

For Office Use Only:

File Number 28TPL2023294
Related File Number ZNPL2023295
Pre-consultation Meeting Feb.9.2023
Application Submitted Aug.30.2023
Complete Application Sep.14.2023

Public Notice Sign _____
Application Fee _____
Conservation Authority Fee 3,254.40 - paid
Well & Septic Info Provided _____
Planner Hanne Yager

Fees

10,211.00 - ZBA
: \$17,965.00 + (\$75.00 * 15 lots) =
\$17,965.00 + \$1,125.00 = \$19,090

Check the type of planning application(s) you are submitting.

- ☐ Official Plan Amendment
☒ Zoning By-Law Amendment
☐ Temporary Use By-law
☒ Draft Plan of Subdivision/Vacant Land Condominium
☐ Condominium Exemption
☐ Site Plan Application
☐ Extension of a Temporary Use By-law
☐ Part Lot Control
☐ Cash-in-Lieu of Parking
☐ Renewable Energy Project or Radio Communication Tower

Please summarize the desired result of this application (for example, a special zoning provision on the subject lands to include additional use(s), changing the zone or official plan designation of the subject lands, creating a certain number of lots, or similar)

This application is to obtain draft plan approval for a proposed subdivision and zoning permission for 1 lot
to have a 25.12 m minimum frontage. The subject lands have been designated Hamlet Residential and
zoned Hamlet Residential (RH) with the intention of creating 15 residential lots in a plan of subdivision.

Property Assessment Roll Number: 3310-493-020-113-00

A. Applicant Information

Name of Owner Peter Bosma

Address 1974 Turkey Point Road, RR1 STN Main

Town and Postal Code Simcoe, ON N3Y 4J9

Phone Number _____

Cell Number 519-426-3426

Email peterbosma@kwic.com

Name of Applicant same as owner

Address _____

Town and Postal Code _____

Phone Number _____

Cell Number _____

Email _____

Name of Agent Mary Elder, Elder Plans Inc.

Address 32 Miller Cres.

Town and Postal Code Simcoe, ON N3Y 4R1

Phone Number _____

Cell Number 519-429-4933

Email Elderplans2018@gmail.com

Unless otherwise directed, Norfolk County will forward all correspondence and notices regarding this application to both owner and agent noted above.

☒ Owner

☒ Agent

☐ Applicant

Names and addresses of any holder of any mortgagees, charges or other encumbrances on the subject lands:

B. Location, Legal Description and Property Information

1. Legal Description (include Geographic Township, Concession Number, Lot Number, Block Number and Urban Area or Hamlet):

Charlottetown, Con 9, Part Lot 13

Municipal Civic Address: 1910 Turkey Point Road

Present Official Plan Designation(s): Hamlet with some Hazard Land on municipal drain

Present Zoning: Hamlet Residential with some Hazard Land

2. Is there a special provision or site specific zone on the subject lands?

☐ Yes ☐ No If yes, please specify corresponding number:

14.987 - frontage reduced to 20 m.

3. Present use of the subject lands:

vacant

4. Please describe **all existing** buildings or structures on the subject lands and whether they will be retained, demolished or removed. If retaining the buildings or structures, please describe the type of buildings or structures, and illustrate the setback, in metric units, from the front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

none, if there is anything it is to be removed

5. If an addition to an existing building is being proposed, please explain what it will be used for (for example: bedroom, kitchen, or bathroom). If new fixtures are proposed, please describe.

6. Please describe **all proposed** buildings or structures/additions on the subject lands. Describe the type of buildings or structures/additions, and illustrate the setback, in metric units, from front, rear and side lot lines, ground floor area, gross floor area, lot coverage, number of storeys, width, length, and height on your attached sketch which must be included with your application:

one single detached residential dwelling on each lot in the proposed 15 lot subdivision. Details of each dwelling unknown until each owner decides to build, but there appears to be sufficient area to meet the RH zone provisions except for lot frontage on lot 10.

7. Are any existing buildings on the subject lands designated under the *Ontario Heritage Act* as being architecturally and/or historically significant? Yes ☐ No ☐

If yes, identify and provide details of the building:

8. If known, the length of time the existing uses have continued on the subject lands:

at least 20 years

9. Existing use of abutting properties:

hamlet residential and agricultural

10. Are there any easements or restrictive covenants affecting the subject lands?

☐ Yes ☒ No If yes, describe the easement or restrictive covenant and its effect:

C. Purpose of Development Application

Note: Please complete all that apply.

1. Please explain what you propose to do on the subject lands/premises which makes this development application necessary:

a residential plan of subdivision is proposed

Lot 10 has a planned frontage of 25.12 m while the Hamlet Residential zone requires a

minimum of 30 m lot frontage. Therefore a special provision is needed in the Zoning By-law.

2. Please explain why it is not possible to comply with the provision(s) of the Zoning By-law/and or Official Plan:

The efficient design of the access road and turning radius, plus lot size, lot shape, retaining trees

and working with the drainage pattern are some of the considerations in the design of the plan

of subdivision which make it undesirable to achieve the minimum 30 m lot frontage on lot 10.

3. Does the requested amendment alter all or any part of the boundary of an area of settlement in the municipality or implement a new area of settlement in the municipality? ☐ Yes ☐ No If yes, describe its effect:

4. Does the requested amendment remove the subject land from an area of employment? ☐ Yes ☐ No If yes, describe its effect:

5. Does the requested amendment alter, replace, or delete a policy of the Official Plan?
☐ Yes ☐ No If yes, identify the policy, and also include a proposed text of the policy amendment (if additional space is required, please attach a separate sheet):

6. Description of land intended to be severed in metric units:

Frontage: _____

Depth: _____

Width: _____

Lot Area: _____

Present Use: _____

Proposed Use: _____

Proposed final lot size (if boundary adjustment): _____

If a boundary adjustment, identify the assessment roll number and property owner of the lands to which the parcel will be added: _____

Description of land intended to be retained in metric units:

Frontage: _____

Depth: _____

Width: _____

Lot Area: _____

Present Use: _____

Proposed Use: _____

Buildings on retained land: _____

7. Description of proposed right-of-way/easement:

Frontage: _____

Depth: _____

Width: _____

Area: _____

Proposed use: _____

8. Name of person(s), if known, to whom lands or interest in lands to be transferred, leased or charged (if known):

9. Site Information**Zoning****Proposed**

Please indicate unit of measurement, for example: m, m² or %

Lot frontage	30 m	25.12 m-Lot 10
Lot depth		varies
Lot width		varies
Lot area	0.4 ha	0.4 ha
Lot coverage		unknown at this time
Front yard	6 m	6 m
Rear yard	9 m	9 m
Left Interior side yard	1.2 m	1.2 m
Right Interior side yard	1.2 m	1.2 m
Exterior side yard (corner lot)	6 m	6 m.
Landscaped open space		unknown at this time
Entrance access width		3.0 m
Exit access width		3.0 m
Size of fencing or screening		unknown at this time
Type of fencing		unknown at this time

10. Building Size

Number of storeys		2
Building height	11 m	typical 7.2 m
Total ground floor area		about 192 sq m
Total gross floor area		unknown at this time
Total useable floor area		about 247 sq m

11. Off Street Parking and Loading Facilities

Number of off street parking spaces	2	2
Number of visitor parking spaces		0
Number of accessible parking spaces		0
Number of off street loading facilities		0

12. Residential (if applicable)

Number of buildings existing: none

Number of buildings proposed: fifteen single detached dwellings

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe: _____

Type	Number of Units	Floor Area per Unit in m2
Single Detached	<u>15</u>	<u>typically about 247</u>
Semi-Detached	_____	_____
Duplex	_____	_____
Triplex	_____	_____
Four-plex	_____	_____
Street Townhouse	_____	_____
Stacked Townhouse	_____	_____
Apartment - Bachelor	_____	_____
Apartment - One bedroom	_____	_____
Apartment - Two bedroom	_____	_____
Apartment - Three bedroom	_____	_____

Other facilities provided (for example: play facilities, underground parking, games room, or swimming pool):

13. Commercial/Industrial Uses (if applicable)

Number of buildings existing: _____

Number of buildings proposed: _____

Is this a conversion or addition to an existing building? ☐ Yes ☐ No

If yes, describe:

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

Seating Capacity (for assembly halls or similar): _____

Total number of fixed seats: _____

Describe the type of business(es) proposed: _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Is open storage required: ☐ Yes ☐ No

Is a residential use proposed as part of, or accessory to commercial/industrial use?

☐ Yes ☐ No If yes please describe:

14. Institutional (if applicable)

Describe the type of use proposed: _____

Seating capacity (if applicable): _____

Number of beds (if applicable): _____

Total number of staff proposed initially: _____

Total number of staff proposed in five years: _____

Maximum number of staff on the largest shift: _____

Indicate the gross floor area by the type of use (for example: office, retail, or storage):

15. Describe Recreational or Other Use(s) (if applicable)

D. Previous Use of the Property

1. Has there been an industrial or commercial use on the subject lands or adjacent lands? ☐ Yes ☐ No ☐ Unknown

If yes, specify the uses (for example: gas station or petroleum storage):

2. Is there reason to believe the subject lands may have been contaminated by former uses on the site or adjacent sites? ☐ Yes ☐ No ☐ Unknown

3. Provide the information you used to determine the answers to the above questions: owners knowledge

4. If you answered yes to any of the above questions in Section D, a previous use inventory showing all known former uses of the subject lands, or if appropriate, the adjacent lands, is needed. Is the previous use inventory attached? ☐ Yes ☐ No

E. Provincial Policy

1. Is the requested amendment consistent with the provincial policy statements issued under subsection 3(1) of the *Planning Act, R.S.O. 1990, c. P. 13*? ☐ Yes ☐ No

If no, please explain:

2. It is owner's responsibility to be aware of and comply with all relevant federal or provincial legislation, municipal by-laws or other agency approvals, including the Endangered Species Act, 2007. Have the subject lands been screened to ensure that development or site alteration will not have any impact on the habitat for endangered or threatened species further to the provincial policy statement subsection 2.1.7? ☐ Yes ☐ No

If no, please explain:

3. Have the subject lands been screened to ensure that development or site alteration will not have any impact on source water protection? ☐ Yes ☐ No

If no, please explain:

Note: If in an area of source water Wellhead Protection Area (WHPA) A, B or C please attach relevant information and approved mitigation measures from the Risk Manager Official.

4. Are any of the following uses or features on the subject lands or within 500 metres of the subject lands, unless otherwise specified? Please check boxes, if applicable.

Livestock facility or stockyard (submit MDS Calculation with application)

☐ On the subject lands or ☐ within 500 meters – distance _____

Wooded area

☒ On the subject lands or ☐ within 500 meters – distance _____

Municipal Landfill

☐ On the subject lands or ☐ within 500 meters – distance _____

Sewage treatment plant or waste stabilization plant

☐ On the subject lands or ☐ within 500 meters – distance _____

Provincially significant wetland (class 1, 2 or 3) or other environmental feature

☐ On the subject lands or ☒ within 500 meters – distance 180 m west

Floodplain

☐ On the subject lands or ☐ within 500 meters – distance _____

Rehabilitated mine site

☐ On the subject lands or ☐ within 500 meters – distance _____

Non-operating mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Active mine site within one kilometre

☐ On the subject lands or ☐ within 500 meters – distance _____

Industrial or commercial use (specify the use(s))

☐ On the subject lands or ☐ within 500 meters – distance _____

Active railway line

☐ On the subject lands or ☐ within 500 meters – distance _____

Seasonal wetness of lands

☒ On the subject lands or ☐ within 500 meters – distance _____

Erosion

☐ On the subject lands or ☐ within 500 meters – distance _____

Abandoned gas wells

☐ On the subject lands or ☐ within 500 meters – distance _____

F. Servicing and Access

1. Indicate what services are available or proposed:

Water Supply

- | | |
|--|---|
| ☐ Municipal piped water | ☐ Communal wells |
| ☒ Individual wells | ☐ Other (describe below) |
-

Sewage Treatment

- | | |
|--|---|
| ☐ Municipal sewers | ☐ Communal system |
| ☒ Septic tank and tile bed in good working order | ☐ Other (describe below) |

with the dwelling construction, these will be installed

Storm Drainage

- | | |
|--|---------------------------------------|
| ☐ Storm sewers | ☐ Open ditches |
| ☒ Other (describe below) | |

[Storm water drains and storm water management pond, and Mary McKenzie municipal drain](#)

2. Existing or proposed access to subject lands:

- | | |
|--|---|
| ☒ Municipal road | ☐ Provincial highway |
| ☐ Unopened road | ☐ Other (describe below) |

Name of road/street: Turkey Point Road, with new road yet to be named

G. Other Information

1. Does the application involve a local business? ☐ Yes ☐ No

If yes, how many people are employed on the subject lands?

2. Is there any other information that you think may be useful in the review of this application? If so, explain below or attach on a separate page.
-
-
-
-

H. Supporting Material to be submitted by Applicant

In order for your application to be considered complete, **folded** hard copies (number of paper copies as directed by the planner) and an **electronic version (PDF) of the properly named site plan drawings, additional plans, studies and reports** will be required, including but not limited to the following details:

1. Concept/Layout Plan
2. All measurements in metric
3. Key map
4. Scale, legend and north arrow
5. Legal description and municipal address
6. Development name
7. Drawing title, number, original date and revision dates
8. Owner's name, address and telephone number
9. Engineer's name, address and telephone number
10. Professional engineer's stamp
11. Existing and proposed easements and right of ways
12. Zoning compliance table – required versus proposed
13. Parking space totals – required and proposed
14. All entrances to parking areas marked with directional arrows
15. Loading spaces, facilities and routes (for commercial developments)
16. All dimensions of the subject lands
17. Dimensions and setbacks of all buildings and structures
18. Location and setbacks of septic system and well from all existing and proposed lot lines, and all existing and proposed structures
19. Gross, ground and useable floor area
20. Lot coverage
21. Floor area ratio
22. Building entrances, building type, height, grades and extent of overhangs
23. Names, dimensions and location of adjacent streets including daylighting triangles
24. Driveways, curbs, drop curbs, pavement markings, widths, radii and traffic directional signs
25. All exterior stairways and ramps with dimensions and setbacks
26. Retaining walls including materials proposed
27. Fire access and routes
28. Location, dimensions and number of parking spaces (including visitor and accessible) and drive aisles
29. Location of mechanical room, and other building services (e.g. A/C, HRV)
30. Refuse disposal and storage areas including any related screening (if indoors, need notation on site plan)
31. Winter snow storage location

32. Landscape areas with dimensions
33. Natural features, watercourses and trees
34. Fire hydrants and utilities location
35. Fencing, screening and buffering – size, type and location
36. All hard surface materials
37. Light standards and wall mounted lights (plus a note on the site plan that all outdoor lighting is to be dark sky compliant)
38. Business signs (make sure they are not in sight lines)
39. Sidewalks and walkways with dimensions
40. Pedestrian access routes into site and around site
41. Bicycle parking
42. Architectural elevations of all building sides
43. All other requirements as per the pre-consultation meeting

In addition, the following additional plans, studies and reports, including but not limited to, **may** also be required as part of the complete application submission:

- ☐ Zoning Deficiency Form
- ☐ On-Site Sewage Disposal System Evaluation Form (to verify location and condition)
- ☐ Architectural Plan
- ☐ Buildings Elevation Plan
- ☐ Cut and Fill Plan
- ☐ Erosion and Sediment Control Plan
- ☐ Grading and Drainage Control Plan (around perimeter and within site) (existing and proposed)
- ☐ Landscape Plan
- ☐ Photometric (Lighting) Plan
- ☐ Plan and Profile Drawings
- ☐ Site Servicing Plan
- ☐ Storm water Management Plan
- ☐ Street Sign and Traffic Plan
- ☐ Street Tree Planting Plan
- ☐ Tree Preservation Plan
- ☐ Archaeological Assessment
- ☐ Environmental Impact Study

- ☐ Functional Servicing Report
- ☐ Geotechnical Study / Hydrogeological Review
- ☐ Minimum Distance Separation Schedule
- ☐ Noise or Vibration Study
- ☐ Record of Site Condition
- ☐ Storm water Management Report
- ☐ Traffic Impact Study – please contact the Planner to verify the scope required

Site Plan applications will require the following supporting materials:

1. Two (2) complete sets of the site plan drawings folded to 8½ x 11 and an electronic version in PDF format
2. Letter requesting that the Holding be removed (if applicable)
3. A cost estimate prepared by the applicant's engineer
4. An estimate for Parkland dedication by a certified land appraiser
5. Property Identification Number (PIN) printout

Standard condominium exemptions will require the following supporting materials:

- ☐ Plan of standard condominium (2 paper copies and 1 electronic copy)
- ☐ Draft condominium declaration
- ☐ Property Identification Number (PIN) printout

Your development approval might also be dependent on other relevant federal or provincial legislation, municipal by-laws or other agency approvals.

All final plans must include the owner's signature as well as the engineer's signature and seal.

I. Development Agreements

A development agreement may be required prior to site plan approval, subdivision and condominium applications. Should this be necessary for your development, you will be contacted by the agreement administrator with further details of the requirements including but not limited to insurance coverage, professional liability for your engineer, additional fees and securities.

J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act*, R.S.O. 1990, c. P. 13 for the purposes of processing this application.

Peter Bosma

Owner/Applicant Signature

MAY 30/23

Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We PETER BOSMA am/~~are~~ the registered owner(s) of the lands that is the subject of this application.

I/We authorize Mary Elder of Elder Plans Inc. to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

Peter Bosma

Owner

MAY 30/23

Date

Owner

Date

N. Declaration

I, Mary Elder of Norfolk County

solemnly declare that:

all of the above statements and the statements contained in all of the exhibits transmitted herewith are true and I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of *The Canada Evidence Act*.

Declared before me at:

Owner/Applicant Signature

In _____

This _____ day of _____

A.D., 20____

A Commissioner, etc.

J. Transfers, Easements and Postponement of Interest

The owner acknowledges and agrees that if required it is their solicitor's responsibility on behalf of the owner for the registration of all transfer(s) of land to the County, and/or transfer(s) of easement in favour of the County and/or utilities. Also, the owner further acknowledges and agrees that it is their solicitor's responsibility on behalf of the owner for the registration of postponements of any charges in favour of the County.

K. Permission to Enter Subject Lands

Permission is hereby granted to Norfolk County officers, employees or agents, to enter the premises subject to this application for the purposes of making inspections associated with this application, during normal and reasonable working hours.

L. Freedom of Information

For the purposes of the *Municipal Freedom of Information and Protection of Privacy Act*, I authorize and consent to the use by or the disclosure to any person or public body any information that is collected under the authority of the *Planning Act*, R.S.O. 1990, c. P. 13 for the purposes of processing this application.

Peter Bosma

Owner/Applicant Signature

MAY 30/23

Date

M. Owner's Authorization

If the applicant/agent is not the registered owner of the lands that is the subject of this application, the owner(s) must complete the authorization set out below.

I/We PETER BOSMA am/~~are~~ the registered owner(s) of the lands that is the subject of this application.

I/We authorize Mary Elder of Elder Plans Inc. to make this application on my/our behalf and to provide any of my/our personal information necessary for the processing of this application. Moreover, this shall be your good and sufficient authorization for so doing.

Peter Bosma

Owner

MAY 30/23

Date

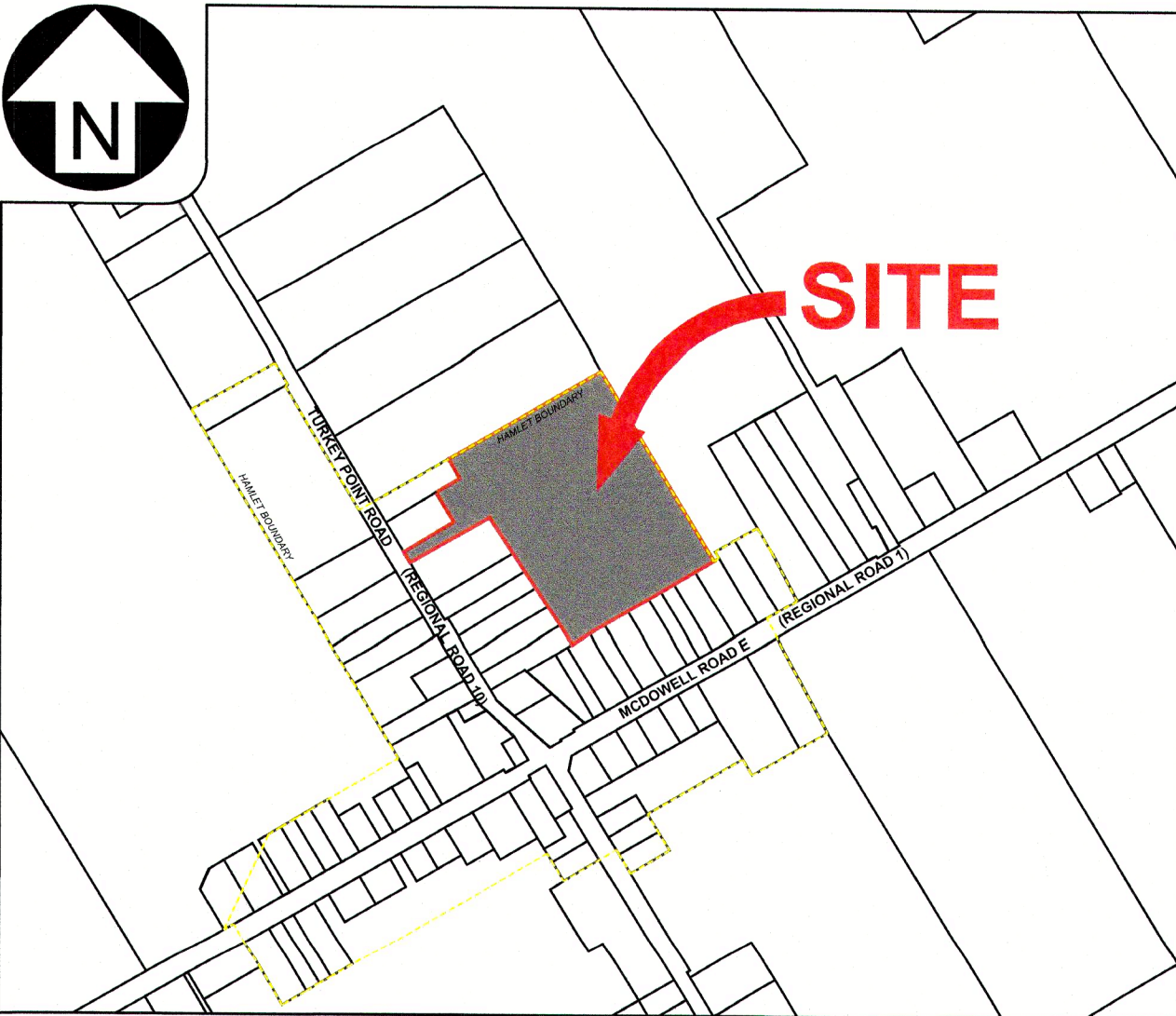
Owner

Date

DRAFT PLAN OF SUBDIVISION

PART OF LOT 13 CONCESSION 9
IN THE GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE
NORFOLK COUNTY

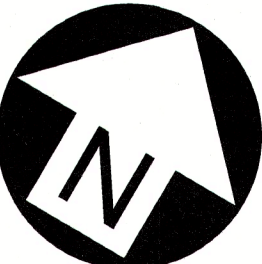
INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT RSO 1990
(A) ON PLAN
(B) ON PLAN
(C) ON PLAN
(D) LOTS 1-15 - SINGLE DETACHED RESIDENTIAL,
DEDICATED STREETS - STREET 'A',
BLOCK 16 - STORMWATER MANAGEMENT
(E) NORTH - EXISTING RESIDENTIAL & AGRICULTURE
WEST - EXISTING RESIDENTIAL
EAST - EXISTING RESIDENTIAL & AGRICULTURE
SOUTH - EXISTING RESIDENTIAL
(F) ON PLAN
(G) ON PLAN
(H) PRIVATE WELLS TO BE INSTALLED BY HOME OWNERS IN ACCORDANCE WITH THE REQUIREMENTS OF NORFOLK COUNTY
(I) SANDY LOAM
(J) ON PLAN
(K) STORM SEWERS, TELEPHONE, GAS, T.V. CABLE
(L) NORFOLK COUNTY OFFICIAL PLAN AND ZONING BY-LAWS
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



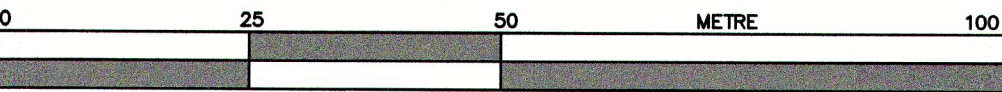
KEY PLAN
SCALE: 1 : 10,000

AREA SUMMARY

	DESCRIPTION	AREA (ha)
LOTS 1-15	SINGLE DETACHED RESIDENTIAL	6.48
DEDICATED STREETS	STREET 'A'	0.95
BLOCK 16	STORMWATER MANAGEMENT	0.62
TOTAL		8.05



SCALE: 1:750



NOTE: ORIGINAL CONTOURS SHOWN FROM C.J.D.L. SURVEY

OWNER'S CERTIFICATE

PETER BOSMA, THE REGISTERED OWNER OF THE LANDS TO BE SUBDIVIDED, HEREBY AUTHORIZE CYRIL J. DEMEYERE LIMITED TO SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

20 July 2023
DATE

Peter Bosma
PETER BOSMA

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

20 JULY 2023
DATE

Kim Huster
KIM HUSTER, ONTARIO LAND SURVEYOR

PLAN PREPARED BY:

CJDL
Consulting Engineers

JOB No. 19042

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
Fax: 519-842-3235
cjd@cjdeng.com

DATE: 20 JULY 2023

TURKEY POINT ROAD (REGIONAL ROAD 10)

CULTIVATED LANDS

CULTIVATED LANDS

STREET 'A'

STREET 'A'

SWM
BLOCK 16

EXISTING RESIDENTIAL

EXISTING RESIDENTIAL

EXISTING RESIDENTIAL



Pre-Submission Consultation Meeting Minutes

Date: April 25, 2022

Description of Proposal: 15 Lots Subdivision

Property Location: 1910 Turkey Point Road

Roll Number: 4930201130000000

As a result of the information shared at the pre-consultation meeting dated [February 9, 2022](#), the following applications and qualified professional documents / reports are required as part of the development review process.

Please note that various fees are associated with each application and there are also costs for qualified professionals retained to complete various documents / reports. All requirements identified are minimum and determined as of the date of the pre-consultation meeting with the information available at that time. As the proposal proceeds and more information is made available, additional applications, studies, reports, etc. may be required.

This summary including checklists, comments and requests are applicable for a period of one (1) year from the date of meeting. If an application is not received within that time frame, a subsequent pre-consultation meeting may be required due to changes in policies and technical requirements.

Before you submit your application, please contact the assigned Planner to confirm submission requirements and the applicable fee

Attendance List

Proponent	Peter Bosma; Andrew Gilvesy; Alex Muirhead
Community Development – Planning and Agreement	Tricia Givens, Director, Planning (Chair) Mohammad Alam, Senior Planner
Community Development – Building and Zoning	Devon Staley, Building Inspector
Environment & Infrastructure Services – Development Engineering	Stephen Gradish, Development Technologist
Community Services – Fire	Katie Ballantyne, Community Safety Officer
Paramedic Services	Stuart Burnett, Deputy Chief
Long Point Regional Conservation Authority	Isobel Johnson

Privileged Information and Without Prejudice

Table of Contents

Pre-Submission Consultation Meeting Minutes	1
Attendance List	1
Table of Contents	2
Proposal Summary	2
List of Application Requirements	3
Planning Department	3
Planning Comments	4
Committee of Adjustment	5
Agreements	5
Development Engineering	6
Development Engineering – 1910 Turkey Point Road, Charlotteville (15 Single detached dwelling)	6
Plan of Subdivision (NCDC Section 4.1.01 (A)).....	6
Conservation Authority	11
Long Point Regional Conservation Authority	11
County Departmental Comments & Requirements	14
Corporate Support Services - Accessibility for Ontarians with Disabilities Act.....	14
Building.....	14
Fire Department.....	18
Appendix A: Applicable Planning Legislation, Policy and Zoning	18
Provincial Policy Statement, 2020	18
Norfolk County Official Plan https://www.norfolkcounty.ca/government/planning/official-plan/	18
Norfolk County Zoning By-Law 1-Z-2014 https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/	18

Proposal Summary

The proposed residential subdivision will be consisting 15 single detached lots with 1 Acre of lands each. Each lot is proposed to have individual well and septic system for water and sanitary services. A storm water collection system and a SWM Pond are proposed to control the post-development outflows to pre-development level before discharging to the existing Mary-Mackenzie drain in the south-east corner of the site.

Privileged Information and Without Prejudice

List of Application Requirements

Planning Department

Planning application(s) required to proceed		Required
Official Plan Amendment Application Choose an item.		
Zoning By-law Amendment Application Choose an item.		
Site Plan Application Choose an item.		
Draft Plan of Subdivision Application		X
Draft Plan of Condominium Application		
Part Lot Control Application		
Consent / Severance Application		
Minor Variance Application		
Removal of Holding Application		X
Temporary Use By-Law Application		
Other - Click here to enter text.		
Planning requirements for a complete application The items below are to be submitted as part of the identified Planning Application(s). ** electronic/PDF copies of all plans, studies and reports are required**	Required at OPA/ Zoning Stage	Required at Draft Plan Stage
Proposed Site Plan / Drawing		X
Planning Impact Analysis Report / Justification Report		X
Environmental Impact Study Choose an item.		
Landscaping Plan		X
Elevation Plan		X
Photometrics (Lighting) Plan		
Shadow Analysis Report		
Hydrogeological Study		X
Restricted Land Use Screening Form		
Topographical Survey Drawing		X
Additional Planning requirements		Required
Development Agreement		X
Parkland Dedication/Cash-in-lieu of Parkland		X

*the list of requirements is based on the information submitted and as presented for this specific pre-consultation meeting. Any changes to a proposal may necessitate changes to Planning Department submission requirements.

Privileged Information and Without Prejudice

*Community Development fees, applications, and helpful resources can be found can be found by visiting <https://www.norfolkcounty.ca/government/planning/>

Planning Comments

The subject lands are designated 'Hamlet' in the Official Plan and zoned as 'Hamlet Residential (RH)' in the zoning By-Law 1-Z-2014. The permitted uses in RH zone includes:

- a) dwelling, single detached*
- b) bed & breakfast, subject to Subsection 3.4*
- c) day care nursery*
- d) home industry*
- e) home occupation.*

Special Provision 14.987: In lieu of the corresponding provisions in the Hamlet Residential (RH) Zone, the following shall apply:

- a) A /of frontage of 20 metres is permitted.

The 'Holding (H)' provision is a condition for a development agreement and confirmation of water and sewer capacity.

A zoning by-law amendment will not be required if all zoning provision are satisfied for RH zone.

Draft Plan of Subdivision:

The proposed Street X is terminated at the north-east end of the property. The subject lands are at the north-east end of the Hamlet Boundary and a boundary expansion is not expected in near future. Staff does not support a dead end as proposed and recommends a loop street for efficient use of land and better servicing opportunities.

A portion of the subject lands include significant woodland. Approval of Forestry will be required to for any woodland removal.

The proposed stormwater management pond may require larger access for maintenance. SWM pond at the rear of the proposed lots would be discouraged. An appropriate location would be adjacent to a street frontage to improve passive amenities and better maintenance.

Assigned Planner:

Mohammad Alam
Principal Planner
Extension 1828
Mohammad.Alam@norfolkcounty.ca

Privileged Information and Without Prejudice

Committee of Adjustment

N/A

Agreements

A recommended condition of your planning application approval will be to enter into a development agreement with the County that will be registered on title to the subject lands, at the Owner's expense.

The additional requirements for a development agreement could include, but are not limited to the following:

- Engineering drawing review
- Engineer's schedule of costs for the works
- Clearance letter and supporting documentation to support condition clearance
- User fees and performance securities
- Current property identification number (PIN printout) (can be obtained by visiting <https://help.onland.ca/en/home/>)
- Owner's commercial general liability insurance to be obtained and kept in force during the terms of the agreement
- Postponement of interest. If there are mortgagees / charges on your property identifier, your legal representative will be required to obtain a postponement from your bank or financial institution to the terms outlined in your development agreement
- Transfers and / or transfer easements along with registered reference plan

I look forward to assisting you through the agreement stage of your development through to final release of your performance securities.

Annette Helmig
Agreement and Development Coordinator
Extension 8053
Annette.Helmig@norfolkcounty.ca

Privileged Information and Without Prejudice

Development Engineering

**Development Engineering – 1910 Turkey Point Road, Charlottesville (15
Single detached dwelling)**

Plan of Subdivision (NCDC Section 4.1.01 (A))

Development Engineering requirements to proceed The below requirements are to be submitted as part of the Formal Development Planning application.	Required at Draft Plan Stage	Required at Plan of Subdivision Stage (Detailed Engineering)	Potentially Required (See Notes Section)
General Requirements			
Draft Plan	X	X	
Concept Plan	X	X	
Area Rough Grading Plan			X ³³
Lot Grading Plan		X ²²	
Siltation and Erosion Control Plan		X ²²	
General Plan of Services		X ²²	
Plan and Profile Drawings		X	
Composite Utility Plan		X ²³	
Geotechnical Report			X ³⁴
Functional Servicing Report	X ⁹	X	
Ministry of Environment, Conservation and Parks Permit		X ²⁴	
Storm Water Servicing Requirements – Section 7.0 and Section 8 Norfolk County Design Criteria and ISMP Section 4.0			
Storm Water Management Design Report (including calculations)	X ¹⁰	X ²⁵	
Storm Water Drainage Plan		X ²⁶	
Storm Sewer Design Sheet		X ²⁷	
Establish/Confirm Legal and Adequate Outlet	X ¹¹	X	
Anticipated Flow/Analysis to Receiving Collection System	X ¹²	X	
Extension of Storm Water Mainline		X	

Privileged Information and Without Prejudice

Easement and/or Block Registration	X ¹³	X	
Municipal Drainage	X ^{14, 15}	X ³⁰	
Transportation Requirements – Section 6.0 Norfolk County Design Criteria, ISMP Section 5.0, Section 6.0 and Appendix J			
Traffic Impact Study	X ¹⁶	X	
Street Signage/Traffic Control Plan		X ³¹	
Improvements to Existing Roads & Sidewalk (urbanization, pavement structure, widening sidewalk replacement, upgrades, extension and accessibility)	X ^{17, 18}	X ³²	

General Notes:

1. All reports and drawings are to be signed and stamped by a Professional Engineer (P. Eng) and adhere to Norfolk County's Design Criteria. A copy of this criteria is available upon request.
2. All Recommendations from all reports are to be implemented into the design, at the developer's expense
3. 100% securities will be required at time of registration. This is to be submitted in the form of a Security 'Schedule H' Template. A copy of this template is available upon request.
4. All applicable permits and inspections are to be issued by Public Works.
5. Norfolk County's Plan of Subdivision Criteria for submission of engineering drawings (Section 4.1.01(A) of the design criteria) is to be adhered to
6. Any required infrastructure to facilitate the development will be at the developer's expense.

Required at Draft Plan of Subdivision Stage:

7. A Draft Plan is required
8. The following reports/studies will be required at time of Draft Plan Submission:
 - a. Concept Plan;
 - b. Functional Servicing Report (as per Norfolk County Design Criteria);
 - c. Storm Water Management Report (as per Norfolk County Design Criteria);
 - d. Traffic Impact Study (as per ISMP Appendix J – TIS Guidelines);
9. A Functional Servicing Report is to be completed as per Norfolk County Design Criteria Section 3.
10. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7.
 - a. As mentioned at the Pre Con meeting Development Engineering has concerns with the identified configuration of the pond area. It appears to

Privileged Information and Without Prejudice

us to be a sliver of property squeezed into backyards and may not be as accessible for maintenance. Norfolk County requires clear access roads to all inlets and outlets of the SWM area.

- b. Norfolk County will be looking for both Quality and Quantity control in the design of the Stormwater Management.
 - c. All Stormwater Management Facility landscaping shall comply with Section 7.5.00 of Norfolk County Design Criteria.
11. Confirm Legal and Adequate outlet. It appears most of this site is tributary to the Mary MacKenzie Municipal Drain. Through the SWM report it shall be determined whether the existing drain will be considered a restricted outlet.
 12. Anticipated Flow to the receiving system
 13. All proposed Easements and/or Blocks are to be identified on the Draft Plan.
 14. Development Engineering is aware that this property drains into the "Landry" and "Mary Mackenzie" Municipal Drains. It is Development Engineering's understanding that preliminary conversations have been had between Owner/Developer/consultant and the Norfolk County Drainage Department. Prior to approval of Draft Plan, Development Engineering will require sign off from the Drainage department that the concept is in general compliance with the Drainage Act.

Any changes to the Municipal Drain or drainage area due to Intensification or increased flows will require Drainage Act compliance.

For questions or concerns pertaining to the Drainage Act please contact Bill Mayes, Drainage Superintendent, Norfolk County, bill.mayes@norfolkcounty.ca. The following items are some typical initial concerns to be aware of:

- Zoning by-law setbacks from Municipal Drains must be identified and maintained. Setbacks of 4.5m from center of tile and 9m from top of bank on all municipal drains must be illustrated on the drawings as per the Zoning By-Law. These are maintenance corridors and are not to be obstructed
 - A Drainage Act Section 65 report is required to address connections and increase in runoff to existing drain. The Engineer will address existing assessments, increase in runoff and confirm existing capacity of Drain. If a Major Improvement report is initiated a Section 65 report would not be required and can be addressed under one report.
15. The Drain report may need to be amended to address the changes as a result of this development proposal. The extent of which will be highly dependent on the final development servicing. Any or all changes to the drain or drain report will be the requirement of the proponent. Furthermore the design:
 - a. Will need an apportionment of the existing drain maintenance assessments.
 - b. Will need an engineer report to address change in land use/increase in runoff.
 - c. May need an engineer report for any drain alterations if required.

Privileged Information and Without Prejudice

The drain will accommodate drainage from the development but to the extent of the existing conditions which would be considered a limited outlet. The drain is designed to an agricultural drain design standard which considered this property as farmland. Any additional runoff will need to be managed on-site or alterations to the drain through an engineer report under the *Drainage Act*.

16. As per Norfolk County's Integrated Sustainable Master Plan (ISMP) – Appendix J: Traffic Impact Study (TIS) Guidelines, a Traffic Impact Study is required with every planning application.
It appears a TIS was completed at the time of Zone change in 2020. A review should be done by the Engineer to ensure data is still current and resubmitted as part of the Draft Plan application.
17. All Cul-de-sac's shall be designed and constructed as per Section 6.3.04 of Norfolk County Design Criteria. The following must be considered:
 - a. It should be noted that Cul-de-sacs should be avoided. As stated in Section 6.3.04 "Subdivision Street pattern designs should try to avoid the use of cul-de-sacs". As discussed at the Pre Con meeting the planner proposed alternative options to be investigated. Development Engineering will be looking for justification that the Developer has investigated everything to avoid Cul-de-sac's.
 - b. As stated in Section 6.3.04, Cul-de-sac for rural roadside environments shall conform to OPSD-500.01. In addition, Development Engineering will be looking for the Engineer to confirm that fire trucks and garbage collection vehicles can adequately operate within the road design including any bulb construction. It must also be confirmed if any parking restrictions would be required to ensure turning radius are maintained.
18. As per Norfolk County Design Criteria Section 6.3.05 – Temporary Turning Circles, the concept of Street 'X' and Block 18 will not be permitted east of Street 'Y' as shown. If the concept of providing future access to the lands east of this development is the preferred choice, then a Temporary Turning Circle will be required.
In the opinion of Development Engineering, it is not recommended to have a future road allowance facing an area outside of the Hamlet Boundary.

Required at Detailed Engineering review for Plan of Subdivision Stage:

19. Norfolk County's Plan of Subdivision Criteria for submission of engineering drawings (Section 4.1.01(A) of the design criteria) is to be adhered to.
20. All reports and studies above are to be submitted again including any required amendments. All Recommendations from all reports are to be implemented into the design, at the developer's expense
21. A master grading plan will be required. This plan shows the proposed grading for the overall development.

Privileged Information and Without Prejudice

22. Lot Grading Plan, Siltation and Erosion Control Plan, and General Plan of Services (Domestic well and Septic system locations) drawing can be shown on one engineering plan as long as it's legible for review.
23. Composite Utility Plan -This plan will identify the proposed Hydro servicing design as well as all criteria in Section 4.4.07 of Norfolk County Design Criteria.
24. Ministry of Environment, Conservation and Parks (MECP) permits are required for any proposed Stormwater Management Pond facilities.
25. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7
26. A Storm Drainage plan is required. This plan must include all tributary areas outside of the boundaries of the subject property to accurately show the overall Drainage area.
27. Storm sewer design sheets will be required if Storm sewers are designed.
28. Confirm Legal and Adequate outlet
29. Anticipated Flow to the receiving system
30. Specific to Municipal Drains, all comments made above for Draft Plan will require further review at detailed Engineering review. Final approval will be dependant on approval from Norfolk County Drainage Department.
31. A Street Signage and Traffic control Plan will be required. The developer should be aware that Norfolk County no longer supplies Street signs for developments. The developer is responsible to source all signs as per Norfolk County Design Criteria Section 12.
32. Additional street lighting along Turkey Point Road may be required as per Norfolk County Design Criteria. The number of streetlights within the subdivision limits must be determined by a Photometric Plan prepared by a lighting consultant.

Potentially Required Notes:

33. Area Rough Grading Plan is required where earth cuts and fills are in excess of 0.5m.
34. A Geotechnical Report will be required if infiltration galleries are proposed for the Stormwater Management design.

Stephen Gradish
Development Technologist
Extension 8015
Stephen.Gradish@norfolkcounty.ca

Privileged Information and Without Prejudice

Conservation Authority

Long Point Regional Conservation Authority

CONSERVATION AUTHORITY REQUIREMENTS - February 9th, 2022. The below requirements are to be submitted as part of the proposal for development at 1910 Turkey Point road.	May be Required	Required
Conservation Authority Permit	X	
Slope Stability Analysis/ Erosion Analysis		
Coastal Engineers Report		
Environmental Impact Study		
Subwatershed Plan/Study		
Master Drainage Study		
Stormwater Management Report		X
Other		

Notes:

Provincial Policy Statement, 2020, Section 3.1 Natural Hazards

Conservation Authorities have been delegated responsibilities from the Minister of Natural Resources and Forestry to represent the provincial interests regarding natural hazards encompassed by Section 3.1 of the Provincial Policy Statement, 2020 (PPS). The overall intent of Section 3.0 - Protecting Public Health and Safety of the PPS is to reduce the potential public cost or risk to Ontario's residents from natural or human-made hazards.

The subject property is subject to flooding and erosion hazards from the Mary McKenzie Drain. I can advise that the proposed development is consistent with section 3.1 of the Provincial Policy Statement, 2020. As the proposed development is outside the area subject to hazards, LPRCA has no objection to the concept of site development.

Stormwater Management

LPRCA will review the final stormwater management design using the 2003 MECP Stormwater Management Planning and Design Manual, MTO Drainage Manual, LID Stormwater Management Manual, the sustainable technologies STEP website <https://sustainabletechnologies.ca/>, and the Municipal SWM guidelines.

Based on the site and receiving watercourse, an enhanced level of treatment as per the 2003 MECP Stormwater Management Planning and Design Manual is required for the proposed development.

LPRCA requires the following be included and addressed in the design of stormwater management:

Privileged Information and Without Prejudice

- Minimize, or, where possible, prevent increases in contaminant loads.
- Minimize, erosion and changes in water balance, and prepare for the impacts of a changing climate through the effect management of stormwater, including the use of green infrastructure.
- Mitigate risks to human health, safety, property and the environment.
- Maximize the extent and function of vegetative and pervious surfaces.
- Implement stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development, for end of pipe facilities 24-48hr drawdown times to be targeted in all case.
- Adequate and legal outlet for major, minor, and all flow conditions from the site be provided.

In addition to the above requirements, the following must be clearly shown of the submitted design drawings:

- Major flow systems exceeding are delineated on the drawing. Overland flow paths and depths from surcharged storm sewer systems and the stormwater treatment facility must not increase the flood risk to life, property and the environment.
- Minor overland flow systems and paths are to be delineated and shown on the drawings.
- Erosion and sedimentation control during construction.
- Adequate erosion control on inlets and outlets.

Ontario Regulation 178/06

The subject lands are regulated under Ontario Regulation 178/06. If development is proposed within 15 metres of the drain, a permit from this office is required. We suggest all development be setback at least 15m from the drain.

Development is defined as:

- the construction, reconstruction, erection or placing of a building or structure of any kind,
- any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
- site grading, or
- the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere (Conservation Authorities Act, R.S.O. 1990, c. 27, s. 28 (25))

Please contact me if there are further questions in this regard.

Privileged Information and Without Prejudice

Isabel Johnson, MES

Resource Planner

Office: 519-842-4242 ext. 229

Email: ijohnson@lprca.on.ca

Privileged Information and Without Prejudice

County Departmental Comments & Requirements

Corporate Support Services - Accessibility for Ontarians with Disabilities Act

No comments at this time

Sam McFarlane
Manager, Accessibility and Special Projects
Corporate Support Services
519-426-5870 x. 8099
Sam.McFarlane@norfolkcounty.ca

Building

Zoning Administrator:

Lots zoned RH –looks to meet requirements of section 5.7.2 for lot area and frontage. A zoning table will need to be provided on site plan to ensure compliance to section 5.7.2 for all lots and placement of dwelling units. Please refer to section 4.0 of the bylaw to understand parking requirements for each dwelling unit.

Roxanne Lambrecht
Zoning Administrator
Extension 1839
Roxanne.Lambrecht@norfolkcounty.ca

Building Inspector:

1910 Turkey Point Road, Simcoe

Please refer to our website for current forms, and fees.

<https://www.norfolkcounty.ca/business/building/>

The proposed construction is considered a Part 9- Group C Residential as defined by the Ontario Building Code (OBC). You will need to retain the services of a qualified individual with BCIN House and HVAC House, an Architect and/or a Professional Engineer to complete the design documentation for this application.

Items for Building Permit

+ Single Family Dwelling

What do I need to apply?

Completed Forms

Privileged Information and Without Prejudice

1. Building Permit Application Form
2. Schedule 1: Designer Information
3. Property Owner Consent Form, if application is not completed by the property owner,
4. Applicable Law Checklist and supporting documents.
5. Lot grading form or exemption request.
6. Water, storm sewer, sanitary sewer connection permit (where required)
7. Energy Efficiency Design Summary (EEDS form)
8. Residential Mechanical Ventilation Design Summary form

Required Documents

9. Plot Plan (link to plot plan sample)
 - o Property lines and lot dimension,
 - o Location of dwelling and all other structures on the lot,
 - o Location of all steps and landing,
 - o Distance from dwelling to property lines
 - o Parking spots with dimensions
10. Lot grading plan
1. Drawings of the Single Family dwelling.
 - o Floor plans,
 - o Elevations,
 - o Cross sections of exterior wall from footing to roof.
2. Roof truss layout (where required)
3. Engineered floor system layout (where required)
4. Engineered beam details (i.e. Parallam, Micro-lam) (where required)
5. Heat loss calculations
6. Ventilation duct design
 - o Heat Recovery Ventilator (HRV) duct sizing and layout,
 - o Exhaust fan duct sizing and layout.
7. Septic application (where required) This is a separate application, see septic

Fees

8. Building Permit fee
9. Plumbing fee
10. Occupancy fee
11. Water/storm/sanitary connection fees (where applicable)
12. Civic address (where applicable)
13. Development changes (where applicable)

+ Septic - Do I need a septic permit?

A building permit is required to install a new septic system, repair or replace any part of the septic system. Norfolk County does not keep records on well locations.

Septic Permit is required if the daily design flow is 10,000 litres/day or below for the whole site.

Privileged Information and Without Prejudice

Sewage Works is required if the daily design flow exceed 10,000 litres/day for the whole site.

An Environmental Compliance Certificate (ECA) is required from the Ministry of Environment, Conservation and Parks (MECP) for a sewage works.

Contact: *Christopher O'Connor* Phone: 905-521-7888 or 1-800-668-4557

Cell: 905-515-9618 Email: Chris.O'Connor2@ontario.ca

Environmental Compliance Approval process can be found at:

<https://www.ontario.ca/document/guide-applying-environmental-compliance-approval-0>

What do I need for to apply?

Completed Forms

11. Building Permit Application Form
12. Schedule 1: Designer Information
14. Schedule 2: Sewage System Installer Information

Required Documents

15. Septic system design (link to form)
16. Percolation time ('T' time) report from a licensed testing agency

Fees

17. Septic Permit fee

+ Demolition Permit (if required)

A demolition permit is required anytime a building area is reduced or a building is demolished. A demolition permit is not required for a building on a farm.

What do I need for to apply?

Completed Forms

1. Building Permit Application Form
2. Commitment to General Review if:
 - o Building exceeds 3 storeys in building height or 600m.sq in building area,
 - o Building Contains pre-tensions or post-tensioned members,
 - o Demolition will be below the level of footing of an adjacent building,
 - o Building to demolished with explosive or lasers.
3. Property Owner Consent Form, if application is not completed by the property owner,
4. Applicable Law Checklist and supporting documents.
5. Demolition Checklist

Required Documents

6. Plot Plan
 - o Property lines and lot dimension,
 - o Location of demolished building and all other structures on the lot,
 - o Distance from demolished building to property lines,

Fees

18. Demolition Permit fee

Privileged Information and Without Prejudice

Currently, all permit can be applied for by email to permits@norfolkcounty.ca. Our Permit Coordinators will review your application and provide in writing any item which may be missing from the application and a cost break down for the permit fees and payment options.

If you have any question on the building permit process or plans required, please contact the building department at permits@norfolkcounty.ca

Devon Staley
Building Inspector
Extension 8108
Devon.staley@norfolkcounty.ca

Privileged Information and Without Prejudice

Fire Department

Comments for this proposal are as follows:

- Hydrants are to be provided as per Ontario Building Code 3.2.5. requirements
- Internal roadways built to Development Engineering standards and are to meet the OBC 3.2.5. requirements for a fire access route
 - o On-street parking to be discussed and determine width requirement

Katie Ballantyne

Community Safety Officer

Extension 2423

Katie.ballantyne@norfolkcounty.ca

Appendix A: Applicable Planning Legislation, Policy and Zoning

Provincial Policy Statement, 2020

<https://www.ontario.ca/page/provincial-policy-statement-2020>

Norfolk County Official Plan

<https://www.norfolkcounty.ca/government/planning/official-plan/>

Section 9.6.1 outlines requirements in relation to requests to amend the Official Plan.

Section 9.6.2 outlines requirements in relation to requests to amend the Zoning By-law.

It is the responsibility of the proponent to review and ensure relevant Official Plan policies are addressed in any future development application.

Norfolk County Zoning By-Law 1-Z-2014

<https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/>

The provisions of the Norfolk County Zoning By-Law shall apply to all lands within the boundaries of Norfolk County. No land, building or structure shall be used, erected or altered in whole or in part except in conformity with the provisions of this By-Law. No land, building or structure shall be used or occupied except for uses that are specifically identified in the By-Law as permitted uses by the relevant zoning category.

It is the responsibility of the proponent to review and ensure relevant Zoning By-law provisions are addressed in any future development application



Pre-Submission Consultation Meeting Minutes

Date: April 25, 2022

Description of Proposal: 15 Lots Subdivision

Property Location: 1910 Turkey Point Road

Roll Number: 4930201130000000

As a result of the information shared at the pre-consultation meeting dated [February 9, 2022](#), the following applications and qualified professional documents / reports are required as part of the development review process.

Please note that various fees are associated with each application and there are also costs for qualified professionals retained to complete various documents / reports. All requirements identified are minimum and determined as of the date of the pre-consultation meeting with the information available at that time. As the proposal proceeds and more information is made available, additional applications, studies, reports, etc. may be required.

This summary including checklists, comments and requests are applicable for a period of one (1) year from the date of meeting. If an application is not received within that time frame, a subsequent pre-consultation meeting may be required due to changes in policies and technical requirements.

Before you submit your application, please contact the assigned Planner to confirm submission requirements and the applicable fee

Attendance List

Proponent	Peter Bosma; Andrew Gilvesy; Alex Muirhead
Community Development – Planning and Agreement	Tricia Givens, Director, Planning (Chair) Mohammad Alam, Senior Planner
Community Development – Building and Zoning	Devon Staley, Building Inspector
Environment & Infrastructure Services – Development Engineering	Stephen Gradish, Development Technologist
Community Services – Fire	Katie Ballantyne, Community Safety Officer
Paramedic Services	Stuart Burnett, Deputy Chief
Long Point Regional Conservation Authority	Isobel Johnson

Privileged Information and Without Prejudice

Table of Contents

Pre-Submission Consultation Meeting Minutes	1
Attendance List	1
Table of Contents	2
Proposal Summary	2
List of Application Requirements	3
Planning Department	3
Planning Comments	4
Committee of Adjustment	5
Agreements	5
Development Engineering	6
Development Engineering – 1910 Turkey Point Road, Charlotteville (15 Single detached dwelling)	6
Plan of Subdivision (NCDC Section 4.1.01 (A)).....	6
Conservation Authority	11
Long Point Regional Conservation Authority	11
County Departmental Comments & Requirements	14
Corporate Support Services - Accessibility for Ontarians with Disabilities Act.....	14
Building.....	14
Fire Department.....	18
Appendix A: Applicable Planning Legislation, Policy and Zoning	18
Provincial Policy Statement, 2020	18
Norfolk County Official Plan https://www.norfolkcounty.ca/government/planning/official-plan/	18
Norfolk County Zoning By-Law 1-Z-2014 https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/	18

Proposal Summary

The proposed residential subdivision will be consisting 15 single detached lots with 1 Acre of lands each. Each lot is proposed to have individual well and septic system for water and sanitary services. A storm water collection system and a SWM Pond are proposed to control the post-development outflows to pre-development level before discharging to the existing Mary-Mackenzie drain in the south-east corner of the site.

Privileged Information and Without Prejudice

List of Application Requirements

Planning Department

Planning application(s) required to proceed		Required
Official Plan Amendment Application Choose an item.		
Zoning By-law Amendment Application Choose an item.		
Site Plan Application Choose an item.		
Draft Plan of Subdivision Application		X
Draft Plan of Condominium Application		
Part Lot Control Application		
Consent / Severance Application		
Minor Variance Application		
Removal of Holding Application		X
Temporary Use By-Law Application		
Other - Click here to enter text.		
Planning requirements for a complete application The items below are to be submitted as part of the identified Planning Application(s). ** electronic/PDF copies of all plans, studies and reports are required**	Required at OPA/ Zoning Stage	Required at Draft Plan Stage
Proposed Site Plan / Drawing		X
Planning Impact Analysis Report / Justification Report		X
Environmental Impact Study Choose an item.		
Landscaping Plan		X
Elevation Plan		X
Photometrics (Lighting) Plan		
Shadow Analysis Report		
Hydrogeological Study		X
Restricted Land Use Screening Form		
Topographical Survey Drawing		X
Additional Planning requirements		Required
Development Agreement		X
Parkland Dedication/Cash-in-lieu of Parkland		X

*the list of requirements is based on the information submitted and as presented for this specific pre-consultation meeting. Any changes to a proposal may necessitate changes to Planning Department submission requirements.

Privileged Information and Without Prejudice

*Community Development fees, applications, and helpful resources can be found can be found by visiting <https://www.norfolkcounty.ca/government/planning/>

Planning Comments

The subject lands are designated 'Hamlet' in the Official Plan and zoned as 'Hamlet Residential (RH)' in the zoning By-Law 1-Z-2014. The permitted uses in RH zone includes:

- a) dwelling, single detached*
- b) bed & breakfast, subject to Subsection 3.4*
- c) day care nursery*
- d) home industry*
- e) home occupation.*

Special Provision 14.987: In lieu of the corresponding provisions in the Hamlet Residential (RH) Zone, the following shall apply:

- a) A /of frontage of 20 metres is permitted.

The 'Holding (H)' provision is a condition for a development agreement and confirmation of water and sewer capacity.

A zoning by-law amendment will not be required if all zoning provision are satisfied for RH zone.

Draft Plan of Subdivision:

The proposed Street X is terminated at the north-east end of the property. The subject lands are at the north-east end of the Hamlet Boundary and a boundary expansion is not expected in near future. Staff does not support a dead end as proposed and recommends a loop street for efficient use of land and better servicing opportunities.

A portion of the subject lands include significant woodland. Approval of Forestry will be required to for any woodland removal.

The proposed stormwater management pond may require larger access for maintenance. SWM pond at the rear of the proposed lots would be discouraged. An appropriate location would be adjacent to a street frontage to improve passive amenities and better maintenance.

Assigned Planner:

Mohammad Alam
Principal Planner
Extension 1828
Mohammad.Alam@norfolkcounty.ca

Privileged Information and Without Prejudice

Committee of Adjustment

N/A

Agreements

A recommended condition of your planning application approval will be to enter into a development agreement with the County that will be registered on title to the subject lands, at the Owner's expense.

The additional requirements for a development agreement could include, but are not limited to the following:

- Engineering drawing review
- Engineer's schedule of costs for the works
- Clearance letter and supporting documentation to support condition clearance
- User fees and performance securities
- Current property identification number (PIN printout) (can be obtained by visiting <https://help.onland.ca/en/home/>)
- Owner's commercial general liability insurance to be obtained and kept in force during the terms of the agreement
- Postponement of interest. If there are mortgagees / charges on your property identifier, your legal representative will be required to obtain a postponement from your bank or financial institution to the terms outlined in your development agreement
- Transfers and / or transfer easements along with registered reference plan

I look forward to assisting you through the agreement stage of your development through to final release of your performance securities.

Annette Helmig
Agreement and Development Coordinator
Extension 8053
Annette.Helmig@norfolkcounty.ca

Privileged Information and Without Prejudice

Development Engineering

**Development Engineering – 1910 Turkey Point Road, Charlottesville (15
Single detached dwelling)**

Plan of Subdivision (NCDC Section 4.1.01 (A))

Development Engineering requirements to proceed The below requirements are to be submitted as part of the Formal Development Planning application.	Required at Draft Plan Stage	Required at Plan of Subdivision Stage (Detailed Engineering)	Potentially Required (See Notes Section)
General Requirements			
Draft Plan	X	X	
Concept Plan	X	X	
Area Rough Grading Plan			X ³³
Lot Grading Plan		X ²²	
Siltation and Erosion Control Plan		X ²²	
General Plan of Services		X ²²	
Plan and Profile Drawings		X	
Composite Utility Plan		X ²³	
Geotechnical Report			X ³⁴
Functional Servicing Report	X ⁹	X	
Ministry of Environment, Conservation and Parks Permit		X ²⁴	
Storm Water Servicing Requirements – Section 7.0 and Section 8 Norfolk County Design Criteria and ISMP Section 4.0			
Storm Water Management Design Report (including calculations)	X ¹⁰	X ²⁵	
Storm Water Drainage Plan		X ²⁶	
Storm Sewer Design Sheet		X ²⁷	
Establish/Confirm Legal and Adequate Outlet	X ¹¹	X	
Anticipated Flow/Analysis to Receiving Collection System	X ¹²	X	
Extension of Storm Water Mainline		X	

Privileged Information and Without Prejudice

Easement and/or Block Registration	X ¹³	X	
Municipal Drainage	X ^{14, 15}	X ³⁰	
Transportation Requirements – Section 6.0 Norfolk County Design Criteria, ISMP Section 5.0, Section 6.0 and Appendix J			
Traffic Impact Study	X ¹⁶	X	
Street Signage/Traffic Control Plan		X ³¹	
Improvements to Existing Roads & Sidewalk (urbanization, pavement structure, widening sidewalk replacement, upgrades, extension and accessibility)	X ^{17, 18}	X ³²	

General Notes:

1. All reports and drawings are to be signed and stamped by a Professional Engineer (P. Eng) and adhere to Norfolk County's Design Criteria. A copy of this criteria is available upon request.
2. All Recommendations from all reports are to be implemented into the design, at the developer's expense
3. 100% securities will be required at time of registration. This is to be submitted in the form of a Security 'Schedule H' Template. A copy of this template is available upon request.
4. All applicable permits and inspections are to be issued by Public Works.
5. Norfolk County's Plan of Subdivision Criteria for submission of engineering drawings (Section 4.1.01(A) of the design criteria) is to be adhered to
6. Any required infrastructure to facilitate the development will be at the developer's expense.

Required at Draft Plan of Subdivision Stage:

7. A Draft Plan is required
8. The following reports/studies will be required at time of Draft Plan Submission:
 - a. Concept Plan;
 - b. Functional Servicing Report (as per Norfolk County Design Criteria);
 - c. Storm Water Management Report (as per Norfolk County Design Criteria);
 - d. Traffic Impact Study (as per ISMP Appendix J – TIS Guidelines);
9. A Functional Servicing Report is to be completed as per Norfolk County Design Criteria Section 3.
10. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7.
 - a. As mentioned at the Pre Con meeting Development Engineering has concerns with the identified configuration of the pond area. It appears to

Privileged Information and Without Prejudice

us to be a sliver of property squeezed into backyards and may not be as accessible for maintenance. Norfolk County requires clear access roads to all inlets and outlets of the SWM area.

- b. Norfolk County will be looking for both Quality and Quantity control in the design of the Stormwater Management.
 - c. All Stormwater Management Facility landscaping shall comply with Section 7.5.00 of Norfolk County Design Criteria.
11. Confirm Legal and Adequate outlet. It appears most of this site is tributary to the Mary MacKenzie Municipal Drain. Through the SWM report it shall be determined whether the existing drain will be considered a restricted outlet.
 12. Anticipated Flow to the receiving system
 13. All proposed Easements and/or Blocks are to be identified on the Draft Plan.
 14. Development Engineering is aware that this property drains into the "Landry" and "Mary Mackenzie" Municipal Drains. It is Development Engineering's understanding that preliminary conversations have been had between Owner/Developer/consultant and the Norfolk County Drainage Department. Prior to approval of Draft Plan, Development Engineering will require sign off from the Drainage department that the concept is in general compliance with the Drainage Act.

Any changes to the Municipal Drain or drainage area due to Intensification or increased flows will require Drainage Act compliance.

For questions or concerns pertaining to the Drainage Act please contact Bill Mayes, Drainage Superintendent, Norfolk County, bill.mayes@norfolkcounty.ca. The following items are some typical initial concerns to be aware of:

- Zoning by-law setbacks from Municipal Drains must be identified and maintained. Setbacks of 4.5m from center of tile and 9m from top of bank on all municipal drains must be illustrated on the drawings as per the Zoning By-Law. These are maintenance corridors and are not to be obstructed
 - A Drainage Act Section 65 report is required to address connections and increase in runoff to existing drain. The Engineer will address existing assessments, increase in runoff and confirm existing capacity of Drain. If a Major Improvement report is initiated a Section 65 report would not be required and can be addressed under one report.
15. The Drain report may need to be amended to address the changes as a result of this development proposal. The extent of which will be highly dependent on the final development servicing. Any or all changes to the drain or drain report will be the requirement of the proponent. Furthermore the design:
 - a. Will need an apportionment of the existing drain maintenance assessments.
 - b. Will need an engineer report to address change in land use/increase in runoff.
 - c. May need an engineer report for any drain alterations if required.

Privileged Information and Without Prejudice

The drain will accommodate drainage from the development but to the extent of the existing conditions which would be considered a limited outlet. The drain is designed to an agricultural drain design standard which considered this property as farmland. Any additional runoff will need to be managed on-site or alterations to the drain through an engineer report under the *Drainage Act*.

16. As per Norfolk County's Integrated Sustainable Master Plan (ISMP) – Appendix J: Traffic Impact Study (TIS) Guidelines, a Traffic Impact Study is required with every planning application.
It appears a TIS was completed at the time of Zone change in 2020. A review should be done by the Engineer to ensure data is still current and resubmitted as part of the Draft Plan application.
17. All Cul-de-sac's shall be designed and constructed as per Section 6.3.04 of Norfolk County Design Criteria. The following must be considered:
 - a. It should be noted that Cul-de-sacs should be avoided. As stated in Section 6.3.04 "Subdivision Street pattern designs should try to avoid the use of cul-de-sacs". As discussed at the Pre Con meeting the planner proposed alternative options to be investigated. Development Engineering will be looking for justification that the Developer has investigated everything to avoid Cul-de-sac's.
 - b. As stated in Section 6.3.04, Cul-de-sac for rural roadside environments shall conform to OPSD-500.01. In addition, Development Engineering will be looking for the Engineer to confirm that fire trucks and garbage collection vehicles can adequately operate within the road design including any bulb construction. It must also be confirmed if any parking restrictions would be required to ensure turning radius are maintained.
18. As per Norfolk County Design Criteria Section 6.3.05 – Temporary Turning Circles, the concept of Street 'X' and Block 18 will not be permitted east of Street 'Y' as shown. If the concept of providing future access to the lands east of this development is the preferred choice, then a Temporary Turning Circle will be required.
In the opinion of Development Engineering, it is not recommended to have a future road allowance facing an area outside of the Hamlet Boundary.

Required at Detailed Engineering review for Plan of Subdivision Stage:

19. Norfolk County's Plan of Subdivision Criteria for submission of engineering drawings (Section 4.1.01(A) of the design criteria) is to be adhered to.
20. All reports and studies above are to be submitted again including any required amendments. All Recommendations from all reports are to be implemented into the design, at the developer's expense
21. A master grading plan will be required. This plan shows the proposed grading for the overall development.

Privileged Information and Without Prejudice

22. Lot Grading Plan, Siltation and Erosion Control Plan, and General Plan of Services (Domestic well and Septic system locations) drawing can be shown on one engineering plan as long as it's legible for review.
23. Composite Utility Plan -This plan will identify the proposed Hydro servicing design as well as all criteria in Section 4.4.07 of Norfolk County Design Criteria.
24. Ministry of Environment, Conservation and Parks (MECP) permits are required for any proposed Stormwater Management Pond facilities.
25. Stormwater Management Report is to be completed as per Norfolk County Design Criteria Section 7
26. A Storm Drainage plan is required. This plan must include all tributary areas outside of the boundaries of the subject property to accurately show the overall Drainage area.
27. Storm sewer design sheets will be required if Storm sewers are designed.
28. Confirm Legal and Adequate outlet
29. Anticipated Flow to the receiving system
30. Specific to Municipal Drains, all comments made above for Draft Plan will require further review at detailed Engineering review. Final approval will be dependant on approval from Norfolk County Drainage Department.
31. A Street Signage and Traffic control Plan will be required. The developer should be aware that Norfolk County no longer supplies Street signs for developments. The developer is responsible to source all signs as per Norfolk County Design Criteria Section 12.
32. Additional street lighting along Turkey Point Road may be required as per Norfolk County Design Criteria. The number of streetlights within the subdivision limits must be determined by a Photometric Plan prepared by a lighting consultant.

Potentially Required Notes:

33. Area Rough Grading Plan is required where earth cuts and fills are in excess of 0.5m.
34. A Geotechnical Report will be required if infiltration galleries are proposed for the Stormwater Management design.

Stephen Gradish
Development Technologist
Extension 8015
Stephen.Gradish@norfolkcounty.ca

Privileged Information and Without Prejudice

Conservation Authority

Long Point Regional Conservation Authority

CONSERVATION AUTHORITY REQUIREMENTS - February 9th, 2022. The below requirements are to be submitted as part of the proposal for development at 1910 Turkey Point road.	May be Required	Required
Conservation Authority Permit	X	
Slope Stability Analysis/ Erosion Analysis		
Coastal Engineers Report		
Environmental Impact Study		
Subwatershed Plan/Study		
Master Drainage Study		
Stormwater Management Report		X
Other		

Notes:

Provincial Policy Statement, 2020, Section 3.1 Natural Hazards

Conservation Authorities have been delegated responsibilities from the Minister of Natural Resources and Forestry to represent the provincial interests regarding natural hazards encompassed by Section 3.1 of the Provincial Policy Statement, 2020 (PPS). The overall intent of Section 3.0 - Protecting Public Health and Safety of the PPS is to reduce the potential public cost or risk to Ontario's residents from natural or human-made hazards.

The subject property is subject to flooding and erosion hazards from the Mary McKenzie Drain. I can advise that the proposed development is consistent with section 3.1 of the Provincial Policy Statement, 2020. As the proposed development is outside the area subject to hazards, LPRCA has no objection to the concept of site development.

Stormwater Management

LPRCA will review the final stormwater management design using the 2003 MECP Stormwater Management Planning and Design Manual, MTO Drainage Manual, LID Stormwater Management Manual, the sustainable technologies STEP website <https://sustainabletechnologies.ca/>, and the Municipal SWM guidelines.

Based on the site and receiving watercourse, an enhanced level of treatment as per the 2003 MECP Stormwater Management Planning and Design Manual is required for the proposed development.

LPRCA requires the following be included and addressed in the design of stormwater management:

Privileged Information and Without Prejudice

- Minimize, or, where possible, prevent increases in contaminant loads.
- Minimize, erosion and changes in water balance, and prepare for the impacts of a changing climate through the effect management of stormwater, including the use of green infrastructure.
- Mitigate risks to human health, safety, property and the environment.
- Maximize the extent and function of vegetative and pervious surfaces.
- Implement stormwater management best practices, including stormwater attenuation and re-use, water conservation and efficiency, and low impact development, for end of pipe facilities 24-48hr drawdown times to be targeted in all case.
- Adequate and legal outlet for major, minor, and all flow conditions from the site be provided.

In addition to the above requirements, the following must be clearly shown of the submitted design drawings:

- Major flow systems exceeding are delineated on the drawing. Overland flow paths and depths from surcharged storm sewer systems and the stormwater treatment facility must not increase the flood risk to life, property and the environment.
- Minor overland flow systems and paths are to be delineated and shown on the drawings.
- Erosion and sedimentation control during construction.
- Adequate erosion control on inlets and outlets.

Ontario Regulation 178/06

The subject lands are regulated under Ontario Regulation 178/06. If development is proposed within 15 metres of the drain, a permit from this office is required. We suggest all development be setback at least 15m from the drain.

Development is defined as:

- the construction, reconstruction, erection or placing of a building or structure of any kind,
- any change to a building or structure that would have the effect of altering the use or potential use of the building or structure, increasing the size of the building or structure or increasing the number of dwelling units in the building or structure,
- site grading, or
- the temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere (Conservation Authorities Act, R.S.O. 1990, c. 27, s. 28 (25))

Please contact me if there are further questions in this regard.

Privileged Information and Without Prejudice

Isabel Johnson, MES

Resource Planner

Office: 519-842-4242 ext. 229

Email: ijohnson@lprca.on.ca

Privileged Information and Without Prejudice

County Departmental Comments & Requirements

Corporate Support Services - Accessibility for Ontarians with Disabilities Act

No comments at this time

Sam McFarlane
Manager, Accessibility and Special Projects
Corporate Support Services
519-426-5870 x. 8099
Sam.McFarlane@norfolkcounty.ca

Building

Zoning Administrator:

Lots zoned RH –looks to meet requirements of section 5.7.2 for lot area and frontage. A zoning table will need to be provided on site plan to ensure compliance to section 5.7.2 for all lots and placement of dwelling units. Please refer to section 4.0 of the bylaw to understand parking requirements for each dwelling unit.

Roxanne Lambrecht
Zoning Administrator
Extension 1839
Roxanne.Lambrecht@norfolkcounty.ca

Building Inspector:

1910 Turkey Point Road, Simcoe

Please refer to our website for current forms, and fees.

<https://www.norfolkcounty.ca/business/building/>

The proposed construction is considered a Part 9- Group C Residential as defined by the Ontario Building Code (OBC). You will need to retain the services of a qualified individual with BCIN House and HVAC House, an Architect and/or a Professional Engineer to complete the design documentation for this application.

Items for Building Permit

+ Single Family Dwelling

What do I need to apply?

Completed Forms

Privileged Information and Without Prejudice

1. Building Permit Application Form
2. Schedule 1: Designer Information
3. Property Owner Consent Form, if application is not completed by the property owner,
4. Applicable Law Checklist and supporting documents.
5. Lot grading form or exemption request.
6. Water, storm sewer, sanitary sewer connection permit (where required)
7. Energy Efficiency Design Summary (EEDS form)
8. Residential Mechanical Ventilation Design Summary form

Required Documents

9. Plot Plan (link to plot plan sample)
 - o Property lines and lot dimension,
 - o Location of dwelling and all other structures on the lot,
 - o Location of all steps and landing,
 - o Distance from dwelling to property lines
 - o Parking spots with dimensions
10. Lot grading plan
1. Drawings of the Single Family dwelling.
 - o Floor plans,
 - o Elevations,
 - o Cross sections of exterior wall from footing to roof.
2. Roof truss layout (where required)
3. Engineered floor system layout (where required)
4. Engineered beam details (i.e. Parallam, Micro-lam) (where required)
5. Heat loss calculations
6. Ventilation duct design
 - o Heat Recovery Ventilator (HRV) duct sizing and layout,
 - o Exhaust fan duct sizing and layout.
7. Septic application (where required) This is a separate application, see septic

Fees

8. Building Permit fee
9. Plumbing fee
10. Occupancy fee
11. Water/storm/sanitary connection fees (where applicable)
12. Civic address (where applicable)
13. Development changes (where applicable)

+ Septic - Do I need a septic permit?

A building permit is required to install a new septic system, repair or replace any part of the septic system. Norfolk County does not keep records on well locations.

Septic Permit is required if the daily design flow is 10,000 litres/day or below for the whole site.

Privileged Information and Without Prejudice

Sewage Works is required if the daily design flow exceed 10,000 litres/day for the whole site.

An Environmental Compliance Certificate (ECA) is required from the Ministry of Environment, Conservation and Parks (MECP) for a sewage works.

Contact: *Christopher O'Connor* Phone: 905-521-7888 or 1-800-668-4557

Cell: 905-515-9618 Email: Chris.O'Connor2@ontario.ca

Environmental Compliance Approval process can be found at:

<https://www.ontario.ca/document/guide-applying-environmental-compliance-approval-0>

What do I need for to apply?

Completed Forms

11. Building Permit Application Form
12. Schedule 1: Designer Information
14. Schedule 2: Sewage System Installer Information

Required Documents

15. Septic system design (link to form)
16. Percolation time ('T' time) report from a licensed testing agency

Fees

17. Septic Permit fee

+ Demolition Permit (if required)

A demolition permit is required anytime a building area is reduced or a building is demolished. A demolition permit is not required for a building on a farm.

What do I need for to apply?

Completed Forms

1. Building Permit Application Form
2. Commitment to General Review if:
 - o Building exceeds 3 storeys in building height or 600m.sq in building area,
 - o Building Contains pre-tensions or post-tensioned members,
 - o Demolition will be below the level of footing of an adjacent building,
 - o Building to demolished with explosive or lasers.
3. Property Owner Consent Form, if application is not completed by the property owner,
4. Applicable Law Checklist and supporting documents.
5. Demolition Checklist

Required Documents

6. Plot Plan
 - o Property lines and lot dimension,
 - o Location of demolished building and all other structures on the lot,
 - o Distance from demolished building to property lines,

Fees

18. Demolition Permit fee

Privileged Information and Without Prejudice

Currently, all permit can be applied for by email to permits@norfolkcounty.ca. Our Permit Coordinators will review your application and provide in writing any item which may be missing from the application and a cost break down for the permit fees and payment options.

If you have any question on the building permit process or plans required, please contact the building department at permits@norfolkcounty.ca

Devon Staley
Building Inspector
Extension 8108
Devon.staley@norfolkcounty.ca

Privileged Information and Without Prejudice

Fire Department

Comments for this proposal are as follows:

- Hydrants are to be provided as per Ontario Building Code 3.2.5. requirements
- Internal roadways built to Development Engineering standards and are to meet the OBC 3.2.5. requirements for a fire access route
 - o On-street parking to be discussed and determine width requirement

Katie Ballantyne

Community Safety Officer

Extension 2423

Katie.ballantyne@norfolkcounty.ca

Appendix A: Applicable Planning Legislation, Policy and Zoning

Provincial Policy Statement, 2020

<https://www.ontario.ca/page/provincial-policy-statement-2020>

Norfolk County Official Plan

<https://www.norfolkcounty.ca/government/planning/official-plan/>

Section 9.6.1 outlines requirements in relation to requests to amend the Official Plan.

Section 9.6.2 outlines requirements in relation to requests to amend the Zoning By-law.

It is the responsibility of the proponent to review and ensure relevant Official Plan policies are addressed in any future development application.

Norfolk County Zoning By-Law 1-Z-2014

<https://www.norfolkcounty.ca/government/planning/new-zoning-by-law/>

The provisions of the Norfolk County Zoning By-Law shall apply to all lands within the boundaries of Norfolk County. No land, building or structure shall be used, erected or altered in whole or in part except in conformity with the provisions of this By-Law. No land, building or structure shall be used or occupied except for uses that are specifically identified in the By-Law as permitted uses by the relevant zoning category.

It is the responsibility of the proponent to review and ensure relevant Zoning By-law provisions are addressed in any future development application

F.R. Berry & Associates

TRANSPORTATION PLANNING CONSULTANTS

660 Inverness Avenue

London, Ontario N6H 5R4

Tel: (519) 474 2527 Toll Free: 1 888 665 9192 Email: fyberry@rogers.com

February 20, 2023

Our Ref. **2031**

Mr. P. Bosma
1974 Turkey Point Road
Simcoe ON
N3Y 4J9

Dear Mr. Bosma:

**RE: PROPOSED RESIDENTIAL SUBDIVISION
1910 TURKEY POINT ROAD, COUNTY OF NORFOLK**

At your request, I have assessed the potential traffic impact of a proposed 15 lot residential subdivision at 1910 Turkey Point Road in the County of Norfolk. The location of the site is shown in **Figure 1**.

There will be a single access to the subdivision, located approximately 350 metres north of the intersection of Turkey Point Road (Norfolk County Road 10) and McDowell Road East (Norfolk County Road 1).

Existing Conditions

Turkey Point Road is a two lane rural highway. Approximately 90 metres north of the proposed access, the speed limit changes from 60km/h to 80km/h. The proposed subdivision is at the north end of the community of Greens Corner. Most of the land uses in the area are low density residential.

The intersection of Turkey Point Road and McDowell Road East is controlled by stop signs on the northbound and southbound approaches. All approaches are shared single lanes with the exception of the westbound approach on McDowell Road where there is a separate right turn lane.

For the purposes of this assessment, peak hour traffic volumes on Turkey Point Road and McDowell Road East were estimated based on average daily traffic volumes supplied by the County. **Table 1** shows these volumes, the location of the count stations and the year in which the counts were made.



Proposed Development

The conceptual site plan for the proposed development is shown in **Figure 2**. The development will include 15 one acre or larger estate lots. These lots will front on an internal service road.

Based on regression equations contained in the Institute of Transportation Engineers (ITE) Trip Generation Manual, Tenth Edition, for ITE Land Use 210, Single-Family Detached Housing, the proposed subdivision will generate 15 vehicle trips in the morning peak hour, 4 entering and 11 leaving, and 16 vehicle trips in the afternoon peak hour, 10 entering and 6 leaving.

Since the development is closer to Simcoe than to any other urban centre, it is likely that most vehicle trips generated by the development will have Simcoe as an origin and destination for work, shopping, educational and recreational trips. **Figure 3** shows the assignment of site generated trips based on this assumption. Nominal volumes have been assigned to Turkey Point Road north and south and to McDowell Road to and from the west.

Projected Traffic

The average daily traffic volumes from **Table 1** were projected to a base year of 2020 assuming an annual growth rate of one percent. This growth rate is based on historical data for rural roads in Middlesex, Oxford and Norfolk Counties. Peak hour volumes were derived from the projected daily traffic volumes assuming a ratio of 8 percent for morning peak hour traffic and 12 percent for afternoon peak hour traffic. These ratios are based on trip generation data for weekday, morning peak hour and afternoon peak hour periods as given in the ITE Manual. A directional split of 55/45 was assumed for peak hour traffic volumes to give estimated peak hour volumes as shown in **Figure 4**.

Construction of the proposed subdivision is expected to begin in 2024 with an assumed completion date of 2025. For the purposes of this assessment, a five year planning horizon was assumed. **Figure 5** shows projected peak hour traffic volumes in 2030, assuming a one percent annual growth rate. There are no known major developments in the area which could potentially increase traffic volumes at a greater rate.

Figure 6 shows estimated peak hour turning movements at the site access in 2029.



Sight Distance

At the site access, sight distance to and from the north is unconstrained. To and from the south, sight distance is limited by a large radius horizontal curve. The available sight distance is approximately 250 metres.

For a design speed of 80km/h, equivalent to the posted speed limit of 60km/h, minimum stopping sight distance as given by the Transportation Association of Canada (TAC) is 140 metres. Decision sight distance, which accounts for distracted drivers or roadside hazards, is 235 to 315 metres. The available sight distance exceeds the minimum requirement and falls within the range of allowable decision sight distances.

Analysis

Projected through traffic volumes on Turkey Point Road, **Figure 6**, are at levels where there are adequate gaps in the traffic flow to permit turning movements to and from the site access with minimal delay. As noted above, sight distance is not an issue.

Left turn volumes from Turkey Point Road to the site access do not justify a left turn lane or any widening of Turkey Point Road.

At the intersection of Turkey Point Road and McDowell Road East, the proposed development is projected to add 12 vehicle trips in the morning peak hour and 14 vehicle trips in the afternoon peak hour to projected background traffic flows through the intersection. These incremental volumes represent 2.8 percent and 2.2 percent respectively of the total projected traffic volumes. Typically, increases of less than five percent are considered to be insignificant since they are within the normal day to day fluctuations in traffic flow.

It should be noted also that sight distance is not an issue at this intersection and that there is a separate right turn lane from westbound McDowell Road to Turkey Point Road. Site generated traffic will have no significant impact on traffic operation at this intersection.

Summary and Conclusions

The proposed subdivision will generate 15 vehicle trips in the morning peak hour and 16 vehicle trips in the afternoon peak hour. Approximately 80 percent of these trips are expected to have an origin or destination to the south and will thus pass through the intersection of Turkey Point Road and McDowell Road East.

Estimated peak hour traffic volumes on Turkey Point Road are projected to be at a level where access to and from the subdivision would not be impeded. A left turn lane on



Turkey Point Road would not be warranted. Sight distances in both directions exceed minimum requirements.

While most site generated trips will pass through the intersection of Turkey Point Road and McDowell Road East, the addition of these trips to projected background traffic will not have a significant impact.

Very truly yours
F. R. Berry & Associates



Frank R. Berry, P. Eng.
Principal



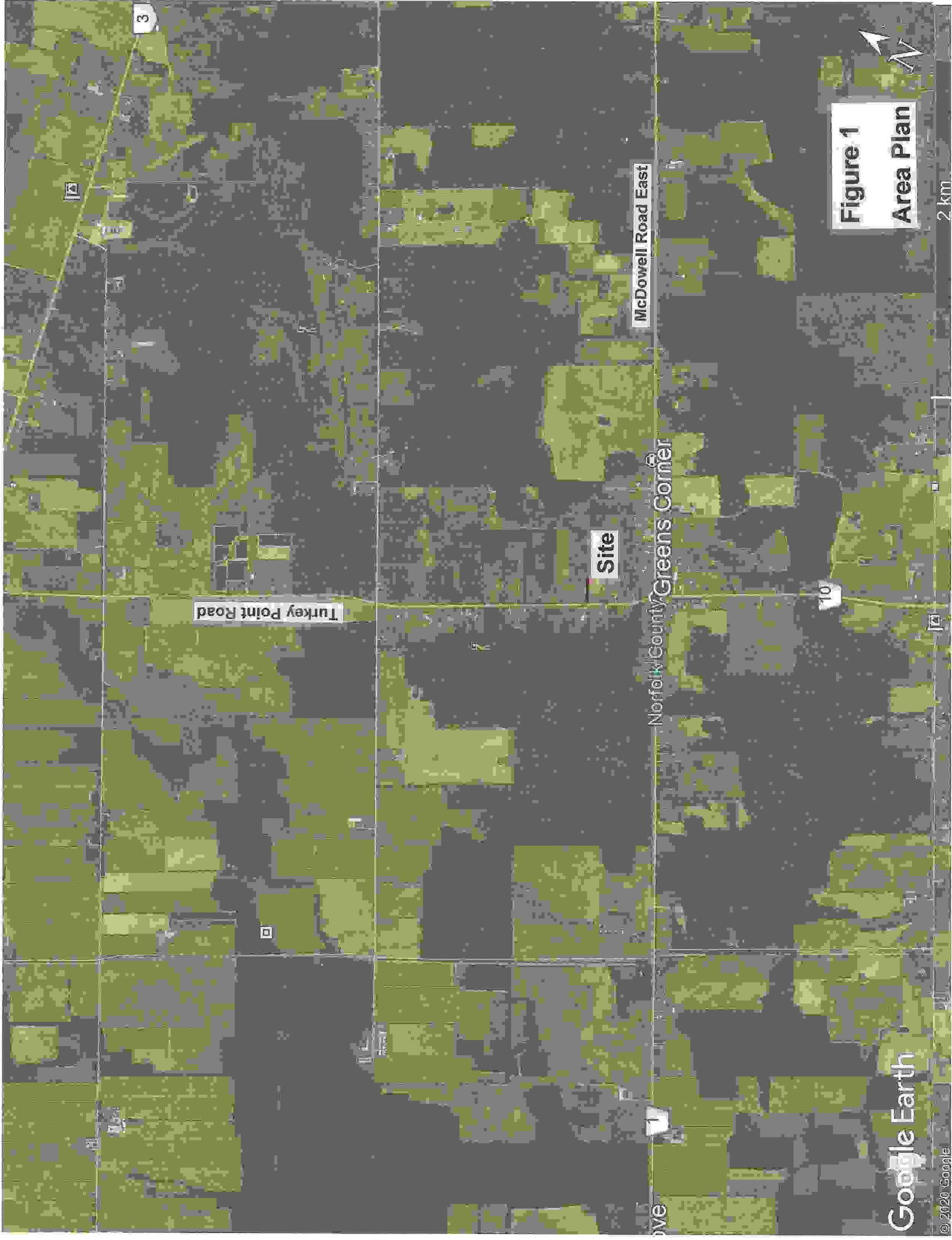


Figure 1
Area Plan



TABLE 1
AVERAGE DAILY TRAFFIC

<u>Location</u>	<u>Volume</u>	<u>Date</u>
Turkey Point Road, North of Charlottesville Road 10	1 454veh	2016
Turkey Point Road, South of Charlottesville Road 8	1 861veh	2014
McDowell Road, West of Yuell Road	2 920veh	2016
McDowell Road, East of Turkey Point Road	3 079veh	2014

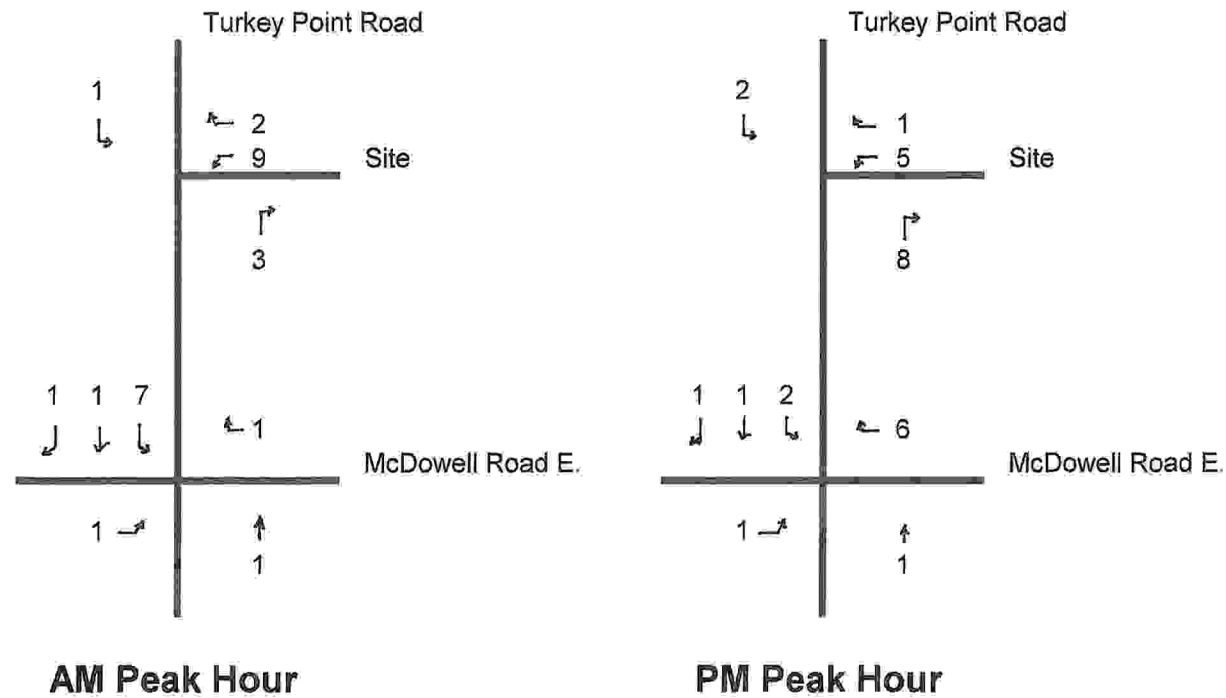


Figure 3
Site Generated Traffic

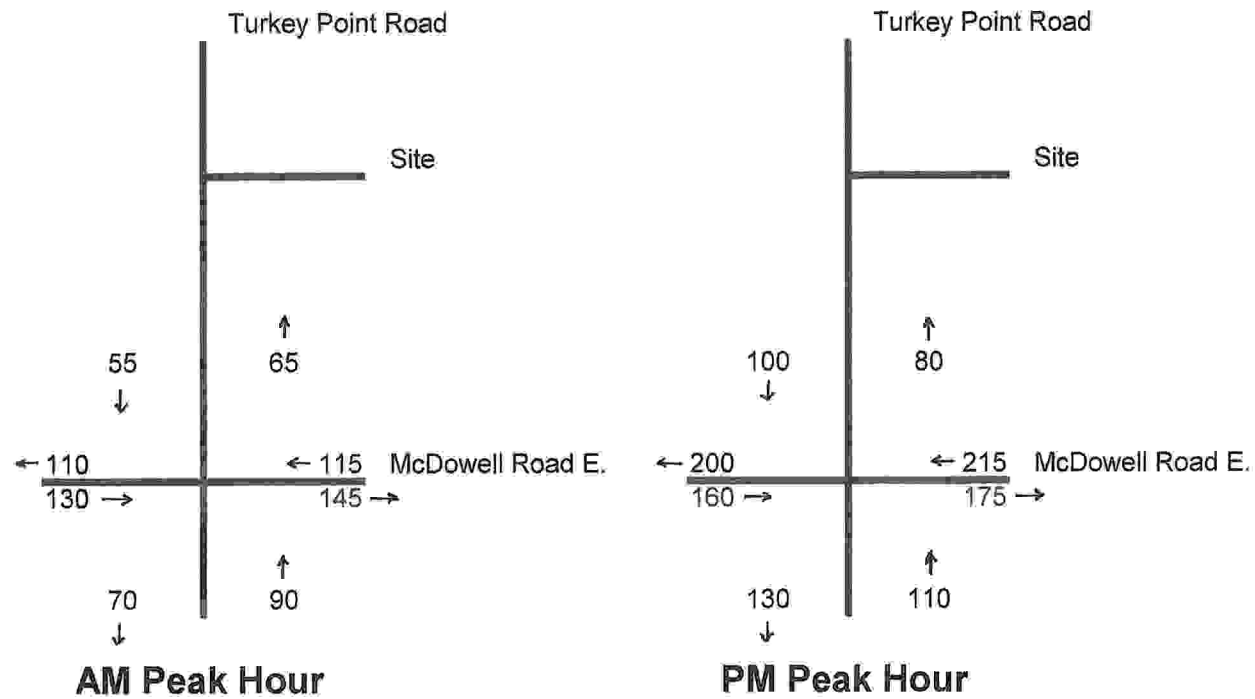


Figure 4
Estimated Traffic 2020

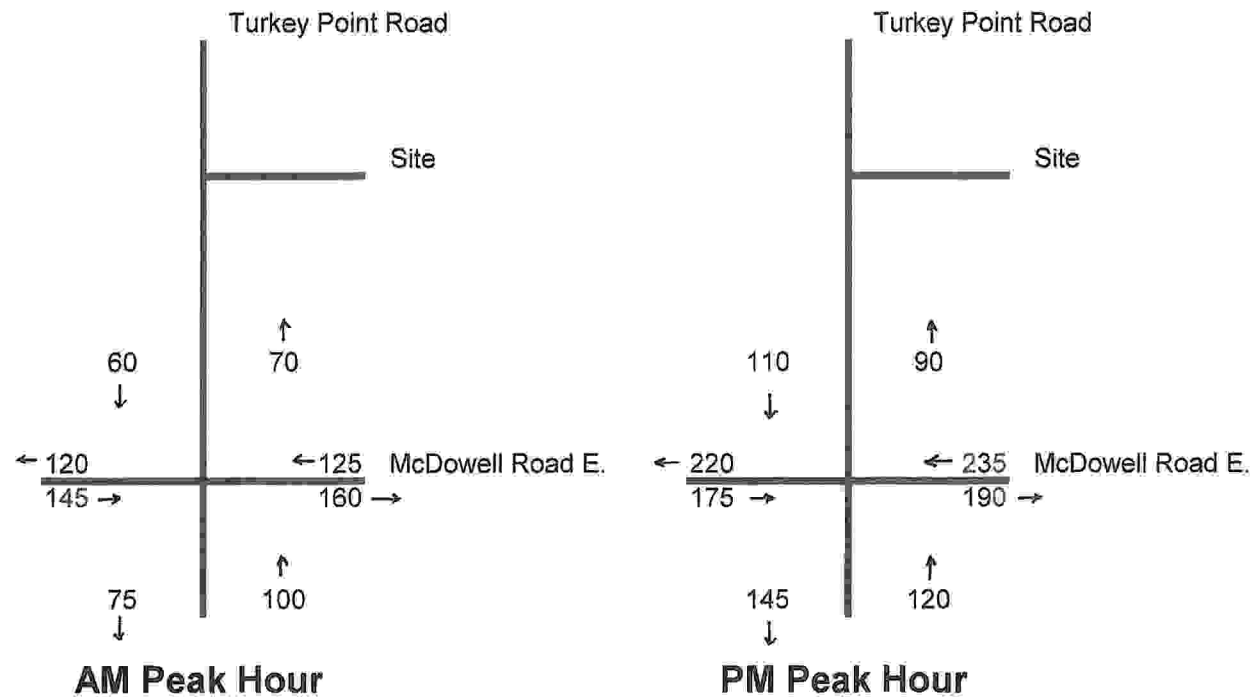
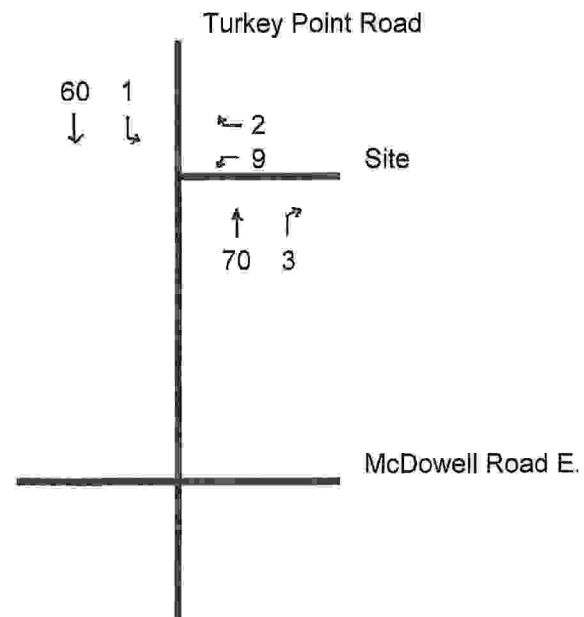
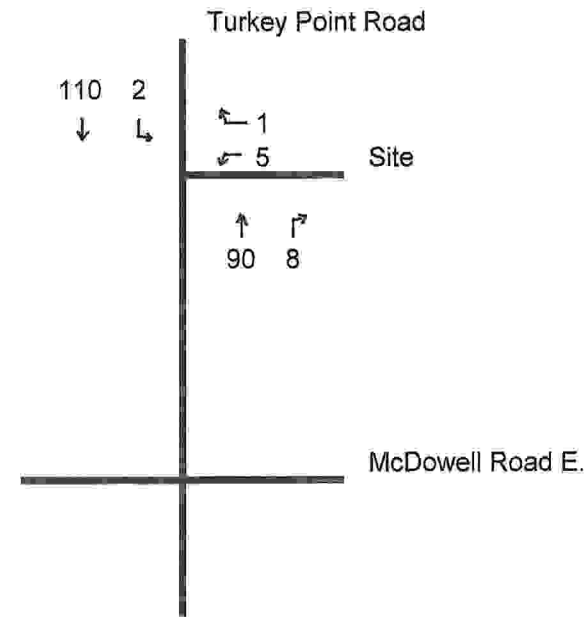


Figure 5
Estimated Traffic 2030



AM Peak Hour



PM Peak Hour

Figure 6
Total Traffic 2030



**HYDROGEOLOGICAL INVESTIGATION
1910 TURKEY POINT ROAD
SIMCOE COUNTY, ONTARIO
for
MR. PETER BOSMA**

PETO MacCALLUM LTD.
45 BURFORD ROAD
HAMILTON, ONTARIO
L8E 3C6
Phone: (905) 561-2231
Fax: (905) 561-6366
Email: hamilton@petomaccallum.com

Distribution:
1 cc: Mr. Peter Bosma (plus PDF)
1 cc: PML Hamilton

PML Ref.: 21HX0161
Report: 1
September 12, 2022

September 12, 2022

PML Ref.: 21HX016

Report: 1

Mr. Peter Bosma
1910 Turkey Point Road
Simcoe, Ontario
N0E 1W0

Dear Mr. Bosma

Hydrogeological Investigation
1910 Turkey Point Road
Simcoe, Ontario

Peto MacCallum Ltd. (PML) is pleased to present the results of the hydrogeological investigation completed on November 16, 2021 at the above noted project. Authorization to proceed with this assignment was provided by Mr. Peter Bosma in a signed Engineering Services Agreement, dated August 11, 2021.

It is understood that preliminary plans call for development of an approximately 8.1-hectare (20 acre) parcel of land to create 17 new lots ranging from 0.40 to 0.48 hectares (1.0 to 1.19 acres) in size. The residential lots will be for single family dwellings and will be serviced by an on-site sewage treatment system and individual potable water supply wells. The appended Drawing 1 (Test Pit / Borehole Location Plan) illustrates the location of the lands to be severed.

The property is located along Turkey Point Road in the Hamlet of Green's Corners, west of Simcoe, Ontario. The property is north of the intersection of Turkey Point Road and McDowell Road East.

PML understands no previous geoenvironmental, geotechnical or hydrogeological reports have been completed for the lands to be developed.



Terms of Reference

The objective of this study is to define the subsurface soil and ground water conditions at the site and based on this information, provide an assessment of the capability for on-site treatment of domestic sewage, mitigation of the nutrient loading from the sewage treatment system and the off-site impact of infiltration of septic effluent on the ground water resource in the area, as well as a preliminary evaluation of the feasibility of developing a potable water supply for each of the lots based on a review of surrounding water well records.

It should be noted that a full assessment for domestic water supply will require the installation of test wells and the completion of pumping tests. This can be completed when the plan of subdivision and septic system requirements are finalized.

Study Methodology

The objectives of the study were accomplished by:

- Attending the site to visually examine the terrain on and in the vicinity of the lands to be severed.
- Review of geotechnical reports conducted in the area, Ontario Ministry of Environment Conservation and Parks (MECP) well records, published geological data/maps to determine the hydro stratigraphy and hydrogeological conditions in the area.
- Conducting a house-to-house survey of residents within 0.5 km of the property to determine pertinent details of their wells (type, depth, quality and quantity).
- Excavating ten (10) test pits to provide coverage of the site to depths of about 3.0 m to define the subsurface conditions and depth to and direction of shallow ground water flow on site.
- Conducting five (5) particle size distribution analyses on soil samples retrieved from the test pits to determine appropriate soil permeability parameters for septic bed design.
- Equipment mobilization and drill rig rental to advance seven (7) boreholes up to a depth of 5.0 m (or prior refusal), supply and installation of four (4) ground water monitoring wells to define the subsurface conditions and depth to and direction of shallow ground water flow on Site. Including related engineering supervision to locate public underground services; full time supervision of drilling operations, log subsurface stratigraphy, recover samples, survey ground surface elevations at the borehole locations and obtain water levels.



- Conducting six (6) particle size distribution analyses on soil samples retrieved from the boreholes to determine appropriate soil permeability parameters for septic bed design.
- Conducting engineering analysis to determine the nitrate loading from septic effluent infiltration on the lots to be severed and determine the minimum lot size required to treat on-site domestic sewage.
- Preparing one technical report to address the factual aspects of the study, summarize the hydrogeologic conditions, document the results of the house-to-house survey, provide hydrogeological comments regarding the general feasibility of drilling new wells to supply potable water to the proposed houses, as well as to assess the minimum lot size capable of treating on-site domestic sewage.

Site Setting

The land parcels that are the subject of this assessment are described in the following paragraphs and shown on Drawing 1. The entire property at 1910 Turkey Point Road is referred to herein as the "Site". It is located along Turkey Point Road in the Hamlet of Green's Corners, west of Simcoe, Ontario. The property is north of the intersection of Turkey Point Road and McDowell Road East.

The lands to be severed will comprise 17 new lots (Lot 1 to 17), ranging from 0.40 to 0.48 hectares (1.0 to 1.19 acres) in size. The total area of the Site to be subdivided is 20 acres (8.1 hectares) and it is currently undeveloped agricultural land.

Adjacent land use includes residential dwellings to the north, south and west. To the east of the Site are generally agricultural lands.

Physiographic and Geologic Setting

The Site is situated within the physiographic region known as the Norfolk Sand Plain. The sands and silts of this region were deposited as a delta in glacial Lakes Whittlesey and Warren (Chapman and Putnam, 1984).

Ontario Base Map (OBM) data published in 2004 on the Geography Network Canada online GIS service was reviewed and topographic contours indicate the grade of the Site was at about Elevation 235 (metric, geodetic) at the north property line to Elevation 234 (metric, geodetic) at the south side of the Site. The topography of the area dips down to the west / southwest.



Hydrogeology

Surface Water

Lake Erie is located approximately 14.0 km south of the Site. No other significant sources of surface water were situated around the Site.

Aquifers and Local Ground Water Use

Published water well records were obtained from MECP Environmental Monitoring and Reporting Branch, Water Well Records Management for the Site and adjacent lands. These records were reviewed in order to establish the general hydrogeological environment in the area and determine anticipated well capacities.

Based on water well information obtained from the MECP, 28 wells were reported to be located within an approximate 0.5 km radius of the centroid of the Site. A summary of the 28 well records is included in Appendix A.

Based on the records, we note the following:

- The 28 wells were drilled from a date range of 1963 to 2017.
- The majority of the wells were terminated in the sand overburden at depths of 4.6 to 8.5 m and generally encountered water at 0.9 to 7.0 m.
- Pump tests were conducted at 21 of the wells following the installation in the overburden. The pump tests indicated the yield of the wells to be between 18.9 and 151.4 L/min.
- The water quality reported on all the overburden well records was fresh.

Based on the static water levels documented in the well records and general elevation of the Site, the ground water flow direction in the bedrock wells is south, towards Lake Erie.

Potable Water Supply Assessment

House-to-House Well Survey

The survey was carried out to document the existence and reported performance of water wells within about 0.5 km of the centroid of the Site. It consisted of a house-to-house survey along Turkey Point Road, and McDowell Road East.



On September 27, 2021, 75 well survey questionnaires were distributed to the homes along the above-mentioned streets. The survey form requested information regarding well locations, depths, accessibility, water quality, quantity and other pertinent details.

Of the 75 municipal addresses visited, 4 residents returned the completed questionnaire. No data / response was obtained from 71 residents who were not home and/or did not return the survey.

A summary of the information obtained during the house-to-house survey is provided in Table 1, appended.

It is noted, that sufficient supply of water, with naturally occurring parameters such as sulphur, iron and hardness, was generally reported. Treatment systems, such as water softener, and/or sediment/carbon filter were reported to be in use.

Water Quantity

Based on the well record of the well located the closest to the Site on Turkey Point Road (MECP Well Record No. 4404746), it is a drilled well developed in the sand overburden at a depth of 5.8 m. The static water level in the well was 3.1 m. A pump test was carried out on the well and the recommended pumping rate was 18.9 L/min.

The well records of 21 wells close to the Site are included in Appendix A. The well records indicate the following:

- Pump tests conducted following installation of the nearby overburden wells (ranging between 4.6 to 8.5 m deep) indicated the yields of the wells were between 18.9 and 151.4 L/min.

The MECP considers a well to be sustainable with a minimum yield of 13.7 L/min. This is based on a minimum four-bedroom dwelling.

Further pump tests will be required to confirm the specific well construction that will be required to provide an adequate water supply at each lot and to determine the sustained pumping rate, which will not have an adverse impact on other wells in the area.



Water Quality

In order to check the quality of the ground water, one sample of raw, untreated ground water was retrieved from the three of the four monitoring wells (Boreholes / Monitoring Wells 2, 4, and 7) installed during the Geotechnical Investigation component (PML Ref: 22HF001) located at 1910 Turkey Point Road. The samples were tested for turbidity, hardness, pH, E. coli, total coliform and Schedule 23 inorganic parameters, which includes nitrate.

SGS Laboratory Certificates of Analysis are included in Appendix B.

The results of the water quality testing were compared to the Ontario Drinking Water Quality Standards (ODWQS), Ontario Regulation 169/03 of the Safe Drinking Water Act, 2002. The results indicate that the level of nitrate was 0.145 mg/L, which meets the maximum background criteria of 10 mg/L.

A background nitrate concentration of 0.145 mg/L was used for the subsequent nitrate loading calculation.

In addition to specific water quality standards, ODWQS includes Operational Guidelines (OG), which are established for parameters that, if not controlled, may negatively affect the efficient and effective treatment, disinfection and distribution of the water. These parameters include hardness. The OG for hardness in drinking water is set at between 80 and 100 mg/L as calcium carbonate. Hardness levels between 80 and 100 mg/L are considered to provide an acceptable balance between corrosion and incrustation. Water supplies with a hardness greater than 200 mg/L are considered poor but tolerable. Hardness in excess of 500 mg/L in drinking water is unacceptable for most domestic purposes. As noted previously in the house-to-house survey, water softeners are in use in a majority of the residences. It is noted that the reported hardness of the sample from BH2 GW1 was 109 mg/L. As such, it is recommended that water softeners be installed to treat the hard water in the wells.



The concentration of aluminium in BH2 GW1 was reported at 197 ug/L versus the OG value of 100 ug/L. High residual aluminum can cause coating of the pipes in the distribution system resulting in increased energy requirements for pumping, interferences with certain industrial processes and flocculation in the distribution system. As such, it should be assumed that adequate filtration will be required to reduce the concentration of inorganic aluminum. It is reported that medical studies have not provided clear evidence that residual aluminum has any effect on health (MECP Technical Support Document for Ontario Drinking Water Standards, Objectives and Guidelines).

E. Coli was also reported in the sample from BH2 GW1 with a concentration of <2 cfu/100 mL. It is noted that the monitoring wells were not subjected to a disinfection procedure prior to sampling. As such, it is likely that the reported E. Coli is not representative of the aquifer quality. Domestic use water supply wells will be subject to disinfection protocols as per O. Reg. 903.

ODWQS also includes Aesthetic Objectives (AO), which are established for parameters that may impair the taste, odour or colour of water or which may interfere with good water quality control practices. Turbidity is one parameter for which an AO has been established. Turbidity in excess of 5.0 NTU becomes visible to the naked eye and as such a majority of consumers may object to its presence. It is an important indicator of treatment efficiency and it is recommended that this parameter be checked during the design and installation of any water treatment system.

For any water treatment system installed, it is recommended that a sample of the treated drinking water be obtained and tested to ensure the treatment system is functioning properly and the quality of the water meets the ODWQS.

Based on the results of the house-to-house survey, private water treatment systems have been installed in the residences to improve the water quality for optimum treatment.

Test Pit Investigation

The field work was carried out on November 16, 2021 and comprised a total of 10 test pits excavated to depths of 3.0 m below grade using a John Deere 120C tracked excavator operated by a private contractor working under the full-time supervision of a member of PML's technical staff. Grab samples (GS) of the overburden were recovered at selected depth intervals in the test pits.

The test pit locations were established in the field by PML as shown on Drawing 1, appended. The test pits were strategically located to provide Site coverage.



All of the recovered samples were returned to our laboratory for detailed visual examination and classification on selected samples.

Borehole Investigation

Drilling field work was carried out on April 19 and 20, 2022 and consisted of seven (7) boreholes drilled to 5.0 m termination depths. Monitoring wells were installed at Boreholes 2, 4, 6 and 7. The borehole locations (Boreholes 1 to 7) are shown on Drawing 1, appended.

The borehole locations were selected by a technical representative of PML and established in the field by PML. Geodetic, metric ground surface elevations and UTM co-ordinates at the borehole locations were determined PML using a Sokkia GCX3 GNSS Receiver during the geotechnical investigation (PML Ref: 22HF001).

The boreholes were advanced using continuous flight solid stem augers, powered by a track mounted CME75 drill rig, supplied and operated by PML Field Services, working under the full-time supervision of a member of PML's engineering staff.

Representative samples of the overburden were recovered at frequent depth intervals using a conventional split-spoon sampler during drilling. Standard Penetration Tests (SPT), along with pocket penetrometer tests were conducted where applicable with the sampling operation to assess the strength characteristics of the substrata. Additionally, a Dynamic Cone Penetration Test was conducted at selected boreholes.

The ground water conditions at the borehole locations were assessed during drilling by visual examination of the soil, the sampler and the drill rods as the samples were retrieved and when appropriate by measurement of the water level in the open borehole.

Ground water monitoring wells were installed in Boreholes 2, 4, 6 and 7 comprising clean 50.0 mm diameter screened and solid PVC Schedule 40 pipe. The wells were installed to depths of 4.5 m and were screened at the bottom over a length of 1.5 m. The annular space of the borehole around the screen was backfilled with clean filter sand covered by a bentonite seal and stick-up protective cover set in concrete. The details of the monitoring wells construction are shown on the appended Log of Borehole/Monitoring Well sheets. Well records will be kept on file by PML for future reference in accordance with O. Reg. 903/90, as amended.



All of the recovered samples were returned to our laboratory for detailed visual examination and classification on selected samples.

Summarized Subsurface Conditions

Reference is made to the appended Log of Test Pit and Log of Borehole sheets for details of the subsurface conditions including soil classifications, inferred stratigraphy, SPT "N" values, ground water observations, and the results of laboratory moisture content determinations and grain size analysis.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as transitional zones between layers and cannot be construed as exact geologic boundaries between layers. PML would be pleased to assist in defining geologic boundaries during construction if required.

The site soil stratigraphy typically comprises a surficial silty topsoil layer underlain by silty sand.

Topsoil

A surficial layer of topsoil was contacted at all borehole locations. The topsoil ranged in thickness from 100 to 460 mm and contained silt with various amounts of sand with occasional rootlets and organics.

Sand to Silty Sand / Sand and Silt

Sand to silty sand and/or sand and silt was contacted below the topsoil at 0.1 to 0.46 m (Elevation 233.5 to 234.6) and extended until borehole termination in all boreholes at 2.0 to 6.6 m (Elevation 227.6 to 229.7) and to the termination depth of all Test Pits. The silty sand was typically loose for the upper 1.5 m becoming compact to very dense from about Elevation 233.0 as reflected by SPT "N" values ranging from 10 to 68.

Particle size distribution testing was completed for six (6) borehole samples and five (5) test pit samples. The results of the sieve and hydrometer testing, completed using MTO LS-702 standards for this soil type are shown in Figures 1 and 2. The soil samples comprised 43 to 92% sand and 5 to 54% silt and 1 to 5% clay. The silty sand was judged to be damp to saturated with depth with moisture content determinations ranging from 15 to 31%.



Ground Water

Upon completion of auguring, cave was observed in Boreholes 1, 3, 5 and 6 at depths ranging 1.2 to 2.4 m and in Test Pit 7 at 1.5 m. The remaining test pits indicated caving at the termination depth of 3.0 m. Free water was observed at 1.1 to 2.3 m depth in the boreholes and between 0.50 and 1.5 m depth in all test pits after one-hour from completion of the test pit excavation.

Particle Size Distribution Testing

Five soil samples from the test pits and six soil samples from the boreholes were submitted for particle size analysis. The results are included in Figures 1 and 2. Based on these results, infiltration rate and estimated percolation times may be assumed to be below:

SAMPLE NO.	SAMPLE DEPTH (m)	SOIL TYPE	ESTIMATED HYDRAULIC CONDUCTIVITY (K, cm/s)	ESTIMATED INFILTRATION RATE (mm/hour)	ESTIMATED PERCOLATION TIME (T, min/cm)
TP1 GS3	0.80 – 3.0	Silty Sand	3.4×10^{-5}	35	17
TP3 GS2	0.30 – 0.94	Sand	9.5×10^{-5}	46	13
TP5 GS3	1.45 – 3.0	Silty Sand	8.0×10^{-5}	44	14
TP7 GS2	0.20 – 1.5	Sand	6.8×10^{-5}	42	14
TP10 GS2	0.30 – 0.86	Sand	4.1×10^{-5}	36	17
BH 1 SS4	2.25	Sand	3.3×10^{-4}	64	9
BH3 SS3	1.5	Sand	2.0×10^{-4}	56	11
BH4 SS2	0.7	Silty Sand	1.1×10^{-4}	48	13
BH5 SS3	1.5	Sand and Silt	3.0×10^{-5}	34	18
BH6 SS3	1.5	Sand and Silt	2.0×10^{-5}	30	20
BH7 SS6	4.5	Sand and Silt	3.4×10^{-5}	35	17



Nitrate Loading Considerations

Assessment of the nitrate loading from infiltration of effluent from the sewage treatment systems was conducted in accordance with the following documents:

- Procedure D-5-4 – Technical Guideline for Individual On-Site Sewage Systems: Water Quality Impact Assessment (MOEE April 1996);
- Hydrogeological Technical Information Requirements for Land Development Chapter 4, Section 4.5 (Ontario Ministry of Environment and Energy, MOEE April 1995).

Nitrate in septic effluent is attenuated by dilution with infiltrating surface water and water discharged into the septic bed as well as ground water seepage from the upstream to the downstream side of the property (ground water flux). Ground water flux was not considered in the nitrate dilution calculation for this severance; consequently, the nitrate loading assessment is considered to be conservative.

The surface water infiltration rate was computed in accordance with the procedure noted in the MOEE information document. This procedure involves a three-step process:

- i) A water budget analysis to compute the 'water surplus' (total rainfall -- evapotranspiration).
- ii) Selection of infiltration factors for the conditions at this particular Site to compute the rate of infiltration (sum of infiltration factors x water surplus).
- iii) Computation of the nitrate loading on the ground water resource.

The water budget analysis was conducted using the Thornwaite and Mather procedure noted in the Ministry of Environment and Energy (MOEE) information document. This method is based on classic storm water management principles. Since the equations employed to compute the volume of surface water runoff were developed for heavy rainfall events of short duration, and a large volume of the precipitation occurs at a light to moderate rate over an extended period of time, the procedure over-estimates the volume of runoff and yields a conservative assessment of the infiltration rate.



The water surplus and infiltration rates noted in the following table were computed from rainfall data provided by Environment Canada and the infiltration factors noted in the MOEE information document selected as follows:

Infiltration Factors:

Topography 0.2
Soil 0.4
Cover 0.1
Total..... 0.7

Monitoring Station	Annual Precipitation (mm)	Water Surplus ¹ (mm/year)	Infiltration Rate ² (mm/year)
Delhi	1036	424	297

1. Water Surplus available for infiltration/runoff computed by the Thornwaite and Mather Method
2. Water Surplus x sum of infiltration factors

The nitrate loading computation was based on the following equation and input parameters noted in the MOEE Procedure.

$$N_L = \frac{N_s V_s + N_b V_b}{V_i + V_b}$$

where N_L = nitrate loading mg/L

N_s = nitrate concentration in septic effluent (40 mg/L per MOEE Procedure)

N_b = background nitrate concentration (0.145 mg/L)

V_s = daily sewage flow volume (L)
(1000 L/day per MOEE Procedure)

V_b = volume of sewage effluent
(1000 L/day per MOEE Procedure)

V_i = infiltration volume (L)
(Infiltration rate x land area)/365 days

infiltration rate = 297 mm/year

land area = 0.40 hectares (proposed smallest lot size to be created)



Based on the calculations for the proposed smallest lot size of 0.4 hectares, the nitrate concentration at the down gradient property line is 9.91 mg/L, which satisfies the regulatory requirement of 10.0 mg/L. A copy of the calculation is provided on Figure 3.

The minimum lot size that can maintain a down gradient nitrate concentration of less than 10 mg/ is 0.396 hectares (0.979 acres). A copy of the calculation is provided on Figure 4.

Leaching Bed Design Criteria

The sand / silty sand/sand and silt on Site is considered to be capable of treating domestic sewage. Ground water was observed in the test pits at depths as shallow as 0.5 m below ground surface. It is noted that the bottom of the leaching bed must be not less than 900 mm above the high ground water table. As such, site grades will need to be raised during development, to meet the minimum 900 mm clearance requirement.

The leaching bed should be designed based on the maximum daily sewage effluent loading. For example, the total daily sewage flow (Q) for a four (4) bedroom house up to 200 m² with up to 20 fixture units is 2,000 L/day based on the criteria noted in the 2012 Ontario Building Code (OBC) (Table 8.2.1.3.A).

Based on the grain size distribution curves (Figures 1 and 2), it is expected the native soils on the lands to be severed will exhibit a coefficient of permeability, K in the order of 10⁻⁵ cm/sec. It is considered that a percolation rate, T, of 20 min/cm may be used for design purposes and a fully raised leaching bed may be required, depending on final site grades.

For preliminary planning purposes, the minimum required area for fill-based absorption trenches and filter beds with a percolation time of 20 min/cm and a loading rate of 2000 L/day is 200 m² as per Table 8.7.4.1 of the OBC. Once the location of the sewage treatment system is selected and the size of the home is known along with grading plans, we recommend field percolation tests to verify the in-situ percolation rate and confirm the required area of the leaching bed.

The sewage treatment system should be designed and constructed in accordance with the OBC and/or local regulations.

General recommendations for management practices are provided on Table 1.



Discussion and Recommendations

It is understood that severance of an approximately 20 ac (8.1 ha) property is planned. The hydrogeological investigation is to be conducted on the lands to be parceled into 17 lots each ranging from 1.00 to 1.19 acres (0.40 to 0.48 hectares) in size, to be serviced by individual sewage systems and private wells.

The appended Drawing 1 (Test Pit and Borehole Location Plan) illustrates the location of the lands to be parceled.

Based on the findings of this study, our summarized comments are provided below.

1. It is likely that the ground water aquifer on this Site will be capable of meeting the water demand for the development, subject to the results of pump testing. A private water treatment system may also be required.

Pump tests will be required to confirm the aquifer characteristics, yield and the potential for an adverse impact to the ground water resource in the area and neighbouring wells.

2. Conventional water treatment systems are recommended for water supply wells to ensure compliance with ODWQS. It is recommended that a sample of the treated drinking water be obtained and tested to ensure the treatment system is functioning properly and the quality of the water meets the ODWQS.
3. The nitrate loading from a sewage system constructed to service a four-bedroom dwelling on the proposed lot size of 0.40 ha (1.0 acre) was determined to be 9.87 mg/L, which meets the regulatory requirement of 10 mg/L.
4. The minimum lot size required was determined to be 0.396 ha (0.98 acres). The nitrate concentration at the down gradient property line of a lot size of 0.396 ha (0.98 acres) was computed to be 9.98 mg/L, which satisfies the regulatory requirement of 10.0 mg/L.
5. It is considered that infiltration of septic effluent from the severed and/or retained lots will not have significant impact on the ground water resource.
6. On site treatment of domestic sewage is considered to be feasible through the installation of a septic bed; the minimum area required is estimated to be 200 m² for a four-bedroom dwelling up to 200 m² in size with up to 20 fixture units. Additional area will be required for larger dwellings and/or additional fixture units.
7. Once house design and final grading plans are determined and the location of the sewage treatment system is selected, we recommend field percolation tests to determine the in-situ percolation rate and confirm the required area of the leaching bed.
8. The sewage treatment system should be designed and constructed in accordance with the Ontario Building Code and/or local regulations.



We trust the information presented in this report is sufficient for your present purposes. Please do not hesitate to contact our office should you have any questions.

Sincerely

Peto MacCallum Ltd.

A handwritten signature in blue ink that reads "Heather Racher".

Heather Racher, M.Sc., P.Geo.
Associate
Geoscientist



Scott Jeffrey, P.Eng., QP_{ESA}, LEED_{GA}
Senior Associate
Regional Manager, Geotechnical and Geoenvironmental Services

HR/SJ:tm

Enclosures:

Table 1 - House to House Well Survey
Table 2 - Recommended Construction and Management Practices for Private Septic Tile Leaching Bed Sewage Disposal Systems
Figures 1 and 2 - Particle Size Distribution Charts
Figures 3 and 4 - Nitrate Loading Calculations
List of Abbreviations
Log of Test Pits 1 to 10
Logs of Boreholes 1 to 7
Drawing 1 - Test Pit / Borehole Location Plan
Appendix A - Water Well Records
Appendix B - SGS Laboratories Certificate of Analysis



References

Topographic and Other Maps

Ontario Basic Maps (OBM) ArcIMS Service, Environmental Systems Research Institute Canada, 2004, <http://www.geographynetwork.ca/>

Google Earth™, <http://www.google.com/earth/index.html>

Chapman, L.J., and Putnam, D.F., 1984: The Physiography of Southern Ontario; Ontario. Ontario Research Foundation.

M2369; Quaternary Geology, Simcoe, Southern Ontario; Ministry of Natural Resources; 1976; Scale: 1:50 000.

M2370; Bedrock Topography of the Simcoe Area, Southern Ontario; Ontario Department of Mines, 1976; Scale: 1:50,000.

M2371; Drift Thickness Series, Simcoe Sheet, Southern Ontario; Ontario Department of Mines, 1976; Scale: 1:50,000.

P2234; Paleozoic Geology, Simcoe, Southern Ontario; Ontario Division of Mines, 1980; Scale: 1:50 000.

Publications

Aqua Resource Inc., Long Point Region, Kettle Creek and Catfish Creek Integrated Water Budget - Final Report, April 2009

Ministry of Environment and Energy (MOEE) Hydrogeological Technical Information Requirements for Land Development Applications, April 1995, Her Majesty the Queen in Right of Ontario as Represented by the Minister of Environment and Energy.

Ministry of the Environment and Energy (MOEE), Procedure D-5-4 – Technical Guideline for Individual on Site Sewage Systems: Water Quality Impact Assessment, April 1996.

O. Reg. 169/03 Ontario Drinking Water Quality Standards, Safe Drinking Water Act, 2002.

O. Reg. 170/03 Drinking Water Systems, Safe Drinking Water Act, 2002.

Well Records

Ontario Ministry of the Environment (MOE) Environmental Monitoring and Reporting Branch, Water Well Records Management



TABLE 1
HOUSE TO HOUSE WELL SURVEY

HOUSE NO.	WELL CONSTRUCTION				WATER SUPPLY				COMMENTS
	Approx. Age (years)	Type	Approx. Diam. (mm)	Approx. Depth (m)	Quality	Type	Quantity	Use	
Turkey Point Road									
1974	42	Drilled	51	4.9	Excellent	Fresh	Sufficient	Domestic Livestock	Occupant indicated a water softener is in use.
1993	---	Sand Point	---	---	Poor	Salty Sulphur Iron Hard	Sufficient	Domestic	Occupant indicated a water softener; carbon filter and sediment filter treatment systems are in use.
McDowell Road									
976	---	Sand Point	---	---	---	Iron	Sufficient	Domestic	Occupant indicated a water softener was not in use.
1059	1	Sand Point	51	5.5	Good	Hard	Sufficient		



TABLE 2

RECOMMENDED CONSTRUCTION AND MANAGEMENT PRACTICES FOR PRIVATE SEPTIC TILE LEACHING BED SEWAGE DISPOSAL SYSTEMS

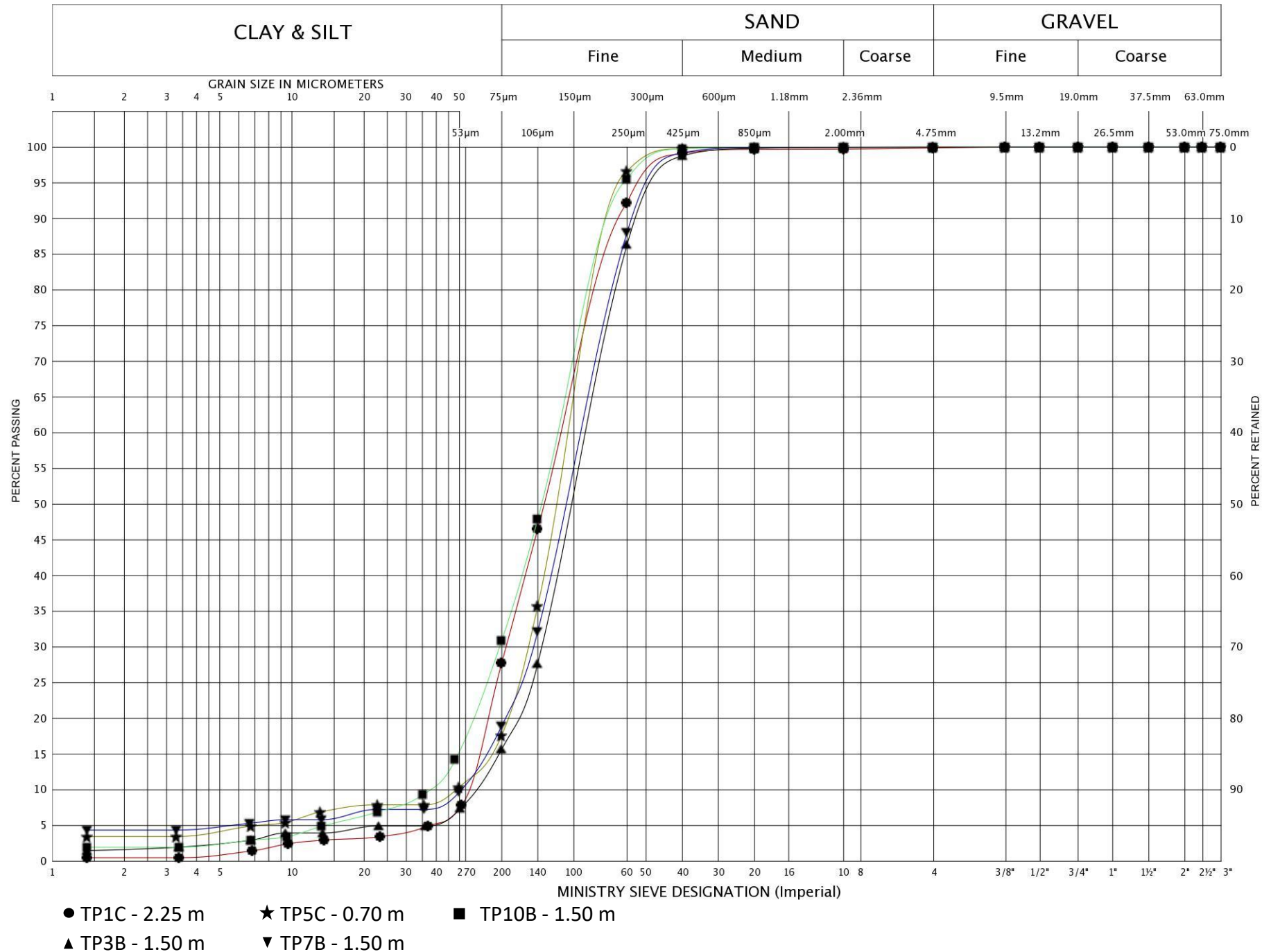
1. Lot drainage should be accentuated to ensure positive runoff of storm water away from the tile field. Sewage effluent should not compete with infiltrating storm water which may overload the tile field capacity.
2. Provided it is allowed by local authorities, eavestrough downspouts should be connected directly into the storm sewer, eliminating a potential water source to compete for ground infiltration.

If storm sewers are not available, the downspouts and extensions should be planned for the opposite side of the house away from the leaching bed.
3. Water conservation should be exercised to reduce the volume of effluent to be handled by the tile field.

The tile field should be fenced off before construction proceeds.
4. All heavy construction equipment and stockpiling of fill should be prohibited on the tile field area, since soil compaction will result which could severely restrict evapotranspiration within the bed area.
5. Vehicular traffic of any type should not be permitted on the surface of the leaching bed following construction.
6. In order to prevent frost damage, the snow cover should be left in place and measures taken to ensure it is not packed by surface use.
7. Construction of the leaching bed system should be supervised by geotechnical personnel.
8. Routine maintenance is necessary to control growth of excessive vegetation such as trees and heavy growth of weeds over the leaching bed area.
9. To ensure continued bacterial breakdown of sewage effluent, the septic tank should be pumped periodically to remove sludge build-up.
10. If the septic system is equipped with a grease trap, a routine maintenance program must be implemented to ensure it is cleaned regularly.
11. Backwash water from water softener systems can adversely affect bacterial action and concrete components of the sewage system. Therefore, the water should not be discharged to the sewage system.
12. Chemicals such as drain cleaners, petroleum products, solvents, degreasers, etc. will also affect bacterial action and should not be discharged into the sewage system.

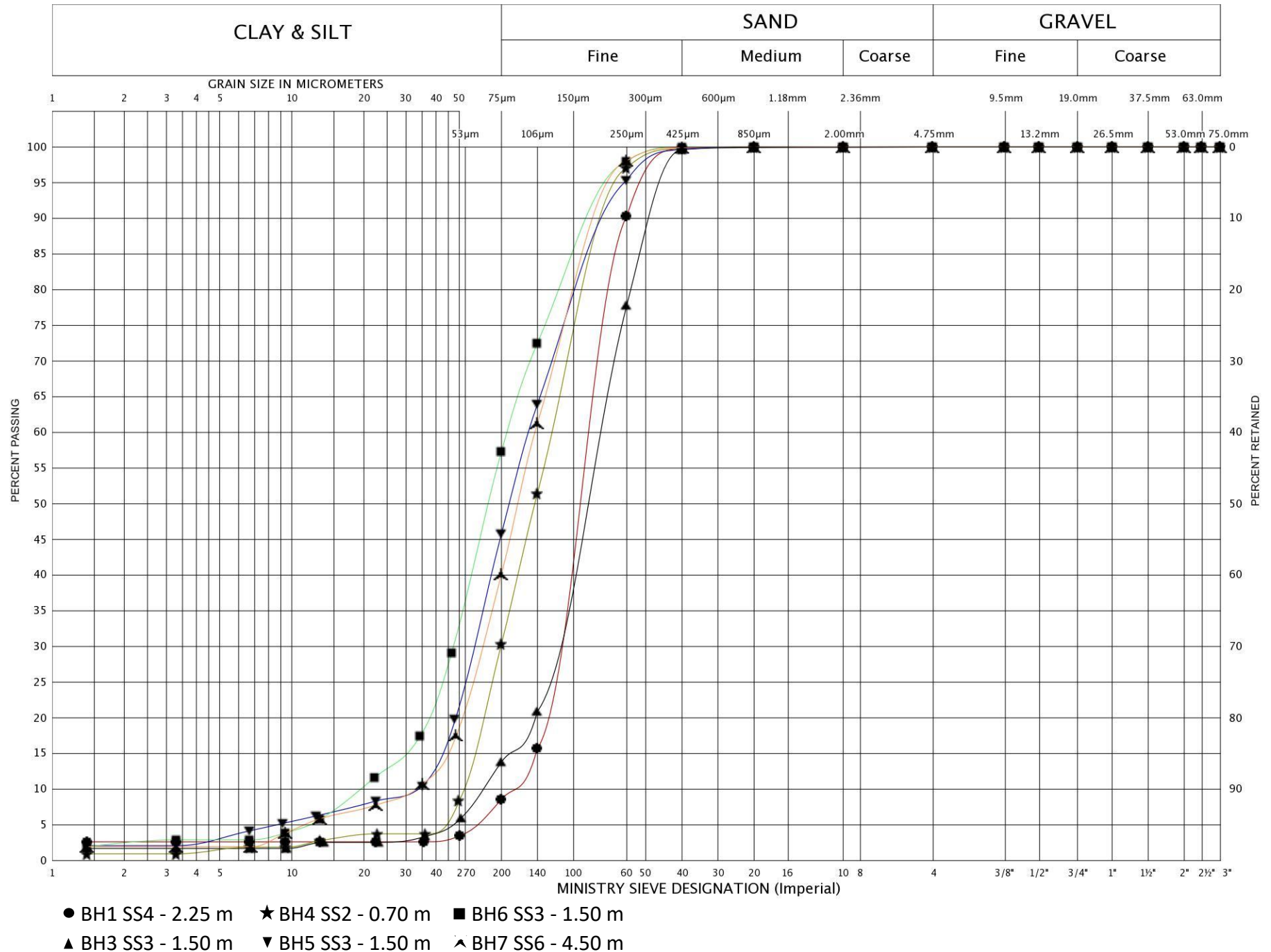
22HF001/21HX016 SOIL: SILTY SANDS UNIFIED SOIL CLASSIFICATION SYSTEM

FIGURE 1



22HF001/21HX016 SOIL: SILTY SANDS UNIFIED SOIL CLASSIFICATION SYSTEM

FIGURE 2



Nitrate Loading Calculations - Proposed Minimum Lot Size

Use/Notes	Use/# Units	Sewage flow volume (L)	Total L/day	
Land to be Severed -proposed 4 bedroom dwelling	1	1000	1000	
TOTAL Volume			1000	
Water Budget Calculation	424	mm		
Infiltration factors				
topo.	0.2			
soil	0.4			
cover	0.1			
	0.7			
Infiltration=Infiltration factor*water budget balance	297	mm/year		
Infiltration area	4,000	m2	0.4	hectares
Less Impermeable Surface Area Allowance	250	m2	0.99	acres
Total Infiltration Area	3,750	m2		
days in year	365			
Infiltration Volume =Infiltration* area/365 days	3051.4	L/day		
Background - Maximum Nitrate Results from SGS	0.145	mg/L		
Note: Nitrate volume < 10 mg/L required				
nitrate loading (per MOE)	40	mg/L		
nitrate concentration for site equals:	9.91	mg/L N	<10	
nitrate loading*flow volume				
vol.infiltration+flow volume				

Water Demand Calculations

Use/Notes	Use/# Units	Sewage flow volume (L)	Total L/day	
4 bedroom home per OBC Table 8.2.1.3.B	1	2000	2000	
Flow Requirements				
per minute flow (equal to total daily flow/24 hr/60 min)	1.4	L/min		
Residential Home Peak Flow (assume 2, 2 hour peaks)	4	hr		
Demand = flow/peak hours*minutes per hour	8.3	L/min		

Nitrate Loading Calculations - Minimum Supported Lot Size

Use/Notes	Use/# Units	Sewage flow volume (L)	Total L/day	
Land to be Severed -proposed 4 bedroom dwelling	1	1000	1000	
TOTAL Volume			1000	
Water Budget Calculation	424	mm		
Infiltration factors				
topo.	0.2			
soil	0.4			
cover	0.1			
	0.7			
Infiltration=Infiltration factor*water budget balance	297	mm/year		
Infiltration area	3,960	m2	0.395	hectares
Less Impermeable Surface Area Allowance	250	m2	0.98	acres
Total Infiltration Area	3,710	m2		
days in year	365			
Infiltration Volume =Infiltration* area/365 days	3018.8	L/day		
Background - Maximum Nitrate Results from SGS	0.145	mg/L		
Note: Nitrate volume < 10 mg/L required				
nitrate loading (per MOE)	40	mg/L		
nitrate concentration for site equals:	9.99	mg/L N	<10	
nitrate loading*flow volume				
vol.infiltration+flow volume				

Water Demand Calculations

Use/Notes	Use/# Units	Sewage flow volume (L)	Total L/day	
4 bedroom home per OBC Table 8.2.1.3.B	1	2000	2000	
Flow Requirements				
per minute flow (equal to total daily flow/24 hr/60 min)	1.4	L/min		
Residential Home Peak Flow (assume 2, 2 hour peaks)	4	hr		
Demand = flow/peak hours*minutes per hour	8.3	L/min		

LIST OF ABBREVIATIONS



PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. - Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

<u>CONSISTENCY</u>	<u>N (blows/0.3 m)</u>	<u>c (kPa)</u>	<u>DENSENESS</u>	<u>N (blows/0.3 m)</u>
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		
WTPL	Wetter Than Plastic Limit			
APL	About Plastic Limit			
DTPL	Drier Than Plastic Limit			

TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oesterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample	USS	Undisturbed Shear Strength
PH	Sample Advanced Hydraulically	RSS	Remoulded Shear Strength
PM	Sample Advanced Manually		

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

LOG OF TEST PIT NO. 1

17T 547878E 4738818N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200		WATER CONTENT (%)					
0.0	SURFACE ELEVATION					20	40	60	80		10	20	30	40		
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS								○				
0.80	SAND: Reddish brown sand, some silt, damp; occasional cobbles		2	GS								○				
1.0	SILTY SAND: Grey-brown silty sand, wet											○				
2.0			3	GS								○			0 69 31	
3.0	TEST PIT TERMINATED AT 3.0 m														Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.0 m	
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 2

17T 547941E 4738864N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS				
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q													
							50 100 150 200													
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×					WATER CONTENT (%)					GRAIN SIZE DISTRIBUTION (%) GR SA SI & CL				
						20 40 60 80					10 20 30 40									
0.0	SURFACE ELEVATION																			
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets			1	GS															
0.94	SAND: Reddish brown sand, some silt, damp; occasional organics			2	GS															
1.0	SILTY SAND: Grey-brown silty sand, wet			3	GS															
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.2 m				
4.0																				
5.0																				
6.0																				
7.0																				
8.0																				
9.0																				
10.0																				

NOTES

LOG OF TEST PIT NO. 3

17T 548025E 478901N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS			
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200												
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●												
							WATER CONTENT (%)												
							20	40	60	80	10	20	30	40					
0.0	SURFACE ELEVATION																		
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets			1	GS														
0.94	SAND: Reddish brown sand, some silt, damp; occasional organics			2	SS											0 84 16			
1.0	SILTY SAND: Grey-brown silty sand, wet			3	SS														
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.3 m			
4.0																			
5.0																			
6.0																			
7.0																			
8.0																			
9.0																			
10.0																			

NOTES

LOG OF TEST PIT NO. 4

17T 578084E 4738813N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
							50 100 150 200					WATER CONTENT (%)				
							20 40 60 80					10 20 30 40				
0.0	SURFACE ELEVATION															
0.46	TOPSOIL: Dark brown topsoil, damp; occasional rootlets			1	GS											
1.3	SAND: Reddish brown sand, some silt, damp			2	GS											
3.0	SILTY SAND: Grey-brown silty sand, wet			3	GS											
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 0.9 m

NOTES

LOG OF TEST PIT NO. 5

17T 548138E 4738717N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							

NOTES

LOG OF TEST PIT NO. 6

17T 548088E 4738683N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							
						WATER CONTENT (%)										
						20	40	60	80		10	20	30	40		
0.0	SURFACE ELEVATION															
0.41	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS									o			
1.4	SAND: Reddish brown sand, some silt, damp; occasional organics		2	GS									o			
3.0	SILTY SAND: Grey-brown silty sand, wet		3	GS									c			
	TEST PIT TERMINATED AT 3.0 m														Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.3 m	
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 7

17T 548033E 4738659N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q									
							50 100 150 200									
DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST							x ●					WATER CONTENT (%)				
20 40 60 80							10 20 30 40									
0.0	SURFACE ELEVATION															
0.20	TOPSOIL: Dark brown topsoil, wet; occasional rootlets		1	GS												
	SAND: Grey-brown sand, some silt, wet		2	GS												0 82 18
1.5																
	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 1.5 m. Test pit could not be advanced deeper. After an hour, water was observed at 0.5 m
2.0																
3.0																
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 8

17T 547980E 4738714N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x ●									
						20	40	60	80		10	20	30	40		
0.0	SURFACE ELEVATION															
0.41	TOPSOIL: Dark brown topsoil, damp to wet; occasional rootlets		1	GS										○		
	SILTY SAND TO SAND: Grey-brown silty sand to sand, wet to saturated		2	GS									○			
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 0.9 m

NOTES

LOG OF TEST PIT NO. 9

17T 547931E 4738768N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS				
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200													
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●										WATER CONTENT (%)			
						50	100	150	200											
						20	40	60	80											
0.0	SURFACE ELEVATION																			
0.41	TOPSOIL: Dark brown topsoil, damp to wet; occasional rootlets		1	GS																
	SAND TO SILTY SAND: Grey-brown sand to silty sand, saturated		2	SS																
1.0																				
2.0																				
3.0	TEST PIT TERMINATED AT 3.0 m																			
																Upon completion of digging, free water and cave observed at 3.0 m.				
																After an hour, water was observed at 1.2 m				
4.0																				
5.0																				
6.0																				
7.0																				
8.0																				
9.0																				
10.0																				

NOTES

LOG OF TEST PIT NO. 10

17T 547998E 4738791N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							
						WATER CONTENT (%)										
						20	40	60	80		10	20	30	40		
0.0	SURFACE ELEVATION															
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS												
0.86	SAND: Reddish brown sand, some silt, damp		2	GS												0 81 19
1.0	SILTY SAND: Grey-brown silty sand, damp to wet															
2.0			3	GS												
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.5 m
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF BOREHOLE NO. 1

17T 547799.8E 4738728N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ●								
						WATER CONTENT (%)									
						20	40	60	80	10	20	30	40		
0.0	SURFACE ELEVATION 234.72														
234.62	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist			1A											
	SILTY SAND TO SAND: Loose, reddish brown silty sand to sand, trace clay, moist			1B	SS	3									
1.0				2	SS	8									
1.4	becoming compact, wet to saturated														
233.3				3	SS	17									
2.0				4	SS	16									
3.0				5	SS	16									
4.0															
5.0				6	SS	10									
229.7	BOREHOLE TERMINATED AT 5.0 m														Upon completion of augering, free water at 1.4 m, cave at 1.8 m
6.0															
7.0															
8.0															
9.0															
10.0															

NOTES

LOG OF BOREHOLE NO. 3

17T 548002.4E 4738836N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x								
						20 40 60 80				10 20 30 40				GRAIN SIZE DISTRIBUTION (%) GR SA SI & CL	
0.0	SURFACE ELEVATION 234.50														
234.40	TOPSOIL: 100 mm dark brown to black sand topsoil, some silt, damp			1A											
	SILTY SAND TO SAND: Loose, reddish brown silty sand to sand, trace clay, wet			1B	SS	1									
1.0				2	SS	2									
1.4	becoming compact, saturated														
233.1				3	SS	10									0 86 14
2.0															
				4	SS	12									
2.8	becoming loose, grey														
231.7				5	SS	6									
				6	SS	6									
												</			

NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 4

17T 548095.7E 4738789N

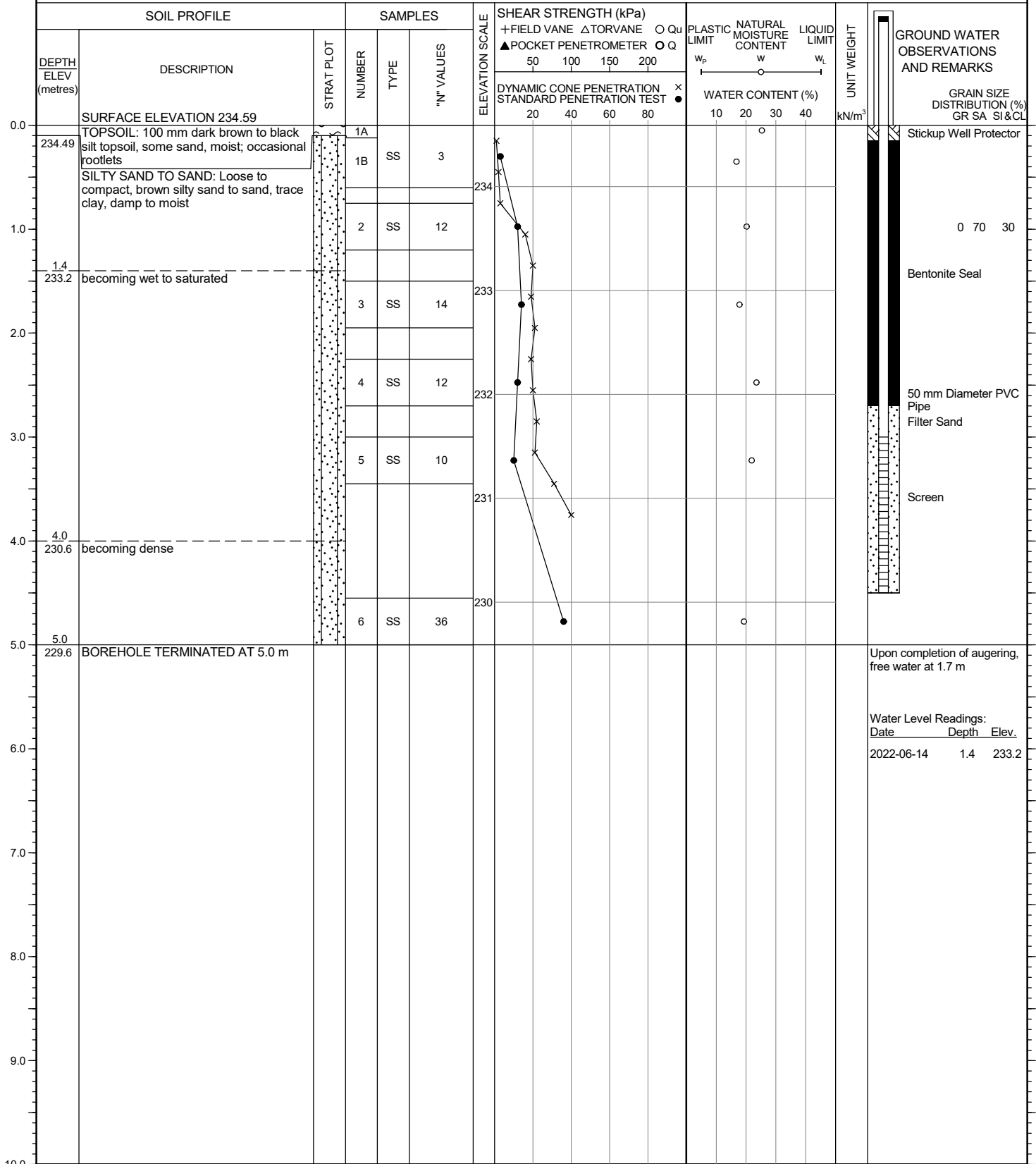
PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 20, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN SM



NOTES

LOG OF BOREHOLE NO. 5

17T 548056.9E 4738713N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

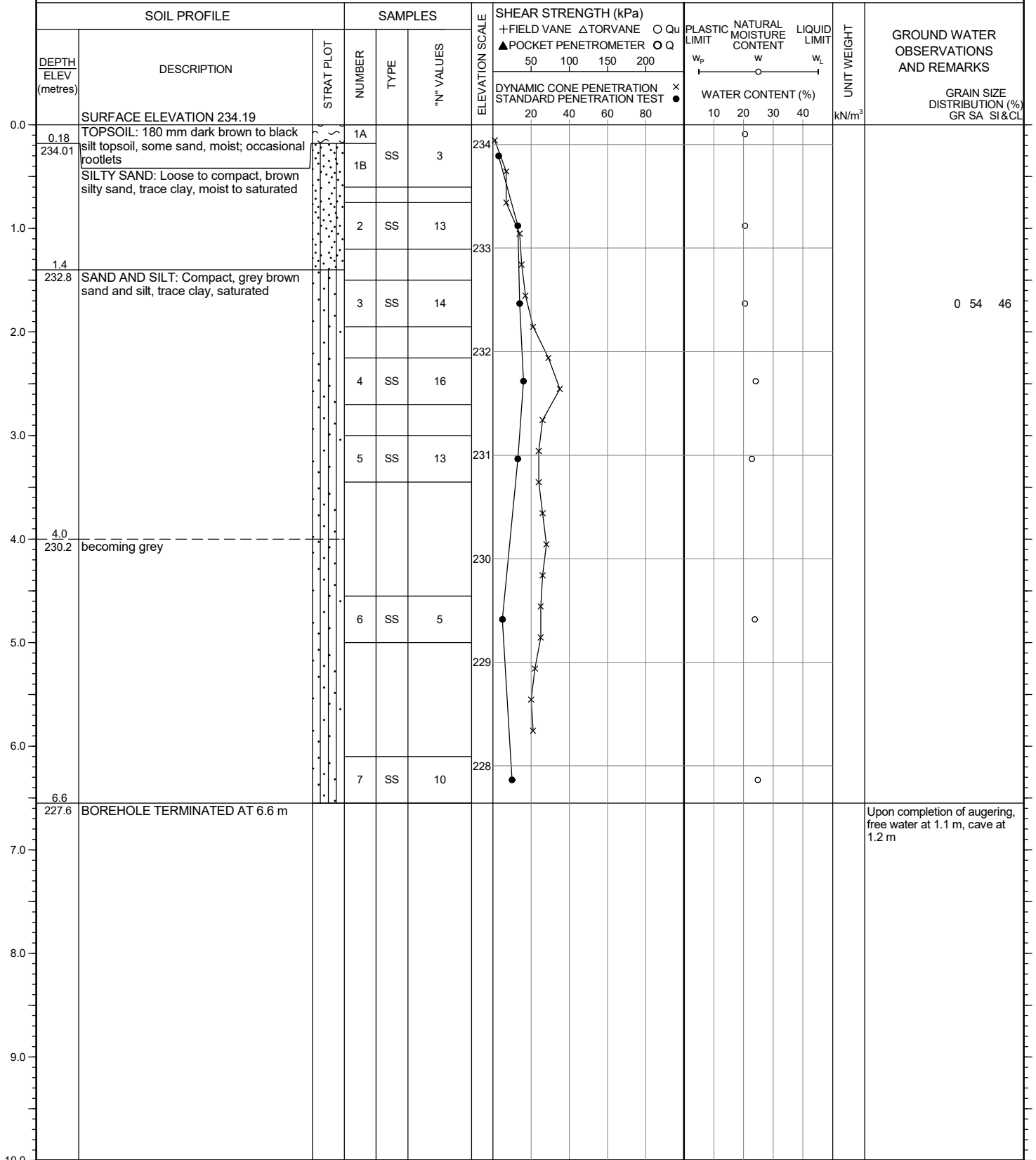
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR



NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 6

17T 548046.1E 4738639N

PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)			PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS			
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q										
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●										
							WATER CONTENT (%)						GRAIN SIZE DISTRIBUTION (%) GR SA Si & CL				
							20	40	60	80	10	20	30	40			
0.0	SURFACE ELEVATION 233.59																
233.49	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist; occasional rootlets		1A													Stickup Well Protector	
	SILTY SAND TO SAND: Loose to compact, brown silty sand to sand, trace clay, wet to saturated		1B	SS	1												
1.0			2	SS	1												
1.4																	
232.2	SAND AND SILT: Loose to compact, grey sand and silt, trace clay, saturated		3	SS	9											Bentonite Seal	
																0 43 57	
2.0			4	SS	11												
3.0																50 mm Diameter PVC Pipe	
			5	SS	6											Filter Sand	
4.0																Screen	
5.0			6	SS	13												
228.6	BOREHOLE TERMINATED AT 5.0 m															Upon completion of augering, free water at 2.3 m, cave at 2.4 m	
6.0																Water Level Readings:	
																Date Depth Elev.	
																2022-06-14 0.7 232.9	
7.0																	
8.0																	
9.0																	
10.0																	

NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 7

17T 547949.2E 4738756N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

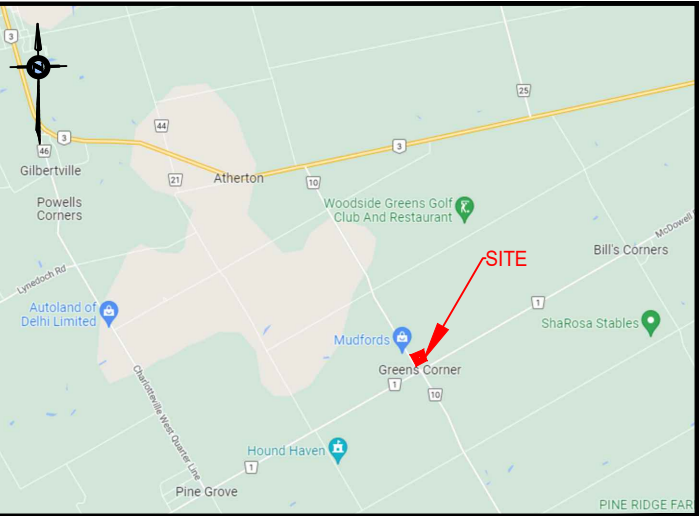
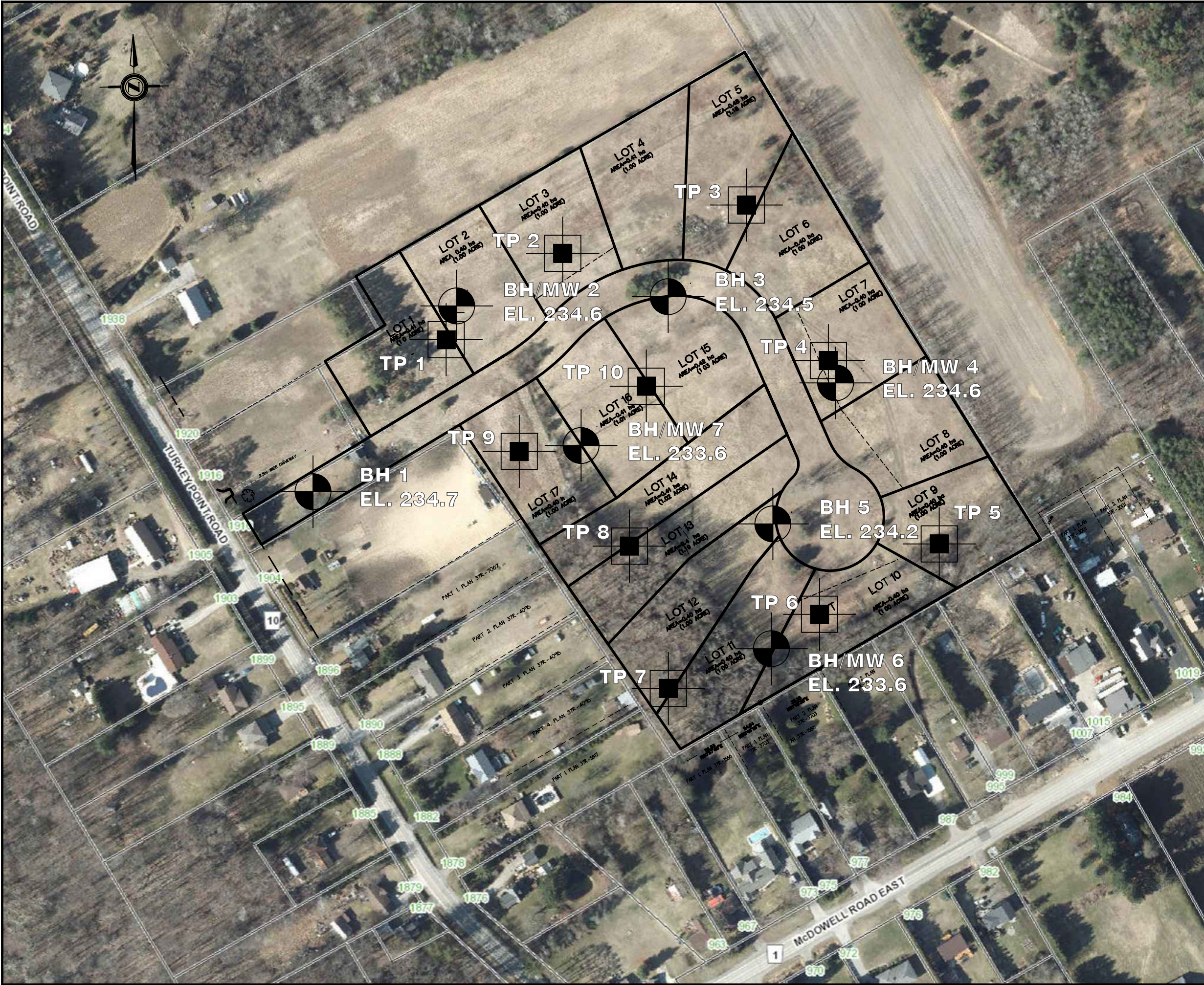
PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●									
							WATER CONTENT (%)									
							20	40	60	80	10	20	30	40	GRAIN SIZE DISTRIBUTION (%) GR SA Si & CL	
0.0	SURFACE ELEVATION 233.59															
233.49	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist; occasional rootlets SILTY SAND: Loose to compact, brown silty sand, trace clay, wet to saturated		1A												Stickup Well Protector	
			1B	SS	1											
						233										
1.0			2	SS	11											
1.4																
232.2	SAND AND SILT: Compact to dense, grey sand and silt, trace clay, saturated		3	SS	17	232									Bentonite Seal	
			4	SS	36											
							231									
			5	SS	23										50 mm Diameter PVC Pipe Filter Sand	
						230									Screen	
			6	SS	21	229										
5.0	BOREHOLE TERMINATED AT 5.0 m															
228.6															Upon completion of augering, free water at 2.3 m	

NOTES



KEY PLAN
VITTORIA, ONTARIO

LEGEND:



PETO MACCALLUM LTD. (PML) BOREHOLE/
MONITORING WELL (BH/MW) LOCATION
ELEVATION (METRIC, GEODETIC)



PML TEST PIT (TP) LOCATION, PML Ref.: 21HX016

REFERENCE:

PLAN PRODUCED FROM GIS INFORMATION FROM THE COUNTY OF
NORFOLK ONLINE INTERACTIVE MAPPING SERVICE.

NOTE:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS
BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY
GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE
BOREHOLES MAY VARY.
2. GEODETIC GROUND SURFACE ELEVATIONS AND UTM CO-ORDINATES
AT THE BOREHOLE LOCATIONS WERE DETERMINED BY PML USING A
GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS). THE SURVEY
EQUIPMENT COMPRISED A SOKKIA CANADA GCX-3 NETWORK REAL TIME
KINEMATIC (RTK) ROVER SYSTEM.



SCALE
(1:2000)

109326 ONTARIO LIMITED

GEOTECHNICAL INVESTIGATION
TURKEY POINT ROAD SUBDIVISION
1910 TURKEY POINT ROAD, VITTORIA, ONTARIO
TEST PIT AND BOREHOLE LOCATION PLAN



DRAWN	AR	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	SJ	SEPT 2022	AS SHOWN	22HF001/21HX016	1
APPROVED	SJ				



APPENDIX A

WATER WELL RECORDS

PML Number	TOWNSHIP CON LOT	UTM ZONE	EASTING	NORTHING		DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
1	CHARLOTTEVILLE TOWNS CON 09 013	17	548174	4738572	W	1967/03 3310	2	FR 0016	6/15/15/2:0	DO	0018 4	4400329 ()	PRDG 0008 FSND 0025
2	CHARLOTTEVILLE TOWNS CON 08 013	17	548165	4738365	W	1986/03 5201	2	FR 0004	4/4/35/1:30	IR	0015 4	4404968 ()	BLCK LOAM 0002 BRWN SAND 0004 GREY FSND WBRG 0015 GREY MSND WBRG 0019
3	CHARLOTTEVILLE TOWNS CON 09 013	17	548114	4738572	W	1967/02 3310	1	FR 0004	4/4/25/1:0	DO	0015 2	4400328 ()	PRDG 0004 FSND 0025
4	CHARLOTTEVILLE TOWNS CON 09 013	17	548106	4738519	W	1996/08 5201	1	FR 0011	11/17/20/1:0	DO	0021 4	4406779 (168586)	BLCK LOAM 0002 BRWN SAND 0011 BRWN FSND 0015 BRWN MSND 0025
5	CHARLOTTEVILLE TOWNS CON 09 013	17	548074	4738522	W	1981/04 5201	1	FR 0009	9/9/20/2:30	DO	0016 4	4404466 ()	BLCK LOAM 0002 BRWN SAND 0009 GREY SAND 0020
6	CHARLOTTEVILLE TOWNS CON 09 013	17	548029	4738457	W	2017/04 7356	1.25	FR 0024	12//13/1:0	DO	0025 3	7308962 (2244355) A214357	BRWN LOAM 0002 BRWN SAND 0016 BRWN CLAY SAND LYRD 0024 BRWN SAND MSND 0028 BRWN CLAY 0030
7	CHARLOTTEVILLE TOWNS CON 08 012	17	548022	4738294	W	1997/11 5201	1	FR 0008	8/15/15/1:0	DO	0022 4	4406938 (178525)	BLCK LOAM 0002 BRWN SAND 0008 GREY FSND 0026
8	CHARLOTTEVILLE TOWNS CON 08 013	17	548014	4738322	W	1977/02 5201	4	FR 0016	18//10/2:30	DO	0019 4	4403793 ()	YLLW LOAM 0002 BRWN SAND 0015 BRWN GRVL 0016 BLUE SILT 0018 GREY MSND 0023
9	CHARLOTTEVILLE TOWNS CON 08 013	17	548014	4738402	W	1980/04 5201	1	UK 0010	12//40/2:30	ST	0015 5	4404285 ()	BLCK LOAM 0003 YLLW SAND 0012 GREY SAND 0020
10	CHARLOTTEVILLE TOWNS CON 08 013	17	547999	4738405	W	1989/11 5201	5	FR 0005	5/5/40/2:0	DO	0022 5	4405576 (65814)	BRWN LOAM 0002 BRWN SAND CLAY 0005 BRWN FSND 0020 GREY MSND 0027
11	CHARLOTTEVILLE TOWNS CON 09 013	17	547914	4738442	W	1963/09 3510	1	FR 0023	19//6/2:0	PS DO	0024 4	4400326 ()	BRWN MSND 0004 CLAY HPAN 0006 BRWN MSND 0013 BRWN CLAY 0015 BRWN MSND 0018 BRWN CLAY 0023 GREY MSND 0028
12	CHARLOTTEVILLE TOWNS CON 09 013	17	547894	4738582	W	1973/10 5201	1	FR 0008	8//8/:	DO	0014 4	4403167 ()	BLCK LOAM 0002 BRWN SAND 0010 GREY FSND 0018
13	CHARLOTTEVILLE TOWNS CON 09 013	17	547840	4739159	L	1997/03 5201	1	FR 0005	5/10/8/1:0	DO	0022 3	4406857 (178479)	BLCK LOAM 0002 BRWN SAND 0005 BRWN MSND 0025
14	CHARLOTTEVILLE TOWNS CON 09 013	17	547834	4738642	W	1983/12 5201	1	FR 0008	10/11/10/1:30	DO	0016 3	4404746 ()	LOAM 0002 BRWN SAND 0005 BRWN MSND 0010 GREY SAND 0019
15	CHARLOTTEVILLE TOWNS 08 012	17	547833	4738307	W	2007/06 7193	1.25	FR 0005	5/9/20/1:0	DO	0016 4	7049573 (Z27043) A056495	BLCK LOAM 0001 BRWN SAND 0005 GREY FSND 0020
16	CHARLOTTEVILLE TOWNS CON 09 012	17	547814	4738372	W	1964/07 5201	1	FR 0010	10//10/2:0	DO	0018 3	4400323 ()	FSND 0021
17	CHARLOTTEVILLE TOWNS CON 09 012	17	547809	4738377	W	1974/10 3310	1	FR 0008	8/8/10/1:0	DO	0019 4	4403365 ()	BRWN SAND 0004 GREY MSND 0022
18	CHARLOTTEVILLE TOWNS CON 09 012	17	547794	4738522	W	1983/02 5201	1	FR 0010	10//20/2:30	DO	0015 3	4404667 ()	BLCK LOAM 0002 YLLW SAND 0005 BLUE SILT SAND 0010 GREY FSND 0018
19	CHARLOTTEVILLE TOWNS CON 09 013	17	547689	4738885	W	2003/05 6808	5	FR 0011	5/5/15/1:0	IR	0028 7	4407917 (258334)	BRWN LOAM 0001 BRWN LOAM SNDY 0010 GREY CLAY 0011 GREY FSND 0035
20	CHARLOTTEVILLE TOWNS CON 09 012	17	547687	4738710	W	1988/05 5201	1	FR 0003	3/3/18/1:0	DO	0016 3	4405215 (25325)	BRWN SAND 0003 GREY MSND WBRG 0019
21	CHARLOTTEVILLE TOWNS CON 09 012	17	547674	4738292	W	1966/08 5201	1	FR 0008	8/8/15/1:30	DO	0011 4	4400325 ()	LOAM 0002 BRWN MSND 0015
22	CHARLOTTEVILLE TOWNS CON 09 013	17	547664	4738792	W	1968/10 5201	1	FR 0010	10/10/10/2:0	DO	0014 4	4402252 ()	LOAM 0001 YLLW FSND 0010 GREY FSND 0018
23	CHARLOTTEVILLE TOWNS CON 09 013	17	547627	4738941	W	1987/07 5201	1	FR 0004	4/4/20/1:0	DO	0011 4	4405088 (10725)	BRWN SAND 0004 GREY SAND WBRG 0015
24	CHARLOTTEVILLE TOWNS CON 09 013	17	547574	4739162	W	1983/07 5201	1	FR 0007	6/7/30/1:30	IR	0012 4	4404723 ()	BLCK LOAM 0002 BRWN SAND 0007 GREY MSND 0020
25	CHARLOTTEVILLE TOWNS CON 09 013	17	547534	4739042	W	1969/12 5201	2	FR 0006	1/8/15/2:0	DO	0013 3	4402448 ()	BLCK LOAM 0001 YLLW MSND 0004 GREY MSND 0017
26	CHARLOTTEVILLE TOWNS CON 09 013	17	547504	4739072	W	1970/05 5201	1	FR 0009	9//10/2:0	DO	0014 4	4402570 ()	BLCK LOAM 0003 WHIT FSND 0018
27	CHARLOTTEVILLE TOWNS CON 09 012	17	547474	4739082	W	1982/11 5201	1	FR 0006	6/6/10/1:30	DO	0012 4	4404642 ()	BLCK LOAM 0002 BRWN SAND 0006 GREY FSND 0016
28	CHARLOTTEVILLE TOWNS CON 09 012	17	547302	4738847	L	2000/03 5201	1	FR 0006	6/10/20/1:0	IR	0016 4	4407354 (212002)	BLCK LOAM 0002 BRWN SAND 0006 BRWN MSND SAND 0015 BRWN MSND 0020

UTM 17Z 547900E

401/16W

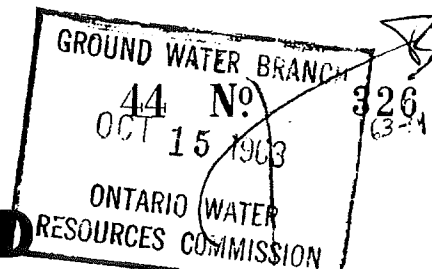


CPR 14738220N

Elev. 57R 0785

The Ontario Water Resources Commission Act

WATER WELL RECORD



Basin 23 County or District NORFOLK

Township, Village, Town or City CHARLOTTEVILLE

Con. 108 Lot 13

Date completed 26 9 63 (day month year)

Address BRI SIMCOE

Casing and Screen Record

Pumping Test

Inside diameter of casing 1 1/4
 Total length of casing 24
 Type of screen JOHN SON
 Length of screen 4
 Depth to top of screen 24 1/2
 Diameter of finished hole 1 1/4

Static level 19
 Test-pumping rate 6 G.P.M.
 Pumping level SHALLOW WELL
 Duration of test pumping 2 HRS.
 Water clear or cloudy at end of test CLEAR
 Recommended pumping rate 5 G.P.M.
 with pump setting of 5' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

From ft.

To ft.

Depth(s) at which water(s) found

Kind of water (fresh, salty, sulphur)

BROWN SAND	0	4		
CLAY HARD PAN	4	6		
BROWN SAND	6	13		
CLAY BROWN	13	15		
BROWN STICKY SAND	15	18		
BROWN CLAY	18	23	23	FRESH
GRAY MEDIUM WATER SAND	23	28		

For what purpose(s) is the water to be used?

HOME - STORE

Is well on upland, in valley, or on hillside?

Drilling or Boring Firm

ROBT MCKENZIE

Address VICTORIA

Licence Number 971

Name of Driller or Borer SAME

Address

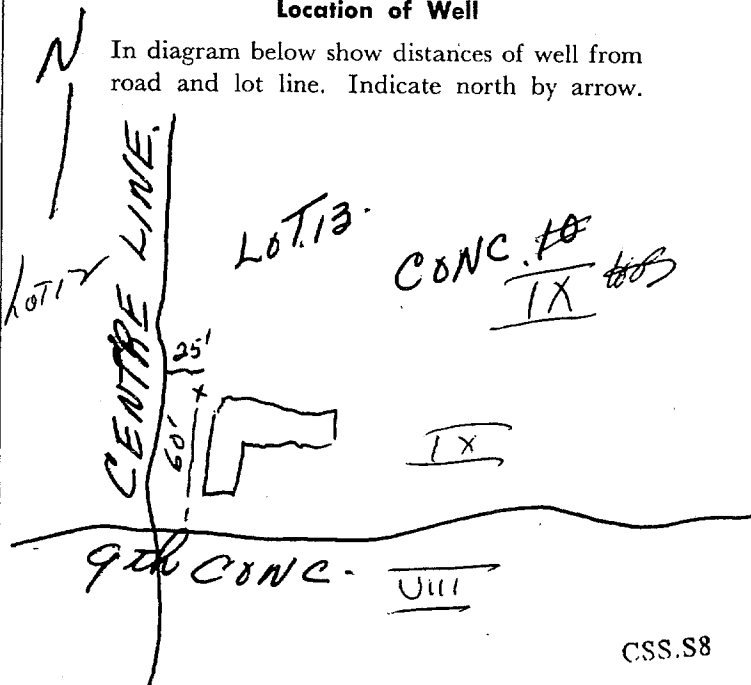
Date Sept 27/63

(Signature of Licensed Drilling or Boring Contractor)

Form 7 10M-62-1152

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



CSS.S8

OWRC COPY

UTM 1793 548100 E

40116W



44 N^o 328

Elev. 5 R 4784 N

The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 23 County or District Norfolk Co

Con. 9 Lot 13

Township, Village, Town or City Charlottesville

Date completed 20 (day) Feb (month) 1967 (year)

Address R.R. 1 Simcoe

Casing and Screen Record

Inside diameter of casing 1 1/4"
 Total length of casing 11'
 Type of screen Drive point
 Length of screen 24"
 Depth to top of screen 15'
 Diameter of finished hole 2"

Pumping Test

Static level 4'
 Test-pumping rate 25 G.P.M.
 Pumping level 4'
 Duration of test pumping 1 hr
 Water clear or cloudy at end of test clear
 Recommended pumping rate 25 G.P.M.
 with pump setting of 4' feet below ground surface

Well Log

Overburden and Bedrock Record

From ft.

To ft.

Depth(s) at which water(s) found

Kind of water (fresh, salty, sulphur)

Well pit
Fine water sand

0
4

4
25

4'

Fresh

For what purpose(s) is the water to be used?

Domestic

Is well on upland, in valley, or on hillside?

Upland

Drilling or Boring Firm Seth Linton

58 Robinson St.

Address Simcoe Ont.

Licence Number 2289 (1966, no.)

Name of Driller or Borer as above

Address Mar 1/67

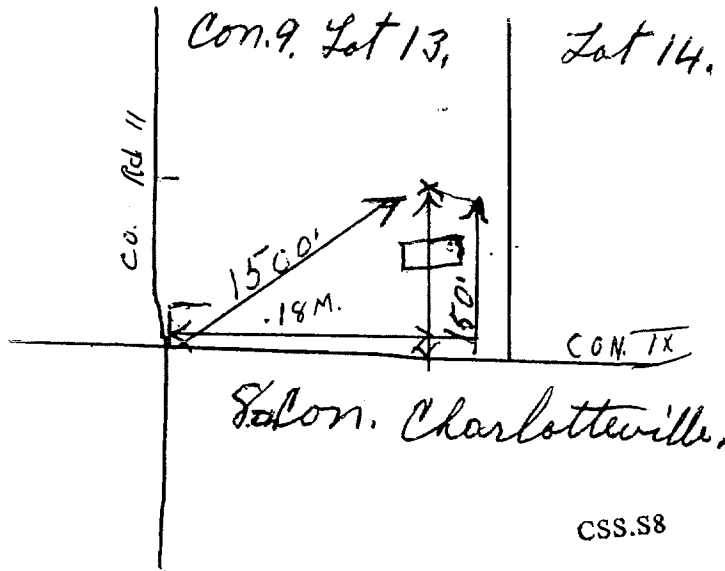
Date Mar 1/67

Seth Linton

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.





The Ontario Water Resources Commission Act

WATER WELL RECORD

Basin 23 Morfolk Township, Village, Town or City Charlottesville
 County or District 9 Lot 13 Date completed 25 March 1967
 Elev. 5 R 0783 Address R.R. 1 Simcoe

Casing and Screen Record

Inside diameter of casing 2'
 Total length of casing 14'
 Type of screen Drive point
 Length of screen 4'
 Depth to top of screen 18'
 Diameter of finished hole 2"

Pumping Test

Static level 6'
 Test-pumping rate 15 G.P.M.
 Pumping level 15'
 Duration of test pumping 2 hrs
 Water clear or cloudy at end of test Clear
 Recommended pumping rate 15 G.P.M.
 with pump setting of 4' feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record

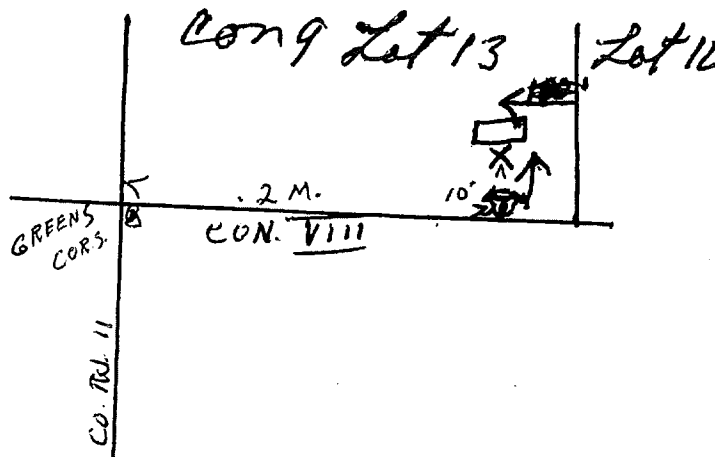
From
ft.To
ft.Depth(s) at
which water(s)
foundKind of water
(fresh, salty,
sulphur)

<u>Open well</u> <u>fine hard sand</u> <u>fine water sand</u>	0	8		
	8	16		
	16	25	16-25	fresh

For what purpose(s) is the water to be used? DomesticIs well on upland, in valley, or on hillside? UplandDrilling or Boring Firm Seth LintonAddress 58 Robinson StSimcoeLicence Number 2641Name of Driller or Borer as aboveAddress March 25, 1967Date Seth Linton

(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from
road and lot line. Indicate north by arrow.

IM 1172 13T47165T0
14R 14713185T710

Con 14
Lot 13
CODED



4402252

403/16W

lev. 5R 10765

The Ontario Water Resources Commission Act

WATER WELL RECORD

WATER RESOURCES
DIVISION

1 5 1968

County or District NORFOLK

Township, Village, Town or City CHARLOTTEVILLE

Con. 14 Lot 13

Date completed 1 16 68
(day month year)

Address R.R. 1

Casing and Screen Record

Inside diameter of casing 1 1/4
Total length of casing 14 Ft
Type of screen 4 Ft JOHNSON
Length of screen 4 Ft
Depth to top of screen 14 Ft
Diameter of finished hole 2

Pumping Test

Static level 10 Ft
Test-pumping rate 20 G.P.M.
Pumping level 10 Ft
Duration of test pumping 2 HRS
Water clear or cloudy at end of test CLEAR
Recommended pumping rate 5 G.P.M.
with pump setting of 5 feet below ground surface

Well Log

Water Record

Overburden and Bedrock Record	From ft.	To ft.	Depth(s) at which water(s) found	Kind of water (fresh, salty, sulphur)
<u>TOP SOIL</u>	<u>0</u>	<u>1</u>	<u>10 Ft</u>	<u>FRESH</u>
<u>FINE YELLOW SAND</u>	<u>1</u>	<u>10</u>		
<u>FINE GRAY WATER SAND</u>	<u>10</u>	<u>18</u>		

For what purpose(s) is the water to be used? HOUSE

Is well on upland, in valley, or on hillside? UPLAND

Drilling or Boring Firm Fed. Drilling

Address 179 Shennan

Licence Number 3015

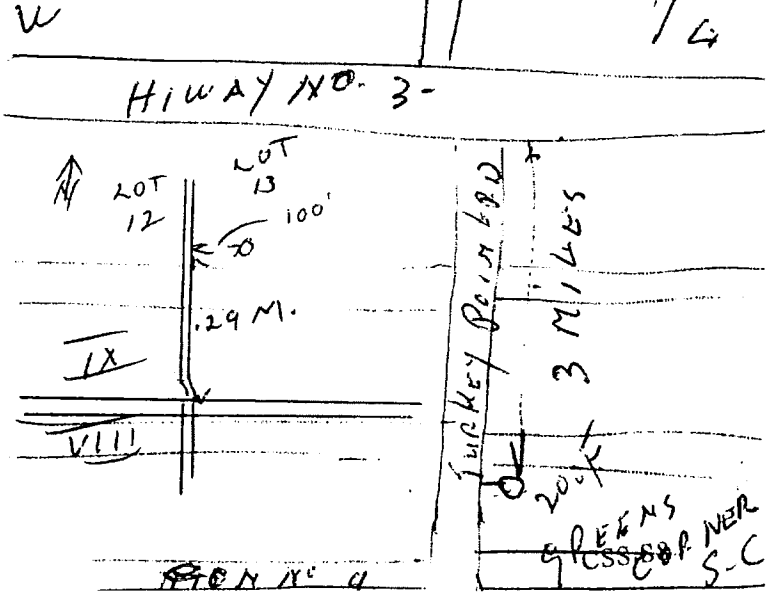
Name of Driller or Borer same

Address same

Date Oct 19/68
(Signature of Licensed Drilling or Boring Contractor)

Location of Well

In diagram below show distances of well from road and lot line. Indicate north by arrow.



WATER WELL RECORD

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

440 2448

MUNICIP.

4	4	0	0	1
---	---	---	---	---

CON

сфн

09

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON., BLOCK, TRACT, SURVEY, ETC.

LOT	25-27
-----	-------

DATE COMPLETED

DAY Dec MO. 10 / 69

7 3 8 8 2 0

RC

ELEVATION

4	0	7	7	0
25	26			

RC.

BASIN CODE

5 23
30 31

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)[illegible]

31) 0001802 0004509 0917209

32)

41 WATER RECORD

WATER FOUND AT — FEET		KIND OF WATER		
10-13	☒ FRESH	3	☐ SULPHUR	14
	2 ☐ SALTY	4	☐ MINERAL	
15-18	1 ☐ FRESH	3	☐ SULPHUR	19
	2 ☐ SALTY	4	☐ MINERAL	
20-23	1 ☐ FRESH	3	☐ SULPHUR	24
	2 ☐ SALTY	4	☐ MINERAL	
25-28	1 ☐ FRESH	3	☐ SULPHUR	29
	2 ☐ SALTY	4	☐ MINERAL	
30-33	1 ☐ FRESH	3	☐ SULPHUR	34
	2 ☐ SALTY	4	☐ MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES		MATERIAL		WALL THICKNESS INCHES		DEPTH - FEET	
						FROM	TO
10-11	☐ STEEL ☒ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	12	1/8			13-16	TO
9 02							0013
17-18	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	19				20-23	
24-25	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	26				27-30	

SIZE(S) OF ORIFICE (SLOT NO.)	ST-55	DIAMETER	54-55	LENGTH	11-12

SCREEN	NO 010	02.000	INCHES	03.000	FEET
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	41-44	8	
	SS POINT.	+3		0013	FEET

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	80

PUMPING TEST 71

PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
1 ☒ PUMP 2 ☐ BAILER			0015		GPM.	02	15-18 HOURS 00 MINS. 17-18
STATIC LEVEL		25	WATER LEVELS DURING			1 ☐ PUMPING 2 ☐ RECOVERY	
19-21 32-24			15 MINUTES 26-28		30 MINUTES 29-31	45 MINUTES 32-34	60 MINUTES 35-37
05" 001			FEET 008		FEET	FEET	FEET
IF FLOWING, GIVE RATE		38-41	PUMP INTAKE SET AT		WATER AT END OF TEST		42
GPM.			DIRECT		FEET	2 ☒ CLEAR 2 ☐ CLOUDY	
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING		43-45	RECOMMENDED PUMPING RATE	46-49
☒ SHALLOW ☐ DEEP			A 005		FEET	0015	GPM.
50-53			GPM./FT. SPECIFIC CAPACITY				

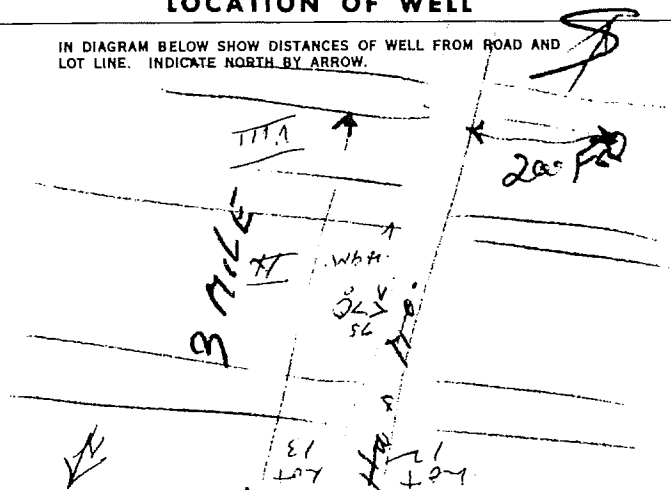
**FINAL
STATUS
OF WELL**

1 ☒ WATER SUPPLY 5 ☐ ABANDONED, INSUFFICIENT SUPPLY
2 ☐ OBSERVATION WELL 6 ☐ ABANDONED, POOR QUALITY
3 ☐ TEST HOLE 7 ☐ UNFINISHED
4 ☒ RECHARGE WELL

1 ☒ DOMESTIC 5 ☐ COMMERCIAL
2 ☐ STOCK 6 ☐ MUNICIPAL

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.





The Ontario Water Resources Commission Act

WATER WELL RECORD

Water management in Ontario

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

COUNTY OR DISTRICT NORFOLK	TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE CHARLOTTEVILLE	CON., BLOCK, TRACT, SURVEY, ETC. 9	LOT 014
DATE COMPLETED DAY 10 MO 01 YR 99		DATE COMPLETED DAY 10 MO 01 YR 99	
ELEVATION 385.00		BASIN CODE 23	

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Black	Top Soil			0	2
Brown	Sand			2	12
Brown	Clay			12	14
Brown	Fine Sand			14	20
Gray	Fine Sand			20	28

31	0002802	0002809	0002805	0002808	0002808
32					

41 WATER RECORD			
WATER FOUND AT - FEET	KIND OF WATER		
10-13	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	14
15-18	1 ☒ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	19
20-23	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	24
25-28	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	29
30-33	1 ☐ FRESH 2 ☐ SALTY	3 ☐ SULPHUR 4 ☐ MINERAL	34

51 CASING & OPEN HOLE RECORD			
INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	1/4	FROM TO
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		13-16
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		20-23
			27-30

SCREEN	SIZE(S) OF OPENING (SLOT NO.) 010	DIAMETER 02.00	LENGTH 54
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN 0023	

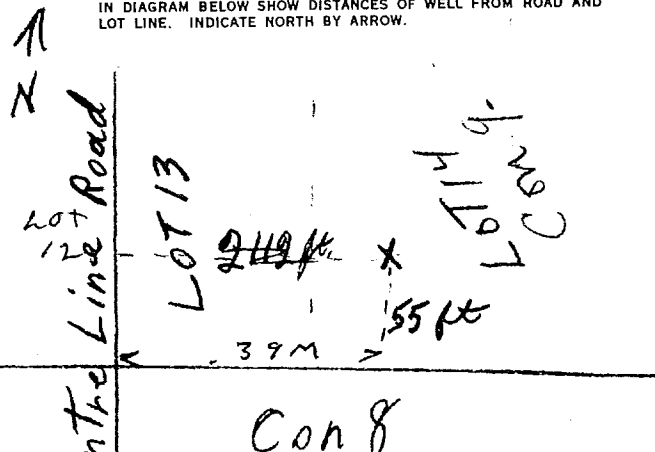
61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)	
FROM	TO		
10-13	14-17		
18-21	22-25		
26-29	30-33		

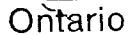
PUMPING TEST	PUMPING TEST METHOD		10 PUMPING RATE	11-14 DURATION OF PUMPING
	1 ☒ PUMP 2 ☐ BAILER		0009	20 HOURS 45 MINS.
	STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING	
	19-21	22-24	15 MINUTES 25-28	30 MINUTES 29-31
	35-37	38-41	45 MINUTES 32-34	60 MINUTES 35-37
	IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST	
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE	RECOMMENDED PUMPING RATE	
1 ☒ SHALLOW 2 ☐ DEEP	5/4	0009	0009	
50-53 018.0 GPM./FT. SPECIFIC CAPACITY				

FINAL STATUS OF WELL	1 ☒ WATER SUPPLY	5 ☐ ABANDONED, INSUFFICIENT SUPPLY
	2 ☐ OBSERVATION WELL	6 ☐ ABANDONED, POOR QUALITY
	3 ☐ TEST HOLE	7 ☐ UNFINISHED
	4 ☐ RECHARGE WELL	
	1 ☒ DOMESTIC	5 ☐ COMMERCIAL
	2 ☐ STOCK	6 ☐ MUNICIPAL

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.





1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

ONTARIO		MUNICIPALITY 44001		COM. Cdn		LOT 25-27 013	
COUNTY OR DISTRICT Chesapeake		TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE Charlotteville		CON., BLOCK, TRACT, SURVEY, ETC. IX		DATE COMPLETED 420-4874	
NAME OF PERSON OR FIRM R R I Sincove		ELEVATION 0770		BASIN CODE 23		DAY 31 MO. 10 YR. 73	

[illegible]

31	0002802	0010628	0018208					
32								

PLUGGING & SEALING RECORD

WATER FOUND AT - FEET		KIND OF WATER	
10-13 000-4	1 ☒ FRESH	3 ☐ SULPHUR	14
	2 ☐ SALTY	4 ☐ MINERAL	
15-18	1 ☐ FRESH	3 ☐ SULPHUR	19
	2 ☐ SALTY	4 ☐ MINERAL	
20-23	1 ☐ FRESH	3 ☐ SULPHUR	24
	2 ☐ SALTY	4 ☐ MINERAL	
25-28	1 ☐ FRESH	3 ☐ SULPHUR	29
	2 ☐ SALTY	4 ☐ MINERAL	
30-33	1 ☐ FRESH	3 ☐ SULPHUR	34
	2 ☐ SALTY	4 ☐ MINERAL	

INSIDE DIAM. INCHES		MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
				FROM	TO
01	10-11	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	$\frac{1}{8}$ "	0	10014
	17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			20-2
	24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE			27-3

SCREEN	SIZE(S) OF OPENING (SLOT NO.)	31-33	DIAMETER 01250 1/8	LENGTH 39-40 014
			INCHES	FEET
	MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN		41-44
	Johnson Red Head		0014	FEET

61 PLUGGING & SEALING RECORD			
DEPTH SET AT - FEET		MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
FROM	TO		
10-13	14-17		
18-21	22-25		
26-29	30-33	80	

PUMPING TEST	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP	2 ☐ BAILER		0008		GPM	15-16 HOURS	17-18 MINS
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25	WATER LEVELS DURING			1 ☐ RECOVERY	
	19-21	22-24	IS MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
	008	24-28	29-31	32-34	35-37			
FEET		FEET	FEET	FEET	FEET	FEET	FEET	FEET
IF FLOWING, GIVE RATE			38-41	PUMP INTAKE SET AT		WATER AT END OF TEST		
GPM					FEET	1 ☒ CLEAR	2 ☐ CLOUDY	
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMPING RATE	46-48		
☐ SHALLOW ☐ DEEP			0006	FEET	0006	GPM		
50-53								

FINAL STATUS OF WELL	54	1 ☒ WATER SUPPLY	5 ☐ ABANDONED, INSUFFICIENT SUPPLY
		2 ☐ OBSERVATION WELL	6 ☐ ABANDONED POOR QUALITY
		3 ☐ TEST HOLE	7 ☐ UNFINISHED
		4 ☐ RECHARGE WELL	
WATER	55-56	1 ☒ DOMESTIC	5 ☐ COMMERCIAL
		2 ☐ STOCK	6 ☐ MUNICIPAL
		3 ☐ IRRIGATION	7 ☐ PUBLIC SUPPLY

LOCATION OF WELL

N

CONTR

LOT 13

house.

.15 km

S 500 ft.

10

9



Ontario

MINISTRY OF THE ENVIRONMENT
The Ontario Water Resources Act

WATER WELL RECORD

40-1/16d

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

4403303

MUNICIP.

44001

CON.

CPN

08

COUNTY OR DISTRICT

Simcoe

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

Township of Delhi

CON., BLOCK, TRACT, SURVEY, ETC

8

LOT

013

DATE COMPLETED

22 07

48-53

DAY

MO.

YR

74

4403303 17 548283 4738259 4 771 4 23 AUG 07, 1975 93

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
		Old well		0	8
Grey	fine sand			8	19
Grey	sand		medium sand	19	26

31 000883 0019208 0026209

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
005	☒ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
15-18	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
20-23	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
25-28	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL
30-33	☐ FRESH ☐ SALTY ☐ SULPHUR ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIA. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	☒ STEEL		3026
11-12	☒ CONCRETE		
12-13	☒ OPEN HOLE		
17-18	☐ STEEL		20-23
24-25	☐ GALVANIZED		27-30
	☐ CONCRETE		
	☐ OPEN HOLE		

SCREEN

SIZE(S) OF OPENING (SLOT NO.)	DIAMETER	LENGTH
006	0650	03
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	41-44
Galv steel slot	023	

61 PLUGGING & SEALING RECORD

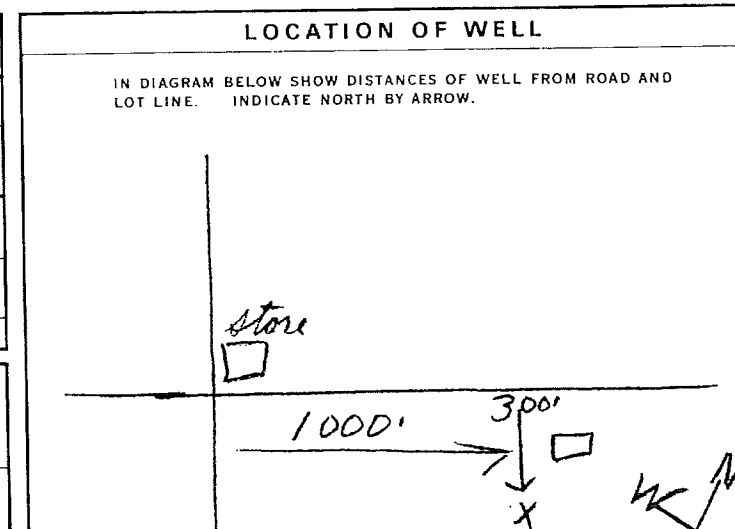
DEPTH SET AT - FEET	MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM TO	
10-13	14-17
18-21	22-25
26-29	30-33

71 PUMPING TEST

PUMPING TEST METHOD	PUMPING RATE	DURATION OF PUMPING
☒ PUMP ☐ BAILER	0015 GPM	01 15-16 HOURS 00 MINS
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
005		15 MINUTES 22-24 FEET 30 MINUTES 29-31 FEET 45 MINUTES 32-34 FEET 60 MINUTES 35-37 FEET
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	3 GPM	005 FEET
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☒ SHALLOW ☐ DEEP	003 FEET	0015 GPM

FINAL STATUS OF WELL

☒ WATER SUPPLY	☐ ABANDONED, INSUFFICIENT SUPPLY
☐ OBSERVATION WELL	☐ ABANDONED, POOR QUALITY
☐ TEST HOLE	☐ UNFINISHED
☐ RECHARGE WELL	
☒ DOMESTIC	☐ COMMERCIAL
☐ STOCK	☐ MUNICIPAL





1. PRINT ONLY IN SPACES PROVIDED
2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

The Ontario Water Resources Act 40 I/6d.

WATER WELL RECORD

4404285

MUNICIP.

MUNICIP.
44001

COM

CON.
CON

28

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON. BLOCK, TRACT, SURVEY ETC

LO

012

DATE COMPLETED

DAY 28 MO 04 YR 80

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31

0003802

0012528

0020228

32

WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER			
10-13	1 ☐ FRESH	3 ☐ SULPHUR		
2010	2 ☐ SALTY	4 ☐ MINERAL		
15-18	1 ☐ FRESH	3 ☐ SULPHUR		
	2 ☐ SALTY	4 ☐ MINERAL		
20-23	1 ☐ FRESH	3 ☐ SULPHUR		
	2 ☐ SALTY	4 ☐ MINERAL		
25-28	1 ☐ FRESH	3 ☐ SULPHUR		
	2 ☐ SALTY	4 ☐ MINERAL		
30-33	1 ☐ FRESH	3 ☐ SULPHUR		
	2 ☐ SALTY	4 ☐ MINERAL		

51

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES		MATERIAL		WALL THICKNESS INCHES		DEPTH - FEET	
						FROM	TO
01 10-11 1 1/4	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	12	1 1/8		0 (00) 0		13-16
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	19					20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	26					27-30

SCREEN

SIZE(S) OF OPENING (SLOT NO)	010
---------------------------------	-----

~~NO 10~~

To the same

DIAMETER	34-38	LENGTH	39-40
			

04000	05	FEET
INCHES		
DEPTH TO TOP	00	10:11

OF SCREEN 20/5
10 FEET

61

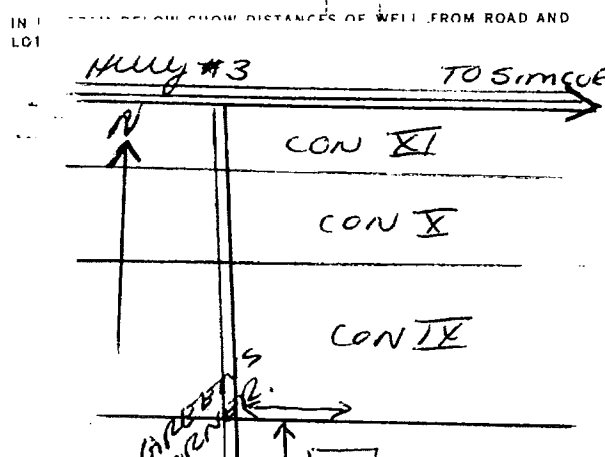
PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE (CEMENT GROUT, LEAD PACKER, ETC.)
FROM	TO	
10-13	14-17	
18-21	22-25	
26-29	30-33	80

71 ✓

PUMPING TEST	1 ☒ PUMP	2 ☐ BAILER	GPM		3 ☒ HOURS	4 ☒ WINS
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25 WATER LEVELS DURING		1 ☐ PUMPING	2 ☐ RECOVERY
	19-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES
	012		26-28	29-31	32-34	35-37
	FEET	FEET	FEET	FEET	FEET	FEET
IF FLOWING, GIVE RATE	36-41	PUMP INTAKE SET AT	WATER AT END OF TEST		42	
		5	FEET		1 ☒ CLEAR	2 ☐ CLOUDY
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMPING RATE	46-49	
☒ SHALLOW	☐ DEEP	005	FEET	0040	GPM	
50-53						

LOCATION OF WELL





Ministry
of the
Environment

Ontario

The Ontario Water Resources Act

WATER WELL RECORD

401166d

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

(11)

4404667

MUNICIPAL

44001

CON.

CON

09

COUNTY OR DISTRICT

NORFOLK

TOWNSHIP, BOROUGH CITY TOWN VILLAGE

Harroville

CON. BLOCK TRACT SUBDIVISION ETC.

TX

LOT

012

DATE COMPLETED

DAY 22 MO 02 YR 83

38300

4

0775

4

23

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
Black		TOP SOIL		0	2
Yellow		SAND		2	5
Blue		SILT SAND		5	10
Gray		FINE WATER SAND		10	15
			POINT		

31	0002802	0005528	091030628	0018208
32				

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☒ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
15-18	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
20-23	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
25-28	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL
30-33	1 ☐ FRESH 3 ☐ SULPHUR 2 ☐ SALTY 4 ☐ MINERAL

51 CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE	1/8	0-18
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE		27-30

SCREEN

SIZE (1) OF OPENING (2) SLOT NO.	31-33	DIAMETER	34-38	LENGTH	39-40
1/4"		04000	03		
MATERIAL AND TYPE					
SOIL SCREEN SS					

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER ETC.
10-13		
14-17		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST

PUMPING TEST METHOD	10	PUMPING RATE	11-14	DURATION OF PUMPING	15-16	17-18
1 ☒ PUMP 2 ☐ BAILER		0020	GPM	02	HOURS	30
STATIC LEVEL	19-21	WATER LEVEL END OF PUMPING	22-24	WATER LEVELS DURING	25	
010				15 MINUTES	30 MINUTES	45 MINUTES
				26-28	29-31	32-34
						35-37
IF FLOWING GIVE RATE	38-41	PUMP INTAKE SET AT	42	WATER AT END OF TEST	43	
		5		1 ☒ CLEAR 2 ☐ CLOUDY		
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMPING RATE	46-49	
6 SHALLOW ☐ DEEP		005		0015		

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE. INDICATE NORTH BY ARROW.

AN

10m

CON

LOT 12

9" CON

LOT 13

9" CON

Harroville

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY	5 ☐ ABANDONED - INSUFFICIENT SUPPLY
2 ☐ OBSERVATION WELL	6 ☐ ABANDONED - POOR QUALITY
3 ☐ TEST HOLE	7 ☐ UNFINISHED
4 ☐ RECHARGE WELL	

WATER

1 ☒ DOMESTIC	5 ☐ COMMERCIAL
2 ☐ STOCK	6 ☐ MUNICIPAL
3 ☐ IRRIGATION	



The Ontario Water Resources Act

40 I 16 d

WATER WELL RECORD

11

4404723

MUNICIP.
[CROSS]

CON. **CÓN**

109

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH CITY, TOWN VILLAGE

CON	BLOCK	TRACT	SURVEY	ETC
-----	-------	-------	--------	-----

DATE COMPLETED 48-53

DAY 18 MO 01 YR 83

2 wells both in the same

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

MAY 28 1986

31	0002802	0007628	0020209			
32						

WATER RECORD

WATER FOUND AT - FEET		KIND OF WATER			
10-13 0007	1	☒ FRESH	3	☐ SULPHUR	18
	2	☐ SALTY	4	☐ MINERAL	
15-18	1	☐ FRESH	3	☐ SULPHUR	19
	2	☐ SALTY	4	☐ MINERAL	
20-23	1	☐ FRESH	3	☐ SULPHUR	24
	2	☐ SALTY	4	☐ MINERAL	
25-28	1	☐ FRESH	3	☐ SULPHUR	29
	2	☐ SALTY	4	☐ MINERAL	
30-33	1	☐ FRESH	3	☐ SULPHUR	34
	2	☐ SALTY	4	☐ MINERAL	

CASING & OPEN HOLE RECORD

INSIDE DIAM. INCHES		MATERIAL		WALL THICKNESS INCHES		DEPTH - FEET	
						FROM	TO
01-11 #4	☐ STEEL ☒ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	12	1/8		0	13-16	
17-13	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	19				20-23	
24-25	☐ STEEL ☐ GALVANIZED ☐ CONCRETE ☐ OPEN HOLE	26				27-30	

SCREEN	SIZE: 54 OF OPENING	31-33	DIAMETER	34-38	LENGTH	39-42
	SLOT NO.	004				
	4-#10		04000	04		
	MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN		41-44	
	Johnsons S.S.		0012			

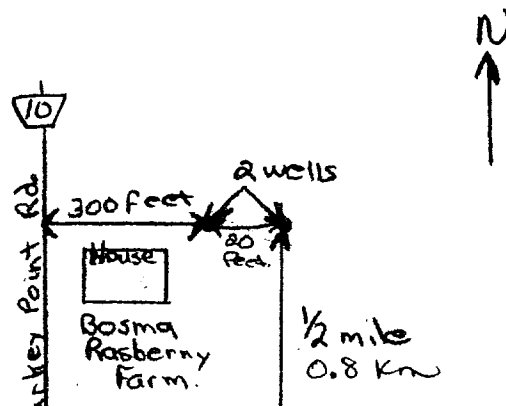
PLUGGING & SEALING RECORD

DEPTH SET AT FEET		MATERIAL AND TYPE	CEMENT GROUT LEAD PACKER, ETC.
FROM	TO		
10-13	14-17		
18-21	22-25		
26-29	30-33	80	

PUMPING TEST METHOD	1 ☒ PUMP 2 ☐ BAILER		PUMPING RATE <i>each</i> <i>0030</i> GPM		DURATION OF PUMPING <i>01</i> HOURS <i>30</i> MINS	
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25 WATER LEVELS DURING		1 ☐ PUMPING 2 ☐ RECOVERY	
	<i>006</i> 19-21 <i>7</i>	22-24 <i>007</i>	15 MINUTES <i>26-28</i>	30 MINUTES <i>28-31</i>	45 MINUTES <i>32-34</i>	60 MINUTES <i>35-37</i>
	FEET	FEET	FEET	FEET	FEET	FEET
	IF FLOWING, GIVE RATE	38-41	PUMP INTAKE SET AT	WATER AT END OF TEST		42
RECOMMENDED PUMP TYPE	GPM	RECOMMENDED PUMP SETTING	43-45	RECOMMENDED PUMPING RATE	<i>each</i> <i>0030</i> GPM	
☒ SHALLOW ☐ DEEP						

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND
LOT LINE INDICATE NORTH BY ARROW





Ministry
of the
Environment

Ontario

The Ontario Water Resources Act

40116d

WATER WELL RECORD

4404746

MUNICIP

44001

CON

C0N

09

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH, CITY, TOWN, VILLAGE

CON BLOCK TRACT. SURVEY ETC

013 25-27

13

DATE COMPLETED

48-53

DAY 12 MO 12 YR 83

38 420

4

0770

4

23

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

GENERAL COLOUR	MOST COMMON MATERIAL	OTHER MATERIALS	GENERAL DESCRIPTION	DEPTH - FEET	
				FROM	TO
	TOP SOIL			0	2
BROWN	SAND			2	5
MED. BROWN	WATER SAND			5	10
GREY	WATER SAND			10	19

MAY 26 1986

31

0002 02

0005628

0010409

0019228

32

41 WATER RECORD

WATER FOUND AT - FEET	KIND OF WATER
10-13	1 ☒ FRESH 3 ☐ SULPHUR
2 ☐ SALTY 4 ☐ MINERAL	
15-18	1 ☐ FRESH 3 ☐ SULPHUR
2 ☐ SALTY 4 ☐ MINERAL	
20-23	1 ☐ FRESH 3 ☐ SULPHUR
2 ☐ SALTY 4 ☐ MINERAL	
25-28	1 ☐ FRESH 3 ☐ SULPHUR
2 ☐ SALTY 4 ☐ MINERAL	
30-33	1 ☐ FRESH 3 ☐ SULPHUR
2 ☐ SALTY 4 ☐ MINERAL	

51 CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET
10-11	1 ☐ STEEL 2 ☒ GALVANIZED		FROM TO
12-13	1 ☐ CONCRETE 4 ☐ OPEN HOLE	1/8	0 0019
17-18	1 ☐ STEEL 2 ☐ GALVANIZED		20-23
24-25	1 ☐ STEEL 2 ☐ GALVANIZED		27-30
	3 ☐ CONCRETE 4 ☐ OPEN HOLE		

SCREEN

SIZE (1) OF OPENING (1) SLOT NO 1	31-33	DIAMETER 34-38	LENGTH 39-40
006		04000	03
MATERIAL AND TYPE	DEPTH TO TOP OF SCREEN	41-44	50
S.S. JOHNSON	0016		

61 PLUGGING & SEALING RECORD

DEPTH SET AT - FEET	MATERIAL AND TYPE	CEMENT GROUT (LEAD PACKER ETC)
FROM TO		
10-13		
14-17		
18-21		
22-25		
26-29		
30-33		

71 PUMPING TEST

PUMPING TEST METHOD	10 PUMPING RATE	11-14 DURATION OF PUMPING
1 ☒ PUMP 2 ☐ BAILER	0010 GPM	01 15-16 30 17-18
STATIC LEVEL	WATER LEVEL END OF PUMPING	WATER LEVELS DURING
010 FEET	011 FEET	15 MINUTES 26-28 30 MINUTES 29-31 45 MINUTES 32-34 60 MINUTES 35-37
IF FLOWING, GIVE RATE	PUMP INTAKE SET AT	WATER AT END OF TEST
	5 FEET	1 ☒ CLEAR 2 ☐ CLOUDY
RECOMMENDED PUMP TYPE	RECOMMENDED PUMP SETTING	RECOMMENDED PUMPING RATE
☒ SHALLOW ☐ DEEP	005 FEET	0005 GPM

1212 LOCATION OF WELL

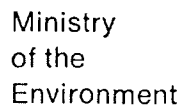
IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW.

(DELHI) CHARLOTTEVILLE IX CONC. WELL BESIDE HOUSE FB BROWN SIDINGS

APPROX. 0.25 mile 1/4 CORNER TO SIMCOE

FINAL STATUS OF WELL

1 ☒ WATER SUPPLY	5 ☐ ABANDONED, INSUFFICIENT SUPPLY
2 ☐ OBSERVATION WELL	6 ☐ ABANDONED POOR QUALITY
3 ☐ TEST HOLE	7 ☐ UNFINISHED
4 ☐ RECHARGE WELL	
1 ☒ DOMESTIC	5 ☐ COMMERCIAL
2 ☐ STOCK	6 ☐ MUNICIPAL



NORFOLK

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

4405088

MUNICIP

CON

CON. BLOCK, TRACT, SURVEY ETC

LOT 29-27

COUNTY OR DISTRICT

TOWNSHIP, BOROUGH ☒ CITY, TOWN, VILLAGE

LAND - NORFOLK

DELHI (CHARLOTTEVILLE)

P.R. / VITTORIA

DATE COMPLETED

48-53

DAY 7 MO 7 YR 87

Figure 1 consists of 12 diagrams illustrating the development of a river channel. The diagrams are arranged in a horizontal sequence, numbered 1 through 12. Each diagram shows a cross-section of a river channel with a central flow line and arrows indicating the direction of flow. The diagrams show the channel evolving from a straight line to a meandering form. The flow velocity is indicated by the number of arrows in each diagram, increasing from 1 to 12. The diagrams also show the formation of point bars and cut banks as the channel migrates.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

41		WATER RECORD			
WATER FOUND AT - FEET		KIND OF WATER			
4	10-13	1 ☒ FRESH	3 ☐ SULPHUR	14	
		2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS		
	15-18	1 ☐ FRESH	3 ☐ SULPHUR	19	
		2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS		
	20-23	1 ☐ FRESH	3 ☐ SULPHUR	24	
		2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS		
	25-28	1 ☐ FRESH	3 ☐ SULPHUR	29	
		2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS		
	30-33	1 ☐ FRESH	3 ☐ SULPHUR	34	
		2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS		

51		CASING & OPEN HOLE RECORD			
INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET		
			FROM	TO	
10-11 1 3/4	1 ☐ STEEL 2 ☒ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	12	0	11	
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	19		20-21	
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	26		27-30	

SCREEN	SIZE (S) OF OPENING (SLOT NO.)	31-33	DIAMETER	34-38	LENGTH	39-44
	#10		3	INCHES	4	FEET
	MATERIAL AND TYPE	S-S-		DEPTH TO TOP OF SCREEN	45-48	FEET
				11		

61		PLUGGING & SEALING RECORD	
DEPTH SET AT - FEET		MATERIAL AND TYPE	(CEMENT GROUT LEAD PACKER, ETC.)
FROM	TO		
10-13	14-17		
18-21	22-25		
26-29	30-33	BD	

PUMPING TEST	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER			20 GPM		1	15-16 HOURS	0 17-18 MINS
	STATIC LEVEL	WATER LEVEL END OF PUMPING	25	WATER LEVELS DURING			1 ☒ PUMPING 2 ☐ RECOVERY	
	10-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
	4 FEET	4 FEET	4 20-20 FEET	29-31 FEET	32-34 FEET	4 35-37 FEET		
IF FLOWING, GIVE RATE		30-41	PUMP INTAKE SET AT			WATER AT END OF TEST		
		GPM	4 FEET			1 ☒ CLEAR 1 ☐ CLOUDY		
RECOMMENDED PUMP TYPE			RECOMMENDED PUMP SETTING		43-45	RECOMMENDED PUMPING RATE		46-49
☒ SHALLOW ☐ DEEP			4 FEET			10 GPM		
90-93								

FINAL STATUS OF WELL	1	☒ WATER SUPPLY	8	☐ ABANDONED, INSUFFICIENT SUPPLY
	2	☐ OBSERVATION WELL	9	☐ ABANDONED POOR QUALITY
	3	☐ TEST HOLE	7	☐ UNFINISHED
	4	☐ RECHARGE WELL	9	☐ DEWATERING
WATER	1	☒ DOMESTIC	5	☐ COMMERCIAL
	2	☐ STOCK	6	☐ MUNICIPAL
	3	☐ IRRIGATION	7	☐ PUBLIC SUPPLY

LOCATION OF WELL

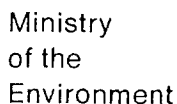
IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW.

 $q_h + h \cos$

2 m. l.

Tip, rd

well
100 ft



NORFOLK

WATER WELL RECORD

4405215

MUNICIP
44001

CON.

1. PRINT ONLY IN SPACES PROVIDED

2. CHECK ☒ CORRECT BOX WHERE APPLICABLE

11

2

COUNTY OR DISTRICT

FIELD -

TOWNSHIP BOROUGH CITY TOWN VILLAGE

CON BLOCK TRACT SURVEY ETC

	22	23	7
1	0	0	0

1 - Norfolk ^{#172}

(C 406121111111) DELHI

~~TX~~

12

RR Simple

DATE COMPLETED 9 5th 88

DAY 7 MO 2 YR 00

LOG OF OVERBURDEN AND BEDROCK MATERIALS (SEE INSTRUCTIONS)

[illegible]

31

32

WATER RECORD

WATER FOUND AT - FEET		KIND OF WATER	
10-13 3	1 ☒ FRESH	3 ☐ SULPHUR	14
	2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS	
15-18	1 ☐ FRESH	3 ☐ SULPHUR	19
	2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS	
20-23	1 ☐ FRESH	3 ☐ SULPHUR	24
	2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS	
25-28	1 ☐ FRESH	3 ☐ SULPHUR	29
	2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS	
30-33	1 ☐ FRESH	3 ☐ SULPHUR	34
	2 ☐ SALTY	4 ☐ MINERALS 6 ☐ GAS	

CASING & OPEN HOLE RECORD

INSIDE DIAM INCHES	MATERIAL	WALL THICKNESS INCHES	DEPTH - FEET	
			FROM	TO
10-11 1 1/4	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	1/32 1/8		13-14 16
17-18	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	1/8		20-21
24-25	1 ☐ STEEL 2 ☐ GALVANIZED 3 ☐ CONCRETE 4 ☐ OPEN HOLE 5 ☐ PLASTIC	2/8		27-30

SCREEN	SIZE(S) OF OPENING (SLOF NO.)	31-33	DIAMETER	34-38	LENGTH	39-40
	8		4	INCHES	3	FEET
	MATERIAL AND TYPE		DEPTH TO TOP OF SCREEN		41-44	
	SS Johnsons		16		FEET	

PLUGGING & SEALING RECORD

DEPTH SET AT - FEET		MATERIAL AND TYPE CEMENT GROUT LEAD PACKER, ETC :
FROM	TO	
10-13	14-17	
18-25	27-28	
26-29	30-33	80

71	PUMPING TEST METHOD		10	PUMPING RATE		11-14	DURATION OF PUMPING	
	1 ☒ PUMP 2 ☐ BAILER		18		GPM	15-18 HOURS 00 17-18 MINS		
	STATIC LEVEL		25 WATER LEVELS DURING		1 ☐ PUMPING 2 ☐ RECOVERY			
	10-21	22-24	15 MINUTES	30 MINUTES	45 MINUTES	60 MINUTES		
	3	3	— 0-20	— 20-31	— 32-54	— 35-37		
	FEET	FEET	FEET	FEET	FEET	FEET		
IF FLOWING, GIVE RATE		30-41	PUMP INTAKE SET AT		WATER AT END OF TEST		42	
—		GPM	0		FEET		1 ☒ CLEAR 2 ☐ CLOUDY	
RECOMMENDED PUMP TYPE		RECOMMENDED PUMP SETTING		43-45		RECOMMENDED PUMPING RATE		
☒ SHALLOW ☐ DEEP		5		FEET		10 GPM		
50-53								

LOCATION OF WELL

IN DIAGRAM BELOW SHOW DISTANCES OF WELL FROM ROAD AND LOT LINE INDICATE NORTH BY ARROW.

22

GREEN'S CORNERS

9th Con $x \rightarrow To Simult$

**FINAL
STATUS
OF WELL**

- | | |
|--|---|
| 1 ☒ WATER SUPPLY | 5 ☐ ABANDONED, INSUFFICIENT SUPPLY |
| 2 ☐ OBSERVATION WELL | 6 ☐ ABANDONED, POOR QUALITY |
| 3 ☐ TEST HOLE | 7 ☐ UNFINISHED |
| 4 ☐ RECHARGE WELL | 9 ☐ DEWATERING |

WATER

- 1 ☒ DOMESTIC 5 ☐ COMMERCIAL
2 ☐ STOCK 6 ☐ MUNICIPAL
3 ☐ IRRIGATION 7 ☐ PUBLIC SUPPLY



The Ontario Water Resources Act WATER WELL RECORD

Print only in spaces provided. ✓
Mark correct box with a checkmark, where applicable.

11

4406779

Municipality 44001 Con. CON 09

NORFOLK

County or District HALD - NORFOLK	Township/Borough/City/Town/Village DELHI (CHARLOTTEVILLE)	Con block tract survey, etc. TX	Lot 13
Owner's surname ROSS	First name HUMPHREYS LTD	Address 36 OAK ST. SIMLON	Date completed 22 08 96 day month year

	Zone	Easting	Northing	RC	Elevation	RC	Basin Code	I	II	IV
21	(CONTRACTOR)									

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

41		14 15		21		
WATER RECORD						
Water found at - feet		Kind of water				
11	10 13	1	☒ Fresh	3	Sulphur	14
	2	☐ Salty	4	Minerals		
	12 18	1	Fresh	3	Sulphur	19
		2	Salty	4	Minerals	
	20 23	1	Fresh	2	Sulphur	24
		2	Salty	4	Minerals	
	25 28	1	Fresh	3	Sulphur	29
		2	Salty	4	Minerals	
	30 33	1	Fresh	3	Sulphur	34
		2	Salty	4	Minerals	
				6	Gas	

51 CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10 11	☒ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	1/8	0	13-16
17 18	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	1/8		20-23
24 25	☐ Steel ☐ Galvanized ☐ Concrete ☐ Open hole ☐ Plastic	1/8		27-30

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	31-38	Length	39-44
	10		2	inches	4	feet
	Material and type			Depth at top of screen	41-44	45-48
	S.S.			21	feet	

61 PLUGGING & SEALING RECORD			
☐ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.).	
From	To		
12-13	14-17		
18-21	22-25		
26-29	30-33		
	80		

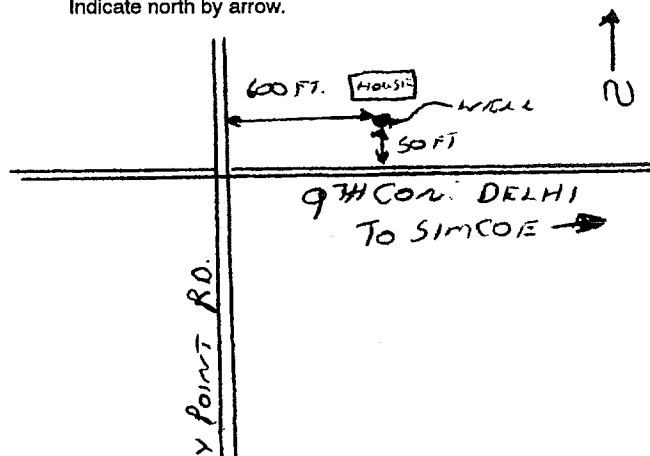
PUMPING TEST	Pumping test method ¹⁰ ☒ Pump ₂ ☐ Bailer		Pumping rate ¹¹⁻¹¹ <u>20</u> GPM		Duration of pumping ¹⁻¹⁰ <u>1</u> Hours <u>0.50</u> Mins	
	Static level	Water level end of pumping ²⁵	Water levels during ☐ Pumping ☐ Recovery			
	¹⁹⁻²¹ <u>11</u> feet	²²⁻²⁴ <u>17</u> feet	²⁶⁻²⁸ 15 minutes feet	²⁹⁻³¹ 30 minutes feet	³²⁻³⁴ 45 minutes feet	³⁵⁻³⁷ 60 minutes feet
	If flowing give rate ³³⁻⁴¹ GPM		Pump intake set at <u>4</u> feet		Water at end of test ⁴² ☒ Clear ☐ Cloudy	
	Recommended pump type ☒ Shallow ☐ Deep		Recommended pump setting ⁴³⁻⁴⁵ <u>4</u> feet		Recommended pump rate ⁴⁶⁻⁴⁹ <u>20</u> GPM	
	⁵⁰⁻⁵³					

FINAL STATUS OF WELL			54
1 ☒ Water supply	5 ☐ Abandoned, insufficient supply	9 ☐ Unfinished	
2 ☐ Observation well	6 ☐ Abandoned, poor quality	10 ☐ Replacement well	
3 ☐ Test hole	7 ☐ Abandoned (Other)		
4 ☐ Recharge well	8 ☐ Dewatering		

WATER USE			55-56
1 ☒ Domestic	5 ☐ Commercial	9 ☐ Not used	
2 ☐ Stock	6 ☐ Municipal	10 ☐ Other	

LOCATION OF WELL

In diagram below show distances of well from road and lot line.
Indicate north by arrow.





The Ontario Water Resources Act WATER WELL RECORD

Mark correct box with a checkmark, where applicable.

NORFOLK

11

4406857

44001

CON

109

County or District

Township/Borough/City/Town/Village

Con block tract survey, etc.

Lot#

Address

Date completed

120397

21

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)[illegible]

31

32

41		WATER RECORD				
Water found at - feet		Kind of water				
5	10-13	1 ☒ Fresh	3	0	Sulphur	14
	2 ☐ Salty	4	0	Minerals Gas		
	15-18	1 ☐ Fresh	3	0	Sulphur	19
		2 ☐ Salty	4	0	Minerals Gas	
	20-23	1 ☐ Fresh	3	0	Sulphur	24
		2 ☐ Salty	4	0	Minerals Gas	
	25-28	1 ☐ Fresh	3	0	Sulphur	29
		2 ☐ Salty	4	0	Minerals Gas	
	30-33	1 ☐ Fresh	3	0	Sulphur	34
		2 ☐ Salty	4	0	Minerals Gas	

51		CASING & OPEN HOLE RECORD			
Inside diam inches	Material	Wall thickness inches	Depth - feet		
			From	To	
10-11 1 1/4	1 ☒ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	.025	0	25	
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			20-23	
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic			27-30	

SCREEN	Sizes of opening (Slot No.) #6	31-33	Diameter 1 1/4 inches	34-38	Length 3 feet	39-40
	Material and type S.S.				Depth at top of screen 22 feet	41-44

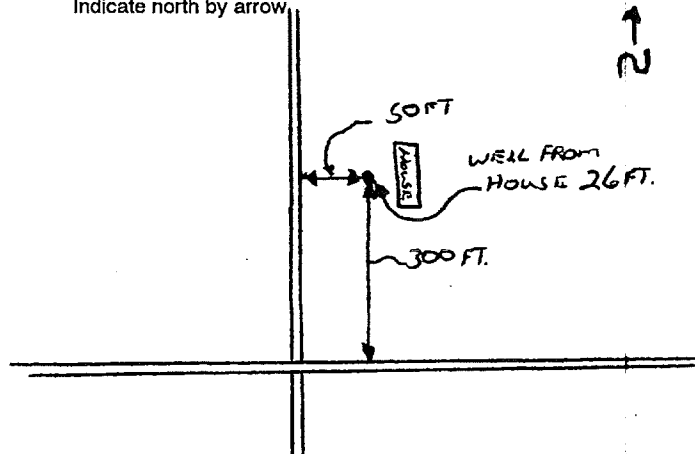
61		PLUGGING & SEALING RECORD	
☐ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13	14-17		
18-21	22-25		
26-29	30-33		
		60	

PUMPING TEST	Pumping test method ☒ Pump ☐ Bailer		Pumping rate 8 GPM		Duration of pumping 1 Hours 00 Mins	
	Static level	Water level end of pumping	Water levels during ☐ Pumping ☐ Recovery			
	19-21 5 feet	22-24 10 feet	15 minutes 26-28 10 feet	30 minutes 29-31 10 feet	45 minutes 32-34 10 feet	60 minutes 35-37 10 feet
	If flowing give rate 38-41 GPM		Pump intake set at 4 feet		Water at end of test ☒ Clear ☐ Cloudy	
	Recommended pump type ☒ Shallow ☐ Deep		Recommended pump setting 4 feet		Recommended pump rate 8 GPM	

FINAL STATUS OF WELL 1 ☒ Water supply 2 ☐ Observation well 3 ☐ Test hole 4 ☐ Recharge well		54 5 ☐ Abandoned, insufficient supply 6 ☐ Abandoned, poor quality 7 ☐ Abandoned (Other) 8 ☐ Dewatering	9 ☐ Unfinished 10 ☐ Replacement well
WATER USE 1 ☒ Domestic 2 ☐ Stock		55-56 5 ☐ Commercial 6 ☐ Municipal	9 ☐ Not used 10 ☐ Other

LOCATION OF WELL

In diagram below show distances of well from road and lot line. Indicate north by arrow.





The Ontario Water Resources Act

WATER WELL RECORD

Print only in spaces provided.

Mark correct box with a checkmark, where applicable.

11

4407917

Municipality **44001** Con. **CON** **09**

County or District	Township/Borough/City/Town/Village	Con block tract survey, etc.	Lot
	CHARLOTTEVILLE	CON 9	13
	Address or Well Location	Date completed	
	RR #1 SIMCOE	14 day	05 month 03 year

Figure 1 shows a schematic diagram of a data entry form. The form is divided into several sections, each with a scale or range of values. The sections are: Zone (with a vertical label 'U T M' and a scale from 10 to 17), Easting (scale from 12 to 17), Northing (scale from 18 to 24), RC (scale from 25 to 30), Elevation (scale from 25 to 30), and Basin Code (scale from 31 to 47). A box labeled '21' is shown in the top left corner.

LOG OF OVERBURDEN AND BEDROCK MATERIALS (see instructions)

[illegible]

31

32

10 14 15 21 22 43 54 65 76 80

41		10	14	15	21	WATER RECORD	
Water found at - feet	Kind of water						
11	10-13	1 ☒ Fresh	3 ☐ Sulphur				14
		2 ☐ Salty	4 ☐ Minerals				
			6 ☐ Gas				
	15-18	1 ☐ Fresh	3 ☐ Sulphur				19
		2 ☐ Salty	4 ☐ Minerals				
			6 ☐ Gas				
	20-23	1 ☐ Fresh	3 ☐ Sulphur				24
		2 ☐ Salty	4 ☐ Minerals				
			6 ☐ Gas				
	25-28	1 ☐ Fresh	3 ☐ Sulphur				29
		2 ☐ Salty	4 ☐ Minerals				
			6 ☐ Gas				
	30-33	1 ☐ Fresh	3 ☐ Sulphur				34
		2 ☐ Salty	4 ☐ Minerals				
			6 ☐ Gas				

CASING & OPEN HOLE RECORD				
Inside diam inches	Material	Wall thickness inches	Depth - feet	
			From	To
10-11 5 ⁴	1 ☒ Steel 2 ☒ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	12 .188	0	13-16 28
17-18	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	19		20-23
24-25	1 ☐ Steel 2 ☐ Galvanized 3 ☐ Concrete 4 ☐ Open hole 5 ☐ Plastic	26		27-30

SCREEN	Sizes of opening (Slot No.)	31-33	Diameter	34-38	Length	39-40
	12		4	inches	7	feet
	Material and type				Depth at top of screen	30
	STAINLESS				28	feet

61		PLUGGING & SEALING RECORD	
☒ Annular space		☐ Abandonment	
Depth set at - feet		Material and type (Cement grout, bentonite, etc.)	
From	To		
10-13 0	14-17 10	BENSEAL	
18-21	22-25		
26-29	30-33	80	

PUMPING TEST	Pumping test method ¹⁰ 1 ☒ Pump 2 ☐ Bailer		Pumping rate ¹¹⁻¹⁴ 15 GPM		Duration of pumping ¹⁵⁻¹⁶ 1 Hours ¹⁷⁻¹⁸ 1 Mins	
	Static level		Water level end of pumping ²⁵		Water levels during 1 ☒ Pumping 2 ☐ Recovery	
	¹⁹⁻²¹ 5 feet	²²⁻²⁴ 5 feet	²⁵⁻²⁸ 15 minutes 12 feet	²⁹⁻³¹ 30 minutes 12 feet	³²⁻³⁴ 45 minutes 12 feet	³⁵⁻³⁷ 60 minutes 12 feet
	If flowing give rate ³⁸⁻⁴¹ GPM		Pump intake set at ⁴² feet		Water at end of test ☒ Clear ☐ Cloudy	
	Recommended pump type ☒ Shallow ☐ Deep		Recommended pump setting ⁴³⁻⁴⁵ 28 feet		Recommended pump rate ⁴⁶⁻⁴⁹ GPM	
	50-53					

FINAL STATUS OF WELL		54
1 ☒ Water supply	5 ☐ Abandoned, insufficient supply	9 ☐ Unfinished
2 ☐ Observation well	6 ☐ Abandoned, poor quality	10 ☐ Replacement well
3 ☐ Test hole	7 ☐ Abandoned (Other)	
4 ☐ Recharge well	8 ☐ Dewatering	

LOCATION OF WELL

In diagram below show distance of well from road and lot line. Indicate north by arrow.

The diagram shows a rectangular lot. The left boundary is labeled 'TURKEY PT RD' and 'CROWNAL RD'. The bottom boundary is labeled 'LOT LINE'. A well is marked with a dot and labeled 'WELL'. A horizontal line with arrows at both ends indicates a distance of 150' from the road to the well. A north arrow points towards the top right.



APPENDIX B

SGS LABORATORIES – CERTIFICATE OF ANALYSIS



FINAL REPORT

CA40299-MAY22 R1

20HF001

Prepared for

Peto MacCallum Ltd

First Page

CLIENT DETAILS

Client Peto MacCallum Ltd

Address 45 Burford Road, Hamilton
Canada, L8E 3C6
Phone: (905) 561-2231. Fax: (905) 561-6366

Contact Alonzo Rowe

Telephone (905) 561-2231

Facsimile (905) 561-6366

Email arowe@petomacallum.com; smacdonald@petomacallum.com

Project 20HF001

Order Number

Samples Ground Water (3)

LABORATORY DETAILS

Project Specialist Maarit Wolfe, Hon.B.Sc

Laboratory SGS Canada Inc.

Address 185 Concession St., Lakefield ON, K0L 2H0

Telephone 705-652-2000

Facsimile 705-652-6365

Email Maarit.Wolfe@sgs.com

SGS Reference CA40299-MAY22

Received 05/20/2022

Approved 06/01/2022

Report Number CA40299-MAY22 R1

Date Reported 06/01/2022

COMMENTS

MAC - Maximum Acceptable Concentration
Half MAC - Half of the Maximum Acceptable Concentration
MDL - SGS Method Detection Limit

Temperature of Sample upon Receipt: 9 degrees C
Cooling Agent Present: Yes
Custody Seal Present: Yes

Chain of Custody Number: 018941

SIGNATORIES

Maarit Wolfe, Hon.B.Sc





TABLE OF CONTENTS

First Page..... 1

Index..... 2

Results..... 3-4

Exceedance Summary..... 5

QC Summary..... 6-10

Legend..... 11

Annexes..... 12



FINAL REPORT

CA40299-MAY22 R1

Client: Peto MacCallum Ltd

Project: 20HF001

Project Manager: Alonzo Rowe

Samplers: A.Rowe

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03

L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

Sample Number	9	10	11
Sample Name	BH2 GW1	BH4 GW1	BH7 GW1
Sample Matrix	Ground Water	Ground Water	Ground Water
Sample Date	19/05/2022	19/05/2022	19/05/2022

Parameter	Units	RL	L1	L2	Result	Result	Result
-----------	-------	----	----	----	--------	--------	--------

General Chemistry

Turbidity	NTU	0.10	5	1	27.4	---	---
-----------	-----	------	---	---	------	-----	-----

Metals and Inorganics

Hardness	mg/L as CaCO3	0.05	100		109	---	---
Aluminum	µg/L	1	100		197	---	---
Arsenic	µg/L	0.2		10	0.4	---	---
Barium	µg/L	0.02		1000	19.8	---	---
Boron	µg/L	2		5000	15	---	---
Calcium	mg/L	0.01			33.7	---	---
Cadmium	µg/L	0.003		5	0.015	---	---
Chromium	µg/L	0.08		50	0.46	---	---
Copper	µg/L	0.2	1000		3.0	---	---
Iron	ug/L	7	300		261	---	---
Mercury	µg/L	0.01		1	< 0.01	---	---
Sodium	mg/L	0.01	200	20	11.1	---	---
Magnesium	mg/L	0.001			5.96	---	---
Manganese	µg/L	0.01	50		46.7	---	---
Lead	µg/L	0.01		10	0.63	---	---
Antimony	µg/L	0.6		6	< 0.6	---	---
Selenium	µg/L	0.04		50	0.47	---	---
Uranium	µg/L	0.002		20	0.614	---	---
Zinc	µg/L	2	5000		4	---	---
Nitrite (as N)	as N mg/L	0.003		1	0.007	<0.003	<0.003



FINAL REPORT

CA40299-MAY22 R1

Client: Peto MacCallum Ltd
Project: 20HF001
Project Manager: Alonzo Rowe
Samplers: A.Rowe

MATRIX: WATER

L1 = ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03

L2 = ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03

			Sample Number		9	10	11
			Sample Name		BH2 GW1	BH4 GW1	BH7 GW1
			Sample Matrix		Ground Water	Ground Water	Ground Water
			Sample Date		19/05/2022	19/05/2022	19/05/2022
Parameter	Units	RL	L1	L2	Result	Result	Result
Metals and Inorganics (continued)							
Nitrate (as N)	as N mg/L	0.006		10	0.138	<0.006	<0.006
Nitrate + Nitrite (as N)	as N mg/L	0.006			0.145	<0.006	<0.006
Microbiology							
E. Coli	cfu/100mL	0		0	< 2↑	---	---
Other (ORP)							
pH	No unit	0.05		8.5	8.03	---	---



EXCEEDANCE SUMMARY

				ODWS_AO_OG / WATER / - - Table 4 - Drinking Water - Reg O.169_03	ODWS_MAC / WATER / - - Table 1,2 and 3 - Drinking Water - Reg O.169_03
Parameter	Method	Units	Result	L1	L2

BH2 GW1

Turbidity	SM 2130	NTU	27.4	5	1
Aluminum	SM 3030/EPA 200.8	µg/L	197	100	
Hardness	SM 3030/EPA 200.8	mg/L as CaCO3	109	100	
E.Coli	SM 9222D	cfu/100mL	< 2		0



FINAL REPORT

CA40299-MAY22 R1

QC SUMMARY

QCR_SubCategory

Method: SM 2130 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Turbidity	EWL0514-MAY22	NTU	0.10	< 0.10	5	10	100	90	110	NA		

Anions by IC

Method: EPA300/MA300-Ions1.3 | Internal ref.: ME-CA-IENVIIC-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Nitrate + Nitrite (as N)	DIO0536-MAY22	mg/L	0.006	<0.006	NA		NA			NA		
Nitrite (as N)	DIO0536-MAY22	mg/L	0.003	<0.003	14	20	98	90	110	100	75	125
Nitrate (as N)	DIO0536-MAY22	mg/L	0.006	<0.006	1	20	100	90	110	101	75	125



FINAL REPORT

CA40299-MAY22 R1

QC SUMMARY

Mercury by CVAAS
Method: SM3112/EPA 245 | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EHG0061-MAY22	ug/L	0.01	< 0.01	ND	20	93	80	120	NV	70	130



FINAL REPORT

CA40299-MAY22 R1

QC SUMMARY

Metals in aqueous samples - ICP-MS

Method: SM 3030/EPA 200.8 | Internal ref.: ME-CA-ENVISPE-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Aluminum	EMS0208-MAY22	ug/L	1	<0.001	1	20	109	90	110	84	70	130
Arsenic	EMS0208-MAY22	ug/L	0.2	<0.0002	4	20	94	90	110	94	70	130
Barium	EMS0208-MAY22	ug/L	0.02	<0.00002	1	20	100	90	110	107	70	130
Boron	EMS0208-MAY22	ug/L	2	<0.002	3	20	94	90	110	99	70	130
Calcium	EMS0208-MAY22	mg/L	0.01	<0.01	3	20	97	90	110	97	70	130
Cadmium	EMS0208-MAY22	ug/L	0.003	<0.000003	7	20	102	90	110	110	70	130
Chromium	EMS0208-MAY22	ug/L	0.08	<0.00008	ND	20	103	90	110	111	70	130
Copper	EMS0208-MAY22	ug/L	0.2	<0.0002	1	20	102	90	110	107	70	130
Iron	EMS0208-MAY22	ug/L	7	<0.007	1	20	105	90	110	125	70	130
Magnesium	EMS0208-MAY22	mg/L	0.001	<0.001	1	20	106	90	110	108	70	130
Manganese	EMS0208-MAY22	ug/L	0.01	<0.00001	5	20	103	90	110	115	70	130
Sodium	EMS0208-MAY22	mg/L	0.01	<0.01	0	20	108	90	110	101	70	130
Lead	EMS0208-MAY22	ug/L	0.01	0.003	1	20	97	90	110	90	70	130
Antimony	EMS0208-MAY22	ug/L	0.6	<0.0009	ND	20	100	90	110	103	70	130
Selenium	EMS0208-MAY22	ug/L	0.04	<0.00004	2	20	102	90	110	110	70	130
Uranium	EMS0208-MAY22	ug/L	0.002	<0.000002	ND	20	93	90	110	94	70	130
Zinc	EMS0208-MAY22	ug/L	2	<0.002	6	20	105	90	110	114	70	130



FINAL REPORT

CA40299-MAY22 R1

QC SUMMARY

Microbiology
Method: SM 9222D | Internal ref.: ME-CA-~~I~~ENVIMIC-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
E. Coli	BAC9366-MAY22	cfu/100mL	-	ACCEPTED	ACCEPTED							
					D							

pH
Method: SM 4500 | Internal ref.: ME-CA-~~I~~ENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	EWL0554-MAY22	No unit	0.05	NA	0		100			NA		

QC SUMMARY

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm.

The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --



Request for Laboratory Services and CHAIN OF CUSTODY

Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment

- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 018941

Page of

Received By: ED
Received Date: 5, 20, 22 (mm/dd/yy)
Received Time: 13:30 (hr:min)Received By (signature): [Signature]
Custody Seal Present: Yes ☒ No ☐
Custody Seal Intact: Yes ☒ No ☐Cooling Agent Present: Yes ☒ No ☐ Type: ICE PACK
Temperature Upon Receipt (°C) 9.83LAB LIMS # CA40299-may22

REPORT INFORMATION		INVOICE INFORMATION		TURNAROUND TIME (TAT) REQUIRED	
Company: <u>Peto MacCormick</u>	☒ (same as Report Information)	Quotation #: _____	P.O. #: _____		
Contact: <u>A. Rose</u>	Company: _____	Project #: <u>22H201</u>	Site Location/ID: _____		
Address: <u>41 Burbrk Road</u>	Contact: _____				
<u>Hamilton</u>	Address: _____				
Phone: _____	Phone: _____				
Email: <u>amcormick@petomac.com</u>	Email: _____				
☐ Regular TAT (5-7 days) RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION		TAT's are quoted in business days (exclude statutory holidays & weekends). Samples received after 6pm or on weekends: TAT begins next business day			
Specify Due Date: _____		*NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY			

REGULATIONS					ANALYSIS REQUESTED															COMMENTS:				
Other Regulations:					M & I		SVOC	PCB	PHC	VOC	Pest	Other (please specify)				TCLP								
☐ O.Reg 153/04 ☐ O.Reg 406/19 ☐ Table 1 ☐ Res/Park ☐ Soil Texture: ☐ Table 2 ☐ Ind/Com ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ Medium/Fine ☐ Table _____ Soil Volume ☐ <350m3 ☐ >350m3					☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMER ☐ CCME ☐ Other: ☐ MISA					☐ Sanitary ☐ Storm Municipality: _____					☐ Reg 406/19 Leachate Screening Levels Table: _____ Sewer Use: Specify pkg: _____ Water Characterization Pkg General ☐ Extended ☐				Specify TCLP tests ☐ M&I ☐ VOC ☐ B(a)P ☐ ABN ☐ Ignit.					
RECORD OF SITE CONDITION (RSC) ☐ YES ☐ NO					Field Filtered (Y/N)		Metals & Inorganics (incl Cu, Ni, CN, Hg, pH, B(HWS), IEC, SAR, soil) (Cl, Na, water)	Full Metals Suite (ICP metals plus B(HWS)-soil only) Hg, Cu, Ni	ICP Metals only (ICP metals plus B(HWS)-soil only) Hg, Cu, Ni	PAHs only	SVOCs (all incl PAHs, ABNs, CPs)	PCBs Total ☐ Aroclor	F1-F4 + BTEX	F1-F4 only no BTEX	VOCs all incl BTEX	BTEX only	Pesticides Organochlorine or specify other	Nitates <u>only 170</u> <u>pH, EC, metals total, turbidity</u>						
1	BH2 GVI	PM	May 19	5	Water	N																		
2	BH4 GVI	PM	May 19	1																				
3	BH7 GVI	PM	May 19	2																				
4																								
5																								
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Observations/Comments/Special Instructions	
Sampled By (NAME): <u>A. Rose</u> Relinquished by (NAME): <u>A. Rose</u>	Signature: <u>[Signature]</u> Signature: <u>[Signature]</u>
Date: <u>05, 20, 22</u> (mm/dd/yy)	Date: <u>05, 20, 22</u> (mm/dd/yy)
Pink Copy - Client	Yellow & White Copy - SGS

Revision # 1.4
Date of Issue: 22 May 2020

Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection/handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.



**GEOTECHNICAL INVESTIGATION AND
LIMITED CHEMICAL TESTING PROGRAM
TURKEY POINT ROAD SUBDIVISION
1910 TURKEY POINT ROAD
VITTORIA, ONTARIO
for
109326 ONTARIO LIMITED.**

PETO MacCALLUM LTD.
45 BURFORD ROAD
HAMILTON, ONTARIO
L8E 3C6
Phone: (905) 561-2231
Fax: (905) 561-6366
Email: hamilton@petomaccallum.com

Distribution:
1 cc: Mr. Peter Bosma (PDF only)
1 cc: PML Hamilton

PML Ref.: 22HF001
Report: 1
September 15, 2022

September 15, 2022

PML Ref.: 22HF001

Report: 1

Mr. Peter Bosma
1910 Turkey Point Road
Vittoria, Ontario
N0E 1W0

Dear Mr. Bosma

**Geotechnical Investigation and
Limited Chemical Testing Program
Turkey Point Subdivision
1910 Turkey Point Road
Vittoria, Ontario**

Peto MacCallum Ltd. (PML) is pleased to present the results of a geotechnical investigation recently completed for this project. Authorization to proceed with this project was provided by Mr. Alex Muirhead of CJDL Consulting Engineers on behalf of Mr. Peter Bosma on December 16, 2021. Services were provided in accordance with PML's proposal, PML Ref. 21430104, dated December 10, 2021.

It is understood that preliminary plans call for development of an approximately 8.1-hectare (20 acre) parcel of land to create 17 new lots ranging from 0.4 to 0.48 hectares (1.0 to 1.19 acres) in size. The residential lots will be for single family dwellings and will be serviced by an individual on-site sewage treatment systems and individual potable water supply wells.

The subject property is located along Turkey Point Road in the Hamlet of Green's Corners, west of Simcoe, Ontario. The property is north of the intersection of Turkey Point Road and McDowell Road East (hereafter referred to as the 'Site'). The Site is covered mostly by grass fields with moderate to heavy vegetation covering south east corner.

The purpose of the geotechnical investigation was to assess the soil and ground water conditions at the Site and to provide geotechnical recommendations for site grading, building foundations, excavation and backfilling, underground services and seismic site classification.

The site soil stratigraphy typically comprises a surficial silty topsoil layer underlain by silty sand.

It considered feasible to construct all proposed infrastructure on either engineered fill or the native compact sand or silt using conventional construction methods.

Detailed comments and recommendations concerning the site preparation along with the design and construction of the proposed site infrastructure are provided in the attached report.



We trust this report has been completed within our terms of reference and is sufficient for your current needs.

Should you have further questions, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.

A handwritten signature in blue ink, appearing to read 'S. Jeffrey'.

Scott Jeffrey, P.Eng., QP_{ESA}, LEED_{GA}
Senior Associate
Regional Manager, Geotechnical and Geoenvironmental Services

SM/SJ:tm



TABLE OF CONTENTS

1. INTRODUCTION	1
2. INVESTIGATION PROCEDURES	2
2.1 Borehole Drilling	2
2.2 Ground Water Monitoring	2
2.3 Laboratory Testing.....	3
3. SUMMARIZED SUBSURFACE CONDITIONS.....	3
3.1 Topsoil	3
3.2 Sand to Silty Sand / Sand and Silt	4
3.3 Ground Water Conditions	4
4. ENGINEERING DISCUSSION AND RECOMMENDATIONS	4
4.1 Site Preparation	5
4.2 Foundation Considerations.....	6
4.4 Subsurface Walls.....	8
4.5 Excavations.....	9
4.6 Underground Services	10
4.6.3 Ground Water Control.....	11
4.7 Pavement Construction	12
5. GEOENVIRONMENTAL CONSIDERATIONS.....	13
5.1 Excess Soil Regulation	13
5.2 Chemical Testing Protocol.....	14
5.3 Site Condition Standards	15
5.4 Analytical Findings.....	16
5.4.1 On-Site Re-Use.....	17
5.4.2 Off-Site Beneficial Re-Use	17
5.5 Discussion and Recommendations	17
6. CLOSURE	19

ENCLOSURE(S)

Figures 1 and 2 – Particle Size Distribution Graphs

Figure 3 – General Recommendations for Basement Wall and Slab-on-Grade Construction

List of Abbreviations

Log of Borehole Sheets 1 to 7

Log of Test Pit Sheets 1 to 7

Drawing 1 – Borehole Location Plan

Appendix A – Engineered Fill

Appendix B – Table B1 – Summary of Samples Submitted and

SGS Laboratories – Certificate of Analysis



1. INTRODUCTION

Peto MacCallum Ltd. (PML) is pleased to present the results of a geotechnical investigation recently completed for this project. Authorization to proceed with this project was provided by Mr. Alex Muirhead of CJDLC Consulting Engineers on behalf of Mr. Peter Bosma on December 16, 2021. Services were provided in accordance with PML's proposal, PML Ref. 21430104, dated December 10, 2021.

It is understood that preliminary plans call for development of an approximately 8.1-hectare (20 acre) parcel of land to create 17 new lots ranging from 0.4 to 0.48 hectares (1.0 to 1.19 acres) in size. The residential lots will be for single family dwellings and will be serviced by an individual on-site sewage treatment systems and individual potable water supply wells.

The subject property is located along Turkey Point Road in the Hamlet of Green's Corners, west of Simcoe, Ontario. The property is north of the intersection of Turkey Point Road and McDowell Road East (hereafter referred to as the 'Site'). The Site is covered mostly by grass fields with moderate to heavy vegetation covering south east corner.

The purpose of the geotechnical investigation was to assess the soil and ground water conditions at the Site and to provide geotechnical recommendations for site grading, building foundations, excavation and backfilling, underground services and seismic site classification.

A limited soil sampling and chemical testing program was also completed in conjunction with the geotechnical sampling and testing in order to provide preliminary environmental soil characterization in relation to excess soil management planning. A separate hydrogeological investigation has also been prepared by PML and is reported under separate cover (PML Ref 21HX016, Report 1).

The comments and recommendations provided in this report are based on the site conditions at the time of the investigation and are applicable only to the proposed development as described in the report. Any changes in development, including finished grades and layout will require review by PML to assess the validity of the report and may require modified recommendations, additional investigation and/or analysis.



2. INVESTIGATION PROCEDURES

2.1 Borehole Drilling

The field work was carried out on April 19 and 20, 2022 and consisted of seven (7) boreholes (Boreholes 1 to 7) drilled to 5.0 to 6.6 m termination depths. Additionally, 10 test pits were completed to 3.0 m termination depths on November 16, 2021 as part of the Hydrogeological Investigation. The borehole and test pit locations are shown on Drawing 1, appended.

The borehole locations were selected by the client and established in the field by PML. Ground surface elevations and UTM co-ordinates at the borehole locations were determined by PML using a Sokkia GCX3 GNSS Receiver.

The boreholes were advanced using continuous flight solid stem augers, powered by a track mounted CME 55 drill rig, supplied and operated by a specialist drilling contractor, working under the full-time supervision of a member of PML's engineering staff.

Representative samples of the overburden were recovered at frequent depth intervals using a conventional split-spoon sampler during drilling. Standard penetration tests along with pocket penetrometer tests were conducted simultaneously with the sampling operation to assess the strength characteristics of the substrata.

2.2 Ground Water Monitoring

The ground water conditions at the borehole locations were assessed during drilling by visual examination of the soil, the sampler and the drill rods as the samples were retrieved and when appropriate by measurement of the water level in the open boreholes and test pits.

Ground water monitoring wells were installed in Borehole / Monitoring Wells 2, 4, 6 and 7 comprising clean 50 mm diameter screened and solid PVC Schedule 40 pipe. The wells were installed at 4.5 m and screened at the bottom over a length of 1.5 m. The annular space of the borehole around the screen was backfilled with clean filter sand covered by a bentonite seal and stick-up protective cover. The details of the construction of the monitoring wells are shown on the appended Log of Borehole / Monitoring Well sheets. Well records will be kept on file by PML for future reference in accordance with O. Reg. 903/90, as amended.



In accordance with O. Reg. 903/90, as amended, the owner of a well is defined as the owner of the land upon which the well is situated and the well owner should immediately decommission the well if it is not being used or maintained for future use as a well. PML would be pleased to assist in this regard once the wells are no longer required.

Upon completion of drilling, the boreholes were decommissioned (backfilled) in accordance with O. Reg. 903/90, as amended.

2.3 Laboratory Testing

Laboratory testing was completed by PML on selected samples for grain size analysis, soil classification and routine moisture content determinations.

3. SUMMARIZED SUBSURFACE CONDITIONS

Reference is made to the appended Log of Borehole sheets and Log of Test Pit sheets for details of the subsurface conditions including soil classifications, inferred stratigraphy, Standard Penetration Test (SPT) "N" values, ground water observations, and the results of laboratory moisture content determinations and grain size analysis.

Due to the soil sampling procedures and limited sample size, the depth demarcations on the borehole logs must be viewed as transitional zones between layers and cannot be construed as exact geologic boundaries between layers. PML would be pleased to assist in defining geologic boundaries during construction if required.

The site soil stratigraphy typically comprises a surficial silty topsoil layer underlain by silty sand.

3.1 Topsoil

A surficial layer of topsoil was contacted at all borehole locations. The topsoil ranged in thickness from 100 to 460 mm and contained silt with various amounts of sand with occasional rootlets and organics.



3.2 Sand to Silty Sand / Sand and Silt

Sand to silty sand and/or sand and silt was contacted below the topsoil at 0.1 to 0.46 m (Elevation 233.5 to 234.6) and extended until borehole termination in all boreholes at 2.0 to 6.6 m (Elevation 227.6 to 229.7) and to the termination depth of all test pits. The silty sand was typically loose for the upper 1.5 m becoming compact to very dense from about Elevation 233.0 as reflected by SPT "N" values ranging from 10 to 68.

Particle size distribution testing was completed for six (6) borehole samples and five (5) test pit samples. The results of the sieve and hydrometer testing, completed using MTO LS-702 standards for this soil type are shown in Figures 1 and 2. The soil samples comprised 43 to 92% sand and 5 to 54% silt and 1 to 5% clay. The silty sand was judged to be damp to saturated with depth with moisture content determinations ranging from 15 to 31%.

3.3 Ground Water Conditions

Upon completion of auguring, Borehole 1 and Boreholes 3 to 7 had free water from 1.1 to 2.3 m. Cave was observed at Boreholes 1, 3, 5 and 6 from 1.2 to 2.4 m. Monitoring wells were installed to 4.5 m in Boreholes 2, 3, 6 and 7. All wells were screened at the bottom 3.0 m. The last recorded water levels on June 14, 2022 resulted in ground water observed at depths of 0.7 to 2.3 m (Elevation 233.2 to 232.3). Ground water levels may fluctuate subject to seasonal variations and precipitation patterns.

4. ENGINEERING DISCUSSION AND RECOMMENDATIONS

It is understood that preliminary plans call for development of an approximately 8.1-hectare (20 acre) parcel of land to create 17 new lots ranging from 0.4 to 0.48 hectares (1.0 to 1.19 acres) in size. The residential lots will be for single family dwellings and will be serviced by an individual on-site sewage treatment systems and individual potable water supply wells.

The subject property is located along Turkey Point Road in the Hamlet of Green's Corners, west of Simcoe, Ontario. The property is north of the intersection of Turkey Point Road and McDowell Road East (hereafter referred to as the 'Site'). The Site is covered mostly by grass fields with moderate to heavy vegetation covering south east corner.



The site soil stratigraphy typically comprises a surficial silty topsoil layer underlain by sand to silty sand / sand and silt.

4.1 Site Preparation

Proposed site grading plans were not available at the time of this report; however, it is assumed that the site development will require some cut and fill operations. Preparation of the site should consist of removal of topsoil and proofrolling the exposed subgrade under geotechnical supervision to expose soft / loose or unstable areas. Any soft / loose or unstable material should be excavated, removed and replaced with well compacted, approved soil with a moisture content adjusted to within 3% of the optimum moisture content. Approved material should comprise debris free, inorganic material.

Bulk fill placed to raise the grades should be placed as an engineered fill in uniform 200 to 300 mm thick lifts within 3% of the optimum moisture content. Engineered fill in the building envelope should be compacted to at least 98% Standard Proctor maximum dry density (SPMDD).

Compaction to 95% SPMDD should be suitable in other areas. Further recommendations regarding placement of engineered fill are presented in Appendix A.

Based on the borehole information, the in-situ native soils should be suitable for re-use as engineered fill subject to geotechnical review and approval during construction. However, depending on seasonal conditions at the time of construction, some moisture content adjustments may be necessary. Site excavated soil with a high silt content will be particularly sensitive to moisture variations and is frost susceptible. Therefore, the suitability of this material for reuse should be assessed at the time of construction.

If construction is scheduled during the winter months, a temporary gravel access road may have to be constructed to allow access for heavy construction equipment. A crushed limestone material would be suitable for this purpose. The need for temporary gravel construction roads should be determined by site review during construction.

The native soils are considered to be frost susceptible, and should not be used where frost related movements or heave could present a concern.

Organic soil, topsoil, deleterious or excessively wet material should not be used as backfill.



Full time site observation should be carried out by PML to examine and approve backfill material, to review placement operations, and to verify the specified compaction is achieved.

4.2 Foundation Considerations

The proposed founding level and foundation loads of the building was not known at the time of this report. For the purposes of this report, it is assumed that the footings will be at least 1.2 m below final grade for single floor structures or 2.5 m below final grade for structures with a basement.

Strip and spread footings founded on adequately prepared engineered fill or compact to dense sand, silty sand or sand and silt should be proportioned for a factored net bearing resistance at Ultimate Limit State (ULS) of 150 kPa and bearing pressure at Serviceability Limit State (SLS) of 100 kPa.

In general, where founding levels of adjacent footings vary, the founding elevation between footings should be stepped in maximum 600 mm steps at a maximum inclination of 10 horizontal to 7 vertical (10H:7V).

Prior to placement of structural concrete, all foundation excavations should be examined by geotechnical personnel from PML to verify that the founding stratum is in accordance with the assumptions and recommendations of this report.

All footings subject to frost action should be provided with a minimum of 1.2 m of soil cover or equivalent thermal insulation. A 25 mm thick layer of polystyrene insulation is thermally equivalent to 600 mm of soil cover.

The native subgrade is prone to disturbance/loosening from exposure to weather and construction traffic. Accordingly, a 50 mm skim slab of lean concrete should be provided over the base of the approved subgrade if structural concrete cannot be provided within 24 hours of approval of the foundation base.

The total settlement of foundations designed in accordance with the foregoing recommendations is not expected to exceed 25 mm. Differential settlement is expected to be less than 75% of this value.



Where houses are constructed on engineered fill, it is recommended that the walls be provided with nominal reinforcing steel to help mitigate minor cracking due to differential movement. Typically, reinforcement may comprise two continuous 15M bars running horizontally at the top of the foundation wall and two 15M bars running horizontally at the bottom of the wall; however, the project structural engineer should be consulted for specific requirements and design details

All work should be carried out in accordance with the Occupational Health and Safety Act (Ontario Regulation 213/91) and with local regulations.

4.2.1 Earthquake Considerations

Based on the characteristics of the soil encountered in the boreholes and from a review of nearby deeper subsurface information, the site would be classified as Site Class D in accordance with Table 4.1.8.4.A of the 2012 Ontario Building Code (OBC).

4.3 Floor Slab Considerations

Construction of floor slabs as conventional slabs-on-grade on competent native compact sandy silt or silty sand or engineered fill is considered feasible. Loose soils will need to be removed and replaced with engineered fill.

Preparation of the subgrade below floor slabs should include stripping of any loose and otherwise deleterious material followed by proofrolling of the exposed subgrade with a heavy roller to ensure uniform adequate support. Excessively loose / soft or compressible materials revealed during the proofrolling operations should be subexcavated and replaced with well compacted approved material.

Fill placed under the floor slabs to achieve finished subgrade levels or as foundation excavation backfill should comprise approved inorganic material having a moisture content within 3% of the optimum value, placed in maximum 200 mm thick lifts, and compacted to at least 95% of standard Proctor maximum dry density (SPMDD).

A minimum 150 mm thick layer of well compacted free draining Granular A type material meeting OPSS 1010 specifications should be provided directly beneath the slab-on-grade. A polyethylene vapour barrier should be placed under the slab if a moisture sensitive finish is to be placed on the floor.



Exterior grades should be maintained at least 150 mm below the ground floor level and sloped to promote drainage away from the building and septic bed area.

4.4 Subsurface Walls

If basements are contemplated, the lateral earth pressure, p , acting on the subsurface walls should be computed using the following equation, assuming a triangular pressure distribution:

$$p = K (\gamma h + q)$$

where K = lateral earth pressure coefficient
= 0.5 for wall restrained at both top and bottom
 γ = unit weight of free-draining granular material
= 21.0 kN/m³
 h = depth below final grade (m)
 q = surcharge load (kPa), if present

The excavation adjacent to the basement walls should be backfilled with free-draining granular material satisfying the OPS Granular B gradation specification and a weeping tile system installed to minimize the build-up of hydrostatic pressure behind the wall, otherwise hydrostatic pressure should be accounted for in the design. Alternatively, an approved drainage board product may be provided. The in-situ soil would not be classified as "free draining", but may be re-used as exterior foundation backfill if a drainage board product is installed as per OBC requirements.

The perforated drainage pipe should be surrounded by a properly designed graded granular filter or wrapped with approved geotextile to prevent migration of fines into the system. The perforated drainage pipe should be placed on a positive grade and lead to a frost-free sump or outlet.



The backfill adjacent to the subsurface walls should be compacted to at least 95% of SPMDD. The backfill should be compacted using light equipment to minimize potential damage to the wall. It is imperative that the excavation is of sufficient width to enable operation of suitable compaction equipment.

General recommendations for basement walls and slab on grade construction are provided in Figure 3.

4.5 Excavations

Open cut excavations are anticipated to extend through the topsoil, fill and into the native sand to silty sand / sand and silt. In general, excavations are expected to be relatively straightforward using conventional excavation equipment. The possibility of cobbles and boulders in the native overburden should not be overlooked.

Provided adequate ground water control is achieved, the in-situ soil is classified as Type 3 soil according to the Occupational Health and Safety Act (OHSA) criteria. Therefore, excavation sidewalls should be cut at a maximum inclination of 1H:1V from the bottom of the excavation. It may be necessary to further flatten the excavation side slopes if excessively loose / soft conditions or concentrated seepage zones are encountered locally.

Excavation side slopes should be continuously examined for evidence of instability, particularly following periods of heavy rain, thawing or when the excavation has been left open for extended periods of time. When required, appropriate remedial action must be taken to ensure the continued stability of the excavation slope and the safety of workers in the excavation.

All work should be carried out in accordance with the current Occupational Health and Safety Act (Ontario Regulation 213/91) and with local regulations.



4.6 Underground Services

4.6.1 Bedding Material

It is anticipated the subgrade for the underground services will comprise engineered fill, silty sand or sand and silt. In general, the compact native undisturbed soil or adequately constructed engineered fill are considered suitable for conduit support. However, in localized areas, loose / soft zones of the subgrade may require subexcavation or compaction prior to the placement of the granular pipe bedding material.

The normal 150 mm bedding thickness of granular material as per Ontario Provincial Standard (OPS) and/or local requirements should be satisfactory. Local subexcavation and thickening of the bedding layer may be necessary where unstable conditions are encountered. The need for subgrade improvement or thickening of bedding is best determined by geotechnical review during construction.

The bedding material should be carried up as backfill (pipe cover) for at least 300 mm above the pipe obvert, and should be placed in 150 mm lifts compacted to 95% SPMDD.

4.6.2 Trench Backfill

In general, backfill should comprise inorganic, debris free material having a moisture content within 3% of the optimum value and placed in uniform 200 to 300 mm thick lifts compacted to 95% SPMDD to minimize post construction settlement.

Organic soil, topsoil, deleterious or excessively wet material should not be used as backfill.

It is anticipated that the excavated material below the topsoil will generally consist of sand, silty sand and sand and silt.

Re-use of the native excavated soil from above the water table is considered feasible from a geotechnical perspective, depending on the moisture content of the excavated material at the time of construction relative to its optimum moisture content. Depending on seasonal conditions, some moisture content adjustments to the backfill materials may be required. The native on-site soils are frost susceptible and are considered unsuitable for use where free draining backfill is required. It is anticipated that overburden soil from below the water table will be wetter than its optimum moisture content and will be unsuitable for backfill unless allowed to air dry prior to re-use.



Should construction extend into the winter season, particular attention must be given to ensure that frozen material is not used as backfill

4.6.3 Ground Water Control

Upon completion of auguring, Borehole 1, and Boreholes 3 to 7 had free water from 1.1 to 2.3 m. Cave was observed at Boreholes 1, 3, 5 and 6 from 1.2 to 2.4 m. Monitoring wells were installed to 4.5 m in Boreholes 2, 3, 6 and 7. All wells were screened at the bottom 3.0 m. The last recorded water levels on June 14, 2022 resulted in ground water observed at depths of 0.7 to 2.3 m (Elevation 233.2 to 232.3). Ground water levels may fluctuate subject to seasonal variations and precipitation patterns.

In general, it is expected that seepage or surface water that enters the excavations will be adequately handled by conventional sump pumping techniques.

Dewatering at rates greater than 50,000 L/day and less than 400,000 L/day would require a water taking and discharge plan prepared by a Qualified Person (QP) (P.Geo. or P.Eng.) and submitted to the Environmental Activity Sector Registry (EASR) system for approval from provincial authorities. If dewatering rates are to exceed 400,000 L/day, then under the Ontario Water Resources Act, the Water Taking and Transfer Regulation 387/04, a Permit to Take Water (PTTW) from the Ministry of the Environment, Conservation and Parks (MECP) will be required together with a hydrogeological site assessment (HSA) report in support of the PTTW application. Final design and construction details should be submitted to PML for review to assess the ground water control requirements and determine if EASR approval and/or a PTTW are required; however, based on the soil and ground water conditions encountered, an EASR or PTTW will not likely be required.



It should be noted that ground water sampling and testing was not part of the Terms of Reference for this assignment and no work was carried out in this regard. However, limited ground water environmental testing was completed as part of the hydrogeological investigation and reference is made to PML Ref. 21HX016, Report 1 for further information on water quality.

Ground water levels may fluctuate subject to seasonal variations and precipitation patterns. It is recommended that construction take place during the dry summer months when the amount of water to be diverted from the construction area should be at a minimum.

4.7 Pavement Construction

The subgrade for pavement construction is anticipated to consist of sand and silt. Based on typical traffic patterns for local roads, the estimated strength and frost susceptibility of the anticipated subgrade and assuming adequate drainage, the following minimum pavement structure is recommended as specified in the Norfolk County Standards:

PAVEMENT COMPONENT	LOCAL ROAD PAVEMENT COMPONENT THICKNESS (mm)
Surface Asphalt, HL3	40
Binder Asphalt, HL8	50
Granular A Base Course	150
Granular B Subbase Course	300

The pavement granular courses should conform to the OPS specifications for select granular materials. They should be placed in maximum 200 mm thick lifts and compacted to at least 100% of SPMDD. The asphalt should be placed and compacted to a minimum of 92% of the material's maximum relative density (MRD). Reference is made to OPS Specification 310, revised November 2017.

Preparation of the subgrade for pavement construction should involve stripping obvious deleterious materials followed by proofrolling of the subgrade with a heavy roller. Excessively soft, wet or deleterious material revealed by the proofrolling operations should be subexcavated and replaced. The subgrade surface should be compacted to at least 95% SPMDD.



The pavement design considers that construction will be carried out during the drier time of the year and that the subgrade is stable, as determined by proofrolling operations. If the subgrade should become excessively wet or rutted during construction activities, additional subbase material may be required. The need for additional subbase is best determined during construction.

For the pavement to function properly, provision must be made for water to drain out of, and not collect in, the granular courses. In this regard, the pavement subgrade should be sloped to promote drainage towards ditching.

Site review should be carried out by PML personnel to examine and approve sub grade, backfill / granular materials, to observe placement operations and verify the compaction (granular and asphalt) by in-situ testing using nuclear gauges

5. GEOENVIRONMENTAL CONSIDERATIONS

PML understands that excess soil may be generated during construction; the volume of which is unknown at this time. A limited chemical testing program was carried out to check the geoenvironmental quality of the soil at selected sampling locations in order to provide comments regarding on site or off-site re-use and/or disposal options of excess soil.

A Phase One Environmental Site Assessment (ESA) completed in accordance with Ontario Regulation (O. Reg.) 153/04, as amended or Canadian Standards Association (CSA) Standard Z768-01 (re-affirmed 2016), or an Assessment of Past Uses (APU) Report per O. Reg. 406/19 was not within the scope of work for this assignment. Accordingly, soil and ground water impairment that has not been identified by this limited chemical testing program may exist elsewhere at the site.

5.1 Excess Soil Regulation

The Ministry of the Environment, Conservation and Parks (MECP) has introduced a new On-Site and Excess Soil Management Regulation (O. Reg. 406/19). This regulation changes the definition of soil as a waste unless it is being transported for beneficial re-use. Soil quality must meet the new Excess Soil Quality Standards (ESQSs) and the quantity of soil must be consistent with the beneficial re-use specified for the re-use site (Receiving Site).



The limited soil sampling and chemical testing program presented herein, does not fulfill all planning and documentation components of O. Reg. 406/19 and is intended for preliminary planning purposes only. Additional, review and excess soil management planning, including additional sampling, testing and reporting may be required.

5.2 Chemical Testing Protocol

Representative samples collected during the geotechnical investigation were returned to our laboratory for detailed visual examination. Soil samples were submitted for chemical analysis to SGS Canada Inc. (SGS), a Canadian Association for Laboratory Accreditation Inc. (CALA) accredited laboratory in Lakefield, Ontario. The chemical analyses conducted by SGS were in accordance with the O. Reg. 153/04, as amended Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act dated March 9, 2004, amended as of July 1, 2011.

As part of the geoenvironmental procedural protocol, all recovered soil samples were examined for visual and olfactory evidence of potential contamination.

Since a Phase One ESA or APU were not completed to identify project specific Contaminants of Potential Concern (COPCs) samples were reviewed and selected for chemical testing in accordance with the proposal whereby seven soil samples were selected and analyzed for common contaminant groups including general testing for metals and hydride forming metals, Other Regulated Parameters (ORPs) including electrical conductivity (EC) and sodium adsorption ratio (SAR), petroleum hydrocarbons (PHCs) and benzene, toluene, ethylbenzene and xylene (BTEX). It should be noted that additional sampling and testing for additional parameters may be required, depending on historical review (ESA / APU) and/or specific requirements of a potential re-use site.

The general rationale for sample selection was based on general site coverage with consideration of any visual and/or olfactory evidence of contamination and/or material most likely to be contaminated (i.e., fill materials).

A list of all samples submitted for analysis is included as Table B1, appended.



5.3 Site Condition Standards

The Ontario Ministry of the Environment, Conservation and Parks (MECP) has developed a set of Soil, Ground water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act (April 15, 2011) and O. Reg. 153/04, as amended. The standards consist of nine tables (Table 1 through Table 9) that provide criteria for maximum concentrations of various contaminants. In general, the applicable O. Reg. 153/04, as amended Site Condition Standards (SCSs) depend on the site location, land use, soil texture, bedrock depth, soil pH and source of potable water at the investigation site. In order to determine the Site Sensitivity, Sections 41 and 43.1 of O. Reg. 153/04, as amended were evaluated by PML as per the following table:

SITE CONDITION STANDARD AND SITE SENSITIVITY ANALYSIS

CRITERIA	RESULT
Proposed Property Use O. Reg. 153/04, as amended Part I Section 1	Residential
Potable vs. Non-Potable Ground Water O. Reg. 153/04, as amended Part IX Section 35	Potable
Proximity to Areas of Natural Significance O. Reg. 153/04, as amended Part IX Section 41 (1) (a)	> 30 m
Soil pH O. Reg. 15/04, as amended Section 41 (1) b	Surface Soil: 5 to 9 Subsurface Soil: 5 to 11
Soil Texture O. Reg. 153/04, as amended Part IX Section 42	Coarse
Proximity to a Water Body O. Reg. 153/04, as amended Part IX Section 43.1	> 30 m
Shallow Soil O. Reg. 153/04, as amended Part IX Section 43.1	No
Site Condition Standards	Table 2 (T2) Site Condition Standards (SCSs) for Residential / Parkland / Institutional (ICC)



For preliminary evaluation of off-Site beneficial re-use options for excess soil, the generic Excess Soil Quality Standards (ESQS) of O. Reg. 406/19 were used. These standards consist of nine tables (Table 1 and Tables 2.1 through Table 9.1) that provide criteria for maximum concentrations of various contaminants. Similar to O. Reg. 153/04, as amended, the O. Reg. 406/19 ESQSs depend on the site location, land use, soil texture, bedrock depth, soil pH and source of potable water at the investigation site.

- For the option of re-using the excess soils with minimal environmental restrictions, the O. Reg. 406/19 Full Depth Background Table 1 (T1) SCSs for Residential / Parkland / Institutional / Industrial / Commercial / Community (RPI / ICC) property uses was considered.
- For the option of re-using the excess soils at a property (or properties) with a potable ground water condition, results were compared to the O. Reg. 406/19 Table 2.1 (T2.1) ESQSs for both RPI and ICC land uses.
- For the option of re-using the excess soils at a property (or properties) with a non-potable ground water condition, results were compared to the O. Reg. 406/19 Table 3.1 (T3.1) ESQSs for both RPI and ICC land uses.

It is noted that a comparison to other ESQS Tables was not conducted as part of this assignment. If the potential receiving site for excess soil falls within one of these other categories, additional evaluation by PML will be required to confirm conformance.

5.4 Analytical Findings

Laboratory Certificates of Analysis compared to T1 RPI / ICC are included in Appendix B. The measured values and corresponding SCSs are shown on the certificates of analysis. In the event of an exceedance of the SCSs, the level is shown highlighted in orange, where applicable.



5.4.1 On-Site Re-Use

Based on the results of chemical testing, the measured concentration of the tested parameters complied with the applicable T2 RPI SCSs. The results are supportive of on-Site re-use of the material.

5.4.2 Off-Site Beneficial Re-Use

A comparison of the results was carried out against the more common ESQs of T1, T2.1 and T3.1 of O. Reg. 406/19. The following table indicates whether the test results meet (yes) or do not meet (no) the ESQs:

TABLE 1 (RPI/ICC)	TABLE 2.1 (RPI)	TABLE 2.1 (ICC)	TABLE 3.1 (RPI)	TABLE 3.1 (ICC)	LICENSED LANDFILL
Yes	Yes	Yes	Yes	Yes	TCLP ¹ Testing may be required

Notes:

1. TCLP - Toxicity Characteristic Leaching Procedure.
2. Results are for the parameters included in the analysis only. Additional testing for other parameters may be required to confirm suitability for off-Site beneficial re-use.

Based on the results of the chemical testing, the measured concentration of the tested parameters complied with the most stringent Table 1 RPI / ICC standards and are generally supportive of off-site beneficial re-use for all types of property use.

5.5 Discussion and Recommendations

If the excess soil is to be removed from the site for off-site re-use, the following conditions must be met:

- Once excess soil quantities are known, additional soil sampling and chemical testing may be required to meet the minimum requirements of O. Reg. 406/19 in order to confirm suitability for off-Site beneficial re-use;
- The work must be completed in accordance with local by-laws governing soil movement and/or placement at other sites;
- All analytical results and environmental assessment reports must be fully disclosed to the receiving site owners/authorities and they have agreed to receive the material;
- The applicable ESQs for the receiving site have been determined, as confirmed by the environmental consultant and the ESQs are consistent with the chemical quality of the soil originating at the Source Site;



- Transportation and placement of the excess soil is monitored by the environmental consultant to check the material is appropriately placed at the pre-approved site; and,
- The Receiving Site must be arranged and/or approved well in advance of excavation in order to avoid delays during construction. As well, it is noted the chemical testing requirements for various Receiving Sites is site-specific and additional testing may be required, beyond that provided in this report.

It should be noted that the soil conditions between and beyond the sampled locations may differ from those encountered during this assignment. PML should be contacted if impacted soil conditions become apparent during future development to further assess and appropriately handle the materials, if any, and evaluate whether modifications to the conclusions documented in this report are necessary.



6. CLOSURE

We trust the information presented in this report is sufficient for your present purposes.
If you have any questions, please do not hesitate to contact our office.

Sincerely

Peto MacCallum Ltd.

A handwritten signature in blue ink, appearing to read 'Sam MacDonald', written over a horizontal line.

Sam MacDonald, B.Eng, EIT
Project Supervisor
Geotechnical Services

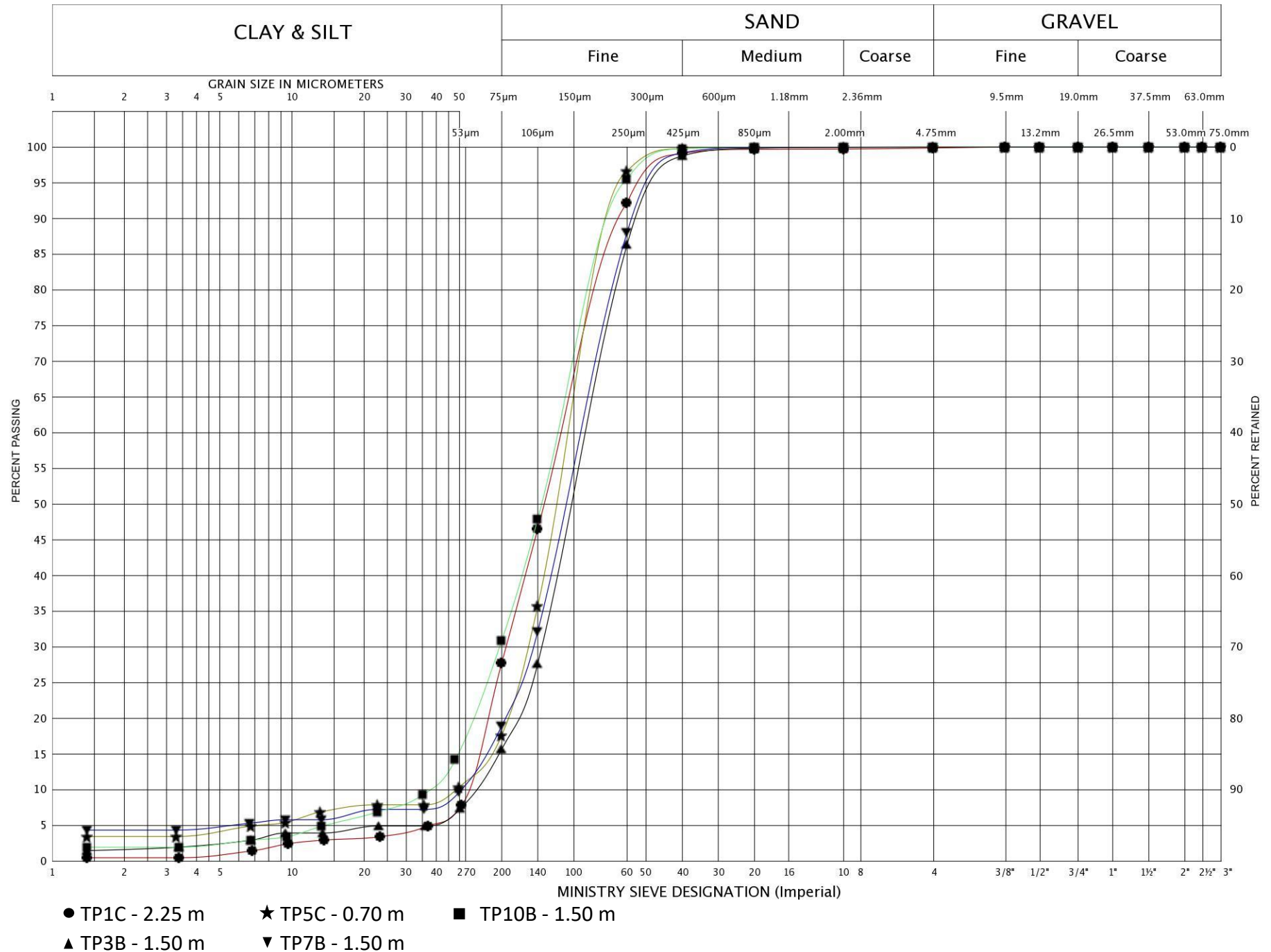


Scott Jeffrey, P.Eng., QP_{ESA}, LEED_{GA}
Senior Associate
Regional Manager, Geotechnical and Geoenvironmental Services

SM/SJ:tm

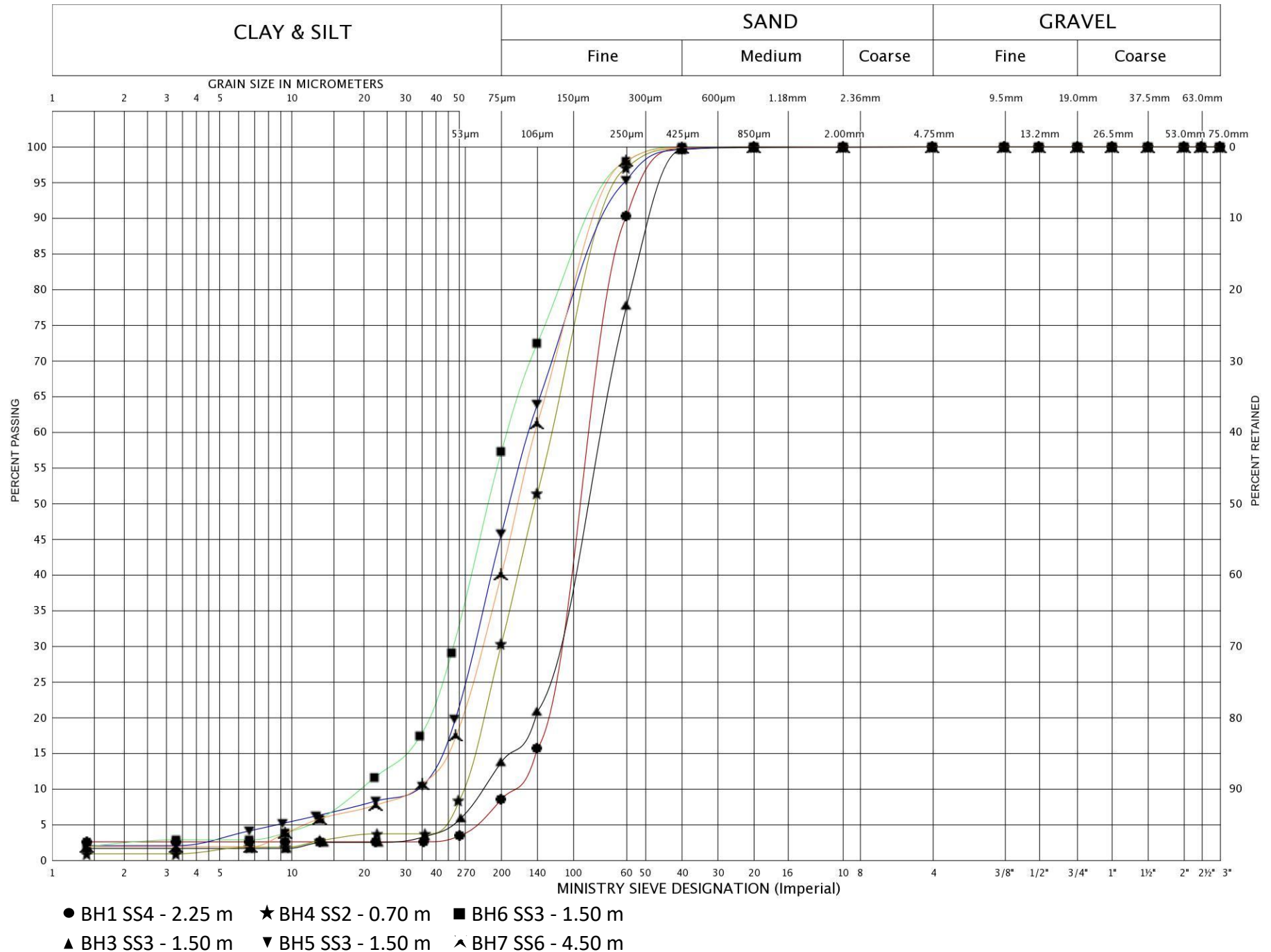
22HF001/21HX016 SOIL: SILTY SANDS UNIFIED SOIL CLASSIFICATION SYSTEM

FIGURE 1



22HF001/21HX016 SOIL: SILTY SANDS UNIFIED SOIL CLASSIFICATION SYSTEM

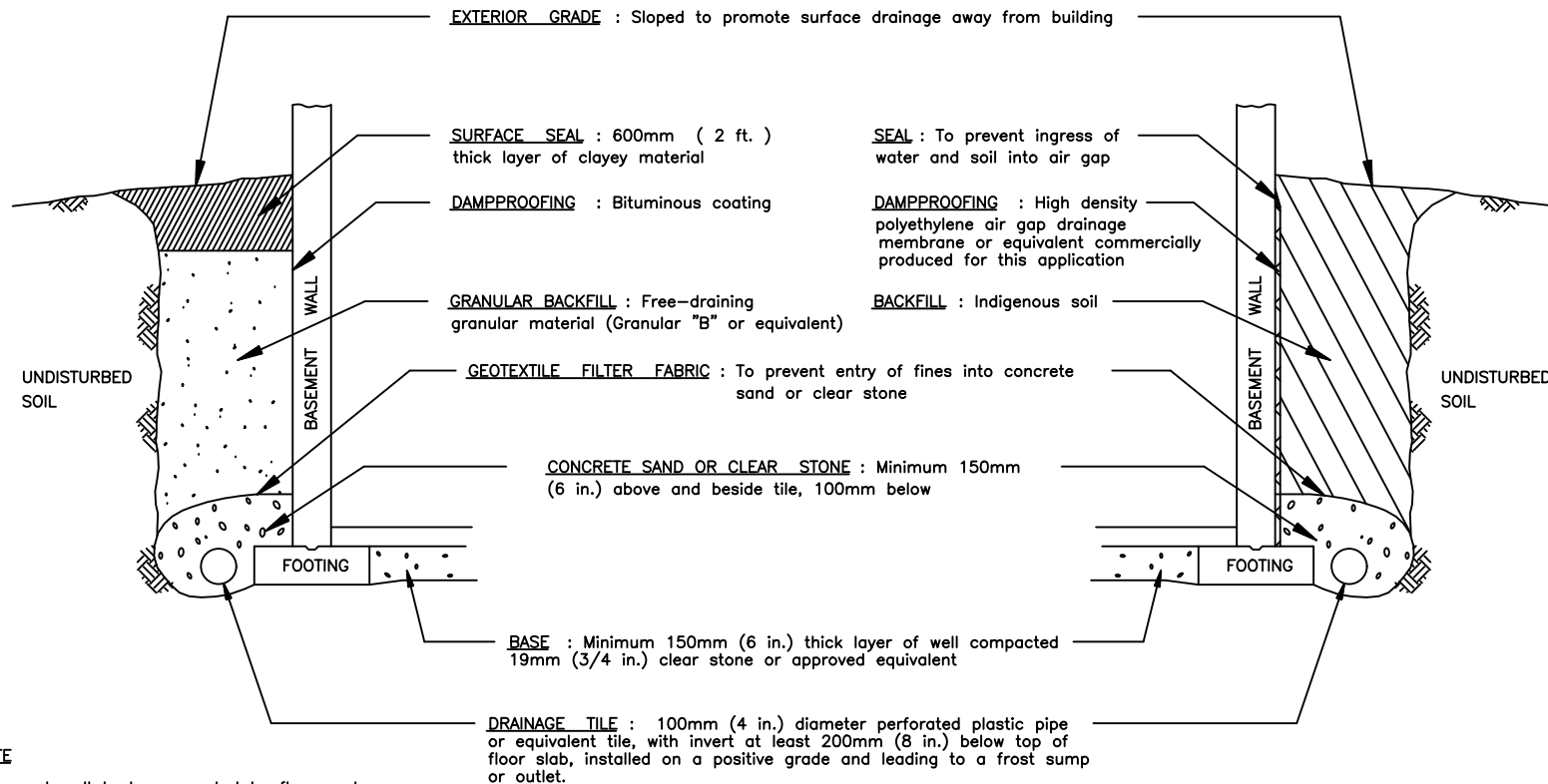
FIGURE 2



A. GRANULAR BACKFILL

OR

B. DAMPPROOFING MEMBRANE



NOTE

Basement wall to be supported by floor system or interior bracing prior to placement of backfill. Heavy construction equipment should not be permitted within a distance from the foundation wall equivalent to half the wall height. Overcompaction of backfill to be avoided as excessive lateral earth pressure may result.

STANDARD DRAWING

GENERAL RECOMMENDATIONS REGARDING DRAINAGE AND BACKFILL REQUIREMENTS
FOR BASEMENT WALLS AND FLOOR SLABS OF RESIDENTIAL DWELLINGS



Peto MacCallum Ltd.
CONSULTING ENGINEERS

DRAWN:	AR	DATE	SCALE	JOB NO.	FIGURE NO.
CHECKED:	SJ	SEPT 2022	N.T.S.	22HF001	3
APPROVED:	SJ				

LIST OF ABBREVIATIONS



PENETRATION RESISTANCE

Standard Penetration Resistance N: - The number of blows required to advance a standard split spoon sampler 0.3 m into the subsoil. Driven by means of a 63.5 kg hammer falling freely a distance of 0.76 m.

Dynamic Penetration Resistance: - The number of blows required to advance a 51 mm, 60 degree cone, fitted to the end of drill rods, 0.3 m into the subsoil. The driving energy being 475 J per blow.

DESCRIPTION OF SOIL

The consistency of cohesive soils and the relative density or denseness of cohesionless soils are described in the following terms:

<u>CONSISTENCY</u>	<u>N (blows/0.3 m)</u>	<u>c (kPa)</u>	<u>DENSENESS</u>	<u>N (blows/0.3 m)</u>
Very Soft	0 - 2	0 - 12	Very Loose	0 - 4
Soft	2 - 4	12 - 25	Loose	4 - 10
Firm	4 - 8	25 - 50	Compact	10 - 30
Stiff	8 - 15	50 - 100	Dense	30 - 50
Very Stiff	15 - 30	100 - 200	Very Dense	> 50
Hard	> 30	> 200		
WTPL	Wetter Than Plastic Limit			
APL	About Plastic Limit			
DTPL	Drier Than Plastic Limit			

TYPE OF SAMPLE

SS	Split Spoon	TW	Thinwall Open
WS	Washed Sample	TP	Thinwall Piston
SB	Scraper Bucket Sample	OS	Oosterberg Sample
AS	Auger Sample	FS	Foil Sample
CS	Chunk Sample	RC	Rock Core
ST	Slotted Tube Sample		
	PH	Sample Advanced Hydraulically	
	PM	Sample Advanced Manually	

SOIL TESTS

Qu	Unconfined Compression	LV	Laboratory Vane
Q	Undrained Triaxial	FV	Field Vane
Qcu	Consolidated Undrained Triaxial	C	Consolidation
Qd	Drained Triaxial		

LOG OF BOREHOLE NO. 1

17T 547799.8E 4738728N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu								
							▲ POCKET PENETROMETER ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x								
						WATER CONTENT (%)									
						20	40	60	80	10	20	30	40		
0.0	SURFACE ELEVATION 234.72														
234.62	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist		1A												
	SILTY SAND TO SAND: Loose, reddish brown silty sand to sand, trace clay, moist		1B	SS	3										
1.0			2	SS	8										
1.4	becoming compact, wet to saturated														
233.3			3	SS	17										
2.0			4	SS	16										
3.0			5	SS	16										
4.0															
5.0			6	SS	10										
229.7	BOREHOLE TERMINATED AT 5.0 m														
6.0															
7.0															
8.0															
9.0															
10.0															

NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 2

17T 547879.4E 4738827N

PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 20, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN SM

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)			PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS		
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●									
						WATER CONTENT (%)										
						20	40	60	80	10	20	30	40	GRAIN SIZE DISTRIBUTION (%) GR SA Si & CL		
0.0	SURFACE ELEVATION 234.57															
234.47	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist; peat inclusions		1A											Stickup Well Protector		
	SILTY SAND TO SAND: Loose, brown silty sand to sand, trace clay, moist		1B	SS	1											
1.0			2	SS	3											
1.4																
233.2	becoming compact, wet to saturated		3	SS	12									Bentonite Seal		
2.0			4	SS	21											
2.8																
231.8	becoming grey, dense to very dense		5	SS	32									50 mm Diameter PVC Pipe		
														Filter Sand		
			6	SS	68									Screen		
5.0	BOREHOLE TERMINATED AT 5.0 m													Upon completion of augering, no free water, no cave		
229.6														Water Level Readings: Date Depth Elev. 2022-06-14 2.3 232.3		
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF BOREHOLE NO. 3

17T 548002.4E 4738836N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)			PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q							
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x							
						50	100	150	200	WATER CONTENT (%)			GRAIN SIZE DISTRIBUTION (%) GR SA SI & CL	
0.0	SURFACE ELEVATION 234.50					20	40	60	80	10	20	30	40	
234.40	TOPSOIL: 100 mm dark brown to black sand topsoil, some silt, damp		1A											
	SILTY SAND TO SAND: Loose, reddish brown silty sand to sand, trace clay, wet		1B	SS	1									
1.0				2	SS	2								
1.4	becoming compact, saturated													
233.1			3	SS	10									0 86 14
2.0														
			4	SS	12									
2.8	becoming loose, grey													
231.7			5	SS	6									
3.0														
4.0														
			6	SS	6									
5.0														
6.0														
			7	SS	7									
6.6	BOREHOLE TERMINATED AT 6.6 m													Upon completion of augering, free water at 1.3 m, cave at 1.8 m
227.9														
7.0														
8.0														
9.0														
10.0														

NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 4

17T 548095.7E 4738789N

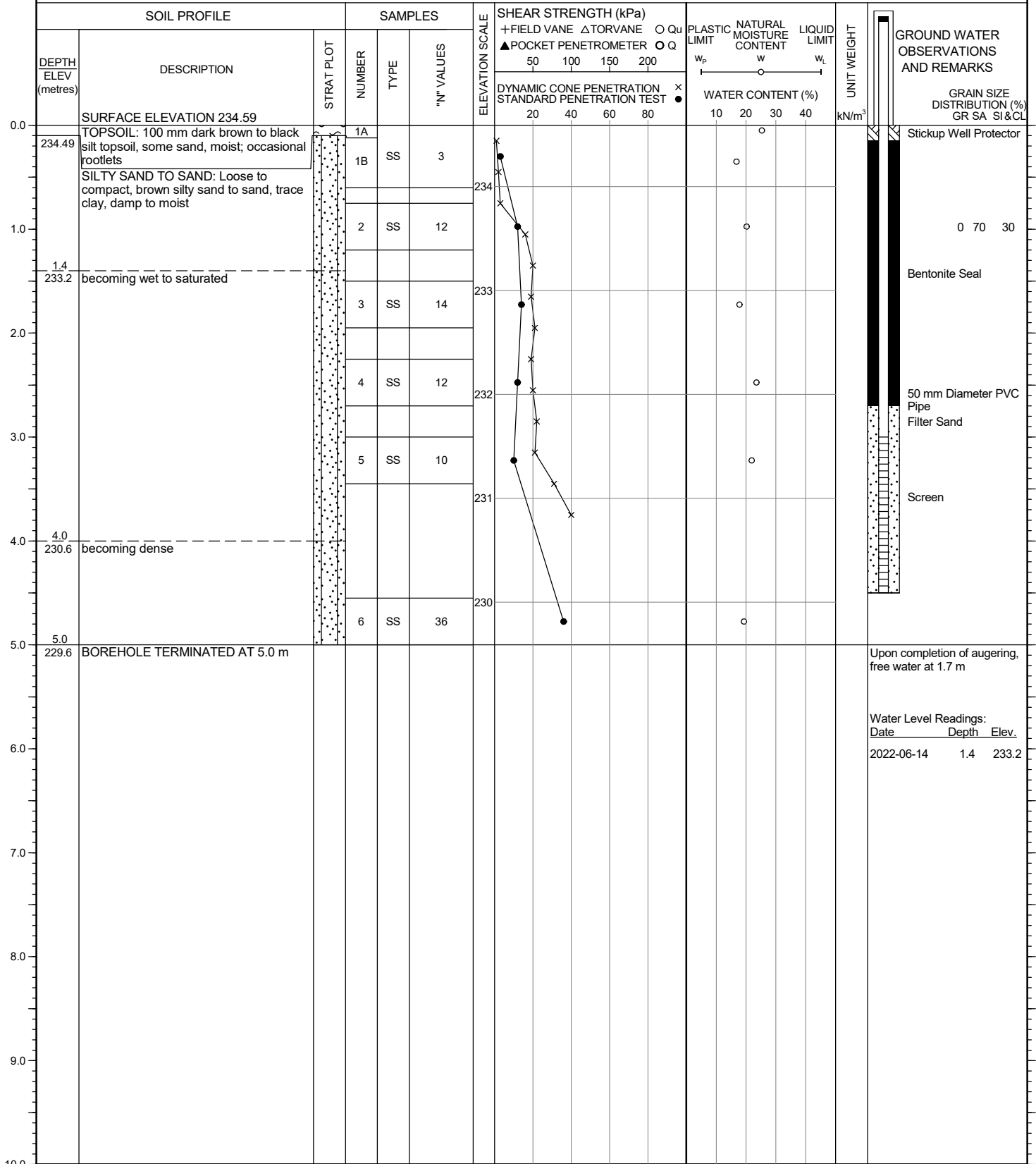
PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 20, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN SM



NOTES

LOG OF BOREHOLE NO. 5

17T 548056.9E 4738713N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

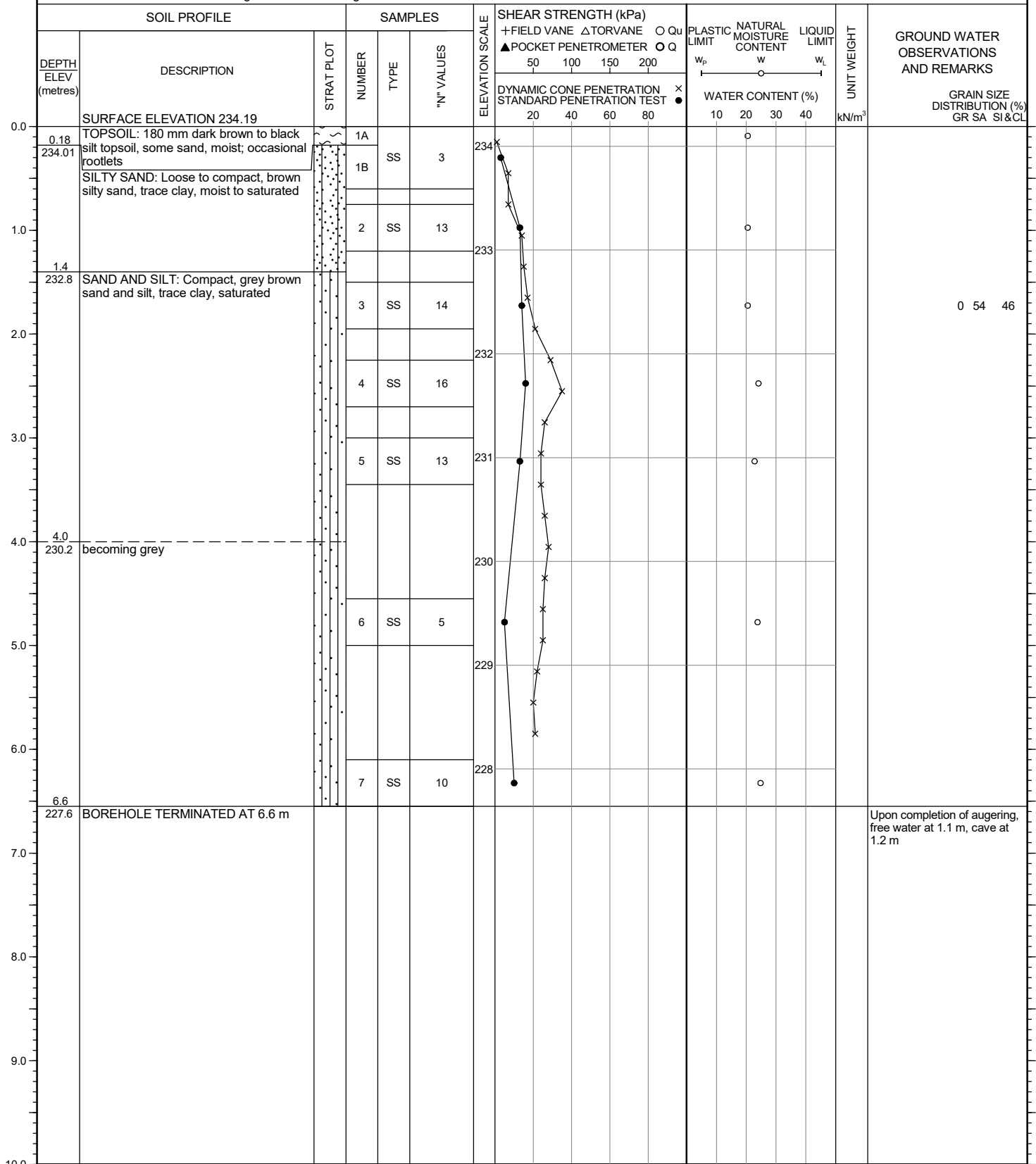
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR



NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 6

17T 548046.1E 4738639N

PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)			PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x ●								
						50 100 150 200			10 20 30 40			GRAIN SIZE DISTRIBUTION (%) GR SA Si & CL			
0.0	SURFACE ELEVATION 233.59														
233.49	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist; occasional rootlets SILTY SAND TO SAND: Loose to compact, brown silty sand to sand, trace clay, wet to saturated		1A											Stickup Well Protector	
1B			SS	1											
1.0			2	SS	1										
1.4															
232.2	SAND AND SILT: Loose to compact, grey sand and silt, trace clay, saturated													Bentonite Seal	
3			SS	9										0 43 57	
4			SS	11											
															50 mm Diameter PVC Pipe
5			SS	6											Filter Sand
3.0														Screen	
4.0															
5.0			6	SS	13										
228.6	BOREHOLE TERMINATED AT 5.0 m													Upon completion of augering, free water at 2.3 m, cave at 2.4 m	
6.0														Water Level Readings: Date Depth Elev.	
														2022-06-14 0.7 232.9	
7.0															
8.0															
9.0															

NOTES

LOG OF BOREHOLE/MONITORING WELL NO. 7

17T 547949.2E 4738756N

PROJECT Turkey Point Road Subdivision
LOCATION 1910 Turkey Point Road, Simcoe, Ontario
BORING METHOD Continuous Flight Hollow Stem Augers

BORING DATE April 19, 2022

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT W _P	NATURAL MOISTURE CONTENT w	LIQUID LIMIT W _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS	
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST × ●									
							WATER CONTENT (%)									
							20	40	60	80	10	20	30	40	GRAIN SIZE DISTRIBUTION (%) GR SA Si & CL	
0.0	SURFACE ELEVATION 233.59															
233.49	TOPSOIL: 100 mm dark brown to black silt topsoil, some sand, moist; occasional rootlets SILTY SAND: Loose to compact, brown silty sand, trace clay, wet to saturated		1A												Stickup Well Protector	
			1B	SS	1											
						233										
1.0			2	SS	11											
1.4																
232.2	SAND AND SILT: Compact to dense, grey sand and silt, trace clay, saturated		3	SS	17	232									Bentonite Seal	
			4	SS	36	231										
			5	SS	23	230										

NOTES

LOG OF TEST PIT NO. 1

17T 547878E 4738818N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS					
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q ●														
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×														
							50 100 150 200					WATER CONTENT (%)					GRAIN SIZE DISTRIBUTION (%) GR SA SI & CL				
0.0	SURFACE ELEVATION						20	40	60	80	10	20	30	40							
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets			1	GS							○									
0.80	SAND: Reddish brown sand, some silt, damp; occasional cobbles			2	GS							○									
1.0	SILTY SAND: Grey-brown silty sand, wet											○									
2.0				3	GS							○				0 69 31					
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.0 m					
4.0																					
5.0																					
6.0																					
7.0																					
8.0																					
9.0																					
10.0																					

NOTES

LOG OF TEST PIT NO. 2

17T 547941E 4738864N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q									
							50 100 150 200									
DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST						x ●					WATER CONTENT (%)					
20 40 60 80						10 20 30 40										
0.0	SURFACE ELEVATION															
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS												
0.94	SAND: Reddish brown sand, some silt, damp; occasional organics		2	GS												
1.0	SILTY SAND: Grey-brown silty sand, wet		3	GS												
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.2 m
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 3

17T 548025E 478901N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu ▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
							50	100	150	200	WATER CONTENT (%)					
							20	40	60	80						
0.0	SURFACE ELEVATION															
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS												
0.94	SAND: Reddish brown sand, some silt, damp; occasional organics		2	SS												0 84 16
1.0	SILTY SAND: Grey-brown silty sand, wet															
2.0			3	SS												
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.3 m
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 4

17T 578084E 4738813N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							
							20	40	60	80						
0.0	SURFACE ELEVATION															
0.46	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS									○			
1.0	SAND: Reddish brown sand, some silt, damp		2	GS									○			
1.3																
2.0	SILTY SAND: Grey-brown silty sand, wet		3	GS									○			
3.0	TEST PIT TERMINATED AT 3.0 m														Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 0.9 m	
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 5

17T 548138E 4738717N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							

NOTES

LOG OF TEST PIT NO. 6

17T 548088E 4738683N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							
						20 40 60 80					WATER CONTENT (%)					
											10	20	30	40		
0.0	SURFACE ELEVATION															
0.41	TOPSOIL: Dark brown topsoil, damp; occasional rootlets		1	GS									o			
1.4	SAND: Reddish brown sand, some silt, damp; occasional organics		2	GS									o			
3.0	SILTY SAND: Grey-brown silty sand, wet		3	GS									c			
3.0	TEST PIT TERMINATED AT 3.0 m														Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.3 m	
4.0																
5.0																
6.0																
7.0																
8.0																
9.0																
10.0																

NOTES

LOG OF TEST PIT NO. 7

17T 548033E 4738659N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+ FIELD VANE Δ TORVANE ○ Qu									
							▲ POCKET PENETROMETER ○ Q									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×									
						50	100	150	200							

NOTES

LOG OF TEST PIT NO. 8

17T 547980E 4738714N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)					PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q 200									
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST x									
						WATER CONTENT (%)										
						20 40 60 80					10 20 30 40					
0.0	SURFACE ELEVATION															
0.41	TOPSOIL: Dark brown topsoil, damp to wet; occasional rootlets			1	GS											
	SILTY SAND TO SAND: Grey-brown silty sand to sand, wet to saturated			2	GS											
3.0	TEST PIT TERMINATED AT 3.0 m															Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 0.9 m
													</			

NOTES

LOG OF TEST PIT NO. 9

17T 547931E 4738768N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q								
							DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×								
						50	100	150	200						
						20	40	60	80						
0.0	SURFACE ELEVATION														
0.41	TOPSOIL: Dark brown topsoil, damp to wet; occasional rootlets		1	GS											
	SAND TO SILTY SAND: Grey-brown sand to silty sand, saturated		2	SS											
3.0	TEST PIT TERMINATED AT 3.0 m													Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.2 m	

NOTES

LOG OF TEST PIT NO. 10

17T 547998E 4738791N

PROJECT Turkey Point Road Subdivision

LOCATION 1910 Turkey Point Road, Simcoe, Ontario

EXCAVATION METHOD

EXCAVATION DATE November 16, 2021

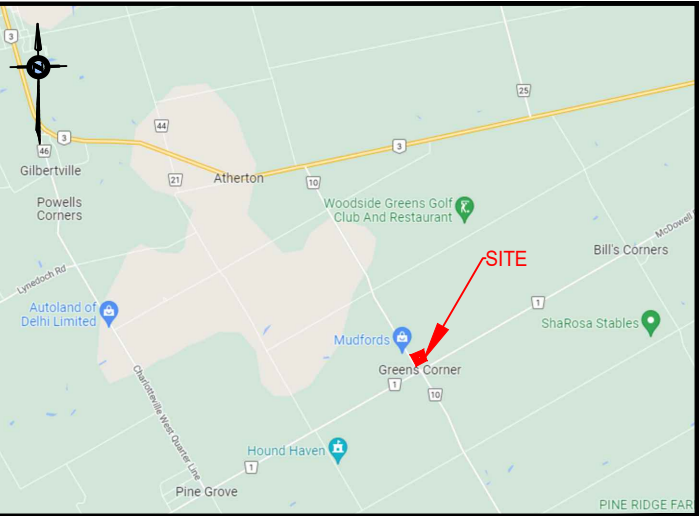
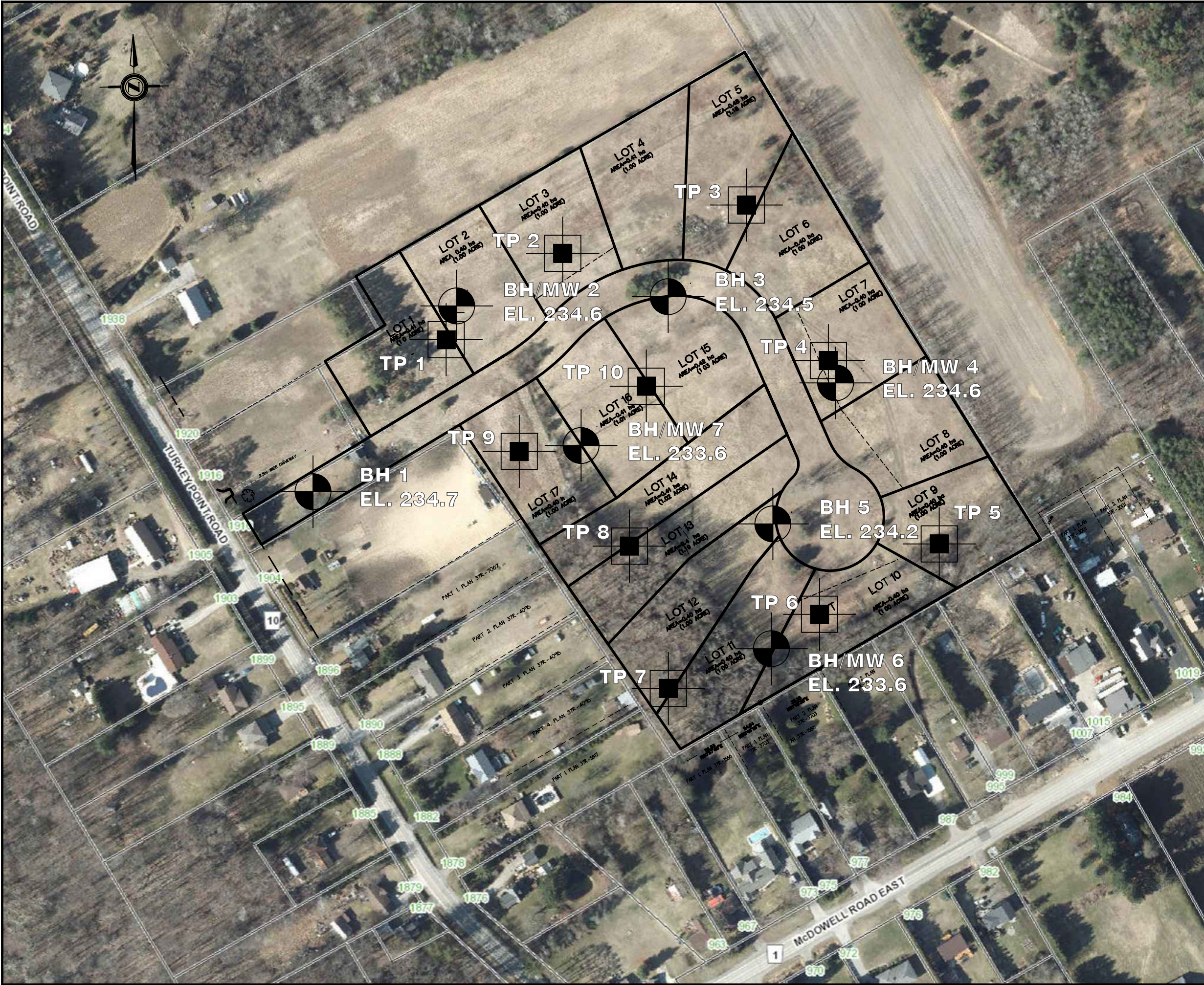
PML REF. 22HF001/21HX016

ENGINEER SJ

TECHNICIAN HR

SOIL PROFILE			SAMPLES			ELEVATION SCALE	SHEAR STRENGTH (kPa)				PLASTIC LIMIT w _p	NATURAL MOISTURE CONTENT w	LIQUID LIMIT w _L	UNIT WEIGHT kN/m ³	GROUND WATER OBSERVATIONS AND REMARKS
DEPTH ELEV (metres)	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES		+FIELD VANE ΔTORVANE ○ Qu ▲POCKET PENETROMETER ○ Q								
							50 100 150 200								
						DYNAMIC CONE PENETRATION STANDARD PENETRATION TEST ×				WATER CONTENT (%)				GRAIN SIZE DISTRIBUTION (%) GR SA SI & CL	
						20 40 60 80				10 20 30 40					
0.0	SURFACE ELEVATION														
0.30	TOPSOIL: Dark brown topsoil, damp; occasional rootlets			1	GS										
0.86	SAND: Reddish brown sand, some silt, damp			2	GS										0 81 19
1.0	SILTY SAND: Grey-brown silty sand, damp to wet			3	GS										
3.0	TEST PIT TERMINATED AT 3.0 m														Upon completion of digging, free water and cave observed at 3.0 m. After an hour, water was observed at 1.5 m
4.0															
5.0															
6.0															
7.0															
8.0															
9.0															
10.0															

NOTES



KEY PLAN
VITTORIA, ONTARIO

LEGEND:



PETO MACCALLUM LTD. (PML) BOREHOLE/
MONITORING WELL (BH/MW) LOCATION
ELEVATION (METRIC, GEODETIC)



PML TEST PIT (TP) LOCATION, PML Ref.: 21HX016

REFERENCE:

PLAN PRODUCED FROM GIS INFORMATION FROM THE COUNTY OF
NORFOLK ONLINE INTERACTIVE MAPPING SERVICE.

NOTE:

1. THE INFERRED STRATIGRAPHY REFERRED TO IN THE REPORT IS
BASED ON THE DATA FROM THESE BOREHOLES SUPPLEMENTED BY
GEOLOGICAL EVIDENCE. THE ACTUAL STRATIGRAPHY BETWEEN THE
BOREHOLES MAY VARY.
2. GEODETIC GROUND SURFACE ELEVATIONS AND UTM CO-ORDINATES
AT THE BOREHOLE LOCATIONS WERE DETERMINED BY PML USING A
GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS). THE SURVEY
EQUIPMENT COMPRISED A SOKKIA CANADA GCX-3 NETWORK REAL TIME
KINEMATIC (RTK) ROVER SYSTEM.



SCALE
(1:2000)

109326 ONTARIO LIMITED

GEOTECHNICAL INVESTIGATION
TURKEY POINT ROAD SUBDIVISION
1910 TURKEY POINT ROAD, VITTORIA, ONTARIO
TEST PIT AND BOREHOLE LOCATION PLAN



DRAWN	AR	DATE	SCALE	PML REF.	DRAWING NO.
CHECKED	SJ	SEPT 2022	AS SHOWN	22HF001/21HX016	1
APPROVED	SJ				



APPENDIX A

ENGINEERING FILL

The information presented in this appendix is intended for general guidance only. Site specific conditions and prevailing weather may require modification of compaction standards, backfill type or procedures. Each site must be discussed, and procedures agreed with Peto MacCallum Ltd. prior to the start of the earthworks and must be subject to ongoing review during construction. This appendix is not intended to apply to embankments. Steeply sloping ravine residential lots require special consideration.

For fill to be classified as engineered fill suitable for supporting structural loads, a number of conditions must be satisfied, including but not necessarily limited to the following:

1. Purpose

The site specific purpose of the engineered fill must be recognized. In advance of construction, all parties should discuss the project and its requirements and agree on an appropriate set of standards and procedures.

2. Minimum Extent

The engineered fill envelope must extend beyond the footprint of the structure to be supported. The minimum extent of the envelope should be defined from a geotechnical perspective by:

- at founding level, extend a minimum 1.0 m beyond the outer edge of the foundations, greater if adequate layout has not yet been completed as noted below; and
- extend downward and outward at a slope no greater than 45° to meet the subgrade

All fill within the envelope established above must meet the requirements of engineered fill in order to support the structure safely. Other considerations such as survey control, or construction methods may require an envelope that is larger, as noted in the following sections.

Once the minimum envelope has been established, structures must not be moved or extended without consultation with Peto MacCallum Ltd. Similarly, Peto MacCallum Ltd. should be consulted prior to any excavation within the minimum envelope.

3. Survey Control

Accurate survey control is essential to the success of an engineered fill project. The boundaries of the engineered fill must be laid out by a surveyor in consultation with engineering staff from Peto MacCallum Ltd. Careful consideration of the maximum building envelope is required.

During construction it is necessary to have a qualified surveyor provide total station control on the three dimensional extent of filling.

4. Subsurface Preparation

Prior to placement of fill, the subgrade must be prepared to the satisfaction of Peto MacCallum Ltd. All deleterious material must be removed and in some cases, excavation of native mineral soils may be required.

Particular attention must be paid to wet subgrades and possible additional measures required to achieve sufficient compaction. Where fill is placed against a slope, benching may be necessary and natural drainage paths must not be blocked.

5. Suitable Fill Materials

All material to be used as fill must be approved by Peto MacCallum Ltd. Such approval will be influenced by many factors and must be site and project specific. External fill sources must be sampled, tested and approved prior to material being hauled to site.

6. Test Section

In advance of the start of construction of the engineered fill pad, the Contractor should conduct a test section. The compaction criterion will be assessed in consultation with Peto MacCallum Ltd. for the various fill material types using different lift thicknesses and number of passes for the compaction equipment proposed by the Contractor.

Additional test sections may be required throughout the course of the project to reflect changes in fill sources, natural moisture content of the material and weather conditions.

The Contractor should be particularly aware of changes in the moisture content of fill material. Site review by Peto MacCallum Ltd. is required to ensure the desired lift thickness is maintained and that each lift is systematically compacted, tested and approved before a subsequent lift is commenced.

7. Inspection and Testing

Uniform, thorough compaction is crucial to the performance of the engineered fill and the supported structure. Hence, all subgrade preparation, filling and compacting must be carried out under the full time inspection by Peto MacCallum Ltd.

All founding surfaces for all buildings and residential dwellings or any part thereof (including but not limited to footings and floor slabs) on structural fill or native soils must be inspected and approved by PML engineering personnel prior to placement of the base/subbase granular material and/or concrete. The purpose of the inspection is to ensure the subgrade soils are capable of supporting the building/house foundation and floor slab loads and to confirm the building/house envelope does not extend beyond the limits of any structural fill pads.

8. Protection of Fill

Fill is generally more susceptible to the effects of weather than natural soil. Fill placed and approved to the level at which structural support is required must be protected from excessive wetting, drying, erosion or freezing. Where adequate protection has not been provided, it may be necessary to provide deeper footings or to strip and recompact some of the fill.

9. Construction Delay Time Considerations

The integrity of the fill pad can deteriorate due to the harsh effects of our Canadian weather. Hence, particular care must be taken if the fill pad is constructed over a long time period.

It is necessary therefore, that all fill sources are tested to ensure the material compactability prior to the soil arriving at site. When there has been a lengthy delay between construction periods of the fill pad, it is necessary to conduct subgrade proof rolling, test pits or boreholes to verify the adequacy of the exposed subgrade to accept new fill material.

When the fill pad will be constructed over a lengthy period of time, a field survey should be completed at the end of each construction season to verify the areal extent and the level at which the compacted fill has been brought up to, tested and approved.

In the following spring, subexcavation may be necessary if the fill pad has been softened attributable to ponded surface water or freeze/thaw cycles.

A new survey is required at the beginning of the next construction season to verify that random dumping and/or spreading of fill has not been carried out at the site.

10. Approved Fill Pad Surveillance

It should be appreciated that once the fill pad has been brought to final grade and documented by field survey, there must be ongoing surveillance to ensure that the integrity of the fill pad is not threatened.

Grading operations adjacent to fill pads can often take place several months or years after completion of the fill pad.

It is imperative that all site management and supervision staff, the staff of Contractors and earthwork operators be fully aware of the boundaries of all approved engineered fill pads.

Excavation into an approved engineered fill pad should never be contemplated without the full knowledge, approval and documentation by the geotechnical consultant.

If the fill pad is knowingly built several years in advance of ultimate construction, the areal limits of the fill pad should be substantially overbuilt laterally to allow for changes in possible structure location and elevation and other earthwork operations and competing interests on the site. The overbuilt distance required is project and/or site specified.

Iron bars should be placed at the corner/intermediate points of the fill pad as a permanent record of the approved limits of the work for record keeping purposes.

11. Unusual Working Conditions

Construction of fill pads may at times take place at night and/or during periods of freezing weather conditions because of the requirements of the project schedule. It should be appreciated therefore, that both situations present more difficult working conditions. The Owner, Contractor, Design Consultant and Geotechnical Engineer must be willing to work together to revise site construction procedures, enhance field testing and surveillance, and incorporate design modifications as necessary to suit site conditions.

When working at night there must be sufficient artificial light to properly illuminate the fill pad and borrow areas.

Placement of material to form an engineered fill pad during winter and freezing temperatures has its own special conditions that must be addressed. It is imperative that each day prior to placement of new fill, the exposed subgrade must be inspected and any overnight snow or frozen material removed. Particular attention should be given to the borrow source inspection to ensure only nonfrozen fill is brought to the site.

The Contractor must continually assess the work program and have the necessary spreading and compacting equipment to ensure that densification of the fill material takes place in a minimum amount of time. Changes may be required to the spreading methods, lift thickness, and compaction techniques to ensure the desired compaction is achieved uniformly throughout each fill lift.

The Contractor should adequately protect the subgrade at the end of each shift to minimize frost penetration overnight. Since water cannot be added to the fill material to facilitate compaction, it is imperative that densification of the fill be achieved by additional compaction effort and an appropriate reduced lift thickness. Once the fill pad has been completed, it must be properly protected from freezing temperatures and ponding of water during the spring thaw period.

If the pad is unusually thick or if the fill thickness varies dramatically across the width or length of the fill pad, Peto MacCallum Ltd. should be consulted for additional recommendations. In this case, alternative special provisions may be recommended, such as providing a surcharge preload for a limited time or increase the degree of compaction of the fill.



APPENDIX B

TABLE B1 – SUMMARY OF SAMPLES SUBMITTED
AND
SGS LABORATORIES – CERTIFICATE OF ANALYSIS



TABLE B1
SUMMARY OF SAMPLES SUBMITTED
FOR GEOENVIRONMENTAL CHEMICAL TESTING

LOCATION	SAMPLE ID	APPROX. DEPTH (m)	DESCRIPTION
Borehole 1	BH1 SS3	1.5 – 1.9	Sand
Borehole 2	BH2 SS2	0.8 – 1.2	Silty Sand
Borehole 3	BH3 SS2	0.8 – 1.2	Silty Sand
Borehole 4	BH4 SS3	1.5 – 1.9	Sand
Borehole 5	BH5 SS1B	0.2 – 0.6	Silty Sand
Borehole 6	BH6 SS5	3.0 – 3.4	Sand and Silt
Borehole 7	BH7 SS3	1.5 – 1.9	Sand and Silt

Note: All samples submitted for testing as per O. Reg. 153/04, as amended. Selected parameter groups included metals, hydride forming metals, ORPs, PHCs and BTEX.



FINAL REPORT

CA40400-APR22 R1

22HF001

Prepared for

Peto MacCallum Ltd

First Page

CLIENT DETAILS

Client Peto MacCallum Ltd

Address 45 Burford Road
Hamilton, ON
L8E 3C6, Canada

Contact Heather Racher

Telephone (905) 561-2231

Facsimile (905) 561-6366

Email smacdonald@petomacallum.com; hracher@petomacallum.c

Project 22HF001

Order Number

Samples Soil (7)

LABORATORY DETAILS

Project Specialist Maarit Wolfe, Hon.B.Sc

Laboratory SGS Canada Inc.

Address 185 Concession St., Lakefield ON, K0L 2H0

Telephone 705-652-2000

Facsimile 705-652-6365

Email Maarit.Wolfe@sgs.com

SGS Reference CA40400-APR22

Received 04/22/2022

Approved 05/02/2022

Report Number CA40400-APR22 R1

Date Reported 05/02/2022

COMMENTS

CCME Method Compliance: Analyses were conducted using analytical procedures that comply with the Reference Method for the CWS for Petroleum Hydrocarbons in Soil and have been validated for use at the SGS laboratory, Lakefield, ON site.

Quality Compliance: Instrument performance / calibration quality criteria were met and extraction and analysis limits for holding times were met.

nC6 and nC10 response factors within 30% of response factor for toluene: YES

nC10, nC16 and nC34 response factors within 10% of the average response for the three compounds: YES

C50 response factors within 70% of nC10 + nC16 + nC34 average: YES

Linearity is within 15%: YES

F4G - gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.

The results for F4 and F4G are both reported and the greater of the two values is to be used in application to the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

Benzo(b)fluoranthene results for comparison to the standard are reported as benzo(b+j)fluoranthene. Benzo(b)fluoranthene and benzo(j)fluoranthene co-elute and cannot be reported individually by the analytical method used.

Temperature of Sample upon Receipt: 9 degrees C

Cooling Agent Present: Yes

Custody Seal Present: Yes

Chain of Custody Number:016931

SIGNATORIES

Maarit Wolfe, Hon.B.Sc





TABLE OF CONTENTS

First Page..... 1

Index..... 2

Results..... 3-5

Exceedance Summary..... 6

QC Summary..... 7-12

Legend..... 13

Annexes..... 14



FINAL REPORT

CA40400-APR22 R1

Client: Peto MacCallum Ltd
Project: 22HF001
Project Manager: Heather Racher
Samplers: S. MacDonald

MATRIX: SOIL

L1 = REG406 / SOIL / - - Appendix 1 Table 1 -
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

				Sample Number	10	11	12	13	14	15	16
				Sample Name	BH1 SS3	BH2 SS2	BH3 SS2	BH4 SS3	BH5 SS1B	BH6 SS5	BH7 SS3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	19/04/2022	20/04/2022	19/04/2022	20/04/2022	19/04/2022	20/04/2022	20/04/2022
Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result	Result
BTEX											
Benzene	µg/g	0.02	0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Ethylbenzene	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Toluene	µg/g	0.05	0.2	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Xylene (total)	µg/g	0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
m/p-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
o-xylene	µg/g	0.05		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Hydrides											
Antimony	µg/g	0.8	1.3	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8	< 0.8
Arsenic	µg/g	0.5	18	1.9	1.1	1.6	0.9	1.1	1.3	1.3	1.1
Selenium	µg/g	0.7	1.5	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7	< 0.7
Metals and Inorganics											
Moisture Content	%	no		16.9	19.1	19.0	17.1	17.0	19.7	20.9	
Barium	µg/g	0.1	220	8.6	12	34	8.2	9.3	7.4	9.1	
Beryllium	µg/g	0.02	2.5	0.11	0.21	0.22	0.10	0.15	0.12	0.11	
Boron	µg/g	1	36	2	1	1	3	1	3	3	
Cadmium	µg/g	0.05	1.2	0.07	0.09	0.06	0.06	< 0.05	0.08	0.08	
Chromium	µg/g	0.5	70	4.3	7.1	10	5.1	6.4	4.6	4.7	
Cobalt	µg/g	0.01	21	2.0	2.5	2.9	1.9	1.6	2.1	1.8	
Copper	µg/g	0.1	92	10	7.1	10	7.5	2.9	8.1	8.5	
Lead	µg/g	0.1	120	3.9	4.1	4.4	3.3	3.2	3.5	4.5	
Molybdenum	µg/g	0.1	2	0.3	0.1	0.1	0.1	0.2	0.1	0.1	



FINAL REPORT

CA40400-APR22 R1

Client: Peto MacCallum Ltd

Project: 22HF001

Project Manager: Heather Racher

Samplers: S. MacDonald

MATRIX: SOIL

L1 = REG406 / SOIL / - - Appendix 1 Table 1 -

Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

Sample Number	10	11	12	13	14	15	16
Sample Name	BH1 SS3	BH2 SS2	BH3 SS2	BH4 SS3	BH5 SS1B	BH6 SS5	BH7 SS3
Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Sample Date	19/04/2022	20/04/2022	19/04/2022	20/04/2022	19/04/2022	20/04/2022	20/04/2022

Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result
-----------	-------	----	----	--------	--------	--------	--------	--------	--------	--------

Metals and Inorganics (continued)

Nickel	µg/g	0.5	82	4.4	4.4	5.4	3.6	3.1	3.9	3.6
Silver	µg/g	0.05	0.5	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Thallium	µg/g	0.02	1	0.03	0.03	0.03	0.02	< 0.02	0.03	0.05
Uranium	µg/g	0.002	2.5	0.25	0.24	0.30	0.29	0.30	0.44	0.33
Vanadium	µg/g	3	86	9	18	24	12	16	11	11
Zinc	µg/g	0.7	290	24	21	26	19	11	26	17
Water Soluble Boron	µg/g	0.5		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5

Other (ORP)

Mercury	ug/g	0.05	0.27	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Sodium Adsorption Ratio	No unit	0.2	2.4	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
SAR Calcium	mg/L	0.2		15.4	20.0	14.2	10.6	15.8	14.8	16.4
SAR Magnesium	mg/L	0.3		1.5	1.0	0.9	1.0	0.4	2.0	1.4
SAR Sodium	mg/L	0.1		1.0	0.5	1.4	0.8	0.5	1.0	1.0
Conductivity	mS/cm	0.002	0.57	0.12	0.11	0.08	0.07	0.08	0.10	0.10
pH	pH Units	0.05		8.08	7.75	7.28	8.07	6.91	7.53	7.78
Chromium VI	µg/g	0.2	0.66	< 0.2	< 0.2	0.2	< 0.2	< 0.2	< 0.2	< 0.2
Free Cyanide	µg/g	0.05	0.051	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05



FINAL REPORT

CA40400-APR22 R1

Client: Peto MacCallum Ltd
Project: 22HF001
Project Manager: Heather Racher
Samplers: S. MacDonald

MATRIX: SOIL

L1 = REG406 / SOIL / - - Appendix 1 Table 1 -
Residential/Parkland/Institutional/Industrial/Commercial/Community - UNDEFINED

				Sample Number	10	11	12	13	14	15	16
				Sample Name	BH1 SS3	BH2 SS2	BH3 SS2	BH4 SS3	BH5 SS1B	BH6 SS5	BH7 SS3
				Sample Matrix	Soil	Soil	Soil	Soil	Soil	Soil	Soil
				Sample Date	19/04/2022	20/04/2022	19/04/2022	20/04/2022	19/04/2022	20/04/2022	20/04/2022
Parameter	Units	RL	L1	Result	Result	Result	Result	Result	Result	Result	Result
PHCs											
F1 (C6-C10)	µg/g	10	25	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F1-BTEX (C6-C10)	µg/g	10		< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F2 (C10-C16)	µg/g	10	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
F3 (C16-C34)	µg/g	50	240	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
F4 (C34-C50)	µg/g	50	120	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50
Chromatogram returned to baseline at nC50	Yes / No	no		YES	YES	YES	YES	YES	YES	YES	YES

EXCEEDANCE SUMMARY

No exceedances are present above the regulatory limit(s) indicated



FINAL REPORT

CA40400-APR22 R1

QC SUMMARY

Conductivity

Method: EPA 6010/SM 2510 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-006

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Conductivity	EWL0495-APR22	mS/cm	0.002	<0.002	0	10	99	90	110	NA		

Cyanide by SFA

Method: SM 4500 | Internal ref.: ME-CA-IENVISFA-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Free Cyanide	SKA5095-APR22	µg/g	0.05	<0.05	ND	20	95	80	120	84	75	125

Hexavalent Chromium by SFA

Method: EPA218.6/EPA3060A | Internal ref.: ME-CA-IENVISKA-LAK-AN-012

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Chromium VI	SKA5093-APR22	ug/g	0.2	<0.2	ND	20	93	80	120	98	75	125



FINAL REPORT

CA40400-APR22 R1

QC SUMMARY

Mercury by CVAAS

Method: EPA 7471A/EPA 245 | Internal ref.: ME-CA-IENVISPE-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Mercury	EMS0179-APR22	ug/g	0.05	<0.05	8	20	95	80	120	102	70	130

Metals in aqueous samples - ICP-OES

Method: MOE 4696e01/EPA 6010 | Internal ref.: ME-CA-IENVISPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
SAR Calcium	ESG0075-APR22	mg/L	0.2	<0.09	1	20	108	80	120	93	70	130
SAR Magnesium	ESG0075-APR22	mg/L	0.3	<0.02	2	20	105	80	120	93	70	130
SAR Sodium	ESG0075-APR22	mg/L	0.1	<0.15	1	20	104	80	120	88	70	130



FINAL REPORT

CA40400-APR22 R1

QC SUMMARY

Metals in Soil - Aqua-regia/ICP-MS
Method: EPA 3050/EPA 200.8 | Internal ref.: ME-CA-IENVISPE-LAK-AN-005

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Silver	EMS0179-APR22	ug/g	0.05	<0.05	3	20	93	70	130	103	70	130
Arsenic	EMS0179-APR22	µg/g	0.5	<0.5	2	20	98	70	130	100	70	130
Barium	EMS0179-APR22	ug/g	0.1	<0.1	0	20	102	70	130	103	70	130
Beryllium	EMS0179-APR22	µg/g	0.02	<0.02	2	20	94	70	130	98	70	130
Boron	EMS0179-APR22	µg/g	1	<1	0	20	108	70	130	103	70	130
Cadmium	EMS0179-APR22	ug/g	0.05	<0.05	1	20	103	70	130	102	70	130
Cobalt	EMS0179-APR22	µg/g	0.01	<0.01	1	20	99	70	130	110	70	130
Chromium	EMS0179-APR22	µg/g	0.5	<0.5	1	20	105	70	130	107	70	130
Copper	EMS0179-APR22	µg/g	0.1	<0.1	1	20	98	70	130	105	70	130
Molybdenum	EMS0179-APR22	µg/g	0.1	<0.1	1	20	101	70	130	102	70	130
Nickel	EMS0179-APR22	ug/g	0.5	<0.5	0	20	97	70	130	110	70	130
Lead	EMS0179-APR22	ug/g	0.1	<0.1	0	20	99	70	130	100	70	130
Antimony	EMS0179-APR22	µg/g	0.8	<0.8	ND	20	99	70	130	99	70	130
Selenium	EMS0179-APR22	µg/g	0.7	<0.7	ND	20	101	70	130	104	70	130
Thallium	EMS0179-APR22	µg/g	0.02	<0.02	0	20	99	70	130	102	70	130
Uranium	EMS0179-APR22	µg/g	0.002	<0.002	2	20	93	70	130	102	70	130
Vanadium	EMS0179-APR22	µg/g	3	<3	2	20	98	70	130	115	70	130
Zinc	EMS0179-APR22	µg/g	0.7	<0.7	2	20	100	70	130	106	70	130



FINAL REPORT

CA40400-APR22 R1

QC SUMMARY

Petroleum Hydrocarbons (F1)

Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F1 (C6-C10)	GCM0451-APR22	µg/g	10	<10	ND	30	97	80	120	94	60	140

Petroleum Hydrocarbons (F2-F4)

Method: CCME Tier 1 | Internal ref.: ME-CA-IENVIGC-LAK-AN-010

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
F2 (C10-C16)	GCM0461-APR22	µg/g	10	<10	ND	30	101	80	120	95	60	140
F3 (C16-C34)	GCM0461-APR22	µg/g	50	<50	ND	30	101	80	120	95	60	140
F4 (C34-C50)	GCM0461-APR22	µg/g	50	<50	ND	30	101	80	120	95	60	140
F2 (C10-C16)	GCM0487-APR22	µg/g	10	<10	ND	30	115	80	120	112	60	140
F3 (C16-C34)	GCM0487-APR22	µg/g	50	<50	ND	30	115	80	120	112	60	140
F4 (C34-C50)	GCM0487-APR22	µg/g	50	<50	ND	30	115	80	120	112	60	140



FINAL REPORT

CA40400-APR22 R1

QC SUMMARY

pH

Method: SM 4500 | Internal ref.: ME-CA-IENVIEWL-LAK-AN-001

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
pH	ARD0126-APR22	pH Units	0.05		0	20	100	80	120			

Volatile Organics

Method: EPA 5035A/5030B/8260C | Internal ref.: ME-CA-IENVIGC-LAK-AN-004

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Benzene	GCM0451-APR22	µg/g	0.02	<0.02	ND	50	94	60	130	86	50	140
Ethylbenzene	GCM0451-APR22	µg/g	0.05	<0.05	ND	50	92	60	130	91	50	140
m/p-xylene	GCM0451-APR22	µg/g	0.05	<0.05	ND	50	95	60	130	94	50	140
o-xylene	GCM0451-APR22	µg/g	0.05	<0.05	ND	50	90	60	130	89	50	140
Toluene	GCM0451-APR22	µg/g	0.05	<0.05	ND	50	92	60	130	89	50	140



QC SUMMARY

Water Soluble Boron

Method: O.Reg. 15 3/04 | Internal ref.: ME-CA-IENVI SPE-LAK-AN-003

Parameter	QC batch Reference	Units	RL	Method Blank	Duplicate		LCS/Spike Blank			Matrix Spike / Ref.		
					RPD	AC (%)	Spike Recovery (%)	Recovery Limits (%)		Spike Recovery (%)	Recovery Limits (%)	
								Low	High		Low	High
Water Soluble Boron	ESG0068-APR22	µg/g	0.5	<0.5	ND	20	106	80	120	NV	70	130

Method Blank: a blank matrix that is carried through the entire analytical procedure. Used to assess laboratory contamination.

Duplicate: Paired analysis of a separate portion of the same sample that is carried through the entire analytical procedure. Used to evaluate measurement precision.

LCS/Spike Blank: Laboratory control sample or spike blank refer to a blank matrix to which a known amount of analyte has been added. Used to evaluate analyte recovery and laboratory accuracy without sample matrix effects.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate laboratory accuracy with sample matrix effects.

Reference Material: a material or substance matrix matched to the samples that contains a known amount of the analyte of interest. A reference material may be used in place of a matrix spike.

RL: Reporting limit

RPD: Relative percent difference

AC: Acceptance criteria

Multielement Scan Qualifier: as the number of analytes in a scan increases, so does the chance of a limit exceedance by random chance as opposed to a real method problem. Thus, in multielement scans, for the LCS and matrix spike, up to 10% of the analytes may exceed the quoted limits by up to 10% absolute and the spike is considered acceptable.

Duplicate Qualifier: for duplicates as the measured result approaches the RL, the uncertainty associated with the value increases dramatically, thus duplicate acceptance limits apply only where the average of the two duplicates is greater than five times the RL.

Matrix Spike Qualifier: for matrix spikes, as the concentration of the native analyte increases, the uncertainty of the matrix spike recovery increases. Thus, the matrix spike acceptance limits apply only when the concentration of the matrix spike is greater than or equal to the concentration of the native analyte.

LEGEND

FOOTNOTES

NSS Insufficient sample for analysis.

RL Reporting Limit.

↑ Reporting limit raised.

↓ Reporting limit lowered.

NA The sample was not analysed for this analyte

ND Non Detect

Data reported represent the sample as submitted to SGS. Solid samples expressed on a dry weight basis.

"Temperature Upon Receipt" is representative of the whole shipment and may not reflect the temperature of individual samples.

Analysis conducted on samples submitted pursuant to or as part of Reg. 153/04, are in accordance to the "Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act and Excess Soil Quality" published by the Ministry and dated March 9, 2004 as amended.

SGS provides criteria information (such as regulatory or guideline limits and summary of limit exceedances) as a service. Every attempt is made to ensure the criteria information in this report is accurate and current, however, it is not guaranteed. Comparison to the most current criteria is the responsibility of the client and SGS assumes no responsibility for the accuracy of the criteria levels indicated.

SGS Canada Inc. statement of conformity decision rule does not consider uncertainty when analytical results are compared to a specified standard or regulation.

This document is issued, on the Client's behalf, by the Company under its General Conditions of Service available on request and accessible at http://www.sgs.com/terms_and_conditions.htm.

The Client's attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any other holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Reproduction of this analytical report in full or in part is prohibited.

This report supersedes all previous versions.

-- End of Analytical Report --



Request for Laboratory Services and CHAIN OF CUSTODY

Environment, Health & Safety - Lakefield: 185 Concession St., Lakefield, ON K0L 2H0 Phone: 705-652-2000 Fax: 705-652-6365 Web: www.sgs.com/environment
- London: 657 Consortium Court, London, ON, N6E 2S8 Phone: 519-672-4500 Toll Free: 877-848-8060 Fax: 519-672-0361

No: 016931

Page 1 of 1

Laboratory Information Section - Lab use only

Received By: MSD
Received Date: 9/22/22 (mm/dd/yy)
Received Time: 13:25 (hr:min)

Received By (signature): [Signature]
Custody Seal Present: Yes ☒ No ☐
Custody Seal Intact: Yes ☒ No ☐
Cooling Agent Present: Yes ☒ No ☐ Type: Pack
Temperature Upon Receipt (°C) 9.3

LAB LIMS #: ca 40400-98

REPORT INFORMATION	INVOICE INFORMATION	TURNAROUND TIME (TAT) REQUIRED
Company: <u>Pete MacCallum</u>	☒ (same as Report Information)	Quotation #: _____ P.O. #: _____
Contact: <u>Heather Roche</u>	Company: _____	Project #: <u>22HFCO</u> Site Location/ID: _____
Address: <u>41 Burford Rd</u>	Contact: _____	
<u>Hamilton</u>	Address: _____	
Phone: _____		
Fax: <u>519-672-4500</u>	Phone: _____	
Email: <u>hroche@petemacallum.com</u>	Email: _____	

TURNAROUND TIME (TAT) REQUIRED
☒ Regular TAT (5-7 days) TAT's are quoted in business days (exclude statutory holidays & weekends).
Samples received after 6pm or on weekends: TAT begins next business day
RUSH TAT (Additional Charges May Apply): ☐ 1 Day ☐ 2 Days ☐ 3 Days ☐ 4 Days
PLEASE CONFIRM RUSH FEASIBILITY WITH SGS REPRESENTATIVE PRIOR TO SUBMISSION
Specify Due Date: _____ *NOTE: DRINKING (POTABLE) WATER SAMPLES FOR HUMAN CONSUMPTION MUST BE SUBMITTED WITH SGS DRINKING WATER CHAIN OF CUSTODY

REGULATIONS					ANALYSIS REQUESTED															COMMENTS:
☐ O.Reg 153/04 ☐ O.Reg 406/19		Other Regulations:	Sewer By-Law:		M & I		SVOC	PCB	PHC	VOC	Pest	Other (please specify)				TCLP				
☒ Table 1 ☐ Table 2 ☒ Table 3 ☐ Table	☒ Res/Park ☒ Ind/Com ☒ Agri/Other	Soil Texture: ☐ Coarse ☐ Medium/Fine	☐ Reg 347/558 (3 Day min TAT) ☐ PWQO ☐ MMR ☐ CCME ☐ Other: ☐ MISA	☐ Sanitary ☐ Storm Municipality: _____	Field Filtered (Y/N)	Metals & Inorganics (ICP metals plus BiHWS soil only) Hg, CrVI, Sb, As, Ba, Be, B, Cd, Cr, Co, Cu, Pb, Mo, Ni, ICP Metals only	PAHs only	SVOCs (all incl PAHs, ABNs, CPs)	PCBs ☐ Total ☐ Aroclor	F1-F4 + BTEX	F1-F4 only no BTEX	VOCs all incl BTEX	BTEX only	Pesticides Organochlorine or specify other	Appendix 2: 406/19 Leachate Screening Levels Table: _____	Sewer Use: Specify pkg: _____	Water Characterization Pkg General ☐ Extended ☐	Specify TCLP tests ☐ M&I ☐ VOC ☐ PCB ☐ B(a)P ☐ ABN ☐ Ignit.		
1	BH1 SS3	April 19, 22	AM	3	Soil	X				X										
2	BH2 SS2	April 20, 22	AM	3		X				X										
3	BH3 SS2	April 19, 22	AM			X				X										
4	BH4 SS3	April 20, 22	AM			X				X										
5	BH5 SS1B	April 19, 22	AM			X				X										
6	BH6 SS5	April 20, 22	AM			X				X										
7	BH7 SS3	April 20, 22	AM			X				X										
8																				
9																				
10																				
11																				
12																				

Observations/Comments/Special Instructions

Sampled By (NAME): <u>S. MacDonald</u>	Signature: <u>[Signature]</u>	Date: <u>04/19/2022</u> (mm/dd/yy)	Pink Copy - Client
Relinquished by (NAME): <u>S. MacDonald</u>	Signature: <u>[Signature]</u>	Date: <u>04/21/2022</u> (mm/dd/yy)	Yellow & White Copy - SGS

Revision # 1.4
Date of Issue: 22 May, 2020
Note: Submission of samples to SGS is acknowledgement that you have been provided direction on sample collection, handling and transportation of samples. (2) Submission of samples to SGS is considered authorization for completion of work. Signatures may appear on this form or be retained on file in the contract, or in an alternative format (e.g. shipping documents). (3) Results may be sent by email to an unlimited number of addresses for no additional cost. Fax is available upon request. This document is issued by the Company under its General Conditions of Service accessible at http://www.sgs.com/terms_and_conditions.htm. (Printed copies are available upon request.) Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein.

1910 TURKEY POINT ROAD
SUBDIVISION

GREENS CORNERS
NORFOLK COUNTY

FUNCTIONAL SERVICING REPORT



19042
24 July 2023

1910 TURKEY POINT ROAD SUBDIVISION
GREENS CORNERS – NORFOLK COUNTY
FUNCTIONAL SERVICING REPORT

TABLE OF CONTENTS

1.0 INTRODUCTION	1
2.0 TRANSPORTATION	1
3.0 GRADING & GEOTECHNICAL.....	2
4.0 ENVIRONMENTAL	2
5.0 WATER SERVICING	3
6.0 SANITARY SERVICING	3
7.0 STORM DRAINAGE & STORMWATER MANAGEMENT	4
8.0 ELECTRICAL AND UTILITIES.....	8

List of Figures

Figure 1: Draft Plan of Subdivision
Figure 2: Pre-Development Stormwater Tributary Areas
Figure 3: Post-Development Stormwater Tributary Areas
Figure 4: Conceptual Pond Design Figure

Appendix 'A'

Fire Storage Calculations
Pre-Development SSA Schematic
Post-Development SSA Schematic
Mary Mackenzie Drain Drawings

19042
24 July 2023

1910 TURKEY POINT ROAD SUBDIVISION
GREENS CORNERS – NORFOLK COUNTY
FUNCTIONAL SERVICING REPORT

1.0 INTRODUCTION

This Functional Servicing Report has been prepared to support the Draft Plan and Zoning By-Law Amendment Applications by Peter Bosma to permit the development of a 15-lot subdivision in the hamlet of Greens Corners, Norfolk County.

The subject site is 8.05ha in area and is municipally known as 1910 Turkey Point Road, and lies east of Turkey Point Road (County Road No. 10) and north of McDowell Road East (County Road No. 1). The site is bounded by existing agricultural to the north, agricultural to the east, residential to the south and residential to the west. The land is legally described as Part of Lot 13, Concession 9, in the geographic Township of Charlotteville, Norfolk County, Plan 37R-11660.

The property was previously the subject of two separate consent applications (County File No. BNPL2020033 and BNPL2020034) to create two single-detached residential lots fronting on Turkey Point Road, known as Mun. No. 1916 & 1920 Turkey Point Road. Further to the consent applications referenced above, a zoning by-law amendment application (County File No. ZNPL2020159) was completed to re-designate the severed lots from agricultural (A) to hamlet residential (RH). The remainder of the site was also re-designated from agricultural (A) to hamlet residential (RH) with a special provision to permit a minimum 20m road frontage for the parcel to be retained.

The property has a natural grading divide in the northwest corner, with the two severed lots and a small portion of the site draining to the Langtry Drain to the northwest at approx. 2% grade. The remainder of the site drains towards Branch 'A' of the Mary Mackenzie Drain in the southeast corner of the site at approx. 0.5% grade. Contours on site range from 232.5m – 237.5m±.

2.0 TRANSPORTATION

The 1910 Turkey Point Road Subdivision is proposed to contain 15 single-detached residential lots and will provide one roadway connection point to Turkey Point Road, with an internal cul-de-sac sized to accommodate emergency vehicle turning.

The internal roadway is proposed as a local subdivision road with a 20.0m right-of-way (ROW) width. 8.0m asphalt width will be provided with curb and gutter, as per Norfolk County Design Standards for hamlet residential areas.

A Traffic Impact Assessment (TIA) was completed by F.R. Berry & Associates for the proposed 15-lot subdivision. The TIA reviewed the potential vehicle trip generation from the development and the impact on Turkey Point Road (County Road No. 10) and McDowell Road East (County Road No. 1), both arterial roadways in the County Official Plan. The TIA indicated the development will have a negligible impact on traffic flow and safety on the surrounding roadways.

3.0 GRADING & GEOTECHNICAL

Existing contours range in elevation from 232.5m – 237.5m±. A drainage divide is located in the northwest corner of the site, defining the change in tributary area from the Langtry Drain to the Mary Mackenzie Drain. A small portion of the northwest corner of the site, including the two previously severed residential lots, drain northwest towards the Langtry Drain at approx. 2%. The remainder of the site drains towards Branch 'A' of the Mary Mackenzie Drain in the southeast at approx. 0.5%. Final road grades will be in the range of 0.5 – 5.0% to direct site runoff towards the proposed stormwater management pond in the southeast corner of the site. Roadside catchbasins will be provided to intercept storm runoff.

Lot grading will be designed in general accordance with the Norfolk County Design Guidelines (2019). The majority of lots will be designed as split drainage with rear yard swales and catchbasins to convey storm runoff to the proposed storm sewer system within the roadway and outlet to the proposed stormwater management pond, ultimately outletting to the Mary Mackenzie Drain.

A Geotechnical and Hydrogeological Investigation was completed by Peto MacCallum Ltd. The site investigation consisted of seven boreholes drilled from 5.0 – 6.6m in depth with an additional 10 test pits being completed to 3.0m depth. Four of the boreholes were left as monitoring wells for groundwater monitoring.

The site was found to consist of topsoil underlain by sand and silt. Groundwater elevations were determined to range in depth from 0.7m – 2.3m deep, with water levels being on the shallowest in the existing low-lying wooded area in the southwest. Please refer to the Geotechnical and Hydrogeological Reports for further details.

4.0 ENVIRONMENTAL

The majority of the subject site consists of an agricultural meadow, which was a cropped field in the past, but has not been cultivated for some time. There is an existing wooded area around the southerly and westerly limits of the site that is approx. 1.2ha in area. This wooded area is considered significant woodland in the Norfolk County Official Plan, and as such, an Issues Scoping Report (ISR) was completed by Vroom + Leonard in 2021 to evaluate the feature and confirm any required mitigation measures for the proposed development.

The ISR confirmed the existing feature is not considered to be of significance, and could be removed, subject to development plans. Please consult the ISR for further details.

The final limits of tree removals are not determined at this time, but will be confirmed as detailed engineering design progresses, and lot grading plans are determined. A tree removal permit will be obtained from the County Forestry Department prior to any removals taking place.

5.0 WATER SERVICING

The hamlet of Greens Corners does not currently have municipal water service. In order to provide domestic water service to the site, individual private wells are proposed on each lot.

The Hydrogeological Investigation completed by Peto MacCallum evaluated the existing groundwater conditions to confirm the feasibility of private well service to each residence. It was determined the existing groundwater conditions should be suitable for supporting the required water demand for each dwelling, subject to the results of future pump testing at the time of Building Permit Applications. Conventional water treatment systems were recommended to ensure water quality complies with the requirements of the Ontario Drinking Water Quality Standards.

In order to provide fire-fighting protection for the subdivision, with no municipal water service available, water storage is proposed to be provided within the permanent pool of the stormwater management pond. The Ontario Building Code fire storage requirements were determined using the following criteria:

- Assumed 3,000 ft² building footprint (280m²)
- Assumed 2-storey building construction + basement (9,000 ft² total GFA) (840m²)
- Assumed 3.0m height per storey
- OBC Building Class C utilized
- Building assumed to be of combustible construction with required fire separations and fire-resistance ratings provided (K = 18)
- Spatial coefficients based on minimum zoning allowances for adjacent lots

The required fire storage was determined to be 90,720 litres (90.7 m³). This storage must be provided within the permanent pool of the stormwater management pond. The upper 0.6m of the permanent pool is not to be utilized, to account for ice and drought allowance, with the bottom 0.45m not to be utilized to account for sediment accumulation. The fire storage provided within the stormwater management pond, as described in Section 7.0 below, is 175,200 litres (175.2 m³), nearly double the required storage.

A dry hydrant is proposed to be installed at the edge of the cul-de-sac near the SWM pond to allow for pumper truck connection at the roadway in the event of a fire.

6.0 SANITARY SERVICING

The hamlet of Greens Corners does not currently have municipal sanitary service. In order to provide sanitary service to the site, individual private septic systems are proposed on each lot.

The Hydrogeological Investigation completed by Peto MacCallum evaluated the existing groundwater and soil conditions to confirm the feasibility of private septic service for each residence, as well as the minimum lot area required. It was determined the existing site conditions are suitable for implementation of private septic systems for each lot, with a minimum lot area of 0.396ha. Each lot is proposed to be 0.400ha or greater, meeting the required minimum lot size. Tertiary septic systems were not noted to be required, based on nitrate loading from an assumed 4-bedroom household, and a preliminary leaching bed area of 200m². Finalized septic system designs are to be prepared at time of Building Permit Applications. Field percolation tests are required as part of the detailed septic system design.

7.0 STORM DRAINAGE & STORMWATER MANAGEMENT

The 1910 Turkey Point Road Subdivision is tributary to two existing municipal drains, the Langtry Drain, which is approx. 400m northwest of the site, and Branch 'A' of the Mary Mackenzie Drain, which runs across the southeast corner of the site.

Under existing pre-development conditions, a total of 1.07ha from the subject site and 0.79ha from the two previously severed lots are tributary to the Langtry Drain in the northwest. The remaining 7.00ha of the site is tributary to the Mary Mackenzie Drain in the southeast.

In addition to the above, there is 0.54ha of external lands from the west that drain into the site, and 4.71ha of external lands from the east that drain into the site and are tributary to the Mary Mackenzie Drain.

A summary of the pre-development drainage areas are shown in the table below. Please refer to the Pre-Development Stormwater Tributaries Figure included in this report for further details.

Table 1 Pre-Development Storm Tributaries

	Runoff Coefficient (C)	Tributary to Langtry Drain	Tributary to Mary Mackenzie Drain
Two Severed Lots	0.25	0.80 ha	-
Subdivision Site	0.25	1.06 ha	7.00 ha
External West	0.25	-	0.54 ha
External East	0.25	-	4.71 ha
TOTAL (Langtry Drain)	0.25	1.86 ha	-
TOTAL (Mary Mackenzie Drain)	0.25	-	12.25 ha

Under post-development conditions, site grading will be designed to direct runoff to the proposed storm sewer system to collect flows from the entire developed portion of the site and convey them to the stormwater management wet pond for controlled release to Branch 'A' of the Mary Mackenzie Drain in the southeast corner of the site.

The wet pond will be designed to provide an enhanced (80% TSS removal) level of quality control, and restrict post-development peak outflows to pre-development levels for the 2 to 100-year design storm, based on the pre-development tributary area to the Mary Mackenzie Drain.

Branch 'A' of the Mary Mackenzie Drain, in the southeast corner of the site, is currently an open-channel with a trapezoidal cross-section that is approx. 1.5m deep with a 1m flat-bottom and 2:1 side slopes. This existing open-channel is proposed to be re-aligned to follow the existing south and east property limits, connecting to the existing open-channel at the site limits. The re-aligned drain is proposed to maintain the 1m flat-bottom, but with 3:1 side slopes, for added constructability and improved long-term maintenance. The proposed SWM pond and any proposed residences will be required to maintain a distance of 4.5m from the top of the pond bank to the top of the drain bank, as required within hamlet residential zones by the Norfolk County Zoning By-Law.

Based on the allowable zoning provisions within hamlet residential areas, the post-development conditions for the site are estimated to yield a runoff coefficient of $C = 0.40$, which has been carried in the post-development stormwater design calculations.

Under post-development conditions, the entirety of the developed portion of the site is proposed to be routed to the SWM pond in the southeast corner of the site, and subsequently Branch 'A' of the Mary Mackenzie Drain. The wooded area in the southwest corner of the site is low-lying under existing conditions. Subject to final tree removal and grading limits, if this area is undeveloped then it may be conveyed directly to the Mary Mackenzie Drain Branch 'A', and the SWM pond would be over-restricted, if required, to ensure the post-development outflows to the drain do not exceed pre-development levels. The finalized lot-level grading for the two severed parcels in the northwest directs a portion of the rear yard flow towards the proposed subdivision, which will also be conveyed to the SWM pond.

A summary of the post-development drainage areas are shown in the table below. Please refer to the Post-Development Stormwater Tributary Figure included in this report for further details.

Table 2 Post-Development Stormwater Tributaries

	Runoff Coefficient (C)	Tributary to Langtry Drain	Tributary to Mary Mackenzie Drain
Two Severed Lots	0.25	0.64 ha	0.16 ha
Subdivision Site	0.40	-	8.05 ha
External West	0.25	-	0.54 ha
External East	0.25	-	4.71 ha
TOTAL (Langtry Drain)	0.25	0.64 ha	-
TOTAL (Mary Mackenzie Drain)	0.35	-	13.46 ha

Under post-development conditions, the area tributary to the Langtry Drain will be reduced by 1.21ha, and the area tributary to the Mary Mackenzie Drain will be increased by 1.21 ha. Revisions to the Mary Mackenzie Drain Assessment Schedules will be required under Section 65 and Section 78 of the Drainage Act to account for the addition of drainage area, change in usage, subdivision of land, and the proposed drain realignment. Revisions to the Langtry Drain Assessment Schedules will be required under Section 65 of the Drainage Act to account for the removal of drainage area and subdivision of land. Discussions with the Drainage Department at Norfolk County will occur to determine who will be appointed as the Engineer for the work.

A preliminary stormwater model has been built using Autodesk Storm and Sanitary Analysis (SSA). All hydraulic modelling was completed using SCS curve numbers for hydrologic parameters, with hydrodynamic routing to allow for any backwater flow conditions to be evaluated. As a conservative assumption, no infiltration was considered within the tributary area or the pond.

A 24-hour SCS Type II distribution was used for all design storms, apart from the 25.4mm – 4hour quality event. IDF design factors, as shown in the table below, were obtained from the MTO IDF Curve Lookup tool for this site.

Table 3 Design Storm Parameters

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a	23.3	30.7	35.6	41.8	46.3	50.9
b	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699
24-Hour Rainfall Depth (mm)	60.6	79.9	92.7	108.8	120.5	132.5

The 2 to 100-year pre-development and external runoff was calculated using 2% imperviousness with a curve number of CN = 67 to account for the existing grassed and wooded areas.

All developed areas were modelled using 40% imperviousness in post-development conditions with a curve number of CN = 76 to account for the areas to be covered by buildings, concrete and asphalt after development. These values are considered conservative for the development and will be further evaluated during detailed design.

A summary of the pre and post-development peak outflows to the Mary Mackenzie Drain are shown below.

Table 4 Peak Outflows to Mary Mackenzie Drain

	Mary Mackenzie Drain	
	Pre-Development Peak Outflow (m ³ /s)	Post-Development Peak Outflow (m ³ /s)
2-Year	0.14	0.14
5-Year	0.24	0.24
10-Year	0.34	0.34
25-Year	0.52	0.52
50-Year	0.63	0.63
100-Year	0.77	0.77

Peak outflows to the Langtry Drain under post-development conditions are limited to the two previously severed lots in the northwest corner of the site. SWM controls were implemented on these lots at the time of lot development plans and building permits, which consisted of low-sloped swales with piped outlet restrictions. These controls effectively reduce the post-development outflows to the Langtry Drain to less than pre-development levels for the 2 to 100-year design storm.

The preliminary quality and quantity control volumes for the proposed stormwater management pond are as follows;

Subdivision Site	8.05 ha
Two Severed Lots	0.16 ha
External West	0.54 ha
Total Drainage Area	8.75 ha

Pre-Development Imperviousness	2%
Pre-Development Curve Number	67

Post-Development Imperviousness	40%
Post-Development Curve Number	76

Water Quality (MECP Manual Table 3.2) Enhanced – 80% TSS Removal

Permanent (Subdivision Site)	40% Imp.	152.5 m ³ /ha	1,228 m ³
Permanent (Two Severed Lots)	5% Imp.	65.0 m ³ /ha	11 m ³
Permanent (External West)	2% Imp.	57.5 m ³ /ha	32 m ³
Permanent (Total)			1,270 m ³

Extended Detention	8.75 ha	40.0 m ³ /ha	350 m ³
--------------------	---------	-------------------------	--------------------

Streambank Erosion/Quality MECP Manual – 25.4mm (1") – 4 Hours	447 m ³
---	--------------------

Fire Storage	175 m ³
--------------	--------------------

Active Quantity 2 to 100-Year Storm Control	2,910 m ³
--	----------------------

TOTAL	4,180 m ³
-------	----------------------

The total pond volume required includes the permanent storage (1,270 m³) and the active storage (2,910 m³) for a total of 4,180 m³. The permanent storage will include the required fire storage for the proposed dry hydrant (175 m³). The active storage will include the extended detention volume (350 m³) and the streambank erosion/quality storage (447 m³). The active storage has been determined by maintaining post-development peak outflows to the Mary Mackenzie Drain for the 100-year storm event. The preliminary pond design has been completed to ensure that in the 100-year storm event there is still 0.3m freeboard to the top of pond bank.

A detailed stormwater management report including stage storage volume calculations with detailed SSA modelling results will be completed with the final design of the subdivision. Design of the pond outlet structure will also be completed at this time.

8.0 ELECTRICAL AND UTILITIES

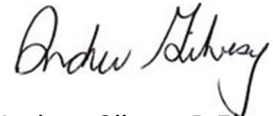
The 1910 Turkey Point Road Subdivision is understood to be within the electrical service territory of Hydro One Networks Inc. (HONI). All electrical utilities are to be installed as per HONI specifications. The electrical services and utilities are proposed to be connected to the existing services on Turkey Point Road.

Detailed utility design in coordination with HONI, Bell, Rogers and Union Gas will continue following the submission of the Draft Plan and Zoning By-Law Amendment Applications.

All of which is respectfully submitted by,



Alex Muirhead, EIT



Andrew Gilvesy, P. Eng.

AG/avm

LIST OF FIGURES

Figure 1: Draft Plan of Subdivision

Figure 2: Pre-Development Stormwater Tributary Areas

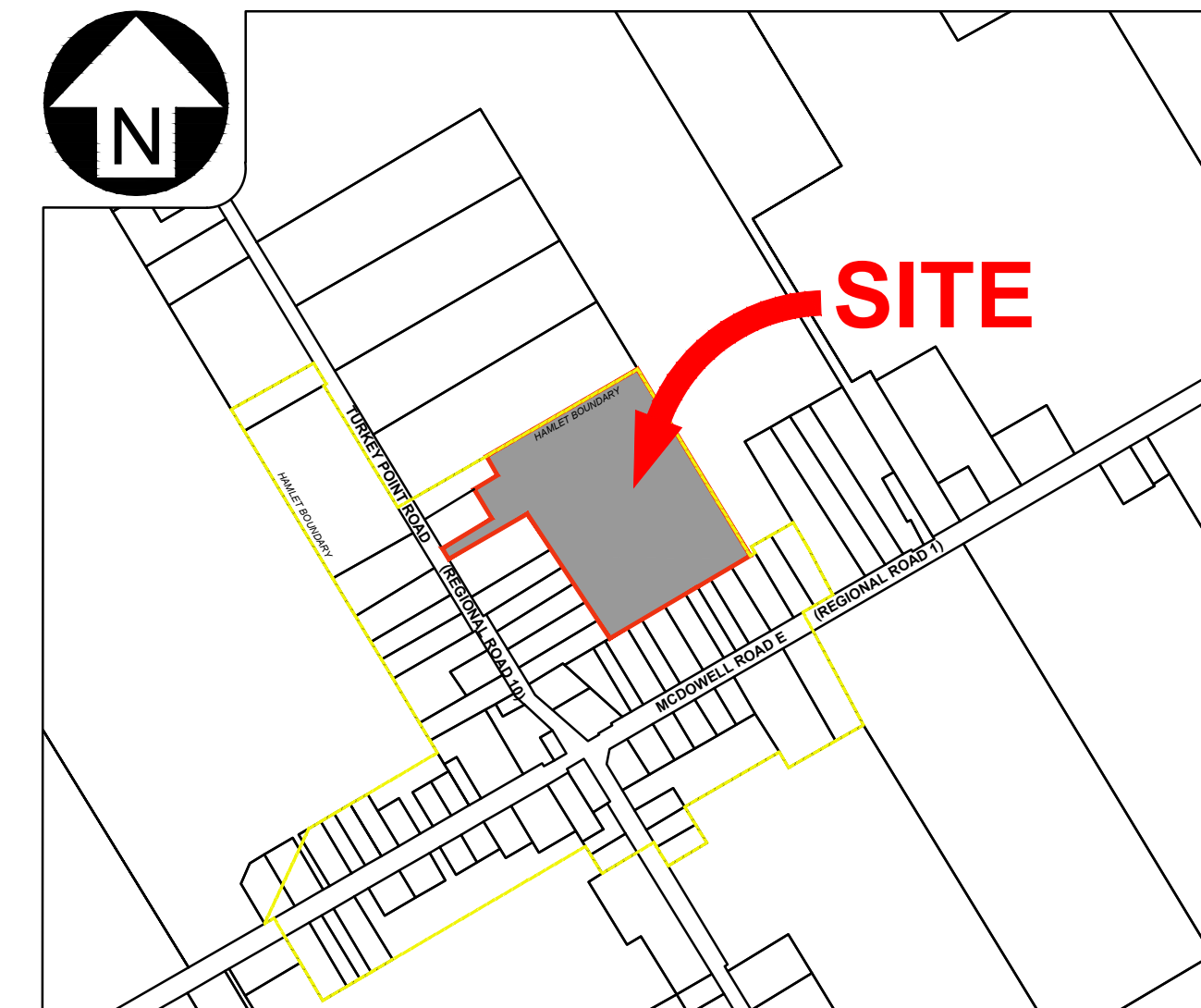
Figure 3: Post-Development Stormwater Tributary Areas

Figure 4: Conceptual Pond Design Figure

DRAFT PLAN OF SUBDIVISION

PART OF LOT 13 CONCESSION 9
IN THE GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE
NORFOLK COUNTY

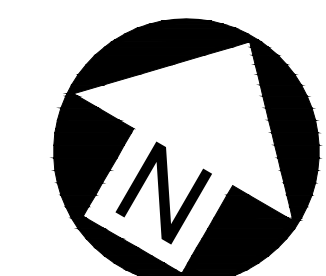
INFORMATION REQUIRED UNDER SECTION 51(17) OF THE PLANNING ACT RSO 1990
(A) ON PLAN
(B) ON PLAN
(C) ON PLAN
(D) LOTS 1-15 - SINGLE DETACHED RESIDENTIAL,
DEDICATED STREETS - STREET 'A',
BLOCK 16 - STORMWATER MANAGEMENT
(E) NORTH - EXISTING RESIDENTIAL & AGRICULTURE
WEST - EXISTING RESIDENTIAL
EAST - EXISTING RESIDENTIAL & AGRICULTURE
SOUTH - EXISTING RESIDENTIAL
(F) ON PLAN
(G) ON PLAN
(H) PRIVATE WELLS TO BE INSTALLED BY HOME OWNERS IN ACCORDANCE WITH THE REQUIREMENTS OF NORFOLK COUNTY
(I) SANDY LOAM
(J) ON PLAN
(K) STORM SEWERS, TELEPHONE, GAS, T.V. CABLE
(L) NORFOLK COUNTY OFFICIAL PLAN AND ZONING BY-LAWS
DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.



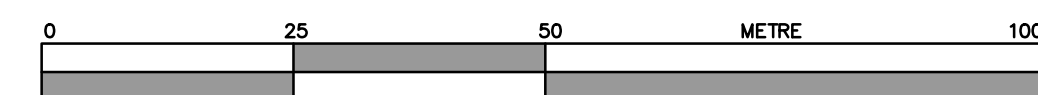
KEY PLAN
SCALE: 1 : 10,000

AREA SUMMARY

DESCRIPTION		AREA (ha)
LOTS 1-15	SINGLE DETACHED RESIDENTIAL	6.48
DEDICATED STREETS	STREET 'A'	0.95
BLOCK 16	STORMWATER MANAGEMENT	0.62
TOTAL		8.05



SCALE: 1:750



NOTE: ORIGINAL CONTOURS SHOWN FROM C.J.D.L. SURVEY

OWNER'S CERTIFICATE
PETER BOSMA, THE REGISTERED OWNER OF THE LANDS TO BE SUBDIVIDED, HEREBY AUTHORIZE CYRIL J. DEMEYERE LIMITED TO SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE: _____ PETER BOSMA

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN ON THIS PLAN.

20 JULY 2023
DATE: _____ KIM HUSTED, ONTARIO LAND SURVEYOR

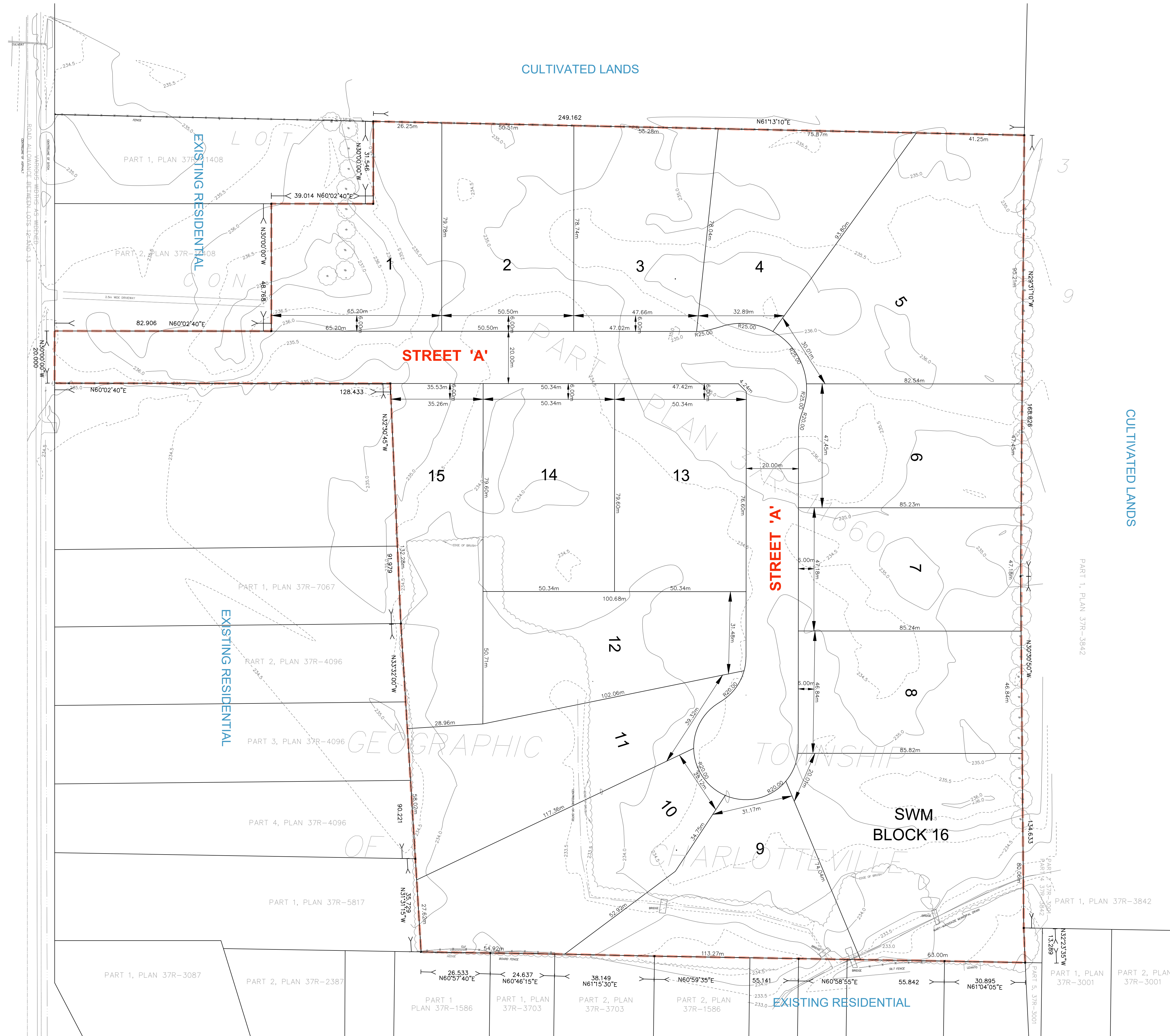
PLAN PREPARED BY:
CJDL
Consulting Engineers

JOB No. 19042

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
Fax: 519-842-3235
cjdl@cjdlleng.com

DATE: 20 JULY 2023

TURKEY POINT ROAD (REGIONAL ROAD 10)





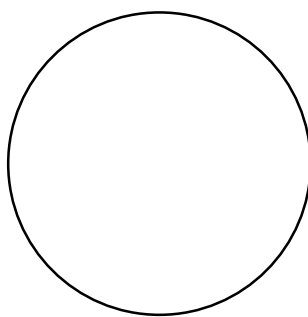
LEGEND

- EXISTING/PROPOSED STORM
- INTERNAL STORM TRIBUTARY
- MAJOR FLOW ARROW
- EXISTING/PROPOSED MANHOLE
- EXISTING/PROPOSED CATCH BASIN
- EXISTING/PROPOSED DITCH/SWALE
- EXISTING/PROPOSED TOE/TOP OF BANK
- PROPERTY BOUNDARY

- FENCE
- EDGE OF GRAVEL
- CURB, DROPPED CURB
- EDGE OF PAVEMENT
- METRIC CONTOUR ELEVATIONS IN METRES (BY CJD.L SITE SURVEY)
- MAJOR OVERLAND FLOW ROUTE

A4
0.500.39
C ha
AREA NUMBER
AREA IN HECTARES
RUN-OFF COEFFICIENT

STAMP:



SCALE 1:1000

No.	REVISION	DATE	BY

NORFOLK COUNTY

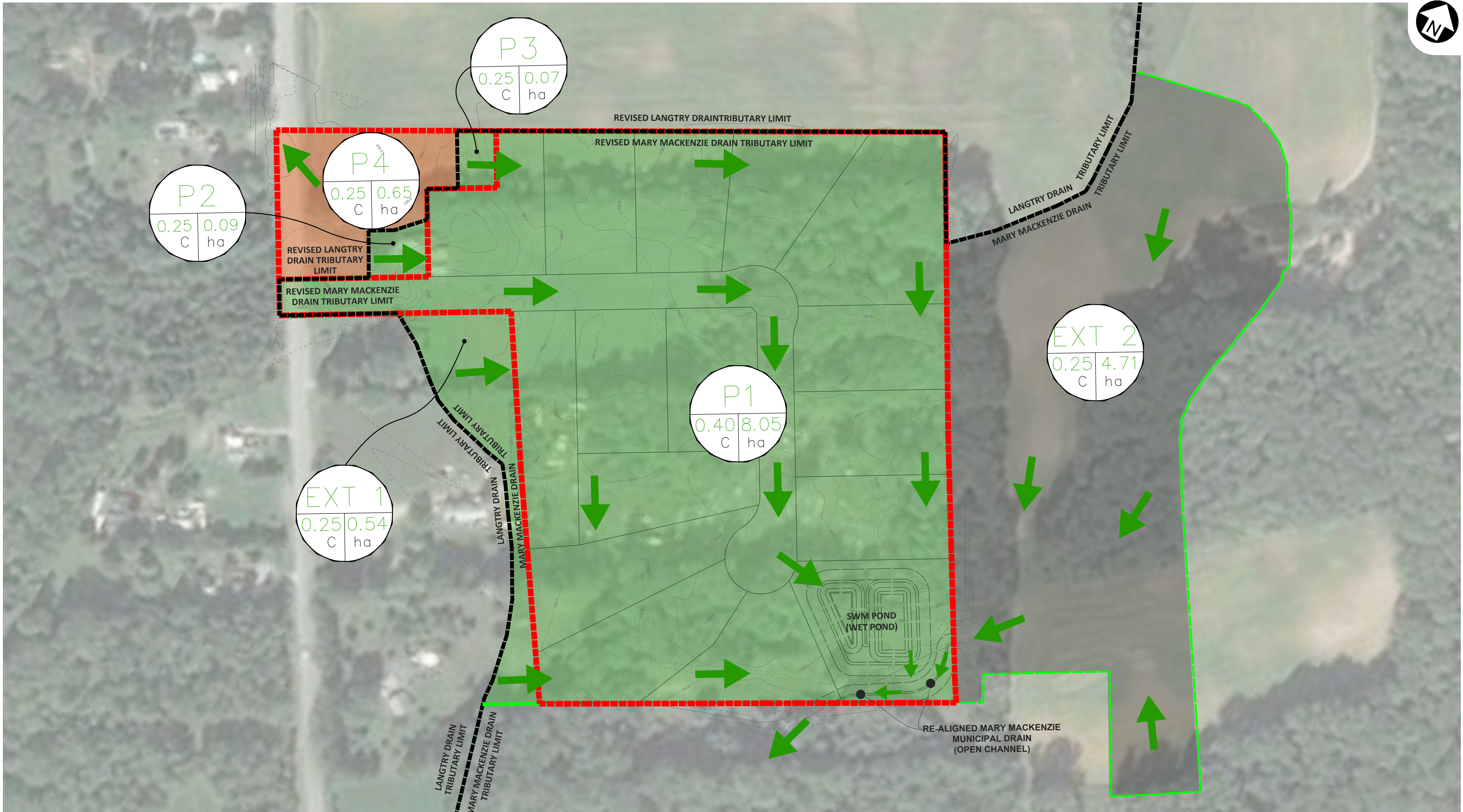
CJD.L
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdeng.com

1910 TURKEY POINT RD. SUBDIVISION
PART OF LOT 13, CONCESSION 9
GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE
COUNTY OF NORFOLK
**PRE-DEVELOPMENT SWM
TRIBUTARIES**

DRAWING No.

01



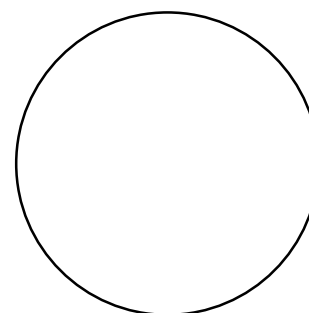
LEGEND

- EXISTING/PROPOSED STORM
- INTERNAL STORM TRIBUTARY
- MAJOR FLOW ARROW
- EXISTING/PROPOSED MANHOLE
- EXISTING/PROPOSED CATCH BASIN
- EXISTING/PROPOSED DITCH/SWALE
- EXISTING/PROPOSED TOE/TOP OF BANK
- PROPERTY BOUNDARY

- FENCE
- EDGE OF GRAVEL
- CURB, DROPPED CURB
- EDGE OF PAVEMENT
- METRIC CONTOUR ELEVATIONS IN METRES (BY CJD/L SITE SURVEY)
- MAJOR OVERLAND FLOW ROUTE

- AREA NUMBER
- AREA IN HECTARES
- RUN-OFF COEFFICIENT

STAMP:



SCALE 1:1000

No.	REVISION	DATE	BY

NORFOLK COUNTY

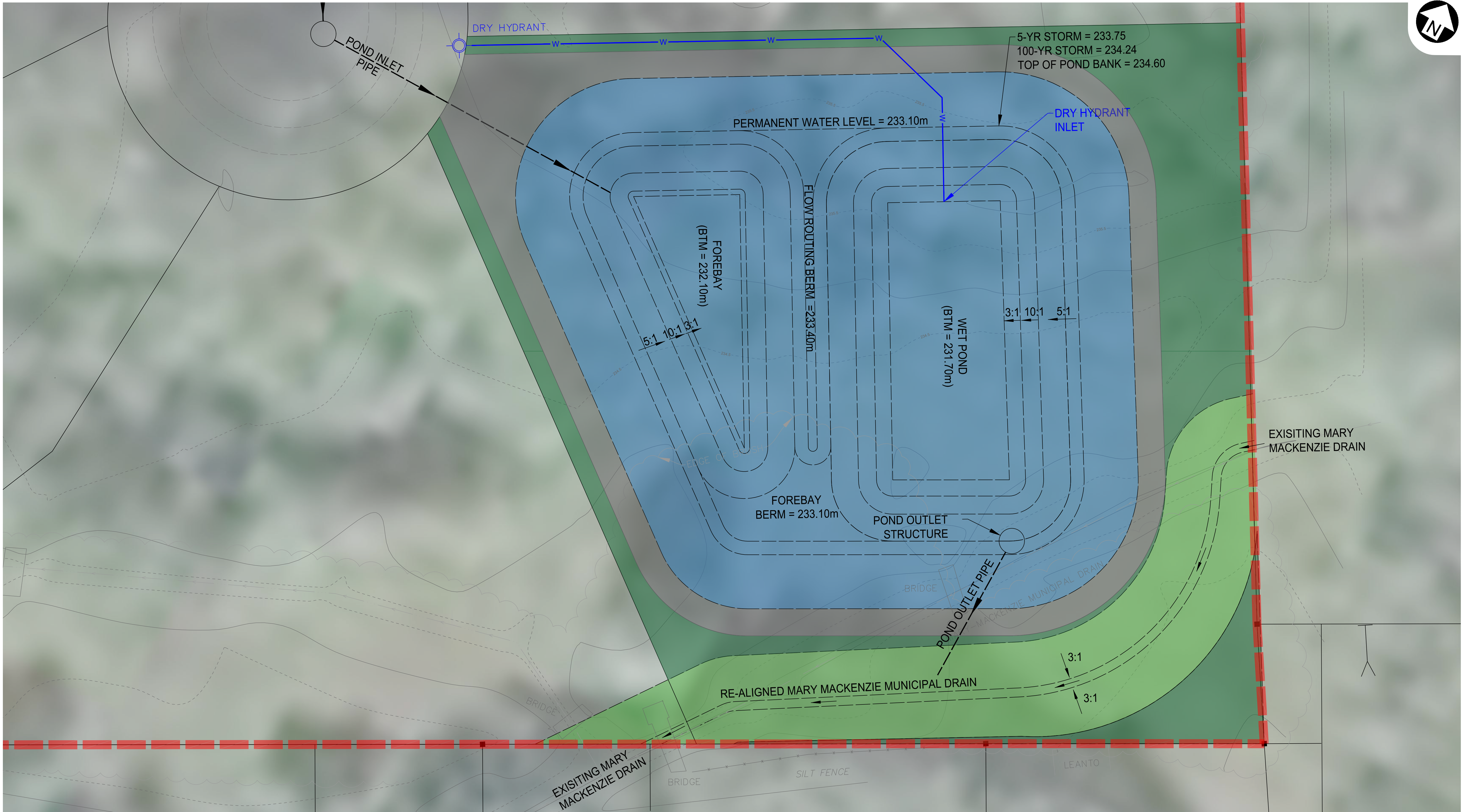
CJD/L
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdeng.com

DESIGN BY: AM
DRAWN BY: SS
CHECKED BY: AG
PROJECT NO. 19042
SURVEY BY: N/A
DATE: 24 JULY 2023

1910 TURKEY POINT RD. SUBDIVISION
PART OF LOT 13, CONCESSION 9
GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE
COUNTY OF NORFOLK
**POST-DEVELOPMENT SWM
TRIBUTARIES**

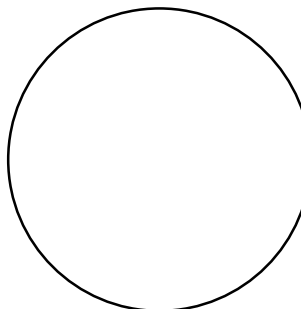
DRAWING No.



LEGEND

- EXISTING/PROPOSED STORM
- INTERNAL STORM TRIBUTARY
- MAJOR FLOW ARROW
- EXISTING/PROPOSED MANHOLE
- EXISTING/PROPOSED CATCH BASIN
- EXISTING/PROPOSED DITCH/SWALE
- EXISTING/PROPOSED TOE/TOP OF BANK
- PROPERTY BOUNDARY
- FENCE
- EDGE OF GRAVEL
- CURB, DROPPED CURB
- EDGE OF PAVEMENT
- METRIC CONTOUR ELEVATIONS IN METRES (BY CJD.L SITE SURVEY)
- MAJOR OVERLAND FLOW ROUTE

STAMP:



SCALE 1:200

No.	REVISION	DATE	BY

NORFOLK COUNTY

CJD.L
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario, N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdeng.com

1910 TURKEY POINT RD. SUBDIVISION
PART OF LOT 13, CONCESSION 9
GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE
COUNTY OF NORFOLK
SWM POND

DESIGN BY: AM	DRAWN BY: SS	CHECKED BY: AG
PROJECT NO. 19042	SURVEY BY: N/A	DATE: 24 JULY 2023

DRAWING No.

APPENDIX 'A'

- Fire Storage Calculations
- Pre-Development SSA Schematic
- Post-Development SSA Schematic
- Mary Mackenzie Drain Drawings

ONTARIO BUILDING CODE FIRE DEMAND CALCULATIONS

PROJECT No. 19042
DATE: 24-Jul-23
DESIGN BY: AVM
CHECKED BY: AG

1910 TURKEY POINT ROAD SUBDIVISION - LOT 12

Building Volume Determination

Average Floor Area:	280.0	m ² (Assumed 3,000 ft2 footprint)
No. Storeys:	3.0	(Including Below Grade Storeys) (Assumed 2 above ground stories + basement)
Height Per Storey:	3.0	m
Building Volume (V):	2520.0	m ³

Water Supply Coefficient Determination

Building Class:	C	(Per OBC Section 3.1.2.1.)
Construction Type:	Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	

TYPE OF CONSTRUCTION	Classification by Group or Division in Accordance with Table 3.1.2.1 of the Ontario Building Code				
	A-2 B-1 B-2 B-3 C D	A-4 F-3	A-1 A-3	E F-2	F-1
Building is of noncombustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches.	10	12	14	17	23
Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. of the OBC. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37
Building is of combustible construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2. of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire-resistance rating where permitted in Subsection 3.2.2. of the OBC.	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	23	28	32	39	53
Column 1	2	3	4	5	6

Water Supply Coefficient (K): 18

Spatial Coefficient Determination

Front:	0.00	(Distance = 32 m (Figure 1: Spatial Separation) (OFM TG-03-1999 Section 6.3))
Rear:	0.00	(Distance = 10.2 m (Figure 1: Spatial Separation) (OFM TG-03-1999 Section 6.3))
Left:	0.50	(Distance = 2.4 m (Figure 1: Spatial Separation) (OFM TG-03-1999 Section 6.3))
Right:	0.50	(Distance = 2.4 m (Figure 1: Spatial Separation) (OFM TG-03-1999 Section 6.3))

Spatial Coefficient Total (S_{tot}): 2.00

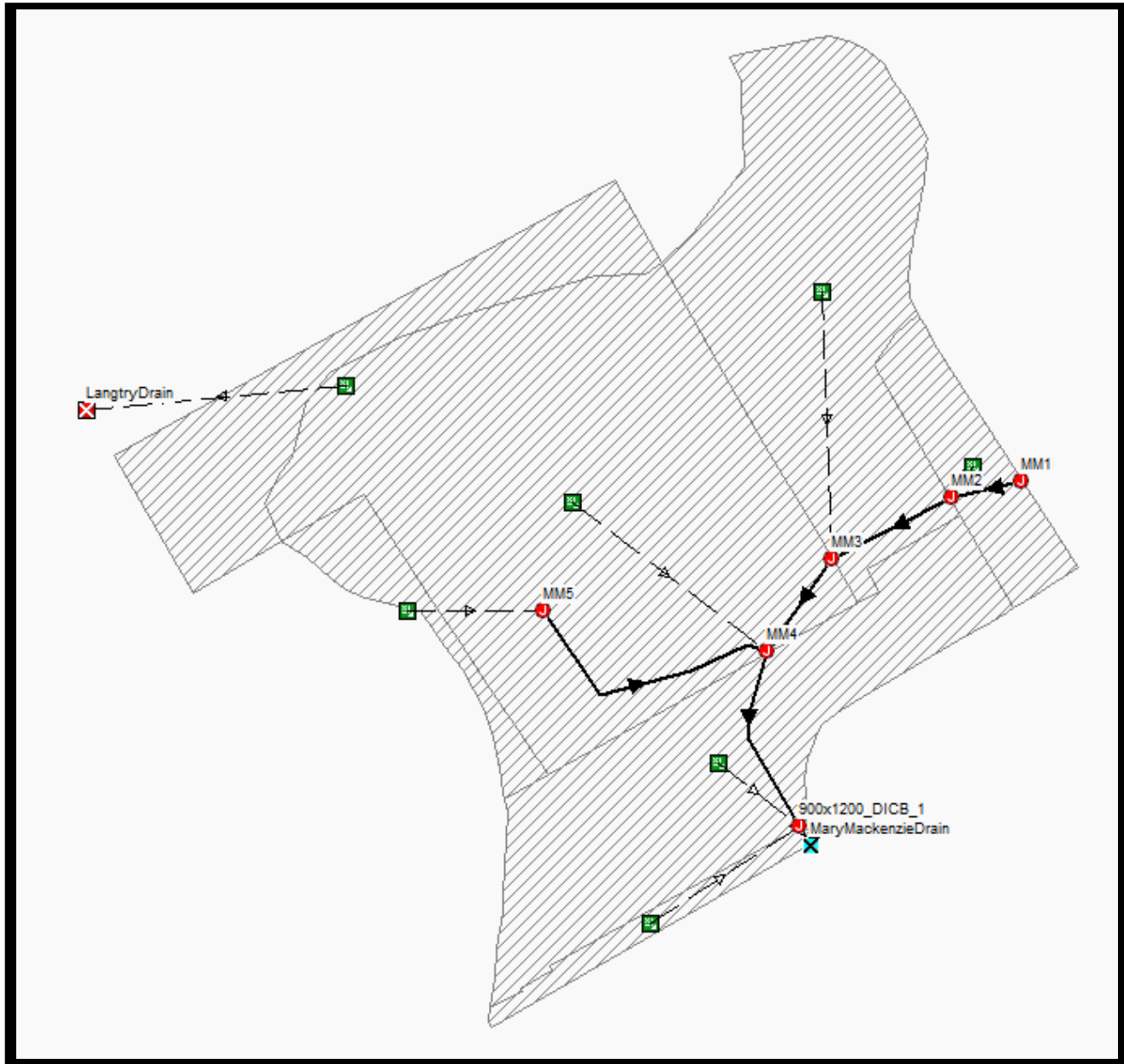
Fire Flow Determination

$$Q = KVS_{Tot}$$

Water Supply Coefficient (K):	18	
Building Volume (V):	2520.0	m ³
Spatial Coefficient Total (S _{tot}):	2.00	
Minimum Supply of Water (Q):	90720.0	L

REQUIRED FIRE STORAGE:	90.7	m ³
------------------------	------	----------------

No.	REVISION	BY	DATE
-----	----------	----	------

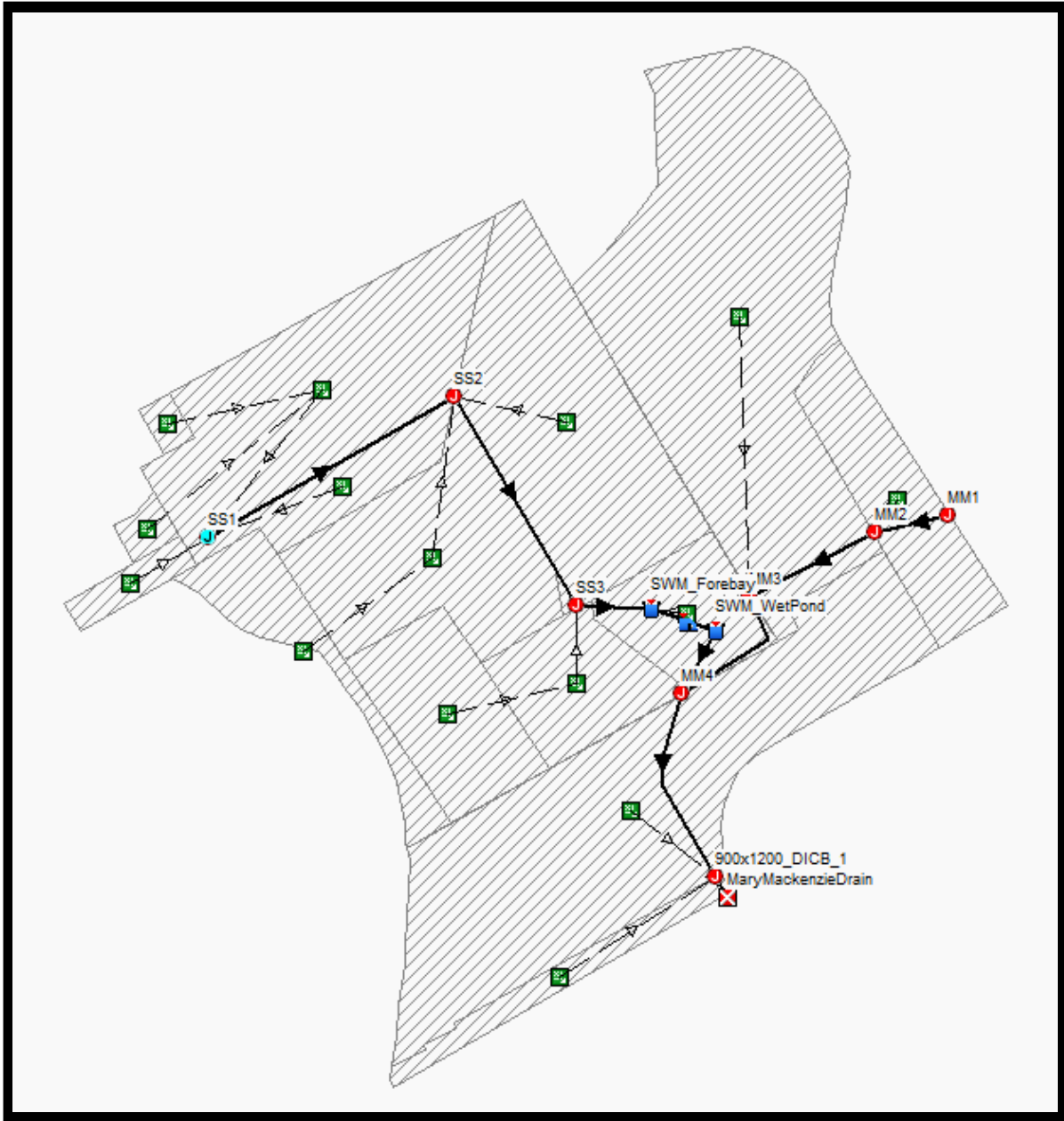


1910 TURKEY POINT ROAD SUBDIVISION PRE-DEVELOPMENT MODEL

24-JULY-2023
JOB No. 19042

CJDL
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario. N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdleng.com



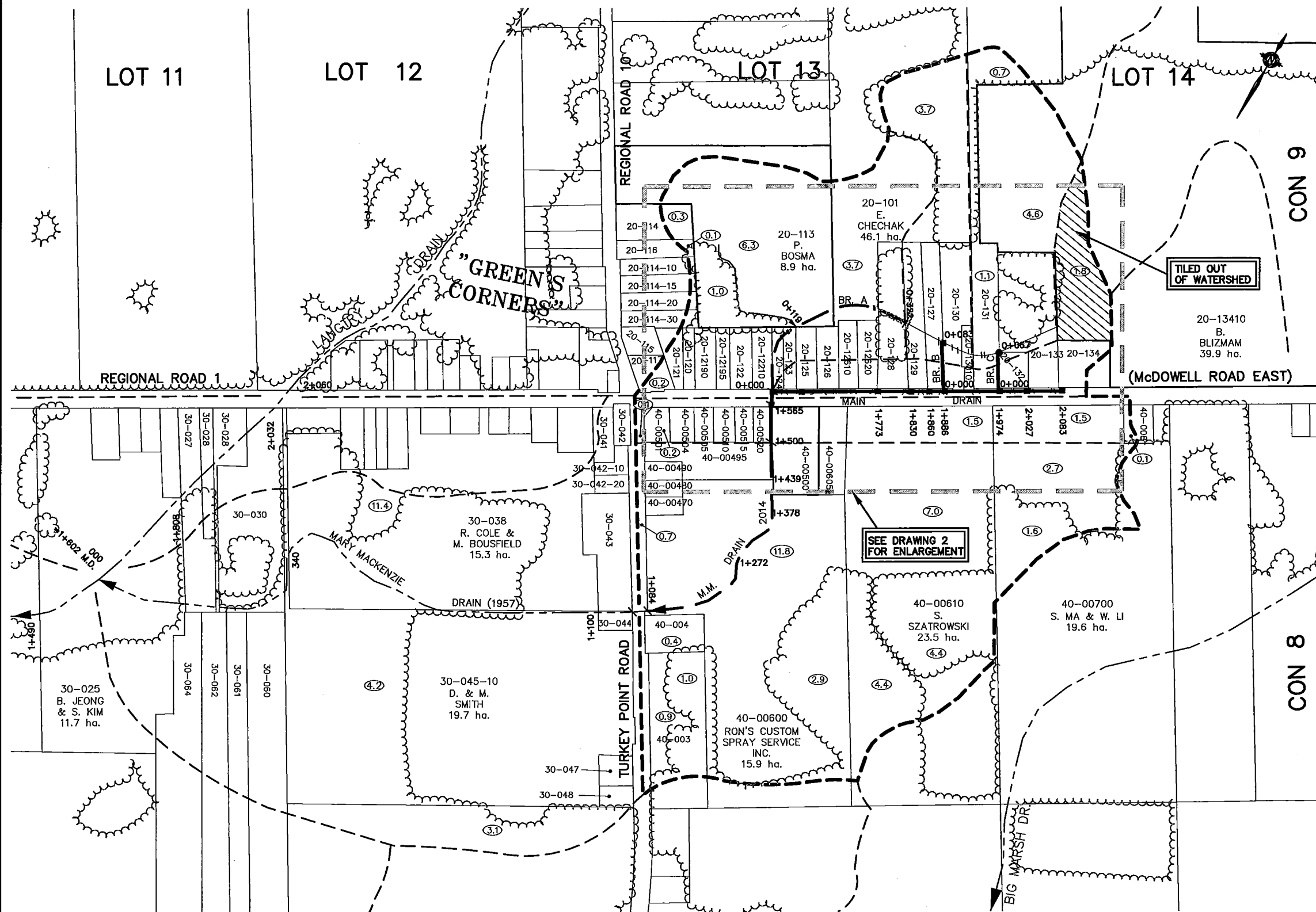
1910 TURKEY POINT ROAD SUBDIVISION POST-DEVELOPMENT MODEL

24-JULY-2023
JOB No. 19042

CJDL
Consulting Engineers

Cyril J. Demeyere Limited
P.O. Box 460, 261 Broadway
Tillsonburg, Ontario. N4G 4H8
Tel: 519-688-1000
866-302-9886
Fax: 519-842-3235
cjd@cjdleng.com

THE POSITION OF POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES ARE NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY 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.



SMALL LOT LEGEND			
ROLL NO.	NAMES	OWNED (ha.)	AFFECTED (ha.)
20-114	J. CARVALHO	0.8	0.3
20-11410	M. & L. PEREIRA	0.4	0.1
20-11415	J. & C. COUSINS	0.4	0.1
20-11420	R. & P. MORRIS	0.4	0.1
20-11430	S. WINTER & R. POST	0.4	0.1
20-116	B. & K. THOMAS	0.4	0.1
20-117	K. & P. SMIT	0.4	0.2
20-120	A. & W. VISSER	0.2	0.2
20-121	K. SMIT	0.3	0.2
20-12190	I. MCFADDEN & B. DAVIDSON	0.4	0.4
20-12195	K. MULLINS	0.3	0.3
20-122	W. LATIMER	0.4	0.4
20-12210	A. FRANCIS	0.4	0.4
20-123	D. SKINNER & M. TROCH	0.2	0.2
20-124	R. BOSGOED	0.2	0.2
20-125	R. & M. MARTIN	0.4	0.4
20-126	P. HUNTER	0.4	0.4
20-12610	J. & C. BEZZO	0.4	0.4
20-12620	S. KOZACK	0.4	0.4
20-127	B. BEZZO & B. SCHNARR	0.8	0.8
20-128	E. SMITH	1.2	1.2
20-129	R. & B. SCHNARR	0.8	0.8
20-130	1672085 ONTARIO LTD.	1.0	1.0
20-13010	K. NEISARY	0.2	0.2
20-131	L. SHEPHERD	7.3	2.0
20-132	A. & M. HARDER	0.3	0.3
20-133	M. KLICEK	2.1	2.1
20-134	H. & B. DAWSON	0.7	0.5
30-027	S. & D. TERDIK	1.4	0.7
30-028	D. CHRISTIE & G. SCOTT	0.4	0.1
30-029	E. & Z. PURSLEY	0.8	0.1
30-030	R. MITCHELL	3.8	2.3
30-041	I. SHOEMAKER	0.3	0.2
30-042	N. & M. ROLLAND	0.2	0.2
30-04210	D. & B. CLINE	0.2	0.2
30-04220	F. & J. SIMOES	0.2	0.2
30-043	A. & N. BREDA	1.2	1.2
30-044	J. CHURCHER	0.2	0.2
30-047	C. & J. SMITH	0.4	0.4
30-048	W. & S. BARKER	0.2	0.2
30-080	J. & P. VANPAASSEN	6.7	2.0
30-081	J. & J. KONKIN	3.4	1.0
30-082	D. WATT & S. KING	4.1	1.0
30-084	R. & S. SMITH	6.5	1.2
40-003	L. SHIPMAN	2.7	1.9
40-004	G. & D. LLOYD	0.4	0.4
40-00470	D. WHITE & M. BABCOCK	0.2	0.2
40-00480	W. & E. EXELBY	0.2	0.2
40-00490	W. EXELBY	0.2	0.2
40-00495	D. & R. HANNA	1.2	1.2
40-005	J. GODLOUSKI	1.2	1.2
40-00501	G. & E. RIDEOUT	0.2	0.2
40-00504	T. BEST & C. HANNA-BEST	0.2	0.2
40-00505	E. AULD	0.2	0.2
40-00510	M. & M. BORGES	0.2	0.2
40-00515	R. & D. CSUTORKA	0.2	0.2
40-00520	J. VERBOOM	0.2	0.2
40-00605	R. & A. KUKIELKA	0.8	0.8
40-008	T. & J. BEZZO	0.4	0.1

REVISED TO SHOW TILE DRAINAGE ON PROPERTY 20-13410: OCTOBER, 2015

REVISED FOR TRIBUNAL: FEBRUARY 1, 2016

GEOGRAPHIC TOWNSHIP OF CHARLOTTEVILLE

MARY MACKENZIE DRAIN 2015

NORFOLK COUNTY

WATERSHED PLAN

MAR. 11, 2015



K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

REVISED:

JOB NUMBER: 08-115

DRAWING

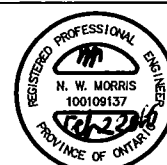
1 OF 8

PLAN LEGEND

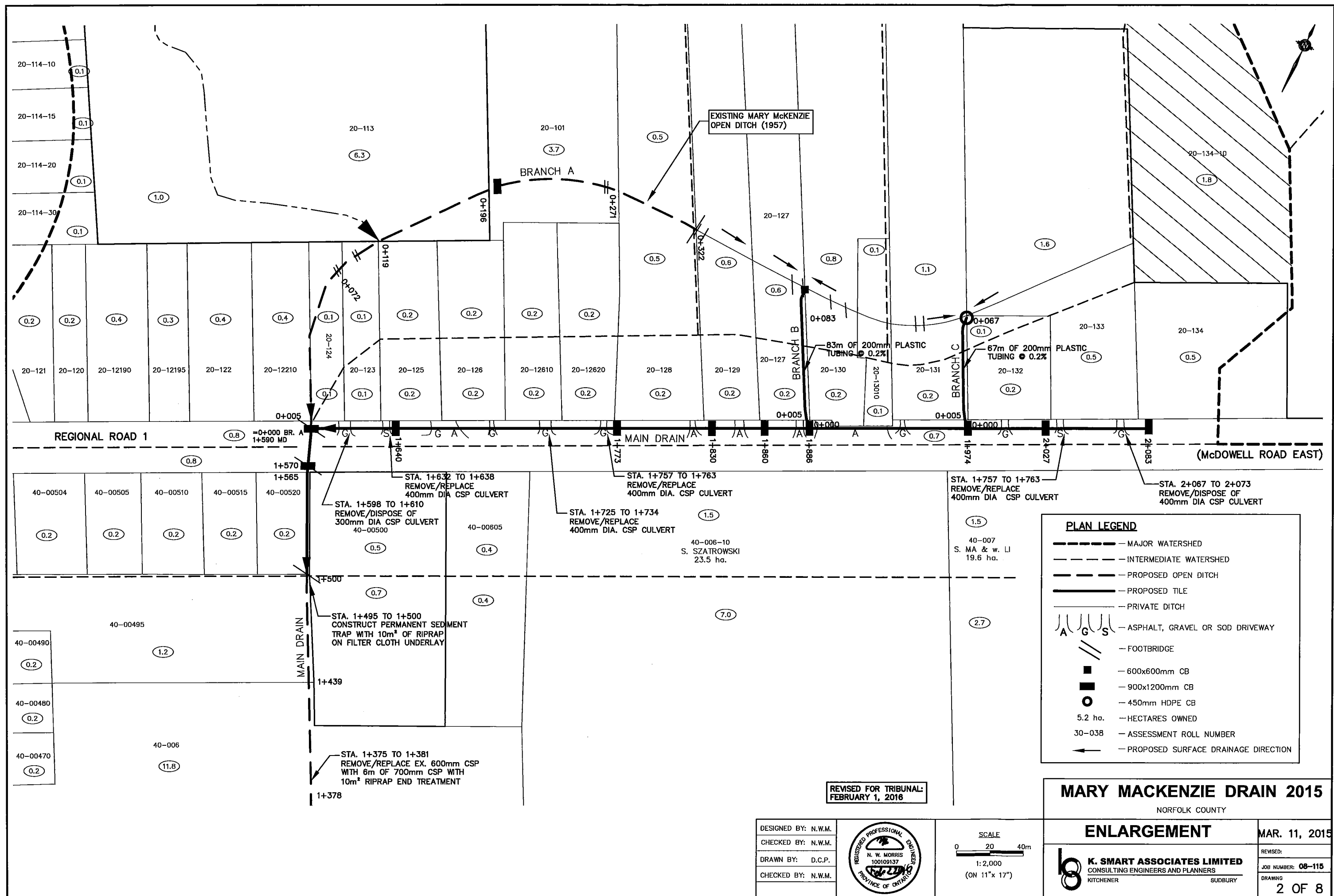
- MAJOR WATERSHED
- INTERMEDIATE WATERSHED
- PROPOSED WORK OR INCORPORATION
- Z- DENOTES PROPERTY OWNERSHIP ON BOTH SIDES OF LOT LINE
- BUSH AREA

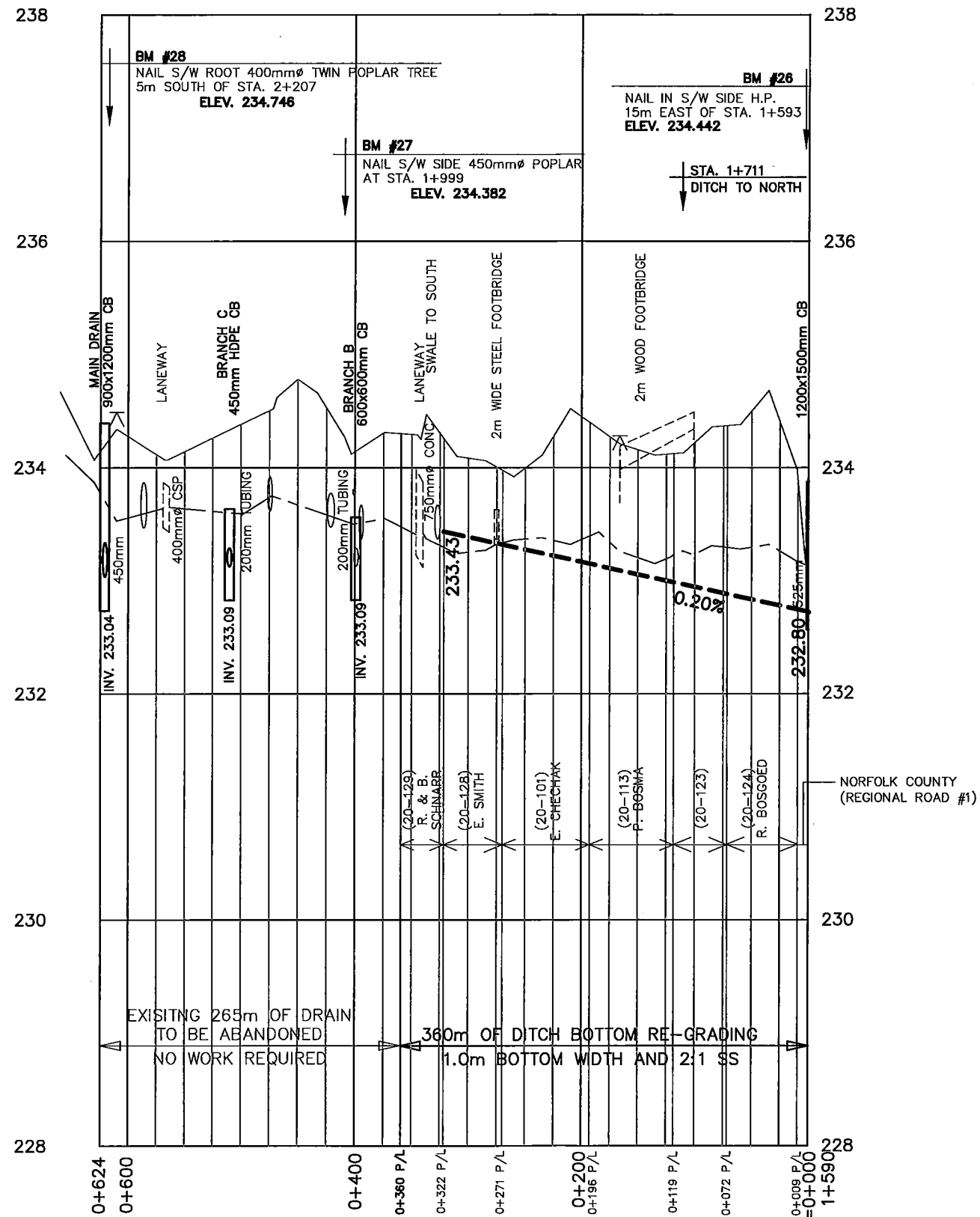
- (2.8) --- APPROXIMATE HECTARES IN WATERSHED
- 5.2 ha. --- HECTARES OWNED
- 30-038 --- ASSESSMENT ROLL NUMBER
- TILE DRAINAGE
- AREA WITH TILE DRAINAGE

DESIGNED BY: N.W.M.
CHECKED BY: N.W.M.
DRAWN BY: D.C.P.
CHECKED BY: N.W.M.



SCALE
0 75 150m
1:7,500
(ON 11"x17")



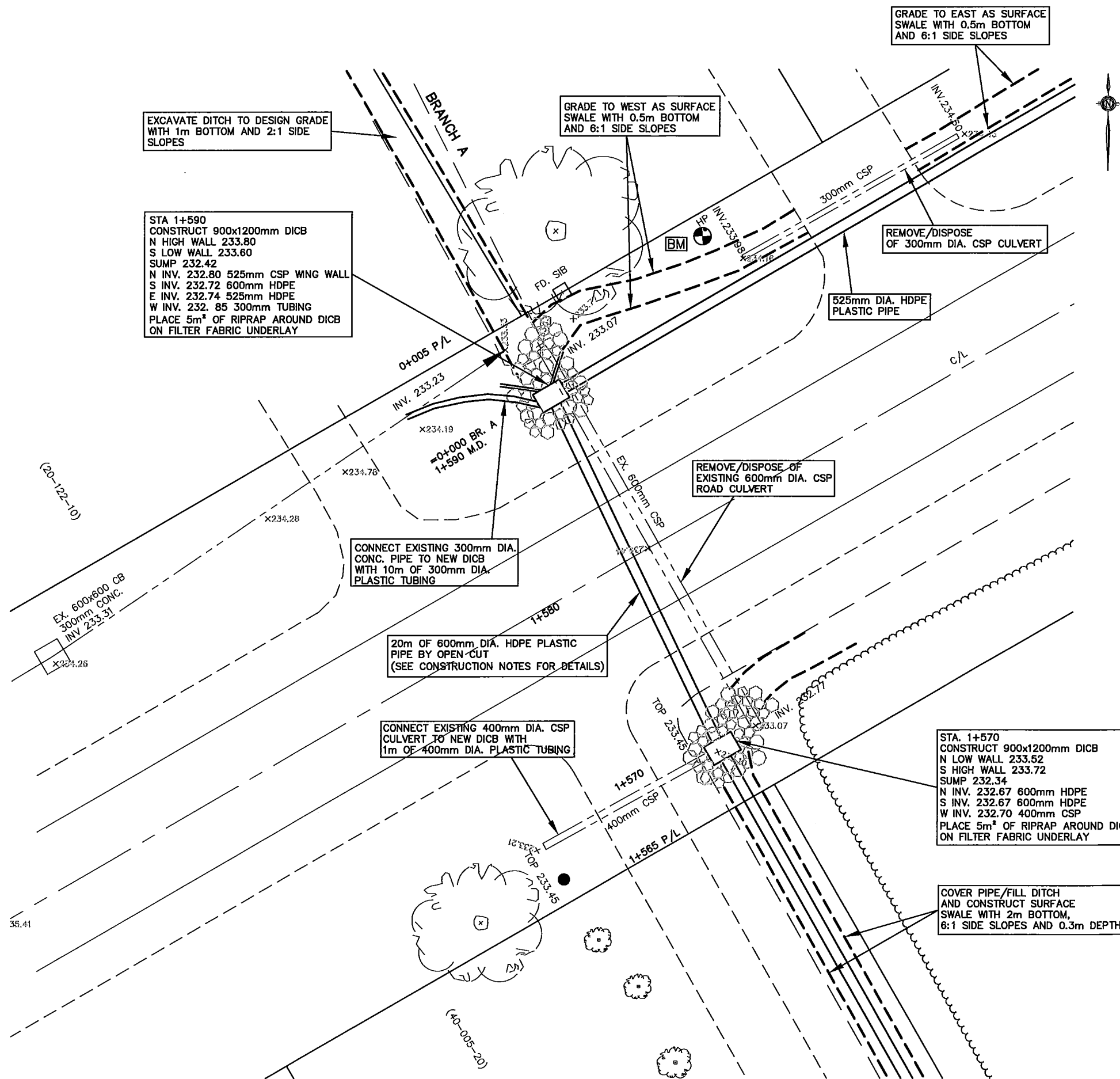


BRANCH A

REVISED FOR TRIBUNAL:
FEBRUARY 1, 2016

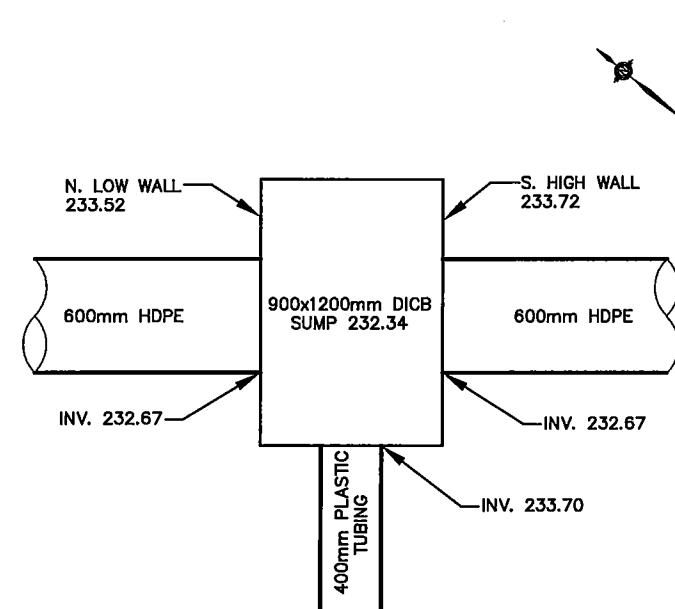
NOTE:
THERE ARE NO PROFILES FOR BRANCHES B & C
REFER TO THE SPECIFIC NOTES ON DRAWING 8
FOR THE GRADES OF THE NEW DRAINS
(BOTH ARE AT 0.2% GRADE)

DESIGNED BY: N.W.M.		SCALE 0 50 100m (SCALE 1:5000) HORIZ. 0 1m (SCALE 1:50) VERT. (ON 11"x17")
CHECKED BY: N.W.M.		
DRAWN BY: N.M.B.		
CHECKED BY: N.W.M.		
MARY MACKENZIE DRAIN 2015 NORFOLK COUNTY		
BRANCH A PROFILE		MAR. 11, 2015 REVISED: JOB NUMBER: 08-115 DRAWING 4 OF 8
K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS KITCHENER SUDBURY		

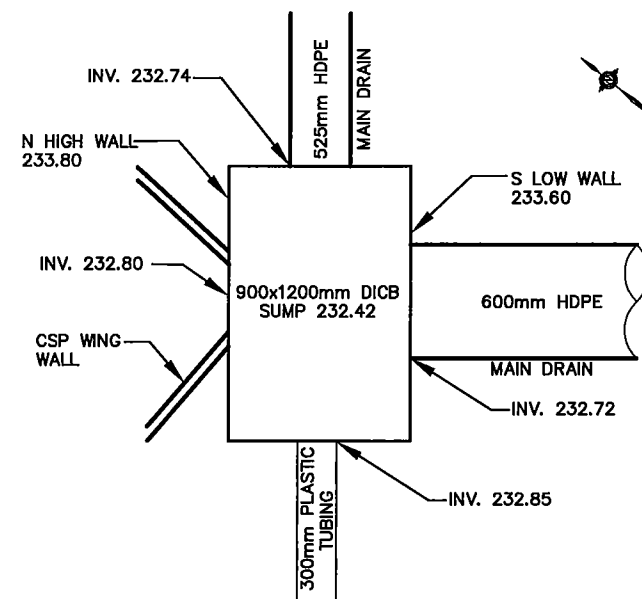


REVISED FOR TRIBUNAL:
FEBRUARY 1, 2016

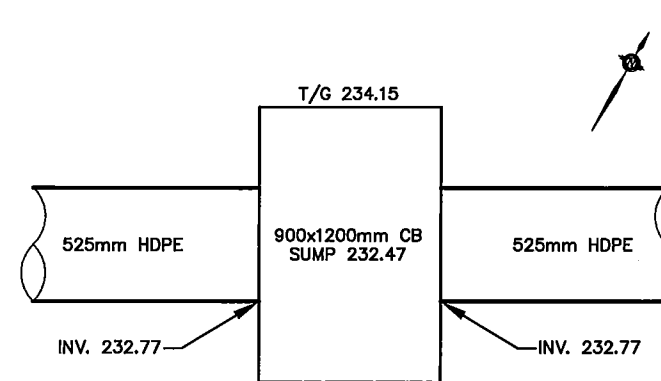
DESIGNED BY: N.W.M.		SCALE
CHECKED BY: N.W.M.		
DRAWN BY: N.M.B.		1: 250 (ON 11"x17")
CHECKED BY: N.W.M.		
MARY MACKENZIE DRAIN 2015 NORFOLK COUNTY		
REGIONAL ROAD #1 CROSSING		MAR. 11, 2015
K. SMART ASSOCIATES LIMITED CONSULTING ENGINEERS AND PLANNERS KITCHENER SUDBURY RAINY RIVER		REVISED: JOB NUMBER: 08-115 DRAWING 5 OF 8



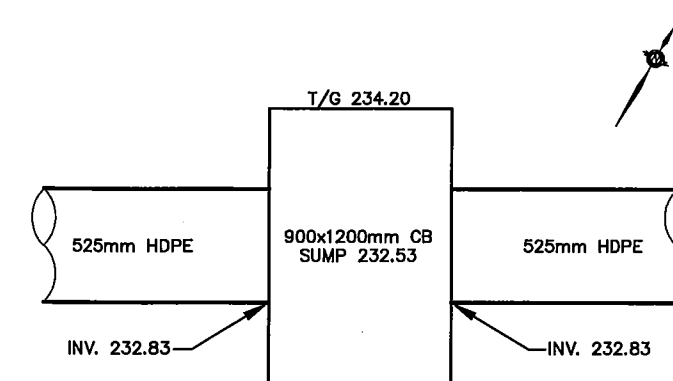
STA. 1+570 MAIN DRAIN



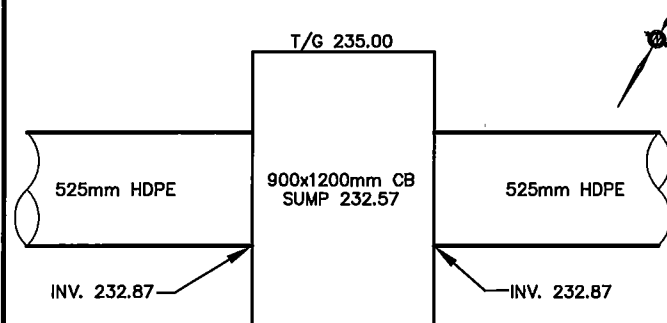
STA. 1+590 MAIN DRAIN



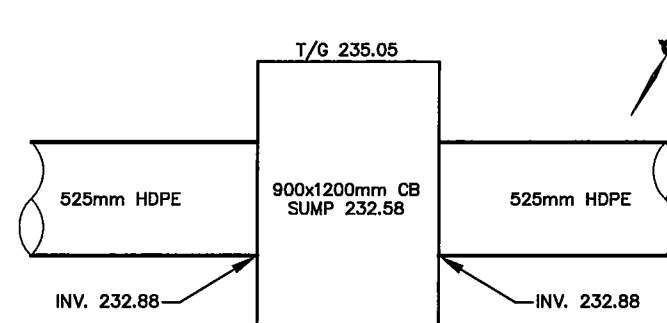
STA. 1+640 MAIN DRAIN



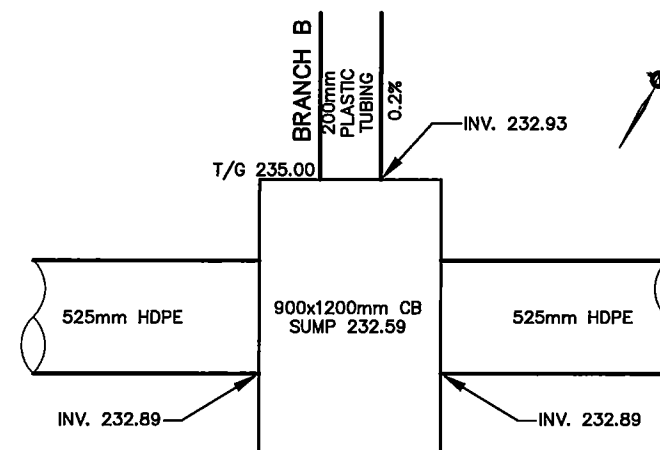
STA. 1+773 MAIN DRAIN



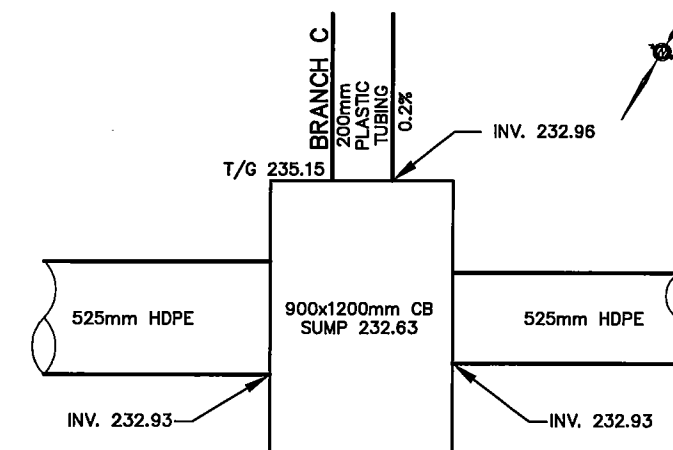
STA. 1+830 MAIN DRAIN



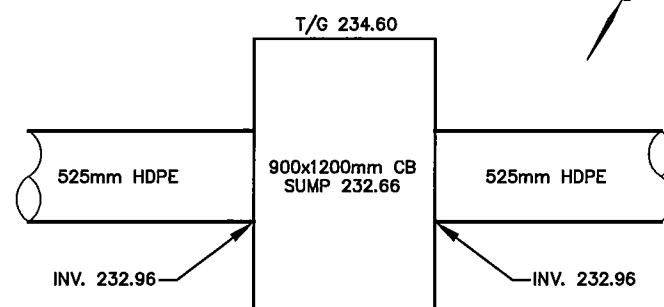
STA. 1+860 MAIN DRAIN



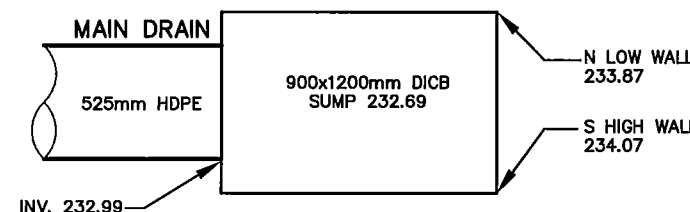
STA. 1+886 MAIN DRAIN



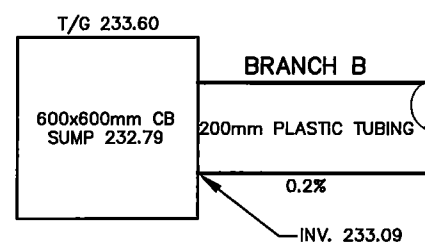
STA. 1+974 MAIN DRAIN



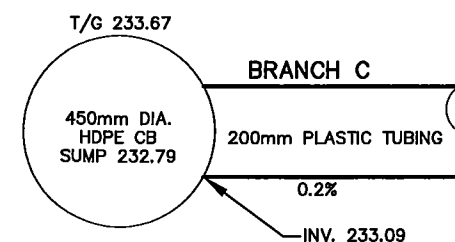
STA. 2+027 MAIN DRAIN



STA. 2+083 MAIN DRAIN



STA. 0+083 BRANCH B



STA. 0+067 BRANCH C

REVISED FOR TRIBUNAL:
FEBRUARY 1, 2016

DESIGNED BY: N.W.M.		SCALE SCALE 1:25 (ON 11"x17")
CHECKED BY: N.W.M.		
DRAWN BY: N.M.B.		
CHECKED BY: N.W.M.		

MARY MACKENZIE DRAIN 2015

NORFOLK COUNTY

CATCHBASIN DETAILS
ROAD #1 NORTH SIDE

MAR. 11, 2015

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

REVISED:
JOB NUMBER: **08-115**
DRAWING
6 OF 8

CONSTRUCTION NOTES (SPECIAL PROVISIONS)

A) SPECIFIC NOTES

i) Main Drain

a) Open Portion

- 0+000 to 1+084

- No work required
 - For future maintenance purposes, the channel is to be maintained only for beaver dam, brush and debris removal. No widening, deepening or closing in is to be done unless new report is prepared.
- 1+000

- Construct temporary straw bale dam/sediment trap.
- 1+084 to 1+495

- 415m of brushing/clearing and bottom cleanout of the existing channel. See cross sections for design grade and work required. Depth of the cleanout will vary from 0 to 0.5m and the bottom width shall be 2.0m with 2:1 side slopes.
 - All excavated materials to be leveled on east side of channel.
 - Any tree within 3m of channel is to be close cut and cleared.
- 1+264 to 1+279

- Existing 14.5m length of 600mm dia. CSP laneway culvert to be removed and disposed of.
 - Replaced with new 15m length of 700mm dia. CSP culvert with 5m² of riprap treatment at each end (10m² riprap total).
- 1+375 to 1+382

- Existing 6.5m length of 700mm dia. CSP laneway culvert to be removed and disposed of.
 - Replaced with new 7m length of 700mm dia. CSP culvert with 5m² of riprap treatment at each end (10m² riprap total).
- 1+495 to 1+500

- Construct permanent sediment trap with dimensions of 5m x 3m x 1m (L x W x D)
 - Place 15m² of riprap on filter fabric underlay for bank stabilization

b) Closed Portion

- 1+500 to 1+570

- Install 70m of 600mm dia. HDPE pipe with rodent gate at outlet
 - Construct surface swale by covering pipe/filling ditch to elev. 233.80± with 0.1% slope. 1m bottom width with 6:1 side slopes and 0.3m depth
 - Taper surface swale to blend into sediment trap/open ditch at Sta. 1+500 and place 10m² riprap treatment on filter fabric at pipe outlet
- 1+570

- Construct new 900 x 1200mm concrete DICB with 4:1 sloped top and birdcage grate. (See Detail on Drawing 5.)
 - Connect existing 400mm dia. CSP culvert to the west wall with 1m of 400mm dia. plastic tubing.
 - Place 5m² of riprap on filter underlay around top of DICB
- 1+570 to 1+590

- 20m of 600mm dia. HDPE plastic pipe (Boss 200 or equal) across Regional Road 1 by open cut and with full granular backfill and restoration.
 - If the County cannot close the road, this work will be staged (2 phases) to keep the road open for traffic. In this case, construction signage (including flagmen) will be required.
- 1+590

- Construct new 900 x 1200mm concrete DICB with 4:1 sloped top and birdcage grate. (See Detail on Drawing 5.)
 - Connect existing 300mm dia. concrete pipe to the west wall with 10m of 300mm dia. plastic tubing.
 - North side of DICB to be an inlet with 600mm CSP wing walls
 - Place 5m² of riprap on filter underlay around top of DICB and at side inlet
- 1+590 to 1+640

- Install 50m of 525mm dia. HDPE pipe

- 1+640

- Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Remove and dispose of 300mm dia. CSP laneway culvert at Sta. 1+610
 - Remove and replace existing 200mm dia. CSP laneway culvert at Sta. 1+636 with 8m of 400mm dia. CSP.
 - Repair approx. 40m² of gravel driveways with native backfill and 200mm Granular A surface (Sta.'s. 1+610 & 1+636)
- 1+640 to 1+773

- Construct new 900 x 1200mm concrete CB complete with cast iron grate (see detail on Drawing 6).
 - Install 133m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Remove and replace CSP laneway culverts at Sta. 1+729 & 1+766 with 10m of 400mm dia. CSP at each location.
 - Repair approx. 75m² of gravel driveways with native backfill and 200mm Granular A surface (Sta.'s 1+729 & 1+766)
 - Repair approx. 80m² of asphalt driveways with 50mm of HL3 asphalt on 300mm Granular A base (Sta.'s 1+672 & 1+699)
- 1+773

- Remove and dispose of existing 800mm dia. concrete CB
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate (see detail on Drawing 6).
- 1+773 to 1+830

- Install 57m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Repair approx. 25m² of asphalt driveway with 50mm of HL3 asphalt on 300mm Granular A base (Sta. 1+818)
- 1+830

- Remove and dispose of existing 600 x 600 concrete CB
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate (see detail on Drawing 6)
- 1+830 to 1+860

- Install 30m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Repair approx. 35m² of asphalt driveway with 50mm of HL3 asphalt on 300mm Granular A base (Sta. 1+849)
- 1+860

- Remove and dispose of existing 700mm dia. concrete CB
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate at Sta.1+860 (see detail on Drawing 6)
- 1+860 to 1+886

- Install 26m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Repair approx. 30m² of gravel driveway with native backfill and 200mm Granular A surface (Sta. 1+881)

- 1+886

- Remove and dispose of existing 600 x 600mm concrete CB (Sta. 1+896)
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate at Sta. 1+886 (see detail on Drawing 6)
- 1+886 to 1+974

- Install 88m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Repair approx. 225m² of asphalt parking area with 50mm HL3 asphalt on 300mm Granular A surface (Sta. 1+904)
 - Repair approximately 80m² of gravel driveways with native backfill and 200mm Granular A surface (Sta.'s 1+933 & 1+942)
- 1+974

- Remove and dispose of existing 700mm dia. concrete CB
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate (see detail on Drawing 6).
- 1+974 to 2+027

- Install 53m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Remove and dispose of 300mm dia. CSP laneway culvert
 - Repair approx. 30m² of gravel driveway with native backfill and 200mm Granular A surface (Sta. 2+003)
- 2+027

- Remove and dispose of existing 800mm dia. concrete CB
 - Construct new 900 x 1200mm concrete CB complete with cast iron grate (see detail on Drawing 6).
- 2+027 to 2+083

- Install 56m of 525mm dia. HDPE pipe
 - Backfill and grade ditch toward CB as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
 - Remove existing 300mm dia. CSP laneway culvert at Sta. 2+033 and replace with 12m of 400mm CSP
 - Remove and dispose of existing 300mm dia. CSP laneway culvert at Sta. 2+073
 - Repair approx. 60m² of gravel driveways with native backfill and 200mm Granular A surface (Sta.'s 2+033 & 2+073)
 - Re-grade 40m of existing ditch to the east
- 2+083

- Construct new 900 x 1200mm concrete DICB with 4:1 grate slope and birdcage grate and 3m² of riprap on filter underlay around it (see detail on Drawing 6)



- ii) Branch A**
0+000 to 0+360
- 360m of brushing/clearing of ditch and banks
 - Any tree within 3m of channel is to be close cut and piled
 - Bottom cleanout/excavation of the existing channel to design grade. See cross sections for design grade and work required. Depth of the cleanout will vary from 0 to 0.5m (some filling near Sta. 0+300) and the bottom width shall be 1.5m with 2:1 side slopes.
 - Extra care shall be taken when working near existing footbridges over channel. These footbridges are not to be damaged by the contractor or by construction operations
 - All excavated materials to be hauled south of McDowell Rd. and used for fill/pipe cover.
 - All disturbed areas to be seeded

- iii) Branch B (Note: There are no profiles for Branches B and C)**
0+000 to 0+083
- Install 83m of 200mm dia. plastic tubing at 0.2% grade
 - Backfill and grade ditch as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
- 0+083
- Construct new 600 x 600mm concrete CB complete with cast iron grate (see detail on Drawing 6)

- iv) Branch C**
0+000 to 0+067
- Install 63m of 200mm dia. plastic tubing at 0.2% grade
 - Backfill and grade ditch as overflow swale with 6:1 side slopes
 - Strip and save topsoil
 - Replace/import topsoil and seed all disturbed areas
- 0+067
- Construct new 450mm dia. HDPE CB complete with plastic grate (see detail on Drawing 6)

B) GENERAL NOTES

1. Working Area

- For work on the open ditch, the average width is to be 20m
- For work on the closed drain, the average width is to be 20m.
- A 10m x 10m area is required at the catchbasin location.

Refer to General Specifications E.38 for exceptions.

2. Access - General Condition E.39

The Contractor shall have access to the drain along the routes, if any, shown on the plan. The access routes shall be along existing laneways or paths or where none exist, along a 6m wide (maximum) path. All specifications governing fences, livestock and crops during drain construction shall apply to access routes except where superseded by notes on the drawings. No other access routes shall be used unless first approved by the Engineer and affected landowners. The Contractor shall also contact each owner prior to using designated accesses. The landowner information will be supplied with the tender documents.

Telephone numbers for contact are:

40-006	Ron's Custom Spray Service Inc.	
40-004-95	D. & R. Hanna	(Available
40-005	J. Godlouski	At time of
40-005-20	J. Verboom	Tender)
20-122-10	A. Francis	
20-124	R. Bosgoed	
20-123	D. Skinner & M. Troch	
20-113	P. Bosma	
20-101	E. Chechak	

20-128	E. Smith	
20-129	R. & B. Schnarr	
20-127	B. Bezzo & B. Schnarr	
20-131	L. Shepherd	
20-134	H. & B. Dawson	
20-134-10	R. J. Broiler Farms Ltd.	
Engineer (Neal Morris, P. Eng.)		519-748-1199 ext. 240
Norfolk County (Bill Mayes, Drainage Superintendent)		519-582-2100 ext. 1602
One Call Centre		1-800-400-2055

3. Ditch Work Required

All construction on this project must use laser grade control for open work. Failure to do such may require forfeiture of the contract including tender deposit and payment for any work done.

a) General Note for Ditch Work on this Project

In all areas, the side for leveling is to be verified with the owner. Power brushing materials are preferred. Where materials are cut by chainsaw or excavated by backhoe, materials are to be left in piles for the owner to dispose of. Where bush is within 10m of the channel, such materials are to be pushed and windrowed in with or adjacent to the bush areas. All brushing is to be included as part of the ditch work unless it is separately noted in the Specific Notes. All new ditch banks are to be seeded.

b) General re Open Drain Work

The open drains to be constructed will have cross-sectional dimensions as specified by the profiles and the Typical Sections on the drawings. Ditch bottom elevations are to be as shown on the profile drawings. Also minimum bottom widths and bank slopes are shown by the typical sections and by the profile drawings. All spoil, except where to be hauled, is to be leveled by the owner and all banks where disturbed, are to be seeded the same day as excavation unless when requested otherwise. Specifications F.1 applies for ditch work. Do not over-excavate any channel except if noted, do not unnecessarily disturb banks, and minimize bottom disturbance during root removal.

During future maintenance, all excavated materials are to be leveled on adjacent properties with the exception that any removed rock be hauled away.

4. Brushing

All Brushing shall be as noted in the drawing and shall be in accordance with General Specification E.19 unless indicated in the Drawings. Brushing includes raking, or approved equal work, of the cleared area.

5. Soil Conditions

The Regional Municipality of Haldimand-Norfolk soils map for this area indicates that the soils adjacent to this drain are lacustrine and eolian sands. These soils should not present significant construction difficulty but pockets of poor soil conditions may be experienced, especially if ground water levels are high at the time of construction.

If unstable soil conditions, such as wet saturated sands, are encountered, an attempt shall be made to install the drain with a continuous filter underlay in the trench. The cost of the underlay will be paid at the unit price evident from the form of tender or as negotiated. If the continuous underlay is not sufficient, use of a clear crushed stone bedding may be necessary. If approved, the work will be paid at the contingency unit price evident from the form of tender. The contingency price is for the increased costs and is based on supplying and installing stone to a 300mm thickness and to a 900 to 1200mm width (depending on tile size) plus wrapping the stone with filter where directed plus the extra digging and backfilling costs. If a backhoe is in use, then only the material cost of the stone will be paid as an extra (all stone costs to be supported by weigh tickets and supplier's invoice).

6. Fences

All fences are to be both removed and re-erected by contractor unless described otherwise by notes on the drawings.
Refer to General Specification E.19.

Refer to General Specification E.20 re livestock and fences.

7. Materials

The Contractor shall supply and arrange for the delivery of all equipment, labour and materials.

All materials stated in the specific notes (Special Provisions), tender documents and drawings may be substituted from that shown, upon approval by the Engineer.

8. Type of Culvert Materials

Any culvert must follow materials specification in F open ditch specification and drawing, any other material must be approved by the engineer.

9. Footbridges

The existing footbridges over/across the Mary MacKenzie Drain, Branch A, are not to be moved unless otherwise approved by the engineer. Any damage to the footbridges caused by the contractor or construction operations shall be repaired by the contractor at the contractor's expense.



MARY MACKENZIE DRAIN 2015

Norfolk County
Revised for Tribunal: February 1, 2016
File No. 08-115 March 11, 2015
Drawing 8 of 8

SUMMARY

Peter Bosma intends to develop the 9.41 ha legal parcel located on 1910 Turkey Point Road, Greens Corners ON for 17 single detached residential lots.

The development envelope is located on lands that are designated and zoned for residential use. Anthropogenic hedgerows have been planted within these lands. The hedgerow present towards the western end of legal parcel have already been removed in a manner consistent with Norfolk County policy ("the county"). Towards the southern end of the legal parcel there is a "Natural Heritage" feature designated "Significant Woodlands" according to the Norfolk County Official Plan (OP). The portion of the "Natural Heritage" feature that extends on-site will be removed for the proposed development. Tree removal will not occur between March 31 – October 31 to avoid risk of habitat loss for SAR bats and migratory birds, unless first inspected 30 days prior to and again 48 hours before any vegetation removal.

Within the "Significant Woodlands" on-site that will be removed, there is a shallow low-lying depression that will be altered for development. This land is being lotted, consequently the Stormwater Management (SWM) plan for the property will propose a new outlet for the stormwater being processed from the site.

The development occurs within 50 m of natural heritage features identified as "Significant Woodlands". According to the existing Draft Plan of Subdivision it has been indicated that 2 ha of the "Natural Heritage" is being removed (Figure 5). There is candidate Significant Wildlife Habitat (SWH) within the development envelope. The proposed development is >50 m away from Fish Habitat.

The proposed development complies with federal, provincial, and municipal considerations regarding the disturbance to the environment.

In our opinion there are no adverse or unalterable impacts on the natural heritage features in the study area provided mitigation measures are followed. Consequently, there is no need for a full environmental impact study (EIS) nor further studies relating to the natural heritage component of this application under the Planning Act because these lands have already been designated and zoned for residential development. It is our opinion that the development can proceed from a natural heritage standpoint pending the approval of other documents required by the municipality.

1.0 PLANNING SEQUENCE

This document is the Issues Summary Report (ISR) that will provide subsequent information for this property without the need for an EIS.

This work program is triggered by municipal and provincial requirements related to the proposed development of a residential subdivision occurring on or within 120 m of Lands

designated “Natural Heritage” on the Norfolk County Official Plan (OP) Schedule “B-6” Land Use Plan (Figure 3). Schedule “C-4” (Figure 4) indicates “Natural Heritage” features on-site. The “Natural Heritage” feature on-site includes a “Significant Woodland” with a watercourse at the southern end of the subject lands.

Vroom + Leonard attended the site in Summer 2021 to review its attributes in relationship to the work program historically required by the regulatory groups based on our experience within this jurisdiction and others.

This Issues Summary Report (ISR) is being sent to Norfolk County (“the county”).

2.0 PROPERTY DESCRIPTION & PROPOSED ALTERATION

This parcel is located in Greens Corners, Norfolk County ON (Figure 1). More specifically the subject lands are located on the east side of Turkey Point Road (Figure 2). The entire subject lands are 9.41 ha in size and irregular in shape. The parcel is 400 m deep, but 105 m in width at the road and 295 m width at the eastern end of the lot. Natural Heritage features on-site make up 13% (1.2 ha) of the subject lands at the southern portion of the site. As noted, this includes “Significant Woodland” shown on Figure 4. The remaining vegetation on-site is cultural in origin.

According to the OP, there is “Significant Woodland” extending along the southern border of the legal parcel. This “Natural Heritage” feature connects to other “Natural Heritage” features both to the northeast and west of the subject lands. The “Significant Woodland” that extends onto the legal parcel is over nine hectares in size with two hectares of “Natural Heritage” being removed for construction. As well, the remaining anthropogenic hedgerows within the development envelope will be removed for construction.

Development involves transitioning the developable portion of the subject lands into residential use in the form of lots (Figure 5). The ISR will confirm the development limit dependent on Significant Woodland assessment and the need for setbacks with regards to protecting the integrity of the Natural Heritage features.

3.0 REGULATORY CONSIDERATIONS

3.1 Literature Review

Given that the lands are already designated and zoned for intended residential use, it is our opinion that we do not need to review the following reports in terms of their relevance to the impact assessment: Stormwater Management, functional servicing report, concept plan, potential geotechnical report and lot grading plan.

3.2 Federal Considerations

The Department of Fisheries and Oceans Canada (DFO) is responsible for the conservation, management, and protection of fish and fish habitat. DFO is given authority to achieve this under the federal *Fisheries Act 2019*. Fish habitat as defined in the *Fisheries Act 2019* as “water frequented by fish and any other areas on which fish depend directly or indirectly to carry out

their life processes, including spawning grounds and nursery, rearing, food supply and migration”.

According to the current Department of Fisheries and Oceans (DFO) aquatic Species at Risk (SAR) mapping the watercourse to the south does not “contain any critical habitat of aquatic SAR, nor have any SAR been found/are likely to be found”. A DFO Request for Review will not be required.

3.3 Provincial Considerations

The *Provincial Policy Statement* (PPS) 2020, states that “Natural Heritage features and areas shall be protected for the long term” (Section 2.1.1). Additionally, Section 2.1.2 states that “The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.”

No Areas of Natural Scientific Interest (ANSI) nor Provincially Significant Wetland (PSW) occur on or within 120 m of the subject lands.

The PPS 2020 states that development and site alteration shall not be permitted in natural heritage features and areas or adjacent lands unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

Our reporting will be consistent with the 2020 Provincial Policy Statement, the Natural Heritage Reference Manual (Ontario Ministry of Natural Resources & Forests ...”MNRF”) and the Ecological Land Classification for Southern Ontario (MNRF...”ELC”).

3.4 Municipal Considerations

The Norfolk County Official Plan (2020) Section 3.5.2 states that:

“Development or site alteration proposed in, or adjacent to, a Natural Heritage Feature(s), whether illustrated on Schedule “C” or only described in Table 2, shall be subject to the completion of an Environmental Impact Study, in accordance with Section 9.7.1 (Environmental Impact Study) of this Plan. Development or site alteration in, or adjacent to, such features shall not be permitted unless it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions that cannot be adequately mitigated.”

The OP regards adjacent habitat as lands within 120 m of a PSW boundary, 10 m from the dripline of a Significant Woodland identified on Schedule C, 100 m from habitat of species listed as endangered or threatened in Ontario, 50 m from the boundary of Significant Wildlife Habitat (SWH) defined by MNRF and/or the county in the Natural Heritage System Strategy, and 30 m from the highwater mark of Fish Habitat (OP Section 3.5).

Since the area proposed for development has already been designated and zoned for residential use, in our opinion, there is no need to proceed to an EIS following this ISR.

The lands are within the Hamlet Area and the lands are designated Residential and the southern “Natural Heritage” feature is designated “Significant Woodland”. The surrounding lands are dominated by residential use.

3.5 Conservation Authority Considerations

The adjacent PSW and watercourse to the south are regulated by the Long Point Region Conservation Authority (LPRCA).

4.0 PHYSICAL & BIOLOGICAL ATTRIBUTES

4.1 Abiotic Considerations

In terms of surface drainage, the soils on-site are Plainfield dune soils, which drains rapidly and Granby soils which are poorly drained according to the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) AgMaps database.

Based on the OMAFRA AgMaps database the subject lands are located on an area considered to have Significant groundwater recharge as well as a highly vulnerable aquifer.

An Ontario Well Record located 100 m to the south and within the same soil group, indicated the groundwater is 3.35 m below grade. This well indicated 0.3 m of topsoil > 2.75 m sandy loam > 0.3 m clay > 7.30 m fine sand. Another 2003 Ontario Well Record 50 m further south, within the same soils group, recorded groundwater at 2.45 m. Soils consisted of 0.61 m of loam > 2.43 m of brown sand > 2.74 m of gray sand.

This information is verified using on-site tests on soil characteristics including soil moisture and composition from visits in Summer 2021.

4.2 Flora and Fauna

An initial reconnaissance site visit determined that the “Natural Heritage” feature consists of vegetation of the ELC type SWD3 – Maple Mineral Deciduous Swamp Ecosite which includes Red Maple and Elm spp. The trees are spaced three to five meters apart with a typical diameter at breast height (DBH) ranging from 5-30 cm. The general age of the trees would be considered young to mid-climax, <60 years old. Within this feature, there is >60% canopy coverage. There is no mid-story present within the “Natural Heritage” feature. The groundlayer is dominated by fern spp. The area appears to be highly disturbed as a result of past logging and vegetation removal.

Within the development envelope, there are several anthropogenic hedgerows that are to be removed for construction. Within these hedgerows, SAR bat habitat may be recorded.

Prescreening of the Natural Heritage Information Centre (NHIC) 1km² database search identified Snapping Turtle, American Water Willow, Cerulean Warbler, Cucumber Tree and American Badger as being recorded in the past in the general area.

4.4 Diversity

The legal parcel is an agricultural meadow partitioned with anthropogenic hedgerows. Diversity is low to typical within the natural communities on the tablelands as well as within the “Natural Heritage” feature.

4.5 Landforms and Soils

The landforms and soils are common to the those in the general area.

4.6 Naturalness and Disturbance

With respect to the naturalness and disturbance, the tablelands consist of agricultural meadows. Clearing of anthropogenic vegetation and site grading has already occurred. High disturbance species evident of highly disturbed lands are present within the anthropogenic hedgerows on the tablelands. Within the “Natural Heritage” feature there is a history of disturbance with past logging and vegetation removal.

4.7 Linkage and Size

As noted above, the adjacent “Natural Heritage” feature is part of a much larger continuum along the steep slope running east-west. The removal of the “Natural Heritage” to the south will disrupt the linkage between the adjacent PSW’s, however, more corridors for wildlife movement exist around the legal parcel.

No interior habitat exists to provide habitat for area sensitive species, but the corridor is for wildlife movement given the location as noted.

4.8 Representativeness

The “Natural Heritage” feature to the south is typical of the local and regional landscape, based on a site visit by Vroom + Leonard.

5.0 Impact Avoidance, Enhancement and Mitigation Measures

Direct impact on the designated “Natural Heritage” feature will include the removal of the small two hectare extension of “Significant Woodland” along the southern corner of the legal parcel.

The SWD3 – Maple Mineral Deciduous Swamp Ecosite to the south end of the legal parcel extends onto the development envelope. It is anticipated that vegetation clearing will extend to the property boundaries and for SWM plans.

Given the proposed development includes the removal of the entire “Natural Heritage” feature to the south, corridor and connectivity between the adjacent PSW’s remains given the abundance of “Natural Heritage” within the general area.

It is highly unlikely that any SAR would exist in the small extension of the “Significant Woodland” due to the edge conditions of the wetland and prior effects of the high disturbance as previously noted.

Incidental impacts are expected on the remaining adjacent vegetation rooting zone from grading and construction activities, which may include the removal of fibrous root tissue and the compaction of soils in residual rooting zones. A tree protection plan (TPP) should be required following this ISR to establish rooting zones through root excavations will need to occur for boundary trees on-site.

Given the proposed vegetation removal, timing mitigations will be required to protect faunal species.

Non-SAR Migratory Breeding Birds: The Migratory Bird Convention Act (MBCA 1994), protects 386 migratory bird species in Canada. It states that “No person shall disturb, destroy, or take a nest, egg,....” (SOR/80-577, s. 4.). Birds protected under the MBCA 1994 are present in the areas to be removed. Vegetation removal should occur outside of the nesting season for the region to avoid direct impacts to nests that may be present. If tree cutting should occur during the nesting period, then nest searches must be conducted 30 days before and within 48 hours prior to tree removal (see Section 5.2).

SAR bat roosting trees are present given the mature size and species present on and adjacent to the subject lands. Following the timing mitigations for migratory breeding birds will also protect any potential direct impact on SAR bats (see Section 5.2).

Potential short-term incidental impacts on the eastern “Natural Heritage” system functions or features that could be caused by this limited construction envelope are the temporary effect of noise, sediment and erosion during construction.

Tree-cutting should not occur between March 31 and October 31 to avoid the risk of removing trees used by potential roosting SAR bats. Following these timing recommendations, this would also include the regional nesting period of migratory birds (March 31 – August 25). However, removal may occur if first inspected 30 days prior to and again 48 hours before any vegetation removal.

In our opinion, the surrounding communities will easily adapt to the post-development conditions given the historical disturbance levels and the post development setting of both the residential area surrounding the legal parcel.

All disturbed areas on-site should be re-vegetated to stabilize soils and reduce erosion as well as sedimentation

The final SWM design should demonstrate that post-development discharge flows quantity and quality will match pre-development flows. Additionally, proper sediment and erosion control

best practices should demonstrate that potential erosion susceptibility at the outlet location is not compromised by post-development flows. SWM design should also include infiltration techniques given the sandy soils on-site. Given the size of the subject lands the redirection of stormwater to the shallow low-lying depression will have minimal impact on “Natural Heritage” features in the study area. Sediment / erosion control measures defined in the OPSS + OPSD (Ontario Provincial Standard Specification + Ontario Provincial Standard Drawing) and other applicable municipal standards should be depicted in the detailed design drawings for the project.

6.0 SUMMARY AND CONCLUSIONS

6.1 Summary

Federal Considerations:

Given the distance of the proposed development to any watercourses and fish habitat, a DFO filling is not required.

Provincial Considerations:

The Ministry of Environment, Conservation, and Parks (MECP) has taken over responsibility of the Endangered Species Act (ESA) 2007. The MECP protocol consists of conducting our own screening and submitting an Information Gathering Form (IGF) if a project is likely to contravene the ESA and require permitting. Given the vegetation within the development envelope is anthropogenic in origin and the wetland feature is common to the area, no SAR are anticipated on-site. As a result, there is no potential for SAR nor their habitat on-site. Consequently, an IGF form will not be submitted.

There will be no negative effects on the natural heritage features and areas because:

- The area slated for development is both agricultural meadows and “Natural Heritage” with previously removed anthropogenic vegetation that contributes minimally to floral and faunal biodiversity.
- The vegetated area to the south has been highly disturbed in the past due to a history of logging and vegetation removal. The “Natural Heritage” feature provides little diversity to the general area.
- Development will not have an impact on groundwater recharge of the tablelands given the SWM plan to mitigate impacts on the sandy soils.
- The remaining vegetation from the forested communities surrounding the legal parcel will continue to provide corridor and linkage for wildlife.

Municipal and Conservation Authority Considerations:

The proposed development conforms with the OP of Norfolk County. Because a wetland is being removed, the LPRCA may need to issue a permit for this action, despite the fact that the proposed development conforms with the OP.

6.2 Conclusions

With respect to natural heritage considerations, it is the opinion of the writers that as long as the final development plans follow the recommended mitigation measures in this document the proposed development will be consistent with the Provincial Policy Statements 2020 as well as policies of the county.

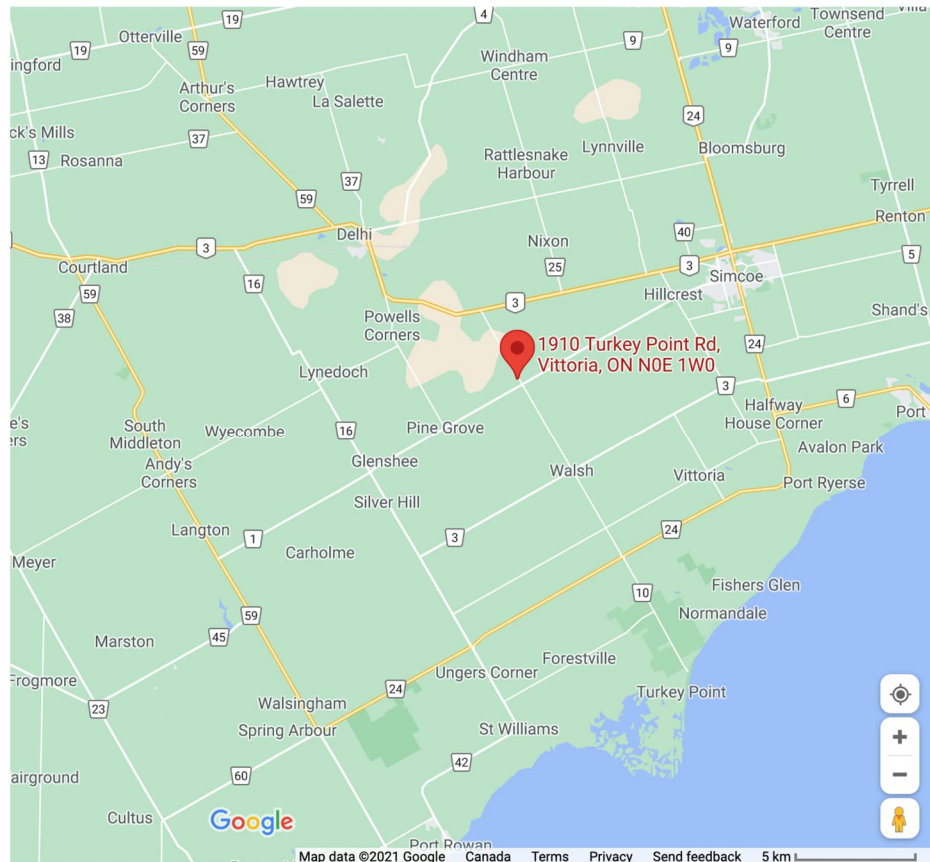
For the reasons outlined in the data presented within this report and the resultant analysis it is our opinion there are no potential issues nor potential cumulative effects of the development proposed.

Consequently, there is no need for a full EIS nor further studies relating to the natural heritage component of this application under the Planning Act. It is our opinion that the development can proceed pending the approval of other documents required by the municipality.

The conclusion of this report is that there are no negative, nor adverse, unalterable impacts on the natural heritage features of the subject lands and the natural heritage landscape identified in the Official Plan, as long as the mitigative measures noted in this report are followed.



Rachel Bauer
Mike Leonard O.A.L.A C.S.L.A



VROOM + LEONARD Biologists & Landscape Architects Paige Vroom / MSc. Aquatic 519-909-9872 / paigevroom@gmail.com Mike Leonard / OALA 519-671-5267 / mlla@isp.ca	Figure 1: General Site Location
---	--

1910 Turkey Point Road, Norfolk County ON
 August 2021

Peter Bosma ISR
 Vroom + Leonard



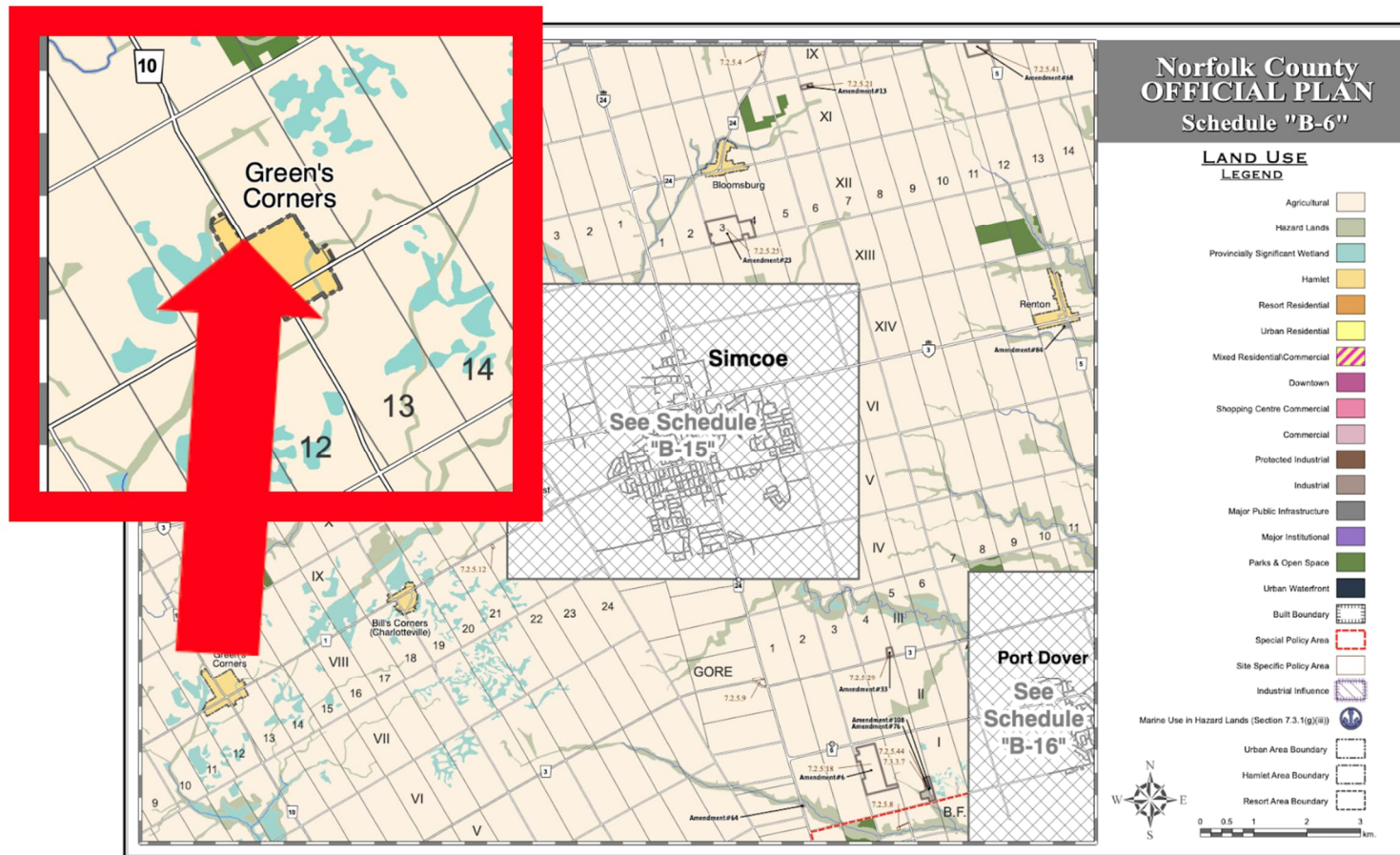
VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 2: Legal Parcel (red) , Study Area (yellow), Natural Heritage (green), Cultural Hedgerow (pink) and Water Course (blue)



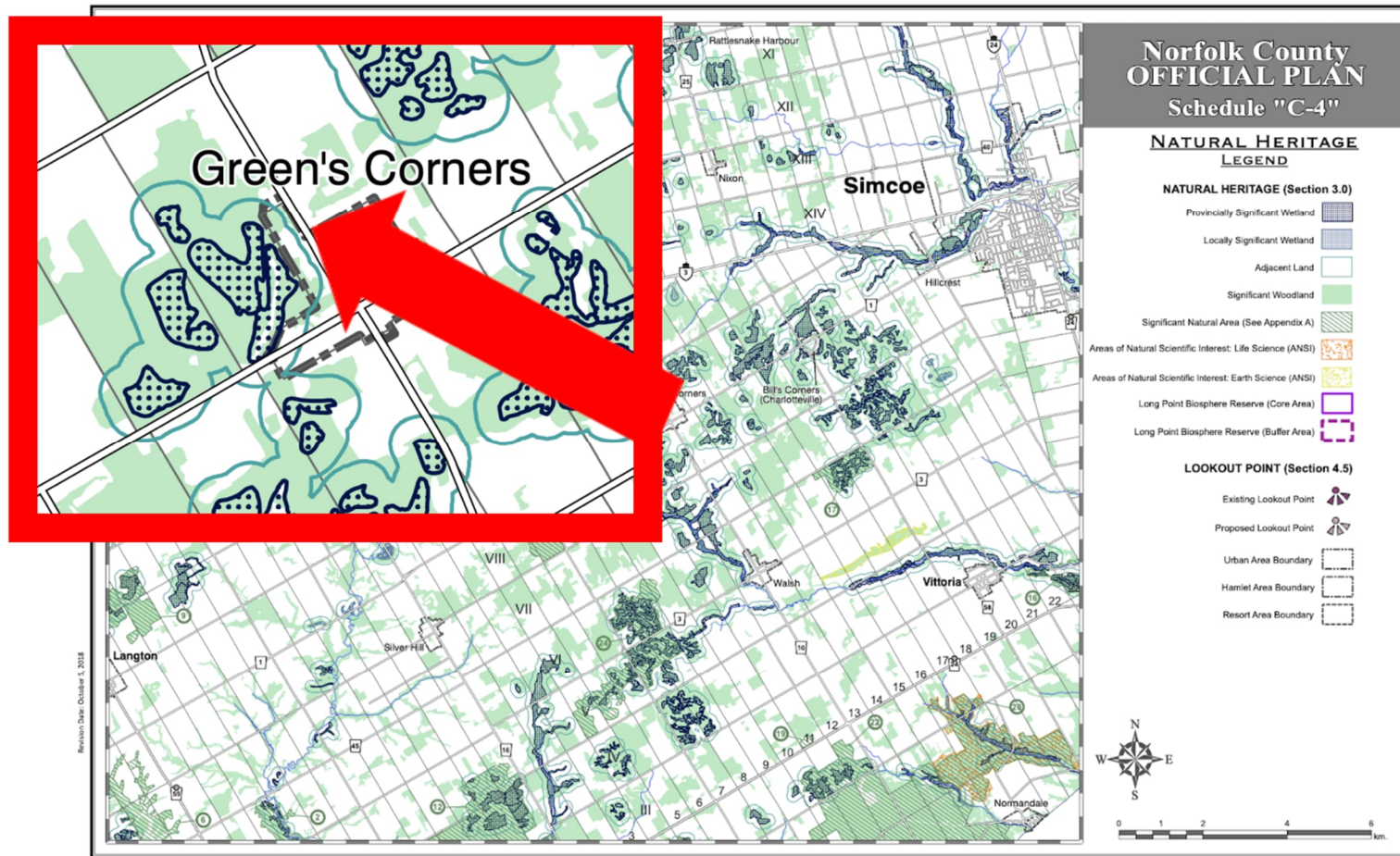
VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 3: County of Norfolk Schedule "B-6" Land Use Plan



VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 4: County of Norfolk Schedule "C-4" Natural Heritage

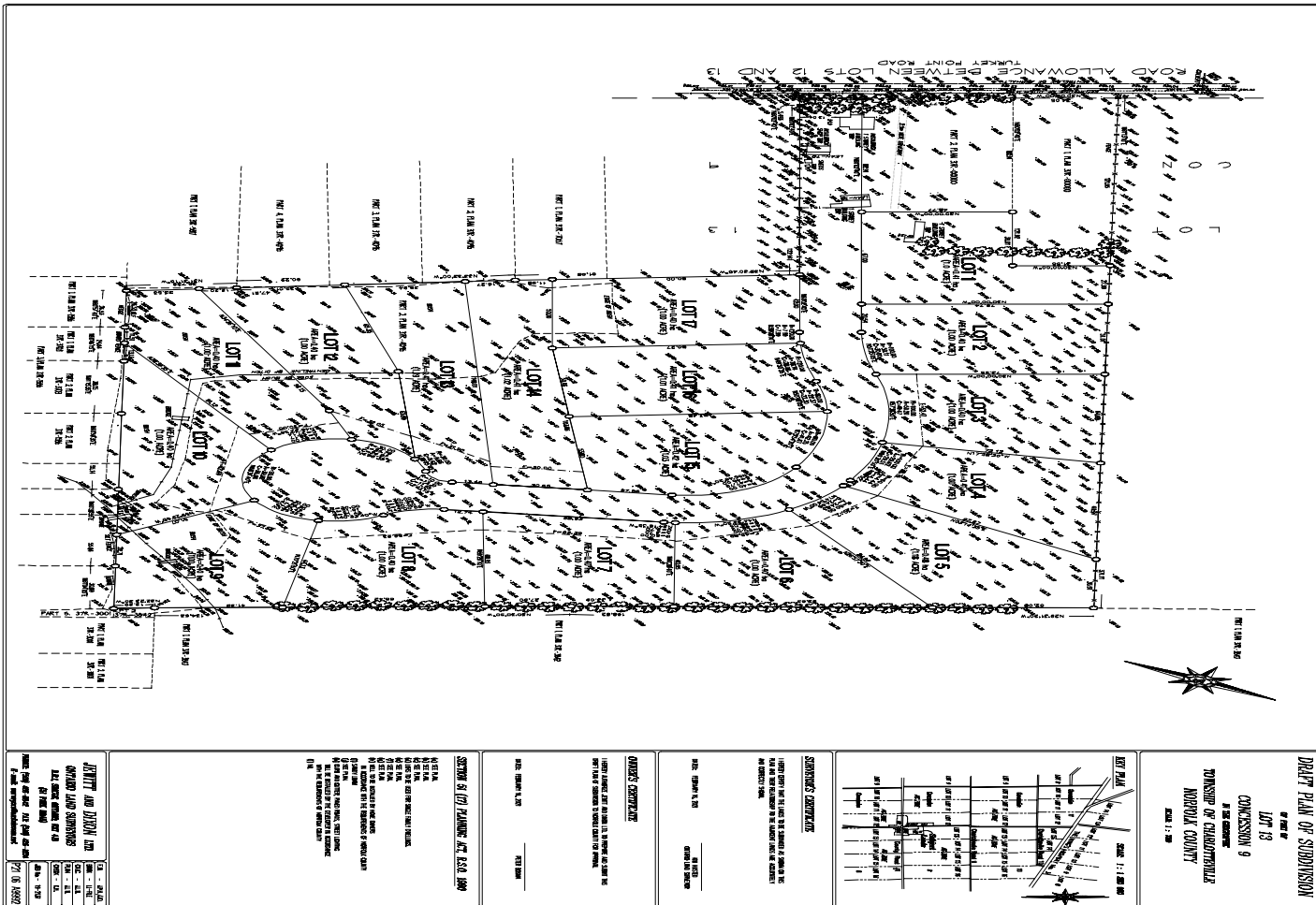
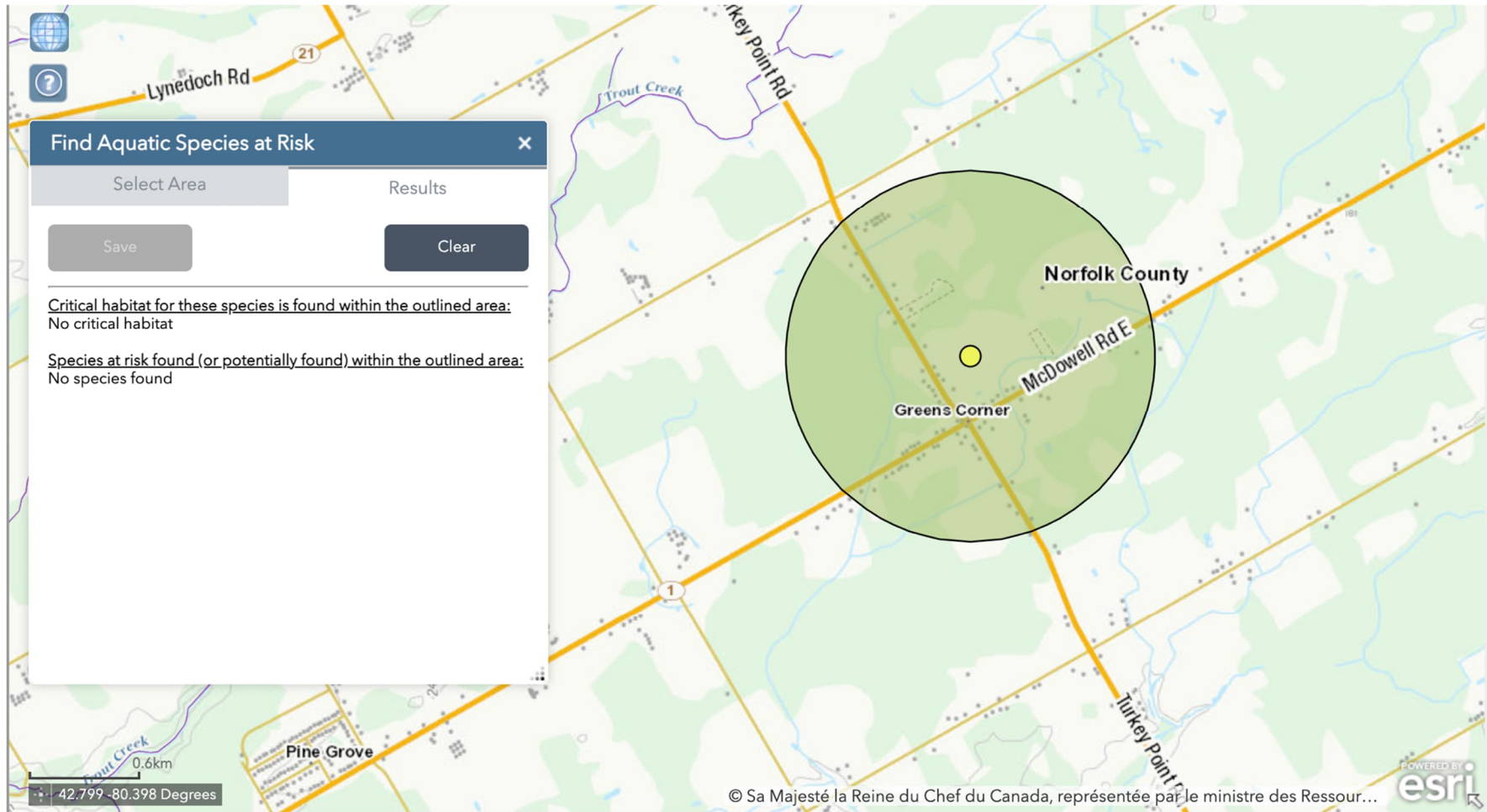


Figure 5: Draft Plan of Subdivision

VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca1910 Turkey Point Road, Norfolk County ON
August 2021Peter Bosma ISR
Vroom + Leonard



VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 6: DFO Species At Risk Mapping

1910 Turkey Point Road, Norfolk County ON
August 2021

Peter Bosma ISR
Vroom + Leonard



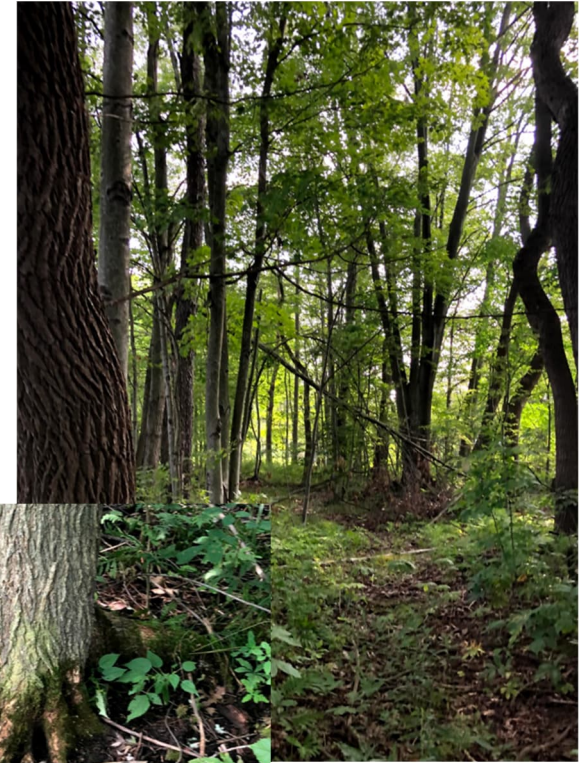
VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 7: Site Photos (Left to right: Anthropogenic hedgerows on the tablelands, "Natural Heritage" feature to the south, site grading at the western boundary of the legal parcel)



VROOM + LEONARD

Biologists & Landscape Architects

Paige Vroom / MSc. Aquatic
Mike Leonard / OALA

519-909-9872 / paigevroom@gmail.com
519-671-5267 / mlla@isp.ca

Figure 8: Site Photos (Left to right: Watercourse and "Natural Heritage" feature)

1910 Turkey Point Road, Norfolk County ON
August 2021

Peter Bosma ISR
Vroom + Leonard

Appendix A – Significant Wildlife Habitat [SWH]

This section provides comments on significant and/or sensitive wildlife features and functions as delineated in the OMNR Significant Wildlife Habitat Technical Guide (2000) including Appendix q and in the draft OMNR Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 7E.

Seasonal Concentration Areas

WATERFOWL STOPOVER AND STAGING AREAS (Terrestrial) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites CUM1 or CUT1 with evidence of annual spring flooding.*
- 2) Fields with waste grain near Long Point, Rondeau, Pelee, Lake St. Clair or Grand Bend when used by Tundra Swans*
- 3) The presence of 100 or more individuals of any mix of the species listed in the ecoregion criteria schedule.*

None of the listed Ecosites or criteria are present within the study area.

WATERFOWL STOPOVER AND STAGING AREAS (Aquatic) – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites MAS1, MAS2, MAS3, SAS1, SAM1, SAF1 or SWD1 to 7.*
- 2) Ponds, marshes, lakes, bays, coastal inlets or watercourses with an abundant supply of aquatic invertebrates and vegetation in shallow water. Sewage and storm water ponds do not qualify.*
- 3) Aggregations of > 700 waterfowl use days of any of the listed species.*
- 4) Annual staging of Ruddy Ducks, Canvasbacks or Redheads.*

There is a SWD Ecosite present within the subject lands that could provide habitat.

SHOREBIRD MIGRATORY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites BBO1, BBO2, BBS1 to 2, BBT1 to 2, SDO1, SDS2, SDT1 or MAM1 to 5.*
- 2) Shorelines of lakes, rivers and wetlands including beaches, bars and seasonally flooded muddy and un-vegetated areas and groynes and other armour rock shorelines. Sewage and storm water ponds do not qualify.*
- 3) The presence of 3 or more listed species and > 1000 shorebird use days during spring or fall. Sites with > 100 Whimbrel used for 3 years or more.*

There are none of the listed criteria or Ecosites present within the subject lands.

RAPTOR WINTERING AREA – CANDIDATE

The criteria defining this habitat as significant include:

- 1) A combination of at least one of FOD, FOM, FOC, SWD, SWM or SWC and one of CUM, CUT, CUS or CUW.
- 2) A combination of fields and woodlands > 20 ha or >15 ha in sites with little disturbance such as idle or fallow fields or lightly grazed fields or meadows.
- 3) One or more Short-eared Owls or Bald Eagles or at least 10 individuals and two listed species [Rough-legged Hawk, Red-tailed Hawk, Northern Harrier, American Kestrel, Snowy Owl] at a site that has been used regularly [3 in 5 years] for a minimum of 20 days. woodland and PSW could provide candidate habitat due to the presence of the SWD Ecosite

The SWD Ecosites is found within the subject lands. The SWD community and adjacent agricultural meadow can provide habitat.

BAT HIBERNACULA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites CCR1, CCR2, CCA1 or CCA2.
- 2) Hibernacula include caves, mine shafts, underground foundations and karsts but not buildings.
- 3) The confirmed presence of hibernating bats.

There are none of the listed Ecosites or criteria present within the study area.

BAT MATERNITY COLONIES – CANDIDATE

The criteria defining this habitat as significant include:

- 1) Any Ecosite in FOD, FOM, SWD or SWM.
- 2) Colonies are found in tree cavities or vegetation. Buildings do not qualify.
- 3) Colonies in forest stands with more than 10 ha of large diameter (> 25 cm dbh) wildlife
- 4) The presence of wildlife trees (snags) in early stages of decay (i.e. class 1 to 3).
- 5) Colonies must have > 10 Big Brown Bats, or > 5 Silver-haired Bats.

The SWD Ecosite is found within the subject lands and could provide habitat.

BAT MIGRATORY STOPOVER AREA – NOT PRESENT

The confirmation criteria for this SWH are still being determined.

- 1) Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stopover habitat for migrating Silver-haired Bats.

The study area is not located within the listed coordinates.

TURTLE WINTERING AREAS – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Community Classes SW, MA, OA or SA or Community Series FEO or BOO.*
- 2) *The presence of water that is deep enough not to freeze to the bottom and that has soft mud substrates.*
- 3) *The presence of 5 Midland Painted Turtles or one or more Northern Map Turtles or Snapping Turtles.*

The SWD Ecosite can be found within the subject lands. Even though the SW Ecosite is present within adjacent lands, there is no deep water that would provide suitable candidate habitat.

SNAKE HIBERNACULUM – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of rock piles, slopes, stone fences, crumbling foundations, burrows or rock crevices which may indicate potential entrances to hibernacula. Hibernacula must be below the frost line.*
- 2) *Presence of a hibernacula used by at least 5 individuals of one of the listed species or any number of individuals of at least 2 species.*
- 3) *Congregations of at least 5 individuals of one of the listed species or any number of individuals of at least 2 species observed near potential hibernacula on sunny warm days in spring and fall.*
- 4) *Presence of any species at risk.*

There are none of the listed criteria found within the study area.

COLONIALY NESTING BIRD BREEDING HABITAT (Bank, Northern Rough-winged and Cliff Swallows) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of CUM1, CUT1, CUS1, BLS1, BLO1, BLT1, CLO1, CLS1 or CLT1*
- 2) *The presence of undisturbed or naturally eroding banks, sandy hills, borrow pits, steep slopes or sand piles, cliff faces, bridge abutments, silos or barns.*
- 4) *The presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or Rough-winged Swallows.*
- 5) *Does not include licensed/permitted Mineral Aggregate Operations, man-made structures (bridges or buildings) or recently disturbed (2 years) soil areas such as berms, embankments, soil or aggregate stockpiles*

There are none of the listed Ecosites or criteria present within the study area.

COLONIALY NESTING BIRD (Hérons / Egrets) BREEDING HABITAT [Tree/Shrubs] – CANDIDATE

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites SWM2, 3, 5 or 6, SWD 1to 7 or FET1.*

2) The presence of stick nests in live or dead standing trees, shrubs or emergent vegetation in wetlands, lakes, islands and peninsulas.

3) The presence of one or more active nests of any listed species [Great Blue or Green Heron, Black-crowned Night-Heron, Great Egret].

The SWD Ecosite can be found within the subject lands that could provide habitat.

COLONIALY NESTING BIRD (Gulls / Terns / Brewer's Blackbird) BREEDING HABITAT (Ground) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of a rocky island or peninsula (natural or artificial) within a lake or large river system.*
- 2) The presence of > 25 active Herring Gull, > 5 active Common Tern or > 2 Caspian Terns nests.*
- 3) Any active colony of one or more Little Gulls or Great Black-backed Gulls.*
- 4) The presence of 5 or more pairs of Brewer's Blackbirds in MAM1- 6, MAS1- 3, CUM, CUT or CUS.*
- 5) For Brewer's Blackbird, open fields or pastures with scattered trees or shrubs in close proximity to watercourses.*

There are none of the listed criteria found within the study area.

LANDBIRD MIGRATORY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of any of the following Ecosites: FOC, FOM, FOD, SWC, SWM OR SWD.*
- 2) Sites with a variety of habitats such as forest, grassland and wetland complexes*
- 3) The presence of a woodlot > 5 ha and located within 5 km of the Lake Erie or Lake Ontario shoreline.*
- 4) Use of the woodlot by > 200 birds of at least 10 species / day on at least 5 different days and a total of 35 species during the migration period.*

The SWD Ecosites can be found within the subject lands that could provide habitat. However, the subject lands are not within 5km of the Lake Erie shoreline.

MIGRATORY BUTTERFLY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of a combination one of CUM, CUT or CUS and one of FOC, FOM, FOD or CUP.*
- 2) A minimum of 10 ha of field and forest located within 5 km of the Lake Erie or Ontario shoreline.*
- 3) The presence of >5000 Monarch use days or >3000 use days if Painted Ladies or White Admirals are also present.*

There are none of the listed criteria or Ecosites present within the study area. The study area is also >5km away from the shoreline of Lake Erie or Lake Ontario.

DEER WINTER CONGREGATION AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of the following Ecosites: FOC, FOM, FOD, SWC, SWM OR SWD*
- 2) *Woodlots at least 50 ha in size.*

The SWD Ecosite can be found within the subject lands. However, the “Significant Woodland” is not large enough to support this habitat.

4.2 RARE VEGETATION COMMUNITIES

CLIFFS AND TALUS SLOPES – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of TAO, TAS, TAT, CLO, CLS or CLT.*
- 2) *A cliff must be >3 m in height*
- 3) *The presence of any ELC vegetation type for cliffs or talus slopes.*

SAND BARREN – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of SBO1, SBS1, SBT1.*
- 2) *Sites with sparse vegetation (< 60%) and exposed sand.*
- 3) *The presence of any ELC vegetation type for sand barrens.*

ALVAR – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any ALO1, ALS1, ALT1, FOC1 or 2, CUM2, CUS2, CUT2-1, CUW2.*
- 2) *Sites with level, mostly unfractured bedrock overlain by a thin layer of soil.*
- 3) *Vegetation at the sites may include grasslands and/or shrublands varying from patchy to barren.*
- 4) *A minimum area of > 0.5 ha, these sites are only located in the western islands of Lake Erie.*
- 5) *The presence of four of the five Alvar Indicator Species is significant.*

OLD GROWTH FOREST – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of FOD, FOC, FOM, SWD, SWC or SWM.*
- 2) *The presence of dominant trees > 140 years of age.*
- 3) *The presence of heavy mortality or turnover of over-story trees that encourage development, and an abundance of snags and downed woody debris.*

The SWD Ecosite can be found within the subject lands. However, the trees within the study area are not old enough to be considered old growth.

SAVANNAH – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of TPS1 and 2, TPW1 and 2 or CUS2.*
- 2) *The presence of tallgrass prairie habitat with tree cover between 25-60%.*
- 3) *The presence of one or more Savannah Indicator Species.*

TALLGRASS PRAIRIE – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of TPO1 or 2.*
- 2) *The presence of prairie grasses with < 25% tree cover.*
- 3) *The presence of one or more Prairie Indicator Species.*

OTHER RARE VEGETATION COMMUNITIES – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Provincially Rare S1, 2 or 3 vegetation communities.*
- 2) *Rare vegetation communities include beaches, fens, forest, marsh, barrens, dunes and swamps.*

4.3 SPECIALIZED HABITATS FOR WILDLIFE

There are none of the listed Ecosites or criteria present within the subject lands. However, the adjacent woodland and PSW could provide candidate habitat due to the presence of wetland and

WATERFOWL NESTING AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *All upland habitats adjacent to Ecosites MAS1 to 3, SAS1, SAM1, SAF1, MAM1 to 6, SWT1 and 2 or SWD1 to 4 that extend 120 metres from a > 0.5 ha wetland or a cluster of at least 3 or more wetlands if they are < 0.5 ha*
- 2) *The presence of 3 or more nesting pairs for any of the listed species other than Mallard or 10 or more nesting pairs for any of the listed species including Mallards.*
- 3) *Any active nesting site of an American Black Duck.*

There are none of the listed Ecosites or features present within the subject lands.

BALD EAGLE AND OSPREY NESTING FORAGING AND PERCHING HABITAT – CANIDATE

The criteria defining this habitat as significant include:

- 1) Any of the following Community Series: FOD, FOM, FOC, SWD, SWM or SWC directly adjacent to riparian areas such as rivers, lakes, ponds and wetlands.
- 2) The presence of lakes, ponds, rivers or wetlands along forested shorelines, islands or structures over water.
- 3) One or more active Osprey or Bald Eagle nests occupied annually.

The SWD Ecosite can be found within the subject lands and could provide habitat.

WOODLAND RAPTOR NESTING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of any forested ELC Ecosite including conifer plantations, as well as any SWC, SWM, SWD or CUP3.
- 2) Natural or conifer woodlands > 30 ha or with > 4 ha of interior habitat that is at least 200 metres from edge.
- 3) The presence of 1 or more active nests of any of the listed species [Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk, Barred Owl].

The SWD Ecosite can be found within the subject lands. However, the “Significant Woodlands” are not large enough to support this habitat.

TURTLE NESTING AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) Exposed mineral soil (sand or gravel) within 100 metres of or in any of the following Ecosites: MAS1 to 3, SAS1, SAM1, SAF1, BOO1, FEO1.
- 2) The nesting substrate is located in open, sunny areas, preferably on sand and gravel beaches, adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers.
- 3) Presence of 5 or more nesting Midland Painted Turtles or one or more Northern Map Turtles or Snapping Turtles.

There are none of the listed Ecosites or criteria within the study area.

SEEPS AND SPRINGS – CANDIDATE

The criteria defining this habitat as significant include:

- 1) Any forested area with less than 25% open meadow/field/pasture within the headwaters of a stream or river system.
- 2) Any site with 2 or more seeps or springs.

The listed criteria can found within the study area and may provide SWH habitat.

AMPHIBIAN BREEDING HABITAT (woodland) – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites FOC, FOM, FOD, SWC, SWM or SWD.

2) The presence of a wetland, pond, or woodland pool >500 m² in or within 120 metres of woodland of any size.

3) The presence of 1 or more of the listed salamander species or 2 or more frog species with at least 20 individuals (adults, juveniles, eggs, or larval masses), or Call Level Codes of 3. Listed species are Eastern Newt, Blue-spotted and Spotted Salamanders, Western Chorus and Wood Frogs, Spring Peeper and Gray Treefrog.

The SWD Ecosites can be found within the subject lands and may provide SWH habitat.

AMPHIBIAN BREEDING HABITAT (wetlands) – CANDIDATE

The criteria defining this habitat as significant include:

1) The presence of Community Classes SW, MA, FE, BO, OA or SA.

2) Wetland areas > 120 metres from woodland habitat.

3) The presence of wetlands and pools > 500 m² supporting high species diversity.

4) Ponds with shrubs and logs increase significance.

5) The presence of 1 or more of the listed salamander species or 2 or more of the listed frog or toad species with at least 20 individuals (adults, juveniles, eggs or larval masses) or Call Level Codes of 3 or Wetland with confirmed breeding Bullfrogs. Listed species are E. Newt, Spotted, Blue-spotted and Four-toed Salamanders, American Toad, Gray Treefrog, Western Chorus, Northern Leopard, Pickerel, Green and Mink Frogs.

6) The confirmed breeding of Bullfrogs.

The SWD Ecosite can be found within the subject lands and may provide habitat.

WOODLAND AREA – SENSITIVE BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

1) The presence of Ecosites FOC, FOM, FOD, SWC, SWM, or SWD

2) Large, natural blocks of typically large mature (> 60 years old) forest stand or woodlots > 30ha where the interior habitat is at least 200m from forest edge habitat and interior forest breeding birds are breeding.

3) The presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Listed species are Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren or Pileated Woodpecker.

4) Any site with breeding Cerulean Warblers or Canadian Warblers is considered significant.

The SWD Ecosite can be found within the subject lands. However, the “Significant Woodland” is not large enough to support this habitat.

4.4 HABITATS FOR SPECIES OF CONSERVATION CONCERN

MARSH BIRD BREEDING HABITAT – CANDIDATE

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites MAM1 to 6, SAS1, SAM1, SAF1, FEO1 or BOO1 and for Green Heron any SW, MA or CUM1 sites.*
- 2) *The presence of wetlands with shallow water with emergent aquatic vegetation and for Green Heron sluggish streams, ponds and marshes sheltered by shrubs and trees.*
- 3) *Breeding evidence for 5 or more nesting pairs of Sedge Wren or Marsh Wren*
- 4) *Any combination of 4 or more of the listed species: American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Common Loon, Green Heron.*
- 4) *The presence of 1 or more breeding Trumpeter Swans, Green Heron, Black Terns or Yellow Rail.*

The SWD Ecosite can be found within the subject lands that may provide habitat.

OPEN COUNTRY BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites CUM1 or CUM2.*
- 2) *The presence of large grassland areas > 30 ha including natural and cultural fields and meadows.*
- 3) *The presence of abandoned fields, mature hay fields and pasturelands that have not been farmed in the last 5 years. Class 1 or 2 agricultural lands that are row cropped, intensively hayed or pastured do not qualify.*
- 4) *Breeding evidence for 2 or more of the listed species [Grasshopper, Savannah or Vesper Sparrow, Northern Harrier]*
- 5) *One or more breeding Short-eared Owls.*

There are none of the listed Ecosites or criteria present within the study area.

SHRUB / EARLY SUCCESSIONAL BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites CUT1, CUT2, CUS1, CUS2, CUW1 or CUW2.*
- 2) *The presence of large natural fields > 10 ha succeeding to shrub and thicket habitats that have not been actively farmed in the previous 5 years*
- 3) *Breeding evidence for 1 indicator species [Brown Thrasher, Clay-coloured Sparrow] and at least 2 common species [Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher].*
- 4) *Fields with breeding Yellow-breasted Chats or Golden-winged Warblers.*

There are none of the listed Ecosites or criteria present within the study area.

TERRESTRIAL CRAYFISH – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites MAM1 to 6, MAS1 to 3, SWD, SWT or SWM.
- 2) The presence of meadow and edges of shallow marshes of any size.
- 3) The presence of 1 or more individuals of the listed species [Chimney or Digger Crayfish], [Devil or Meadow Crayfish] or their chimneys.

The SWD Ecosite can be found within the subject lands and may provide habitat.

SPECIAL CONCERN AND RARE WILDLIFE SPECIES – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Special Concern or provincially rare (S1 – S3, SH) species. There were no SAR, nor their preferred habitat present within the subject lands. The NHIC 1km² database identified as special concern species historically recorded within the area. However, there is no open water present within the study area that would provide suitable habitat for the turtles. The wetland is high quality though, and other areas of the woodland and wetland could provide habitat for other special concern species or provincially rare species.

4.5 ANIMAL MOVEMENT CORRIDORS

AMPHIBIAN MOVEMENT CORRIDORS – CANDIDATE

The criteria defining this habitat as significant include:

- 1) All Ecosites associated with water.
- 2) Corridors should consist of native vegetation, be roadless, have no gaps such as fields > 20 metres and have waterways or waterbodies.
- 3) Corridors should be at least 200 metres wide with gaps < 20 m and if following riparian habitat have at least 15 metres of vegetation on both sides of the waterway.

The SWD Ecosite can be found within the study area and may provide habitat.

The candidate SWH shown below for adjacent lands are based on the consideration of ELCs and features present on adjacent lands in comparison with the MNRF Significant Wildlife Habitat Criteria Schedules for Ecozone 7E (2015).

Candidate SWH	Location
Shorebird Migratory Stopover Area	The wetland within the study area could provide candidate habitat.
Raptor Wintering Area	The woodland within the study area could provide candidate habitat.
Bat Maternity Colonies	The woodland and wetland within the study area

	could provide candidate habitat.
Turtle Wintering Areas	The woodland and wetland within the study area could provide candidate habitat.
Deer Winter Congregation Area	The woodland within the study area could provide candidate habitat.
Old Growth Forest	The woodland within the study area could provide candidate habitat.
Seeps and Springs	The woodlands and wetland within the study area could provide candidate habitat.
Amphibian Breeding Habitat (woodland)	The woodlands and wetland within the study area could provide candidate habitat.
Amphibian Breeding Habitat (wetland)	The wetland within the study area could provide candidate habitat.
Marsh Bird Breeding Habitat	The woodlands and wetland within the study area could provide candidate habitat.
Terrestrial Crayfish	The wetland within the study area could provide candidate habitat.

Appendix A – Significant Wildlife Habitat [SWH]

This section provides comments on significant and/or sensitive wildlife features and functions as delineated in the OMNR Significant Wildlife Habitat Technical Guide (2000) including Appendix q and in the draft OMNR Significant Wildlife Habitat Ecoregion Criteria Schedule for Region 7E.

Seasonal Concentration Areas

WATERFOWL STOPOVER AND STAGING AREAS (Terrestrial) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites CUM1 or CUT1 with evidence of annual spring flooding.*
- 2) Fields with waste grain near Long Point, Rondeau, Pelee, Lake St. Clair or Grand Bend when used by Tundra Swans*
- 3) The presence of 100 or more individuals of any mix of the species listed in the ecoregion criteria schedule.*

None of the listed Ecosites or criteria are present within the study area.

WATERFOWL STOPOVER AND STAGING AREAS (Aquatic) – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites MAS1, MAS2, MAS3, SAS1, SAM1, SAF1 or SWD1 to 7.*
- 2) Ponds, marshes, lakes, bays, coastal inlets or watercourses with an abundant supply of aquatic invertebrates and vegetation in shallow water. Sewage and storm water ponds do not qualify.*
- 3) Aggregations of > 700 waterfowl use days of any of the listed species.*
- 4) Annual staging of Ruddy Ducks, Canvasbacks or Redheads.*

There is a SWD Ecosite present within the subject lands that could provide habitat.

SHOREBIRD MIGRATORY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites BBO1, BBO2, BBS1 to 2, BBT1 to 2, SDO1, SDS2, SDT1 or MAM1 to 5.*
- 2) Shorelines of lakes, rivers and wetlands including beaches, bars and seasonally flooded muddy and un-vegetated areas and groynes and other armour rock shorelines. Sewage and storm water ponds do not qualify.*
- 3) The presence of 3 or more listed species and > 1000 shorebird use days during spring or fall. Sites with > 100 Whimbrel used for 3 years or more.*

There are none of the listed criteria or Ecosites present within the subject lands.

RAPTOR WINTERING AREA – CANDIDATE

The criteria defining this habitat as significant include:

- 1) A combination of at least one of FOD, FOM, FOC, SWD, SWM or SWC and one of CUM, CUT, CUS or CUW.
- 2) A combination of fields and woodlands > 20 ha or >15 ha in sites with little disturbance such as idle or fallow fields or lightly grazed fields or meadows.
- 3) One or more Short-eared Owls or Bald Eagles or at least 10 individuals and two listed species [Rough-legged Hawk, Red-tailed Hawk, Northern Harrier, American Kestrel, Snowy Owl] at a site that has been used regularly [3 in 5 years] for a minimum of 20 days. woodland and PSW could provide candidate habitat due to the presence of the SWD Ecosite

The SWD Ecosites is found within the subject lands. The SWD community and adjacent agricultural meadow can provide habitat.

BAT HIBERNACULA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites CCR1, CCR2, CCA1 or CCA2.
- 2) Hibernacula include caves, mine shafts, underground foundations and karsts but not buildings.
- 3) The confirmed presence of hibernating bats.

There are none of the listed Ecosites or criteria present within the study area.

BAT MATERNITY COLONIES – CANDIDATE

The criteria defining this habitat as significant include:

- 1) Any Ecosite in FOD, FOM, SWD or SWM.
- 2) Colonies are found in tree cavities or vegetation. Buildings do not qualify.
- 3) Colonies in forest stands with more than 10 ha of large diameter (> 25 cm dbh) wildlife
- 4) The presence of wildlife trees (snags) in early stages of decay (i.e. class 1 to 3).
- 5) Colonies must have > 10 Big Brown Bats, or > 5 Silver-haired Bats.

The SWD Ecosite is found within the subject lands and could provide habitat.

BAT MIGRATORY STOPOVER AREA – NOT PRESENT

The confirmation criteria for this SWH are still being determined.

- 1) Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stopover habitat for migrating Silver-haired Bats.

The study area is not located within the listed coordinates.

TURTLE WINTERING AREAS – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Community Classes SW, MA, OA or SA or Community Series FEO or BOO.*
- 2) *The presence of water that is deep enough not to freeze to the bottom and that has soft mud substrates.*
- 3) *The presence of 5 Midland Painted Turtles or one or more Northern Map Turtles or Snapping Turtles.*

The SWD Ecosite can be found within the subject lands. Even though the SW Ecosite is present within adjacent lands, there is no deep water that would provide suitable candidate habitat.

SNAKE HIBERNACULUM – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of rock piles, slopes, stone fences, crumbling foundations, burrows or rock crevices which may indicate potential entrances to hibernacula. Hibernacula must be below the frost line.*
- 2) *Presence of a hibernacula used by at least 5 individuals of one of the listed species or any number of individuals of at least 2 species.*
- 3) *Congregations of at least 5 individuals of one of the listed species or any number of individuals of at least 2 species observed near potential hibernacula on sunny warm days in spring and fall.*
- 4) *Presence of any species at risk.*

There are none of the listed criteria found within the study area.

COLONIALY NESTING BIRD BREEDING HABITAT (Bank, Northern Rough-winged and Cliff Swallows) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of CUM1, CUT1, CUS1, BLS1, BLO1, BLT1, CLO1, CLS1 or CLT1*
- 2) *The presence of undisturbed or naturally eroding banks, sandy hills, borrow pits, steep slopes or sand piles, cliff faces, bridge abutments, silos or barns.*
- 4) *The presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or Rough-winged Swallows.*
- 5) *Does not include licensed/permitted Mineral Aggregate Operations, man-made structures (bridges or buildings) or recently disturbed (2 years) soil areas such as berms, embankments, soil or aggregate stockpiles*

There are none of the listed Ecosites or criteria present within the study area.

COLONIALY NESTING BIRD (Hérons / Egrets) BREEDING HABITAT [Tree/Shrubs] – CANDIDATE

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites SWM2, 3, 5 or 6, SWD 1 to 7 or FET1.*
- 2) *The presence of stick nests in live or dead standing trees, shrubs or emergent vegetation in*

wetlands, lakes, islands and peninsulas.

3) The presence of one or more active nests of any listed species [Great Blue or Green Heron, Black-crowned Night-Heron, Great Egret].

The SWD Ecosite can be found within the subject lands that could provide habitat.

COLONIALY NESTING BIRD (Gulls / Terns / Brewer's Blackbird) BREEDING HABITAT (Ground) – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of a rocky island or peninsula (natural or artificial) within a lake or large river system.*
- 2) The presence of > 25 active Herring Gull, > 5 active Common Tern or > 2 Caspian Terns nests.*
- 3) Any active colony of one or more Little Gulls or Great Black-backed Gulls.*
- 4) The presence of 5 or more pairs of Brewer's Blackbirds in MAM1- 6, MAS1- 3, CUM, CUT or CUS.*
- 5) For Brewer's Blackbird, open fields or pastures with scattered trees or shrubs in close proximity to watercourses.*

There are none of the listed criteria found within the study area.

LANDBIRD MIGRATORY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of any of the following Ecosites: FOC, FOM, FOD, SWC, SWM OR SWD.*
- 2) Sites with a variety of habitats such as forest, grassland and wetland complexes*
- 3) The presence of a woodlot > 5 ha and located within 5 km of the Lake Erie or Lake Ontario shoreline.*
- 4) Use of the woodlot by > 200 birds of at least 10 species / day on at least 5 different days and a total of 35 species during the migration period.*

The SWD Ecosites can be found within the subject lands that could provide habitat. However, the subject lands are not within 5km of the Lake Erie shoreline.

MIGRATORY BUTTERFLY STOPOVER AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of a combination one of CUM, CUT or CUS and one of FOC, FOM, FOD or CUP.*
- 2) A minimum of 10 ha of field and forest located within 5 km of the Lake Erie or Ontario shoreline.*
- 3) The presence of >5000 Monarch use days or >3000 use days if Painted Ladies or White Admirals are also present.*

There are none of the listed criteria or Ecosites present within the study area. The study area is also >5km away from the shoreline of Lake Erie or Lake Ontario.

DEER WINTER CONGREGATION AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of the following Ecosites: FOC, FOM, FOD, SWC, SWM OR SWD*
- 2) *Woodlots at least 50 ha in size.*

The SWD Ecosite can be found within the subject lands. However, the “Significant Woodland” is not large enough to support this habitat.

4.2 RARE VEGETATION COMMUNITIES

CLIFFS AND TALUS SLOPES – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of TAO, TAS, TAT, CLO, CLS or CLT.*
- 2) *A cliff must be >3 m in height*
- 3) *The presence of any ELC vegetation type for cliffs or talus slopes.*

SAND BARREN – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any of SBO1, SBS1, SBT1.*
- 2) *Sites with sparse vegetation (< 60%) and exposed sand.*
- 3) *The presence of any ELC vegetation type for sand barrens.*

ALVAR – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of any ALO1, ALS1, ALT1, FOC1 or 2, CUM2, CUS2, CUT2-1, CUW2.*
- 2) *Sites with level, mostly unfractured bedrock overlain by a thin layer of soil.*
- 3) *Vegetation at the sites may include grasslands and/or shrublands varying from patchy to barren.*
- 4) *A minimum area of > 0.5 ha, these sites are only located in the western islands of Lake Erie.*
- 5) *The presence of four of the five Alvar Indicator Species is significant.*

OLD GROWTH FOREST – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of FOD, FOC, FOM, SWD, SWC or SWM.*
- 2) *The presence of dominant trees > 140 years of age.*
- 3) *The presence of heavy mortality or turnover of over-story trees that encourage development, and an abundance of snags and downed woody debris.*

The SWD Ecosite can be found within the subject lands. However, the trees within the study area are not old enough to be considered old growth.

SAVANNAH – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of TPS1 and 2, TPW1 and 2 or CUS2.*
- 2) *The presence of tallgrass prairie habitat with tree cover between 25-60%.*
- 3) *The presence of one or more Savannah Indicator Species.*

TALLGRASS PRAIRIE – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of TPO1 or 2.*
- 2) *The presence of prairie grasses with < 25% tree cover.*
- 3) *The presence of one or more Prairie Indicator Species.*

OTHER RARE VEGETATION COMMUNITIES – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Provincially Rare S1, 2 or 3 vegetation communities.*
- 2) *Rare vegetation communities include beaches, fens, forest, marsh, barrens, dunes and swamps.*

4.3 SPECIALIZED HABITATS FOR WILDLIFE

There are none of the listed Ecosites or criteria present within the subject lands. However, the adjacent woodland and PSW could provide candidate habitat due to the presence of wetland and

WATERFOWL NESTING AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *All upland habitats adjacent to Ecosites MAS1 to 3, SAS1, SAM1, SAF1, MAM1 to 6, SWT1 and 2 or SWD1 to 4 that extend 120 metres from a > 0.5 ha wetland or a cluster of at least 3 or more wetlands if they are < 0.5 ha*
- 2) *The presence of 3 or more nesting pairs for any of the listed species other than Mallard or 10 or more nesting pairs for any of the listed species including Mallards.*
- 3) *Any active nesting site of an American Black Duck.*

There are none of the listed Ecosites or features present within the subject lands.

BALD EAGLE AND OSPREY NESTING FORAGING AND PERCHING HABITAT – CANIDATE

The criteria defining this habitat as significant include:

- 1) Any of the following Community Series: FOD, FOM, FOC, SWD, SWM or SWC directly adjacent to riparian areas such as rivers, lakes, ponds and wetlands.
- 2) The presence of lakes, ponds, rivers or wetlands along forested shorelines, islands or structures over water.
- 3) One or more active Osprey or Bald Eagle nests occupied annually.

The SWD Ecosite can be found within the subject lands and could provide habitat.

WOODLAND RAPTOR NESTING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) The presence of any forested ELC Ecosite including conifer plantations, as well as any SWC, SWM, SWD or CUP3.
- 2) Natural or conifer woodlands > 30 ha or with > 4 ha of interior habitat that is at least 200 metres from edge.
- 3) The presence of 1 or more active nests of any of the listed species [Northern Goshawk, Cooper's Hawk, Sharp-shinned Hawk, Red-shouldered Hawk, Broad-winged Hawk, Barred Owl].

The SWD Ecosite can be found within the subject lands. However, the "Significant Woodlands" are not large enough to support this habitat.

TURTLE NESTING AREA – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) Exposed mineral soil (sand or gravel) within 100 metres of or in any of the following Ecosites: MAS1 to 3, SAS1, SAM1, SAF1, BOO1, FEO1.
- 2) The nesting substrate is located in open, sunny areas, preferably on sand and gravel beaches, adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers.
- 3) Presence of 5 or more nesting Midland Painted Turtles or one or more Northern Map Turtles or Snapping Turtles.

There are none of the listed Ecosites or criteria within the study area.

SEEPS AND SPRINGS – CANDIDATE

The criteria defining this habitat as significant include:

- 1) Any forested area with less than 25% open meadow/field/pasture within the headwaters of a stream or river system.
- 2) Any site with 2 or more seeps or springs.

The listed criteria can found within the study area and may provide SWH habitat.

AMPHIBIAN BREEDING HABITAT (woodland) – CANDIDATE

The criteria defining this habitat as significant include:

- 1) The presence of Ecosites FOC, FOM, FOD, SWC, SWM or SWD.

2) The presence of a wetland, pond, or woodland pool >500 m² in or within 120 metres of woodland of any size.

3) The presence of 1 or more of the listed salamander species or 2 or more frog species with at least 20 individuals (adults, juveniles, eggs, or larval masses), or Call Level Codes of 3. Listed species are Eastern Newt, Blue-spotted and Spotted Salamanders, Western Chorus and Wood Frogs, Spring Peeper and Gray Treefrog.

The SWD Ecosites can be found within the subject lands and may provide SWH habitat.

AMPHIBIAN BREEDING HABITAT (wetlands) – CANDIDATE

The criteria defining this habitat as significant include:

1) The presence of Community Classes SW, MA, FE, BO, OA or SA.

2) Wetland areas > 120 metres from woodland habitat.

3) The presence of wetlands and pools > 500 m² supporting high species diversity.

4) Ponds with shrubs and logs increase significance.

5) The presence of 1 or more of the listed salamander species or 2 or more of the listed frog or toad species with at least 20 individuals (adults, juveniles, eggs or larval masses) or Call Level Codes of 3 or Wetland with confirmed breeding Bullfrogs. Listed species are E. Newt, Spotted, Blue-spotted and Four-toed Salamanders, American Toad, Gray Treefrog, Western Chorus, Northern Leopard, Pickerel, Green and Mink Frogs.

6) The confirmed breeding of Bullfrogs.

The SWD Ecosite can be found within the subject lands and may provide habitat.

WOODLAND AREA – SENSITIVE BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

1) The presence of Ecosites FOC, FOM, FOD, SWC, SWM, or SWD

2) Large, natural blocks of typically large mature (> 60 years old) forest stand or woodlots > 30ha where the interior habitat is at least 200m from forest edge habitat and interior forest breeding birds are breeding.

3) The presence of nesting or breeding pairs of 3 or more of the listed wildlife species. Listed species are Yellow-bellied Sapsucker, Red-breasted Nuthatch, Veery, Blue-headed Vireo, Northern Parula, Black-throated Green Warbler, Blackburnian Warbler, Black-throated Blue Warbler, Ovenbird, Scarlet Tanager, Winter Wren or Pileated Woodpecker.

4) Any site with breeding Cerulean Warblers or Canadian Warblers is considered significant.

The SWD Ecosite can be found within the subject lands. However, the “Significant Woodland” is not large enough to support this habitat.

4.4 HABITATS FOR SPECIES OF CONSERVATION CONCERN

MARSH BIRD BREEDING HABITAT – CANDIDATE

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites MAM1 to 6, SAS1, SAM1, SAF1, FEO1 or BOO1 and for Green Heron any SW, MA or CUM1 sites.*
- 2) *The presence of wetlands with shallow water with emergent aquatic vegetation and for Green Heron sluggish streams, ponds and marshes sheltered by shrubs and trees.*
- 3) *Breeding evidence for 5 or more nesting pairs of Sedge Wren or Marsh Wren*
- 4) *Any combination of 4 or more of the listed species: American Bittern, Virginia Rail, Sora, Common Moorhen, American Coot, Pied-billed Grebe, Common Loon, Green Heron.*
- 4) *The presence of 1 or more breeding Trumpeter Swans, Green Heron, Black Terns or Yellow Rail.*

The SWD Ecosite can be found within the subject lands that may provide habitat.

OPEN COUNTRY BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites CUM1 or CUM2.*
- 2) *The presence of large grassland areas > 30 ha including natural and cultural fields and meadows.*
- 3) *The presence of abandoned fields, mature hay fields and pasturelands that have not been farmed in the last 5 years. Class 1 or 2 agricultural lands that are row cropped, intensively hayed or pastured do not qualify.*
- 4) *Breeding evidence for 2 or more of the listed species [Grasshopper, Savannah or Vesper Sparrow, Northern Harrier]*
- 5) *One or more breeding Short-eared Owls.*

There are none of the listed Ecosites or criteria present within the study area.

SHRUB / EARLY SUCCESSIONAL BIRD BREEDING HABITAT – NOT PRESENT

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites CUT1, CUT2, CUS1, CUS2, CUW1 or CUW2.*
- 2) *The presence of large natural fields > 10 ha succeeding to shrub and thicket habitats that have not been actively farmed in the previous 5 years*
- 3) *Breeding evidence for 1 indicator species [Brown Thrasher, Clay-coloured Sparrow] and at least 2 common species [Field Sparrow, Black-billed Cuckoo, Eastern Towhee, Willow Flycatcher].*
- 4) *Fields with breeding Yellow-breasted Chats or Golden-winged Warblers.*

There are none of the listed Ecosites or criteria present within the study area.

TERRESTRIAL CRAYFISH – CANDIDATE

The criteria defining this habitat as significant include:

- 1) *The presence of Ecosites MAM1 to 6, MAS1 to 3, SWD, SWT or SWM.*

2) The presence of meadow and edges of shallow marshes of any size.

3) The presence of 1 or more individuals of the listed species [Chimney or Digger Crayfish], [Devil or Meadow Crayfish] or their chimneys.

The SWD Ecosite can be found within the subject lands and may provide habitat.

SPECIAL CONCERN AND RARE WILDLIFE SPECIES – CANDIDATE

The criteria defining this habitat as significant include:

1) The presence of Special Concern or provincially rare (S1 – S3, SH) species. There were no SAR, nor their preferred habitat present within the subject lands. The NHIC 1km² database identified as special concern species historically recorded within the area. However, there is no open water present within the study area that would provide suitable habitat for the turtles. The wetland is high quality though, and other areas of the woodland and wetland could provide habitat for other special concern species or provincially rare species.

4.5 ANIMAL MOVEMENT CORRIDORS

AMPHIBIAN MOVEMENT CORRIDORS – CANDIDATE

The criteria defining this habitat as significant include:

1) All Ecosites associated with water.

2) Corridors should consist of native vegetation, be roadless, have no gaps such as fields > 20 metres and have waterways or waterbodies.

3) Corridors should be at least 200 metres wide with gaps < 20 m and if following riparian habitat have at least 15 metres of vegetation on both sides of the waterway.

The SWD Ecosite can be found within the study area and may provide habitat.

The candidate SWH shown below for adjacent lands are based on the consideration of ELCs and features present on adjacent lands in comparison with the MNRF Significant Wildlife Habitat Criteria Schedules for Ecoregion 7E (2015).

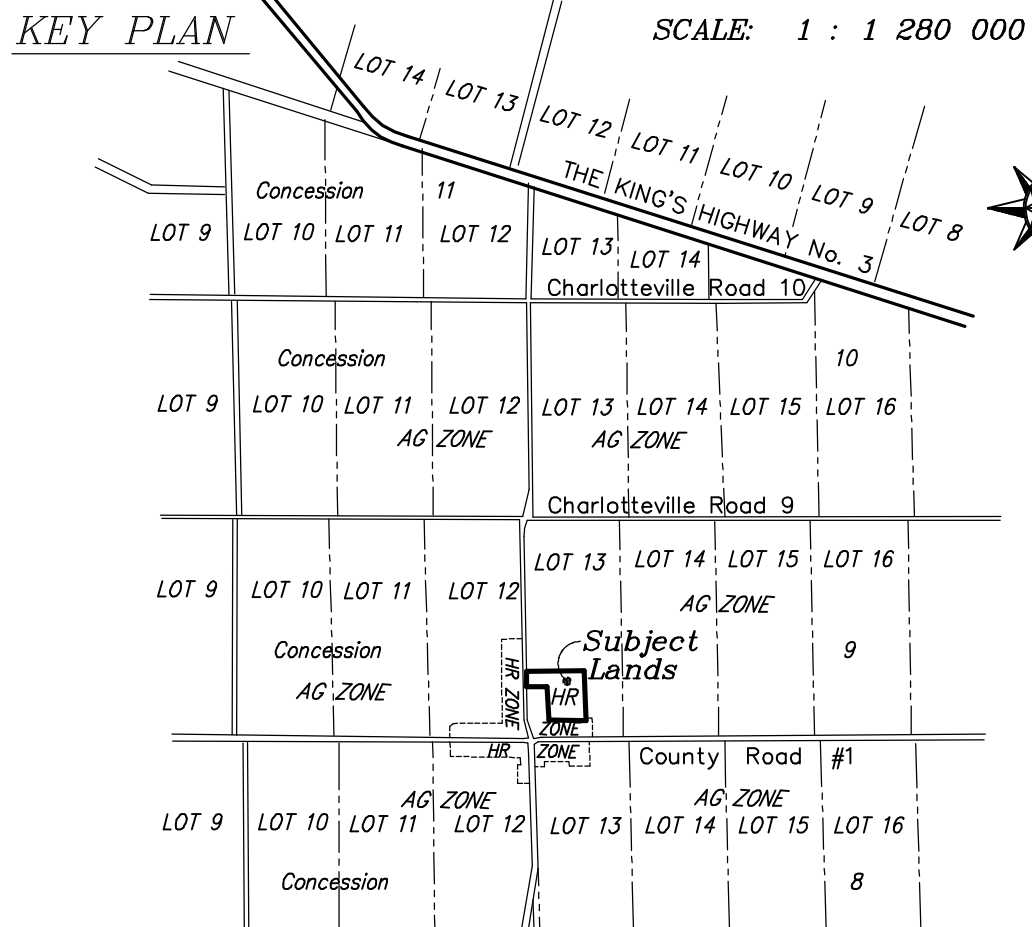
Candidate SWH	Location
Shorebird Migratory Stopover Area	The wetland within the study area could provide candidate habitat.
Raptor Wintering Area	The woodland within the study area could provide candidate habitat.
Bat Maternity Colonies	The woodland and wetland within the study area could provide candidate habitat.

Turtle Wintering Areas	The woodland and wetland within the study area could provide candidate habitat.
Deer Winter Congregation Area	The woodland within the study area could provide candidate habitat.
Old Growth Forest	The woodland within the study area could provide candidate habitat.
Seeps and Springs	The woodlands and wetland within the study area could provide candidate habitat.
Amphibian Breeding Habitat (woodland)	The woodlands and wetland within the study area could provide candidate habitat.
Amphibian Breeding Habitat (wetland)	The wetland within the study area could provide candidate habitat.
Marsh Bird Breeding Habitat	The woodlands and wetland within the study area could provide candidate habitat.
Terrestrial Crayfish	The wetland within the study area could provide candidate habitat.

DRAFT PLAN OF SUBDIVISION

OF PART OF
LOT 13
CONCESSION 9
IN THE GEOGRAPHIC
TOWNSHIP OF CHARLOTTEVILLE
NORFOLK COUNTY
SCALE: 1 : 750

KEY PLAN



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT THE LANDS TO BE SUBDIVIDED AS SHOWN ON THIS PLAN AND THEIR RELATIONSHIP TO THE ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATED: FEBRUARY 16, 2021

KIM HUSTED
ONTARIO LAND SURVEYOR

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE JEWITT AND DIXON LTD. TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO NORFOLK COUNTY FOR APPROVAL.

DATED: FEBRUARY 16, 2021

PETER BOSMA

SECTION 51 (17) PLANNING ACT, R.S.O. 1990

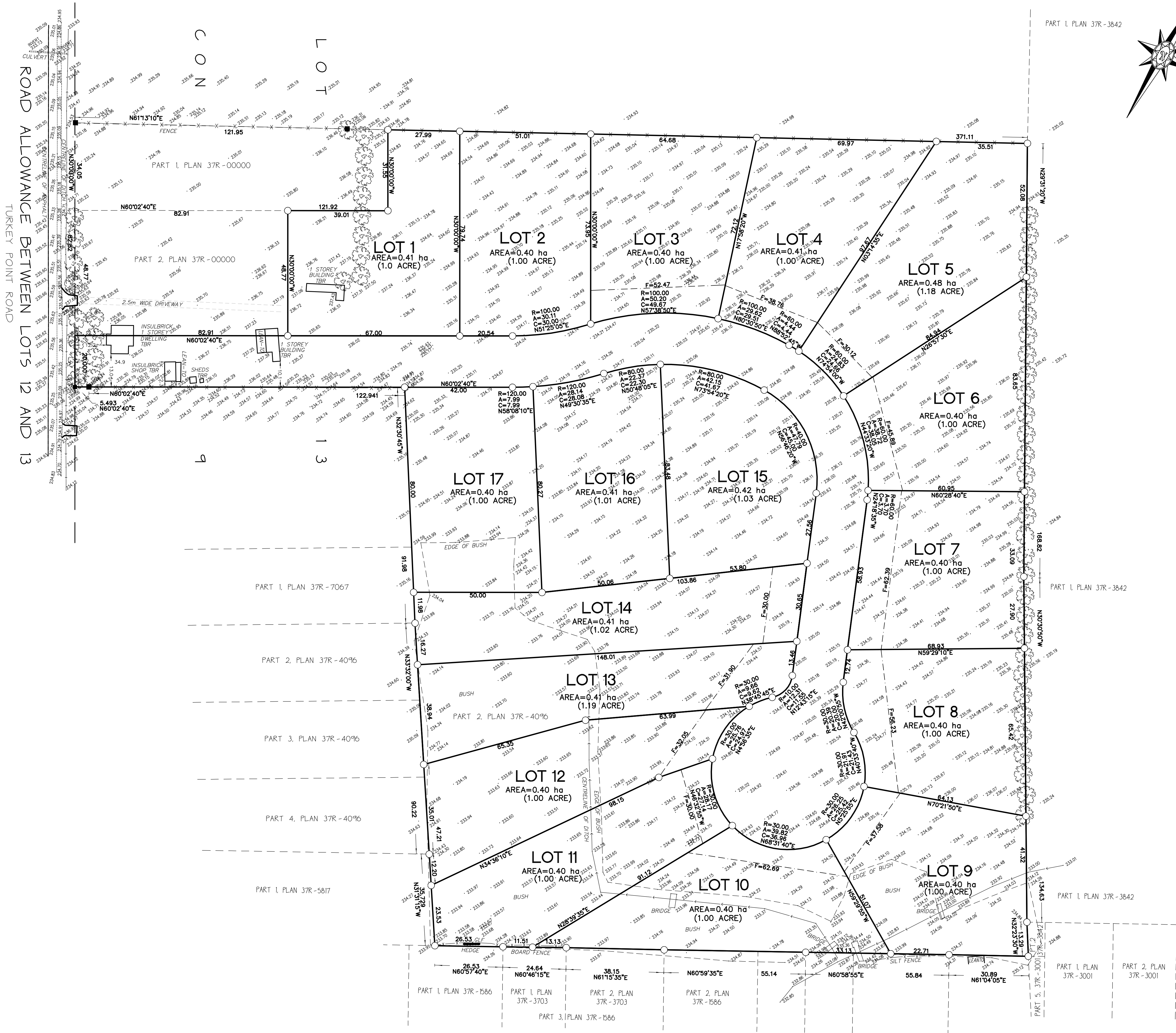
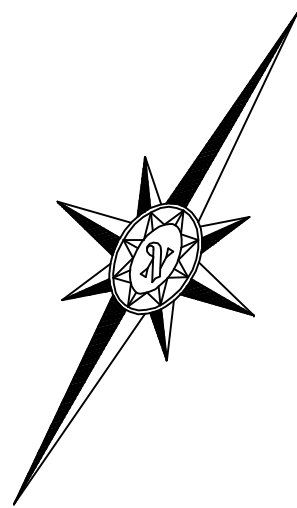
- (a) SEE PLAN.
(b) SEE PLAN.
(c) SEE PLAN.
(d) LOTS TO BE USED FOR SINGLE FAMILY DWELLINGS.
(e) SEE PLAN.
(f) SEE PLAN.
(g) SEE PLAN.
(h) WELL TO BE INSTALLED BY HOME OWNERS
IN ACCORDANCE WITH THE REQUIREMENTS OF NORFOLK COUNTY.
(i) SANDY LOAM
(j) SEE PLAN.
(k) CURB AND GUTTER, PAVED ROADS, STREET LIGHTING
WILL BE INSTALLED BY THE DEVELOPER IN ACCORDANCE
WITH THE REQUIREMENTS OF NORFOLK COUNTY.
(l) NIL

JEWITT AND DIXON LTD.
ONTARIO LAND SURVEYORS
R.R.1, SIMCOE, ONTARIO, N3Y 4J9
(51 PARK ROAD)

PHONE: (519) 426-0842 FAX: (519) 426-1034
E-mail: surveyors@amtelecom.net

F.W. - J.P.H./J.D.
BOOK - LL-FILE
CALC. - J.L.M.
PLAN - J.L.M.
CHECK - K.H.
JOB No. - 19-2137

P21 06 A9992



1.0 Introduction

Elder Plans Inc. has been retained by Peter Bosma to provide a planning rationale report for a draft plan of subdivision application in the hamlet of Green's Corners and a Zoning Amendment related to one lot frontage deficiency. The proposed draft plan of subdivision follows previous applications to change the zoning of the subject lands to Hamlet Residential from Agricultural (ZNPL2020159) and two consents (BNPL202033 and BNPL2020034) for 2 hamlet residential lots fronting on Turkey Point Road.

A Planning Rationale Report was provided for the previous zoning amendment application. There have been no policy changes affecting hamlet development since that report was written. While working on the final design of the road and its turning radius, it became apparent that lot 10 would have a deficient lot frontage. As the Hamlet designation set out in the Official Plan is not being changed, the rationale provided in this report will be limited to subdivision policies of the Norfolk County Official Plan and the minimum lot frontage requirement of the Hamlet Residential Zone set out in the County Zoning By-law. This report could be considered an addendum to the July 2020 report.

The subject lands are located at 1910 Turkey Point Road and, in the Norfolk County Official Plan, are mainly designated Hamlet. Hazard Lands are designated along the Mary McKenzie Drain near the southeast boundary of the subject lands. There is an area in the south portion of the subject lands identified in the Official Plan as Significant Woodland. In the Norfolk County Zoning By-Law 1-Z-2014, the subject lands are zoned, for the most part, "Hamlet Residential" with a minor amount of "Hazard Land". Special provision 14.987 provides for the current road frontage of 20 m as a future road access.

This report is mainly a review of the Norfolk County Official Plan policies related to subdivisions.

2.0 Site description and neighbouring land uses

The subject lands are 8.05 ha (19.9 ac MPAC) in area and have been used for farming. These lands are vacant, with areas abandoned for farming use earlier, now subject to bush growth. The Mary McKenzie Drain crosses the subject lands near its southeast border. To the north, west and south fronting on Turkey Point Road and McDowell Road East there are residential lots, all part of the hamlet. Lands beyond the hamlet are used for agricultural purposes.

3.0 Development Proposal

The owner plans to develop a residential subdivision on lands within the designated hamlet boundaries of Green's Corners. As a first step the zoning of the subject lands was changed to Hamlet Residential with a special provision for reduced frontage for the future road. Secondly, two residential lots (BNPL2020033 and BNPL2020034) fronting on Turkey Point Road were severed from the original land holding. This left a retained parcel with a 20 m frontage and area of 8.05 ha for the proposed 15 lot plan of subdivision.

The proposal now is to obtain draft approval of the proposed 15 lot plan of subdivision. The lots would front on a new municipal road extending east from Turkey Point Road and ending with a turning circle. The design of that road end and lot sizes has created one lot with a deficient minimum road frontage

requiring a zoning amendment. A hydrogeological investigation study has been completed, confirming private on-site servicing can be accommodated on 0.4 ha sized lots.

Alternate layouts for the subdivision were considered. One proposal from County staff required twice as much road construction, the loss of 4 lots and contained through lots. The proposed cull de sac road provides for most efficient use of land while maintaining the 0.4 ha lot size. Road construction and future maintenance costs are reduced. It allows much of the wooded areas to be maintained and respects the municipal drain. The proposed plan also works with the natural drainage for the planned storm drainage and storm water management pond. The owner and engineers have worked together to create the proposed draft plan.

4.0 Policy Review

4.1 Norfolk County Official Plan

The Official Plan contains many policies providing direction for hamlet development. As this proposal is in regards to a draft plan of subdivision application, the following specific policies are pertinent to this stage of the overall proposal.

Norfolk County Official Plan	Comments
7.5 Hamlet Designation There are 42 Hamlet Areas located within the County. These Hamlets originated as service centres for the surrounding agricultural areas and as residential centres. The Hamlet Areas represent an alternative to the Urban Areas. These roles shall be encouraged to continue. Hamlet development, in the form of residential, commercial, industrial, recreational and institutional facilities provide important services to the surrounding Rural Area. Hamlet development is a preferred alternative to scattered nonfarm development that reduces the impact of development on farming operations in the Rural Area 7.5.1 Permitted Uses Subject to the other policies of this Plan, the following policies shall apply in determining uses permitted on land designated Hamlet on Schedule “B”. a) Low density residential dwellings on lots suitably sized to accommodate private servicing systems shall be the main permitted use.	Approving a draft plan of subdivision application is the next appropriate step in developing low density residential lots sized appropriately for private on-site servicing within a hamlet designation. In regards to determining the appropriate lot size, the Zoning By-law requires a 0.4 ha minimum lot size. The hydrogeological investigation report confirms this is appropriate as the minimum lot size required was determined to be 0.396 ha. The proposed lots are 0.4 ha in size. Therefore, based on the hydrogeological investigation lots of a 0.4 ha minimum size are appropriately sized.
7.5.2 land use policies b) Designation of a Hamlet Area does not mean that the Hamlet Area is suitable for further development. The following criteria shall be	The criteria listed in policy 7.5.2 b) are addressed as follows:

addressed in the review of development applications within designated Hamlet Area boundaries: i) availability of potable water; ii) a servicing feasibility study has been completed in accordance with the Ministry of the Environment and Climate Change guidelines which demonstrates that the proposal's impact on ground and surface water will be within acceptable limits; iii) the proposed servicing will be appropriate for the proposed densities and land uses; iv) the pattern of new development will be a logical extension of the existing built-up area; v) the available community facilities, such as community centres, schools, convenience commercial, recreation or cultural facilities can accommodate the proposed development; vi) the area of the proposed development shall not be permitted in Provincially Significant Features or Hazard Lands, identified on Schedules "B" of this Plan; vii) the area of the proposed development shall not be permitted in or on adjacent land to the Natural Heritage Features identified on Schedule "C" and/or Tables 1 and 2 , unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions, in accordance with the policies of Section 3.5 (Natural Heritage Systems) and Section 11 (Lakeshore Special Policy Area Secondary Plan) of this Plan; viii) the area of the proposed development shall not be located within, and will not have a negative impact on, a Natural Resource Area identified on Schedule "J" to this Plan.	i) potable water has been available for the surrounding existing residential development and the hydrogeological investigation indicates potable water is available for this proposal; ii) The hydrogeological investigation indicates the ODWQS are met and testing for impacts on ground and surface water are within acceptable limits; iii) Based on the hydrogeological investigation there is sufficient water for 15 four bedroom single detached dwellings on 0.4 ha sized lots.; iv) adding a new local road to the east side of Turkey Point Road between existing houses to enable a plan of subdivision provides a pattern of new development which enables in-depth development that is a logical extension of the built-up area. As there are no available lands to provide another access, a turning bulb at the end of the new road is the only option; v) there are no community facilities within Green's Corners. The larger community does provide community facilities which should be able to accommodate the increased demand for them from residents of the proposed subdivision. vi) An Issues Summary Report by Vroom + Leonard reviewed the subject lands and did not find Provincially Significant Features present. The area proposed for housing does not include the area designated as Hazard Lands. The Issues Summary report concluded that "there are no adverse or unalterable impacts on the natural heritage features in the study area provided mitigation measures are followed." Mitigation measures include timing limitations, stormwater management, tree root protection and erosion and sediment controls. vii) The Issues Summary Report indicates a full EIS is not required and that following the mitigation measures will
---	--

	ensure no negative impact on any natural features; viii) the subject lands are not in a Natural Resource Area.
7.5.2 land use policies d) Additional residential development within a Hamlet Area shall be encouraged to occur through infilling or in-depth development. Provision shall be made at appropriate locations to provide access from the main road to an additional tier of lots behind existing development. The County shall strongly discourage linear development along roads.	In-depth development is planned. Adding a new local road to the east side of Turkey Point Road will provide for an additional tier of lots behind existing houses.
8.9.2 Services Outside of Urban Areas The following shall be the policy of the County: a) The primary means of waste water disposal in the Rural Area and the Hamlet Areas, is the septic tank and weeping tile system. It is anticipated that such systems or other private waste water disposal systems will continue to be the principal means of waste water disposal outside of Urban Areas. The installation of septic systems is subject to the approval of the authority having jurisdiction	Based on the Hydrogeological Investigation, private waste water disposal systems will be appropriate for the proposed 0.4 ha sized lots.
5.4 Community Design	
b) Through the review of development applications, including plans of subdivision, site plans and other development proposals, the County: i) shall ensure that new development is designed in keeping with the traditional character of the Urban Areas, in a manner that both preserves the traditional image of the Urban Areas and enhances the sense of place within the County while maintaining the community image of existing settlement areas; ii) shall promote efficient and cost-effective development design patterns that minimize land consumption; iii) shall promote the improvement of the physical character, appearance and safety of streetscapes, civic spaces, and parks; iv) shall encourage tree retention and tree replacement; v) shall ensure that design is sympathetic to the heritage character of an area, including the area's cultural heritage resources; vi) shall strongly encourage design that considers and, wherever possible, continues existing and	The proposed 15 lot plan of subdivision will be developed with 15 single detached dwellings. i) Not applicable as relates to urban areas. This low-density proposal maintains the traditional character of hamlet development; ii) in-depth development minimizes land consumption and is more efficient than strip development. This proposal meets this criterion; iii) the new road will be built to municipal standards and therefore will meet a consistent road standard and provide for safe road access. The proposal does not include any civic spaces or parks so that policy aspect is not applicable; iv) Most of the shrub bush will be removed but where possible, trees will be retained and their roots protected through the construction period. Trees will be planted in the boulevard according to County standards. This criterion is met;

traditional street patterns and neighbourhood structure; and vii) may require, at the County's sole discretion, that proponents submit design guidelines with development applications, establishing how the policies of this Section have been considered and addressed. Such guidelines may also be required to address related issues of residential streetscaping, landscaping, setbacks, sidewalks, signage, garage placement, and architectural treatment.	v) Other than the single detached dwelling development character, there are no outstanding cultural heritage resources in the area. This criterion is met; vi) Two lane streets are traditional and in-depth development is encouraged. The proposal meets this criterion; vii) No design guidelines were requested. Therefore, this criterion is met.
c) Adequate measures shall be taken to ensure that the permitted uses have no adverse effects on adjacent land uses. Adequate buffering shall be provided between any uses where land use conflicts might be expected, and such buffering may include provisions for grass strips and appropriate planting of trees and shrubs, berms or fence screening, and other means as appropriate. Modifications to building orientation may also be appropriate buffering measures, but not in replacement of appropriate plantings	No adverse impacts are anticipated.
d) Development design that establishes reverse lotting on Provincial Highways and County Roads will not be permitted. Development design that requires features such as noise attenuation or privacy fencing will be discouraged. Wherever possible, new development will be oriented toward streets or parks.	No reverse lotting is proposed. No need for privacy fencing or noise attenuation has been identified or required. The proposed new dwellings are oriented toward the new street.
g) Streetscaping that reflects the intended character of settlement areas is encouraged. In particular, traditional streetscaping in the Downtown Designations of the Urban Areas will be encouraged.	Streetscaping in hamlets is normally of very simple character. This proposal addresses all of the County requirements.
h) A high quality of park and open space design is strongly encouraged. The land for parkland dedication shall be carefully selected to facilitate their use as a central focal point for new or existing neighbourhoods.	Instead of parkland dedication, cash-in-lieu has been identified as a requirement. A property evaluation report will be provided to address the cash-in-lieu of parkland by-law.
j) The County may require the provision of certain pedestrian, cycling and trail linkages through the development approvals process.	No pedestrian, cycling or trail linkages are located on the subject lands and nothing has been required through pre-consultation.
k) The County, in consultation with a development proponent(s) and the Norfolk Heritage Committee, shall define a style of street furnishing that should include shared and accessible bicycle racks, garbage	Nothing has been required through pre-consultation.

receptacles, benches and street lamps to be used in a new development.	
m) The County shall encourage development design considering the principles of Crime Prevention Through Environmental Design (CPTED). Specifically, the County shall encourage proponents of new development to use appropriate lighting to deter crime and to situate buildings on lots to maximize natural surveillance.	The County's Street lighting standards are being adhered to. At the building design stage CPTED principles will be applied.
n) To promote environmentally sustainable development, the County shall encourage the design of sustainable neighbourhoods in keeping with Leadership in Energy and Environmental Design - Neighbourhood Development (LEED ND) design principles in accordance with the policies under Section 11.8.2.1 Sustainable Neighbourhood Design of the Lakeshore Special Policy Area Secondary Plan.	The design of the individual dwellings should address sustainability. At this stage no details of the actual dwellings are known. A possible elevation and house plan has been provided with the application.
9.6.4. Draft Plan of Subdivision and Condominium Approval	
a) The provisions of the Planning Act relating to subdivision control, including subdivision agreements, shall be used by Council to ensure that the land use designations and policies of this Plan are complied with, and that a high standard of design is maintained in all development.	The owner is aware a subdivision agreement will be required.
b) Prior to approval of an application for plan of subdivision or plan of condominium, the County shall confirm the availability of adequate servicing infrastructure and allocation in accordance with Section 8.9.3 (Servicing Allocation and Phasing), waste collection and disposal services, and roads.	A hydrogeological investigation has indicated the proposed lots are adequately sized to accommodate a private potable water well and a private on-site septic system. The proposed new municipal road is being designed to accommodate waste collection services, emergency vehicle and public access.
c) Applications for plan of subdivision or plan of condominium approval shall be considered premature if appropriate services and servicing capacity is not available. Additionally, Council may consider other criteria as reason to deem an application for plan of subdivision or plan of condominium approval to be premature.	The hydrogeological investigation indicates appropriate private servicing can be made available.
d) The review of plans of subdivision or plan of condominium shall be based in part on the consideration of the community design policies included in Section 5.4 (Community Design) and Section 11.8 (Community	Section 5.4 Community Design was reviewed above. A potential house plan has been provided. Please see that section for details of how these matters are

Design Strategy) of the Lakeshore Special Policy Area Secondary Plan of this Plan.	addressed. Section 11.8 regarding the Lakeshore is not applicable in this situation.
e) All lots within a plan of subdivision shall have frontage on a public road maintained on a year-round basis, constructed to an acceptable County standard. . . .	A new public road is planned as part of the proposed subdivision which will be maintained on a year-round basis.
f) Provincially Significant Features and Natural Heritage Features shall be protected and preserved in the design of any plan of subdivision or condominium	An Issues Summary report completed by Vroom + Lenard has found no Provincially Significant Features and identified mitigation measures to ensure no negative impact on the Natural Heritage Features or their functions.
g) Plans of subdivision or condominium shall be appropriately phased to ensure orderly and staged development	No phasing is planned.
h) All plans of subdivision shall be subject to a subdivision agreement between the County and the development proponent. . . .	The owner is aware a subdivision agreement will be required.
i) <i>Not applicable (condominiums)</i>	
j) Parkland dedication shall be provided pursuant to Section 9.10.5 (Parkland Dedication) of this Plan. Land to be dedicated for park purposes must be acceptable to the County. Under no circumstances shall the County be obligated to accept parkland being offered in a proposed plan of subdivision.	The owner is aware cash-in-lieu of parkland will be required as set out in the By-law.
k) The County shall consult with the appropriate Conservation Authority and the Province, as well as other relevant agencies, in considering an application for approval of a plan of subdivision or condominium.	The Long Point Region Conservation Authority has been consulted and indicated it will review the storm water management report and that a permit may be needed.

Obtaining approval for a draft plan of subdivision is the appropriate next step towards providing appropriate hamlet residential development in Green's Corners. Official Plan policy regarding plans of subdivision support this proposal. The design of the proposed subdivision addresses the criteria set out in Official Plan policy and therefore is good planning and in the public interest. The proposed subdivision should be supported.

4.2 Norfolk County Zoning By-Law 1-Z-2014

The Norfolk County Zoning By-law regulates the use of lands, the frontage and depth of a parcel of land, the proportion of land occupied by a building or structure, the erection, use, height, bulk, size, floor area, spacing and location of building and structures, and the provision of parking facilities.

Norfolk County Zoning By-Law	Comments
The subject lands are currently zoned Hamlet Residential with special provision 14.987 permitting a 20 m lot frontage. There is a Holding on these lands which can be lifted according to the By-law (26-Z-2020) when a subdivision agreement has been completed and several initial construction steps have been undertaken.	A single detached dwelling is a permitted use. The owner is aware of the Holding on the zoning and is prepared to enter into a subdivision agreement.
3.30 Setback from Municipal Drains No new building or structure or part thereof shall be erected or enlarged nearer to any municipal drain, than specified as follows: b) in any residential, urban or hamlet commercial and urban or hamlet institutional Zones, 4.5 metres from the top of bank of an open drain and where the top of bank is not definable, 4.5 metres from the centre-line;	The Mary McKenzie drain is located in the south east corner of the subject lands and affects approximately 0.32 ha of land. It is to be realigned to more closely follow the property line. Development proposed too near this drain will require a permit from the Conservation Authority. However, there should be sufficient room to meet this setback provision.
5.7.2 Zone Provisions In an RH Zone, no building or structure shall be erected or altered except in accordance with the following provisions: a) minimum lot area: 0.4 hectares b) lot frontage: 30 m c) minimum front yard: 6 metres d) minimum exterior side yard: 6 metres e) minimum interior side yard: i) attached garage 1.2 metres each side ii) detached garage 3 metres and 1.2 metres f) minimum rear yard: 9 metres g) maximum building height: 11 metres [8-Z-2017]	The lots are planned to be a minimum of 0.4 ha in area and 14 of the 15 lots have more than the required road frontage. A need for a zoning amendment has been identified for lot 10 due to the size and shape of the lots, maintaining as many trees as possible, respecting the municipal drain, proper design of the end of the road and the necessary turning radius reducing the lot frontage to 25.12 m. The other provisions cannot be addressed specifically until building plans are developed by the future lot owners however, there is ample room on a lot of this size to meet the zoning provisions.

The Hamlet Residential (RH) zone is consistent with the Hamlet designation. The proposed draft plan of subdivision is able to meet all of the zoning provisions with the exception of lot frontage on lot 10 where a special provision will be needed to permit a 25.12 m frontage. With lot 10 being very deep and 0.45 ha in size the reduced lot frontage should not hamper locating a single detached dwelling on the lot nor restrict access. This reduced frontage balances many considerations including the need for good road design, angle of side lot lines, storm water management and retention of the wooded areas with lot design.

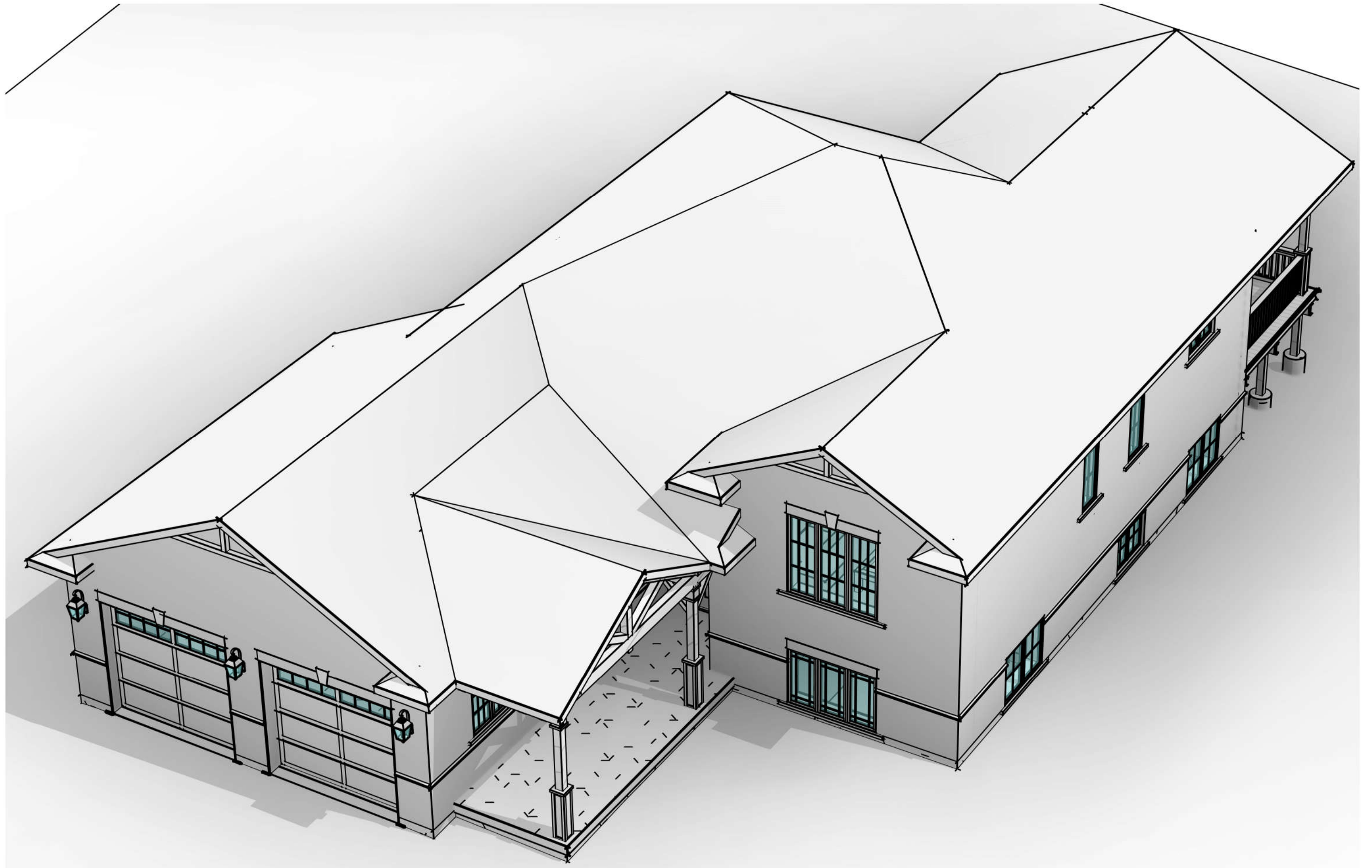
5.0 Review Summary

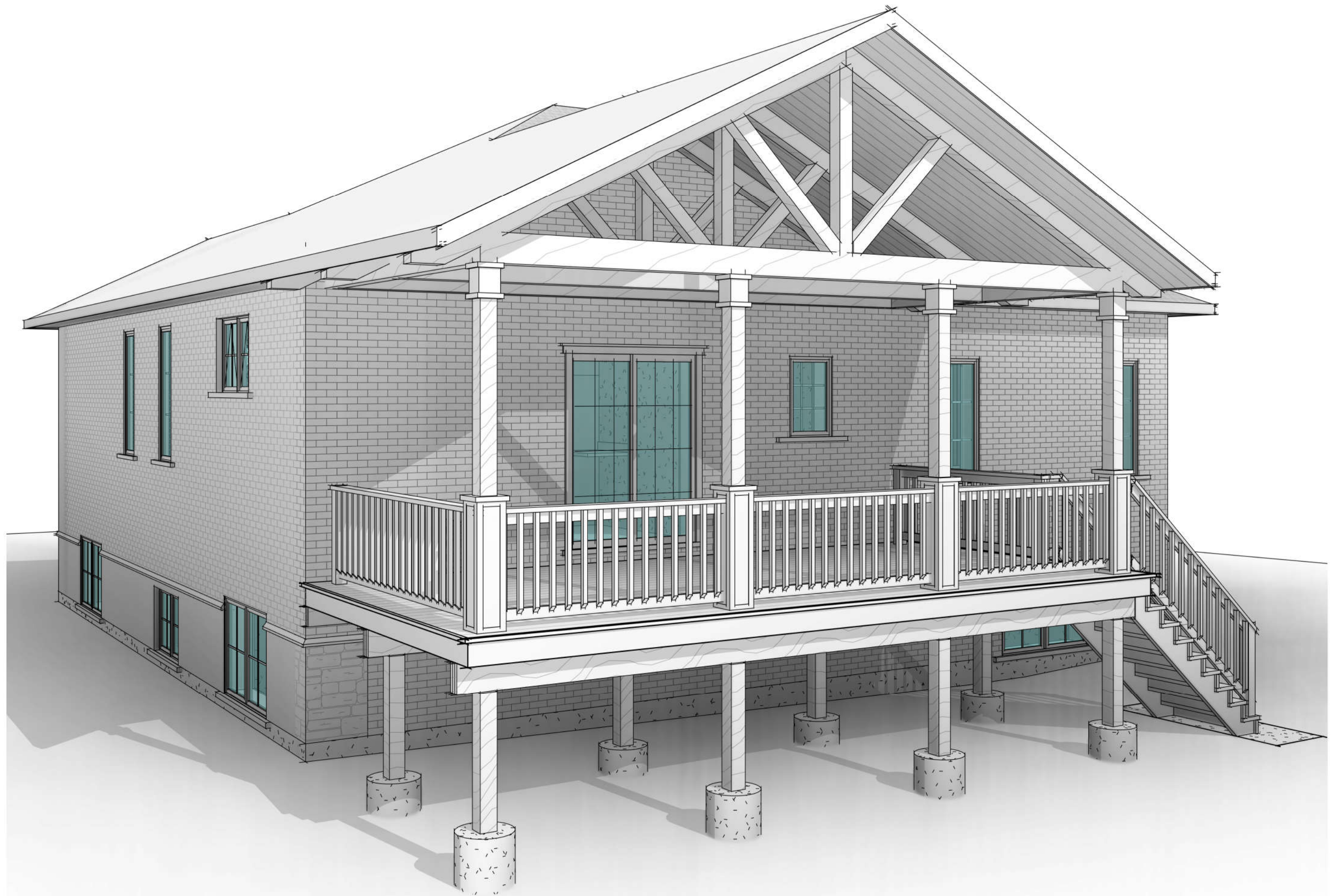
This proposed draft plan of subdivision is consistent with the Provincial Policy Statement 2020 and the County Official Plan. Granting special permission for a lot frontage of 25.12 m for lot 10 will bring the proposal into conformity with the County Zoning By-law 1-Z-2014 as amended while balancing design

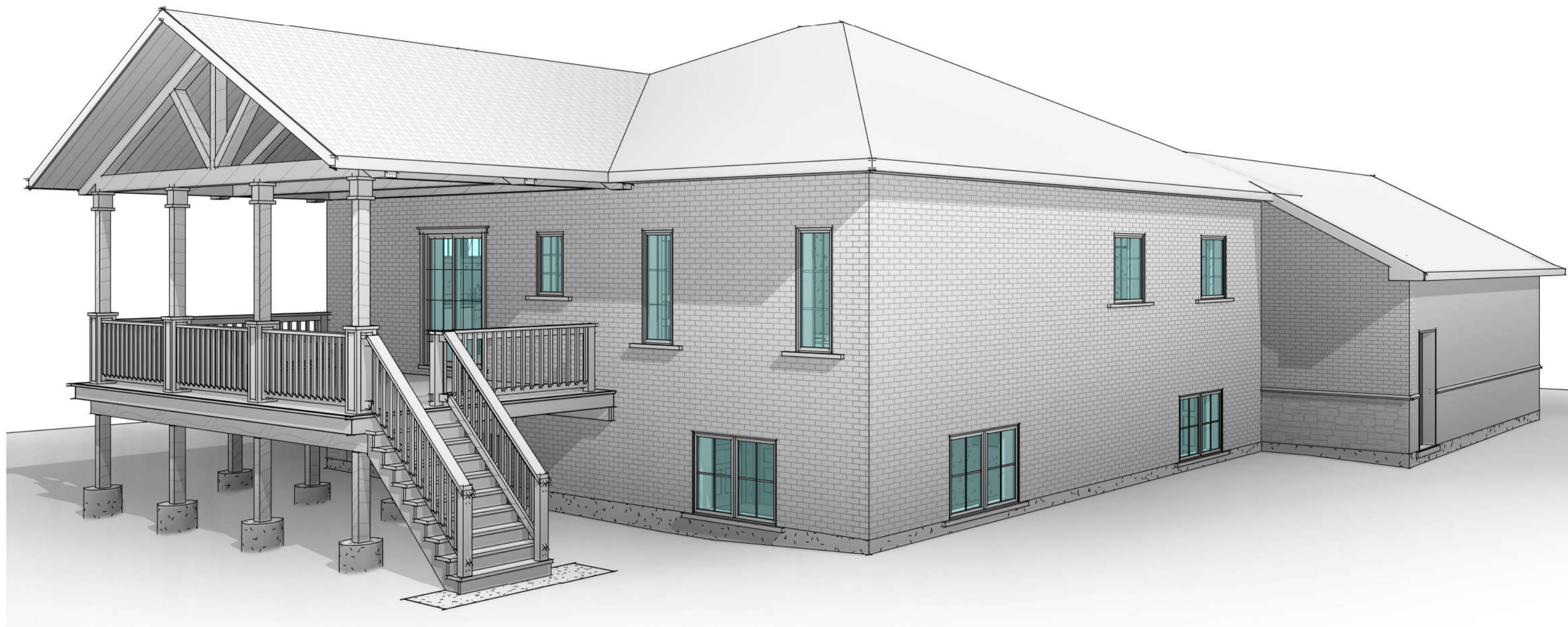
and preservation needs. The proposed subdivision provides housing options that assist the County in achieving its housing goals. This new low-density residential subdivision will provide another alternative to address the demand for housing. No land use conflicts are anticipated as most abutting land uses are also hamlet residential uses. Private on-site servicing can be installed. The small increase in demand on community facilities and amenities or municipal services should be able to be accommodated. The proposed subdivision is a good example of in-depth hamlet development. It serves the public interest and is good planning.

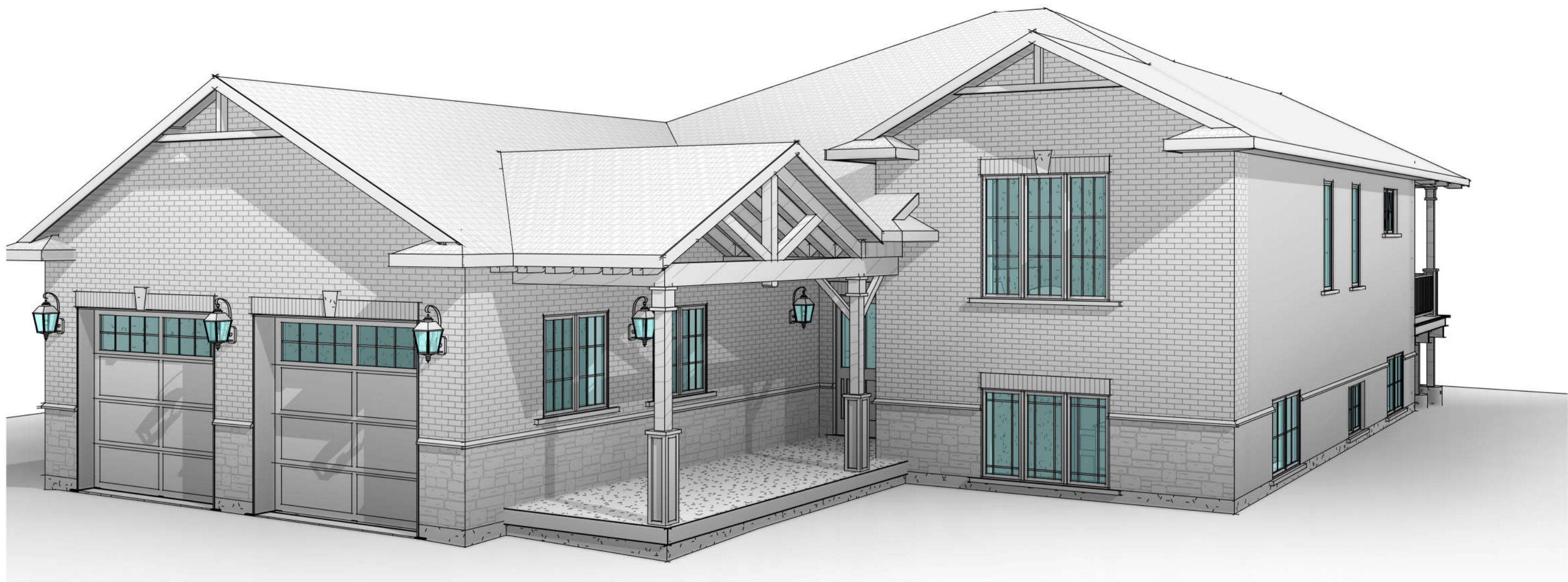
Respectfully submitted,

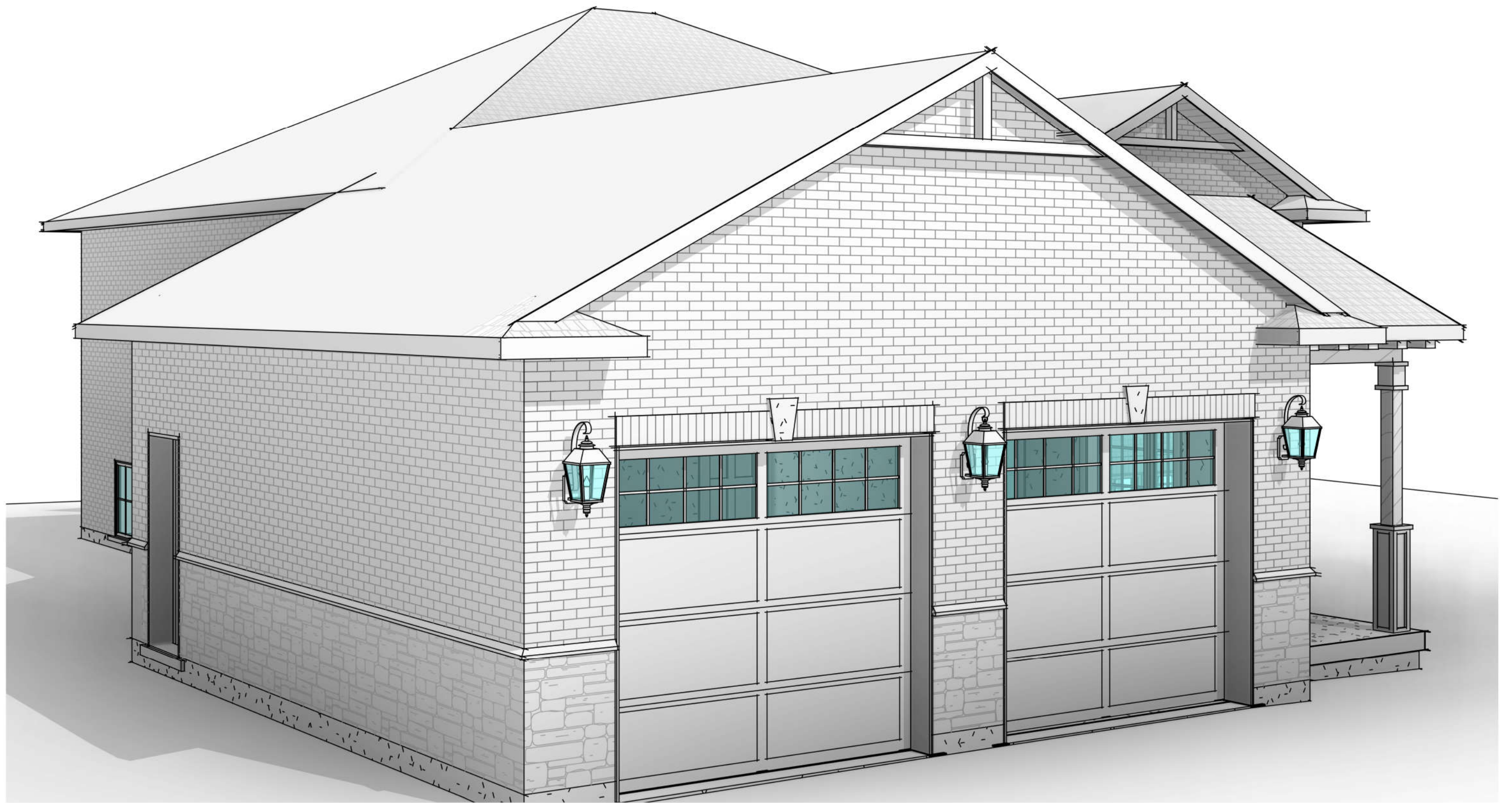
Mary Elder MCIP RPP

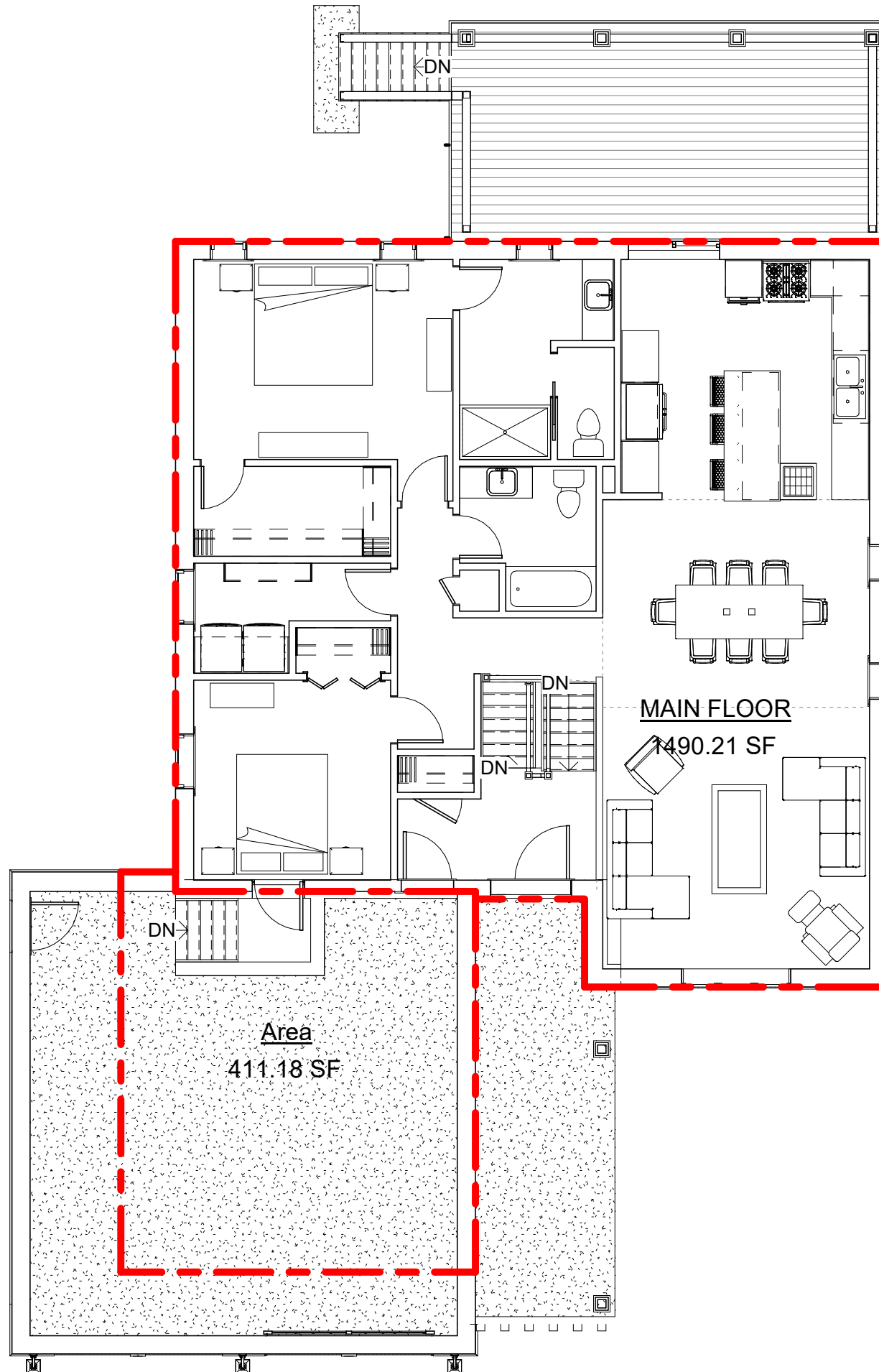














TOP OF ROOF
18' - 9 1/4"

U/S OF TRUSSES
9' - 1 1/4"

Main Floor
0' - 0"

ENTRY
-4' - 9 3/4"





David B. Bennett
Licensed Technologist OAA

Telephone : (519) 909-9246
Email : Dave@engageddesign.ca
website: www.engageddesign.ca

NEW FAMILY HOME

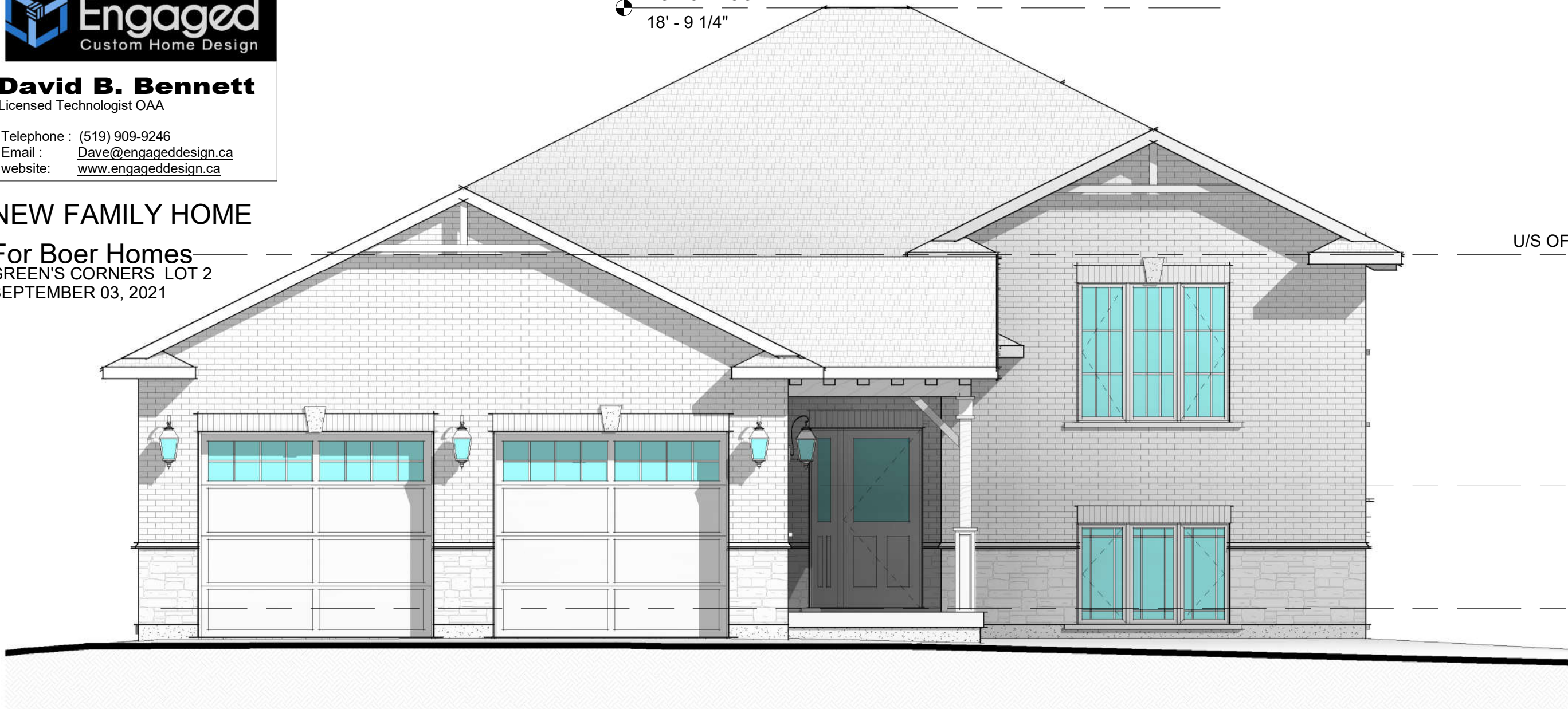
For Boer Homes
GREEN'S CORNERS LOT 2
SEPTEMBER 03, 2021

TOP OF ROOF
18' - 9 1/4"

U/S OF TRUSSES
9' - 1 1/4"

Main Floor
0' - 0"

ENTRY
-4' - 9 3/4"





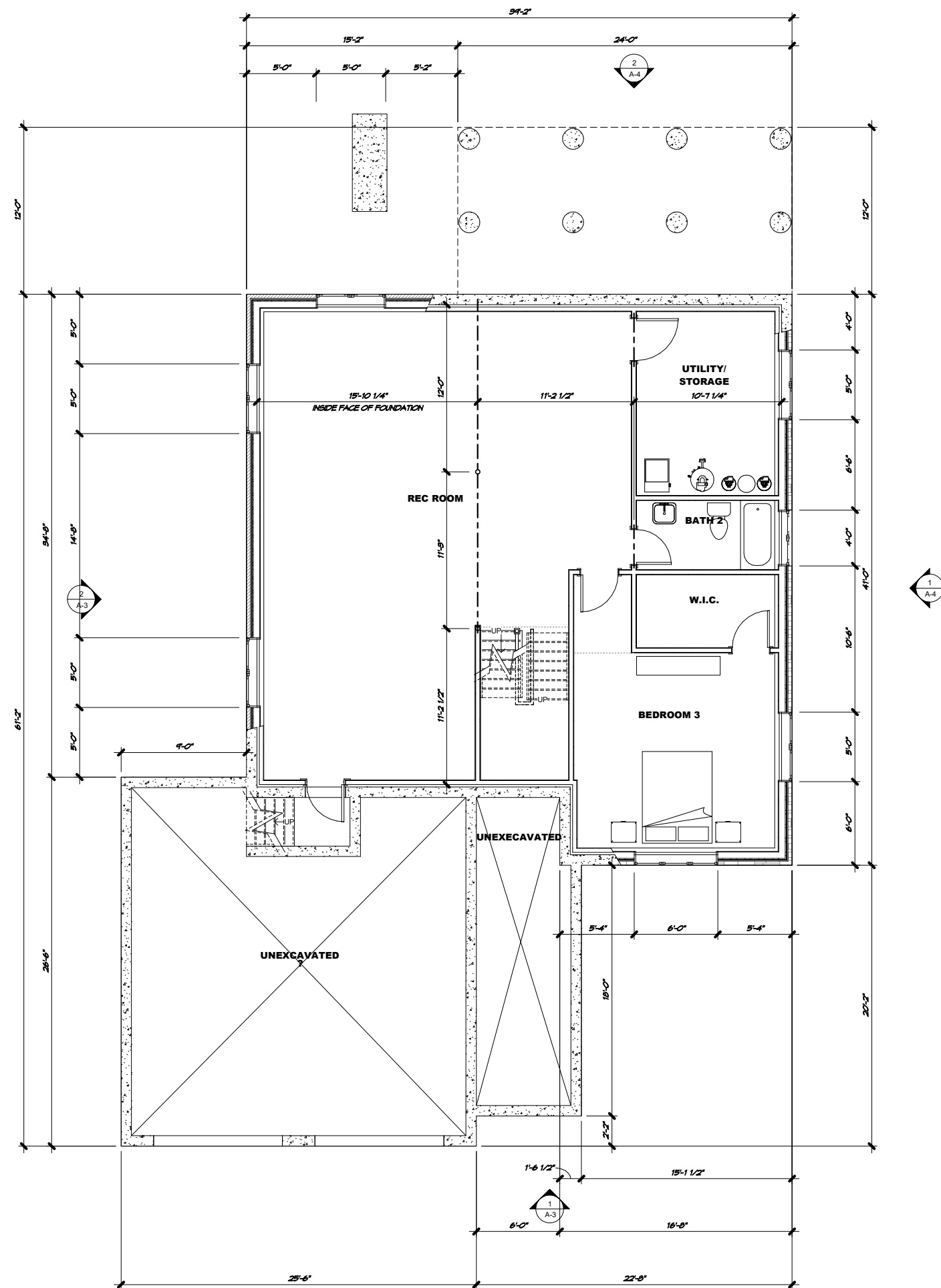
David B. Bennett
Licensed Technologist OAA

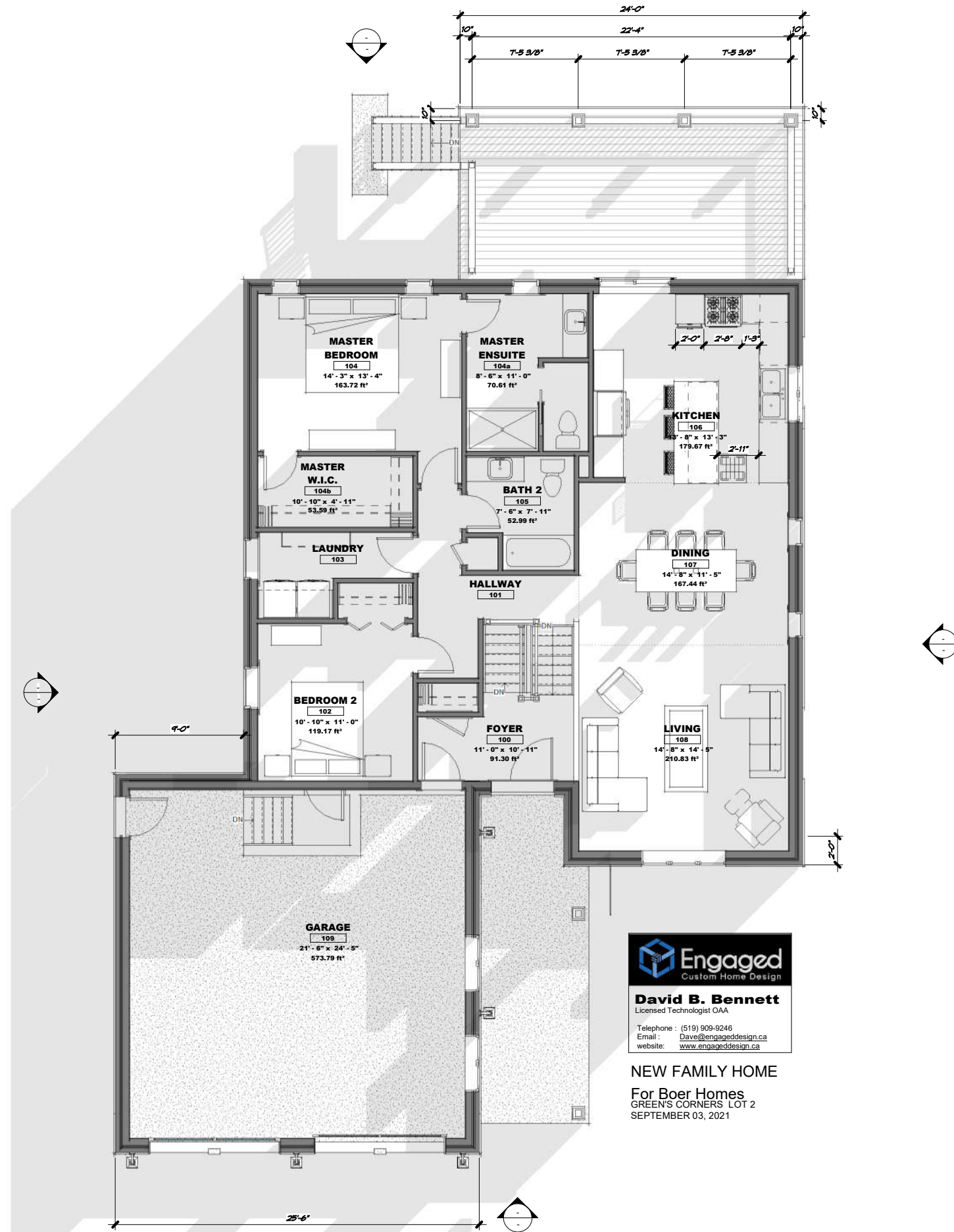
Telephone : (519) 909-9246
Email : Dave@engageddesign.ca
website: www.engageddesign.ca

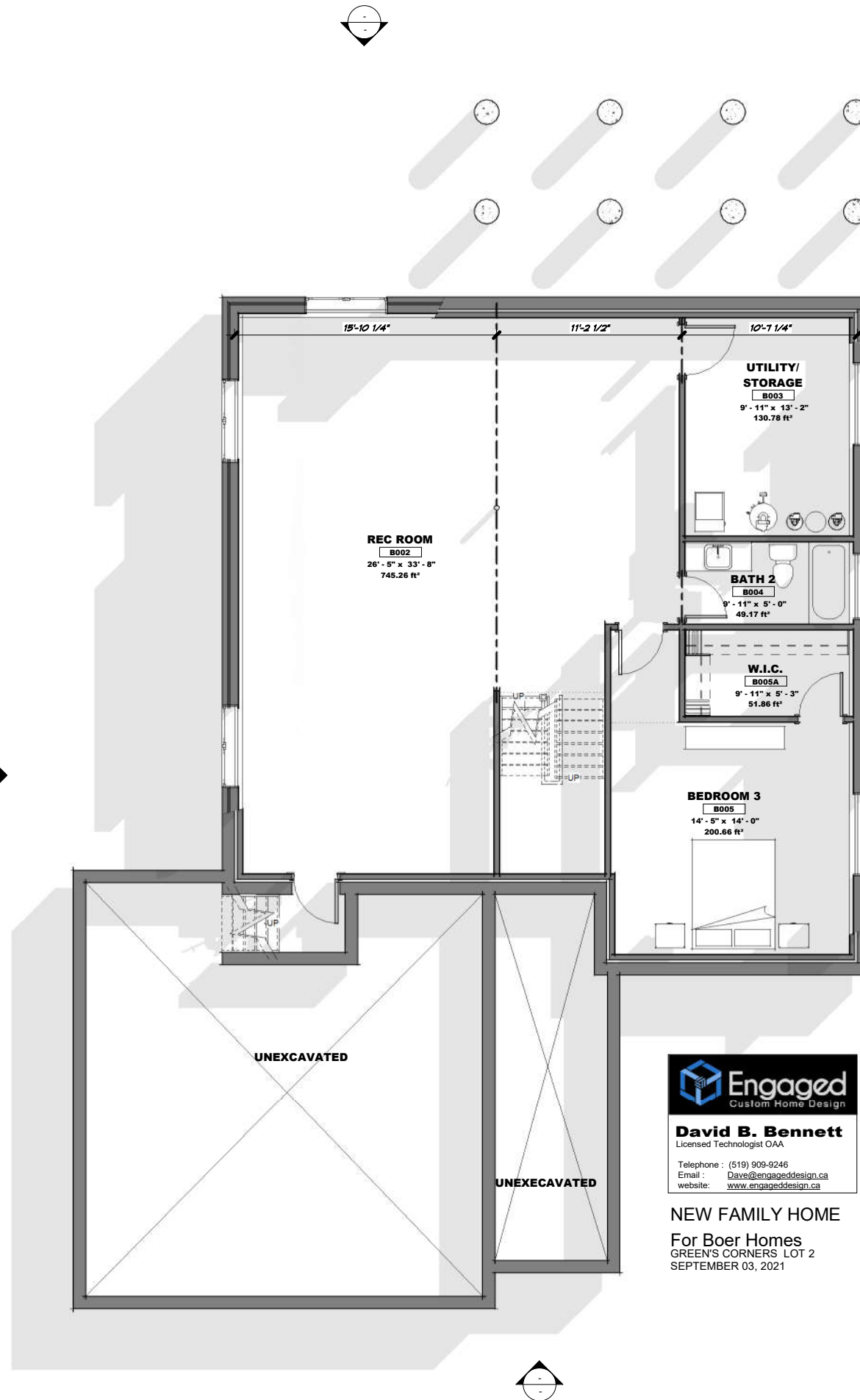
NEW FAMILY HOME

For Boer Homes
GREEN'S CORNERS LOT 2
SEPTEMBER 03, 2021










David B. Bennett
Licensed Technologist OAA
Telephone : (519) 909-9246
Email : Dave@engageddesign.ca
website: www.engageddesign.ca

NEW FAMILY HOME
For Boer Homes
GREEN'S CORNERS LOT 2
SEPTEMBER 03, 2021



Planning Department

Norfolk County
Development and Planning Division
185 Robinson Street, Suite 200, Simcoe ON N3Y 5L6
22 Albert Street, Langton ON N0E 1G0
519.426.5870 or 519.875.4485 or 519.582.2100
www.norfolkcounty.ca

January 22, 2021

PETER BOSMA
1974 TURKEY POINT RD. RR#1 STN. MAIN
SIMCOE, ON N3Y 4J9

**Zoning ByLaw Amendment ZNPL2020159Property
Assessment Roll Number 3310493020113000000**

Enclosed please find a copy of the Declaration for By-Law No. **26-Z-2020** of the Corporation of Norfolk County.

If you have not already done so, please remove the notification signs from the subject property.

You may wish to contact Fabian Serra, BA, M.Sc., Planner, at 519.426.5870 ext 1834 or fabian.serra@norfolkcounty.ca to see if anything further is required.

Sincerely,

A handwritten signature in cursive script, appearing to read "Tricia Givens".

Tricia Givens, M. Sc. (PL), MCIP, RPP
Director of Planning
Planning and Development

Enclosure

ELDER PLANS INC.
MARY ELDER
32 MILLER CRESCENT
SIMCOE, ON N3Y 4R1



DECLARATION OF A ZONING BY-LAW

BY THE COUNCIL OF THE CORPORATION OF NORFOLK COUNTY

I, TRICIA GIVENS, hereby certify that the Notice of the Passing of a Zoning By-Law No. **26-Z-2020** of the Corporation of Norfolk County, passed by the Council of the Corporation on the 15th day of December, 2020, was given in manner and form and to the persons and agencies prescribed by regulation made by the Lieutenant Governor-in-Council under Subsection 18 of Section 34 of the *Planning Act, R.S.O. 1990, c. P. 13*.

I also certify that the twenty-day appeal period expired on the 11th day of January, 2021 and to date no notice of appeal of the By-Law has been filed by any person in the office of the Clerk of Norfolk County.

DATED at Norfolk County this
21st day of January, 2021

A handwritten signature in cursive script, reading "Tricia Givens", written over a horizontal line.

Tricia Givens
Director of Planning



Decision Date 15th day of December, 2020
Notice Date 22nd day of December, 2020
Appeal Deadline **11th day of January, 2021**

File Number ZNPL2020159
By-Law Number 26-Z-2020

NOTICE OF THE PASSING OF A ZONING BY-LAW

BY THE COUNCIL OF THE CORPORATION OF NORFOLK COUNTY

TAKE NOTICE that the Council of the Corporation of Norfolk County passed By-Law Number **26-Z-2020** on the 15th day of December, 2020 under Section 34(18) of the *Planning Act, R.S.O. 1990, c. P. 13*.

AND TAKE NOTICE that public input has been received for this application and therefore has been considered as part of this decision.

AND TAKE NOTICE that any person or agency may appeal to the Local Planning Appeal Tribunal in respect of the By-Law by filing an Appellant Form with the Clerk of Norfolk County not later than the **11th day of January, 2021**.

If you wish to appeal to the Local Planning Appeal Tribunal, a copy of the Appellant Form is available from the LPAT website at www.elto.gov.on.ca or planners can provide assistance. The Appellant Form must set out the reasons for the appeal and be accompanied by the fee of \$1,100.00 required by the Local Planning Appeal Tribunal. Fees are payable by certified cheque or money order and should be made payable to the "Minister of Finance". You must submit the completed Appellant Form and prescribed fee to the attention of the Clerk, Norfolk County, 50 Colborne Street South, Simcoe ON N3Y 4H3.

Only individuals, corporations and public bodies may appeal a By-Law of Norfolk County to the Local Planning Appeal Tribunal. An appeal may not be filed by an unincorporated association or group. However, an appeal may be filed in the name of an individual who is a member of the association or the group on its behalf.

No person or public body shall be added as a party to the hearing of the appeal unless, before the By-Law was passed, the person or public body made oral submissions at a public meeting or written submissions to the Council or, in the opinion of the Local Planning Appeal Tribunal, there are reasonable grounds to add the person or public body as a party.

DATED at Norfolk County this
22nd day of December, 2020

The Corporation of Norfolk County
519.426.5870 / 519.875.4485 / 519.582.2100 ext. 1340



PURPOSE AND EFFECT

The purpose of this By-Law is to change the zoning on the subject lands from Agricultural (A) Zone to Hamlet Residential (RH) Zone. The purpose of the Special Provision is to permit a 20 metre wide road frontage of 20 metres. The 20 metre wide road frontage is the location of the future local road that will service the future proposed Plan of Subdivision.

The complete By-Law describing the lands to which the By-Law applies and the key map showing the location of the lands to which the By-Law applies is attached for your review.

Additional information regarding the proposed Zoning ByLaw Amendment is available to the public for inspection at the Planning Department, Norfolk County, 185 Robinson Street, Suite 200, Simcoe, ON N3Y 5L6 between 8:30 a.m. and 4:30 p.m., Monday to Friday or by calling 519.426.5870 ext 1834 or emailing fabian.serra@norfolkcounty.ca.



The Corporation of Norfolk County

By-Law 26-Z-2020

Being a By-Law to Amend Zoning By-Law 1-Z-2014, as amended, for property described as Part Lot 13, Concession 9, Geographic Township of Charlotteville, Norfolk County in the Name of Peter Bosma.

WHEREAS Norfolk Council is empowered to enact this By-Law, by virtue of the provisions of Section 34 and 36(1) (Holding) of the *Planning Act, R.S.O. 1990, CHAPTER P.13*, as amended;

AND WHEREAS this By-Law conforms to the Norfolk County Official Plan.

NOW THEREFORE the Council of The Corporation of Norfolk County hereby enacts as follows:

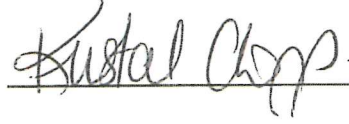
1. That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by changing the zoning of the subject lands identified on Map A (attached to and forming part of this By-Law) from Agricultural (A) *Zone* to Hamlet Residential-Holding Provision (RH-Holding) *Zone*;
2. That Schedule A of By-Law 1-Z-2014, as amended, is hereby further amended by delineating the lands identified as Part 2 of the subject lands on Map A (attached to and forming part of this By-Law) as having reference to Subsection 14.987;
3. That Schedule 14.987, (attached to and forming part of this By-Law) be included and form part of By-Law 1-Z-2014;
4. That Subsection 14 Special Provisions is hereby further amended by adding the following:

14.987 In lieu of the corresponding provisions in the Hamlet Residential (RH) *Zone*, the following shall apply:

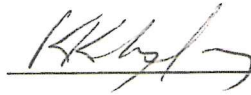
- a) A *lot frontage* of 20 metres is permitted.
5. That the holding (H) provision of this By-Law shall be removed upon the execution of an agreement and water and sewer capacity is available to the satisfaction of Norfolk County.

6. That the effective date of this By-Law shall be the date of passage thereof.

ENACTED AND PASSED this 15th day of December, 2020.

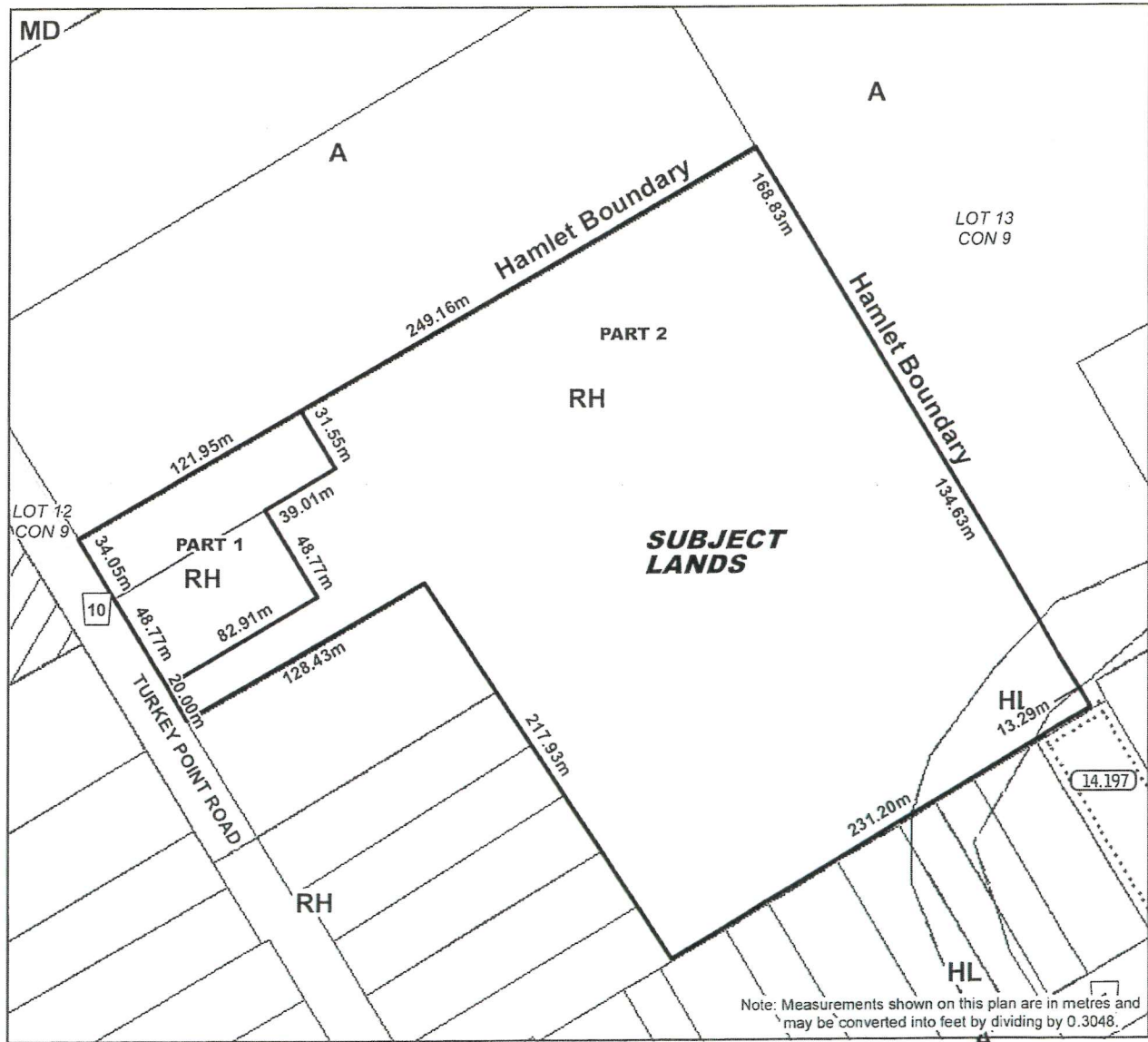
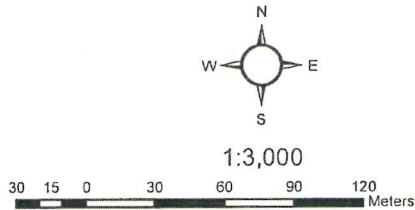


Mayor



County Clerk

Norfolk County
Geographic Township of
CHARLOTTEVILLE



This is Map A to Zoning By-law 26-Z-2020 Passed the 15th day of December 2020.

Kristal Chopp
MAYOR

[Signature]
CLERK

Explanation of the Purpose and Effect of

By-Law 26-Z-2020

This By-Law affects a parcel of land described as Part Lot 13, Concession 9, Geographic Township of Charlotteville, Norfolk County, located at 1910 Turkey Point Road.

The purpose of this By-Law is to change the zoning on the subject lands from Agricultural (A) Zone to Hamlet Residential (RH) Zone. The purpose of the Special Provision is to permit a 20 metre wide road frontage of 20 metres. The 20 metre wide road frontage is the location of the future local road that will service the future proposed Plan of Subdivision.

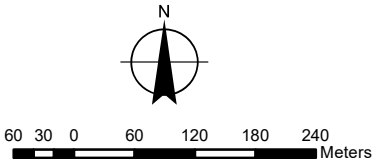
A holding "(H)" provision is being placed on the zoning on the subject lands to ensure the appropriate development agreement is executed and registered on title. As well the holding will remain until the General Manager of Public Works or designate has advised in writing that rough grading has been carried out; curb and gutter, storm water sewer systems, first lift of asphalt has been installed and all traffic and street signs have been installed. In addition, all sanitary sewer and water main systems have been constructed and installed in accordance with the development agreement and connected to existing facilities that are in operation.

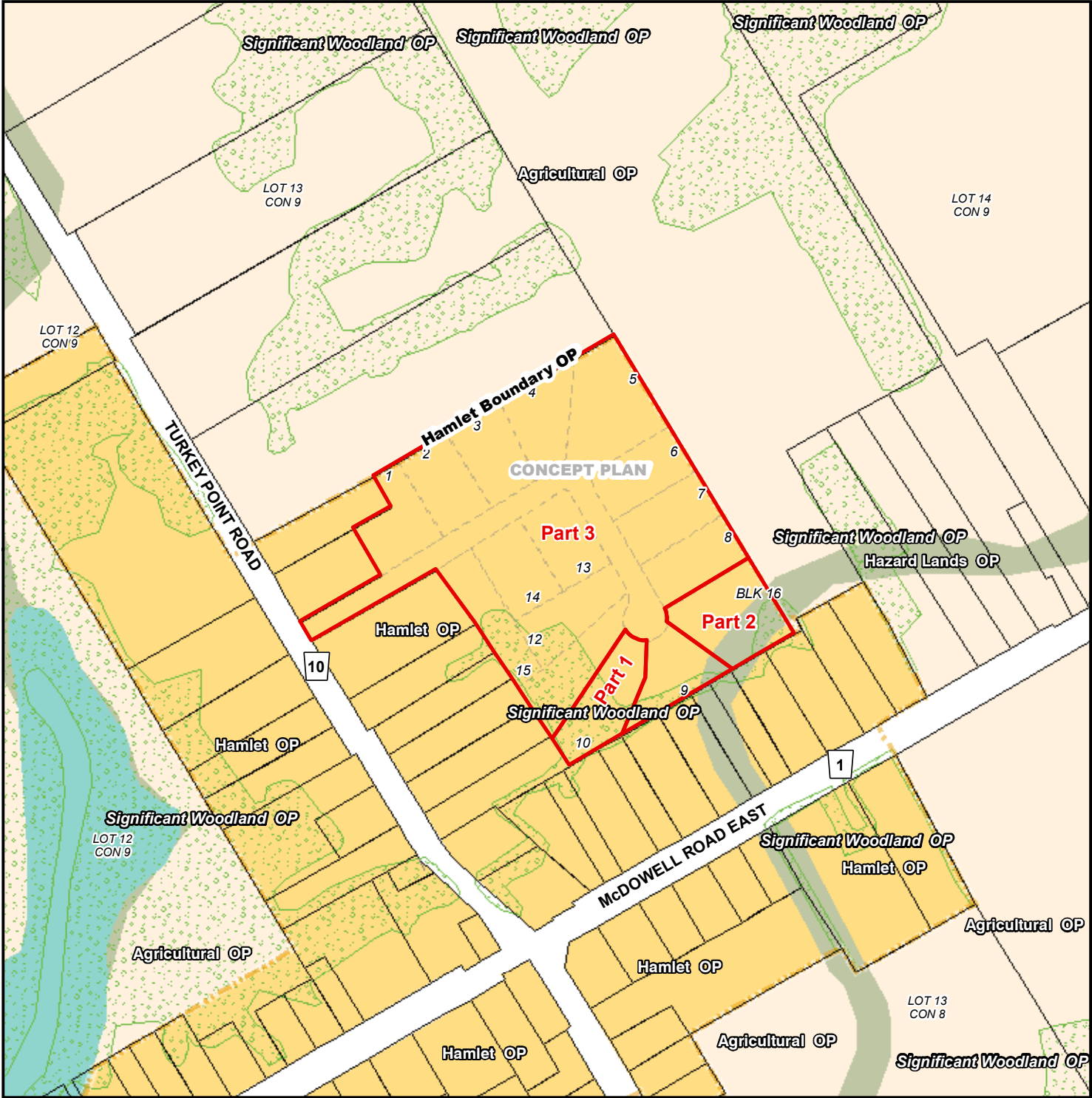


Legend

 Subject Lands

2020 Air Photo





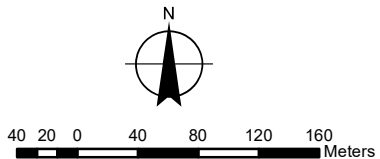
Legend

 Subject Lands

Official Plan Designations

-  Agricultural
-  Hazard Lands
-  Provincially Significant Wetland
-  Hamlet
-  Hamlet Area Boundary
-  Significant Woodland

10/13/2023



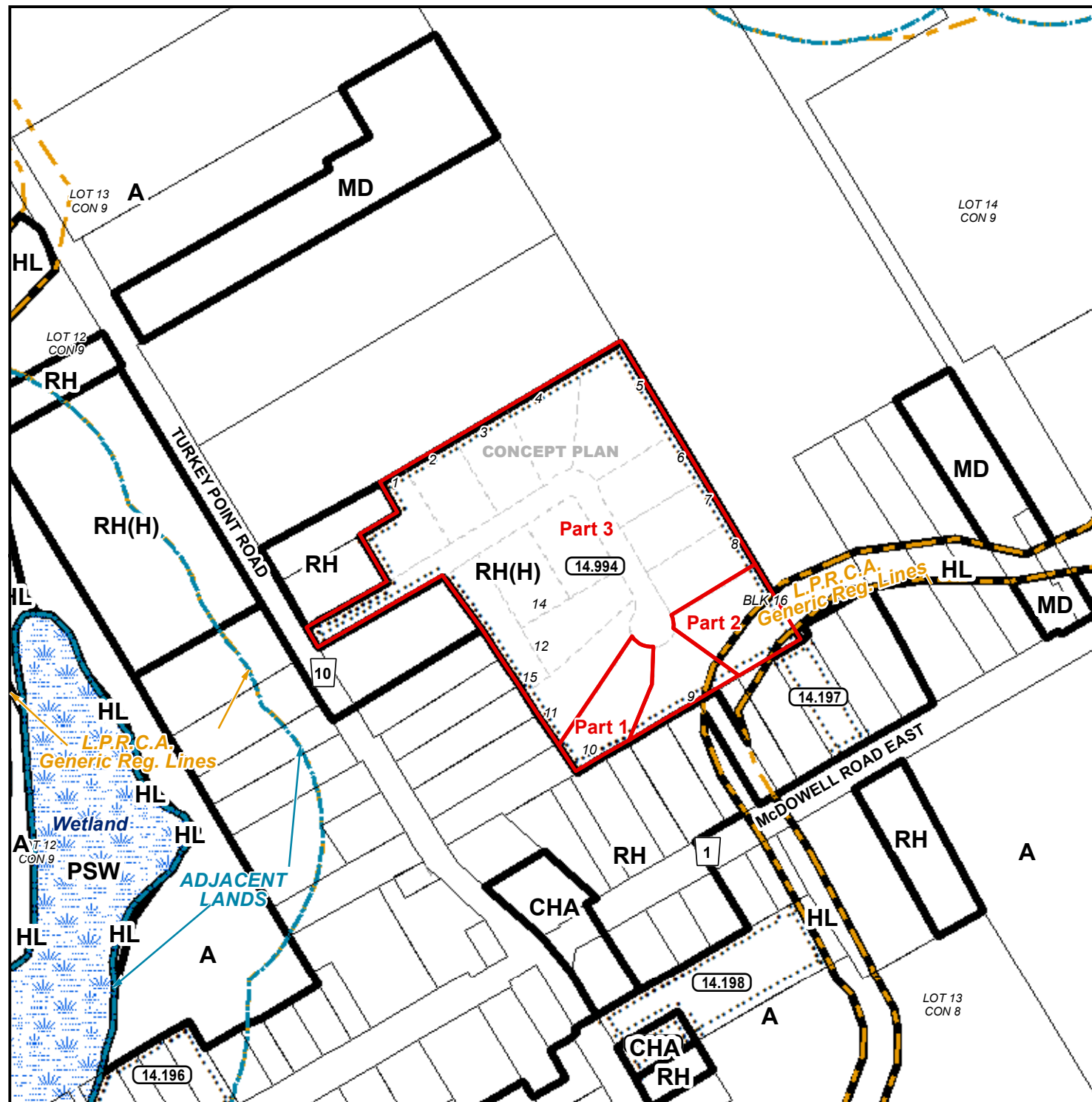
MAP C

PROPOSED ZONING BY-LAW AMENDMENT MAP

Geographic Township of CHARLOTTEVILLE

28TPL2023294

ZNPL2023295



LEGEND

- Subject Lands
- Adjacent Lands
- Wetland
- LPRCA Generic RegLines

ZONING BY-LAW 1-Z-2014

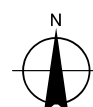
- (H) - Holding
- A - Agricultural Zone
- CHA - Hamlet Commercial Zone
- MD - Disposal Industrial Zone
- RH - Hamlet Residential Zone
- HL - Hazard Land Zone
- PSW - Provincially Significant Wetland Zone

Part 1
From: RH(H) with Special Provision 14.994
To: RH with Amended Special Provision 14.994

Part 2
From: RH(H) with Special Provision 14.994
To: OS

Part 3
From: RH(H) with Special Provision 14.994
To: RH

10/13/2023



30 15 0 30 60 90 120 Meters

MAP D

CONCEPTUAL PLAN

Geographic Township of CHARLOTTEVILLE

28TPL2023294

ZNPL2023295



Legend

 Subject Lands

10/13/2023

