting is available above 140kPa; therefore sufficient water is available for firefighting purposes.

3.3 Water Supply Conclusion

Anticipated water demand under proposed conditions was submitted to the City of Ottawa for establishing boundary conditions. The City of Ottawa desired pressure ranges are respected during all simulated conditions.

The proposed design conforms to the relevant City of Ottawa ***Water Supply Guidelines***.

Yours truly,
David Schaeffer Engineering Ltd.

Per: Adam D. Fobert, P.Eng.

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