Functional Servicing Report

Sophie's Landing Grimsby Inc.

165 Lake Street
Town of Grimsby

PEARSON ENGINEERING
PEARSONENG.COM

September 2023
21132

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Functional Servicing Report
165 Lake Street, Grimsby

1. Introduction

PEARSON Engineering Ltd. has been retained by Sophies Landing Grimsby Inc. (Client) to prepare a Functional Servicing Report (FSR) in support of the proposed 31 unit residential development (Project) located at 165 Lake Street in the Town of Grimsby (Town).

The subject property is approximately 1.27 ha in size and is currently a vacant lot that slopes north towards Lake Ontario. The Project is bounded by Lake Street to the south, an existing residential building to the east and west and Lake Ontario to the north. The location of the site can be seen on Figure 1.

This FSR assesses the existing municipal infrastructure in the vicinity of the Project, the proposed onsite Stormwater Management (SWM) facilities and internal services required to service the proposed Project. The FSR also includes design calculations and a brief outline of the proposed internal services, as well as comments regarding the ability of the various secondary utilities to service the site.

1.1. Terms of Reference

The intent of this Functional Servicing Report is to:

- Assess the existing municipal infrastructure in the vicinity of the Project;
- Identify the existing site characteristics including any external drainage conditions;
- Illustrate the design of the stormwater conveyance system, capable of accommodating both minor and major storm flows from the site;
- Incorporate the appropriate Best Management Practices for controlling on-site erosion and sedimentation during construction while ultimately ensuring that the post-development release of stormwater is of adequate quality; and,
- Summarize this design in a technically comprehensive and concise manner.

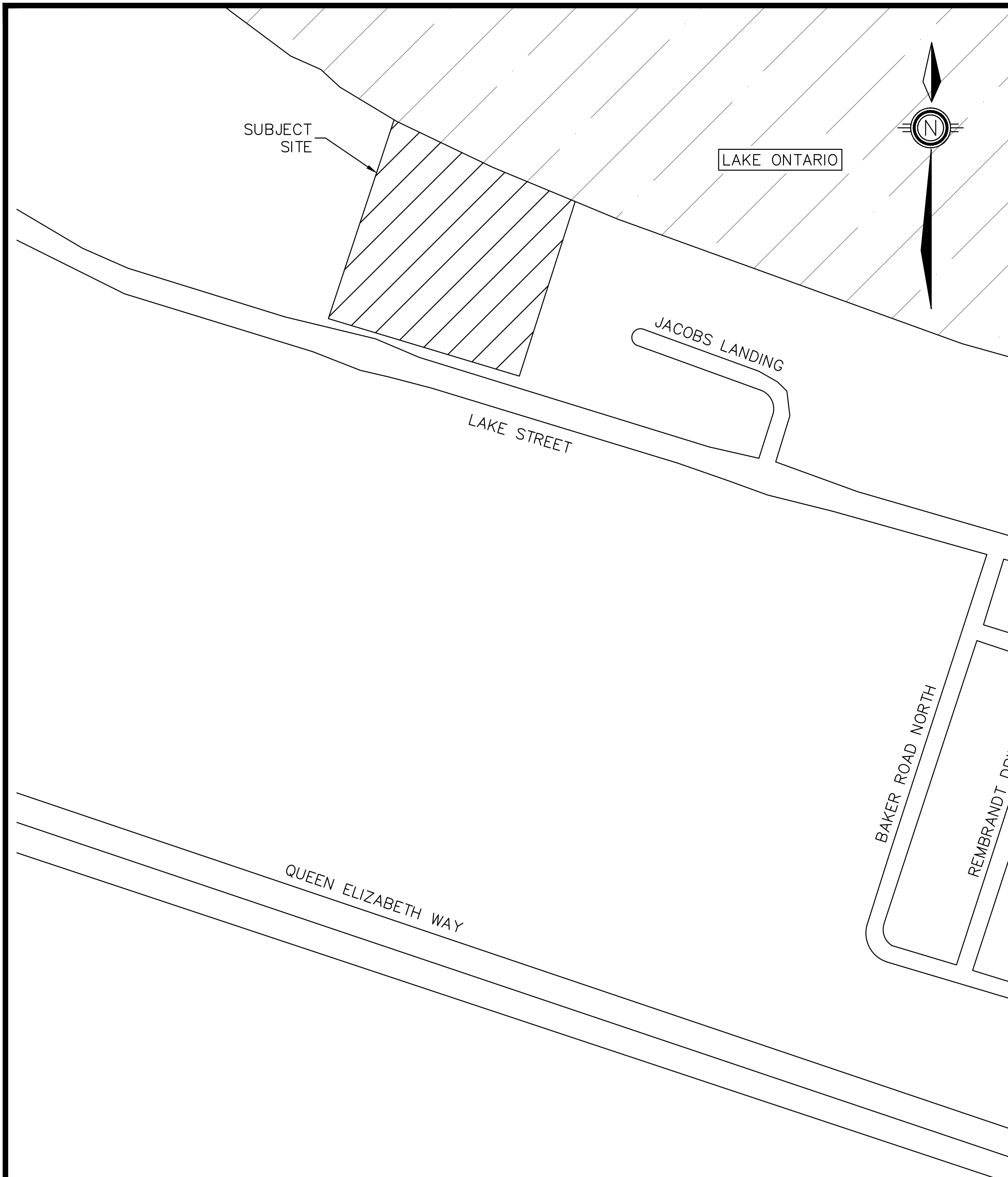
2. Supporting Documents

The following documents have been referenced in the preparation of this report:

- Ministry of the Environment, Design Guidelines for Sewage Works – 2008
- Ministry of the Environment, Design Guidelines for Drinking-Water Systems - 2008
- The Ministry of the Environment Stormwater Management Planning and Design Manual, March 2003.
- Niagara Region, Water – Wastewater Project Design Manual, August 2019
- Niagara Region, Water & Wastewater Master Servicing Plan, 2016

3. Design Population

The proposed development is to consist of 31 residential units and a clubhouse building. Utilizing a design guidelines of 2.47 people per unit for medium density (townhouses and single detached) residential a design population of 80 is estimated for the project.



SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

SITE LOCATION PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP/AMC	HORIZ SCALE	NTS	PROJECT #	21132
DRAWN BY	JP	VERT SCALE	NTS	DRAWING #	FIG-1
CHECKED BY	MWD	DATE	MAY 2023	REVISION #	0

4. Water supply and distribution

Utilizing the MECP and Niagara Region's Watermain Design Criteria for a population of 80 people and a water demand of 300 L/cap/day, an Average Day Demand (ADD) of 0.28 L/s was calculated. A Peak Rate factor of 4.00 was used in calculating a Peak Hour Demand of 1.11 L/s for the proposed development. Calculations for the domestic water requirements for the site can be found in Appendix A.

The Project is proposed to be serviced by connecting a proposed 150 mm watermain to the existing 300 mm watermain located on the north side of Lake Street. The proposed 150 mm watermain will extend through the Project site. The proposed water system can be seen on Figure 2 – Water Servicing Plan.

Each proposed unit will receive an individual water service. Internal fire hydrants are proposed to provide adequate firefighting coverage as per Town Standards.

The required fire flow was calculated as per the Fire Underwriters Survey (FUS) assessment and was calculated to be approximately 3,168 GPM. A Vipond Hydrant Flow Test determined that the 300 mm diameter watermain on Lake Street has a static pressure of 98 psi and can supply 3,168 GPM at an approximate residual pressure of 89 PSI. Therefore, the available flow meets the required fire flow as per the Niagara Region's requirements. Fire flow calculations and the hydrant flow test can be found in Appendix A.

5. sanitary servicing

5.1. sanitary design criteria

Utilizing the MECP and Niagara Region's Sanitary Design Criteria for a residential population of 80 people and flow of 275 L/cap/day, an Average Daily Flow (ADF) of 0.25 L/s. is calculated. Using a Peaking Factor of 4 for this project, a Peak Flow of 1.02 L/s is calculated for the entire development. The peak flow including an infiltration allowance of 0.286 L/s/ha was calculated to be 1.38 L/s.

It is proposed that the sanitary sewers be constructed in accordance with the Town of Grimsby and the MECP guidelines to service the Project. The proposed sewers will consist of a minimum diameter of 200 mm and will be designed to meet minimum design grades and the required minimum and maximum velocities under flow conditions. The proposed sanitary sewer system for the site can be seen on Figure 3.

The proposed 200 mm internal sanitary sewer will convey flow to an existing 750 mm diameter sanitary sewer on Lake Street which has a capacity of 738.5 L/s at 0.44% slope. The proposed peak flow is approximately 0.19% of the pipe capacity therefore the existing 750 mm diameter sanitary sewer is sufficient to convey the sanitary design flows. Sanitary design flow calculations can be found in Appendix B.

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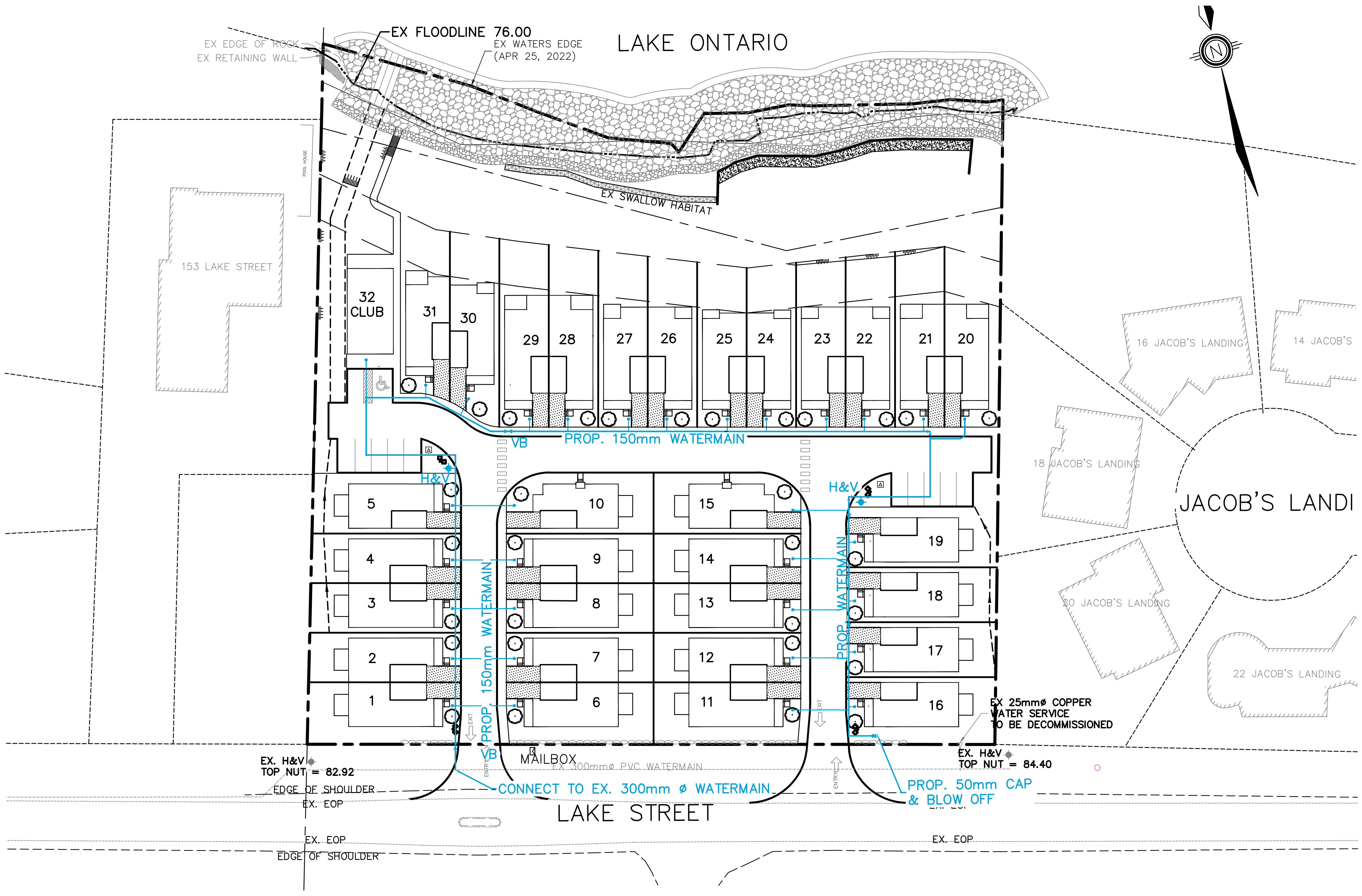

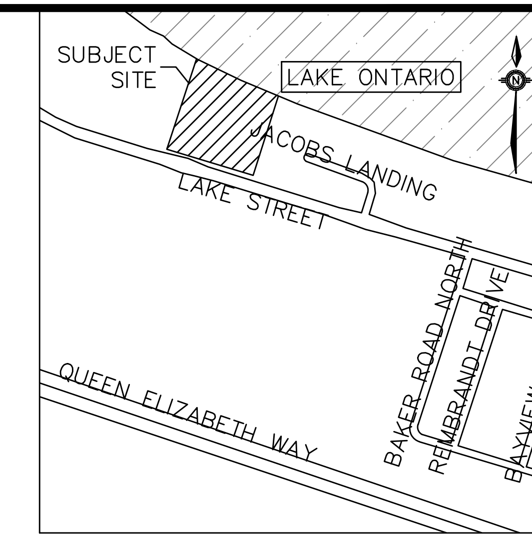

KEYMAP
N.T.S

LEGEND

- SITE BOUNDARY
- WATERMAIN
- SERVICE CAP
- HYD. FIRE HYDRANT
- VB WATER VALVE
- CURB STOP W/ SERVICE

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SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

WATER SERVICING PLAN

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DESIGNED BY	AMC/JP	HORIZ SCALE	1:750	PROJECT #	21132
DRAWN BY	JP	VERT SCALE		DRAWING #	FIG–2
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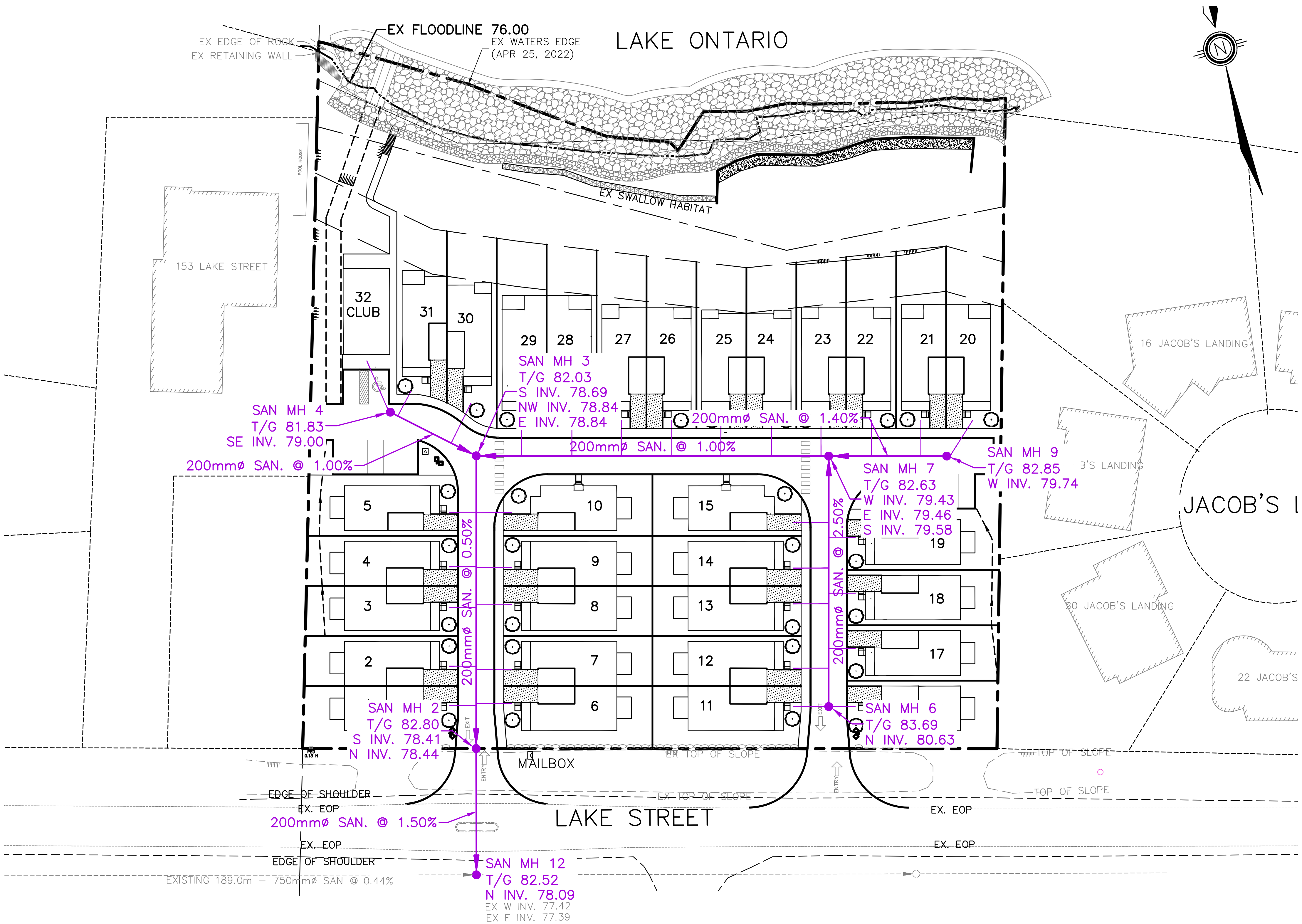

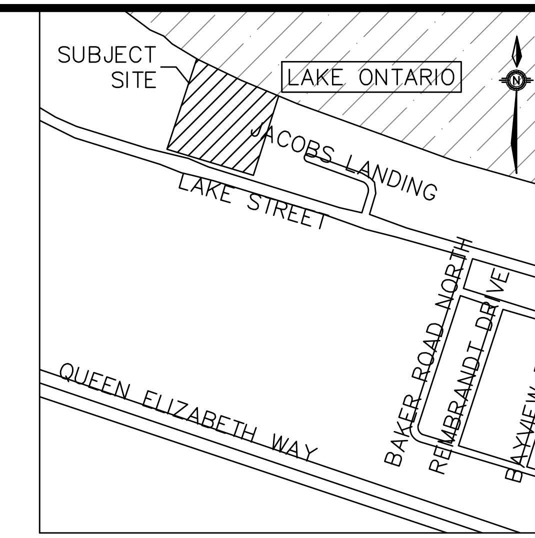

KEYMAP
N.T.S

LEGEND

- SITE BOUNDARY
- EXISTING FLOODLINE
- MH — EX. SANITARY MANHOLE
- MH — PROP. SANITARY MANHOLE
- SANITARY SEWER

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SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

SANITARY SERVICING PLAN

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DESIGNED BY	AMC/JP	HORIZ SCALE	1:750	PROJECT #	21132
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6. STORMWATER MANAGEMENT

6.1. OVERVIEW

A key component of developing the Project is the need to address Stormwater Management (SWM) issues as well as related environmental concerns. SWM parameters are developed from an understanding of the site's natural systems. This FSR focuses on the necessary measures to satisfy the MECP's SWM requirements.

- It is understood the objectives of the SWM plan are to:
- Protect life and property from flooding and erosion;
- Maintain water quality for ecological integrity, recreational opportunities, etc.;
- Protect and maintain groundwater flow regime(s);
- Protect aquatic and fishery communities and habitats; and
- Maintain and protect significant natural features.

6.2. ANALYSIS METHODOLOGY

The design of the SWM Facilities for this site has been conducted in accordance with:

- The Ministry of the Environment Stormwater Management Planning and Design Manual, March 2003.
- Niagara Peninsula Conservation Authority Stormwater Management Guidelines, March 2010

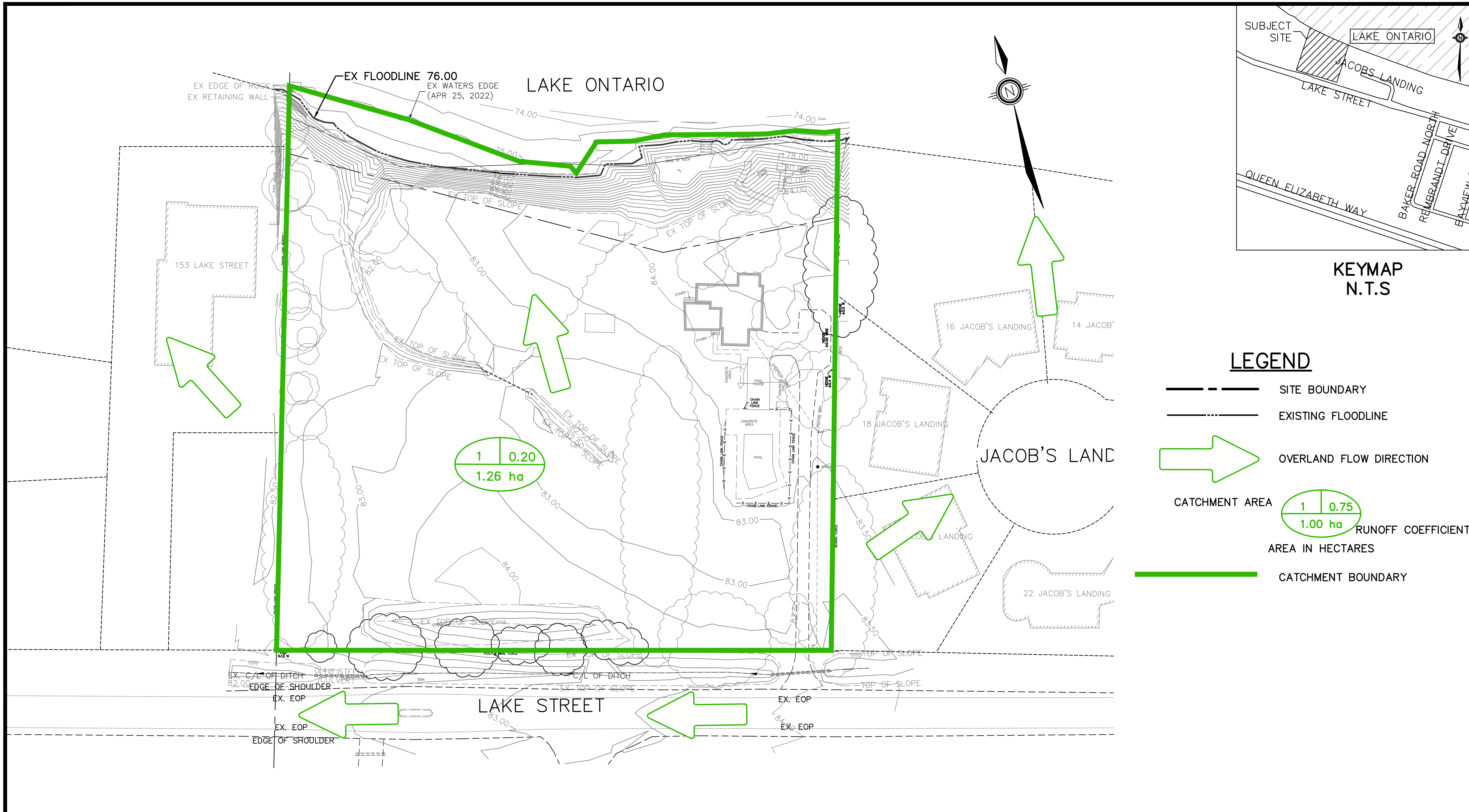
In order to design the facilities to meet these requirements, it is essential to select the appropriate modeling methodology for the storm system design. Given the size of the site and the number of catchment areas, the rational method is appropriate for the design for the SWM system.

6.3. EXISTING DRAINAGE CONDITIONS

The Project Lands generally consist of pasture and forest lands with a residential lot located on the northeast corner. The majority of the project site drains towards an existing drainage channel that bisects the western half of the project property. The channel outlets at the top of an embankment on the north side and ultimately outlets to Lake Ontario. The pre-development Storm Drainage Plan (Figure 4) shows the existing storm drainage patterns for the development.

As per the Geotechnical Report completed by Soil Engineers Ltd., dated March 2022, the site consists of a layer of approximately topsoil and fill which ranges from 0.6m to 2.3m below grade. Silt was found in all boreholes between a depth of 2.9m and 7.0m. The entire site is underlain by silty clay till. The groundwater table for the site ranges from 1.8 m to 6.1 m below grade.

The pre-development peak flows from the site were calculated using the rational method and are provided in Table 1 below. The peak flow calculations and the rational method calculations can be found in Appendix C.



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SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

PRE–DEVELOPMENT STORM DRAINAGE PLAN

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Table 1: Pre-Development Peak Flows

	2 Year Storm	5 Year Storm	10 Year Storm	25 Year Storm	50 Year Storm	100 Year Storm
Project Site	0.05	0.06	0.07	0.10	0.11	0.12

6.4. Proposed Drainage Conditions

The post development drainage for the majority of the site will generally follow pre-development conditions. The majority of the site will drain by overland flow to a catchbasin and storm sewer system sized for the 5-year storm peak flows. The storm sewer will convey stormwater through an oil-grit-separator (OGS) unit prior to outletting to Lake Ontario. In the event of a storm greater than the 5-year storm, an overland flow route will convey the 100 year storm through the project's roadways and a swale to Lake Ontario. Refer to Figure 5 – Post Development Storm Drainage Plan for post-development drainage patterns.

6.5. Quantity Control

The proposed development will increase the imperviousness of the site and as such the post-development peak flows will increase. The calculated pre-development runoff coefficient is 0.20 and the post-development runoff coefficient is 0.55. Runoff coefficient calculations can be found in Appendix C.

As the site outlets directly to Lake Ontario and safe conveyance of the uncontrolled storm flows from the site will not have any negative downstream impacts, no on-site quantity control is provided.

Table 2 shows the post-development peak flows to Lake Ontario. Detailed modeling results can be seen in Appendix C.

Table 2: Post Development Peak Flows

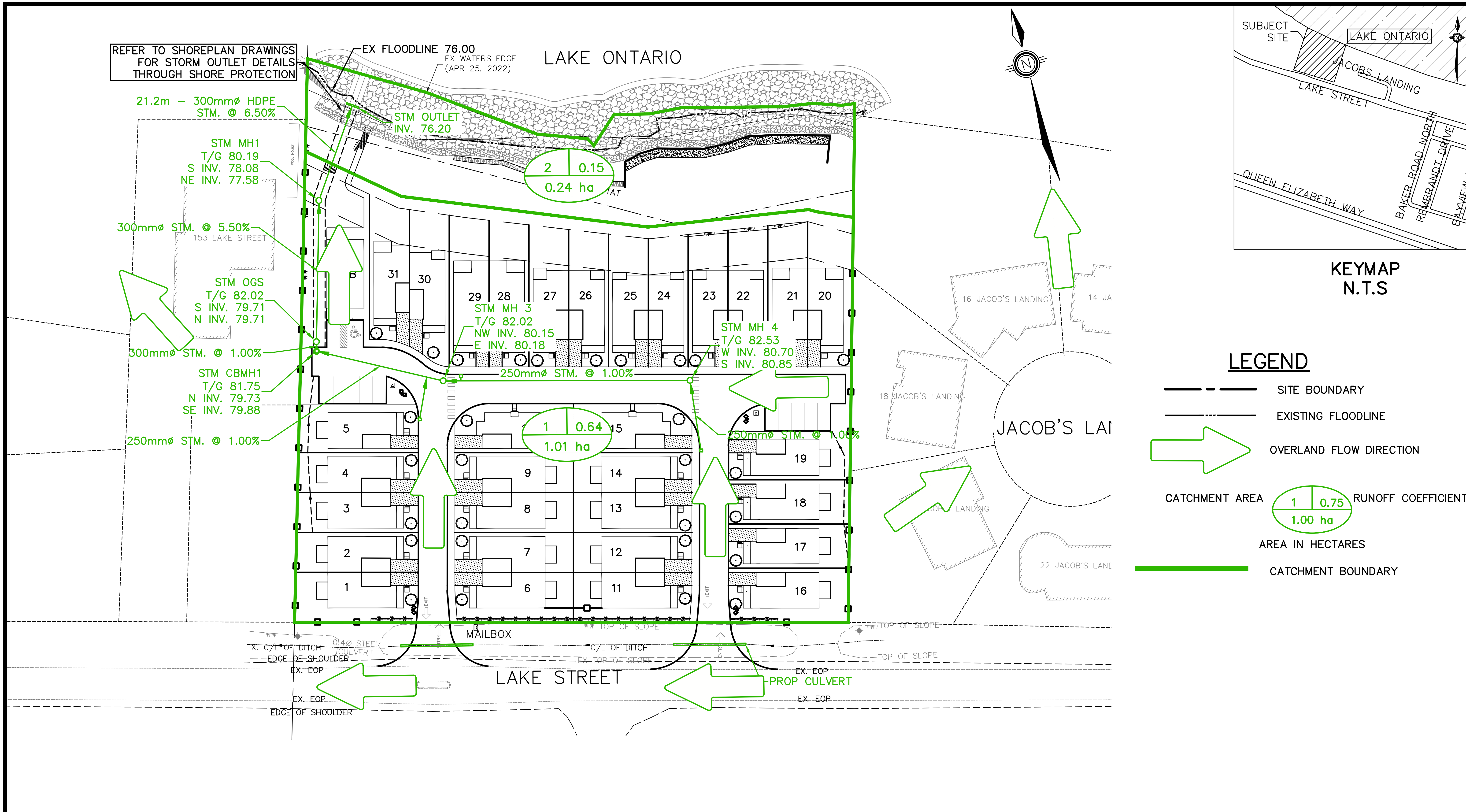
	2 Year Storm	5 Year Storm	10 Year Storm	25 Year Storm	50 Year Storm	100 Year Storm
Project Site	0.13	0.17	0.19	0.27	0.30	0.34

6.6. Quality Control

The MECP in March 2003 issued a "Stormwater Management Planning and Design Manual". This manual has been adopted by a variety of agencies including the Town of Grimsby. The objective of the Stormwater Quality Control will be to ensure Enhanced Protection quality control as stated in the MECP manual is achieved. To achieve Enhanced protection, permanent and temporary control of erosion and sediment transport are proposed and are discussed in the following sections.

6.6.1. Permanent Quality Control

The development's roadways pose a risk to stormwater quality through the collection of grit, salt, sand, and oils on the paved surface. The MECP standard stipulates a Total Suspended Solids (TSS) removal of at least 80% to achieve normal quality control levels. An treatment train approach has been proposed maximize TSS removal. Stormwater from the parking lot areas will drain to catch basins that include sumps which will settle larger sediment particles. The site will ultimately drain through an OGS unit that provides a minimum 80% TSS Removal prior to outletting to Lake Ontario.



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SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

POST–DEVELOPMENT
STORM DRAINAGE PLAN

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6.6.2. Quality Control During Construction

During construction, earth grading and excavation will create the potential for soil erosion and sedimentation. It is imperative that effective environmental and sedimentation controls are in place and maintained throughout the duration of construction activities to ensure stormwater runoff's quality.

Therefore, the following recommendations shall be implemented and maintained during construction to achieve acceptable stormwater runoff quality:

- Installation of silt fence along the entire perimeter of the site to reduce sediment migration onto surrounding properties.
- Installation of a construction entrance mat at the entrance to minimize transportation of sediment onto roadways.
- Restoration of exposed surfaces with vegetative and non-vegetative material as soon as construction schedules permit;
- Installation of filter strips where applicable.
- Reduce stormwater drainage velocities where possible;
- Ensure that disturbed areas are vegetated and stabilized as quickly as possible;

7. Grading

A preliminary grading design has been completed for the project and has been designed to generally drain storm runoff to the northwest corner of the property at an average grade between 1 to 3%, allowing the majority of the site to be conveyed to the proposed storm sewer and swale. Lots have generally been designed draining rear to front and are self contained where possible. Refer to drawing SG-1 – Site Grading Plan in Appendix D for details of the preliminary grading design.

8. Secondary Utilities

Consultation with existing Utility companies is currently underway to confirm the serviceability for secondary utilities. Based on the expanding developments on Lake Street it is expected that utilities are available to service the project.

9. Conclusions

The Project can be serviced by extending water and sanitary services from Lake Street.

The stormwater runoff from the site is directed to the internal storm sewer system which outlets to Lake Ontario.

The OGS will provide Enhanced level quality control for the site.

The analysis and conceptual designs outlined in this report demonstrates that the servicing is feasible.

All of which is respectfully submitted,

Taylor Arkell, P.Eng.
Senior Project Manager

Mike Dejean, P. Eng.
Partner, Manager of Engineering Services

Appendix A

Water Servicing Calculations

165 Lake Street, Grimsby
Water Flow Calculations

Design Criteria

Demand per capita (Q):	300	L/cap/day
Peak Rate Factor (Max. Hour)	4.00	(From Niagara Region's Master Servicing Plan)
Max. Day Factor	2.00	(From Niagara Region's Master Servicing Plan)

Site Data

Description	**Density**		**Units**		**Flow Rate**	
Townhomes	2.47	people/unit	32	units	300	L/cap/d

*31 townhomes and 1 clubhouse

Calculate Population

Pop.	=	2.47	x	32
Pop.	=	80	people	

Calculate Average Day Demand

ADD	=	300	x	80
ADD	=	24,000	L/day	
ADD	=	0.28	L/s	

Calculate Max Day Flow

MDF	=	0.28	x	2.00
MDF	=	0.56	L/s	

Calculate Peak Hour Demand

PHD	=	0.28	x	4.00
PHD	=	1.11	L/s	

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165 Lake Street, Grimsby
Fire Flow Calculations

Required fire flow calculations as per the Fire Underwriters Survey's Water Supply for Public Fire Protection - 2020:

Date:	2023-09-07
Project:	Sophies Grimsby
Project Number:	21132

Location:	165 Lake Street, Grimsby	
OBC Occupancy:	Residential Occupancies - Class C	
Building Foot Print:	211 m^2	
# of Stories:	3.0	**Lot 13 & 14**

*based on worst case scenario units

Type	Construction Class	Charge
5	Wood Frame	1.50
4	Heavy Timber (A-D)	0.80 - 1.50
3	Ordinary	1.00
2	Non-Combustible	0.80
1	Fire Resistive	0.60

Construction Class: Type 5 | Wood Frame

Automated Sprinkler Protection:		Credit	Total
NFPA 13 sprinkler standard	No	30%	0%
Standard Water Supply	No	10%	
Fully Supervised System	No	10%	

Contents	Charge
Non-Combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Contents Factor: Limited Combustible **Charge:** -15%

Exposure Side & Building	Length - Height Ratio	Distance to Exposure Building (m)	Charge
North Prop. Detached Home	145.0	1.8	20%
East Prop. Detached Home	150.0	16.8	15%
South Prop. Semi Detached	145.0	1.8	20%
West Prop. Semi Detached	150.0	12.0	15%
		Total:	**70%**

Separation Distance	Charge
0.0 - 3.0 m	20% - 25%
3.1 - 10.0 m	15% - 20%
10.1 - 20.0 m	10% - 15%
20.1 - 30.0 m	0% - 10%
> 30.1 m	0%

Note: As per FUS 2020 Table 6, Charges for Type V were used.

Are Buildings Contigious? No

Fire Resistant Building: re vertical openings and exterior vertical communications protected with a minimum one (1) hr rating No

Calculations: *C* = 1.5 Wood Frame

Required Fire Flow: ***RFF* = 220 x *C* x √*A***

Where: *RFF* = required fire flow in liters per minute
C = Coefficient related to the type of constructior
A= the total floor area in square meters (excluding basements in building considered)

Total Effective Area: *A* = 633 m²

RFF = 8,303 L/min

* Must be > 2,000 L/min or < 45,000 L/min

Round to Nearest 1,000 L/min RFF = 8,000 L/min

Correction Factors:

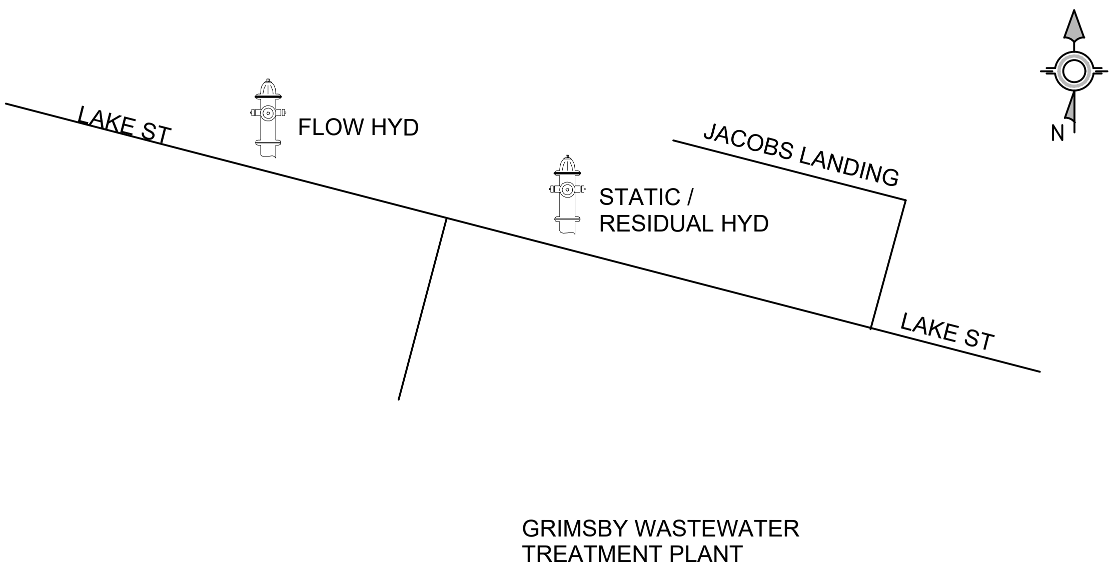
Contents Charge		-1,200	L/min	
RFF Adjusted for Contents	E =	6,800	L/min	*As per "Water Supply for Public Fire Protection" pg.20 note H:*
Reduction For Sprinkler	F =	0	L/min	***RFF*** = **E - F + G**
RFF w/ Sprinkler Reduction		6,800	L/min	
Exposure Charge	G =	4,760	L/min	RFF = 6800 L/min - 0 L/min + 4760 L/min
RFF w/ Exposure Charge		11,560	L/min	RFF = 11560 L/min
Required Fire Flow:	RFF =	11,560	L/min	
Round to Nearest 1,000 L/min	**RFF =**	**12,000**	**L/min**	
	RFF=	**3,168**	**GPM**	
	RFF =	**200**	**L/s**	

FLOW TEST RESULTS

DATE : MAY 9, 2023 TIME : 2:30 PM

LOCATION : 165 LAKE STREET
GRIMSBY, ONTARIO

TEST BY : VIPOND & P.U.C.



STATIC PRESSURE : 92

TEST NO.	NO. OF NOZZLES	NOZZLE DIAMETER (INCHES)	RESIDUAL PRESSURE (PSI)	PITOT PRESSURE (PSI)	DISCHARGE (U.S.GPM)
1	1	2-1/2"	92	80	1500
2	2	2-1/2", 2-1/2"	90	55,55	2490

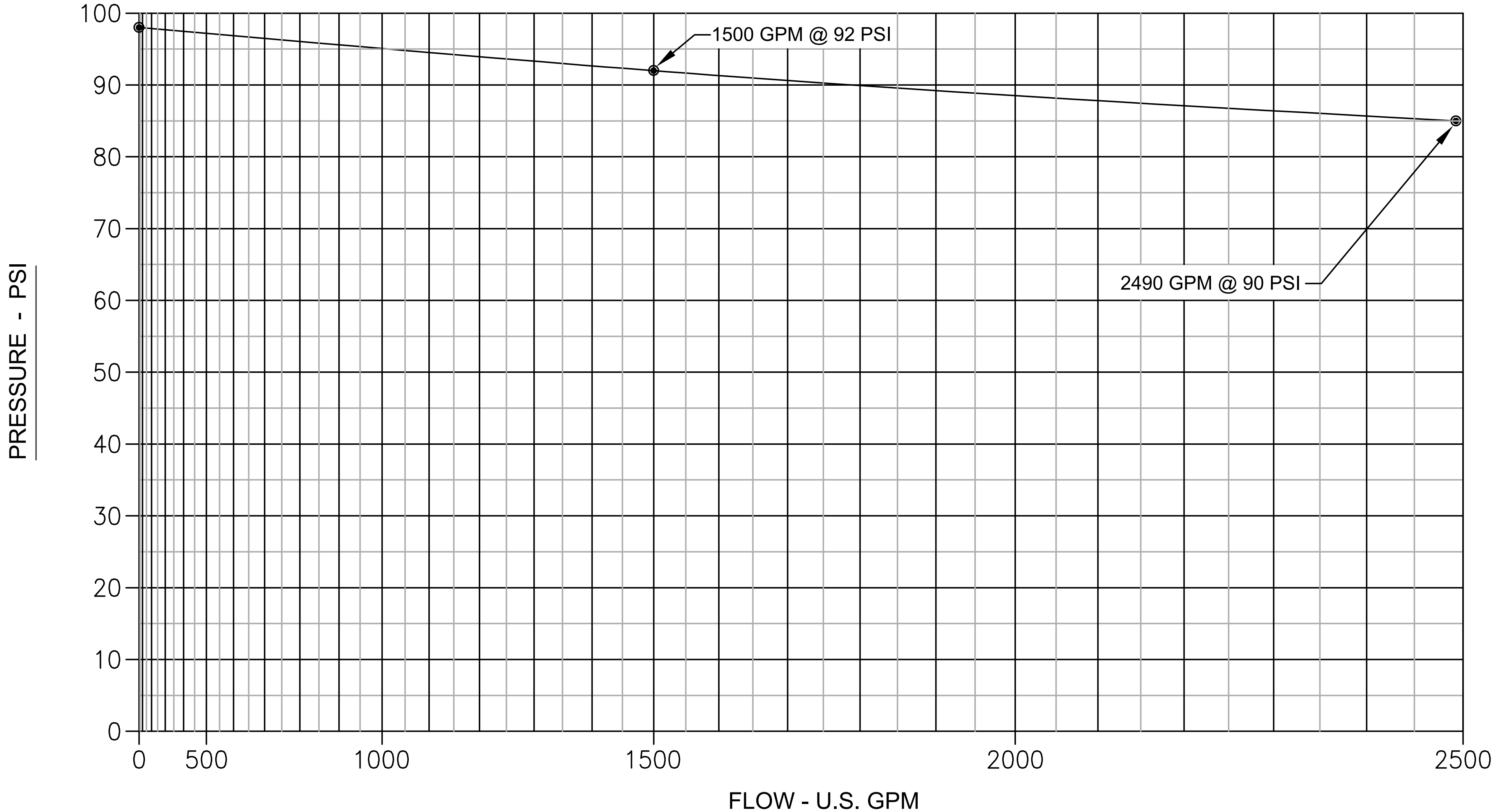
VIPOND INC — FIRST FOR FIRE PROTECTION — est. 1945

165 LAKE STREET	PREPARED BY : JOHN LUCES
GRIMSBY, ONTARIO	OFFICE : STONEY CREEK
	TEST BY : VIPOND & P.U.C.
	DATE : MAY 9, 2023 2:30 PM

STATIC : 98 PSI

92 PSI @ 1500 GPM

90 PSI @ 2490 GPM



Appendix B

Sanitary Servicing Calculations

165 Lake Street, Grimsby
Sanitary Flow Calculations

Design Criteria

Flow per capita (Q):	275 L/cap/day	
Peak Flow	Qp = P * Q * M / 86400	
Peaking Factor (Harmon Formula)	M = 1 + (14 / (4 + (P / 1000) ^ 0.5))	Where: 2 <= "M" <= 4

Site Data

Description	Density	Units	Flow Rate
Townhomes	2.47 people/unit	32 units	450 L/cap/d

*31 townhomes and 1 clubhouse

Calculate Population

Pop.	=	2.47	x	32
Pop.	=	80	people	

Calculate Average Daily Flows

ADF	=	275	x	80
ADF	=	22,000	L/day	
ADF	=	0.25	L/s	

Calculate Peaking Factor

$$M = 1 + \frac{14}{4 + \left(\frac{80}{1{,}000}\right)^{0.5}}$$

M = 4.27

Use Max Peaking Factor of 4.0 as per Niagara Region Criteria

Calculate Peak Flow

Qp	=	0.25	x	4.00
	=	1.02	L/s	
Infiltration Allowance	=	0.286	L/s/ha	
	=	0.286	x	1.26
	=	0.36	L/s	
Qp (Inc. Infiltration Allowance)	=	1.38	L/s	

Appendix C

Stormwater Management Calculations

Sophie's Landing Grimsby
Calculation of Runoff Coefficients

Runoff Coefficient	=	0.15	0.15	0.95	0.95	0.95	0.95		Weighted
Surface Cover	=	Grass	Forest	Asphalt	Building	Gravel	Conc.		Runoff Coefficient
Pre-Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
1	12633	11839	0	299	262	0	233		0.20
Pre Total	12633	11839	0	299	262	0	233		0.20
Post-Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
1	10163	3918	0	2069	3834	0	342		0.64
2	2470	2458	0	0	0	0	12		0.15
Post Total	12633	6376	0	2069	3834	0	354		0.55

Sophies Landing Grimsby
Pre-Development Peak Flows

IDF Curve Location Town of Grimsby

Storm Event (yrs)	Coeff A	Coeff B	Coeff C
2	603	6.00	0.79
5	786	6.00	0.79
10	954	7.00	0.79
25	1190	7.00	0.79
50	1302	8.00	0.80
100	1426	8.00	0.80

Modified Rational Method

Q = CiCIA / 360

Where:

- Q - Flow Rate (m^3/s)
- C - Rational Method Runoff Coefficient
- I - Storm Intensity (mm/hr)
- A - Area (ha.)
- Ci - Peaking Coefficient

Area Number	1	
Area	1.26	ha
Runoff Coefficient	0.20	
Time of Concentration	10	min

Return Rate	2	year
Peaking Coefficient (Ci)	1.00	
Rainfall Intensity	67.5	mm/hr
Pre-Development Peak Flow	0.05	m^3/s

Return Rate	5	year
Peaking Coefficient (Ci)	1.00	
Rainfall Intensity	87.9	mm/hr
Pre-Development Peak Flow	0.06	m^3/s

Return Rate	10	year
Peaking Coefficient (Ci)	1.00	
Rainfall Intensity	101.7	mm/hr
Pre-Development Peak Flow	0.07	m^3/s

Return Rate	25	year
Peaking Coefficient (Ci)	1.10	
Rainfall Intensity	126.9	mm/hr
Pre-Development Peak Flow	0.10	m^3/s

Return Rate	50	year
Peaking Coefficient (Ci)	1.20	
Rainfall Intensity	128.9	mm/hr
Pre-Development Peak Flow	0.11	m^3/s

Return Rate	100	year
Peaking Coefficient (Ci)	1.25	
Rainfall Intensity	141.2	mm/hr
Pre-Development Peak Flow	0.12	m^3/s

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Sophie's Landing Grimsby
Post-Development Peak Flows

IDF Curve Location Town of Grimsby

Storm Event (yrs)	Coeff A	Coeff B	Coeff C
2	603.25	6.00	0.79
5	785.59	6.00	0.79
10	953.64	7.00	0.79
25	1190.02	7.00	0.79
50	1301.80	8.00	0.80
100	1426.13	8.00	0.80

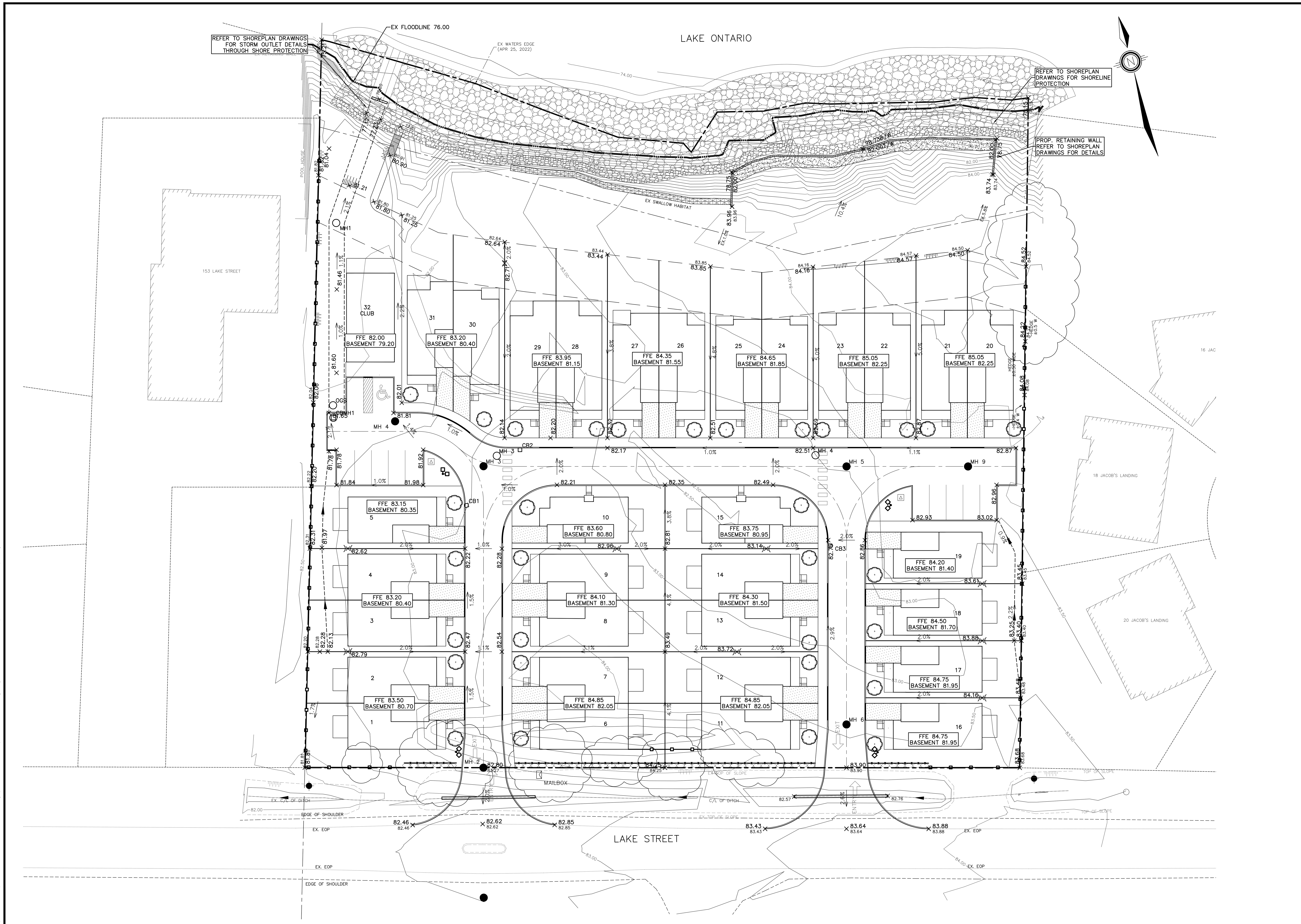
Modified Rational Method
Q = CiCIA / 360

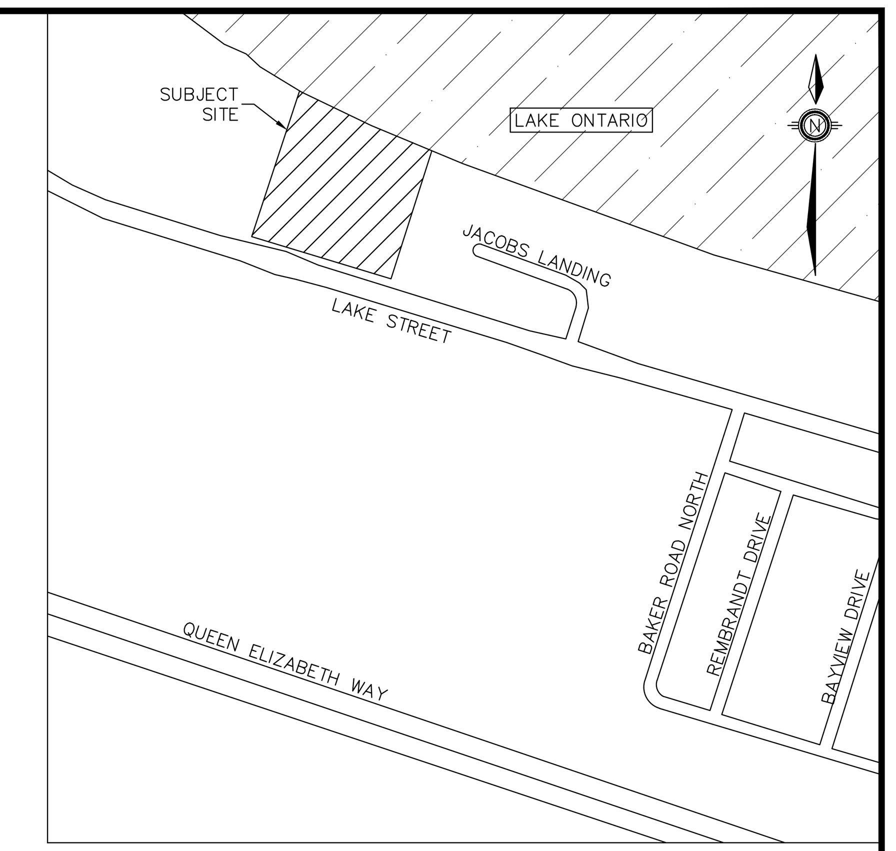
Where:
- Q - Flow Rate (m^3/s)
- C - Rational Method Runoff Coefficient
- I - Storm Intensity (mm/hr)
- A - Area (ha.)
- Ci - Peaking Coefficient

Area Number	1	2	Peak Flow to Lake Ontario
Area	1.02 ha	0.25 ha	1.26 ha
Runoff Coefficient	0.64	0.15	0.55
Time of Concentration	10 min	10 min	10 min
Return Rate	2 year	2 year	2 year
Peaking Coefficient (Ci)	1.00	1.00	1.00
Rainfall Intensity	67.5 mm/hr	67.5 mm/hr	67.5 mm/hr
Post-Development Peak Flow	0.12 m^3/s	0.01 m^3/s	0.13 m^3/s
Return Rate	5 year	5 year	5 year
Peaking Coefficient (Ci)	1.00	1.00	1.00
Rainfall Intensity	87.9 mm/hr	87.9 mm/hr	87.9 mm/hr
Post-Development Peak Flow	0.16 m^3/s	0.01 m^3/s	0.17 m^3/s
Return Rate	10 year	10 year	10 year
Peaking Coefficient (Ci)	1.00	1.00	1.00
Rainfall Intensity	101.7 mm/hr	101.7 mm/hr	101.7 mm/hr
Post-Development Peak Flow	0.18 m^3/s	0.01 m^3/s	0.19 m^3/s
Return Rate	25 year	25 year	25 year
Peaking Coefficient (Ci)	1.10	1.10	1.10
Rainfall Intensity	126.9 mm/hr	126.9 mm/hr	126.9 mm/hr
Post-Development Peak Flow	0.25 m^3/s	0.01 m^3/s	0.27 m^3/s
Return Rate	50 year	50 year	50 year
Peaking Coefficient (Ci)	1.20	1.20	1.20
Rainfall Intensity	128.9 mm/hr	128.9 mm/hr	128.9 mm/hr
Post-Development Peak Flow	0.28 m^3/s	0.02 m^3/s	0.30 m^3/s
Return Rate	100 year	100 year	100 year
Peaking Coefficient (Ci)	1.25	1.25	1.25
Rainfall Intensity	141.2 mm/hr	141.2 mm/hr	141.2 mm/hr
Post-Development Peak Flow	0.32 m^3/s	0.02 m^3/s	0.34 m^3/s

Appendix D

Pearson Engineering Drawings





LEGEND

• CS	CURB STOP W/ SERVICE
×254.63 / 254.09	PROPOSED ELEVATION / EXISTING ELEVATION
1.5%	PROPOSED DIRECTION AND GRADE
	BACK OF CURB
	EDGE OF PAVEMENT
	CURB CUT LOCATION
) (	HIGH POINT
- - - -	LIMIT OF GRADING AND TREE PROTECTION

NO.	REVISION NOTE	DATE	BY

BENCHMARK:

SOPHIES LANDING
165 LAKE STREET
GRIMSBY, ON

SITE GRADING PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	JP/AMC	HORIZ SCALE	1:300	PROJECT #	21132
DRAWN BY	JP	VERT SCALE		DRAWING #	SG-1
CHECKED BY	MWD	DATE	MAY 2023	REVISION #	0