WSP

December 23, 2024
17M-00407

Town of East Gwillimbury
2141 Major Mackenzie Drive
Vaughan, ON L6A 1T1

Subject: **Preliminary Servicing Review**
Building A – Sharon Corners
Town of East Gwillimbury

We are pleased to submit this preliminary servicing review for Building A at the Sharon Corners site at the north-west corner of Mount Albert Road and Leslie Street. The proposed building is nine-storeys with 140 residential units.

Stormwater Management

The footprint for the updated site plan is similar to the footprint in the original overall functional servicing report and stormwater management report. Through the next stages of the process the detailed requirements will be confirmed, but we anticipate a solution similar to what was originally proposed and shown below including permeable pavers in the proposed parking areas.
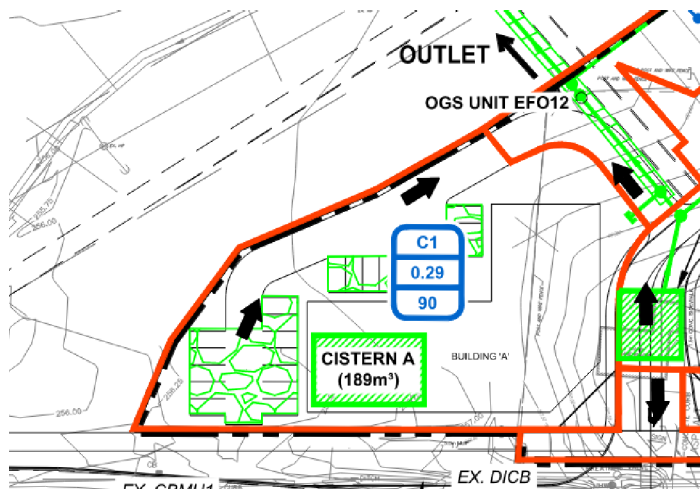
Water

Along Mount Albert Road, an existing 200mm diameter PVC watermain was constructed in 2016 as part of the Wycliffe Residential Subdivision. This watermain connects to the Region's 450mm diameter CPP watermain on Mount Albert, at the southwest corner of the proposed development and extends along Countryman Road to service the Wycliffe Residential Subdivision.

The increase in units from 100 (March 2020 FSR) to the current unit count will increase the building population from 176 to 246 people. The overall site population increases from 808 (March 2020 FSR) to 971 people. The Peak Hour flow demand increase from 9.00 L/s to 10.82 L/s. By comparison, the fire flow required (see attached) is 5,000 Lpm (83.33 L/s). The system can provide 467 L/s at a residual pressure of 138 kPa (20 psi).

Sanitary

The unit count increase and population increase will be the same for sanitary as per the water. The design sheet for the sanitary system is attached. The percentage of pipe capacity internally increases from 41.5% to 48.6%. Externally before the connection to the trunk sewer increases from 29.3% to 34.3%.

Grading

The basics of the grading were determined as part of Phase 1 of the development. The boundary grades have been constructed and internally grading will be determined during the detailed design process.

Erosion & Sediment Control (ESC)

Sediment control fence and a temporary ESC pond was installed as part of Phase 1. Adjustments will be completed are part of the Building A site development.

Conclusion

In conclusion, the proposed Building A conforms from a Stormwater perspective and the increase in units to not have any negative impacts on the Water and Sanitary sewer systems.

Grading and ESC measures were established are part of Phase 1 and will be further defined as part of the detailed engineering design.

We are available at your convenience should you have any questions.

Yours sincerely,

WSP CANADA INC.

Michael E. Oldham, P.Eng.
Vice-President, Land Development &
Municipal Engineering Ontario

APPENDIX A

FIRE FLOW CALCULATIONS

Project: **Sharon Corners Development Block - Building 'A'**
Job No.:   **17M-00407**

Fire Flow Calculation Procedure per Water Supply for Public Fire Protection, 1999 by Fire Underwriter Survey, p 20.

$$F = 220 \ C \sqrt{A}$$

where

    F = Fire flow in Litres per minute (Lpm)
    C = coefficient related to the type of construction
    A = total floor area in square metres

A.   **Determine Type of Construction**
      => Fire-resistive construction (fully protected frame, floors, roof)
      Therefore C = 0.6

B.   **Determine Ground Floor Area**
      => Fire-resistive building with vertical openings and exterior vertical communications properly protected
      Therefore A = Largest Floor + 25% of 2 immediately adjoining floors
            A = 1573 + 0.25*(1573 + 573)
            A = 2,110 m2

C.   **Determine Height in Storeys**
      => 9 Storeys

D.   **Determined the Fire Flow**
         F = 220 x 0.6 x $\sqrt{2110}$
         F = 6,063 Lpm

E.   **Determine Increase or Decrease for Occupancy**
      => Reduction for Limited Combustible Occupancies
      Therefore 15% reduction
        15% reduction of 6063 Lpm =   910   Lpm
             6063 - 910 =   5,154   Lpm

F.   **Determine Decrease for Automatic Sprinkler Protection**
      => Has Automatic Sprinkler Protection (Per NFPA 13 Standards)
      Therefore 30% reduction
        30% reduction of 5154 Lpm =   1,546   Lpm

G.   **Determine the Total Increase For Exposures**

Face	Distance (m)	Charge			
West Side	100.00	0%			
East Side	15.50	15%			
North Side	17.00	15%			
South Side	56.00	0%	See Note (1)		
	Total	30%	of	1,546 =	1,160 Lpm

H.   **Req'd Fire Flow = D - F + G**
         F =   4,768 Lpm
         F =   5,000 Lpm   (4,800 Lpm < F < 45,000 Lpm; OK)
         F = 1,319 US GPM

TOWN OF EAST GWILLIMBURY
Sharon Corners - Sanitary Design Sheet

Project / Subdivision SHARON CORNERS

Prepared by: MEO

Consulting Engineer WSP Canada Group Limited

Project No.: 17M-00407

Checked by: MEO

Design Parameters

Townhouse Density =	2.78 cap/unit	Residential =	350 L/cap/day
Apartment Density =	1.76 cap/unit	Employment[3] =	160 L/cap/day
Manning 'n' =	0.013	Institutional =	0.208 l/s/ha
Infiltration Flow =	0.286 L/s/ha	Commercial =	0.324 l/s/ha

Design Equations

$$M(r) = 1 + \frac{14}{4 + \sqrt{(P)}}$$

$$M(E) = 1 + \frac{14}{4 + \sqrt{(E)}}$$

$$Q(i) = i \times j \quad A$$

$$Q(r) = \frac{P * q(r) * M}{86400}$$

$$Q(d) = j \; (Q(x))$$

$$Q(E) = \frac{E * q(E) * M}{86400}$$

Last Revised: 2024-12-01

Notes/Comments:

Location			Individual Values								Cumulative Values									Flow Data							Sewer Data							
Street	From	To	Industrial Area	Commercial Area	Institutional Area	Residential Area[2]	Townhouse Units	Apartment Units	Residential Population	Employment	Industrial P.F.	Industrial Area	Commercial Area	Institutional Area	Residential P.F.	Employment P.F.	Residential Area[2]	Residential Population	Employment	Industrial Peak Flow (L/s)	Commercial Peak Flow (L/s)	Employment Flow (L/s)	Institutional Peak Flow (L/s)	Population Peak Flow (L/s)	Infiltration Flow (L/s)	Total Design Flow (L/s)	Length	Pipe Size	Type of Pipe	Grade	Full Flow Capacity	Full Flow Velocity	Actual velocity at design flow	Capacity Check
	MH #	MH #	(ha)	(ha)	(ha)	(ha)	#	#	cap.	E	M(ind)	A(ind)	A(c)	A(ins)	M(r)	M(E)	A(r)	P	E	Q(ind)	Q(c)	Q(E)	Q(ins)	Q(r)	Q(i)	Q(d)	(m)	(mm)		(%)	(L/s)	(m/s)	(m/s)	
Potential Future Development	FUT	PROP				0.19			88						4.00		0.19	88						1.43	0.05	1.48		200	PVC	2.00%	46.4	1.48	0.68	3.2%
Proposed Development	PROP	222A				3.08	68	344	883						3.81		3.27	971						14.98	0.94	15.91		200	PVC	1.00%	32.8	1.04	1.01	48.6%
Mt. Albert Rear/Block 116	222A	221A				0.04									3.81		3.31	971						14.98	0.95	15.93		200	PVC	1.00%	32.8	1.04	1.01	48.6%
Mt. Albert Rear/Block 116	221A	115A													3.81		3.31	971						14.98	0.95	15.93		200	PVC	1.00%	32.8	1.04	1.01	48.6%

NOTES:
1) 88 people is the assumed population within each of the multi use buildings (both proposed and future). The design will be confirmed once more details are provided for the multi-use buildings.