STRIK BALDINELLI MONIZ
PLANNING · CIVIL · STRUCTURAL · MECHANICAL · ELECTRICAL

LONDON LOCATION
1599 Adelaide St. N., Unit 301
London, ON N5X 4E8
P: 519-471-6667

KITCHENER LOCATION
132 Queen St. S. Unit 4
Kitchener, ON N2G 1V9
P: 519-725-8093

www.sbmltd.ca

sbm@sbmltd.ca

Canyon Ridge Construction
25143 Poplar Hill Rd.
Denfield, ON, N0M 1P0

6 February 2024
SBM-23-0797

Attn: Mr. Craig Schroeder

Re: Servicing Feasibility Study
Proposed Townhouse Development
564 Dewan St, Strathroy, Ontario

1. INTRODUCTION

This Servicing Feasibility Study (Study) has been prepared by Strik, Baldinelli, Moniz Ltd. (SBM) for Canyon Ridge Construction to address the servicing feasibility for the proposed 0.23 ha 6-unit townhouse development located at 564 Dewan Street, Strathroy.

The site abuts the Dewan Street Right-Of-Way (ROW) to the east, low-density residential dwellings to the north and south and a creek followed by low-density residential dwellings to the west. Please refer to the proposed Concept Site Plan by SBM, dated 22 September 2023, enclosed with this Study.

This Study is to determine the adequacy of the existing Municipality of Strathroy-Caradoc services in support of a Zoning By-Law Amendment (ZBA) application for the proposed development.

Design requirements have been based on the Municipality of Strathroy-Caradoc Servicing Standards (MSCSS), dated October 2021, the Ministry of the Environment, Conservation and Parks Design Guidelines for Drinking-Water Systems (MECP DGDWS), and the current edition of the Ontario Building Code (OBC).

2. WATER SERVICING

As per the Municipality's as constructed drawing "Local Improvements on Dewan Street, Proposed extensions to Sanitary and Watermain", prepared by James F. MacLaren Limited and dated February 1969, there is an existing 150 mm cast iron pipe watermain in the Dewan Street ROW with an existing water service line to the proposed site. The condition of the existing water service is unknown and will be determined during detailed design phase.

Water demand calculations have been considered for residential occupancy as per the MECP DGDWS for this development. Based on the preliminary site plan, it is proposed that there will be a total of 6 units, and at 2.4 people per unit, per the Municipality's design standards, a population count of 15 people was calculated.

2.1 Domestic Water Supply

A maximum day peaking factor of 3.5, peak hour factor of 7.8 and average daily demand of 250 L/capita per day were used as per Section 4.3.2 of the MSCSS, resulting in the maximum day and maximum hour demands of 0.34

L/s (20.31 L/min) and 0.15 L/s (9.11 L/min), respectively. Please refer to the Domestic Demand Calculations attached to this Study.

2.2 Water Supply for Fire Protection

The proposed building is less than 600m2 in area and will be designed as a Part 9 structure per the OBC. Therefore, no sprinkler system is required for the proposed development.

A hydrant flow test, found in the attachments, was performed at a nearby municipal hydrant (Hamilton Road) by the Northern Sprinkler Design on December 15, 2023. The flow test results show that the static pressure of the water distribution system in the area is 399.90 kPa (58 psi) and the residual pressures are 379.21 kPa (55 psi) and 372.32 kPa (54 psi) at test flow rates of 3705.92 L/min (979 USGPM) and 4754.48 L/min (1,256 USGPM), respectively. Based on current OBC requirements, a fire hydrant should be located no greater than 90 m from any portion of the building required to face a street (or fire route). Since the existing hydrant is within 90 m of the site, no private hydrant is required for this development. The fire flow calculations show that the proposed water distribution system is capable of providing the required flows and thus adequate fire protection is available for the proposed development.

Water supply for fire-fighting was calculated in accordance with the current edition of the OBC Div. B – A-3.2.5.7. For the proposed building area of 338.4 m2, an estimated height of 6 m (volume of 2030.4 m3 made of combustible construction), and a building classification of C in accordance with OBC 3.1.2.1, the total flow required during the maximum day plus fire-flow demand scenario is 2,709.0 L/min. Upon review of the hydrant flow test results (attached to this Study) and using linear interpolation of the residual pressure readings at the provided flow rates from the hydrant, there is sufficient pressure within the system. At the required maximum day plus fire-flow demand rate of 2,709.0 L/min, the residual pressure at the site would be approximately 56.6 psi (290.2 kPa) which exceeds the minimum required pressure of 20 psi (140 kPa) in fire-flow scenarios. Please refer to the calculations attached to this Study.

Based on the above, the existing watermain fronting this property has sufficient capacity for fire-fighting for this development, and it can be concluded that adequate water supply for the proposed development is available from the municipal system.

3. SANITARY SERVICING

As per the Municipality's as constructed drawing "Local Improvements on Dewan Street, Proposed extensions to Sanitary and Watermain", prepared by James F. MacLaren Limited dated 3 February 1969, the site is tributary to the 200 mm asbestos cement sanitary sewer in the Dewan Street ROW. The existing 100 mm (4 inch) class 1500 asbestos cement sanitary Private Drain connection (PDC) will be required to be capped at the property line and a new sanitary PDC shall be installed.

The proposed flows from the subject property are shown on the Sanitary Sewer Design Sheet appended to this Study. Using a flow of 300 L/capita/day as per the MSCSS and a population of 15 people (6 units 2.4 people per unit) results in an anticipated peak sanitary flow of 0.25 L/s. When combined with infiltration, this results in a total peak flow of 0.27 L/s. Preliminarily, a 125 mm sanitary PDC at a slope of 2.0% has been reviewed and is shown to have sufficient capacity of 13.25 L/s to convey the proposed flow at a velocity greater than the minimum requirement of 0.6m/s, per the MSCSS.

4. STORM SERVICING AND STORMWATER MANAGEMENT

Maria F. Camacho (Engineering and Public Works Department, Municipality of Strathroy-Caradoc) indicated via email on December 11, 2023, that based on Municipality records, there is no storm sewer fronting MN564 (the site), although there is a storm sewer running south of Dewan Street at Ross Lane.

Based on the topographic survey by AGM dated January 15, 2024, the pre-development runoff coefficient for the site has been calculated to be 0.27. The post development runoff coefficient for the proposed development has been calculated to be 0.56, based on the attached Concept Site Plan prepared by SBM, dated September 2023.

Since the post-development C-value is greater than the pre-development C-value, stormwater management quality controls will be proposed for this development during the detailed design phase.

Stormwater management quantity and quality controls demonstrating compliance with the SWM criteria and environmental targets identified will be addressed to the standards of the Ministry of the Environment, Conservation and Parks (MECP) (quality control of 80% total suspended solids (TSS) removal, as the subject lands are located in the Upper Thames River Conservation Authority (UTRCA) Regulated Zone). This will be assessed at the time of detailed design phase.

5. SUMMARY

Based on the above, the existing Municipality infrastructure and proposed site services have sufficient capacity for water and sanitary to accommodate the proposed townhouse development at 564 Dewan Street, Strathroy.

Based on the Runoff Coefficient Calculations attached to this Study, the proposed development will require stormwater management quantity controls and will be designed during the detailed design phase. In the event of absence of a municipal storm sewer, alternate methods to accommodate expected flows will be considered.

6. LIMITATIONS

This Study was prepared by Strik, Baldinelli, Moniz Ltd. for Canyon Ridge Construction (owner), the Municipality of Strathroy-Caradoc, and the County of Middlesex. Use of this Study by any third party, or any reliance upon its findings, is solely the responsibility of that party. Strik, Baldinelli, Moniz Ltd. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions undertaken as a result of this Study. Third party use of this Study, without the express written consent of the Consultant, denies any claims, whether in contract, tort, and/or any other cause of action in law, against the Consultant.

All findings and conclusions presented in this Study are based on site conditions as they appeared in the information presented to SBM and related to in this document. This Study is not intended to be exhaustive in scope, or to imply a risk-free development. It should be recognized that the passage of time may alter the opinions, conclusions, and recommendations provided herein, as well as any changes in the layout of the development.

The design was limited to the documents referenced herein and Strik, Baldinelli, Moniz Ltd. accepts no responsibility for the accuracy of the information provided by others. All designs and recommendations presented in this Study are based on the information available at the time of the review.

7. CLOSURE

We trust this Study meets your satisfaction. Should you have any questions or require further information, please do not hesitate to contact us.

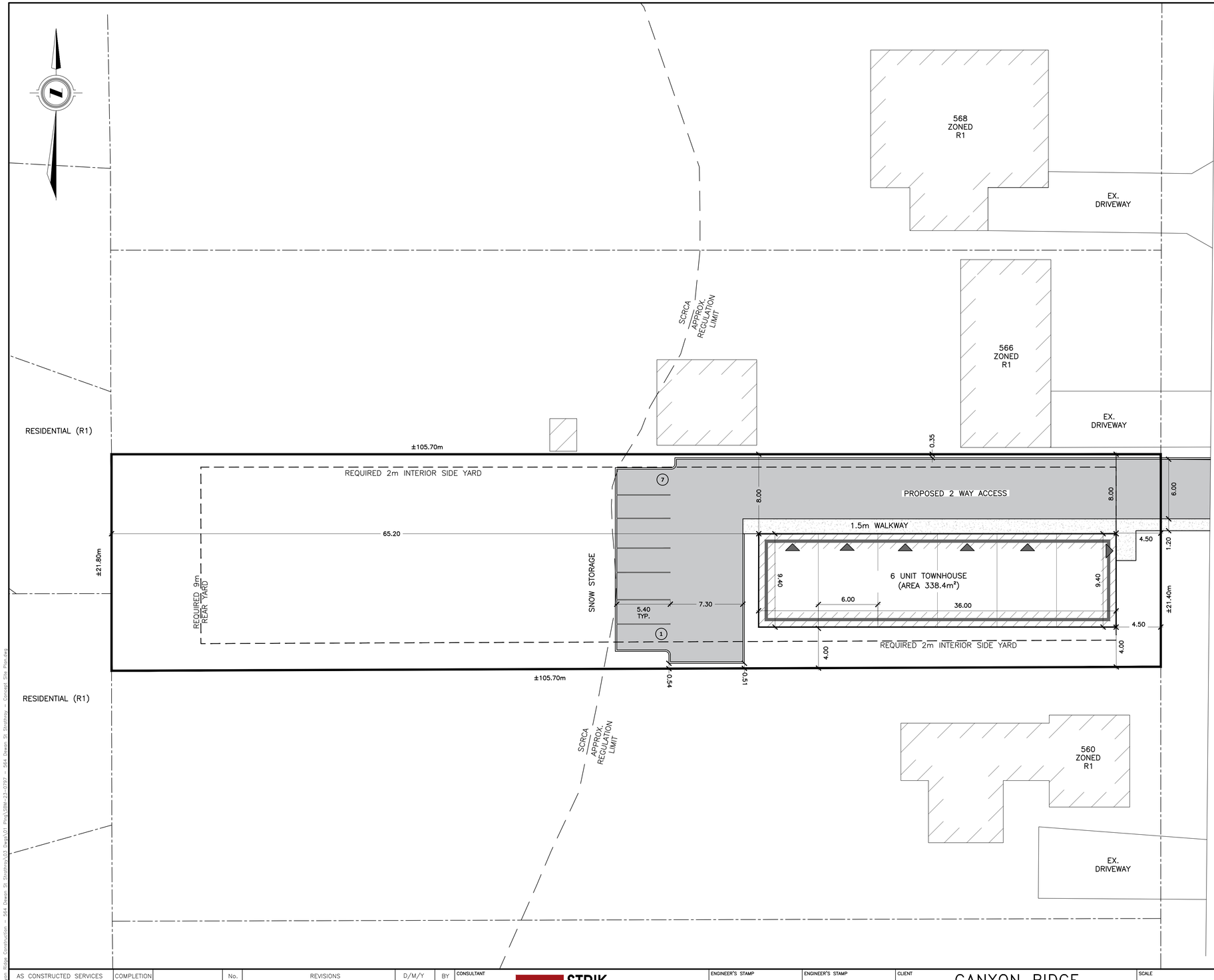
Respectfully submitted,

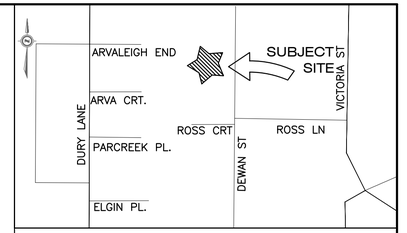
Strik, Baldinelli, Moniz Ltd.
Planning • Civil • Structural • Mechanical • Electrical

Murali Gnanasekar, P.Eng.
Civil Project Lead, Eng I

Tara Morton-Bernas
Civil Project Lead, Tech V

Encl: Concept Site Plan by SBM, dated 22 September 2023
Topographical Plan by AGM dated 15 January 2024
Municipality as-built drawing "Local Improvements on Dewan Street, Proposed extensions to Sanitary and Watermain"
Domestic Water Demand and Velocity Calculations
Hydrant Flow Test
Fire Flow Calculations
Sanitary Service Design Sheet
Runoff Coefficient Calculations





KEY PLAN

N.T.S.

LEGAL INFORMATION

PLAN 242
PT LOTS 27 & 27
REG. COMP PLAN 405 LOT 39
IN THE
MUNICIPALITY OF
STRATHROY- CARADOC
COUNTY OF MIDDLESEX

ZONING DATA CHART

GROSS SITE AREA: 2,283.1m² ASPHALT AREA: 825.4m²
BUILDING AREA: 338.4m² LANDSCAPED AREA: 1,119.3m²
PROPOSED UNIT COUNT 6

ITEM	R3 ZONE	REQUIRED	PROVIDED
1	MINIMUM LOT AREA (m^2 PER UNIT)	210.0	380.5
2	MINIMUM LOT FRONTAGE (m)	6.0 (PER UNIT)	21.4
3	FRONT YARD DEPTH (MIN m)	4.5	4.5
4	EXTERIOR SIDE YARD WIDTH (m MIN)	4.5	N/A
5	SIDE YARD WIDTH (MIN m)	2.0	4.0
6	REAR YARD DEPTH (MIN m)	9.0	65.2
7	MAXIMUM LOT COVERAGE (%)	45.0	14.8
8	MINIMUM LANDSCAPED OPEN SPACE (%)	30.0	49.0
9	MAXIMUM HEIGHT (m)	15.0	<15.0

*ZONING DEFIENCY

PARKING REQUIREMENTS

MINIMUM PARKING SPACE DIMENSIONS 2.6mX5.4m, B/F TYPE 'A' 3.4mX5.4m, TYPE 'B' 2.4mX5.4m

REQUIRED PARKING
DWELLING TOWNHOUSE: 1.5/UNIT 7 UNITS = 9 SPACES
VISITOR PARKING (>10 UNITS): 0/UNIT = 0 SPACES
TOTAL REQUIRED PARKING: = 9 SPACES

TOTAL PROVIDED PARKING = 7 SPACES*

B/F PARKING REQUIRED: 1-50 REQUIRED SPACES = 1 TYPE A & 1 TYPE B
B/F PARKING PROVIDED: = 0*

LEGEND:

- BUILDING ENTRANCE
- PROPOSED ASPHALT
- PROPOSED CONCRETE
- EXISTING BUILDING
- PROPOSED BUILDING
- LIMITS OF SUBJECT PROPERTY

REFERENCE DOCUMENTS:

1. MIDDLESEX COUNTY ONLINE MAPPING

PARCELS, BUILDINGS AND EXISTING INFORMATION ARE APPROXIMATE AND FOR REFERENCE ONLY.

CONCEPT IS PRELIMINARY AND HAS NOT BEEN REVIEWED BY THE CITY.

THE PLAN IS COMPILED AND SHOULD NOT BE CONSIDERED A PLAN OF SURVEY.

AS CONSTRUCTED SERVICES	COMPLETION

DESIGN	SC
DRAWN	SC
CHECKED	ND
APPROVED	ND
DATE	22/09/2023
CAD	23-0797

No.	REVISIONS	D/M/Y	BY
1	FOR CLIENT REVIEW	28/04/23	SC
2	FOR SPC SUBMISSION	05/05/23	JR
3	REVISED DESIGN FOR REVIEW	22/09/23	SC

CONSULTANT

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1599 Adelaide St. N, Unit 301, London, Ontario, N5X 4E8
Tel: (519) 471-6667 Fax: (519) 471-0034
Email: sbm@sbmltd.ca

ENGINEER'S STAMP

PRELIMINARY NOT FOR CONSTRUCTION

ENGINEER'S STAMP

CLIENT

CANYON RIDGE CONSTRUCTION LTD.
163 COMMISSIONERS ROAD WEST
LONDON, ON
N6J 1X9
E: KBARRY@THRIVEREALTYGROUP.CA

SCALE

SCALE - 1:200
2.0 0 4.0m

TITLE

CONCEPT SITE PLAN

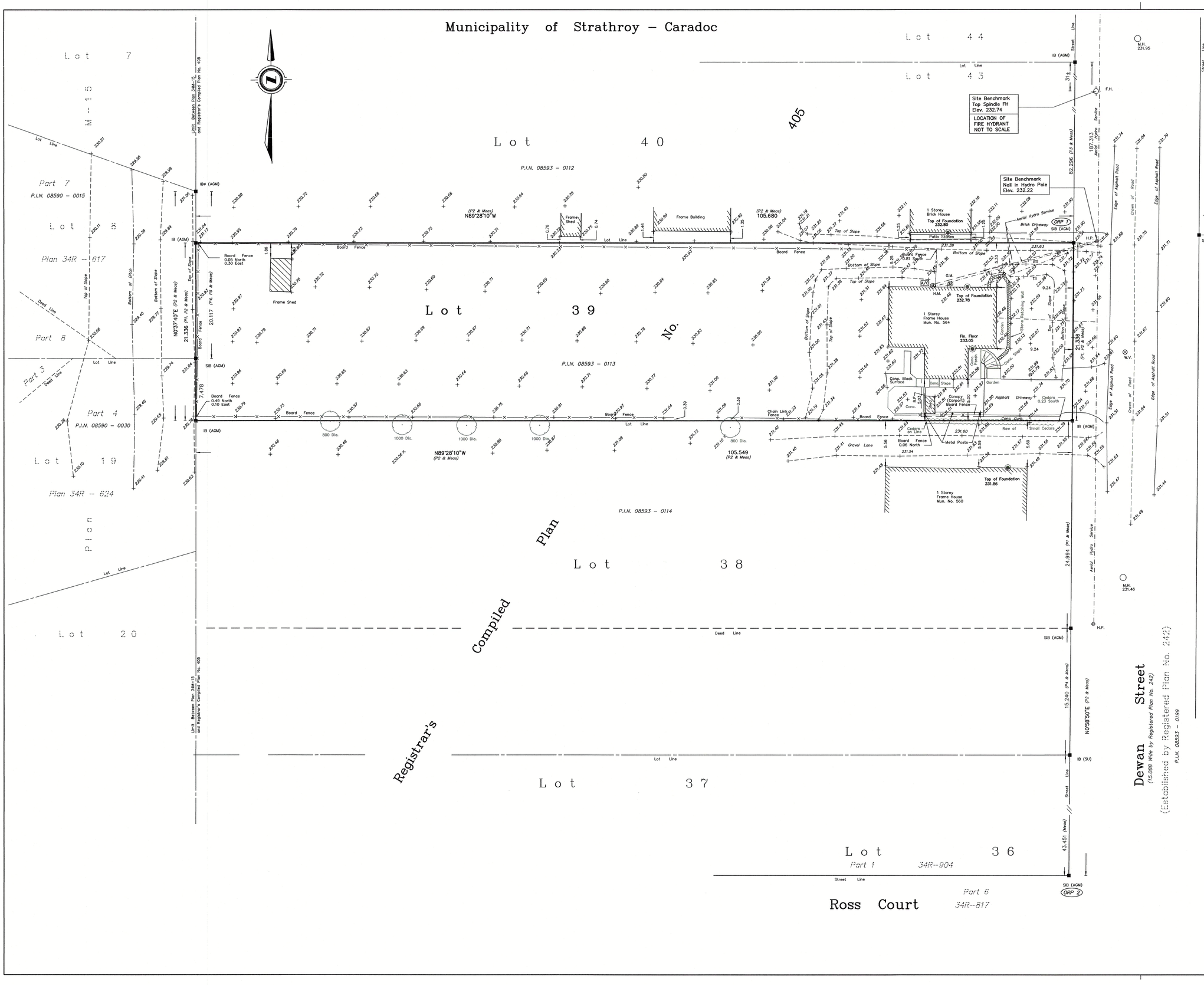
TOWNHOUSE CONCEPT
564 DEWAN STREET
STRATHROY, ON.

PROJECT No. SBM-23-0797

SHEET No. SP1

PLAN FILE No. -

S:\2023 Jobs\SBM-23-0797 Canyon Ridge Construction - 564 Dewan St Strathroy\A01 Plans\SBM-23-0797 - 564 Dewan St Strathroy - Revised City Plan.dwg



PLAN OF SURVEY WITH TOPOGRAPHICAL DETAIL

OF ALL OF

LOT 15
REGISTRAR'S COMPILED PLAN No. 405

(FORMERLY TOWN OF STRATHROY)

IN THE

MUNICIPALITY OF STRATHROY–CARADOC

COUNTY OF MIDDLESEX

SCALE 1:200

5 4 3 2 1 0 5 10

SCALE IN METRES

2024

ARCHIBALD, GRAY & McKAY LTD.
ONTARIO LAND SURVEYORS

SURVEYOR'S CERTIFICATE:

I CERTIFY THAT:

1) THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER THEM.

2) THE SURVEY WAS COMPLETED ON THE 7th DAY OF DECEMBER , 2023.

Jan 15, 2024

JASON WILBAND
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY IS RELATED TO AOLS PLAN SUBMISSION FORM NUMBER V69815

TOPOGRAPHIC LEGEND

FH	DENOTES FIRE HYDRANT
A/C	DENOTES AIR CONDITIONER
DIA	DENOTES DIAMETER IN mm
GM	DENOTES GAS METER
CONC.	DENOTES CONCRETE
HMR	DENOTES HYDRO METER
HP	DENOTES HYDRO POLE
MH	DENOTES MANHOLE
WV	DENOTES WATER VALVE
⟵	DENOTES POLE ANCHOR
○	DENOTES DECIDUOUS TREE
TS	DENOTES TOP OF SLOPE
BS	DENOTES BOTTOM OF SLOPE

LEGAL LEGEND

■	DENOTES MONUMENT FOUND
IBø	DENOTES ROUND IRON BAR
SIB	DENOTES STANDARD IRON BAR
IB	DENOTES IRON BAR
AGM	DENOTES ARCHIBALD, GRAY & McKAY LTD., O.L.S.'s
P1	DENOTES PLAN BY AGM DATED JULY 20, 1970 (FILE: STR–252, PLAN No. 0–970)
P2	DENOTES PLAN BY I. C. McLAREN, O.L.S., DATED JUNE 14, 1984 (FILE: 84–0699)
P3	DENOTES PLAN BY AGM DATED APRIL 4, 1966 (FILE: STR–252, PLAN No. X–18)
P4	DENOTES PLAN 34M–15
P5	DENOTES PLAN 34R–617
SU	DENOTES SOURCE UNKNOWN
BF	DENOTES BOARD FENCE

UTM GRID NOTES

BEARINGS ARE U.T.M. GRID NAD83 (CSRS) EPOCH(2010), DERIVED FROM G.N.S.S. OBSERVATIONS AND THE LEICA SMARTNET BASE STATION NETWORK AND ARE REFERRED TO THE CENTRAL MERIDIAN 81°00' WEST LONGITUDE, ZONE 17.

DISTANCES SHOWN ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9996020.

OBSERVED REFERENCE POINTS (ORPs) DERIVED FROM G.N.S.S. OBSERVATIONS USING REAL TIME NETWORK (RTN). U.T.M. ZONE 17, NAD83 (CSRS) EPOCH(2010). COORDINATES TO URBAN ACCURACY PER SEC. 14(2) OF O.REG. 216/10

POINT ID	NORTHING	EASTING
ORP 1	4757199.161	448339.635
ORP 2	4757094.194	448337.832

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

FOR BEARING COMPARISONS, A ROTATION OF 00°40'40" CLOCKWISE WAS APPLIED TO BEARINGS ON P2.

BENCHMARK

ELEVATIONS ARE GEODETIC CGVD28(HTV2.0), DERIVED FROM G.P.S. OBSERVATIONS AND THE LEICA GPS SMARTNET NETWORK.

SITE BENCHMARKS

AS INDICATED ON THE FACE OF THIS PLAN.

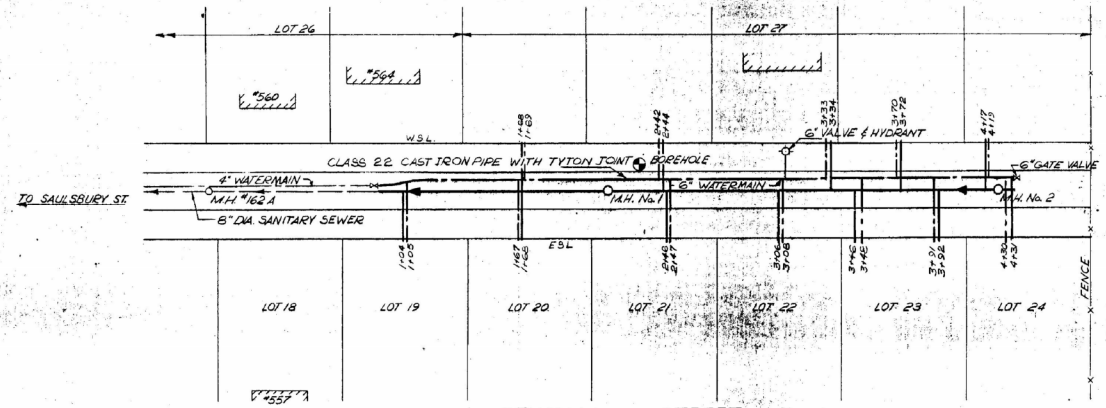
METRIC:

- DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

AGM PLAN • SURVEY • ENGINEER

ARCHIBALD, GRAY & McKAY LTD.
3514 WHITE OAK ROAD, LONDON, ON, N6E 2Z9
PHONE 519-685-5300 FAX 519-685-5303
EMAIL info@agm.on.ca WEB www.agm.on.ca

DRAWN BY: JGH	DIGITAL FILE: SR2401TP1MS.dwg	PLAN No: 8-L-6233
CHECKED BY: RMM		
Plot date:	FILE No: STR–252–5	

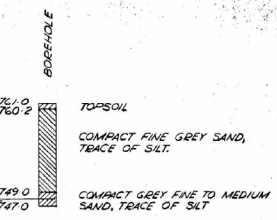


DEWAN STREET

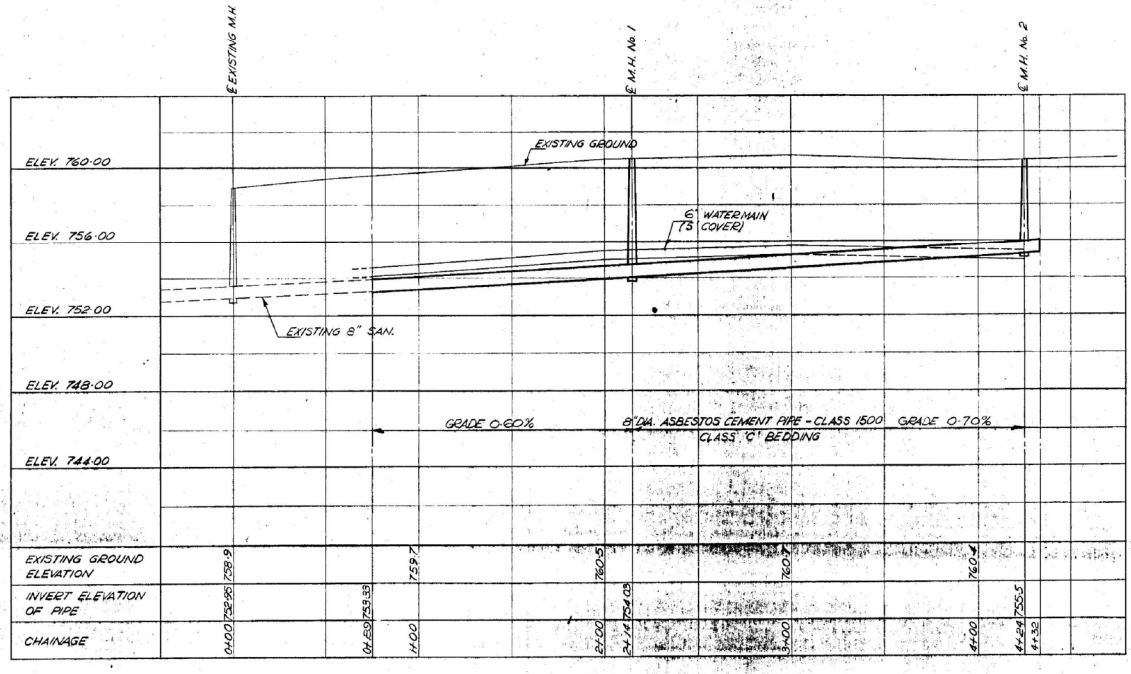
PLAN

SCALE 1"= 40'-0"

NOTE: PROPOSED 6" WATERMAIN TO HAVE 5' OF COVER

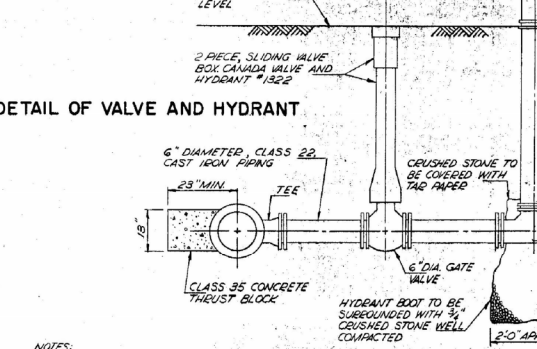


WATER LEVEL IN BOREHOLE AT ELEV. 748.0 JULY 22, 1968



PROFILE

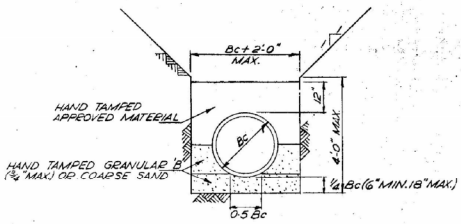
SCALE: HOR. 1"=40'-0"
VERT. 1/4"=1'-0"



DETAIL OF VALVE AND HYDRANT

NOTES:

1. ALL ASBESTOS CEMENT PIPE TO COMPLY WITH A.S.T.M. DESIGNATION C-428.
2. ALL CONCRETE TO COMPLY WITH C.S.A. CODE, A23-1960.
3. MANHOLES TO BE CONSTRUCTED IN PRE-CAST CONCRETE MANHOLE SECTIONS COMPLYING WITH A.S.T.M. DESIGNATION C-478.
4. BRICKWORK TO COMPLY WITH A.S.T.M. DESIGNATION C-32 S.A.
5. MANHOLE FRAMES & COVERS TO BE CANADA IRON FOUNDRIES LTD. FIG. DS-579 OR APPROVED EQUAL.
6. PRIVATE DRAIN CONNECTIONS TO BE 4" DIA. ASBESTOS CEMENT CLASS 1500 PIPE
7. TOWN OF STRATHROY BENCH MARK-TOP OF COVER MANHOLE #162A 758.90



CLASS 'C' BEDDING

NOT TO SCALE

REVISED "AS CONSTRUCTED" FEB 3/69

TOWN OF STRATHROY

LOCAL IMPROVEMENTS ON DEWAN STREET

PROPOSED EXTENSION SANITARY SEWER AND WAT

for JAMES F MacLAREN LIMITED
CONSULTING ENGINEERS
TORONTO LONDON

SCALE: AS SHOWN | DATE: MAY, 1968 | DW

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Kitchener, ON N2G 1V9
P: 519-725-8093

www.sbmltd.ca

sbm@sbmltd.ca

DOMESTIC WATER DEMAND AND VELOCITY CALCULATION

	For data entry
	Calculated, not for data entry

DATE:	February 6, 2024
JOB No.:	**SBM-23-0797**

Client:	**Canyon Ridge Construction**
Project:	**Proposed Townhouse Development**
Location:	**564 Dewan St Strathroy, Ontario**

DEMAND CALCULATION

Avg. Day Demand =	250	L/day/cap
Avg. Day Demand =	0.002893519	L/s/cap
Max. Day Peaking Factor =	3.5	
Max. Hour Peaking Factor =	7.8	
Medium Density Residential =	2.4	p/unit

	Units	Population	Avg. Day (L/s)	Max. Hour (L/s)	Max. Day (L/s)
Medium Density Residential	6	15	0.04	0.34	0.15
Total			**0.04**	**0.34**	**0.15**

*Refer to Municipality of Strathroy-Caradoc Servicing Standards (MSCSS), dated October 2021

VELOCITY CALCULATION

Diameter (mm)	Demand (L/s)	Velocity (m/s)
50	0.34	0.172
100	0.34	0.043
125	0.34	0.028

NORTHERN SPRINKLER DESIGN

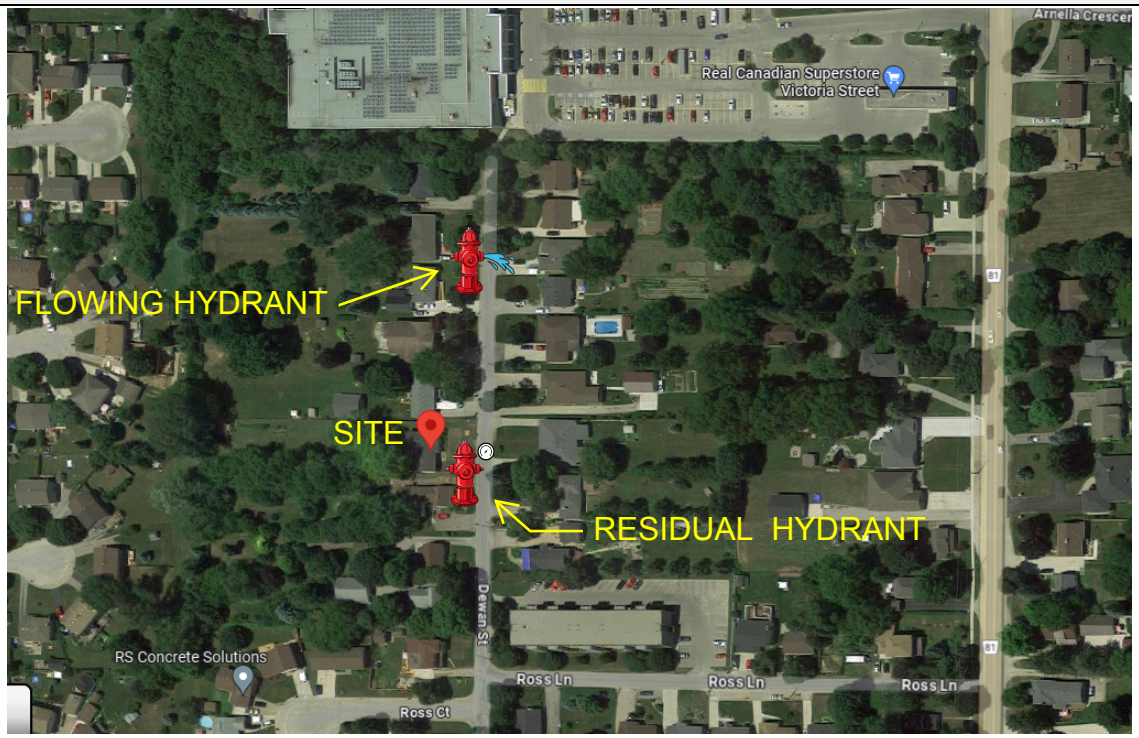
FLOW TEST REPORT

Form SD-003A RevDate: Dec 01, 2021

PROJECT INFORMATION			
Project Name:	564 Dewan St. Flow Test	Design Project #:	2023-NSD-132
Site Address:	564 Dewan St. Flow Test Strathroy ON	Const. Project #:	NA
City Contact:	Lori Vander Tuin	Phone #:	519-245-1105 x270
Flow Tester:	**Andy Coghlin**	Phone #:	**519-476-0761**
Technical Contact:		Phone #:	

SITE INFORMATION

SITE MAP



Note: If the main is a dead end, the flowing hydrant shall be closest to the dead end

ITEMS TO LABEL ON MAP	HYDRANTS USED	MAIN SIZE
☑ Static / Residual & Flow Hydrants	☑ City Hydrant(s)	City:
☐ Flow Direction (if the main is dead end)	☐ Site Hydrant(s)	Site:

SITE NOTES

445 Colborne St. London, ON N6B 2T2 northernsprinklerdesign.com 1-866-798-1154

NORTHERN SPRINKLER DESIGN

FLOW TEST REPORT

Form SD-003A RevDate: Dec 01, 2021

TEST INFORMATION			
Minimum Required Flow:	NA	Min Ports:	2
Personnel Present:	Andy Coghlin	Test Date:	2023-12-15
City / External Company:	Town of Strathroy	Test Time:	11:00am

TEST EQUIPMENT	
☐ Hose Monsters with built in Pitot	Hose length used:
☐ Hand held pitot gauge	☑ Pollard diffuser elbow with built in Pitot
☐ Other:	

TEST RESULTS

Number of Ports	Outlet Size (IN)	Discharge Coefficient	Pitot Reading (PSI)	Total Flow (GPM)	Static / Residual Pressure (PSI)
0 Ports					58
1 Port	2.5	0.9	34	979	55
2 Ports	2.5	0.9	14 / 14	1,256	54
3 Ports	2.5	0.9		0	
4 Ports	2.5	0.9		0	
0 Ports	**STATIC RE-CHECK**				58

TEST NOTES

HYDRAULIC ADJUSTMENTS (FOR OFFICE USE ONLY)

ADJUSTMENTS FOR HYDRAULIC GRADE LINE (HGL)

Reservoir HGL (m):		Site Elevation (m):	
Theoretical Static Head (PSI):	0	PSI to subtract from test pressures:	0

OTHER HYDRAULIC ADJUSTMENTS

Other adjustment as required by the City / AHJ:	

445 Colborne St. London, ON N6B 2T2 northernsprinklerdesign.com 1-866-798-1154

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KITCHENER LOCATION
132 Queen St. S. Unit 4
Kitchener, ON N2G 1V9
P: 519-725-8093

www.sbmltd.ca

sbm@sbmltd.ca

Fire-Fighting Flow (OBC A-3.2.5.7.) Calculations

	For data entry
	Calculated, not for data entry

DATE:	February 6, 2024
JOB N0.:	**SBM-23-0797**

Client:	**Canyon Ridge Construction**
Project:	**Proposed Townhouse Development**
Location:	**564 Dewan St Strathroy, Ontario**

$Q=K*V*S_{Tot}$

Building Classification (3.1.2.1):	C
Type of Construction:	Combustible
K (Table 1):	**23**
Building Area, m^2:	338.40
Building Height, m:	6.00
Building Volume, m^3:	**2030.40**

$S_{Tot} = 1.0 + (S_{side1} + S_{side2} + S_{side3} + S_{side4})$

S_{side1} (Figure 1) =	0.14	(North)
S_{side2} (Figure 1) =	0.00	(East)
S_{side3} (Figure 1) =	0.11	(South)
S_{side4} (Figure 1) =	0.00	(West)
S_{Tot} =	1.3	
S_{Tot} < or = 2, therefore S_{Tot} =	**1.3**	
Q, L =	**58374**	

Required Supply Flow Rate, L/min (Table 2) =	2700
***Site Domestic Water Demand, L/min (Max. Day) =**	216.0
Total Required Flow Rate, L/min =	**2916.0**

* Refer to Domestic Water Demand Calculation

From Hydrant Flow Test at the corner of Caradoc St. and Carroll St. received July 24, 2017

Provided Supply Flow Rate @	**58.00**	*psi (399.9 kPa)	@	**0.00**	L/min (0 USGPM)
	55.00	*psi (379.21 kPa)	@	**3705.90**	L/min (979 USGPM)
	54.00	*psi (372.32 kPa)		**4754.48**	L/min (1256 USGPM)
Residual pressure at hydrant =	**56.38**	*psi (388.73 kPa)	@	**2916.00**	L/min (770 USGPM)**

Therefore, water supply pressure under maximum day domestic demand + fire flow is 56.38 psi (388.73 kPa). This is greater than 20 psi (minimum pressure) and less than 100 psi (maximum pressure) indicated in Section 4.3.2 of the Municipality of Strathroy-Caradoc Servicing Standards (MSCSS), dated October 2021.

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Sanitary Service Design Sheet

For data entry
Calculated, not for data entry

Residential Population Densities

(A) Area Basis

Low Density Residential (Single Family/Semi-Detached) - Zone Category R1 = 30 Units/hectare @ 2.4 people/unit
Medium Density Residential (Multi-Family/Townhouse) - Zone Category R2 =75 Units/hectare @ 2.4 people/unit
High Density Residential (Apartment Buildings) - Zone Category R3 =150-300 Units/hectare @ 1.6 people/unit

Design Parameters

Daily Flow (L/cap/day) = 300
Sewage Infiltration (Litres/hectare/day) = 6740
Harmon Formula (Peaking Factor)
M = (1 + 14/(4+P^0.5))
Uncertainty Factor 1.1

Date: February 6, 2024
Job Number: SBM-23-0797
Client: Canyon Ridge Construction
Project: Proposed Townhouse Development
Location: 564 Dewan St Strathroy, Ontario

Designed By: TMB
Reviewed By: MG

Location			Area		Population					Sewage Flows				Sewer design					
Area No.	From MH	To MH	Delta Hectare	Total Hectare	No. of Units/Lots	People Per Unit/Lots	People Per Hectare	Delta Pop.	Total Pop.	Harmon Peaking Factor (M)	Infilt L/S	Sewage L/S	Total L/S	n	Pipe Slope %	Dia. mm	Capacity L/S	Percentage Full %	Velocity m/s
564 Dewan St Strathroy	Site	Ex. Sewer	0.228	0.228	6.0	2.4		15	15	4.40	0.02	0.25	0.27	0.013	2.00%	125	13.25	2.04	1.08

Design Parameters obtained from the Municipality of Strathroy-Caradoc Servicing Standards Section 2.3 and 2.8 dated October 2021
Downstream conditions based on Municipality of Strathroy-Caradoc as-constructed drawings - “Local Improvements on Dewan Street, Proposed extensions to Sanitary and Watermain”, prepared by James F. MacLaren Limited and marked “as-constructed” on 3 February 1969

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Runoff Coefficient Calculations

	For data entry
	Calculated, not for data entry

DATE:	February 6, 2024
JOB No.:	SBM-23-0797

Client:	**Canyon Ridge Construction**
Project:	**Proposed Townhouse Development**
Location:	**564 Dewan St Strathroy, Ontario**

PRE-DEVELOPMENT CONDITIONS*

	Area (m^2)	C	A*C
Total Area:	2283.1		
Building Area:	126.7	0.9	113.99
Concrete/Asphalt:	112.0	0.9	100.78
Gravel:	0.0	0.7	0.00
Landscaped/Open:	2044.5	0.2	408.89
Totals:	2283.1		623.67

$C_{eq} = \Sigma(A*C)/\Sigma(A) =$ **0.27**

*Pre-development conditions obtained Topographical Plan by AGM dated 15 January 2024

POST-DEVELOPMENT CONDITIONS**

	Area (m^2)	C	A*C
Total Area:	2283.1		
Building Area:	338.4	0.9	304.56
Concrete/Asphalt:	825.4	0.9	742.86
Gravel:	0.0	0.7	0.00
Landscaped/Open:	1119.3	0.2	223.86
Totals:	2283.1		1271.28

$C_{eq} = \Sigma(A*C)/\Sigma(A) =$ **0.56**

**Post development conditions obtained from the Concept Site Plan prepared by SBM, dated 22 September 2023.

Since the post-development C-value is greater than the pre-development C-value, stormwater management (SWM) quantity controls will be required and will be designed during detailed design phase.