



C.C. Tatham & Associates Ltd.
Consulting Engineers

CAMPERDOWN CONDOMINIUMS

Town of The Blue Mountains

Preliminary Functional Servicing Report

prepared by:

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prepared for

2220740 Ontario Inc. c/o Romspen Investment Corp.

April 27, 2018
Revised: June 2018

CCTA File 117304

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DRAFT-1:	Conceptual Draft Plan of Subdivision
SS-1:	Site Servicing Plan
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1 Introduction

C.C. Tatham & Associates Ltd. has been retained by 222074 Ontario Inc. to provide engineering services in support of a proposed residential development located on Old Lakeshore Road and Camperdown Road in the Town of The Blue Mountains. Specifically, this report has been prepared to demonstrate the preferred site servicing strategy and provide information relating to stormwater management, municipal sanitary sewage disposal and potable water requirements for the proposed development.

1.1 Site Description

The 6.61 ha site is located on Old Lakeshore Road within the Craigleith Camperdown sub-watershed study area in the Town of The Blue Mountains. Currently, the site is zoned Residential Hold (R3-H), Public Open Space (OS1) and Hazard (H) in accordance with Town By-law 2006-22. It is legally described as Part Lot 26 Concession 6 in the former Collingwood Township. A portion of the proposed development resides within the Nipissing Ridge geological region of the Georgian Bay Peninsula. We have enclosed a Site Location Plan (Fig.1) for your reference.

1.2 Geotechnical Investigation & Reports

A geotechnical study of the site has not been completed at the time of this report. It is our understanding that it will be commissioned in the near future.

Based on the Soil Survey of Grey County Map No. 17 (North), the on-site soils are Tecumseth Sand Loam (TS), Waterloo Sand Loam (Wsl) and Dunedin Clay (Duc). The soil material is characterized as poorly sorted outwash sand and clay. Tecumseth Sand Loam, Waterloo Sand Loam and Dunedin Clay have hydrologic soil group classifications of 'AB', 'A' and 'D' respectively. Soils of this nature are categorized as having 'good to imperfect' drainage which results in moderate infiltration.

Peto MacCallum Ltd. has completed five test pit investigations on site to review the existing soil conditions in June of 2004. The report suggests that a uniform layer of topsoil (0.10 m depth) generally covers the site with underlying subsurface soil material consisting of native silty-clay overlaying weathered bedrock at a depth of between 0.8 m to 2.0 m. Further geotechnical investigations will be required prior to completion of the final design.

1.3 Existing Land Use

The site is located at the base of the Nipissing Ridge formation on a flat plateau containing forested and open space areas with the land sloping from southwest to northeast between 2% and 5%.

1.4 Proposed Land Use

The current site plan prepared by Innovative Planning Solutions (IPS) illustrates the proposed development consisting of 34 residential units, a 10-metre condominium road allowance, open space (non-developable land), a walking trail and a stormwater management block.



**GREY COUNTY
TOWN OF THE
BLUE MOUNTAINS**



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Collingwood Bracebridge Orillia Barrie Ottawa

**CAMPERDOWN
CONDOMINIUMS
SITE LOCATION PLAN**

DWG. No.

FIG. 1

SCALE: NTS

DATE: MARCH 2018

JOB NO. 117304

2 Sanitary Sewage System

The primary access to the development site fronts Old Lakeshore Road within the Camperdown Service Area. Old Lakeshore Road is not serviced with a sanitary sewer main, however, it connects to Camperdown Road which is fully serviced. Upon review of the 'As-Constructed' drawings for Camperdown Sewer Service project prepared by Drexler Construction and Skelton Brumwell & Associates Inc., the sanitary sewer on Camperdown Road is a 200 mm dia. PVC sewer installed at 0.75%.

2.1 Camperdown Servicing Area Existing Sanitary Sewer Infrastructure

The 200 mm dia. sanitary sewer installed on Camperdown Road connects to a 375 mm dia. gravity sewer along Highway 26 and flows east to the Delphi pumping station on the north side of Highway 26, approximately 1.34 km east of Camperdown Road.

From the Delphi pumping station, the sewage is pumped south across Highway 26 and west through a 200 mm dia. PVC forcemain. The forcemain outlets into a sanitary maintenance structure located within the intersection of Highway 26 and Grey Road 40 approximately 0.91 km west of Camperdown Road. From this maintenance structure, the sewage continues to flow west through a 375 mm dia. PVC and 450 mm dia. gravity sewer to the Lakeshore Road pumping station approximately 2.78 km west of Camperdown Road.

In 2002, the Town of The Blue Mountains completed a Comprehensive Environmental Study Report for the Lora Bay, Clarksburg, Thornbury and Camperdown Service areas. This report recommended that the Town undertake upgrades to the Thornbury Wastewater Treatment Plant (WWTP) to accommodate the additional anticipated development of the study areas noted above.

To-date, it is our understanding the required upgrades to the WWTP have been completed, and sanitary infrastructure has been constructed within the Highway 26 corridor to service the Camperdown Service Area. It is understood that the installed infrastructure has the capacity to support the proposed 34-unit development within the Camperdown Service Area.

2.2 Proposed Sanitary Sewer System

The 200 mm dia. sanitary sewer servicing for the proposed development will be installed on Old Lakeshore Road to a sanitary maintenance structure installed at the west intersection of Old Lakeshore Road and Condo Road 'A'. This stretch of sanitary sewer has been designed to convey the sanitary flows for future development along Old Lakeshore Road (see the Special Policy Area as per the Town of the Blue Mountains Official Plan Schedule 'A-3' Camperdown, attached) as shown on the Sanitary Catchment Plan (SAN-1). Gravity conveyance of the development areas east of the site is impractical due to the lower elevation along Old Lakeshore Road. A pumping solution or alternative outlet should

be investigated when those lots are developed. The Special Policy Area continues north of Highway 26 and terminates at Georgian Bay. This section of land is described as Part Lot 26, Concession 6 – Blue Mountain Beach by the Town of the Blue Mountains Official Plan (June 2016) – Section B3.8.6.1. It may only be used for a private recreational beach club and associated uses that may include small scale accessory eating facilities, gift shop, service and maintenance facilities. Sanitary flows from Blue Mountain Beach should be conveyed to the existing sanitary sewer along Highway 26.

The 200 mm dia. sanitary sewer system internal to the development has been preliminarily designed to maintain the Peak Flow velocity of 0.6 m/s in accordance with Town Standards to allow for self-flushing of the system and will be reviewed and finalized during final design. Lots 18 – 23 will be serviced by a forcemain complete with private grinder pumps which will then gravity flow via the proposed 200 mm dia. sanitary sewer to Old Lakeshore Road.

We have calculated the allowable sanitary sewage flow from the external development areas based on the allowable developable area for each property provided by the Town's planning department. We obtained the allowable unit densities from the Town of The Blue Mountains Official Plan for Residential/Recreation development areas (Section B3.7) with a maximum density per gross hectare of 10 units. The Sanitary Catchment Area Plan (SAN-1) is enclosed at the back of the report for reference.

The total sanitary sewage flow for the development (including the future external developments) directed to the existing sewer on Camperdown Road is anticipated to be 9.68 L/s. We have included the Sanitary Sewer Design Sheet in Appendix A for reference.

3 Potable Water Requirements

A 200 mm dia. water main exists to service the properties along Old Lakeshore Road. It is anticipated that there is adequate capacity to service the proposed 34 residential units.

In accordance with Town of The Blue Mountains standards, we have calculated the maximum daily design flow for the 34 units to be 5.80 L/s and the peak hour demand to be 8.75 L/s, excluding fire flow.

The requirements for fire flow have been calculated based on the Fire Underwriters Survey of Canada (1999) in accordance with Town Standards. For this calculation, we have assumed the average house will be 2,700 ft² or 250 m². For the proposed 34-unit development, it is anticipated that the Maximum Daily Flow plus Fire Flow will be 92.91 L/s.

The development will be serviced by a 200 mm dia. water main loop internal to the site. Upon completion and testing of the water main (including curb stop valves and hydrants) internal to the site, the Town of The Blue Mountains will ultimately assume the system and complete future maintenance should it be required.

The 200 mm dia. water main will have sufficient capacity to provide potable water to the development including fire flow requirements in accordance with the Fire Underwriters insurance criteria. We have enclosed a copy of the water demand calculations in Appendix A and a copy of the Site Servicing Plan (SS-1) enclosed at the rear of this report for reference.

4 Stormwater Management

A *Preliminary Stormwater Management Report (March 2018)* that reviews the existing and proposed stormwater conditions for the development has been completed by CCTA under separate cover and should be read in conjunction with this report.

4.1 Stormwater Management Criteria

The Stormwater Management (SWM) Report demonstrates the development complies with the following design criteria:

- the SWM plan safely conveys the Regional Storm event to an existing intermittent watercourse;
- the SWM plan achieves Level 1 “Enhanced” stormwater runoff treatment including 80% removal of Total Suspended Solids (TSS) through the use of lot level controls and a SWM facility; and
- the SWM plan achieves post to pre-development peak flow rate matching through the use of minor and major systems culminating in an end-of-pipe stormwater management facility.

4.2 Siltation and Erosion Controls

Siltation and erosion controls will be implemented for all construction activities; including vegetation clearing, topsoil stripping, material stockpiling, road construction activities and grading operations. The detailed sediment and erosion control measures proposed will be implemented during and after construction and will be provided during final design. Sediment and erosion controls may include the following:

- Heavy duty silt fence erected around the perimeter of the site prior to any grading operations to control sediment movement;
- A construction vehicle entrance will be constructed and maintained consisting of a stone mud mat to reduce off-site tracking of material; and
- Rock check flow dams and straw bale check flow dams will be installed prior to construction and will be maintained and inspected throughout the course of construction as required to prevent transportation of sediment and deleterious materials offsite.

5 Transportation

A Traffic Impact Study is being completed by C.C. Tatham & Associates Ltd. and will be submitted under separate cover.

6 Utility Network

It has been acknowledged that the following utility regulators have services in the immediate area:

- Bell Canada;
- Union Gas;
- Hydro One; and
- Rogers Cable.

Each of these companies will be contacted in advance of the final design to ensure that sufficient capacity exists within the current installations to support the proposed development.

7 Conclusions & Recommendations

The proposed Functional Servicing Report demonstrates the development will meet the established criteria with respect to general servicing and stormwater management and can proceed without negatively impacting the existing infrastructure and the local drainage system. Water quality control in the form of 80% TSS removal and water quantity control in the form of post to pre-development peak runoff flow rate matching will be satisfied utilizing a stormwater management facility in accordance with the MOECC Guidelines. Sediment and erosion control measures will be implemented during and after construction to prevent transport of deleterious materials downstream.

In conclusion, the proposed Functional Servicing Report supports the concept of an environmentally sustainable development and will mitigate stormwater impacts associated with the construction of the proposed development.



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Intern Engineer



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Senior Engineer, Project Manager

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



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APPENDIX A: SUPPORTING INFORMATION

The Blue Mountains Official Plan Schedule 'A-3' Camperdown

Designations

- | | | | |
|---|---------------------------------------|---|-------------------------------|
|  | Niagara Escarpment Plan Boundary |  | Major Open Space |
|  | Special Study Area Subject to B3.13.5 |  | Recreational Commercial Area |
|  | Agricultural |  | Recreational Ski |
|  | Escarpment |  | Residential Recreational Area |
|  | Future Secondary Plan Area |  | Rural |
|  | Hazard |  | Special Agricultural |
|  | Institutional Area | | |

0 250 500 750 1,000 Metres



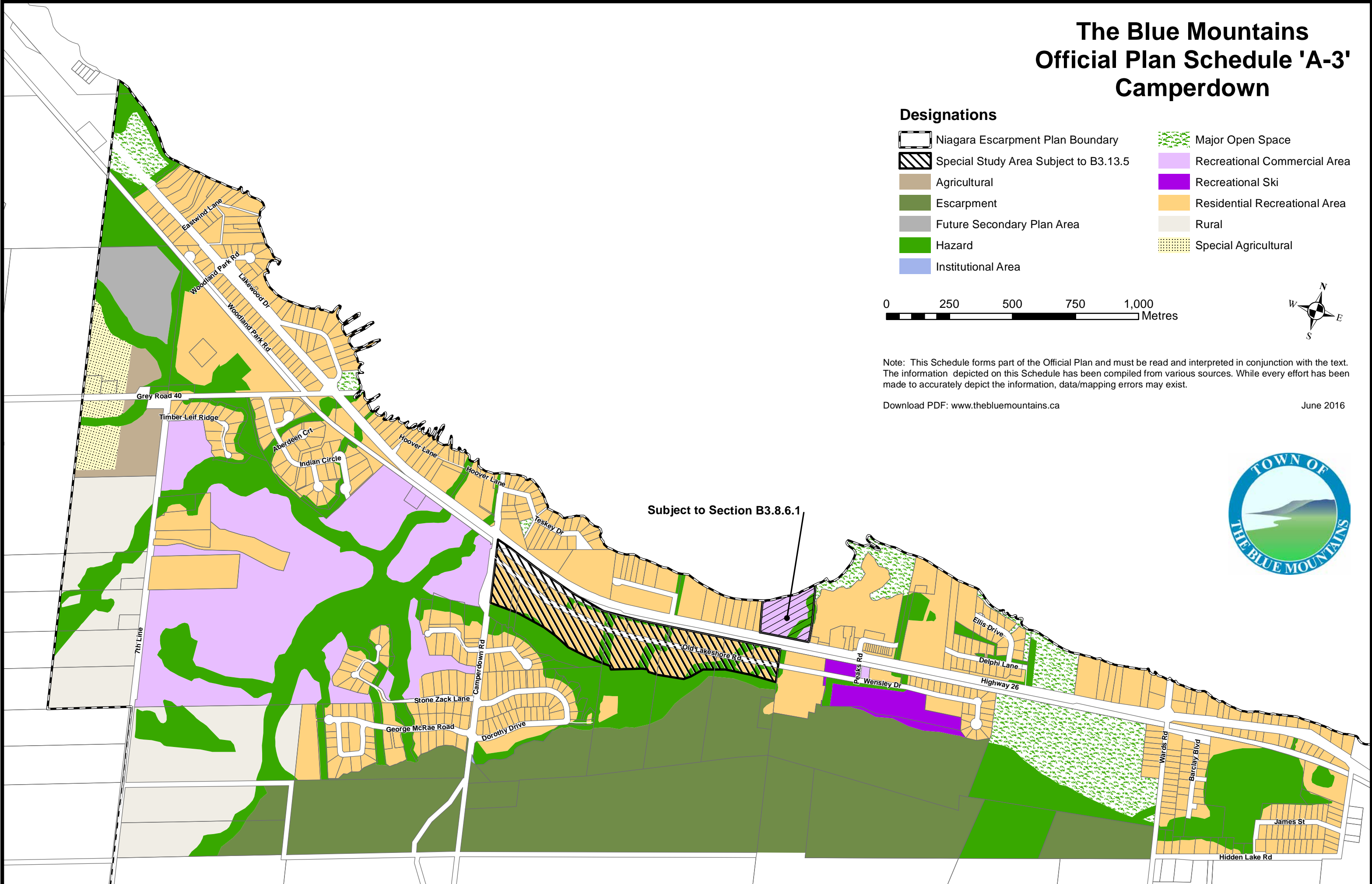
Note: This Schedule forms part of the Official Plan and must be read and interpreted in conjunction with the text. The information depicted on this Schedule has been compiled from various sources. While every effort has been made to accurately depict the information, data/mapping errors may exist.

Download PDF: www.thebluemountains.ca

June 2016



Subject to Section B3.8.6.1



SANITARY SEWER DESIGN SHEET

Approved:



C.C. Tatham & Associates Ltd.
Consulting Engineers

Collingwood Bracebridge Orillia Barrie

FLOW CRITERIA

Average Flow Rate: 450 l/cap/d
Infiltration Rate: 0.23 l/s/ha
Population: 2.3 cap/unit

Peaking Factor: (Harmon)

Project Name: Camperdown Condominiums
Project Number: 117304
Municipality: Town of Blue Mountains
Designed By: AS
Date: March 2018
Checked By: RS
Date: March 2018
Revised By: AS
Date: June 2018

LOCATION OF SECTION	AREA LABEL	UPSTREAM MAINTENANCE HOLE	DOWNSTREAM MAINTENANCE HOLE	NO. UNITS	POPULATION	ACCUMULATED POPULATION	PEAKING FACTOR	AREA	ACCUMULATED AREA	AVERAGE FLOW			PEAK FLOW			LENGTH OF PIPE	PIPE DIAMETER	PROPOSED FLOW			
										RESIDENTIAL	INFILTRATION	TOTAL	RESIDENTIAL	INFILTRATION	TOTAL			GRADE	FULL FLOW CAPACITY	FULL FLOW VELOCITY	PEAK FLOW VELOCITY (ZERO INFILTRATION)
		MH No.	MH No.	No.	cap.	cap.		ha	ha	l/s	l/s	l/s	l/s	l/s	l/s	m	mm	%	l/s	m/s	m/s
External Catchment Area 'A'	'A'	-	SAN MH13	68	156.4	156.4	4.19	9.40	9.40	0.81	2.16	2.98	3.41	2.16	5.57	0.00	200	1.00%	32.80	1.04	0.65
Condo Road 'A'	110	SAN MH1	SAN MH2	7	16.1	16.1	4.39	0.70	0.70	0.08	0.16	0.24	0.37	0.16	0.53	15.60	200	1.00%	32.80	1.04	0.36
Condo Road 'A'	113	SAN MH2	SAN MH3	11	25.3	41.4	4.33	1.22	1.92	0.22	0.44	0.66	0.93	0.44	1.38	20.70	200	1.00%	32.80	1.04	0.46
Condo Road 'A'		SAN MH3	SAN MH4	0	0.0	41.4	4.33	0.00	1.92	0.22	0.44	0.66	0.93	0.44	1.38	100.00	200	1.00%	32.80	1.04	0.46
Condo Road 'A'	114	SAN MH4	SAN MH5	8	18.4	59.8	4.30	0.95	2.87	0.31	0.66	0.97	1.34	0.66	2.00	95.60	200	1.00%	32.80	1.04	0.51
Condo Road 'A'	115	SAN MH5	SAN MH6	7	16.1	75.9	4.27	0.68	3.55	0.40	0.82	1.21	1.69	0.82	2.51	72.60	200	0.80%	29.33	0.93	0.50
Condo Road 'A'	116	SAN MH6	SAN MH7	2	4.6	80.5	4.27	0.27	3.82	0.42	0.88	1.30	1.79	0.88	2.67	30.90	200	0.60%	25.40	0.81	0.45
Condo Road 'A'		SAN MH7	SAN MH13	0	0.0	80.5	4.27	0.00	3.82	0.42	0.88	1.30	1.79	0.88	2.67	25.00	200	0.51%	23.42	0.75	0.43
External Catchment Area	120a	SAN MH13	SAN MH14	3	6.9	243.8	4.12	0.43	13.7	1.27	3.14	4.41	5.23	3.14	8.37	68.00	200	0.51%	23.42	0.75	0.57
External Catchment Area 'B'	'B'	SAN MH14	SAN MH15	17	39.1	282.9	4.09	2.22	15.9	1.47	3.65	5.12	6.03	3.65	9.68	70.00	200	0.51%	23.42	0.75	0.59
External Catchment Area		SAN MH15	EX.SAN MH3	0	0.0	282.9	4.09	0.00	15.9	1.47	3.65	5.12	6.03	3.65	9.68	72.00	200	0.51%	23.42	0.75	0.59

Notes:

1. Refer to SANITARY PLAN SAN-1 prepared by C.C. Tatham and Associates.



C.C. Tatham & Associates Ltd.
Consulting Engineers

Collingwood Bracebridge Orillia Barrie

Project: Camperdown Condominiums

Date: March 2018

File No.: 117304

Designed: AS

Subject: Water Supply Calculation

Checked:

Fire Underwriters Survey of The Insurance Bureau of Canada
Potable Water Supply & Fire Flow Calculations

Design Criteria:

Population Density	=	2.30	ppl/unit	Town Standards (Section 4.4)
Average Daily per cap. Flow	=	450	L/cap./d	MOECC, 2008
Maximum Day Factor	=	7.12		Table 3-3, MOECC, 2008
Peak Hour Factor	=	10.74		Table 3-3, MOECC, 2008

Residential Development:

Number of Units	=	34	
Equivalent Population	=	78.20	ppl
Average Daily Demand	=	35.19	cu.m/day

Fire Flow Calculations - Fire Underwrites Survey of the Insurance Bureau of Canada (1999)

Construction Coefficient (C)	=	1.50	(Wood Framed Construction)
Average Dwelling Area (A)(sq.m)	=	250.83	(Typical construction of 2700.00 sq.ft)
Required Fire Flow (F)(L/mir	=	5226.41	
Required Fire Flow (L/s)	=	87.1	

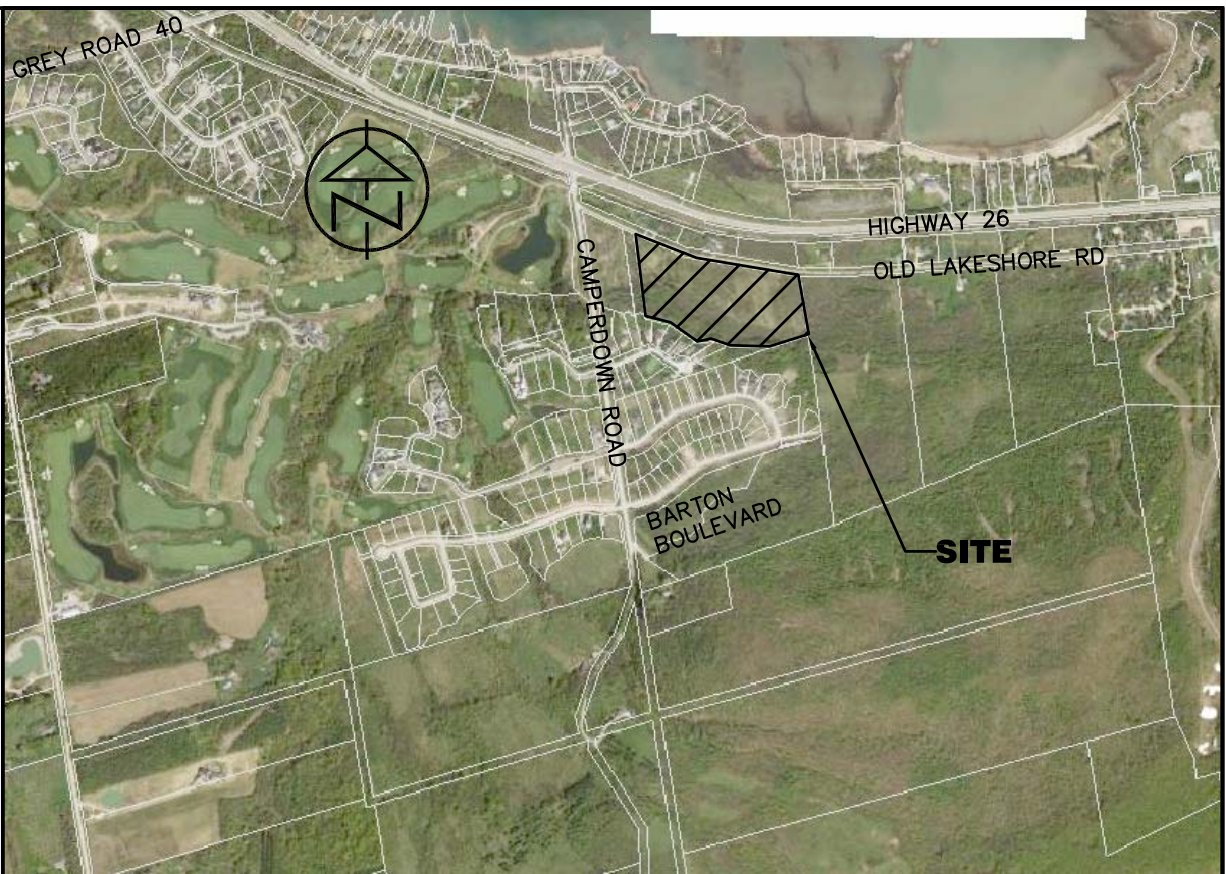
$$F = 220C\sqrt{A}$$

Design Flow Calculations:

Maximum Daily Demand	=	250.55	cu.m/day	or	5.80	L/s
Peak Hour Demand	=	377.94	cu.m/day	or	8.75	L/s
Max Daily plus Fire Flow	=	92.91	L/s			

TABLE 'A'		
AREA ID	AREA (ha)	RESIDENTIAL UNITS
101	0.50	5
102	0.46	4
103	0.09	1
104	0.86	8
105	2.00	20
106	1.74	17
107	0.56	5
108	1.69	0
109	0.45	4
111	0.23	0
112a	0.48	2
112b	0.34	2
TOTAL 'A'	9.40	68

TABLE 'B'		
AREA ID	AREA (ha)	RESIDENTIAL UNITS
120b	0.38	2
121	0.30	3
122	0.29	0
123	1.25	12
TOTAL 'B'	2.22	17



KEY PLAN
N.T.S.



LEGEND

PROPERTY LINE
EXISTING CENTERLINE
EXISTING EDGE OF ASPHALT
EXISTING SANITARY SEWER
PROPOSED SANITARY SEWER/SIZE/FLOW
EXISTING SANITARY MAINTENANCE HOLE
PROPOSED SANITARY MAINTENANCE HOLE
PROPOSED AREA BOUNDARY
PROPOSED AREA ID
PROPOSED AREA (ha)
RESIDENTIAL UNITS

200mm SAN
200mm SAN
EX. SAN MH
SAN MH2
101
0.5 5

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.
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APPROVED



CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

SANITARY CATCHMENT PLAN



C.C. Tatham & Associates Ltd.
Consulting Engineers

Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: 1:2000		JOB NO. 117304
DESIGN: AS	CHECKED: DDH	DWG. SAN-1
DRAWN: RD	DATE: DEC/17	