



K. SMART ASSOCIATES LIMITED
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June 18, 2021

Alicia Monteith
Prica Global
388 Phillip Street
Waterloo, ON N2L 6R7

Regarding: Fire Flow Analysis for 298 Hemlock Street

Attached please find the fire flow test results completed by Stumpf Fire Protection Limited.

The test results indicate that the municipal water distribution network can support a fire demand flow of 11,018 Litres/minute. The fire demand for the project was determined to be 9,000 Litres/minute by Stumpf Fire Protection and 9,600 Litres/minute in the Functional Servicing Report.

The municipal water distribution system is capable of providing the fire demand flow for this project.

Sincerely yours,
K. Smart Associates Limited

David Harsch, P.Eng.
dharsch@ksmart.ca





167 LEXINGTON CT., UNIT 1
 WATERLOO, ON N2J 4R9
 PHONE: (519) 888-0043
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 WWW.STUMPFIRE.COM



ONTARIO BUILDING CODE 3.2.5.7 MUNICIPAL FIRE FLOW ANALYSIS REPORT

1.01 BUILDING NAME: 298 Hemlock Inc.

1.02 ADDRESS: 298 Hemlock Street, Waterloo

1.03 ATTACHMENTS:

N SITE PLAN C/W REQUIRED FIRE HYDRANT LOCATIONS (OBC 3.2.5.7 (2), 3.2.5.16 (1), 3.2.5.16 (2) AND THE WATER FLOW TEST AND RESIDUAL HYDRANT LOCATIONS.

N WATER FLOW TEST (FLOW AND RESIDUAL DATA C/W GRAPH.)

1.04 BUILDING CODE CLASSIFICATION: C

TYPE OF CONSTRUCTION: O.B.C 3.2.2# 43

1.05 BUILDING AREA IN SQUARE METERS = 1169.1m²

1.06 BUILDING VOLUME IN CUBIC METRES = 19,243.39 m³

N BUILDING WILL HAVE 100% SPRINKLER PROTECTION IN ACCORDANCE WITH THE ONTARIO BUILDING CODE AND REFERENCED N.F.P.A STANDARDS. ENGINEERED SPRINKLER DRAWINGS AND HYDRAULIC CALCULATIONS WILL BE SUBMITTED UNDER SEPARATE COVER TO THE BUILDING DEPARTMENT FOR APPROVAL WHEN COMPLETED. (FIRE FLOW ANALYSIS NOT REQUIRED)

N PRIVATE FIRE HYDRANT(S) AND SPRINKLER SYSTEM(S) TO BE CONNECTED TO THE MUNICIPAL WATER SYSTEM AND CALCULATED WITH A DEMAND LESS THAN THAT AVAILABLE.

Y PRIVATE FIRE HYDRANT(S) AND SPRINKLER SYSTEM(S) WILL BE CONNECTED TO AN INDEPENDENT WATER SOURCE FROM THE MUNICIPAL SYSTEM.

1.07 CALCULATION: $Q = K \times V \times Stot$ (Q=MINIMUM SUPPLY OF WATER IN LITRES, K=WATER SUPPLY COEFFICIENT FROM TABLE 1, V=TOTAL BUILDING VOLUME IN CUBIC METRES, Stot=TOTAL SPATIAL COEFFICIENT VALUES FROM PROPERTY LINE EXPOSURES ON ALL SIDES AS OBTAINED FROM FORMULA: $Stot = 1.0 + (SIDE1 + SIDE2 + SIDE3 + SIDE4)$ MINIMUM=1 MAXIMUM=2.0)

$$Q = K @ 10 \times V @ 19,243.39m^3 \times Stot @ 2 = 384,867.8 \text{ LITRES}$$

$$Stot = 1 + S1 (.0) + S2 (.2) + S3 (.4) + S4 (.5) = (2.1)$$

1.08 TOTAL LITRES PER MINUTE REQUIRED IN THE MUNICIPAL WATER SYSTEM AS PER TABLE 2 = 9,000 LITRES PER MINUTE AT 140 KPA (20.3PSI).

1.09 TOTAL LITRES PER MINUTE AVAILABLE IN THE MUNICIPAL WATER SYSTEM = 11,018.16, LITRES PER MINUTE AT 140KPA (20.3PSI).

1.10 TOTAL STORED LITRES REQUIRED ON SITE IF NOT SUFFICIENT MUNICIPAL WATER =
 1.8 - 1.9 -LITRES x 30 MINUTES = LITRES.

COMPLETED BY: Jeff Hayhurst (print)..........(Signature) DATE: April 5, 2021

STUMPF

FIRE PROTECTION LIMITED

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PG Design Studio Inc.
388 Phillip Street
Waterloo, Ontario

April 28, 2021

Attn: Project Manager

Re: 298 Hemlock St. – Hydrant Flow Test

Hydrant flow test was completed for the above project this morning at approx. 10:00am

Test #1

Static: 65 PSI

Test Hydrant: Hydrant #335
Flow Hydrant: Hydrant #346

Residual: 60 PS
Pitot: 30 PSI
Flow: 1022 USGPM

Results are from (1) 2-1/2" hydrant port.

Residual: 55 PSI
Pitot: 12/12 PSI
Flow: 1292 USGPM (646 ea. Port)

Results are from (2) 2-1/2" hydrant ports.

GPM's are from Table 4.10.1(a) of the NFPA 291, 2002 Edition.

If you any question, please feel free to call.

Sincerely
Jeff Hayhurst, Designer
STUMPF FIRE PROTECTION

