Servant, Dunbrack, McKenzie & MacDonald Ltd.
NOVA SCOTIA LAND SURVEYORS & CONSULTING ENGINEERS
36 Oland Crescent
Bayers Lake Business Park
Halifax, Nova Scotia B3S 1C6

Phone (902) 455 1537 Email lmcdowell@sdmm.ca
Fax (902) 455 8479 Website www.sdmm.ca

RAYMOND A. LANDRY MASc., P.Eng., LEED Green Associate
CHRISTOPHER J. FORAN P.Eng.
GEOFFREY K. MacLEAN P.Eng.
RACHAEL W. CANNINGS P.Eng., LEED Green Associate
ALEXANDER W. PULSIFER P.Eng.
LOGAN R. MCDOWELL P.Eng.
DANIEL S. GERARD P.Eng., NSLS
CARL K. HARTLEN NSLS
H. JAMES McINTOSH P.Eng., NSLS, CLS
KEVIN A. ROBB NSLS
MICHAEL S. TANNER NSLS
ADAM J. PATTERSON P.Eng., NSLS
BLAKE H. TRASK P.Eng., NSLS

November 22, 2017

Halifax Water
450 Cowie Hill Road
Halifax, NS

From: Logan McDowell, P.Eng. File No. 1-1-295 (33020)

Re: Robie Street & Cunard Street, Halifax, NS – Sanitary Lateral Size Confirmation

Project Summary:

	Commercial	Residential (Multi-Unit)
Building	6,550 ft^2 = 609 m^2 = 0.061 ha	95 Units
*Based on October 5, 2017 drawings from W. M. Fares Group		

References:

1. Halifax Water (HW) Design & Construction Specifications (2017 Edition), Section 4.2.2:
   - $Q = [1.25 \times (a \times M)] + b$ Where;

     Q = Sanitary sewer flow.
     1.25 = Safety factor.
     a = Average dry weather flow.
     M = Peaking factor using Harmon Formula; $M = 1 + [14 / (4 + P^{0.5})]$
     b = Long-term infiltration/inflow allowance.
     P = Population in thousands
   - Residential Average Dry Weather Flow: 300 L/day per person
   - Multi-Unit Dwelling Population: 2.25 people per unit
   - Infiltration allowance: 0.28 $L/ha_{gross}/s$
2. Atlantic Canada Wastewater Guidelines (AWG) Manual (2006 Edition), Section 2.3.

Calculation Summary:

Population Estimate (P)

Reference:
P_1: AWG Section 2.3.4.2 Commercial/Retail: 85 people per hectare
P_2: HW Section 4.2.1 Residential (Multi-Unit): 2.25 people per unit

P_1 = 85 people per hectare x 0.061 hectares = 5 people
P_2 = 2.25 people per unit x 95 Units = 214 people

P = $P_1 + P_2$
P = 5 people + 214 people = **219 people (or 0.219)**

Dry Weather Flow (a)

Reference:

a: HW Section 4.2.2: Residential: 300 L/day per person

a = 300 L/day per person x 219 people = **65,700 L/day (or 0.76 L/s)**

Infiltration (b)

Reference:

HW Section 4.2.2: Infiltration allowance: 0.28 $L/ha_{gross}/s$

Lot Area = 0.220 ha

b: 0.28 $L/ha_{gross}/s$ x 0.220 ha = **0.06 L/s**

Peaking Factor (M)

$M = 1 + [14 / (4 + P^{0.5})]$

$M = 1 + [14 / (4 + (0.219)^{0.5})]$ = **4.13**

Sanitary Sewer Flow (Q)

Q = [1.25 x (a x M)] + b

Q = [1.25 x (0.76 L/s x 4.13)] + 0.06 L/s = **3.98 L/s**

Sanitary Lateral Size Confirmation:

An 8" (200 mm) diameter PVC lateral at 1.00% slope has a capacity of 42.64 L/s. With Q = 3.98 L/s, the proposed lateral will have sufficient flow capacity. For additional information or discussion regarding these findings please contact the undersigned.

Regards,

Servant, Dunbrack, McKenzie & MacDonald Ltd.

Originally Signed

Project Engineer

Z:\SDMM\33000-33999\33000\33020\Design\Sanitary\33020 Sanitary Flow Confirmation.docx