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
Fax (902) 455-8479
Web sdmm.ca

RAYMOND A. LANDRY
MASc., P.Eng., LEED Green Associate
CHRISTOPHER J. FORAN
P.Eng.
GEOFFREY K. MacLEAN
P.Eng.
RACHAEL W. KYTE
P.Eng., LEED Green Associate
ALEXANDER W. PULSIFER
P.Eng.
MICHAEL S. TANNER
NSLS (Ret)
DANIEL S. GERARD
P.Eng., NSLS
H. JAMES McINTOSH
P.Eng., NSLS, CLS
KEVIN A. ROBB
NSLS
BLAKE H. TRASK
P.Eng., NSLS
ADAM J. PATTERSON
P.Eng., NSLS

March 6, 2020

Halifax Water
450 Cowie Hill Road
Halifax, NS
B3P 2V3

From: Alex Pulsifer, P.Eng. File No. 1-3-62 (34976)

Re: 13 Unit Residential Development, 48/50 Old Sambro Road, Halifax, NS – Sanitary Lateral Size Confirmation

Project Summary:

	Units
Residential	13
*From Developer	

References:

1. Halifax Water (HW) Design & Construction Specifications (2018 Edition), Section 4.2.2:
   - Q = [1.25 x (a x 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 dwellings: 2.25 people per unit
   - Infiltration allowance: 0.28 $L/ha_{gross}/s$

Calculation Summary:

Population Estimate (P)

Reference:

HW Section 4.2.1 Residential (Multi-unit dwellings): 2.25 people per unit

P = 2.25 people per unit x 13 Units = **30 people (or 0.030)**

Dry Weather Flow (a)

Reference:

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

a = 300 L/day per person x 30 people = **9,000 L/day (or 0.104 L/s)**

Infiltration (b)

Reference:

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

Lot Area = 1195 m^2 = 0.12 ha

b: 0.28 $L/ha_{gross}/s$ x 0.12 ha = **0.034 L/s**

Peaking Factor (M)

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

$M = 1 + [14 / (4 + (0.030)^{0.5})]$ = **4.35**

Sanitary Sewer Flow (Q)

$Q = [1.25 \times (a \times M)] + b$

$Q = [1.25 \times (0.104\ L/s \times 4.35)] + 0.034\ L/s$ = **0.60 L/s**

Sanitary Lateral Size Confirmation:

A 150mm diameter PVC lateral at 2.00% slope has a capacity of 28.0 L/s. With Q = 0.60 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.

Original Signed

Alex Pulsifer, P.Eng.
Project Engineer

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