

MIRAMICHI SHORES LAND DEVELOPMENT LTD.

FUNCTIONAL SERVICING REPORT

MIRAMICHI SHORES – PHASE 4 SUBDIVISION
PART OF LOTS 55 AND 56, LAKE RANGE
FORMER TOWNSHIP OF SAUGEEN
TOWN OF SAUGEEN SHORES



FEBRUARY 2021

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- C - Hydrant Flow Test Results – Carter Drive (OCWA)

1. INTRODUCTION

Cobide Engineering Inc. was retained by Miramichi Shores Land Development Limited to prepare a Functional Servicing Report to support of a Draft Plan Approval Application for the proposed Miramichi Shores – Phase 4 subdivision.

1.1 LOCATION

The proposed subdivision development is located between Port Elgin and Southampton in the Miramichi Shores Subdivision on part Lots 55 and 56, Lake Range in the former Township of Saugeen, Town of Saugeen Shores, County of Bruce (described herein as the “site”). A Site Location Map is included as Figure 1.

The proposed subdivision will have access through Block 15 of Plan 3M-209 onto Carter Drive.

1.2 DEVELOPMENT PROPOSAL

The overall property area is 16.252 hectares (40 acres) in size. 3.815 hectares (9.4 acres) is planned to be developed into 14 single family residential lots including the cul-de-sac and associated walkways.

The following provides a summary of the proposed development plan for the subdivision:

Blocks/Lots	Description	Size
Lots 1 – 14	Single Family Residential	3.089 ha
Block 15	Walkway/Service Corridor	362 m ²
Block 16	Walkway	305 m ²
Block 17 and 18	Lands Retained by the Owner (See Note 1)	12.44 ha

Notes:

1. Block 17 is to be retained in the ownership of the developer. There is a requirement for a conservation easement to be placed over Block 17.

There will also be a municipal street servicing the development which is 0.659 ha. The name of the proposed street will be Mystic Court.

The Draft Plan showing the lot and block configuration has been included in Appendix A and noted as DP1.

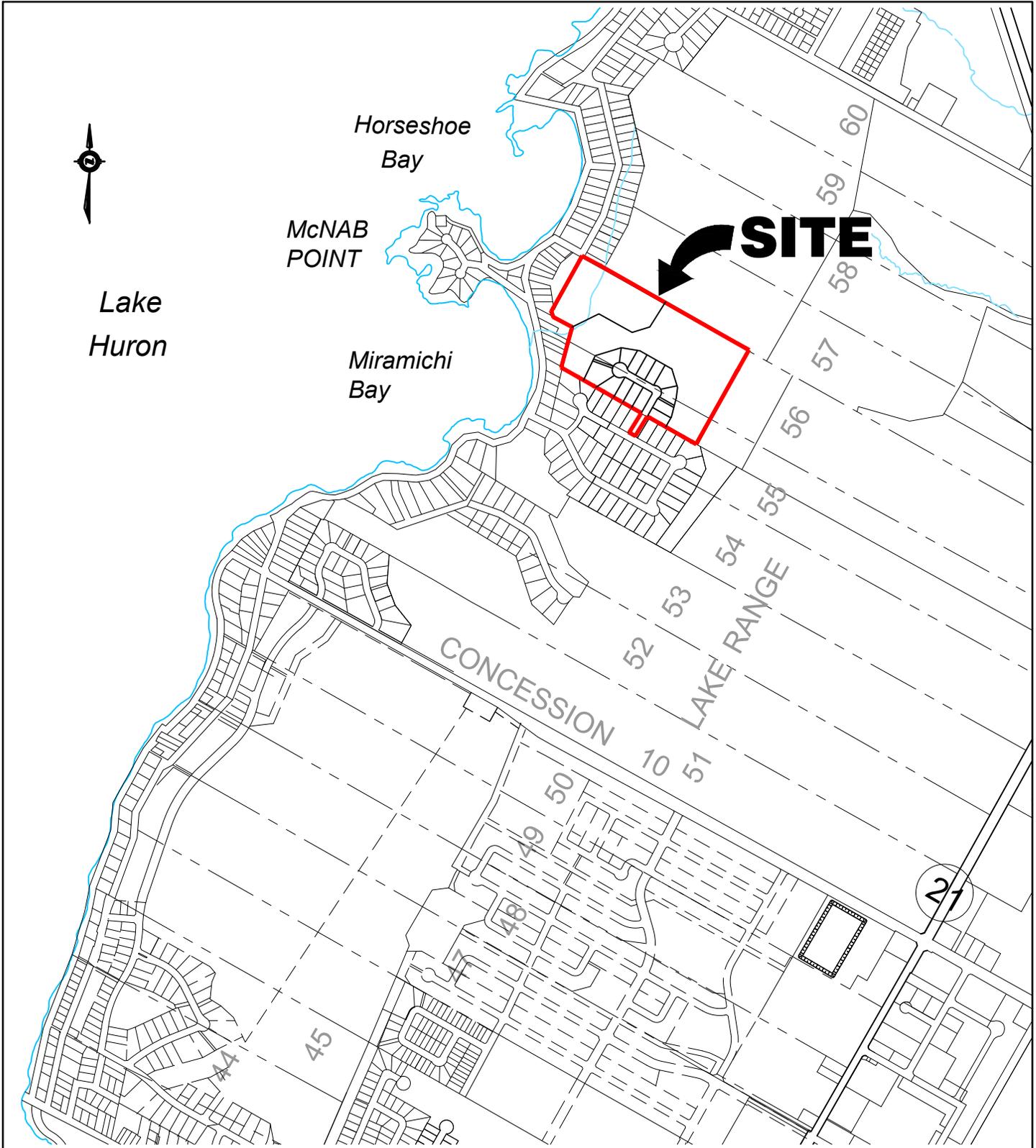
The proposed development is located within the “Shoreline Residential” of the current Official Plan of the Town of Saugeen Shores. The area of the proposed single-family residential lots is zoned “Residential”.

1.3 OTHER REPORTS

In support of the proposed Plan of Subdivision, the following reports have/will be prepared:

- **Planning Justification Report, Miramichi Shores – Phase 4**, Ron Davidson Planning Consultant, February, 2021
- **Preliminary Stormwater Management Report – Mary Rose Subdivision**, Pryde Schropp McComb Inc., January 2008;
- **Natural Heritage Environmental Impact Study**, AWS (Aquatic Wildlife Services), January 2006;

- **Miramichi Shores – Phase 4, Environmental Impact Study Update**, WSP Canada Inc., February 2021
- **Miramichi Shores Phase Hydrogeological Report - Permit to Take Water**, GAMAN Consultants Inc., January 2021;
- **Miramichi Shores Phase 4 Hydrogeological Report – Perforated Storm Sewer Evaluation**, GAMAN Consultants Inc., January 2021;
- **Geotechnical Investigation, Miramichi Shores – Phase 4 Subdivision, Saugeen Shores, Ontario**, CMT Engineering Inc., December 2020;



MAP SOURCE: COUNTY OF BRUCE ASSESSMENT MAPPING

(NOT TO SCALE)



COBIDE
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Client/Project

MIRAMICHI SHORES PHASE 4
PROPOSED SUBDIVISION
TOWN OF SAUGEEN SHORES

Figure No.

1

Title

REGIONAL LOCATION MAP

2. EXISTING CONDITIONS

2.1 LAND USE

2.1.1 ONSITE

The present land use of the subject property is vacant.

Throughout the subject property, there are a number of trails that have been constructed primarily for recreational use at the Therapeutic Riding Program referred to as PRANCE. A temporary trail agreement is also in place on the primary trail for public use.



2.1.2 SURROUNDING

The surrounding land use is predominately seasonal/permanent single family residential.

South

There are four (4) residential developments located to the south of the proposed subdivision.

Immediately to the south are the first three phases of Miramichi Shores subdivision. In total there are 55 lots associated with this development and other than a couple of vacant lots this subdivision is fully developed.

The second is a 25-lot subdivision known as Pegasus Trails. Approximate 80% of the lots have residences constructed.

The third is a 17-unit cooperative type development that was created approximately 20 to 25 years ago. The relatively high-density residential development does not have public access. The internal roads and site servicing are owned and maintained by the Co-operative Group.

The most recent development in the area is Lakeside Woods. It was constructed in 2017 and four homes have been constructed to date. In total there are 30 lots within that subdivision.



Cooperative Residential

West

Along the western boundary of the proposed development is a single tier of single family residential dwellings with frontage onto Miramichi Bay Road.

North

The lands are vacant.

East

Located on the tablelands, east of the proposed development, is farmland. On Lots 52 and 53 Miramichi Farms is used for a combination of cash crop farming and horse-riding facility. The horse-riding facility is the home of PRANCE, which is a therapeutic riding program for handicapped children servicing Bruce and Grey Counties.



2.2 TOPOGRAPHY

The site slopes from east to west towards Lake Huron. The topographical high for the property is located along the east boundary of the Plan of Subdivision and is immediately to the west of the glacial shoreline of Lake Nipissing. The ground elevation at the top of the embankment is approximately 195 metres AMSL while the elevation at the east boundary of the site is approximately 186 metres AMSL.

From the base of the embankment to the west limit of the subdivision, the ground slopes in a westerly direction with an average slope of 1.5%. The ground elevations near the westerly limit of the subdivision is 180.0 AMSL.

The Draft Plan provides details of the topography on the subject property.



2.3 GEOLOGY

The site is located within the physiographic region referred to as the “Huron Fringe”. It comprises of wave-cut terraces of glacial Lake Algonquin and Lake Nipissing. The terrace below the bluff is ribbed with gravel bars built by Lake Nipissing.

Below the surface sands and gravels, there is a clay till extending to a depth of 40 to 50 metres below the surface.

The impervious till results in a “perched” groundwater table that discharges near the base of the glacial shoreline embankment. In the low areas between the gravel/sand ridges, the groundwater table is near the ground surface.

2.4 SOILS

Within the “Soils Report for Bruce County”, the surficial soils are of the “Plainsfield Soils Series” of the “Great Group – Dry Sands”. It is a well sorted sandy outwash material.

In November, 2020, a detailed geotechnical investigation was undertaken at the site to determine the soil stratigraphy at various locations on the property and to provide information for the hydrogeologic investigation. A geotechnical report was prepared by CMT Engineering Inc. entitled **Geotechnical Investigation, Miramichi Shores – Phase 4 (December 14, 2020)**.

The estimated percolation rate of soils within the proposed subdivision is 2 - 4 minutes/cm. The estimated coefficient of permeability is 1×10^{-2} cm/sec.

2.5 NATURAL ENVIRONMENT

A detailed inventory of the natural environment/heritage of the site has been undertaken by WSP Canada. Refer to the report entitled, **Miramichi Shores – Phase 4, Environmental Impact Study Update (February 2021)** for additional details on the natural environment of the site.

2.6 SURFACE WATER

The predominant surface water feature in the vicinity of the subject property is Lake Huron.

There is one primary stream that flows through the subject property with eventual discharge into Lake Huron. The location of the drainage course is shown on the draft plan and is located to the north of the proposed 14 lot subdivision.

The source of surface water for the stream are seeps from the embankment to the east of the property.

Refer to the report prepared by Cobide Engineering entitled, **Stormwater Management Addendum Report, Miramichi Shores – Phase 4 (February 2021)** for additional information regarding surface water.

2.7 GROUNDWATER/HYDROGEOLOGY

A detailed hydrogeologic investigation was undertaken in the fall of 2020 by GAMAN Consultants Inc.

Two reports have been prepared:

- Hydrogeological Report Perforated Storm Sewer Evaluation (January, 2021)
 - prepared to assist WSP in their environmental impact study.
- Hydrogeologic Report – Permit to Take Water (January, 2021)
 - prepared to support an application for permit to take water permit to take water required for the temporary dewatering during construction.

2.8 ARCHAEOLOGY

A Stage 1 and 2 Archaeological Assessment of the property was completed in 2006 by AMICK consultants. The Ministry of Culture have approved the archaeological investigation.

3. WATER DISTRIBUTION SYSTEM

The water distribution system will be sized based on the existing conditions at the connection to the municipal system and the subdivisions demands which are determined by the Ministry of the Environment, Conservation and Parks (MECP) Design Guidelines for Drinking-Water Systems (2008).

3.1 DESIGN CRITERIA

The water distribution system will be design in accordance MECP guidelines which state the system “*should be designed to satisfy the greater of the following demands:*”

- *Maximum day demand plus fire flow; or,*
- *Peak hour demand*

The maximum day demand and peak hour demand are based on the projected water consumption from the development and the fire flow is based on the type of the development.

The system will require modelling during the detailed design stage to ensure the water pressure throughout the system is within the requirements of the MECP.

Based on MECP guidelines, the minimum pressure at ground level at all points in the distribution system under maximum day demand plus fire flow conditions are to be 140 kPa (20 psi). The normal operation pressure should be between 350 kPa (50 psi) to 480 kPa (70 psi). There shall be no point in the distribution system that has a normal operating pressure of less than 275 kPa (40 psi). The maximum pressure in the pipe cannot exceed 700 kPa (100 psi).

3.2 WATER CONSUMPTION

The system will be designed based on a domestic water demand of 450 L/cap/day. The peaking factors will be derived from Table 3-1 of the MECP Design Guidelines. Based on the projected population of 49 people the peaking factor for the maximum day demand will be 2.75 and the peaking factor for the peak hour demand will be 4.13.

Table 1 below summarizes the projected maximum day and peak hour demands for the proposed development.

Table 1 - Proposed Water Demands

Demand	Population (3.5 ppl/lot)	Consumption (L/cap/day)	Peaking Factor	Peak Rate (L/day)	Peak Rate (L/s)
Maximum Day	49	450	2.75	60,637	0.70
Peak Hour	49	450	4.13	91,066	1.06

3.3 FIRE FLOW

The AWWA *Manual of Water Supply Practices M31 – Distribution System Requirements for Fire Protection* and the Fire Underwriters Survey document, *Water Supply for Public Fire Protection* will determine the required fire flows.

The fire flows are dependent upon many factors including the type of construction materials, building height and density of the development.

The fire flow requirements for a typical single detached residential home within the subdivision are expected to 4,000 L/min (66.7 L/s) which would need to be sustained for 1.5 hours.

3.4 DESIGN FLOW RATES

The watermain within the subdivision will be required to maintain the aforementioned pressure while supplying 67.4 L/s (MDD + Fire Flow). The pipes will be designed with a pipe roughness C-value of 130 which is typically used to represent moderately aged PVC pipe. This will ensure adequate pressure for the development in the future.

Based on hydrant flow testing completed near the entrance to the subdivision on Carter Drive by the Ontario Clean Water Agency (OWRA), the existing water infrastructure can supply at least 4,270 L/s (1,129 gpm) of water at 140 kPa (20 psi). Therefore, there is sufficient flow and pressure to meet the maximum day demand plus fire flow requirements of the subdivision development from Carter Drive while maintaining a minimum pressure of 140 kPa (20 psi).

A copy of the hydrant flow tests is included as Appendix C.

3.5 WATERMAIN CONFIGURATION

A new 150 mm diameter PVC watermain will be connected to the municipal water system at the intersection of the new subdivision road and Carter Drive. When Carter Drive was constructed, a 200 mm diameter tee and 200 mm watermain extension was installed to the property line.

Fire hydrants will be placed along the new subdivision street at a spacing no greater than 150 m.

A 19 mm single water connection will be provided to each residential lot. Water services will be PEX pipe complete with curb stops placed at the property line of each lot.

A drawing showing the proposed watermain distribution system has been included in Appendix B as Dwg. 00104-WAT1.

4. SANITARY SERVICING

The proposed development will be serviced with individual on-site sewage systems similar to the first three phases of the Miramichi Shores development.

Though it could be argued that the Ministry's D-5-4 Individual On-Site Sewage Systems: Water Quality Impact Risk Assessment is not applicable to the Miramichi Shores – Phase 4 Subdivision development because of the lack of use of groundwater resources in the area, these calculations have been completed anyway to illustrate that the groundwater resources of the area will not be adversely impacted by the proposed residential development being serviced by an on-site sewage system.

Contaminant Source: (On-site Sewage Systems)	Sewage effluent
Background Water Quality:	<0.2 mg/l (nitrate-nitrogen)
Effluent Volume	1,000 l/day x 14 lots = 14,000 l/day
Available Infiltration Water ($q_{\text{infiltrate}}$)	$q_{\text{infiltrate}} = A \times W_s \times I_f$

Where A = Gross area within the flow path of the contaminant plume in square metres. (Includes area to the east that will remain undeveloped)
 = 72,300 m² (7.23 ha)

W_s = Average daily precipitation surplus, in metres per day.

W_s = P – ET

Where W_s = Average annual precipitation surplus, (m/yr)

P = mean annual precipitation (m/yr) derived from the Environment Canada precipitation normals for the closest climatic station to the site (Paisley 1981 – 2010) (1.23616 m/yr)

ET = mean annual actual evapotranspiration (m/yr) derived from the Environment Canada evapotranspiration normals (22 inches/yr or 0.5588 m/yr)

$$\begin{aligned}
 W_s &= P - ET \\
 &= 1.23616 - 0.5588 \\
 &= 0.67736 \text{ m/yr} \\
 &= 1.856 \times 10^{-3} \text{ m/day} \\
 I_f &= \text{Infiltration factor}
 \end{aligned}$$

The MECP has compiled a set of factors to quantify the percentage of the water surplus that infiltrates into the subsurface. These factors are defined as infiltration factor, I_f , and are shown in the following table:

Table 2 - Infiltration Factor Parameters

Physical Description of Site	Value of I_f
Topography: <ul style="list-style-type: none"> • Flat land, average slope <0.6 m per km • Rolling land, average slope of 2.8 m to 3.8 m per km • Hilly land, average slope of 28 m to 47 m per km 	0.30 0.20 0.10
Soil: <ul style="list-style-type: none"> • Tight impervious clay • Medium combination of clay and loam • Open sandy loam 	0.10 0.20 0.40
Cover: <ul style="list-style-type: none"> • Cultivated lands • Woodland 	0.10 0.20

$$\begin{aligned}
 I_f &= \text{Topography Factor} + \text{Soil Factor} + \text{Cover Factor} \\
 &= 0.2 + 0.4 + 0.2 \\
 &= 0.8
 \end{aligned}$$

$$\begin{aligned}
 \text{Therefore: } q_{\text{infiltrate}} &= 72,300 \text{ m}^2 \times 1.856 \times 10^{-3} \text{ m/day} \times 0.8 \\
 &= 107.4 \text{ m}^3/\text{day}
 \end{aligned}$$

The nitrate concentration at the downgradient boundary of the proposed development can be calculated as follows:

$$\text{Nitrate Concentration (as N)} = \frac{Q_{\text{infiltrate}} \times C_{\text{background}} + Q_{\text{effluent}} \times C_{\text{effluent}}}{Q_{\text{infiltrate}} + Q_{\text{effluent}}}$$

$$\text{Where: } q_{\text{infiltrate}} = 107.4 \text{ m}^3/\text{day} \text{ (107,400 l/day)}$$

$$C_{\text{background}} = 0.2 \text{ mg/l}$$

$$\begin{aligned}
 Q_{\text{effluent}} &= \text{sewage effluent flow based on a daily effluent} \\
 &= \text{production rate of } 1,000 \text{ l/day/dwelling} \times 14 \text{ dwellings} \\
 &= 14,000 \text{ l/day} \\
 C_{\text{effluent}} &= 40 \text{ mg/l (as N)} \\
 \\
 \text{Therefore:} \\
 \text{Nitrate Concentration} &= \frac{107,400 \text{ l/day} \times 0.2 \text{ mg/l} + 14,000 \text{ l/day} \times 40 \text{ mg/l}}{(107,400 \text{ l/day} + 14,000 \text{ l/day})} \\
 &= \mathbf{4.8 \text{ mg/l (as N)}}
 \end{aligned}$$

Since the downstream nitrate (as N) concentration will be less than 10 mg/L, servicing the proposed 14 lot subdivision with conventional Class 4 sewage systems will have no adverse impact on the groundwater resources in the area.

5. STORM SEWER SYSTEM

The Stormwater Management Addendum Report that was prepared for this site is provided under separate cover. For existing and proposed drainage conditions including quality and quantity control provisions please refer to the **Stormwater Management Addendum Report**. This section will pertain to collection of the stormwater.

A new storm sewer system for the subdivision will be designed and constructed in accordance with the Town and Conservation Authority guidelines including the MECP's Design Guidelines. The storm sewer system will be designed using the rationale method to size the storm sewer pipe in order to accommodate the 5-year peak flow from the development.

The storm sewer outlet will be installed through Block 15 and terminate with Block 17 near the existing stream. This existing stream discharges across Miramichi Bay Road and into Miramichi Bay (Lake Huron).

A drawing showing the proposed stormwater collection network has been included in Appendix B and Dwg. 00104-STM1.

6. GRADING, EROSION & SEDIMENT CONTROL

Erosion and sediment controls shall meet the requirements of the most recent version of the MECP *Stormwater Management Planning and Design Manual* at the time of construction.

6.1 CONSTRUCTION STAGE

Prior to the start of construction, appropriate sediment control facilities are to be in place. Following are details regarding erosion and sediment control that are to be implemented:

- Placement of heavy duty siltation fencing is required along the along the property boundary within the drainage corridor on the west side of the site to intercept sediment that could potentially be transported by sheet flow across the site. Light Duty Siltation fence will also be installed at any development grading limits where runoff may discharge from the site.
- It is proposed that the pond be constructed first to act as a sedimentation basin. A temporary outlet would be installed and surrounded in clear stone.
- Placement of temporary straw check dams within swales and any other locations where a concentrated flow of runoff may occur. All proposed drainage swales are to be seeded during construction;
- Installation of filter cloth under all new and existing catchbasin grates until paving of the subdivision streets is completed;
- Mud mats will be placed at construction accesses to keep public roadways free from debris during the construction period.
- Re-vegetate all disturbed areas after underground and surface works have been constructed.

Prior to removal of sediment control facilities, ensure that sediment that may have accumulated has been removed.

Once the area has been stabilized, the silt fencing can be removed.

6.2 LOT DEVELOPMENT

During individual construction of homes within the subdivision, silt barriers are to be constructed, as appropriate, to prevent the eroding of materials into the roadside drainage system. The sedimentation control can be in the form of siltation fences placed in the direction of flow from the construction site and shallow excavated sediment traps (moats) should be constructed around any stockpiled materials.

The responsibility for the individual lot sediment control is the landowner/builder constructing the dwelling.

The proposed development grading design will generally following the existing grade. The proposed grading design will match all existing grades at the property lines and will not alter or affect the drainage patterns of the neighbouring properties. The proposed site grading will drain the stormwater through side yard swales and a storm sewer system. The majority of the slopes found on site are proposed to be less than 5%

7. ROADS

The proposed cul-de-sac will be designed to meet the municipal standard for an urban street. The following parameters are proposed:

- 20m road allowance;
- 4.25m asphalt lanes with 2% cross fall
- 600.100 OPSD mountable curb and gutter
- pavement design (as per recommendations of the geotechnical investigation)
 - 40 mm HL3 asphaltic concrete (surface)
 - 50 mm HL4 asphaltic concrete (base)
 - 150 mm Granular A base
 - 300 mm Granular B base

As part of the site servicing, a 1.5m wide concrete sidewalk will be constructed from the end of the cul-de-sac to Carter Drive. The concrete sidewalk will interconnect to the woodland trails within Block 17.

8. UTILITIES

8.1 STREETLIGHTS

The configuration of the streetlights will be designed in accordance with municipal standards. Concrete poles shall be used with LED cobra head style streetlights.

8.2 ELECTRICITY

Hydro One will be responsible for completing the design of the electrical distribution system. Each lot will be individually serviced. Underground distribution lines will be utilized for this development.

8.3 TELEPHONE/ CABLE TV/ INTERNET

Eastlink and Bruce Telecom will be given the opportunity to provide telephone, cable TV and internet services to the development. They will complete their own design, based upon Hydro One's proposed design configuration along with trench locations dictated by the Town of Saugeen Shores standard cross section.

Sincerely,

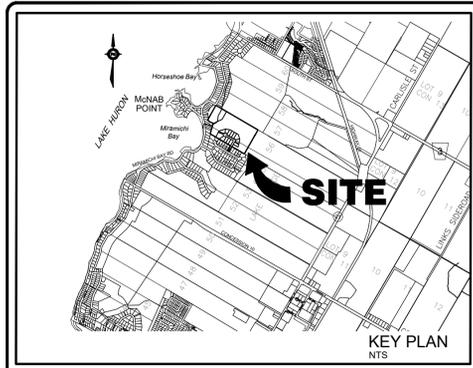
Cobide Engineering Inc.



Stephen J. Cobean, P. Eng.

Appendix A

DRAFT PLAN OF SUBDIVISION – DP1



RESIDENTIAL LOT INFORMATION		
LOT	FRONTAGE (m.) (AS DEFINED IN ZONING BYLAW No. 201-2000)	AREA (sq.m.)
1	32.0	2139
2	30.0	2010
3	30.0	2010
4	31.8	2534
5	30.1	3928
6	35.2	2372
7	31.7	1775
8	30.0	1986
9	30.0	2010
10	30.0	2010
11	30.1	2693
12	30.1	1867
13	30.0	1728
14	30.0	1830



Legend

- PROPOSED SUBDIVISION BOUNDARY
- PROPOSED LOT LINE
- EXISTING PROPERTY/STREET LINE
- EXISTING CONTOUR
- EDGE OF EXISTING PAVEMENT
- EXISTING ZONING LIMITS
- EXISTING TRAIL
- EXISTING STREAM
- DEVELOPABLE LAND BOUNDARY AS SHOWN ON SP2 (AQUATIC AND WILDLIFE SERVICES PLAN DATED DECEMBER 23, 2005.)
- EXISTING FIREHYDRANT
- EXISTING TREE LINE
- EXISTING HYDRO GUY WIRE
- EXISTING HYDRO POLE
- EXISTING TELEPHONE PEDESTAL

NOTE:
 1. NUMBERING OF LOTS ON FINAL PLAN MAY VARY FROM THAT SHOWN ON THE DRAFT PLAN.
 2. LOCATION OF TRAILS DERIVED FROM INFORMATION PROVIDED BY THE TOWN OF SAUGEEN SHORES AND IS APPROXIMATE ONLY.

CAUTION:
 THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE DRAWINGS, AND, WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL INFORM HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

DRAFT PLAN OF SUBDIVISION
BLOCK 15
REGISTERED PLAN No. 3M-209
AND PART OF LOTS 55 AND 56
LAKE RANGE
(GEOGRAPHIC TOWNSHIP OF SAUGEEN)
TOWN OF SAUGEEN SHORES
COUNTY OF BRUCE

RELEVANT SITE INFORMATION

DETACHED RESIDENTIAL LOTS (14)	3.089 ha.
MUNICIPAL STREETS (MYSTIC COURT)	0.659 ha.
WALKWAYS (BLOCKS 15 AND 16)	0.067 ha.
TO BE RETAINED BY OWNER (BLOCKS 17 AND 18)	12.437 ha.
TOTAL PROPOSED SUBDIVISION	16.252 ha.

ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 OF THE PLANNING ACT

a. AS SHOWN	g. AS SHOWN
b. AS SHOWN	h. MUNICIPAL WATER SUPPLY
c. AS SHOWN	i. SILTY SAND
d. SINGLE FAMILY RESIDENTIAL	j. AS SHOWN
e. AS SHOWN	k. WATER, STORM SEWERS, HYDRO, TELEPHONE, CABLE TV, FIRE, AMBULANCE AND POLICE PROTECTION
f. AS SHOWN	l. AS SHOWN

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:
 THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE CORRECTLY SHOWN.

J. Brent England

DATE: February 8, 2021

J. BRENT ENGLAND O.L.S.
 DINSMORE & ENGLAND LTD.
 ONTARIO & CANADA LAND SURVEYORS

OWNER'S CERTIFICATE

I, THE REGISTERED OWNER OF THESE LANDS, HEREBY AUTHORIZE COBIDE ENGINEERING INC. TO SUBMIT THIS DRAFT PLAN FOR APPROVAL.

JANUARY 4, 2021.
 DATE

OWNER:
 MIRAMICHI SHORES LAND DEVELOPMENT LTD.
 c/o BRAD R. PRYDE
 10 COLLARD WAY,
 P.O. BOX 1725
 PORT ELGIN, ON
 N0H 2C0

No.	DATE	FIRST SUBMISSION	DESCRIPTION	BY	APPD
0	DEC 21/20			SJC	SJC

REVISION / ISSUE

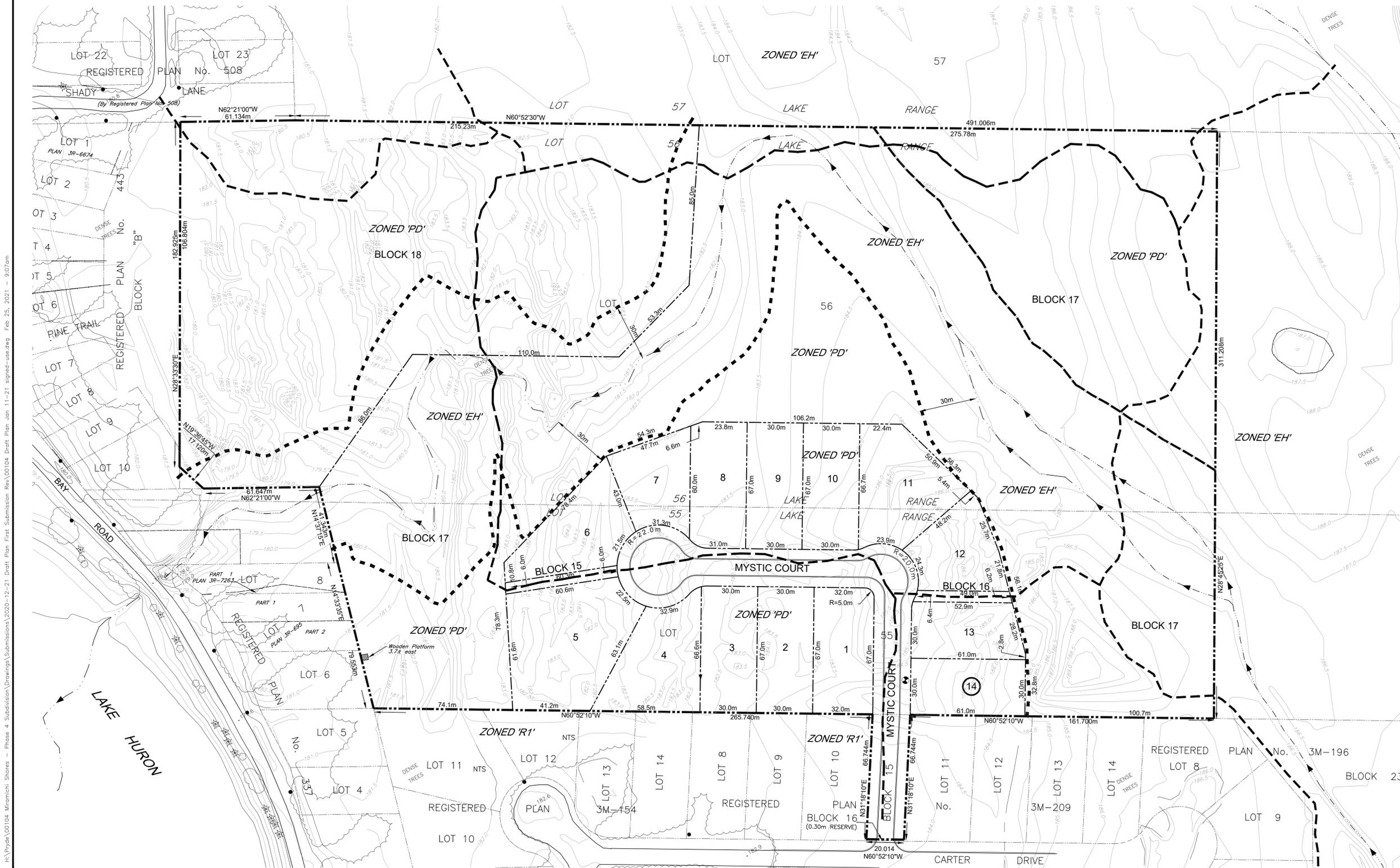
517 10th STREET, Hanover, Ontario N4N
 1R4 Telephone: (519) 506-5959
 www.cobideeng.com

MIRAMICHI SHORES PHASE 4
PROPOSED SUBDIVISION
BLOCK 15
REGISTERED PLAN No. 3M-209
AND PART OF LOTS 55 AND 56
LAKE RANGE
(GEOGRAPHIC TOWNSHIP OF SAUGEEN)
TOWN OF SAUGEEN SHORES

Client: MIRAMICHI SHORES LAND DEVELOPMENT LTD.

Design: SJC Scale: 1:1000
 Drawn: JAF Approved:
 Checked: SJC
 Date: OCT 2020 Design Engineer

DRAWING No. 00104-DP1

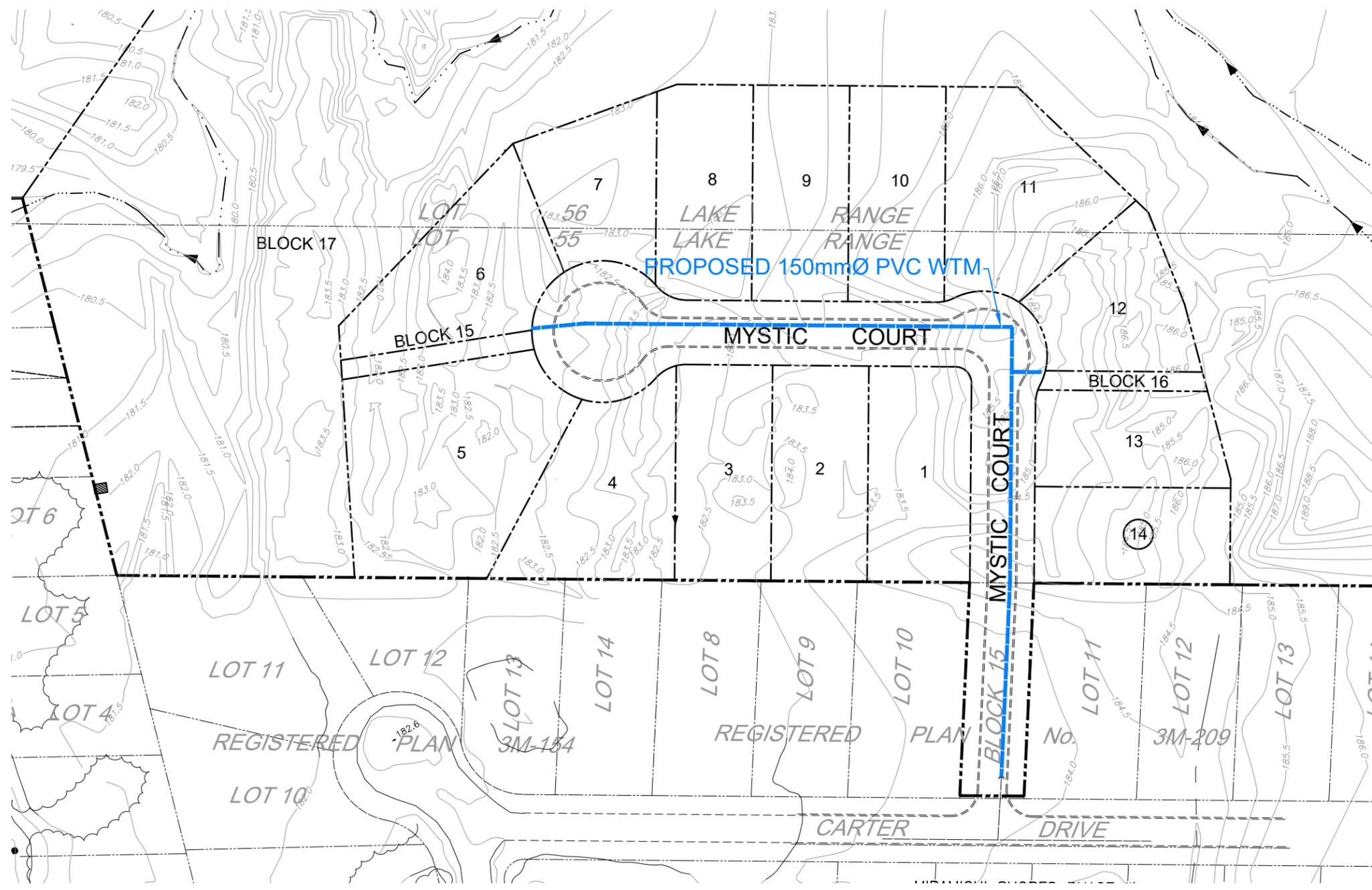
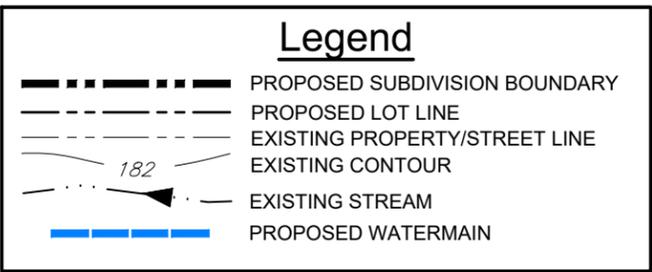
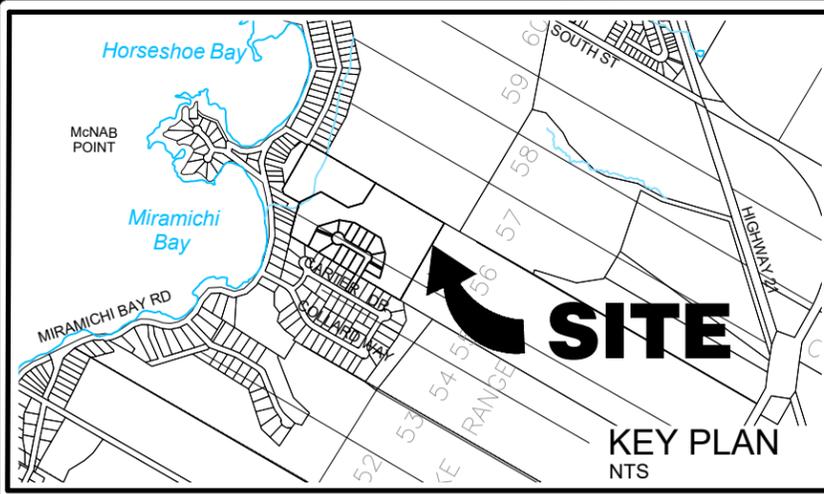


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Appendix B

DRAWINGS

- **WAT1 – Water Servicing Plan**
- **STM1 – Storm Servicing Plan**



No.	DATE	DESCRIPTION	BY	APPD
1	FEB 22/21	PRELIMINARY SUBMISSION	TLB	SJC
REVISION / ISSUE				

Title: **PROPOSED SUBDIVISION MIRAMICHI SHORES PHASE 4 TOWN OF SAUGEEN SHORES WATER SERVICING PLAN**

Client: **MIRAMICHI SHORES LAND DEVELOPMENT LTD.**

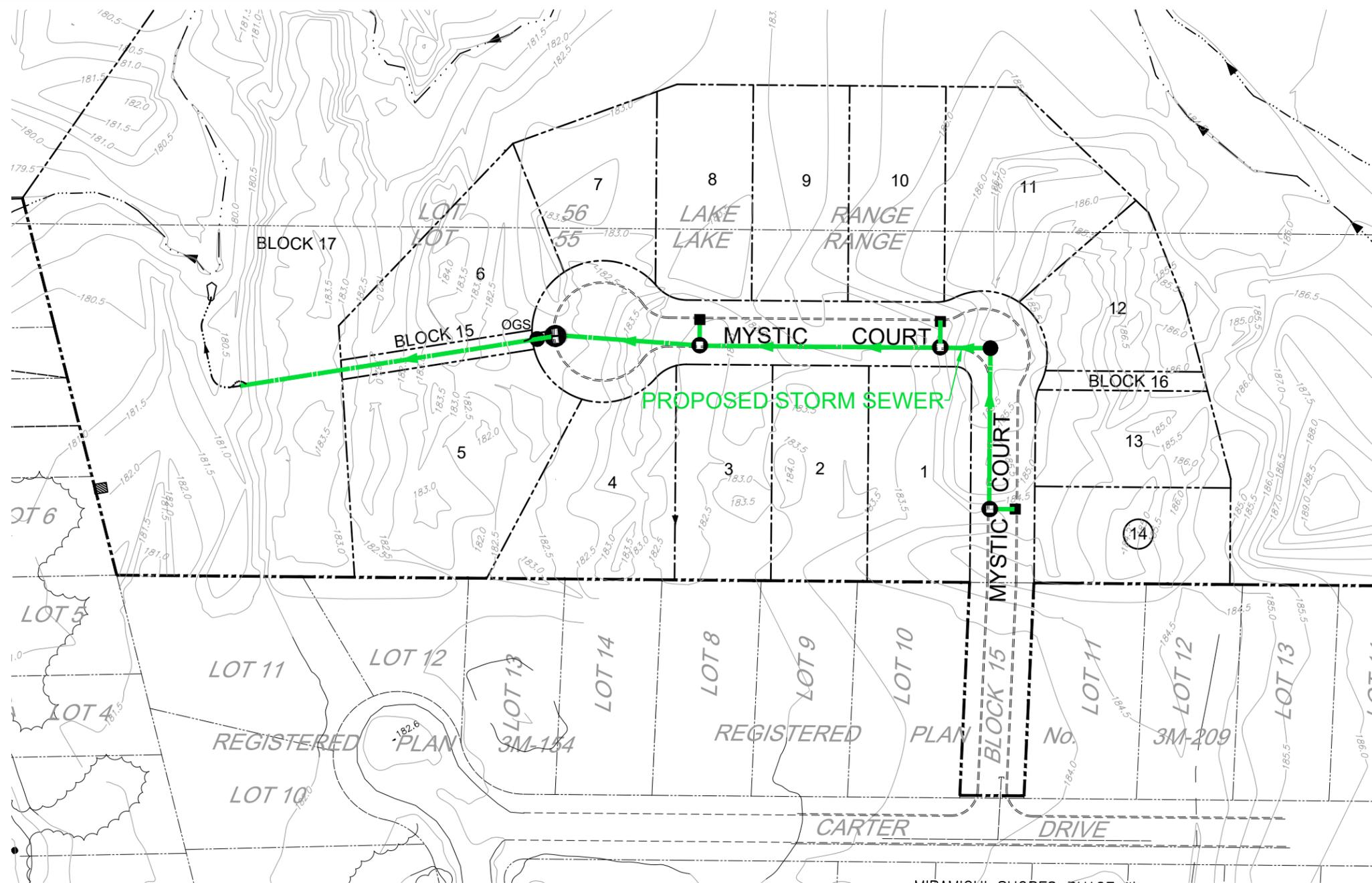
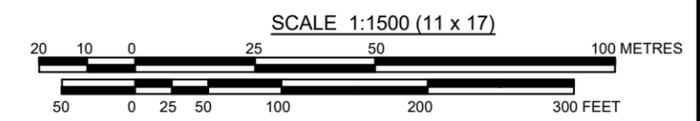
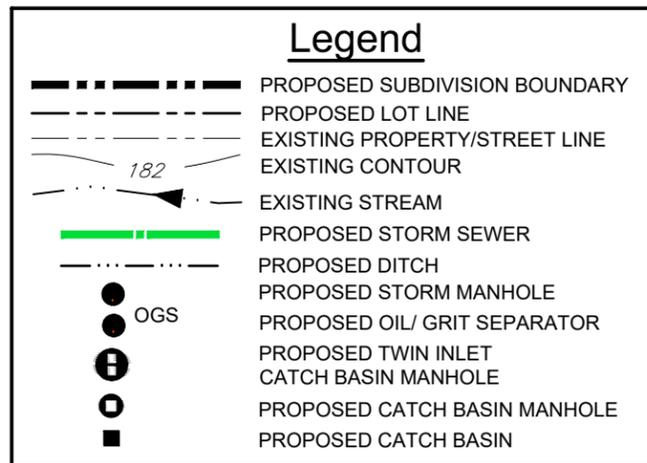
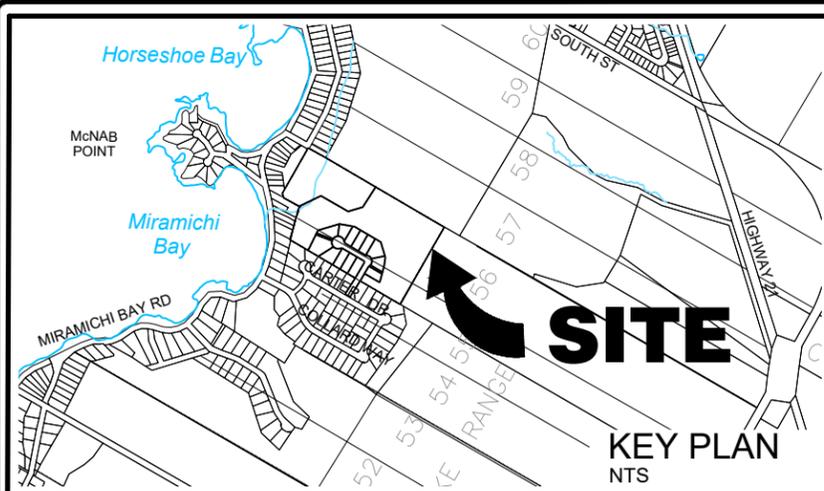


517 10th St, Hanover, ON N4N 1R4
Telephone: (519) 506-5959
www.cobideeng.com

Design:	TLB	Scale:	1:1500
Drawn:	JAF	Approved:	
Checked:	SJC		
Date:	FEB 2021		Design Engineer

DRAWING No. 00104-WAT1

H:\Pryde\00104 Miramichi Shores - Phase 4 Subdivision\Drawings\Submissions\2021-02-22 Servicing Plans\00104 Servicing Plans Feb 22-21.dwg



No.	DATE	DESCRIPTION	BY	APPD
1	FEB 22/21	PRELIMINARY SUBMISSION	TLB	SJC
REVISION / ISSUE				

Title:
**PROPOSED SUBDIVISION
 MIRAMICHI SHORES PHASE 4
 TOWN OF SAUGEEN SHORES
 STORM SERVICING PLAN**

Client:
 MIRAMICHI SHORES LAND DEVELOPMENT LTD.

517 10th St, Hanover, ON N4N 1R4
 Telephone: (519) 506-5959
 www.cobideeng.com

Design:	TLB	Scale:	1:1500
Drawn:	JAF	Approved:	
Checked:	SJC		
Date:	FEB 2021		Design Engineer

DRAWING No. 00104-STM1

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Appendix C

HYDRANT FLOW TESTING RESULTS – CARTER DRIVE (OCWA)

HYDRANT INSPECTION & FLOW REPORT



Prepared By: The Ontario Clean Water Agency
 Prepared For: SAUGEEN SHORES
 Inspection By: Oshane Edwards
 Inspection By: Jesse Kankula

SUGGESTED NFPA RATING	
GREEN	CLASS A
1129 gpm @ 20 psi (138 kPa)	

Date: 6-Dec-17 Time: 12:50 PM

HYDRANT DESCRIPTION

Hydrant ID:	2950	Side of Street:	W	Make:	Canada Valve	Open Dir:	Left
Address:	32 CARTER			Model:	Century	Latitude:	
Location:				Year:		Longitude:	

GENERAL INSPECTION

OK - Good Condition FR - Future Repair Required RR - Repair Required CF - Component Failure

Upper Section	OK	FR	RR	CF	Mid Section	OK	FR	RR	CF	General	OK	FR	RR	CF
Bonnet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Port Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Accessibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating Nut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Caps / Nozzles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Position / Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaskets / Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint Cond	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O-Ring(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Traffic Flange	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drain Ports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hydrostatic Leak Testing			Maintenance			Auxiliary / Secondary Valve		
Hydrant Closed	Above Grade Leak	N/A	Lubricate Operating Nut	N/A		Located / Accessible	N/A	
	Subsurface Leak	N/A	Lubricate & Clean Nozzle Threads	N/A		Operated/Exercised	N/A	
Hydrant Open	Above Grade Leak		Lubricate & Clean Cap Threads	N/A		Number of Turns	N/A	
	Subsurface Leak	N/A	Water Removed (if non-draining)	N/A		Open Direction		

Comments: _____ Auxiliary Valve Location: _____

FLUSHING

*If hydrants are being flow tested, inspections and flushing are completed prior to testing

Hydrant Operated	Clear Flow Obtained	Cl2 Residual	Time Flushed	Flow	Total Flow	Dechlorinated
Yes - Easily Operated	Yes		1 minutes	537 gal	537 gal	Yes

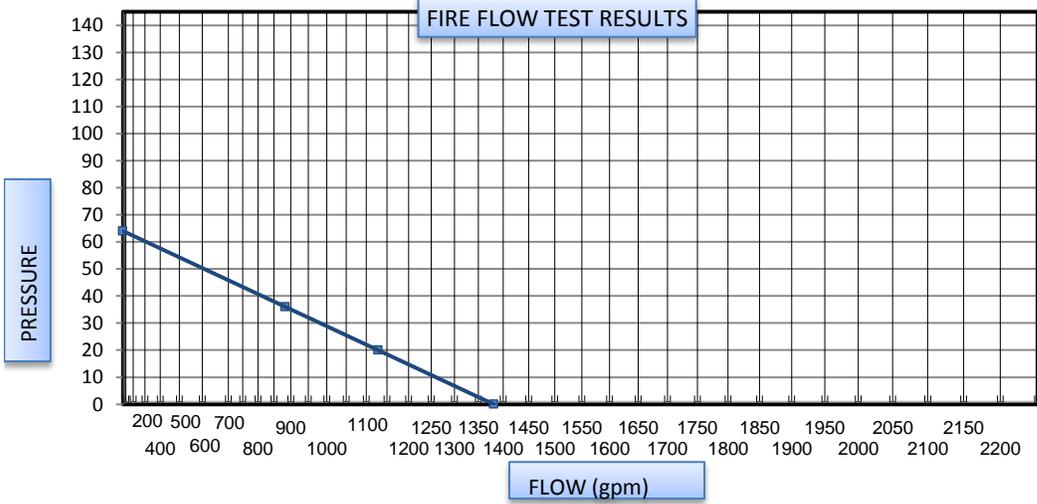
Comments: _____

FLOW TESTING

*Flow testing results may be from previous year(s). Note date & time

Date: 6-Dec-17 Time: 12:50 PM

Flow Hydrant								Test Hydrant		
ID	Flow Device Used	Size	Coefficient	Time Flushed	Flow	Total Flow	Pitot	ID	Static	Residual
2953	Pollard Diffuser			1.0 minutes	537 gal	537 gal	12 psi	2950	64 psi	36 psi
2953	Pollard Diffuser			1.0 minutes	347 gal	347 gal	5 psi			
	Pollard Diffuser			1.0 minutes						
	Pollard Diffuser			1.0 minutes						



Calculated Results	
Calculated Flow @ 20 psi	1129 gpm
Calculated Flow @ 0 psi	1382 gpm
Pressure Drop	43.75%

Comments: _____

HYDRANT INSPECTION & FLOW REPORT



Prepared By: The Ontario Clean Water Agency
 Prepared For: SAUGEEN SHORES
 Inspection By: Oshane Edwards
 Inspection By: Jesse Kankula

SUGGESTED NFPA RATING	
GREEN	CLASS A
1290 gpm @ 20 psi (138 kPa)	

Date: 6-Dec-17 Time: 12:40 PM

HYDRANT DESCRIPTION

Hydrant ID:	2951	Side of Street:	W	Make:	Canada Valve	Open Dir:	Left
Address:	22 CARTER			Model:	Century	Latitude:	
Location:				Year:		Longitude:	

GENERAL INSPECTION

OK - Good Condition

FR - Future Repair Required

RR - Repair Required

CF - Component Failure

Upper Section	OK	FR	RR	CF	Mid Section	OK	FR	RR	CF	General	OK	FR	RR	CF
Bonnet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Port Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Accessibility	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operating Nut	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Caps / Nozzles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Position / Height	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaskets / Bolts	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Chains	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Paint Cond	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
O-Ring(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Traffic Flange	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Drain Ports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hydrostatic Leak Testing			Maintenance			Auxiliary / Secondary Valve		
Hydrant Closed	Above Grade Leak	N/A	Lubricate Operating Nut	N/A		Located / Accessible	N/A	
	Subsurface Leak	N/A	Lubricate & Clean Nozzle Threads	N/A		Operated/Exercised	N/A	
Hydrant Open	Above Grade Leak		Lubricate & Clean Cap Threads	N/A		Number of Turns	N/A	
	Subsurface Leak	N/A	Water Removed (if non-draining)	N/A		Open Direction		

Comments:

Auxiliary Valve Location:

FLUSHING

*If hydrants are being flow tested, inspections and flushing are completed prior to testing

Hydrant Operated	Clear Flow Obtained	Cl2 Residual	Time Flushed	Flow	Total Flow	Dechlorinated
Yes - Easily Operated	Yes		1 minutes	601 gal	601 gal	Yes

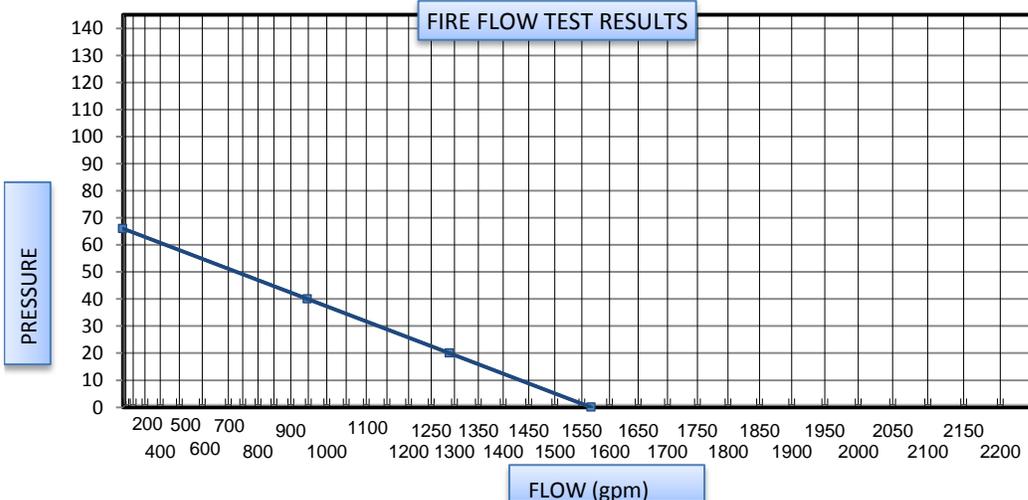
Comments:

FLOW TESTING

*Flow testing results may be from previous year(s). Note date & time

Date: 6-Dec-17 Time: 12:40 PM

Flow Hydrant								Test Hydrant		
ID	Flow Device Used	Size	Coefficient	Time Flushed	Flow	Total Flow	Pitot	ID	Static	Residual
2950	Pollard Diffuser			1.0 minutes	601 gal	601 gal	15 psi	2951	66 psi	40 psi
2950	Pollard Diffuser			1.0 minutes	347 gal	347 gal	5 psi			
	Pollard Diffuser			1.0 minutes						
	Pollard Diffuser			1.0 minutes						



Calculated Results

Calculated Flow @ 20 psi	1290 gpm
Calculated Flow @ 0 psi	1567 gpm
Pressure Drop	39.39%

Comments: