

Functional Servicing Brief 28 Fairfield Street Picton

Submitted to:

Beverly and William Harney
Attn: Beverly and William Harney
1036 Logan Ave.
Toronto ON
M4K 3G1

Submitted by:

The Greer Galloway Group Inc.
Engineering Consultants
1620 Wallbridge-Loyalist Road R.R.
#5 Belleville, ON K8N 4Z5

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Project # 22-3-2741

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1. Introduction

The Greer Galloway Group has been retained by William Harney to conduct a site servicing study of 28 Fairfield Street to determine the requirements for domestic water, sanitary and fire flows.



Figure 1 - Prince Edward County GIS representation of subject property

2. Purpose of This Report

This report will summarize how the municipal water and sanitary services to the site will support the proposed use of the building as well as adjacent properties. Sanitary flows and water demand requirements will be provided to allow Prince Edward County to confirm the surrounding infrastructure has the available capacity for the proposed use.

3. Existing Conditions

The property is a small boathouse, located on the end of a row of four connected boathouses of similar size. To satisfy county requirements for potential future connections, this analysis will consider adequate supply and sizing for the connection and fire protection for the four adjoining boathouse properties, four additional boathouse properties, and the Prince Edward Yacht Club. The civic addresses in addition to the owner's (#28) are 14, 16, 18, 20, 22, 24, 26, and 30 Fairfield Street.

4. Sanitary Sewer Servicing

1. Existing Sanitary Sewer Infrastructure

The Picton wastewater treatment infrastructure extends down Hill Street, through the intersection of Fairfield and Hill Street. There are no existing sanitary connections along Fairfield Street between Hill Street and the waterfront parking lot. The Prince Edward Yacht Club is served by a pumped service to a sanitary collection point at the intersection of Hill and Bay Streets. Each boat house unit will be assumed to have 1 water closet, 1 lavatory, 1 sink, 1 shower, 1 dishwasher and 1 hose bib.

2. Proposed Sanitary Sewer Infrastructure

To determine whether the existing sanitary sewer on Hill Street has sufficient capacity for the development, it is necessary to calculate the anticipated sanitary flows.

Daily sanitary flows are based on Tables 8.2.1.3.A and 8.2.1.3.B from the 2012 Ontario Building Code. For analysis the following assumptions are included:

Address	Zoning	Description	Bedrooms	Sanitary Flow (L/day)
14	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	1,100
16	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	1,100
18	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	1,100
20	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	1,100
22	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	1,100
24	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	1,100
26	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	1,100
28 (Harney)	Tourist/Commercial	2-storey boathouse	2 bedroom rental cottage	2,000
30 (PEYC)	Tourist/Commercial	Yacht Club event space	150 seat assembly hall with food service	5,400
Total				15,100

The daily sanitary flow for 28 Fairfield Street is 2,000 L/day based on a two-bedroom tourist cottage rating of 500 L/day/person per OBC Table 8.2.1.3.A. Based on these calculations, an E One GH091 sewage pump with 1 ¼ inch discharge is adequate to discharge sewage for one home, E-One has separately prepared sizing and design of the sewage pump and sewage forcemain. (See Appendix B)

To satisfy the demands of subsequent construction and connection, including the Yacht Club, the forcemain would require a size increase to 2 inches. Connecting the single service for 28 Fairfield to the larger forcemain will reduce the scouring velocity. A 2-inch forcemain connected to a single service would require the municipality to flush the system every 6 months to prevent fouling. For this reason, we propose that a 2-inch dry line be installed in the trench to satisfy future demands beside a 1 ¼ forcemain for the connection of 28 Fairfield.

5. Water Supply

1. Existing Water Infrastructure

Currently there is no water infrastructure present on Fairfield Street and the installation of new infrastructure will be required. The Prince Edward Yacht Club is reported to be served by a 19 mm (¾-inch) service connected to a curb stop in the Queen Elizabeth Park/unopened Bay Street Road Allowance.

2. Proposed Water Infrastructure

To determine whether the existing watermain has the capacity to service the proposed residential use, the anticipated water demand is calculated using the Ontario Building Code fixture unit flows. Allowance for 8 boathouse units to be connected to a watermain will be made in the calculations. It is assumed that each boathouse will have a shower, water closet, lavatory, dishwasher, kitchen sink and hose bib as future owners may also choose to expand their sites.

The Greer Galloway Group Inc. has determined the water demand based on the Ontario Building Code. Assumptions and calculations have been provided below:

Building Details

Residential

- Single water service for domestic use.

Using table 7.6.3.2 from the 2012 Ontario Building Code, the hydraulic load (fixture units) were determined, as follows:

Fixture	Hydraulic Load, fixture units	Quantity of Fixtures	Total Fixture Units
Water Closet	2.2	1	2.2
Lavatory	0.7	1	0.7
Shower	1.4	1	1.4
Dishwasher	1.4	1	1.4
Kitchen Sink	1.4	1	1.4
Hose Bib	2.5	1	2.5
Total			9.6

Water Service

- Hydraulic load – 9.6 fixture units in 8 units, $9.6 \times 8 = 76.8$ water supply fixture units (**Table 7.6.3.2.A of the Ontario Building Code**);
- Approximate water flow rate (8 units) based on water supply fixture units (**ASHRAE Modified Hunter Curve C**) – 25 gal (us)/min (1.58 L/s);

As shown above, GGG has calculated a total water demand of 1.58 L/s based on the Ontario Building Code and the ASHRAE Modified Hunter Curve. The required line size was also determined with these calculations, which was found to be 50 mm (2 inches) to adequately supply all four units.

The flow volume of a single boathouse, 9.6 fixture units, can be adequately supplied by a 19 mm (¾-inch) residential service from the main supply.

Building Details

Assembly – Yacht Club

- Single water service for assembly and light commercial (kitchen/bar) use.

The Yacht Club has current service provided directly from the Hill Street main. If connected to a new service on Fairfield Street, there will be no net change to municipal demand.

6. Fire Flows

Fire flow calculations are performed in accordance with the fire underwriters report. At least 3,000 L/min must be able to be supplied to the 28 Fairfield site for firefighting purposes. A hydrant must be within 90 m of the structure.

Calculations were performed with the following assumptions: the structure is of type V wood construction, consisting of 2 floors, with a floor area of approximately 735 sqft. It is assumed the interior is limited combustible, and no sprinkler system is present. It is also assumed that a fire wall is present between the neighboring attached structures and 28 Fairfield. If no firewall is present capable of withstanding up to 2 hours of fire, then these calculations are invalidated. It is also assumed that spacing to any building on the north, east or west side is greater than 30 m. (See Appendix A)

Total calculations result in a fire flow requirement of 3,000 L/min. According to the Picton water distribution diagram, between Bay Street and Blockus Street there is on average between 100-150 L/s (6000-9000 L/min). This is double or more the required 3,000 L/min for fire protection. Therefore, there is adequate access to fire protection at the 28 Fairfield site.

A 3,000 L/min flow can be accommodated in a 5-inch service line. The county requires a hydrant at the end of the Fairfield service line to provide fire flow protection to the Fairfield Street properties and the Picton Yacht Club. The standard hydrant supply is 6 inches. Therefore a 6-inch service line for fire flow is to be provided for residential and fire flows.

7. Conclusions

The following summarizes the findings of this report as it relates to the redevelopment of the structure at 28 Fairfield Street

1. The proposed development plan will convert a portion of the existing boathouse for use as a small rental cottage area.
2. Total average sanitary flows of approximately 2,000 L/day have been calculated for the subject property. An E One sewage pump and 1 ¼-inch forcemain will be used, with sizing performed by the manufacturer.
3. To provide connection for future development, a 2-inch dry line is proposed beside the forcemain serving the subject property.
4. Total water demand of 1.58 L/s have been calculated for the boathouse properties, requiring a 2-inch supply line. The individual residential supply size is ¾-inch.

5. Minimum fire flow was found to be 3,000 L/min based on the fire underwriters report. 6,000-9,000 L/min are available, meaning that adequate fire protection is available.
6. The requirement of the county for a hydrant at the end of Fairfield street to provide fire protection to the boathouses and Picton Yacht Club requires a 6-inch main exceeding the minimum supply size required for the boathouse and Yacht Club properties.

Based on the above, we believe there are sufficient services available to accommodate the proposed development.

Respectfully Submitted,
The Greer Galloway Group
Consulting Engineers



Peter Zandbergen, P.Eng.
Sr. Mechanical Engineer
Building Services

Appendix A

Fire Underwriters Survey Calculations

Step	Task	Term	Options	Multiplier Associated with Option	Choose:	Value used	Unit	Total Fire Flow (L/min)
A	Choose Frame used for unit construction	Co-efficient related to type of construction (C)	Framing Material					
			Type V Wood Frame Construction	1.5				
			Type IV-A Mass Timber Construction	0.8				
			Type IV-B Mass Timber Construction	0.9				
			Type IV-C Mass Timber Construction	1				
			Type IV-D Mass Timber Construction	1.5				
			Type III Ordinary Construction	1				
			Type II Non-Combustible Construction	0.8				
Type I Fire resistive construction	0.6	Type V Wood Frame Construction	1.5	m				
B	Choose type of housing and number of storeys (if Townhouse, enter number of units per townhouse block)	Type of Housing	Single Family	1	Floor Space Area			
			Townhouse - indicate # of Units	4	Townhouse - indicate # of Units	4	Units	
			Other (Comm, Ind, etc.)	1				
		Number of Floors/Storeys not including basement		2				2
C	Enter Groud Floor Area of One Unit	Measurement Units	Enter Groud Floor Area (A) of One Unit Only:		735	137	Area in Square Metres (m2)	
			Square Feet (ft2)	0.09290304				
			Square Metres (m2)	1				
			Hectares (ha)	10000				
Square Feet (ft2)								
D	Obtain Required Fire Flow Without Reductions							4000
E	Choose Combustibility of Building Contents	Occupancy content hazard reduction or increase	Reductions/Increases Owing to Factors Affecting Burning					
			Non-combustible	-0.25	Limited Combustible	-600	N/A	3400
			Limited Combustible	-0.15				
			Combustible	0				
			Free burning	0.15				
			Rapid burning	0.25				
F	Choose Reduction for Presence of Sprinklers	Sprinkler Reduction	Complete Automatic Sprinkler Protectic	-0.3				
			fire department)	-0.1	None			
			Fully supervised system	-0.1	None			
			Community Sprinkler system	-0.25	None			
			None	0				
Sprinkler Area (% of floor area)			0.00%		0	N/A	0	
G	Choose Separation Distance Between Units	Exposure Distance Between Units	North Side		0	0	m	0
			East Side		0			
			South Side		0			
			West Side		0			
H	Obtain Required Fire Flow, Duration, Volume and Hydrant Information	Total Required Fire Flow, rounded to nearest 1000 L/min, with max/min limits applied:						3000
		Total Required Fire Flow (above) in L/s						50
		Required Duration of Fire Flow (hrs)						1.25
		Maximum Hydrant Spacing						180
		Maximum Hydrant Distance						90
		Required hydrants						1
		Required Volume of Fire Flow (m3)						225

Appendix B

E-One Pump and Forcemain Calculations



Environment One Corporation

**Pressure Sewer Preliminary
Cost and Design Analysis
For
Fairfield St, ON**

Prepared For:

ON

Canada

Tel:

Fax:

Prepared By: D. Benson

December 9, 2022

Fairfield St, ON

Prepared by : D. Benson

On: December 9, 2022

Notes :

Analysis based upon drawings and data provided. Station recommendations are preliminary.

LPD values impact retention times only, not line sizing or hydraulics. GP laterals to be 1.25".

Analysis valid only with pipe type listed.

General recommendations for valve placement are: clean out valves at intervals of approximately 305m and at branch ends and junctions; isolation valves at branch junctions; and air release valves at peaks of 8m or more and/or at intervals of 600 to 800 m. Lateral kits comprised of a ball and check valve are required to be installed between the pump discharge and street main on all installations. Laterals should be located as close to the public right of way as possible.

Quantities of grinder pumps, pipe, and valves are indicated on the cost page. The model of grinder pump(s) indicated is based upon the initial information provided to us but may not be the most appropriate for the specific location or requirements of the project. Costs of these items and their installation are best obtained from sources in your region. We recommend you contact your local distributor of Environment One products for additional recommendations.

12.09.2022 - Initial analysis - Station choice and lot layout per provided information.

<<<< END OF NOTES >>>>

Budgetary Low Pressure Sewer System Costs**Fairfield St, ON**

	<u>Quantity</u>	<u>Description</u>	<u>Unit Cost</u>	<u>Installation</u>	<u>Sub Total</u>
Valves	1	Clean Out	\$0.00	0.00	\$0.00
					<u>\$0.00</u>
Pumps	7	IH091	\$0.00	0.00	\$0.00
	8	Pump/Panel Installation	\$0.00	0.00	\$0.00
	8	Lateral Kits (Includes Ball/Check Valve Assembly)	\$0.00	0.00	\$0.00
	8	Lateral (Boundary) Installation	\$0.00	0.00	\$0.00
	122	LM of 1-1/4" Lateral Pipe	\$0.00	0.00	\$0.00
	1	DH152-38	\$0.00	0.00	\$0.00
					<u>\$0.00</u>
Piping	94	2.00" Pipe	\$0.00	0.00	\$0.00
					<u>\$0.00</u>

Number of Connections	<u>8</u>		
Total Per Connection	<u>\$0.00</u>	Total (w/o other)	<u>\$0.00</u>
Grand Total Per Connection	<u>\$0.00</u>	Grand Total (including other)	<u>\$0.00</u>

Note: The System Costs above are based on piping sized for, and Grinder Pumps manufactured by Environment One Corporation.

PRELIMINARY PRESSURE SEWER - PIPE SIZING AND BRANCH ANALYSIS

Prepared By:

D. Benson

Fairfield St, ON

December 9, 2022

Zone Number	Connects to Zone	Number of Pumps in Zone	Accum Pumps in Zone	Liters/Day per Pump	Max Flow Per Pump (lps)	Max Sim Ops	Max Flow (LPS)	Pipe Size (inches)	Max Velocity (MPS)	Length of Main this Zone	Friction Loss Factor (m/100m)	Friction Loss This Zone	Accum Friction Loss (meters)	Max Main Elevation	Minimum Pump Elevation	Static Head (meters)	Total Dynamic Head (m)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE								Friction loss calculations were based on a Constant for inside roughness "C" of: 150									
1.00	2.00	3	3	757	.69	2	1.39	2.00	0.73	16.00	1.19	0.19	2.16	88.00	75.00	13.00	15.16
2.00	2.00	5	8	757	.69	3	2.08	2.00	1.09	78.00	2.52	1.97	1.97	88.00	76.00	12.00	13.97

PRELIMINARY PRESSURE SEWER - ACCUMULATED RETENTION TIME (HR)

Fairfield St, ON

Prepared By:

D. Benson

December 9, 2022

Zone Number	Connects to Zone	Accumulated Total of Pumps this Zone	Pipe Size (inches)	Liters per 100 lineal meters	Length of Zone	Capacity of Zone	Average Daily Flow	Average Fluid Changes per Day	Average Retention Time (Hr)	Accumulated Retention Time (Hr)
This spreadsheet was calculated using pipe diameters for: SDR11HDPE							Liters per Day per Dwelling			757
1.00	2.00	3	2.00	191.29	16.00	30.61	2,271	74.20	0.32	0.91
2.00	2.00	8	2.00	191.29	78.00	149.21	6,056	40.59	0.59	0.59

CAD PLOTTER: Robyn Sills

FILE PATH: P:\Belleville Project\2000\2232741 - Horney 28 Fairfield Picton Boathouse\Drawings\Working\22-3-2741 - Working.dwg

PLOT SCALE: 1:1

DATE PLOTTED: 2022 / 12 / 09 @ 09:04 AM

BORDER SIZE: ISO A1 (841mm x 594mm)



PROPOSED LPS

E/ONE ZONE NUMBER (TYP.)

E/ONE ZONE DIVIDER/FLOW DIRECTION (TYP.)

E/ONE GRINDER PUMP STATION (TYP.)



GREER GALLOWAY
CONSULTING ENGINEERS
PETERBOROUGH
BELLEVILLE
KINGSTON
1620 WALLBRIDGE LOYALIST ROAD
BELLEVILLE, ONTARIO, K8N 4Z5
PHONE: 613-966-3068
FAX: 613-966-3087

NOTES:

1. ALL WORK SHALL BE IN ACCORDANCE WITH RELEVANT CODES AND GUIDELINES.
2. ALL DRAWINGS AND ADDENDA ARE TO BE READ AS, AND IN CONJUNCTION WITH THE SPECIFICATIONS.
3. ALL EQUIPMENT SHALL BE INSTALLED AS SPECIFIED OR APPROVED EQUIVALENT.
4. CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH WORK AND BE RESPONSIBLE FOR SAME.
5. CONTRACTOR MUST REPORT ANY DISCREPANCIES TO ENGINEER FOR RESOLUTION BEFORE COMMENCING THE WORK.
6. ANY CHANGES MUST BE APPROVED BY THE ENGINEER.



A A DETAIL NO.
B B DRAWING NO. - WHERE DETAILED

LEGAL SURVEY SOURCE: EASTERN PORTION ONLY
WATSON LAND SURVEYORS LTD.
PLAN 24R - 9280, JULY 29, 2022

UTILITY LOCATE SOURCE:
ONTARIO ONE CALL 'PAPER' LOCATES

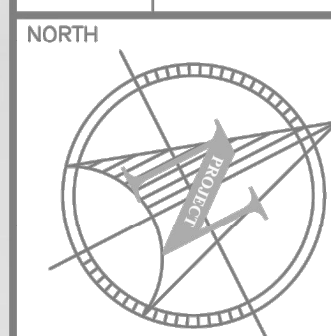
GEOTECHNICAL SOURCE:
NO GEOTECHNICAL INFORMATION AVAILABLE

CONTROL POINTS/BENCHMARKS:
CP#1 - STANDARD IRON BAR
ELEVATION = 77.01
N = 4875471.3010
E = 328816.6934

CONTROL POINTS/BENCHMARKS:
CP#2 - CURB STOP
ELEVATION = 88.27
N = 4875452.7220
E = 328760.1029

CONTROL POINTS/BENCHMARKS:
CP#3 - WATER VALVE
ELEVATION = 88.22
N = 4875449.4190
E = 328747.9460

01	-	YY/MM/DD
REVISION	DESCRIPTION	DATE



PROJECT
28 FAIRFIELD STREET

PICTON, ONTARIO

DRAWING TITLE
SITE PLAN

DESIGNED BY
M. MCINTOSH

DRAWN BY
R. SILLS

REVIEWED BY
P. ZANDBERGEN

APPROVED BY
P. ZANDBERGEN

PROJECT DATE
2022/10/12

PROJECT #
22-3-2741

DRAWING #
SP1

DRAWING SCALE (ISO A1)
HOR: 1 : 200
VER: N/A

THE FOLLOWING MEASUREMENTS ARE APPROXIMATE AND ARE TO BE CONFIRMED PRIOR TO CONSTRUCTION.

STM CBMH1:
T/G = 84.896
SW INV = 80.016
N INV = 81.396

STM MH2:
T/G = 88.012
N INV = 85.24 (POSSIBLE EXTERNAL DROP STRUCTURE)
E INV = 85.24 (POSSIBLE EXTERNAL DROP STRUCTURE)
S INV = 83.13+ (COULD NOT BE MEASURED ACCURATELY DUE TO DEPTH)

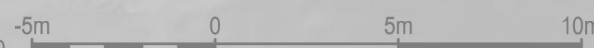
SAN MH3
T/G = 88.16
E INV (FORCEMAIN OUTLET) = 86.94
S INV = 86.94 (NEW)
W INV = 86.94 (NEW BENCHING REQUIRED)

SAN MH4
T/G = 88.401
S INV = 86.671
W INV = NOT MEASURED
E INV = NOT MEASURED

NOTE:

1. LOCATION AND DEPTH OF PRESSURE WATERMAIN AND SMALL DIAMETER FORCEMAIN TO BE ADJUSTED AS NECESSARY TO AVOID CONFLICT WITH INTERSECTING INFRASTRUCTURE AND UTILITIES.
2. POINTS OF CONFLICT ARE TO BE INVESTIGATED BY THE CONTRACTOR AND DAYLIGHTED AS NECESSARY TO CONFIRM ACTUAL CONSTRUCTED CONDITIONS.
3. WHERE CONFLICTS EXIST, NEW PIPES ARE TO BE LOWERED TO MAINTAIN MINIMUM COVER AND FROST PROTECTION.

SCALE 1:200



(METRIC SCALE - ALL DIMS IN METERS U.N.O.)

Peter Zandbergen

From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: Thursday, December 15, 2022 11:31 AM
To: Peter Zandbergen
Cc: Matthew McIntosh; Terry Alweyn
Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.
Attachments: Fairfield St, ON - 24x36Model.pdf; Fairfield St, ON - Analysis.pdf

CAUTION: This email originated from outside the organization. Do not click links or open attachments unless you recognize the sender, their email address, and know the content is safe.

Hi Peter,

The design analysis examines the use of a low pressure sewer system using the Environment One grinder Pump. The low pressure sewer approach provides not only a technical solution, but also an economic advantage to be realized with low up front and O & M costs.

SYSTEM ANALYSIS

Using the data you supplied, We ran the enclosed preliminary pressure sewer sizing and branch analysis. This was run through our computer design program that employs our latest Flow Velocity and Friction Head Loss vs. Pumps in Simultaneous Operation Spreadsheet.

The design criteria for the software calculation program based on the Hazen-Williams formulas for determining pipe sizes (calculations for Cross sectional Area, Velocity and Friction Loss) . We do exceed the Minimum Scouring Velocity of 1 mps, At this flow –we can guarantee scouring velocity. This analysis is based on a “C” factor of 150, SDR 11 Pipe and daily flow as indicated .

The highest TDH generated is approximately 15.16 meters. This is below our pump’s continuous-run rating of 55 meters. Scouring velocity is achieved throughout the system. We also see that the changeover time is very short and we will have no problems with odour control. This looks like an excellent project for the Environment one Grinder pump System.

As you notice in the design – the LPSS sewer main is designed to accommodate **simultaneous pump operation** (in your case – system with 8 grinders will only see 3 Grinder pumps running at the same time) – This is due to the short pump cycle time of the system – approximately 15 seconds . Ensuring frequent starts and sewage changeout.

Difference Between your single system operation and that for 8 systems:

Single pump forcemain for this project would use a 1.25” (32 mm) HDPE forcemain to ensure scouring velocity. Since you will be installing a 2” HDPE forcemain for all 8 units – there will be a requirement of flushing the system every 6 months because we can not attain scouring velocity until all 8 homes are hooked up.

I hope this helps.

Patrick Kelly

National Municipal Market Manager



JOHN BROOKS COMPANY LIMITED ACQUIRES ASL ROTEQ – READ MORE

JOHN BROOKS COMPANY LIMITED

2625 Meadowpine Blvd
Mississauga, ON L5N 7K5
C : 416-885-6294 | T: 905-624-4204 | F: 905-624-6379

www.johnbrooks.ca

Email: pkelly@johnbrooks.ca



From: Peter Zandbergen <pzandbergen@greergalloway.com>
Sent: December 15, 2022 11:13 AM
To: Patrick Kelly <pkelly@johnbrooks.ca>
Cc: Matthew McIntosh <mmcintosh@greergalloway.com>
Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

((External Email) Please review carefully before you CLICK links or OPEN attachments.))

Pat, has the forcemain team made any recommendations yet?

The County is holding firm on the idea of each boathouse being a rental space so the flow table has been revised as below:

Address	Zoning	Description	Bedrooms	Sanitary Flow (L/day)
14	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	12
16	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	12
18	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	12
20	Tourist/Commercial	1-storey boathouse	1-bedroom rental cottage	12

22	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	11
24	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	11
26	Tourist/Commercial	2-storey boathouse	1-bedroom rental cottage	11
28 (Harney)	Tourist/Commercial	2-storey boathouse	2 bedroom rental cottage	20
30 (PEYC)	Tourist/Commercial	Yacht Club event space	150 seat assembly hall with food service	54

total 153

I don't think that changes the IH091 recommendation since they were already capable of 2635 lpd.

What we're curious on now is whether the forcemain is making large size changes when making the change from serving 28 only to serving the entire build-out.

Cheers,

Peter Zandbergen, P.Eng
Mechanical Engineer



1620 Wallbridge Loyalist Road, Belleville ON K8N 4Z5
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Web Site: www.greergalloway.com
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From: Peter Zandbergen
Sent: Friday, December 9, 2022 9:50 AM
To: Patrick Kelly <pkelly@johnbrooks.ca>
Cc: Matthew McIntosh <mmcintosh@greergalloway.com>
Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

Pat, here's a detail with contour elevations labelled and the boathouses laid in.

Let us know if that's the detail needed.

Thanks,

Peter Zandbergen, P.Eng
Mechanical Engineer



1620 Wallbridge Loyalist Road, Belleville ON K8N 4Z5
Tel: (613) 966-3068 x 340; Fax: (613) 966-3087
Web Site: www.greergalloway.com
E-Mail: pzandbergen@greergalloway.com

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From: Patrick Kelly <pkelly@johnbrooks.ca>
Sent: Thursday, December 8, 2022 10:58 AM
To: Peter Zandbergen <pzandbergen@greergalloway.com>
Cc: Matthew McIntosh <mmcintosh@greergalloway.com>
Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

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Peter,

Eone needs more details.

Thanks for sending this over. Looking at the "servicing notes" PDF there is no lot/building layout or topographical information (contours are present but not labeled). The "mark up" drawing does seem to show a layout, however the drawing appears to be scanned (not to scale) and very grainy. We will need something to scale with the lot layout, discharge point and topographical information that we are able to reference to complete the requested analysis.

Let us know and we can get something back to you fairly quickly.

Patrick Kelly

National Municipal Market Manager



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From: Peter Zandbergen <pzandbergen@greergalloway.com>

Sent: December 7, 2022 4:40 PM

To: Patrick Kelly <pkelly@johnbrooks.ca>

Cc: Matthew McIntosh <mmcintosh@greergalloway.com>

Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

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Pat, let me know if this will suffice or if you need more detail.

Peter Zandbergen, P.Eng
Mechanical Engineer



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From: Patrick Kelly <pkelly@johnbrooks.ca>

Sent: Wednesday, December 7, 2022 4:28 PM

To: Peter Zandbergen <pzandbergen@greergalloway.com>

Cc: Matthew McIntosh <mmcintosh@greergalloway.com>

Subject: RE: 28 Fairfield St - Forcemain - we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

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Peter,

To do a proper LPSS analysis and to set up Zones – we need to have the locations of Los 14,16,18,20,22,24,26 and 28 marked on your drawing.

Can you please – mark these locations and send this back to me and I'll get it back to you ASAP.

Thanks,

Patrick Kelly

National Municipal Market Manager



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From: Peter Zandbergen <pzandbergen@greergalloway.com>

Sent: November 25, 2022 11:15 AM

To: Patrick Kelly <pkelly@johnbrooks.ca>

Cc: Matthew McIntosh <mmcintosh@greergalloway.com>

Subject: 28 Fairfield St - Forcemain

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Pat, thanks for the chat Thursday afternoon. Attached are a couple of marked up images to add some detail to our conversation.

The elevations are on the drawing. You can see on the image that there's a bit of work to figure out how the houses 14 through 26 will connect to 28's main. Either they'll pump backward along the traffic flow or they'll have to go up a rather steep incline to join the forcemain.

I'm not sure how involved you were with getting the Harney's set up but they already have a Gator GH091 pump purchased for their property and they would like to keep it in the mix.

For flows we've done the following table:

Address	Zoning	Description	Bedrooms	Sanitary Flow (L/day)
14	Tourist/Commercial	1-storey boathouse	RV or Campground Park with water and sewer	4
16	Tourist/Commercial	1-storey boathouse	RV or Campground Park with water and sewer	4
18	Tourist/Commercial	1-storey boathouse	RV or Campground Park with water and sewer	4
20	Tourist/Commercial	1-storey boathouse	RV or Campground Park with water and sewer	4
22	Tourist/Commercial	2-storey boathouse	2 bedroom apartment	12
24	Tourist/Commercial	2-storey boathouse	2 bedroom apartment	12
26	Tourist/Commercial	2-storey boathouse	2 bedroom apartment	12
28 (Harney)	Tourist/Commercial	2-storey boathouse	2 bedroom rental cottage	20
30 (PEYC)	Tourist/Commercial	Yacht Club event space	150 seat assembly hall with food service	54
total				124

The reason we're treating 14 through 20 as RV spaces is that the use will be somewhat similar. Vehicle pulls in, offloads waste, fills with fresh water, and leaves.

Lastly is the Yacht Club. They have a pump system already. They drive their waste up the cliff directly to a manhole in Hill street where it joins the gravity sanitary. Since they just rebuilt Hill Street and the Yacht Club was allowed to keep that arrangement, I'm not sure there's any pressure for them to join the Fairfield branch.

Have a look and we can chat further next week.

Cheers,

Peter Zandbergen, P.Eng
Mechanical Engineer



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