

**PLANNING POLICY JUSTIFICATION REPORT  
AND  
IMPACT ANALYSIS  
For: Rob McDowell  
Lakeshore Road, Township of Wainfleet, Region of Niagara**



**SOUTH COAST CONSULTING**

**189 Clare Avenue  
Port Colborne, ON L3K 5Y1**

**Phone: 905-733-8843**

**Email: southcoastofcanada@gmail.com**

## SUMMARY

**TYPE OF STUDY:** Planning Policy Justification Report and Impact Analysis and Impact Analysis

**DATE:** 2025-03-02

**AUTHOR:** Steven Rivers, RPP, MCIP

**OWNER:** Rob McDowell

**ADDRESS:** Lakeshore Road

**ROLL #:** 271400000104200

**LEGAL DESCRIPTION:** LOT 8, PLAN 59M-174

**APPROVAL AUTHORITY:** Township of Wainfleet

### DEVELOPMENT PROPOSAL

A Minor Variance is required to permit a *single detached dwelling* in the Residential Lakeshore – RLS.C15-13h Zone with a Hazard Overlay on the subject property. Specifically, the subject property requires zoning relief to reduce the east side *interior side yard* minimum from four (4) to three (3) metres and the remove the requirement for the building to be within the *building apron* identified in Zoning By-law Map A-5b.

The subject property has a total *lot area* of about 5,145 square metres with about 48 metres of *lot frontage* on the south side of Lakeshore Road. The proposed *single detached dwelling* on the vacant subject property compatible with residential use context of the surrounding area. There are no significant conflicts with *archaeological resources, natural heritage feature* or *area preservation*, or conservation that cannot be satisfactorily mitigated. There are no *flooding hazards, erosion hazards* or *dynamic beach hazards* associated with Lake Erie. that cannot be satisfactorily mitigated.

The northern portion of the Subject Property contains a mix of treed areas and open space with a laneway extending from Lakeshore Road to the centre of the property. The central portion of the property contains a clearing and shrub cover. The southern portion of the property includes a sand beach and break wall associated with the Lake Erie shoreline. There are no existing structures on the property, aside from the break wall located up the slope from Lake Erie.

Proposed *development* consists of the construction of a *single detached dwelling unit* and associated *structures* such as decks, a water well, a septic tank, and leaching bed, and a gravel driveway. Redevelopment of the break wall, or revetment, is also proposed at the base of the slope overlooking the beach.

The subject property is designated **Rural Area** in the Niagara Region Official Plan, **Lakeshore Residential** with Hazard Lands and Environmental Conservation Area in the Township of Wainfleet Official Plan and zoned **Residential Lakeshore – RLS.C15-13h** with a Hazard Overlay.

**The Stage 1 & 2 Archaeological Assessment Report** states “Given the results and conclusions of the completed Stage 1 & 2 Archaeological Assessment, the Study Area has been sufficiently assessed and is free of further archaeological concern.

**The Scoped Environmental Impact Study** states the proposed development is consistent with the applicable policies of the Niagara Region Official Plan and the Township of Wainfleet Official Plan. The proposed development also satisfies the intent of Niagara Peninsula Conservation Authority regulatory policies. The proposal will have no impact on the *ecological functions* of the vegetative communities on and adjacent to the property.

**The Geotechnical Investigation, Feasibility Study & Slope Stability Assessment,** states that based on the subsurface conditions and the slope stability assessment, conventional footings such as spread, or strip footings are feasible. The construction of a *single detached dwelling* with a walk-out *basement* is feasible.

**Geotechnical and Slope Stability Review,** the geotechnical investigation is considered appropriate for the proposed *residential development*. The Long-Term Stable Top Of Bank is above the 186-metre contour line. The Site Plan illustrates the proposed *single detached dwelling* is above the 189-metre contour line.

**A Coastal Study** reviewing the proposal and addressing the existing wave-based erosion and flood hazards, as well as list potential mitigation methods determined a revetment would reduce this erosion and the proposed building footprint would be within the *erosion* and *dynamic beach hazards* if a new revetment is installed.

The Ministry of Natural Resources issued a work permit which authorizing installation of an approximately 90.8 metre Erosion Control stone revetment at the subject property and The Niagara Peninsula Conservation Authority issued a work permit for work to be undertaken for installation of shore protection at the subject property.

The approval of a Minor Variance to permit a proposed residential *use* is good planning.

### ***Planning Act***

The proposed *residential use* of the underutilized vacant *lot* satisfies the *Planning Act*. The proposal:

- Protects *ecological functions* and agricultural resources and because it has no impact on them conserves architectural, cultural, heritage, and *archaeological resources*.
- Adequately provides and efficiently and optimally uses transportation facilities, *individual on-site sewage services* and *individual on-site water services infrastructure*.

- Results in the orderly development of a safe and healthy community providing a full range of housing types and tenures.
- Has no negative impact on the financial well-being of the Province or Township.

The Committee is authorized to grant a Minor Variance if, in the opinion of the Committee, the request satisfies the four tests outlined in the *Planning Act*:

- Is the variance minor?
- Is the variance desirable for the appropriate development or use of the land?
- Is the general intent and purpose of the Zoning By-law maintained?
- Is the general intent and purpose of the Official Plan maintained?

### **The proposal complies with the *Planning Act***

#### **Provincial Planning Statement and Wainfleet Official Plan Policies**

The proposal's residential use of the underutilized vacant lot is consistent with the Provincial Planning Statement. The subject property:

- Is in the rural area with existing municipal and public service facilities.
- The proposal provides a *residential use* compatible with the existing residential character of the neighbourhood with no identified impacts.
- The proposal provides additional housing stock.
- The existing municipal services and roads ensure the development has adequate *infrastructure*.

### **The proposal complies with the Provincial Planning Statement.**

The proposal satisfies the Region of Niagara Official Plan Objectives to protect the agricultural land *base*, ensure agriculture is the predominant land *use* in specialty crop areas and *prime agricultural areas*, restrict and control non-agricultural *uses* to minimize potential conflicts because no land is taken out of *agricultural use*.

The proposal satisfies the Region of Niagara Official Plan Objectives to protect *prime agricultural areas* from fragmentation, because the *lot* already exists and to provide for a limited amount of non-agricultural residential development on *s*.

The Niagara Region provides for limited residential development such as this proposal and recognizes the *rural land* along the Lake Erie shoreline contain historic patterns of seasonal and permanent residential development. The proposal:

- Is for less than three (3) *lots* because no new *lots* are being created.

- Will adequately accommodate *individual on-site sewage services* and *individual on-site water services* for long-term operation.
- Is at a scale and density suitable to the physical characteristics of the site.
- Is suitable for the proper siting of *buildings*, the supply of *individual on-site sewage services* and *individual on-site water services*.
- Is appropriately separated and protected from:
  - incompatible land uses such as existing pits and quarries.
  - *mineral aggregate operations and resources* recognized in this Plan.
  - livestock operations and anaerobic digesters, in accordance with the *minimum distance separation formulae*.
  - existing and former *waste management systems*.
  - major existing and proposed transportation facilities.
  - *employment land*.

The proposal satisfies the Wainfleet Official Plan Objectives encouraging and facilitating the production of a range of *dwelling* types and forms of tenure, environmental sustainability, and is compatible with the character of adjacent buildings.

The Wainfleet Official permits seasonal and full year *single detached dwelling* on the subject property. The proposal :

- Maintains the established rhythm of lot frontages on adjacent housing lots.
- Provides a building height that reflects the pattern of heights of adjacent housing.
- Provides for a similar lot coverage to adjacent housing ensuring the massing or volume of the new *dwelling* reflects the scale and appearance of adjacent housing.
- Maintains the predominant or average front yard setback for adjacent housing to preserve the streetscape edge, and character.
- Provides for similar side yard setbacks to preserve the spaciousness on the street.

The proposed *dwelling* maintains the setbacks and provides opportunities for tree planting preserving Lakeshore Road's rural wooded character.

The proposal complies with the intent of the Lakeshore Area because it:

- Is the use of an existing lot, not an expansion of the Lakeshore Area.
- Meets sustainable private servicing and the Environmental Management policies of the Official Plan.

- Supports the Goals of maintaining the recreational, residential and cottage character.
- Protects the Lake Erie shoreline as a celebrated public amenity.
- Satisfies the Objectives of permitting limited infill on existing lands designated for residential purposes.
- Maintains and where possible improves public access to the Lake Erie shoreline.

The proposal complies with the intent of the Natural Heritage System because the broad system of natural features and linkages are maintained and can be enhanced by preserving and potentially improving the biological diversity and ecological function of natural heritage features. The proposal:

- Protects and provides for the enhancement of the ecological function and maintenance and potential enhancement of the connectivity and linkages among natural features and with surface water, ground water and hydrologic functions.
- Protects and potentially enhances habitats and maintains and can improve biodiversity.
- Improves and enhances the biological diversity and ecological function of the Natural Heritage System through the maintenance and enhancement of the habitat of the subject property.
- Permits a compatible form of recreation within the Natural Heritage System using the Township's natural heritage features.

The Environmental Protection Area and the Environmental Conservation Area are protected. The proposal is permitted on land adjacent to Environmental Protection Areas, is supported by and is not prohibited by other policies.

The proposal is permitted on land to Environmental Conservation Areas because it is supported by an Environmental Impact Study and is not prohibited by other policies.

The Official Plan states the Hazard Land Area includes flood and erosion prone lands along the Lake Erie shoreline where the subject property is located but permits recreational uses such as the proposed resource-based recreational use (including recreational *dwellings* not intended as permanent residences) where the subject use is permitted in the underlying land use designation and in keeping with the requirements of the Provincial Planning Statement and the regulations of the Niagara Peninsula Conservation Authority.

Hazardous lands and sites are designated as Environmental Protection. Where an application for development is made and detailed mapping is not available, the location and extent of the hazardous land or site will be determined by the Niagara Peninsula Conservation Authority after considering an appropriate study by a qualified engineer. The Ministry of Natural Resources and the Niagara Peninsula Conservation Authority have issued work permits For Work To Be Undertaken At 10288 Lakeshore Road.

Since the building subject of the development application is not in an area identified as susceptible to flood hazard, it is permitted because a geotechnical engineering study demonstrates the proposed building is not within the dynamic beach hazard limit or the 30-metre dynamic beach allowance of Lake Erie.

**The proposal complies with the Wainfleet Official Plan.**

### Wainfleet Zoning By-law

<b>ZONING MATRIX</b>			
<b>Regulation</b>	<b>Zone Requirements</b>	<b>Existing Proposed</b>	<b>Comment</b>
<i>Side yard</i> Sec 7.2.1 Table 10	4m	1.5m	<i>relief required</i>
<i>All buildings or structures to be constructed on Lot 8 shall be constructed within the building apron as set forth on Map A-5b - Sec 7.2.1 Table 11</i>		n/a	n/a

The building apron zoning restriction is redundant because due to current zoning provisions restricting the location of any new structures.

No accessory building is proposed.

Specifically, the subject property requires zoning relief through Minor Variance to reduce the east side *interior side yard* minimum from four (4) metres to 1.5 metres and to remove the requirement for the building to be within the *building apron* identified in Zoning By-law Map A-5b.

### Conclusion

The proposed *principal use* of subject property is an *single detached dwelling* permitted in the Residential Lakeshore – RLS.C15-13h with a Hazard Overlay.

The proposed Minor Variance:

- Conforms with the provisions of the *Planning Act*, Provincial Planning Statement and Wainfleet Official Plan.
- Is for a permitted use.
- Results in no negative impacts.
- Provides for the efficient use existing municipal services.
- Is good planning.

Committee of Adjustment can be confident that the requested Minor Variance is consistent with the Township 's Official Plan, Zoning By-law, and Provincial policies.

## Table of Contents

<b>SUMMARY</b> .....	2
INTRODUCTION .....	11
Pre-consultation.....	11
PROJECT DESCRIPTION AND SITE CONTEXT.....	12
Site Plan - Annex 1: Site plan.....	14
Archaeological Assessment - Annex 3, Archaeological Assessment.....	14
Environmental Impact - Annex 4: Scoped Environmental Impact Study.....	14
Slope Stability - Annex 5: Geotechnical Investigation, Feasibility Study & Slope Stability Assessment	16
Private Servicing - Annex 6: Sanitary Sewage Appraisal .....	17
Coastal Study - Annex : Coastal Study.....	17
Erosion Control Work Permit - Annex : , Work Permit AYGU-2025-PLA-00079-WP-001 .....	18
Erosion Control Work Permit – Annex 9: N.P.C.A, Permit No. 202401479.....	18
POLICY REVIEW AND SUMMARY .....	18
<i>Planning Act</i> .....	19
Matters of Provincial Interest .....	19
<b><i>Planning Act Summary</i></b> .....	22
Provincial Planning Statement (2024) .....	23
<b><i>Provincial Planning Statement Summary</i></b> .....	25
Official Plan .....	25
Niagara Region Official Plan.....	25
Wainfleet Official Plan .....	27
<b><i>Wainfleet Official Plan Summary</i></b> .....	32
ZONING BY-LAW.....	35
MINOR VARIANCE APPLICATION .....	37
Are the variances minor? .....	37
Are the variances desirable for the appropriate development or use of the land? .....	38
Are the general intent and purpose of the Zoning By-law maintained? .....	38
Is the general intent and purpose of the Official Plan maintained?.....	38
Minor Variance Opinion.....	38
OPINION .....	39
RECOMMENDATION .....	39
DISCLAIMER AND STATEMENT OF LIMITATIONS .....	40

ANNEX 1: SITE PLAN ..... 42

ANNEX 2: SUBJECT PROPERTY..... 44

ANNEX 3: ARCHAEOLOGICAL ASSESSMENT ..... 45

ANNEX 4: SCOPED ENVIRONMENTAL IMPACT STUDY ..... 46

ANNEX 5A: GEOTECHNICAL INVESTIGATION, FEASIBILITY STUDY & SLOPE STABILITY ASSESSMENT ..... 47

ANNEX 5B: GEOTECHNICAL AND SLOPE STABILITY REVIEW ..... 67

ANNEX 6: SANITARY SEWAGE APPRAISAL ..... 84

ANNEX 7: COASTAL STUDY..... 100

ANNEX 8: WORK PERMIT AYGU-2025-PLA-00079-WP-001 ..... 116

ANNEX 9: N.P.C.A. PERMIT NO. 202401479 DATED SEPTEMBER 26, 2025, FOR WORK TO BE UNDERTAKEN AT 10288 LAKESHORE ROAD IN THE MUNICIPALITY OF WAINFLEET. .... 144

ANNEX 10: PRE-CONSULTATION AGREEMENT ..... 156

## INTRODUCTION

This purpose of the Planning Policy Justification Report and Impact Analysis is to review a proposal to allow a *single detached dwelling* on the approximately 5,145 square metres subject property with 48 metres of frontage on Lakeshore Road in the Township of Wainfleet, illustrated in *Annex 1, Site Plan*. The vacant subject property has existing shore protection as illustrated in *Annex 2, Subject Property*.

This Report provides the planning rationale in support of a proposed Minor Variance application and provides justification for the proposal in accordance with good planning principles. This Report also outlines the nature of proposal and evaluates it in the context of the policies of the Provincial Planning Statement, the Niagara Region Official Plan, the Township of Wainfleet Official Plan, the Township of Wainfleet Zoning By-law, and the Niagara Peninsula Conservation Authority Policy Document: Policies For The Administration Of Ontario Regulation 155/06 And The Planning Act, June 19, 2019, Consolidation.

### Pre-consultation

On 2019-09-26 the Township of Wainfleet hosted a pre-application consultation meeting to discuss the proposal . The Township Planning; Regional Planning and Development; and Niagara Peninsula Conservation Authority staff attended. The meeting established the proposal was an extension of a legal non-conforming use requiring minor variance plan control application. The following documentation was required to support the application for a proposed minor variance for reductions to the interior side yard setback (east) and rear yard setback:

- Planning Justification Report addressing the four tests under Section 45 of the *Planning Act*,
  - Stage 1 Archaeological Assessment addressing all areas of development and / or site alteration including the location of the *dwelling*, septic area and shorewall (if one is proposed);
  - Environmental Impact Study, the terms-or-reference for which are submitted to the Region for review prior to commencement of the Study. The habitat requirements of threatened and endangered species must be defined in consultation with the Ministry of Environment, Conservation and Parks (MECP). Regional staff recommend that they be contacted early in the process. The MECP has established a one-window e-mail account for this purpose: SAROntario@ontario.ca. Regional Environmental Planning staff request a copy of any correspondence with the MECP as it relates to threatened and / or endangered species concerns.;
- Slope Stability Report to confirm the :
  - The location of the Stable Top of Slope undertaken by a qualified Geotechnical Engineer including all associated structural setbacks. (The Geotechnical Engineer must establish the scope of work required to locate the Stable Top of Slope based on the nature, location, and scope of the proposal.);

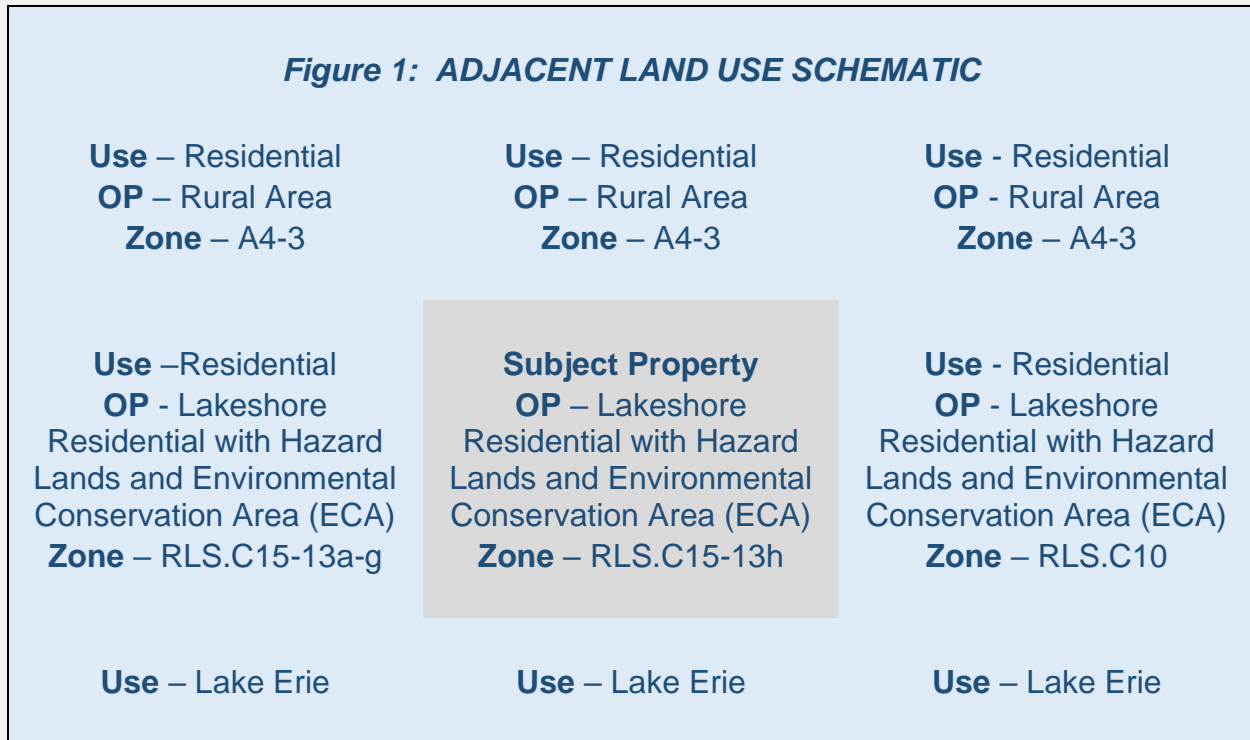
- Condition of the existing shore protection. (Should the shore protection be substandard, new shore protection shall be designed by a qualified Coastal Engineer to adequately mitigate shoreline erosion and the dynamic beach hazard.);
- Additionally, it should be noted that NPCA Policy 5.25, New Habitable structures and Additions, state that new habitable buildings / structures are not permitted within the stable slope allowance or the dynamic beach hazard.;
- Lot Grading and Drainage Plan;
  - Hydrogeological Study / Private Servicing Plan to confirm adequate area exists to install an appropriate subsurface sewage disposal system and assessing whether the development will have any negative impact on the quantity and quality of surface and ground water as well as other items listed in Official Plan Policy 4.2.5; and
- Reference Plan / Concept Drawing.

## PROJECT DESCRIPTION AND SITE CONTEXT

The project description and site context provide an understanding of where the proposal is located and the characteristics of the site and the surrounding area. The subject property has a total *lot area* of about 5,145 square metres with about 48 metres of *lot frontage* on Lakeshore Road. The proposal illustrated in *Annex 1, Site Plan*, is for a *single detached residential dwelling*. The subject property is vacant. *The Cover Page* illustrates the location and existing conditions. The subject property abuts *single detached residential uses* and Lake Erie as illustrated on the *Figure 1, Adjacent Land Use Schematic*. There are low density residential *dwellings* north, east, and west of the subject property along Lakeshore Road.

The northern portion of the Subject Property contains a mix of treed areas and open space with a laneway extending from Lakeshore Road to the centre of the property. The central portion of the property contains a clearing and shrub cover. The southern portion of the property includes a sand beach and break wall associated with the Lake Erie shoreline. There are no existing structures on the property, aside from the break wall located up the slope from Lake Erie.

The *residential use* subject property is compatible with *residential use* context of the surrounding area. There are no significant conflicts with archaeological resources or natural resources preservation or conservation that cannot be satisfactorily mitigated. There are not natural or man-made hazards that cannot be satisfactorily mitigated. The approval of a Minor Variance to permit a proposed *residential use* is good planning.



The subject property is designated **Rural Area** in the Niagara Region Official Plan, **Lakeshore Residential** with Hazard Lands and Environmental Conservation Area (ECA) in the Township of Wainfleet Official Plan and zoned **Residential Lakeshore – RLS.C15-13h** with a Hazard Overlay. The Wainfleet Official Plan states the Lakeshore Area is currently largely developed and forms a continuous strip of permanent and seasonal residential *dwelling*s along with a number of small cottage resorts and tourist cabins and that it is considered part of the rural area of the Township, and although large portions of the areas have been developed, it is not considered a settlement area.

This section of the Report provides a brief description of the other technical supporting studies submitted as a part of the complete application and how they relate to applicable planning policies (i.e. Stage 1 Archaeological Assessment; Environmental Impact Study, Slope Stability Report, and Lot Grading and Drainage Plan.).

The **Site Plan** is an indicative plan reflecting desirable development scenario for the subject property and is an articulation of established best practices in rural planning. It provides a flexible framework and practical direction for development of the proposal and to the extent possible currently, detail of the anticipated building location and development parameters. Regardless of the eventual implementation and build out the intent and objective of creating a safe and environmentally resilient development remains constant. The **Site plan** began with identification of preferred location of the building and required servicing and parking considering environmental and physical constraints.

### Site Plan - Annex 1: Site plan.

Proposed *development* consists of the construction of a *single detached dwelling unit* and associated *structures* such as decks, a water well, a septic tank, and leaching bed, and a gravel driveway. Redevelopment of the breakwall, or revetment, is also proposed at the base of the slope overlooking the beach.

### Archaeological Assessment - Annex 3, Archaeological Assessment

The Stage 1 & 2 Archaeological Assessment Report by Irvin Heritage Inc. dated 2023-08-11 states "Given the results and conclusions of the completed Stage 1 & 2 Archaeological Assessment, the Study Area has been sufficiently assessed and is free of further archaeological concern.

### Environmental Impact - Annex 4: Scoped Environmental Impact Study

The Scoped Environmental Impact Study by Caldwell and Associates dated 2023-05 states:

- No endangered or threatened species were observed during our assessment of the property.
- The forest fragments on the property are too small to provide accommodate wildlife use consistent with landbird migratory stopover.
- No other wildlife use consistent with seasonal concentrations were documented.
- No rare vegetation communities were documented.
- One special concern species, Monarch, was noted on the property. However, there was limited Common Milkweed stems observed during field inventories, nor was there a significant amount of Monarch butterflies observed while on site.
- It does not appear that any portion of the subject property acts as an animal movement corridor. The vegetated features present on the property do not abut any other habitats.
- No watercourses occur on the subject property.
- No Areas of Natural and Scientific Interest are located on or adjacent to the subject property.
- While there are no wetlands are located on the subject property, a Provincially Significant Wetland and unevaluated wetland are located approximately 50 metres and 55 metres north of the property respectively. These wetlands will not be affected by the proposed development.
- The woodland fragment on the property does not satisfy the criteria to be considered significant woodland because it does not satisfy the canopy cover criteria, nor does it have the size to be evaluated as significant. While there are areas where the canopy cover is above 60%, there are often breaks within the canopy and community itself is highly disturbed.

- The small, treed nodes on the subject property do not meet the minimum 40 metre width criterion to be considered Other Woodlands, are not above 0.3 hectares, and are not abutting a significant woodland wetland or permanent stream. Based on our assessments, both communities are not sufficient to meet the criteria to be considered other woodland.

The proposal will have no impact on significant habitat of Endangered or Threatened species or on the ecological functions of the vegetative communities on and adjacent to the property.

The proposed development will have no impact on the ecological functions of the Lake Erie shoreline and fish habitat present on the subject property.

To assist in avoiding any impacts associated with the proposal , it is recommended that the following mitigation measures be implemented during final design and future construction of the proposal .

- All required tree and vegetation removal should be conducted between October 31 and March 30 to avoid impacting nesting birds and roosting bats. It also lines up with generally less ecological activity in both flora and fauna.
- Vegetation removal along the top of slope overlooking Lake Erie should be minimized to the extent feasible as removal of vegetation may compromise slope stability and increase slope erosion.
- A work area, including the development, equipment staging and operation areas, should be clearly identified on site.
- Additional stems of Common Milkweed and native wildflower cover can be planted to enhance habitat for Monarch larvae and adults.
- A silt fence should be installed to delineate the work area and reduce any offsite movement of soil and debris into Lake Erie and adjacent vegetation communities.
- Any grading or filling to be conducted should be designed to maintain existing overland flow patterns to avoid sedimentation impacts to Lake Erie and avoid creating or increasing erosion hazards. Grading and filling should also be consistent with findings from the geotechnical report.
- Native tree, shrub, and vegetation species be incorporated into future landscape plans where possible.
- Any exterior lighting should be directed away from the treed portion of the property where possible to minimize impacts on wildlife. Shades should be installed on exterior lighting where possible to prevent light from being directed upward or towards natural areas.

The proposed development is consistent with the applicable policies of the Niagara Region Official Plan and the Township of Wainfleet Official Plan. The proposed development also satisfies the intent of Niagara Peninsula Conservation Authority regulatory policies.

## Slope Stability - Annex 5: Geotechnical Investigation, Feasibility Study & Slope Stability Assessment

The Geotechnical Investigation, Feasibility Study & Slope Stability Assessment, by AMEC Earth and Environmental, dated 2010-11, states the results of the site-specific geotechnical investigation indicate the native soil consists of very loose to very dense fine-grained sand considered suitable for foundation support in its undisturbed state. Due to the inconsistencies of the denseness to the sand, surface compaction will be required prior to forming for the foundation concrete.

No significant problems are anticipated during excavation through the upper overburden soils, provided ground water conditions during construction are like encountered during the investigation. It was recommended to maintain slope not steeper than 2:1 which will provide safety factor or 1.5. A combination of retaining wall and 2:1 slope can be used to substitute for the portion of the slope steeper than 2:1. For erosion protection, a layer of clayey material and vegetation cover should be used to stop sand weathering due to wind.

Based on the subsurface conditions and the slope stability assessment, conventional footings such as spread, or strip footing are feasible. The construction of a single *dwelling* with a walk-out *basement* is feasible.

To ensure the previous studies remained applicable GHD has completed a technical review of the November 2010 report entitled Geotechnical Investigation, Feasibility Study and Slope Stability Assessment Report, Geotechnical and Slope Stability Review, dated 2021-05-26.

The geotechnical review and slope stability review were requested to confirm the suitability of the site for the proposed residential development and identify constraints associated with soil bearing capacity and slope stability. Based on the review of the November 2010 report, recent Site visits and a recent topographical survey completed by GHD, the AMEC 2010 geotechnical investigation is considered appropriate for the proposed residential development. While at this stage additional geotechnical investigation is not considered necessary, recommendations for the design of the *basement* walls and for shoring design can be included as part of the detailed design, if required.

The recent topographical survey completed by GHD indicates that slight slope changes have occurred at the Site - a slope stability assessment was performed for the existing slope to the south of the proposed residential *dwelling*. The following conclusions and recommendations are presented:

- Analyses completed show factors of safety less than 1.5 under static conditions. A factor of safety of 1.5 under static conditions was achieved at 5 metres and 2 metres, as measured from the top of the slope for the 1.4H:1V and 2H:1V slopes, respectively. A slope stability analysis was not completed for the west slope. Due to the similar

steepness of the slope to Section A-A, it is recommended that a Stable Top of Slope setback allowance of 5 metres should be used along the west side slope.

- The recommended long term Stable Top of Slope allowance is shown on Figure 9 of the Technical Review. The AMEC 2010 report suggests altering the slope to keep the safe slope inclination of 2H:1V where steeper slopes are present. This would require the removal of the existing vegetative cover on the slopes. It is strongly recommended that the existing vegetative cover not be disturbed as loss of this growth will reduce the slope stability. As an alternative, the long-term stable top of slope can be considered at an offset distance of 2 metres and 5 metres inland from the existing top of slope at cross-sections A-A and D-D, respectively, which meets the AMEC 2H:1V slope criterion.
- Construction staging areas should not be located near the top of slope. No heavy construction equipment should be allowed near the top of slope or within the safe slope allowance of 5 metres.

Figure 9, Existing Conditions in the Geotechnical Investigation, Feasibility Study & Slope Stability Assessment illustrates the Long-Term Stable Top Of Bank is above the 186-metre contour line. The [Site Plan](#) illustrates the proposed single detached *dwelling* is above the 189-metre contour line.

#### Private Servicing - Annex 6: Sanitary Sewage Appraisal

In the letter report from AMEC Earth & Environmental, dated 2010-10-12 it states that based on a calculated daily design flow of 3,300 litres per day, effluent will flow by gravity to from the house to the 6,6 litre septic tank and by gravity from the septic tank to distribution box located before the header of the leaching tile bed consisting of four (4) rows of tile, each 21 metres in length located in a relatively level area north of the house, to the east of the driveway. The ultimate limit state values are conservative, and AMEC should be contacted once foundation designs are available.

The GHD technical review determined the sanitary design was undertaken in accordance with the 2006 Ontario Building Code (OBC). Since then, the 2012 OBC and 2019 OBC have taken effect, yet the updates do not affect this design. It is recommended that the design reference the updated version of code.

#### Coastal Study - Annex : Coastal Study

To determine the appropriate setback for the stable top of slope GHD completed a Coastal Study, dated 2021-06-08 in reviewing the proposal and addressing the existing wave-based erosion and flood hazards, as well as list potential mitigation methods (if necessary). This Coastal Study addresses the required updates, coastal processes (from regional and local perspectives), natural hazard limits, and recommendations for mitigation methods and next steps in the development of the property.

Based on the Coastal Study, including review of historical information, a site inspection, review of Niagara Peninsula Conservation Authority regulatory requirements, and development of site-specific erosion rates, the current lake facing slope could erode 5.6 metres in the next 100 years. A newly constructed revetment would reduce this erosion to 3.3 m over the next 100 years. The proposed building footprint would still be within the erosion hazard if a new revetment is installed.

Geotechnical expertise should be sought if construction of the proposed *dwelling* is considered within the proposed building envelope beyond the erosion hazard limit as well as the stable top of slope.

#### [Erosion Control Work Permit - Annex : , Work Permit AYGU-2025-PLA-00079-WP-001](#)

On 2025-11-03 the Ministry of Natural Resources issued a work permit which authorizing installation of an approximately 90.8 metre Erosion Control stone revetment at the subject property.

#### [Erosion Control Work Permit – Annex 9: N.P.C.A, Permit No. 202401479](#)

On 2025-09-26 the Niagara Peninsula Conservation Authority issued a work permit for work to be undertaken for installation of shore protection at the subject property.

## POLICY REVIEW AND SUMMARY

The Policy and Planning Analysis provides the basis for establishing why a proposal should be considered and approved. The Analysis provides an outline of applicable planning policy documents and regulatory context quoting specific policies relevant to the proposal. The Analysis establishes the basis for the applications by providing detail of the identified relevant policies and explaining how the proposal conforms to the policies.

Where *Planning Act* approvals are proposed, the Analysis discusses their appropriateness, including the policy basis for requested modifications specific to the proposal. The following planning documents are addressed as part of the Policy and Planning Analysis:

- Provincial Policy and Legislation;
  - *Planning Act*,
  - Provincial Planning Statement;
- Municipal Policy;
  - Region of Niagara Official Plan;
  - Township of Wainfleet Official Plan; and
- Niagara Peninsula Conservation Authority Policy.

The Policy and Planning Analysis provides the rationale and opinion as to why the proposal is appropriate, in terms of how the proposal addresses good planning principles. This includes a discussion of how the proposal satisfies planning policy, and / or how potential negative impacts have been mitigated or avoided.

Good planning practice directs that the plan and its policies are not written in stone. Policies such as those of the Provincial Planning Statement, Niagara Region Official Plan, and Township Of Wainfleet Official Plan reviewed here, are used to try to reach a goal. They are not to be used as a set of threshold measures where the inability to meet every policy result in a proposal's failure. All the policies may not be and, based on good planning practice, don't have to be, satisfied as though they are zoning by-law regulations. If, on the balance, the proposal satisfies most of the policies and moves the community towards its stated goals, then the proposal should be given serious consideration for approval.

Land use planning in Ontario and Wainfleet is about development. Protecting and preserving resources and mitigating negative impacts is important but land use planning is primarily about promoting and encouraging appropriate development and complete communities. There are aspects of control to protect valuable resources and sensitive uses such as significant cultural and natural heritage features, from negative impacts from nearby uses but, the primary purpose is guiding development.

The guidance of development is evident starting with the *Planning Act*. The Citizen's Guide to Land-use Planning (the Guide) states *the Act*, among other things promotes sustainable economic development in a healthy natural environment and provides for a land use planning system led by provincial policy. The Guide further states, the *Act* provides the basis for preparing official plans and planning policies that will guide future development. The Guide states the Provincial Planning Statement provides policy direction that will help build strong communities by protecting, among others, agricultural resources. Community planning is aimed at identifying common community goals and balancing competing interests of the various parties.

### *Planning Act*

Subsection 1.1 of sets out the basis and the purpose of the *Planning Act* to promote sustainable economic development in a healthy natural environment within the means provided and led by Provincial policy and to encourage cooperation and coordination among various interests.

### Matters of Provincial Interest

Section 2 addresses matters of Provincial interest and requires The Committee of Adjustment to have regard to matters such as:

- The protection of ecological systems and agricultural resources.
- Conservation of significant interest including.
  - Architectural.
  - Cultural.
  - Historical.
  - Archaeological.
  - Scientific interest.

- Supply, efficient use and conservation of energy and water.
- Adequate provision and efficient use of:
  - Transportation.
  - Sewage.
  - Water services.
  - Waste management systems.
- Orderly development of safe and healthy communities.
- Accessibility for persons with disabilities to all facilities.
- Services.
- Provision of a full range of housing.
- Protection of the financial well-being.
- Protection of public health and safety.

The proposed *development* will help to protect the agricultural land base over the long term through the provision of a housing *unit* by intensifying and repurposing the existing underutilized *lot*. Based on the assumed availability of the existing *infrastructure* services the site is appropriate for the proposed use.

The location of the subject property in the Lakeshore Residential designation is appropriate for the proposed *development* and is close to complementary uses such as restaurants and parks. This proposal makes efficient and optimal use of under-utilized vacant *lot* intensification at an appropriate location and optimizes the provision of *infrastructure* and municipal services. The *single detached dwelling* proposed contributes to the provision of a full range of housing in the Township where *single detached dwellings* predominate.

The subject property abuts Lakeshore Road which is maintained year-round by the Township. The analysis of how the requirements of the *Planning Act* is satisfied are summarized in *Table 1, Matters of Provincial Interest*.

<b>Table 1: MATTERS OF PROVINCIAL INTEREST</b>	
Provincial Interest	Comment and Analysis
Protection of ecological systems, including natural areas, features, and functions	There will be no intrusion into the natural heritage areas, features, and functions identified near the subject property.

Protection of the agricultural resources of the Province	The subject property is in the Lakeshore Residential designation providing for development reducing pressure to urbanize agricultural areas.
Conservation and management of natural resources and the mineral resource base	The proposed residential intensification of the underutilized vacant lot will not impact natural or mineral resources.
Conservation of features of significant architectural, cultural, historical, archaeological, or scientific interest	There are no features of significant architectural, cultural, historical, archaeological, or scientific interest.
Supply, efficient use and conservation of energy and water	The proposed residential intensification of the underutilized vacant lot is provided for by Provincial policy regarding efficiency and conservation.
Adequate provision and efficient use of communication, transportation, sewage and water services and waste management systems	The proposed residential intensification of the underutilized vacant lot optimizes the use of existing municipal services.
Orderly development of safe and healthy communities	The proposed residential intensification of the underutilized vacant lot is subject to appropriate development standards for intensification and avoids or mitigates risks to public health and safety, in accordance with Provincial policies, regarding building strong healthy communities.
Accessibility for persons with disabilities to all facilities, services and matters to which this Act applies	Future Building Permit applications will need to comply with O. Reg. 191/11: Integrated Accessibility Standards under the <i>Accessibility for Ontarians with Disabilities Act, 2005</i> , S.O. 2005, c. 11.
Adequate provision of employment opportunities	Residents of the proposed residential intensification of the underutilized vacant lot are anticipated to support existing commercial uses.
Protection of the financial and economic well-being of the Province and its municipalities	The efficient use of lands and intensified residential intensification of the underutilized vacant lot is efficient use of municipal <i>infrastructure</i> and provides increasing cost efficiencies and resilience related to maintenance.

Protection of public health and safety	While the subject property is marginally impacted by the Niagara Peninsula Conservation Authority Regulation Limit, the proposed residential intensification of the underutilized vacant lot has safe access and egress available to Lakeshore Road.
--	--

Section 45(1) of the *Planning Act* of the states:

*The committee of adjustment, upon the application of the owner of any land, . . . affected by any by-law that is passed under section 34 . . . , may, . . . , authorize such minor variance from the provisions of the by-law, in respect of the land, . . . or the use thereof, as in its opinion is desirable for the appropriate development or use of the land, . . . if in the opinion of the committee the general intent and purpose of the by-law and of the official plan, . . . are maintained.*

Specifically, the subject property requires zoning relief to reduce the *interior side yard* minimum from four (4) metres to 1.5 metres and the removal the requirement for the building to be within the *building* apron identified in Zoning By-law Map A-5b.

The Committee is authorized to grant a Minor Variance if, in the opinion of the Committee, the request satisfies the four tests outlined in the *Planning Act*:

- Is the variance minor?
- Is the variance desirable for the appropriate development or use of the land?
- Is the general intent and purpose of the Zoning By-law maintained?
- Is the general intent and purpose of the Official Plan maintained?

### *Planning Act Summary*

*The proposed residential use of the underutilized vacant lot satisfies the Planning Act. The proposal:*

- *Protects ecological functions and agricultural uses and because it has no impact on them conserves architectural, cultural, historical, archaeological resources.*
- *Adequately provides and efficiently and optimally uses transportation, sewage, water services, and waste management systems infrastructure.*
- *Results in the orderly development of a safe and healthy community providing a full range of housing types and tenures.*

- *Has no negative impact on the financial well-being of the Province or Town.*

### ***The proposal complies with the Planning Act***

#### Provincial Planning Statement (2024)

The Provincial Planning Statement provides policy direction on matters of provincial interest related to land use planning and development. As a key part of Ontario's policy-led planning system, the Provincial Planning Statement sets the province wide policy foundation for regulating the development and use of land. The Committee's land use planning decisions made must be consistent with the Provincial Planning Statement.

The Provincial Planning Statement states growth and development will be prioritized within urban and rural settlements and provides policy direction on matters of provincial interest related to land use planning and development. In addition, resources, including natural areas are to be protected. As a key part of Ontario's policy-led planning system, the Provincial Planning Statement sets the policy foundation for regulating the development and use of land province-wide. Land use planning decisions made must be consistent with the Provincial Planning Statement.

While [Policy 2.3.1.1](#) states *settlement areas* are to be the focus of growth and development, [Policy 2.6.1](#) states, on *rural lands* permitted uses include, among others, resource-based recreational uses (including recreational *dwellings* not intended as permanent residences), residential development, such as this proposal to use an otherwise underutilized parcel of vacant land.

The Wainfleet Official Plan states the Lakeshore Area is currently largely developed and forms a continuous strip of permanent and seasonal residential *dwellings* along with a number of small cottage resorts and tourist cabins and that it is considered part of the rural area of the Township, and although large portions of the areas have been developed, it is not considered a settlement area.

The proposal:

- Builds upon rural character and leverages rural amenities of the natural resources on and surrounding the subject property and Niagara's recreation and scenic assets.
- Uses rural road *infrastructure* efficiently.
- Provides sustainable uses including leveraging Niagara's historical, cultural, and natural assets.
- Conserves biodiversity in the area because the new structure proposed would not have a negative impact on the natural heritage features on the surrounding or subject properties.

[Policy 2.6.2](#) promotes development, such as the proposal, sustainable by rural service levels and as required by [Policy 2.6.3](#) is appropriate to the *infrastructure* available and avoids the need for the uneconomical expansion of this *infrastructure*.

The proposal complies with [Policy 2.6.4](#) by protecting resource-related uses because the proposal minimizes constraints on other resource-related uses.

The proposed use complies with [Policy 2.6.5](#) because there are no livestock facilities in the area.

The proposal's residential intensification of the underutilized vacant *lot* assists the Township satisfy the requirements of [Policy 2.9.1](#) to reduce greenhouse gas emissions and prepare for the *impacts of a changing climate* because it is ultimate design can:

- Support energy conservation and efficiency.
- Promote *green infrastructure*, and *low impact development*, protecting the environment and improving air quality.
- Take into consideration any additional approaches that help reduce greenhouse gas emissions and build community resilience to the *impacts of a changing climate*.

As required by [Policy 3.6.8](#) the proposal's stormwater drainage plan can:

- Minimize increases in stormwater volumes and contaminant loads.
- Incorporate best practices, including stormwater attenuation and re-use, water conservation and efficiency, and *low impact development*.
- Align with any comprehensive municipal plans for stormwater management that consider cumulative impacts of stormwater from development on a *watershed* scale.

As required by [Policy 4.1.1](#) natural features and areas are protected for the long term because, as required by [Policy 4.1.2](#), the diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, are maintained.

As required by [Policies 4.1.6 and 7](#) *development* and *site alteration* are not proposed in *fish habitat*, *habitat of endangered species* and *threatened species* except in accordance with *provincial and federal requirements*.

As required by [Policy 4.1.8](#) *development* and *site alteration* will not occur on *adjacent lands* to the *natural heritage features and areas* identified in policies 4.1.4, 4.1.5, and 4.1.6. because there will be no *negative impacts* on the natural features or on their *ecological functions*.

As required by Policies 4.6.2. and 4.6.3 the proposal's residential intensification of the underutilized vacant lot is not on land containing *archaeological resources* or on *adjacent lands* to a *protected heritage property* and as required by Policy 4.6.5. early engagement with Indigenous communities will occur through the Township's notification process.

As required by [Policy 5.2.1.](#), in collaboration with Niagara Peninsula Conservation Authority *hazardous lands* and *hazardous sites* have been identified and the proposal's residential intensification of the underutilized vacant *lot* is not within areas that would be rendered inaccessible to people and vehicles during times of *flooding hazards* or *erosion hazard*.

#### *Provincial Planning Statement Summary*

*The proposal's residential intensification of the underutilized vacant lot is consistent with the Provincial Planning Statement. The subject property is in the rural area with existing municipal and public service facilities. The proposal's residential intensification of the underutilized vacant lot provides a residential use compatible with the existing residential character of the neighbourhood with no identified impacts. The proposal provides additional housing stock. The existing municipal services and roads ensure the development has adequate infrastructure.*

***The proposal complies with the Provincial Planning Statement.***

#### Official Plan

The subject property is **designated Rural Lands** with policy implications related to the Region's Natural Environment System Overlay being Type 1 Fish Habitat (Lake Erie). The Township Of Wainfleet Official Plan designates subject property **Lakeshore Area** and **Natural Heritage System** on Schedule A, Municipal Structure and **Lakeshore Residential** and **Hazard Lands** and **Environmental Conservation Area** on Schedule B. Land Use Plan - Township.

The Wainfleet Official Plan states the Lakeshore Area is currently largely developed and forms a continuous strip of permanent and seasonal residential *dwellings* along with a number of small cottage resorts and tourist cabins and that it is considered part of the rural area of the Township, and although large portions of the areas have been developed, it is not considered a settlement area.

#### Niagara Region Official Plan

The Niagara Region Official Plan (2014) was updated and adopted by Regional Council on 2022-06-23 and subsequently approved by the Province with modifications on 2022-11-04. The Region of Niagara Official Plan is a long-term, strategic policy planning framework for managing growth coming to Niagara. The policies of the Plan guided land use and development, influencing economic, environmental, and planning decisions until 2051 and beyond.

In 2022 legislative changes shifted planning responsibilities from the Region to the Township and on 2025-04-01 the Township inherited the planning responsibilities previously assigned to the Region. This includes the responsibility for implementation of the Region of Niagara Official Plan. *Planning Act* transition provisions require the Region of Niagara Official Plan is deemed to constitute an Official Plan of the Township and will remain in effect until the Township revokes or amends it. The Township is now responsible for administering both the 2022 Region of Niagara Official Plan and the Township of Wainfleet Official Plan. The Region of Niagara Official Plan has not replaced the Township of Wainfleet Official Plan, but it must be considered by when reviewing planning applications and making recommendations. Going forward, the creation of a new Township of Wainfleet Official Plan may integrate the Region of Niagara Township of Wainfleet Official Plans into one new concise document. With the transition of the Region of Niagara Official Plan to the Township of Wainfleet Official Plan, the Township is responsible for land use planning functions previously provided by the Region of Niagara including, among others:

- Environmental planning.
- Archaeological screening.
- Records of site condition.
- Gas and petroleum well screening.

Unlike the broad concept of *rural lands* in the Provincial Planning Statement the *rural area* in the Niagara Region Official Plan is land use designation. [Section 4.1](#) of the Niagara Region Official Plan states the agricultural land base is comprised of *prime agricultural areas*, including *specialty crop areas*, and *rural lands*. The proposal satisfies:

- [Objective 4.1b\)](#) to protect the region's agricultural land base because no land is taken out of *agricultural use*.
- [Objective 4.1c\)](#) to ensure agriculture is the predominant land use in specialty crop areas and *prime agricultural areas* for the same reason.
- [Objective 4.1d\)](#) to restrict and control non-agricultural uses to minimize potential conflicts for the same reason.
- [Objective 4.1g\)](#) to protect *prime agricultural areas* from fragmentation for the same reason.
- [Objective 4.1i\)](#) to provide for a limited amount of non-agricultural residential development on *rural lands*.

[Policy 4.1.8.1](#) provides for non-agricultural related development may be permitted subject to the policies in Sections 4.1.8 and 4.1.9. and [Policy 4.1.8.2](#) provides for limited residential development.

Policy 4.1.8.3 recognizes the *rural lands* along the Lake Erie shoreline contain historic patterns of seasonal and permanent residential development. These uses and their expansions continue to be permitted in accordance with local official plans and zoning by-law provisions.

Policy 4.1.9.1 provides for limited non-agricultural residential development to be permitted on *rural lands*. As required by Policy 4.1.9.2. the proposal:

- Is for less than three (3) *lots* because no new *lots* are being created.
- A hydrogeological study considering potential cumulative impacts, determined the existing 5,145, square metre *lot* will adequately accommodate *individual on-site sewage services and individual on-site water services infrastructure* for long-term operation.
- The *development* is at a scale and density suitable to the physical characteristics of the site.
- Soil and drainage conditions are suitable and permit the proper siting of buildings, the supply of potable water, and the installation and long-term operation of an adequate means of waste disposal.
- The proposed development is consistent with Section 3.1.
- The proposal is appropriately separated and protected from:
  - incompatible land uses such as existing pits and quarries.
  - *mineral aggregate operations and resources* recognized in this Plan.
  - livestock operations and anaerobic digesters, in accordance with the *minimum distance separation formulae*.
  - existing and former *waste management systems*.
  - major existing and proposed transportation facilities.
  - *employment land*.

#### Wainfleet Official Plan

The subject property is partly in the Lakeshore Area and the Natural Heritage System on Schedule A, Municipal Structure, and partly designated Lakeshore Residential, Environmental Conservation Area, and Hazard Lands on Schedule B, Land Use – Township and Schedule B9, Land Use – Lakeshore Area in the Township of Wainfleet Official Plan.

#### The Lakeshore Area

The Wainfleet Official Plan states the Lakeshore Area is currently largely developed and forms a continuous strip of permanent and seasonal residential *dwellings* along with a number of small cottage resorts and tourist cabins and that it is considered part of the rural area of the Township, and although large portions of the areas have been developed, it is not considered a settlement area.

### Residential Areas

The intent of the Residential Areas is to protect and enhance the existing character of Wainfleet's hamlets and residential areas through the policies of the residential designations while permitting new housing compatible with the existing character, improving the quality of life of existing and future residents of Wainfleet, encouraging the creation of sustainable residential areas.

The proposal satisfies the Goals of accommodating a variety of lifestyles and aging in place by encouraging a broad range of housing choices, protecting, and enhancing the character and image of the Lakeshore Residential area, and fostering attractive communities and a sense of place by satisfying the Objectives to:

- Encourage and facilitate the production of a range of *dwelling* types and forms of tenure.
- Encourage high quality building design that is environmentally sustainable and is compatible with the character and image of the adjacent buildings.

### Lakeshore Residential Designation

*Policy 3.3.3.1* permits seasonal and full year *single detached dwellings* and as required by *Policy 3.3.3.2* the proposed building will not exceed two (2) stories.

As required by *Policy 3.3.3.3* the new residential development respects the character of the surrounding residential area in accordance with the design policies of Section 3.3.6 (actually 3.3.5) because as required by *Policy 3.3.5.3* the location of the new *dwelling*:

- Maintains the established rhythm of lot frontages on adjacent housing lots as illustrated in *Figure 2, Lot Frontage Rhythm*.
- Provides a building height that reflects the pattern of heights of adjacent housing.
- Provides for a similar lot coverage to adjacent housing to ensuring the massing or volume of the new *dwelling* reflects the scale and appearance of adjacent housing. .
- Maintains the predominant or average front yard setback for adjacent housing to preserve the streetscape edge, and character as illustrated in *Figure 3, Front Yard Setbacks*.
- Provides for similar side yard setbacks to preserve the spaciousness on the street as illustrated in *Figure 4, Side Yard Setbacks*.

As required by *Policy 3.3.5.3* the *dwelling* maintains the setbacks existing and provides opportunities for tree planting preserving Lakeshore Road's rural wooded character.

The proposal complies with the intent of the Lakeshore Area because it is the use of an existing lot not an expansion of the Lakeshore Area, it meets *sustainable private servicing* and the Environmental Management policies of the Official Plan, it supports the Goals of maintaining the recreational, residential and cottage character, it protects the Lake Erie shoreline as a celebrated public amenity, it satisfies the Objectives of Permitting limited

Figure 2: LOT FRONTAGE RHYTHM

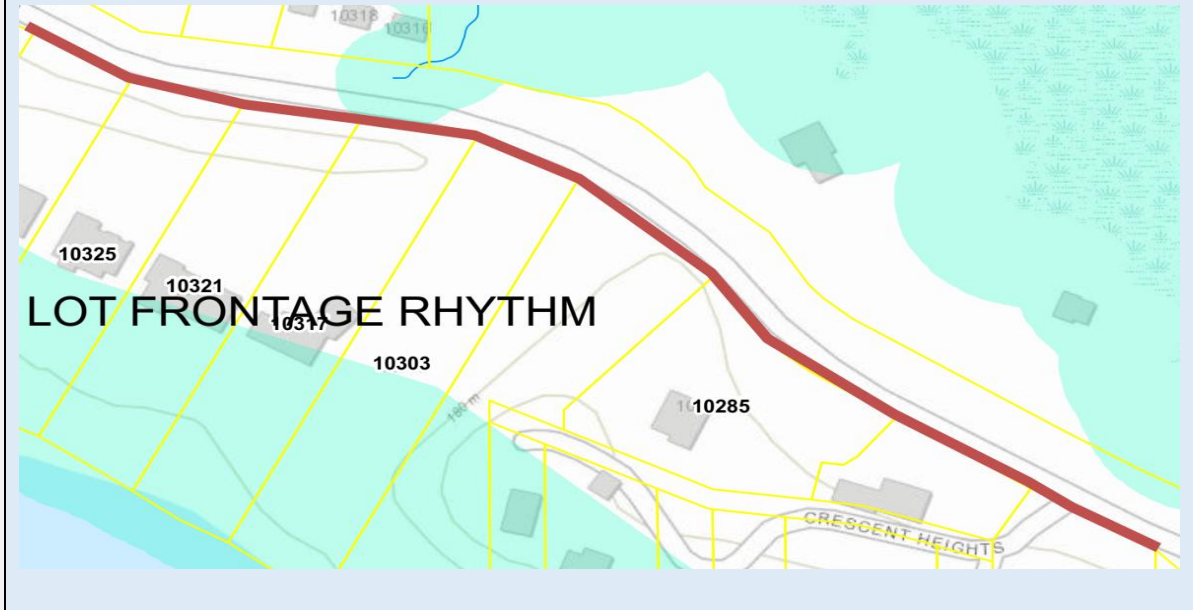
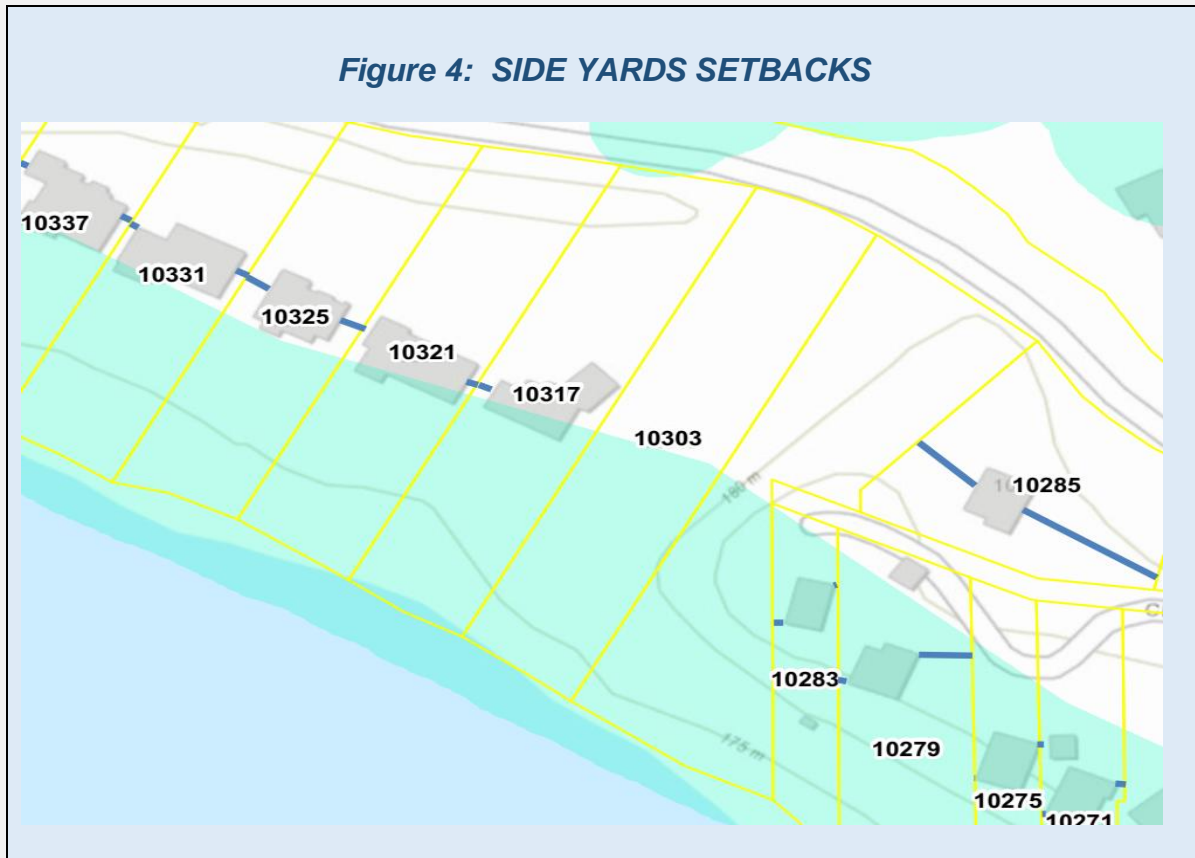


Figure 3: FRONT YARD SETBACKS





infill on existing lands designated for residential purposes, and it maintains public access to the Lake Erie shoreline.

The proposal satisfies [Policy 2.5.2](#) because there is no expansion of the Lakeshore Area designation, the *lot* size restriction of [Policy 2.5.3](#) is satisfied the letter report from AMEC Earth & Environmental in [Annex 6, Sanitary Sewage Appraisal](#), and the proposal is not for a new *lot*.

#### *The Natural Heritage System*

The proposal complies with the intent of the Natural Heritage System because, as outlined in the Environmental Impact Study in [Annex 4, Scoped Environmental Impact Study](#), the broad system of natural features and linkages that creates an overall connected system is maintained and can be enhanced. The proposal satisfies the Goal of preserving and potentially improving the biological diversity and ecological function of natural heritage features within the Township of Wainfleet through the refinement of the existing natural heritage system by satisfying the Objectives to:

- Protect and provide for the enhancement of the ecological function within the Township by maintaining and potentially enhancing the connectivity and linkages among natural features and with surface water, ground water and hydrologic functions.
- Protect and potentially enhance habitats within the Natural Heritage System to maintain and, where possible, improve biodiversity.
- Improve and possibly enhance the biological diversity and ecological function of the Natural Heritage System.
- Permit compatible forms of recreation within the Natural Heritage System to encourage the use and enjoyment of the Township's natural heritage features.

As required by [Policy 2.6.1](#) the Environmental Impact Study in [Annex 4, Scoped Environmental Impact Study](#) can be used to refine the boundaries of the Natural Heritage System and as required by [Policy 2.6.3](#) the Environmental Protection and the Environmental Conservation Areas are protected.

#### [Environmental Protection Area Designation](#)

As required by [Policy 3.2.1.6](#) *development* is permitted on adjacent lands to Environmental Protection Areas, without an amendment to the Official Plan because the *development* is supported by [Annex 4, Scoped Environmental Impact Study](#) in completed accordance with [Section 8.9](#), the *development* is not prohibited by other policies.

#### [Environmental Conservation Area Designation](#)

As required by [Policy 3.2.2.5](#) the *development* is permitted on land adjacent to Environmental Conservation Areas, without an amendment to the Official Plan because the *development* is supported by [Annex 4, Scoped Environmental Impact Study](#) completed in accordance with [Section 8.9](#) and the *development* is not prohibited by other Policies.

#### [Hazard Land Area](#)

The Official Plan states the Hazard Land Area includes areas with physical hazards such as flood susceptibility, steep slopes, erosion susceptibility, or other physical conditions, severe enough to cause property damage and / or potential loss of life if the lands were to be developed with habitable buildings or structures. The Hazard Land Area includes flood and erosion prone lands along the Lake Erie shoreline where the subject property is located.

[Policy 3.11.3](#) permits recreational uses such as the proposed resource-based recreational use (including recreational *dwellings* not intended as permanent residences) where the subject use is permitted in the underlying land use designation and in keeping with the requirements of the Provincial Planning Statement and the regulations of the Niagara Peninsula Conservation Authority.

Policy 3.11.5 states *hazardous lands* and sites identified and mapped by the Niagara Peninsula Conservation Authority are designated as Environmental Protection Areas on the Schedule B. Where an application for *development* or *site alteration* is made the location and extent of *hazardous lands* or sites is determined by the Conservation Authority after considering an appropriate study prepared and signed by a qualified engineer which is included in [Annex 8, Work Permit Aygu-2025-Pla-00079-Wp-001](#) and [Annex 9: N.P.C.A. Permit No. 202401479 Dated September 26, 2025 For Work To Be Undertaken At 10288 Lakeshore Road In The Municipality Of Wainfleet](#) and submitted with accompanying Zoning By-law Amendment application.

Since the building subject of the *development* is not in an area identified as susceptible to *flood hazard* as restricted by [Policies 3.11.6](#), it is permitted, and as required by [Polies 3.11.11](#) and [3.11.12](#) the *development* is permitted because the geotechnical engineering study prepared and signed by a qualified engineer noted above in the discussion related to [Policy 3.11.5](#), demonstrates to the satisfaction of the Niagara Peninsula Conservation Authority the *development* is not within the dynamic beach hazard limit or the 30 metre dynamic beach allowance of Lake Erie.

As required by [Policy 3.11.20](#) permits have been issues by the Niagara Peninsula Conservation Authority and the Ministry of the Environment prior to *development*.

#### *Wainfleet Official Plan Summary*

*The proposal protects the agricultural land base, ensures agriculture is the predominant land use in specialty crop areas and prime agricultural areas, restricts and controls non-agricultural uses, and to minimizes potential conflicts with agriculture because no land is taken out of agricultural production and the use is separated for agricultural activities.*

*The proposal protects prime agricultural areas from fragmentation because the lot already exists and a limited amount of non-agricultural residential development on rural lands is provided for.*

*Limited residential development provided for, such as this proposal, recognizes the rural lands along the Lake Erie shoreline contain historic patterns of seasonal and permanent residential development. The proposal:*

- *Is for less than three (3) lots because no new lots are being created.*
- *Will adequately accommodate individual on-site sewage services and individual on-site water services.*
- *Is at a scale and density suitable to the physical characteristics of the site.*

- *Is suitable for the proper siting of buildings, the supply of potable water and the installation and long-term operation of an adequate means of waste disposal.*
- *Is appropriately separated and protected from:*
  - *incompatible land uses such as existing pits and quarries.*
  - *mineral aggregate operations and resources.*
  - *livestock operations and anaerobic digesters, in accordance with the minimum distance separation formulae.*
  - *existing and former waste management systems.*
  - *major existing and proposed transportation facilities.*
  - *employment land.*

*The proposal is the encouraged and facilitated environmentally sustainable production of a range of dwelling types and forms of tenure, in character with adjacent buildings.*

*Seasonal and full year single detached dwellings are permitted on the subject property and the proposal :*

- *Maintains the established rhythm of lot frontages.*
- *Reflects the pattern of heights of adjacent housing.*
- *Has a similar lot coverage to adjacent housing ensuring the massing or volume of the new dwelling reflects the scale and appearance of adjacent housing. .*
- *Maintains the front yard setback of adjacent housing preserving the streetscape edge and character.*
- *Preserves the spaciousness on the street.*
- *Provides opportunities for tree planting, preserving Lakeshore Road's rural wooded character.*

*The proposal is not an expansion of the Lakeshore Area, and it meets sustainable private servicing and the Environmental Management policies of the Official Plan, it supports the Goals of maintaining the recreational, residential and cottage character and protecting the Lake Erie shoreline as a celebrated public amenity, it satisfies the Objectives of Permitting limited infill on existing lands designated for residential purposes, and it maintains public access to the Lake Erie shoreline.*

*The proposal complies with the intent of the Natural Heritage System because the broad system of natural features and linkages are maintained and can be enhanced by preserving and potentially improving the biological diversity and ecological function of natural heritage features. The proposal:*

- *Protects and provides for the enhancement of the ecological function and the maintenance and potential enhancement of the connectivity and linkages among natural features and with surface water, ground water and hydrologic functions.*
- *Protects and potentially enhances habitats and maintains biodiversity.*
- *Improves and enhances the biological diversity and ecological function of the Natural Heritage System through the maintenance and enhancement of the habitat of the subject property.*
- *Permits a compatible a form of recreation within the Natural Heritage System using the Township's natural heritage features.*

*The Environmental Protection and the Environmental Conservation Areas are protected. The proposal is permitted on adjacent lands to Environmental Protection Areas, is supported by the and is not prohibited by other policies.*

*The proposal is permitted on adjacent lands to Environmental Conservation Areas because the development supported by the Environmental Impact Study and the proposal is not prohibited by other policies.*

*The proposal is affected by the policies for the Hazard Land Area including flood and erosion prone lands along the Lake Erie shoreline but recreational uses such as the proposed resource-based recreational use (including recreational dwellings not intended as permanent residences) is permitted where the subject use is also permitted in the underlying land use designation and is in keeping with the requirements of the Provincial Planning Statement and the regulations of the Niagara Peninsula Conservation Authority.*

*Hazardous lands and sites are designated as Environmental Protection. Where an application for development was made and detailed mapping was not available, the location and extent of hazardous land or sites was determined by the Niagara Peninsula Conservation Authority after considering an appropriate study prepared and signed by a qualified engineer. The Ministry of Natural Resources and the Niagara Peninsula Conservation Authority have issued work permits For Work To Be Undertaken At 10288 Lakeshore Road.*

*Since the building subject of the development application is not in an area identified as susceptible to flood hazard, it is permitted because a geotechnical engineering study demonstrates the development is not within the dynamic beach hazard limit or the 30-metre dynamic beach allowance of Lake Erie.*

***The proposal complies with the Official Plan.***

## ZONING BY-LAW

The subject property is zoned “**Residential Lakeshore – RLS.C15-13h** with a Hazard Overlay” permits the proposed *single detached dwelling*.

The building apron zoning restriction is redundant because current zoning provisions restrict the location of any new structures.

<b>Table 3: ZONING MATRIX</b>			
<b>Regulation</b>	<b>Zone Requirements</b>	<b>Existing Proposed</b>	<b>Comment</b>
<i>Lot area</i> Sec 7.2.1 Table 10	1.0ha unless a hydrogeological study undertaken by an applicant demonstrates that on-site sustainable private services can be achieved on a smaller lot with no negative impacts on surface and/or ground water features, in which case the minimum lot size is 4,000 sqm	5,145 sqm 5,145sqm	<i>no change / satisfied</i>
<i>Lot coverage</i> Sec 7.2.1 Table 10	15% - - excluding any portion of the <i>lot</i> on the waterside of any shorewall.	2.5% 15%	<i>no change / satisfied</i>
<i>Lot frontage</i> Sec 7.2.1 Table 10	46m	48m 46m	<i>no change / satisfied</i>
<i>Front yard</i> Sec 7.2.1 Table 10	15m	>25.1m 15m	<i>no change / satisfied</i>
<i>Side yard</i> Sec 7.2.1 Table 10	4m	1.5	<i>relief required</i>
<i>Rear yard</i> Sec 7.2.1 Table 10	15m measured from any shorewall	>30m 15m	<i>no change / satisfied</i>
<i>Height</i> Sec 7.2.1 Table 10	7.5m	n/a 7.5m	<i>will be satisfied</i>
<i>Dwelling depth</i> Sec.7.2.3.3	16m	13.5m 16m	<i>no change / satisfied</i>
<i>Landscaped area</i> Sec 7.2.1 Table 11	60%	97.5% 95%	<i>satisfied</i>
<i>All buildings or structures to be constructed on Lot 8 shall be constructed within the building apron as set forth on Map A-5b - Sec 7.2.1 Table 11</i>		n/a	<i>n/a</i>
<i>Accessory building coverage</i> Sec 7.2.1 Table 11	93sqm provided the total lot coverage for all buildings and structures on the lot does not exceed the maximum lot coverage for the zone.	0sqm 0sqm	<i>no change / satisfied</i>
<i>Dynamic beach hazard</i> Sec 3	Areas of inherently unstable accumulations of shoreline sediments along the Great Lakes - St. Lawrence River System as identified by provincial standards. The dynamic beach hazard limit consists of the <b>flood hazard limit plus a dynamic beach allowance.</b>		<i>identified</i>

<i>Dynamic Beach allowance</i> NPCA Planning And Permitting Procedure Manual November 21, 2022, Appendix A: Definitions	An area of inherently unstable accumulations of shoreline sediment along the Great Lakes-St. Lawrence River system as identified by provincial standards. The dynamic beach hazard limit consists of the <b>flooding hazard limit (176.77 metres) plus a 30-metre dynamic beach allowance.</b>		identified
<i>Erosion hazard</i> Sec 3	The loss of land, due to human or natural processes, that poses a threat to life and property. The <i>erosion hazard</i> limit is determined using considerations that include the 100-year erosion rate (the average annual rate of recession extended over a 100-year time span), an allowance for slope stability, and an erosion / erosion access allowance.		identified
<i>Flooding hazard</i> Sec 3	The inundation, under the conditions specified below, as areas adjacent to a shoreline and not ordinarily covered by water: a) Along the shoreline of Lake Erie and large inland lakes, the <i>flooding hazard</i> limit is based on the 100-year flood level plus an allowance for wave uprush and other water-related hazards;		identified
<i>Yards Adjacent to Lake Erie</i> Sec.4.28	Any minimum yard required by this By-law adjacent to Lake Erie shall be <b>measured from any shorewall</b> , or alternately where no shorewall exists, from the dynamic beach hazard of Lake Erie.	15m	>30m from the proposed shorewall
<i>Hazard overlay</i> Sec 13.1.7	Where a Hazard Overlay Zone is shown on the maps in Section 15, it includes <b>hazards associated with the Lake Erie shoreline</b> as per the Niagara Peninsula Conservation Authority's Regulation of Development, Interference with Wetlands and Alteration to Shorelines and Watercourses O. Reg. 1-55/05. Along Lake Erie, the Hazard Overlay Zone includes the <b>greater of the flooding hazard, erosion hazard or dynamic beach hazard associated with Lake Erie.</b>		identified
<i>Hazard overlay</i> Sec 13.1.8	Where a lot is also subject to a Hazard Overlay Zone, no uses and no <i>building</i> or <i>structure</i> is permitted unless a <b>permit for development or site alteration is issued by the Niagara Peninsula Conservation Authority.</b> Where a permit is issued by the Niagara Peninsula Conservation Authority, the requirements of the underlying zone apply to the extent permitted by the permit issued by the Niagara Peninsula Conservation Authority.		identified
<i>Hazard overlay</i> Sec 13.1.9	Notwithstanding the permitted uses in the applicable underlying zones shown on the maps in Section 15, where a lot is also subject to a <b>Fish Habitat Overlay Zone</b> , no uses and no building or structure or an expansion to an existing building or structure shall be permitted within 30 metres of the stable top of bank adjacent to a watercourse containing critical fish habitat as defined by the Ministry of Natural Resources and Forestry (MNRF) or within 15 metres of the stable top of bank adjacent to a watercourse containing Important or Marginal	The Zoning By-law does not identify critical or marginal fish habitat along the Lake Erie shoreline	n/a

	<p>fish habitat as defined by the MNRF until an environmental impact study (EIS), in accordance with EIS Guidelines as adopted by the Township, Regional Municipality of Niagara or Niagara Peninsula Conservation Authority, as may be amended from time to time, and other studies that may be required by the Township based on approved guidelines and terms of reference, are approved. The requirement for an EIS may be scoped or waived in accordance with the EIS guidelines. The uses permitted in Table 33 may be permitted subject to a scoped EIS in accordance with the EIS guidelines.</p>		
--	---	--	--

No accessory building is proposed.

Specifically, the subject property requires zoning relief to reduce the east side *interior side yard* minimum from four (4) metres to 1.5 metres and the removal of the requirement for the building to be within the *building* apron identified in Zoning By-law Map A-5b.

#### MINOR VARIANCE APPLICATION

The subject property requires zoning relief to reduce the east side *interior side yard* minimum from four (4) metres to 1.5 metres and the remove the requirement for the building to be within the *building* apron identified in Zoning By-law Map A-5b. Section 45(1) of the *Planning Act* allows the Committee of Adjustment to grant a Minor Variance if in the opinion of the Committee the request satisfies the four tests outlined in the *Planning Act*.

- Are the variances minor?
- Are the variances desirable for the appropriate development or use of the land?
- Is the general intent and purpose of the Zoning By-law maintained?
- Is the general intent and purpose of the Official Plan maintained?

#### Are the variances minor?

The first variance results in the reduction of the east side *interior side yard* from four (4) to 1.5 metres. The 1.5-metre interior side provides adequate separation from the existing building east of the subject property. The reduced side yard variance is minor because adequate separation is maintained.

The second variance removes the restriction on the location of the single detached *dwelling* in the building apron drawing and replaces it with the setbacks from the current Zoning By-law. The removal of the building apron requirement is minor because the provisions of the Zoning By-law ensure good development.

### Are the variances desirable for the appropriate development or use of the land?

The requested variances are desirable and accommodate a needed new residential unit compatible with the neighbourhood. The variances are desirable for the appropriate development or residential use of the land.

### Are the general intent and purpose of the Zoning By-law maintained?

The requested variances maintain the general intent and purpose of the Township's Zoning By-Law which permits new single detached *dwelling* units in the Residential Lakeshore Zone. The general intent and purpose of the Zoning By-law to permit residential uses in appropriate locations are maintained.

### Is the general intent and purpose of the Official Plan maintained?

The subject property is designated Residential Lakeshore with Hazard Lands and Environmental Conservation Area (ECA) providing for the residential intensification of the underutilized vacant lot within the polices of Hazard Lands and Environmental Protection and the Environmental Conservation overlays.

Compatibility will be maintained.

The general intent and purpose of the Official Plan are maintained.

### Minor Variance Opinion

The proposed Minor Variances:

- Conform with the provisions of the *Planning Act*, Provincial Planning Statement; and Wainfleet Official Plan.
- Are minor.
- Are desirable for the appropriate development or use of the land and accommodate needed new residential units that do not adversely impact compatibility with the surrounding residential neighbourhood.
- Maintain the general intent and purpose of the Township's Zoning By-Law which permits new residential units on land zoned Residential Lakeshore.
- Maintain the general intent and purpose of the Township's Official Plan which permits new residential units on land designated Lakeshore Residential.
- Permit the proposed *residential use*.

The approval of the proposed Minor Variances will permit a *single detached dwelling unit*. This development constitutes intensification and infill of an underutilized vacant lot. The proposed *Planning Act* application for Minor Variance is consistent with the policies for permitting and encouraging intensification and infill residential development within the Township of Wainfleet. The proposal is good planning.

## OPINION

The proposed approval of the Minor Variance application to permit the residential use conforms with the provisions of the *Planning Act*, Provincial Planning Statement ; and the objectives and policies of Niagara Region and Township of Wainfleet Official Plans.

The proposed approval of the Minor Variance application to permit the residential use of the under-utilized existing lot conforms to the provisions of the Township of Wainfleet Zoning By-law.

The approval of the Minor Variance application will permit a residential use similar to the neighbouring uses.

The approval of the Minor Variance application is good planning.

## RECOMMENDATION

The Township Of Wainfleet Committee of Adjustment approve the requested Minor Variance application.

*Steven Rivers*

South Coast Consulting  
Steven Rivers, MCIP, RPP  
189 Clare Avenue  
Port Colborne, Ontario L3K 5Y1  
Phone: 905-733-8843  
Email: [southcoastofcanada@gmail.com](mailto:southcoastofcanada@gmail.com)



2020-01-14

## DISCLAIMER AND STATEMENT OF LIMITATIONS

This report was prepared by South Coast Consulting. It is based on the information provided by the Client. The planning policy research and opinions are based on South Coast Consulting's research and independent analysis of the applicable policy. This report was written by a Registered Professional Planner, who is a full member of the Ontario Professional Planners Institute as defined by the *Ontario Professional Planners Act, 1994*. The contents of this report represent the author's independent professional opinions and comply with the Ontario Professional Planners Institute Code of Professional Practice. The opinions presented here will be defended as required.

The Report was prepared by South Coast Consulting for a *Planning Act* application(s) for the subject properties. The material in the Report reflects the South Coast Consulting's best judgment.

This Report is not to be used for any other purpose and South Coast Consulting specifically denies any responsibility for losses or damages incurred through use of this Report for a purpose other than as described in this Report. It should not be reproduced in whole or in part without South Coast Consulting's express written permission, other than as required by the Client in relation to obtaining *Planning Act* approvals.

South Coast Consulting reserves the right, but will be under no obligation, to review and / or revise the contents of this Report considering information which becomes known to South Coast Consulting after the date of this Report.

This report has been prepared and the work referred to in this report has been undertaken by South Coast Consulting for the Client. The report has been prepared following the agreement between South Coast Consulting and the Client. Other than by the Client and as set out in the agreement, copying or distribution of this report or use of or reliance on the information contained in the report, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from South Coast Consulting.

This report has been prepared in a manner accepted by professional consulting principles and practices for the same locality and under similar conditions. No other representations or warranties, expressed or implied, are made.

Opinions and recommendations contained in this report are based on conditions that existed at the time the services were performed and are intended only for the Client, purposes, locations, time frames, and project parameters as outlined in the agreement between South Coast Consulting and the Client. The data reported, findings, observations and conclusions expressed are limited by the agreement.

This report is prohibited to be used by any other party without written consent by an authorized representative of 2198795 Ontario Limited Operating as South Coast Consulting (South Coast). This report is considered South Coast / Steven Rivers' professional work product and shall remain the sole property of South Coast / Steven

Rivers. Any unauthorized reuse, redistribution of, or reliance on, the report shall be at the Client's and recipient's sole risk, without liability to South Coast / Steven Rivers. The Client shall defend, indemnify, and hold South Coast / Steven Rivers harmless from any liability arising from or related to the Client's unauthorized distribution of the report. No part of this report may be used as a separate entity; it is to be read in its entirety and shall include all supporting drawings and appendices.

South Coast / Steven Rivers relied in good faith on the data and information provided by the Client and from other materials as noted in this report. South Coast / Steven Rivers has assumed that the information provided was factual and correct. Reliance on this report is only extended to the Client. No other representations or warranties of any kind, either expressed or implied, are made. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the sole responsibility of such third parties. If conditions at the property change or if any other information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

It is South Coast Consulting's practice to prepare and submit a Preliminary Planning Policy Justification Report and Impact Analysis with the *Planning Act* application and supporting background studies. This practice has been acceptable in all communities where South Coast Consulting has represented clients. The Township of Wainfleet will only accept a final Planning Justification Report that is not marked as preliminary or draft. That report should represent South Coast Consulting's opinion based on the materials provided within the application and not draft or subject to agency comments. After submitting the Preliminary Planning Policy Justification Report and Impact Analysis it has been South Coast Consulting's practice to submit a Supplementary Planning Policy Justification Report and Impact Analysis responding to issues raised by review agencies and at the public meeting for Council's consideration.







NOTES:  
 ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
 GEOREFERENCE MAPPING  
 ANY MATERIAL USED IN CONSTRUCTION OR BACKFILLING ACTIVITIES IS TO BE  
 IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO  
 BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE  
 PROTECTION WORKS UNLESS AUTHORIZED BY THE INPCA

PROPOSED SITE PLAN - 2  
 SCALE: 1/8" = 1'-0"

Project	Version
10279 - 10283 & 10288 - Lakeshore Rd	25/10/23
Project Address	Permit
10279, 10283 & 10288 Lakeshore Rd	25/10/23
Date	Rev. 1
25/10/23	25/10/23
Sheet No. 22	2024
PAGE: 3	

## ANNEX 2: SUBJECT PROPERTY



## ANEX 3: ARCHAEOLOGICAL ASSESSMENT

# IRVIN HERITAGE INC.

## Stage 1 & 2 Archaeological Assessment Report

Part Lots 2 & 3, Concession 1  
Township of Wainfleet  
Regional Municipality of Niagara  
Historic Township of Wainfleet  
Historic County of Niagara South

August 11, 2023  
Prepared for: The Proponent  
Prepared by: Irvin Heritage Inc.  
Archaeological Licensee: Thomas Irvin, P379  
PIF#: P379-0596-2023  
Related PIF#(s): NA  
Version: Original

---

contact@irvinheritage.com  
Office: 647-799-4418 Cell: 647-656-4810  
515 Mulock Drive, Suite 1, Newmarket ON L3Y 1A1  
www.irvinheritage.com

## ANNEX 4: SCOPED ENVIRONMENTAL IMPACT STUDY

## ANNEX 5A: GEOTECHNICAL INVESTIGATION, FEASIBILITY STUDY & SLOPE STABILITY ASSESSMENT



**GEOTECHNICAL INVESTIGATION  
FEASIBILITY STUDY & SLOPE STABILITY ASSESSMENT  
2L49 LAKESHORE ROAD  
WAINFLEET, ONTARIO**

**Submitted To:**

**Robert McDowell  
928 Valleyview Road  
Pittsburgh, PA, USA  
15243**

**Attention: Mr. Robert McDowell**

**Submitted by:**

**AMEC Earth & Environmental,  
A division of AMEC Americas Limited  
3300 Merrittville Highway, Unit 5  
Thorold, Ontario  
Canada, L2V 4Y6**

**November 2010  
TG103046B**

TABLE OF CONTENTS



**1. AUTHORIZATION .....1**

**2. INTRODUCTION .....1**

2.1 Site and Project Description .....1

2.2 Terms of Reference .....1

2.3 Geological Setting .....2

**3. FIELD AND LABORATORY INVESTIGATION .....2**

3.1 Field Work .....2

3.2 Physical Laboratory Work .....2

**4. SUBSURFACE CONDITIONS .....3**

**5. DISCUSSION AND RECOMMENDATIONS .....4**

5.1 Preliminary Foundation Design .....4

5.2 Excavations and Groundwater during Construction .....4

5.3 Slope Stability Assessment .....5

5.4 Construction Feasibility .....6

**6. CLOSURE .....7**

**REPORT LIMITATIONS .....8**

**APPENDIX A**

- Figure 1 - Site Location Plan
- Figure 2 - Borehole Location Plan
- Figure 3 – Grain-size Distribution
- Figure 4 – Topographic Survey and Locations of Cross Sections and Stable Top of Bank
- Figure 5 – Pre-Construction Slope Stability (Section cc')
- General Report Notes
- Record of Borehole Logs

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



## **1. AUTHORIZATION**

Authorization to proceed with this investigation was received from Mr. Robert McDowell, in a signed Professional Service Agreement, dated September 13, 2010.

## **2. INTRODUCTION**

AMEC Earth & Environmental, a division of AMEC Americas Limited ('AMEC'), has been retained to carry out a geotechnical investigation for the feasibility study and slope assessment at 2L49 Lakeshore Road in Wainfleet, Ontario. The site is shown on the Site Location Plan appended as Figure 1.

The investigation obtained subsurface information relating to the project site by means of sampled boreholes. The data was gathered from this investigation and used to perform slope stability analysis and provide geotechnical engineering recommendations.

### **2.1 Site and Project Description**

It is proposed to construct a one-storey dwelling with a full basement, as well as a septic system on the lot. The lot is currently vacant, with a gravelled driveway leading up from the north to the location of the proposed dwelling. There is a slope located to the west of the proposed dwelling area, as well as a steeper slope to the south towards the lake.

### **2.2 Terms of Reference**

The findings of the investigation, together with AMEC's comments and recommendations, are presented in this report. The anticipated construction conditions are also discussed but only to the extent that they may influence the design decisions. Any construction methods discussed express AMEC's opinions only and are not intended to direct contractors on how to carry out the construction. Contractors should also be aware that the data and the interpretation presented in this report may not be sufficient to assess all the factors that may have an effect on construction.

This report was prepared with the assumption that the design will be in accordance with applicable standards and codes, regulations of authorities having jurisdiction, and good engineering practices.

Further, the recommendations and opinions expressed in this report are only applicable to the proposed project as described above.

An ongoing liaison with AMEC must be maintained during both the design and construction phases of the project to ensure that the recommendations in this report have been interpreted and implemented correctly. Also, if any further clarification and/or elaboration are needed concerning the geotechnical aspects of this project, AMEC should be contacted immediately.

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



### **2.3 Geological Setting**

Preliminary Map P796, Geological Series, Quaternary Geology of the Welland Area, Southern Ontario indicates that the native soils consist of Lake Erie beach sand and gravel, and dune sand.

## **3. FIELD AND LABORATORY INVESTIGATION**

The investigation was carried out to obtain information about the soils at this site by means of sampled boreholes and laboratory testing.

### **3.1 Field Work**

A total of 4 sampled boreholes were drilled on September 20<sup>th</sup>, 2010. Borehole 1 and 2 were located in the vicinity of the proposed dwelling footprint, as close to the top of the slopes as possible, and drilled to depths of 9.8 and 9.6 m, respectively. The other 2 boreholes were drilled at the proposed septic system location and drilled to depths of 3.1 and 5.2 m (Boreholes 3 and 4, respectively). The approximate locations of the boreholes are shown on the Borehole Location Plan on Figure 2 in Appendix A.

The boreholes were put down using a truck-mounted drilling rig equipped with 150 mm solid stem augers. Samples were recovered from the overburden soil by driving a standard split spoon-sampling device. In-situ testing was carried out in these boreholes to determine the relative density/consistency of the soils, in accordance with the requirements of the Standard Penetration Test (SPT) according to ASTM D1586.

Prior to carrying out any fieldwork, the appropriate utility companies were notified to carry out underground service clearances at the borehole locations. As well, a private utility locator was hired to locate privately-owned utilities.

Upon recovery, all of the samples retrieved were examined and placed in appropriate containers and returned to AMEC's laboratory for further examination and water content determinations. AMEC personnel supervised the fieldwork, performed preliminary sample identification and prepared field borehole logs. The ground surface elevations at the borehole locations were surveyed and referenced to a temporary benchmark (TBM) described as "the centreline of Lakeshore Road directly adjacent to the driveway of the property. According to the drawings supplied by Upper Canada Consultants entitled 'Sandhill Grading Plan: 5115-GP1', this TBM had a geodetic elevation of 178.0 m. Please note that the supplied topographical plans were completed in 1986. The road grade may have changed since that time. For the purposes of this report, we will assume that the road grade has not changed.

### **3.2 Physical Laboratory Work**

The soil samples were returned to our laboratory for visual examination and classification. Moisture content determinations on each of the soil samples were performed. One grain-size analysis of the native soil was also conducted. The result was compared to the OBC Supplementary Standard SB-6 which estimate the permeability of the soil based on grain-size

Geotechnical Investigation  
 Feasibility Study and Slope Stability Assessment  
 2L49 Lakeshore Road  
 Wainfleet, Ontario  
 November 2010



distribution. The sewage system appraisal is discussed in a separate report entitled 'Sanitary Sewage Appraisal – Proposed Residence – 2L49 Lakeshore Road, Township of Wainfleet, Ontario'.

All soil samples will be stored for 3 months after completion of this report. The samples will then be discarded unless AMEC is instructed otherwise.

#### 4. SUBSURFACE CONDITIONS

Descriptions of the soils encountered at each location during this investigation can be found on the Logs of Boreholes 1 through 4 in Appendix A. It should be noted that the soil conditions are based on soils encountered at the borehole locations, which may vary between and beyond the locations. The following is a brief summary of those conditions.

##### Fill

Approximately 50 to 100 mm of silty topsoil was encountered in the boreholes with the exception of Borehole 2, where dark brown sandy silt fill was encountered at the surface. Red-brown sandy silt fill was also found underlying the topsoil in Borehole 1. The sandy silt contained traces of gravel and asphalt pieces.

Underlying the topsoil in Boreholes 3 and 4, dark brown silty clay fill was encountered, which was generally mottled and contained traces of gravel.

The fill extended to an approximate depth of 0.2 m below existing grade in all of the boreholes.

##### Sand

Underlying the Fill, light-brown sand was encountered. This layer extended to at least the maximum depth investigated in the boreholes.

The sand was generally fine-grained. SPT tests gave 'N' values ranging from 4 blows for 0.3 m to 50 blows for 0.15 m, indicating loose to very dense relative denseness. An isolated value of 2 blows for 0.3 m (very loose) was encountered in Borehole 1 at a depth of 4.6 m. Natural moisture contents were between 2 and 7 %

The result of one grain size analysis can be found on Figure 3 in Appendix A and is summarized below.

	Depth (m)	Particle Size Distribution			
		>4.75mm	75µm to 4.75mm	2µm to 75µm	<2µm
BH3	1.5 to 2.0	0%	100%	0%	0%

##### Groundwater:

Upon completion, all of the boreholes remained open and dry.

TG103046B

3

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



## 5. DISCUSSION AND RECOMMENDATIONS

It is understood that it is proposed to construct a one-storey dwelling with a full basement, as well as a septic system on the lot. The results of the site-specific geotechnical investigation indicate that the native soil consists very loose to very dense fine-grained sand.

### 5.1 Preliminary Foundation Design

The native sand is considered suitable for foundation support in its undisturbed state. Due to the inconsistencies of the denseness of the sand, surface compaction will be required prior to forming for the foundation concrete. The proposed founding surface should be inspected and compacted to 100% of its Standard Proctor Maximum Dry Density (SPMDD, ASTM D698).

Conventional spread and/or strip footings founded on the compacted native sand may be designed using a factored ultimate limit state (ULS) bearing value of 120 kPa and service limit state (SLS) bearing value of 80 kPa. These bearing values are conservative and preliminary. AMEC should be contacted once foundation designs are available.

The total settlement beneath any footing is anticipated to be less than 25 mm. This is the normally used settlement criterion. Differential settlement between footings will typically be about half of the estimated total settlement.

If spread foundations are stepped up or down, AMEC recommends that they be stepped at a maximum vertical distance of 0.5 m for each 1.0 m horizontal run of footing (1V:2H). Stepped strip footings should be constructed in accordance with the 2006 Ontario Building Code (OBC), Section 9.15.3.9.

Depending upon the conditions encountered during construction, areas of localized deepening of footings may be required. It may be more economical to dig to an appropriate foundation bearing level and use a thicker footing (or mass fill beneath the standard footing with a lean concrete) than to step down the footing and foundation wall.

The footings should be covered with a minimum of 1.2 metres of overburden soil (or equivalent insulation) below the exterior finished grade in order to provide for frost protection.

In conformance to the criteria in Table 4.1.8.4A, Part 4, Division B of the National Building Code (NBC 2005), the project site is classified as Site Class "E – Soft Soil".

### 5.2 Excavations and Groundwater during Construction

No significant problems are anticipated during excavation through the upper overburden soils, provided ground water conditions during construction are similar to those encountered during the investigation.

All excavations must comply with the Occupational Health & Safety Act and Regulations for Construction Projects (OHSARCP). The side slopes of any excavations through the overburden, deeper than 1.2 metres, must be sloped as outlined in the Act. Based on the criteria in the Act, all fills and the native sand must be considered as Type 3 soils.

TG103046B

4

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



All excavations must comply with the Occupational Health & Safety Act and Regulations for Construction Projects (OHSARCP). The side slopes of any excavations through the overburden, deeper than 1.2 metres, must be sloped as outlined in the Act. Based on the criteria in the Act, all fills and the native sand must be considered as Type 3 soils.

If the groundwater conditions at the time of the construction are significantly different than described in this report, the soils classifications could change and the excavation requirements would need to be revised.

In general, temporary excavation side slopes of 1 vertical to 1 horizontal are expected to remain stable through the overburden. All surface drainage should be directed away from any open excavations and trenches.

### 5.3 Slope Stability Assessment

A professional engineer from AMEC carried out a site visit on September 22, 2010 to review the conditions of the slopes located at the south west end of the subject property.

Two slopes were noted in the proposed house site (to the west and to the south). The west slope is located within the adjacent property (3L53) and was found to be approximately 8 m high. The south slope was found to be approximately 9 m high and sloping towards the lake shore. Rock blocks were placed at the bottom of the south slope (presumably) for lake erosion protection. A significant erosion channel (gully) appears to have occurred close to the south west corner of the property with a depth of approximately 0.5 m. The gully is probably formed from surface runoff. No scarps or seepage were observed from the slope face.

The subsurface soils consist of fine sand which is considered susceptible to erosion. It is obvious however, that there is instability due to erosion of the upper slope soils. Leaning trees were noted on the west slope and on the south slope of the adjacent property (2L47), also indicating some shallow instability. There are no trees and/or healthy vegetation covering on the south slope which is either due to erosion or previous excavation associated with the construction of the subdivision to the west. The rate of the erosion depends both on the amount of surface runoff and also on the wind transporting the surface soils. It will be significantly worse with the lack of non-erodible surface soils and/or vegetation to anchor the slope soils in place.

A new topographic survey of the subject property was carried by Rasch & Hyde Ltd on November 4, 2010. While there are two main slopes on site as noted above, the excavation for the house construction will result in additional slope of concern between the site and the adjacent property to the east. The critical slip surfaces (AA', BB' & CC') of the three slopes and the result of the new topographic survey are shown on Figure 4 enclosed in Appendix A. The west, south and east slopes were found to be as steep as approximately 1.9H:1V, 1.5H:1V and 2.2H:1V, respectively.

The subsurface conditions, the existing ground surface elevations taken from the updated topographic survey (November 2010) and an assumed building apron grade of 186.25 m were used in a SLOPE/W computer program to determine the factors of safety for the current slope.

TG103046B

5

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



Bishop and Janbu methods were used for the slope stability analyses. The factor of safety against deep seated slope failure of the south slope was found to be 1.1. This is considerably less than 1.5 which is considered to be an acceptable value. A copy of the computer printout of the south slope stability analysis is shown on Figure 5 enclosed in Appendix A.

AMEC recommends maintaining slopes not steeper than 2:1 which will provide safety factor of 1.5. A combination of a retaining wall and 2:1 slopes can be used to substitute for the portion of the slope that is steeper than 2:1. The pre-construction stable top of bank according to 2:1 criterion is drawn on Figure 4.

For erosion protection, a layer of clayey materials and vegetation cover should be used to stop the sand weathering due to the wind effect. In addition, proper grading should be utilized to discourage concentrated runoff above the slope.

#### 5.4 Construction Feasibility

Based on the subsurface conditions and the slope stability assessment, conventional footings such as spread or strip footings are feasible. Spread or strip footings at the south side of the building envelope area should be founded at an elevation of 183.6 m or lower. All other footings should be placed below an upward 3H:1V line from the south side of the building envelope to the north starting from an elevation of 183.6 m.

If walk-out basement option is approved for the south slope, it will permit utilizing the area of the top portion of the slope as a backyard. Assuming the top of bank of the walkout backyard has an elevation of 184.0 m, the corresponding post-construction stable top of bank is also drawn on Figure 4.

Regarding the west slope, no issues are anticipated with its stability if the house is supported on conventional footings as described above.

Regarding the east slope, slope stabilities during three stages should be considered:

- Pre-construction or existing conditions during which no deep seated stability is anticipated.
- During construction: shoring for the excavation may be required if any settlement sensitive structure such as footings or concrete slabs of the adjacent property are located above a 2H:1V line projected from the bottom of the excavation.
- Post-construction: the slope will be less steep than 2H:1V, therefore, no stability issues are anticipated. However, the basement wall at the east of the building envelope should be designed as a retaining wall to support the higher finish grade to the east.

In summary and from an engineering standpoint, the construction of a single dwelling with a walk-out basement is feasible. It is advised, however, to check with the Township of Wainfleet and/or Niagara Peninsula Conservation Authority to determine where they will permit such development in relation to the slope.

TG103046B

6

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



## 6. CLOSURE

The Report Limitations given on the following page are an integral part of this report. The geotechnical aspects of the final design drawings and specifications should be reviewed by this office to confirm that the intent of this report has been met. During construction, sufficient subgrade inspections, excavation monitoring and materials testing should be carried out to confirm that the conditions exposed are consistent with those encountered in the boreholes and to monitor conformance to the pertinent project specifications.

We trust that this report is complete within our present terms of reference. If you have any questions, please do not hesitate to contact our office.

Yours truly,

AMEC EARTH & ENVIRONMENTAL

Prepared By:

Handwritten signature of Rod de Castro in black ink.

Rod de Castro, P.Eng.  
Geotechnical Engineer

Handwritten signature of Hasan Taşlar in black ink.

Hasan Taşlar, M.A.Sc., P.Eng.  
Geotechnical Engineer

Reviewed By:

Handwritten signature of Peter McGlone in black ink.

Peter McGlone, B.Sc., MBA, P.Eng.  
Principal Geotechnical Engineer

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



## REPORT LIMITATIONS

The conclusions and recommendations given in this report are based on information determined at the testhole locations. The information contained herein in no way reflects on the environmental aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the testholes may differ from those encountered at the testhole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. It is recommended practice that the Geotechnical Engineer be retained during the construction to confirm that the subsurface conditions across the site do not deviate materially from those encountered in the testholes.

The design recommendations given in this report are applicable only to the project described in the text, and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final design stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

The comments made in this report relating to potential construction problems and possible methods of construction are intended only for the guidance of the designer. The number of testholes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices. No other warranty is expressed or implied.

The benchmark and elevations mentioned in this report were obtained strictly for use by this office in the geotechnical design of the project. They should not be used by any other party for any other purpose.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. AMEC Americas Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

Geotechnical Investigation  
Feasibility Study and Slope Stability Assessment  
2L49 Lakeshore Road  
Wainfleet, Ontario  
November 2010



## APPENDIX A

---

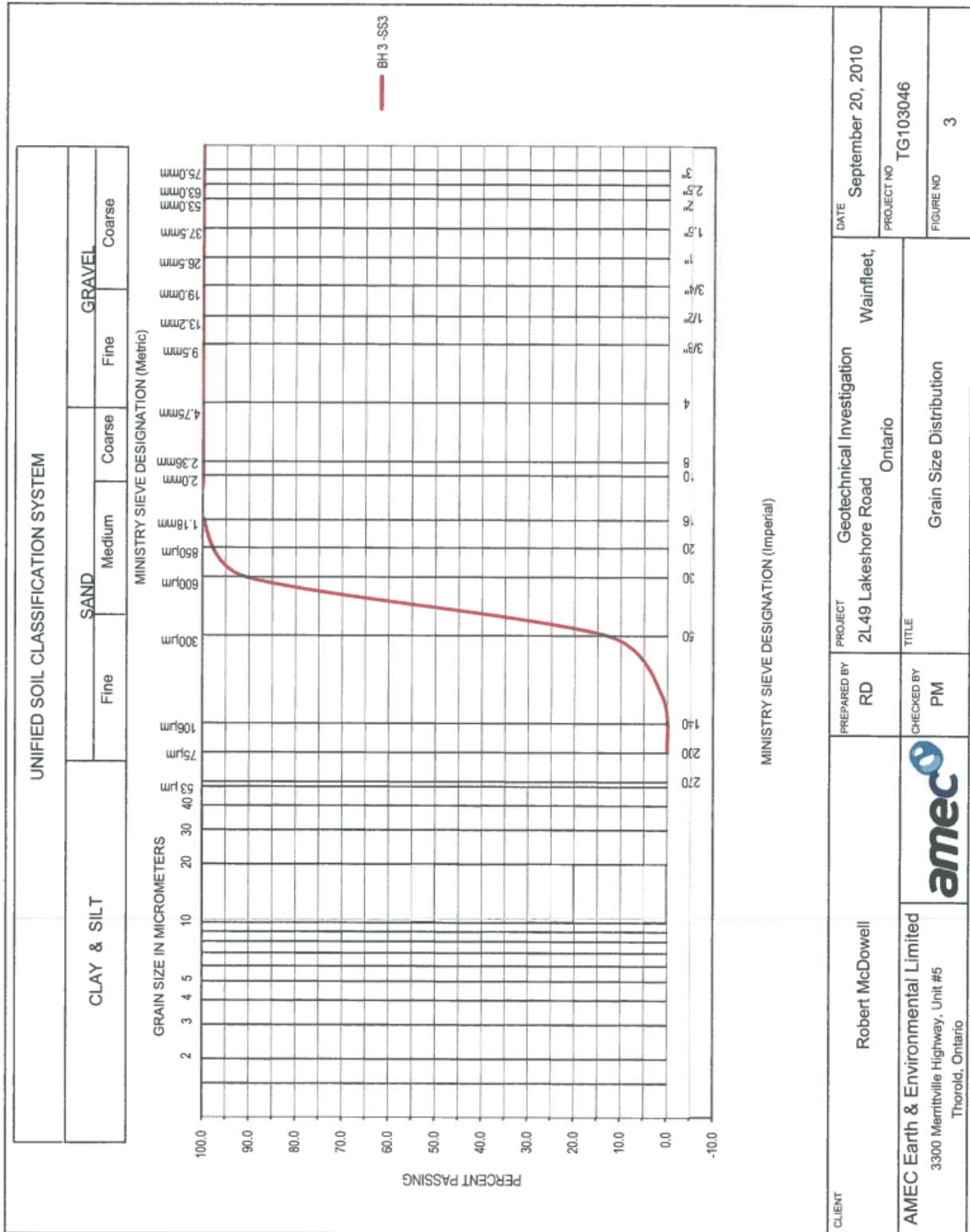
TG103046B

9

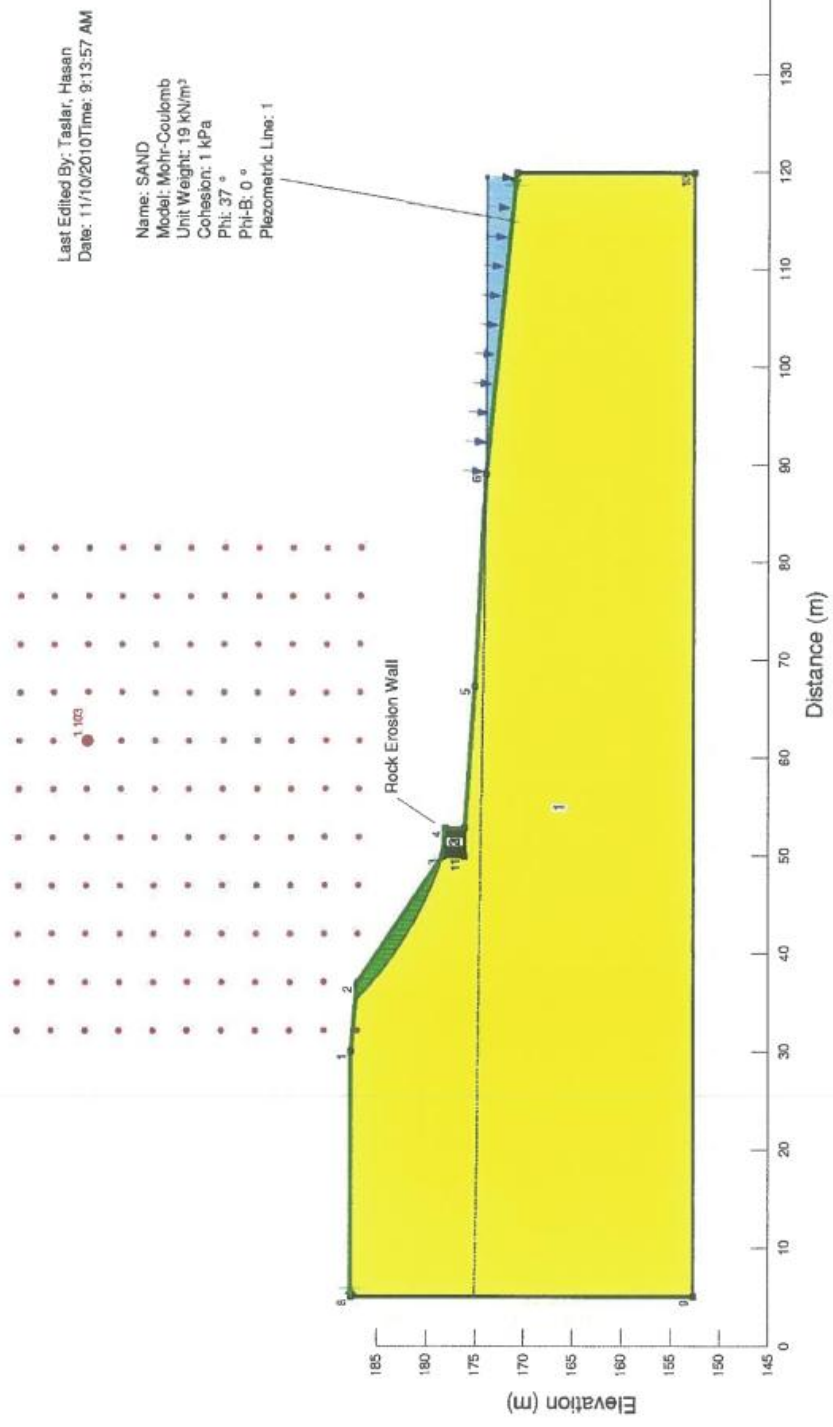




Reference: Base Map from Niagara Navigator		For Illustration Purposes Only. NOTE: All Location Approximate.	
CLIENT:	Robert McDowell	DWN BY:	DG
AMEC Earth & Environmental a division of AMEC Americas Limited 3300 Merriville Hwy, Unit 5 Thorold, Ontario L2V 4P6	LEGEND:	CHKD BY:	KS
	 B-1 SITE BOUNDARY BOREHOLE LOCATION	DATUM:	NAD 83
PROJECT:		PROJECTION:	UTM Zone 17
GEOTECHNICAL INVESTIGATION		SCALE:	AS SHOWN
FEASIBILITY STUDY & SLOPE STABILITY ASSESSMENT		TITLE:	
2149 LAKESHORE ROAD		SITE AND BOREHOLE PLAN	
WAINFLEET, ONTARIO		REV. NO.:	A
		DATE:	SEPTEMBER 2010
		PROJECT NO.:	TG103046
		FIGURE NO.:	2



Pre-construction Slope Stability of the South Slope based on November, 2010 Survey (Section CC')



Last Edited By: Taslar, Hasan  
 Date: 11/10/2010 Time: 9:13:57 AM

Name: SAND  
 Model: Mohr-Coulomb  
 Unit Weight: 19 kN/m<sup>3</sup>  
 Cohesion: 1 kPa  
 Phi: 37 °  
 Phi-B: 0 °  
 Piezometric Line: 1

CLIENT: <b>Robert McDowell</b>		PROJECT: GEOTECHNICAL INVESTIGATION FEASIBILITY STUDY & SLOPE STABILITY ASSESSMENT 2149 LAKESHORE ROAD WAINFLEET, ONTARIO		REV. NO.: A	
AMEC Earth & Environmental a division of AMEC Americas Limited 3300 Merriville Hwy, Unit 5 Thorold, Ontario L2V 4T6		TITLE: PRE-CONSTRUCTION SLOPE STABILITY OF SOUTH SLOPE		DATE: NOVEMBER 2010	
amec		DATUM: NAD 83		PROJECT NO.: TG103046B	
SCALE: AS SHOWN		PROJECTION: UTM Zone 17		FIGURE NO.: 5	

Mr. Robert McDowell  
Geotechnical Investigation  
2L49 Lakeshore Road, Township of Wainfleet

TG103046  
September 2010

## GENERAL REPORT NOTES

### DEFINITIONS OF PENETRATION RESISTANCE

Standard penetration resistance 'N': -- The number of blows required to advance a standard split spoon sampler 30 cm into the subsoil, driven by means of a 63.5 kg hammer falling freely a distance of 70 cm.

Dynamic penetration resistance: -- The number of blows required to advance a 50 mm, 60 degree cone, fitted to the end of drill rods, 30 cm into the subsoil, the driving energy being 475 Joules per blow.

### SAMPLE TYPE ABBREVIATIONS USED IN BOREHOLE LOGS

S.S.	Split spoon	T.W.	Thinwall open	R.C.	Rock core
A.S.	Auger sample	T.P.	Thinwall piston	W.S.	Washed sample
	P.H.	Sample pushed hydraulically		P.M.	Sample pushed manually

### SOIL TEST SYMBOLS USED IN BOREHOLE LOGS

□	Standard penetration resistance	▼	Laboratory vane	○	Unconfined compression
■	Dynamic penetration resistance	▲	Field vane	●	Undrained triaxial
		×	Penetrometer	S	Sensitivity

### CONVENTIONAL SOIL DESCRIPTIONS

#### COHESIVE (CLAYS ETC.)

Consistency	'N' blows/30cm	c kPa
Very Soft	0 - 2	0 - 12
Soft	2 - 4	12 - 25
Firm	4 - 8	25 - 50
Stiff	8 - 15	50 - 100
Very Stiff	15 - 30	100 - 200
Hard	>30	> 200

#### GRANULAR (SANDS ETC.)

Denseness	'N' blows/30 cm
Very Loose	0 - 4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	>50

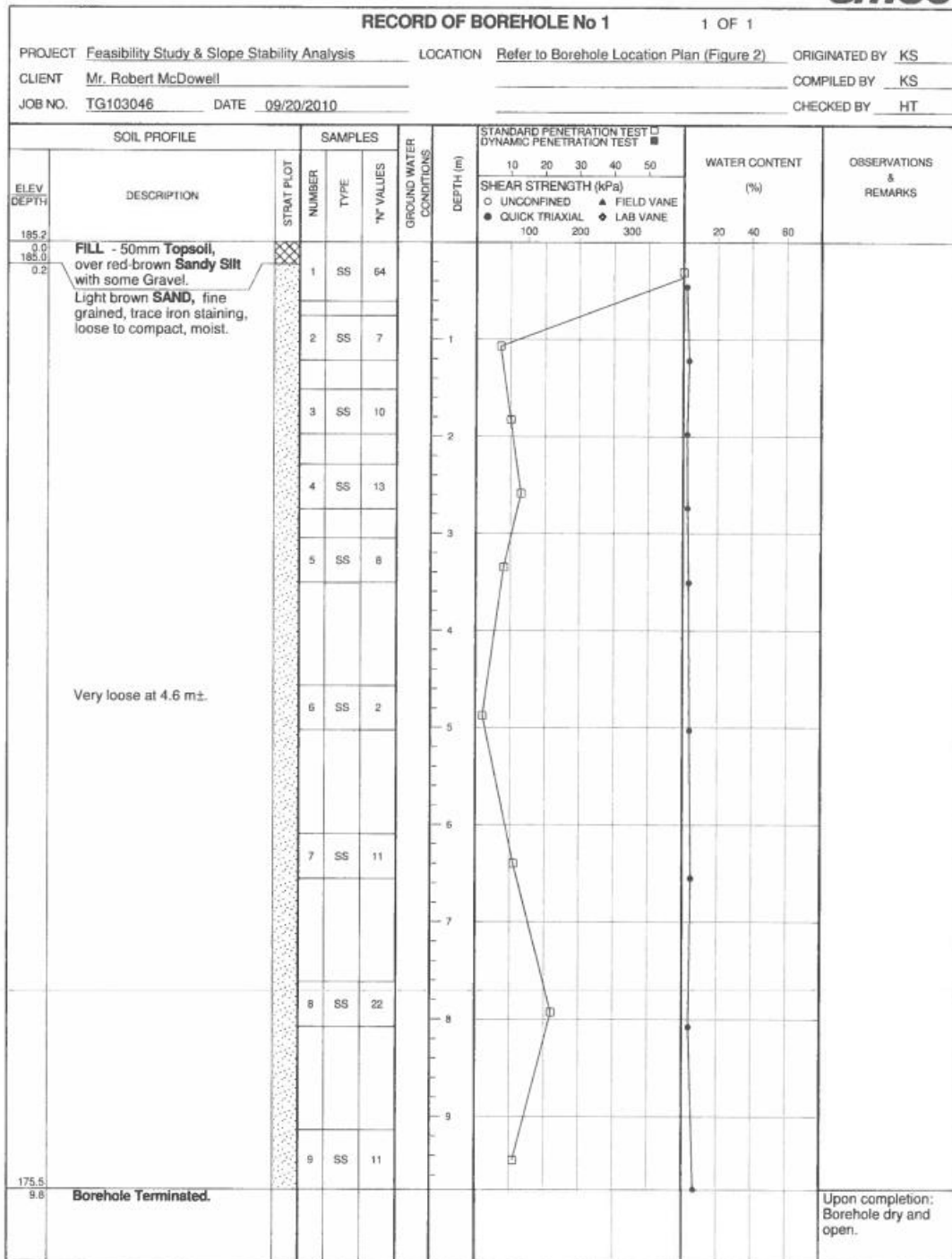
### ABBREVIATIONS FOR MOISTURE CONDITIONS

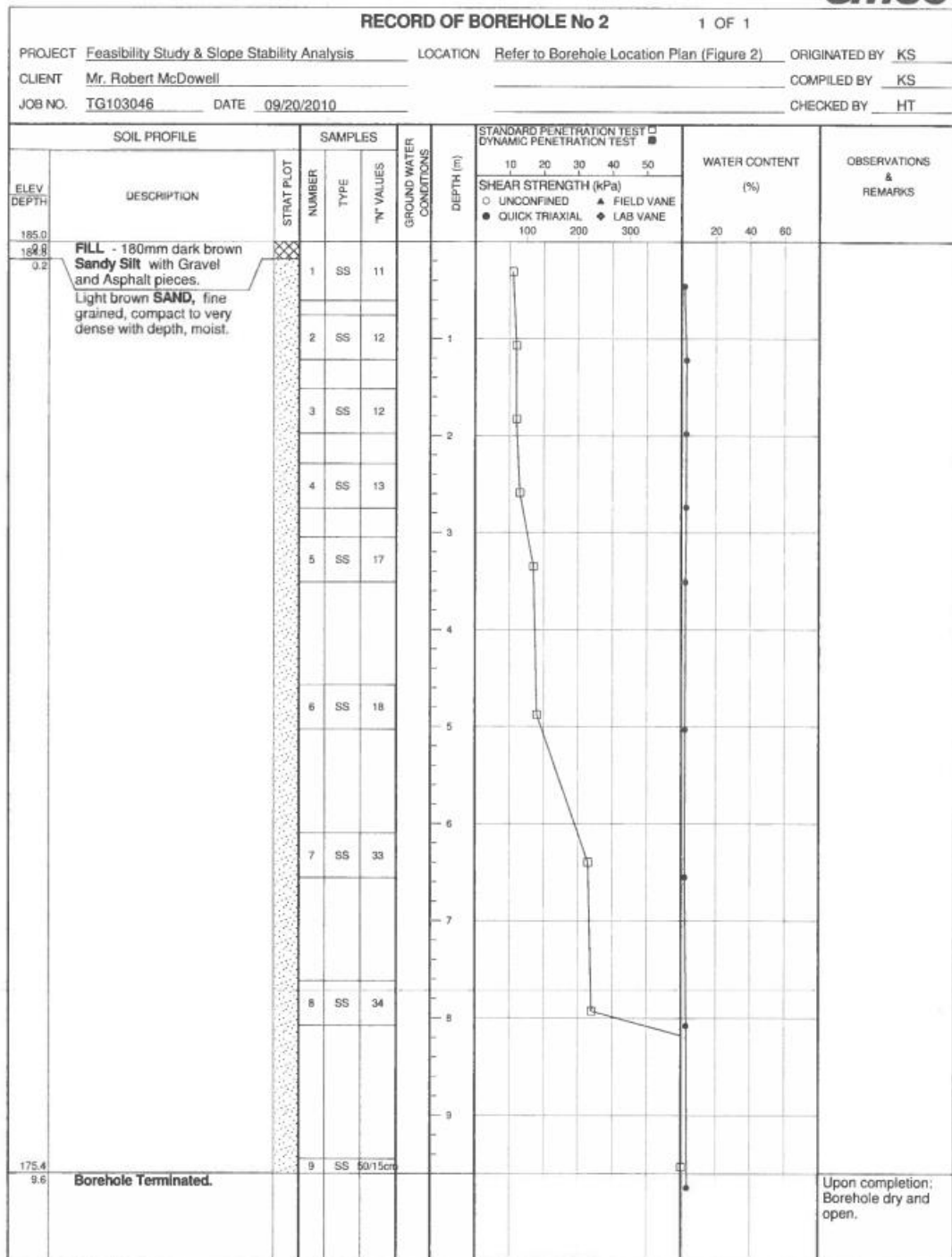
sdtpl - slightly drier than the plastic limit.  
dtpl - drier than the plastic limit.  
apl - about the plastic limit.

swtpl - slightly wetter than the plastic limit.  
wtpl - wetter than the plastic limit.  
mwtp - much wetter than the plastic limit.

### NOTE

The soil conditions, profiles, comments, conclusions and recommendations found in this report are based upon the samples recovered during the field work. Soils are heterogeneous materials and, consequently, variations (possibly extreme) may be encountered at site locations away from boreholes. During construction, competent, qualified inspection personnel should verify that no significant variations exist from the conditions described in this report.







RECORD OF BOREHOLE No 3										1 OF 1					
PROJECT			Feasibility Study & Slope Stability Analysis			LOCATION			Refer to Borehole Location Plan (Figure 2)			ORIGINATED BY		KS	
CLIENT			Mr. Robert McDowell									COMPILED BY		KS	
JOB NO.			TG103046			DATE			09/20/2010			CHECKED BY		HT	
SOIL PROFILE		SAMPLES			GROUND WATER CONDITIONS	DEPTH (m)	STANDARD PENETRATION TEST □ DYNAMIC PENETRATION TEST ■		WATER CONTENT (%)	OBSERVATIONS & REMARKS					
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH (kPa)							
							10 20 30 40 50 □ UNCONFINED    ▲ FIELD VANE ● QUICK TRIAXIAL    ◆ LAB VANE	20 40 60							
183.1 189.0 0.2	FILL - 80mm Topsoil, over 80mm dark brown Silty Clay, mottled, dtpl. Light brown SAND, fine grained, compact to loose with depth, moist.		1	SS	10					Upon completion: Borehole dry and open.					
			2	SS	17										
			3	SS	8										
			4	SS	5										
			5	SS	7										
180.1 3.1	Borehole Terminated.														



RECORD OF BOREHOLE No 4										1 OF 1							
PROJECT			Feasibility Study & Slope Stability Analysis			LOCATION			Refer to Borehole Location Plan (Figure 2)			ORIGINATED BY		KS			
CLIENT			Mr. Robert McDowell									COMPILED BY		KS			
JOB NO.			TG103046			DATE			09/20/2010			CHECKED BY		HT			
SOIL PROFILE				SAMPLES			GROUND WATER CONDITIONS	STANDARD PENETRATION TEST <input type="checkbox"/> DYNAMIC PENETRATION TEST <input type="checkbox"/>				WATER CONTENT (%)			OBSERVATIONS & REMARKS		
ELEV DEPTH	DESCRIPTION	STRAT PLOT	NUMBER	TYPE	"N" VALUES	DEPTH (m)		SHEAR STRENGTH (kPa)									
181.3	FILL - 100mm Topsoil, over 100mm dark brown Silty Clay, mottled, trace Gravel, dtpl. Light brown SAND, fine grained, very loose to compact, moist.		1	SS	10	0.0	10										
180.9			2	SS	7	0.2	15										
			3	SS	5		20										
			4	SS	4		25										
			5	SS	4		30										
			6	SS	14		40										
176.1	Borehole Terminated.														Upon completion: Borehole dry and open.		
5.2																	

## ANNEX 5B: GEOTECHNICAL AND SLOPE STABILITY REVIEW



May 26, 2021

Reference No. 11218340

Mr. Robert McDowell  
928 Valleyview Rd  
Pittsburgh, PA  
15243-1022 US

Dear Mr. McDowell:

**Re: Geotechnical and Slope Stability Review  
Proposed Residential Development - 2L49 Lakeshore Road, Wainfleet, Ontario**

At the request of Mr. Robert McDowell (client), GHD has completed a technical review of the November 2010 report entitled *Geotechnical Investigation, Feasibility Study and Slope Stability Assessment Report* (AMEC Report) prepared by AMEC Earth & Environmental a division of AMEC Americas Limited (AMEC) for the proposed residential development at 2L49 Lakeshore Road in the Township of Wainfleet, Ontario (Site or Property). The Site location is shown on Figure 1. Note that all Figures are found in Attachment 1 located at the end of this Review.

This review presents GHD's comments and recommendations on the geotechnical and slope stability information presented in the AMEC Report based on GHD's understanding of the proposed development.

## 1. Site Description and Project Understanding

The Site is a vacant lot with a gravel driveway access from Lakeshore Road. The topography of the Site slopes downwards from a high elevation of approximately 187 m (CGVD29) above mean sea level (amsl) along the central eastern Property boundary to approximately 181 m amsl at the west Property boundary and Lakeshore Road to the north, and to approximately 178 m amsl towards Lake Erie to the south..

It is our understanding that the proposed residential development has remained unchanged from what was proposed in 2010 and will consist of a one-story residential dwelling with a full basement and a septic system.

The Site is located in the physiographic region of the Haldimand Clay Plain<sup>1</sup>, on the shoreline of Lake Erie. A review of the regional geology maps indicates that the Property is located within a strip of windblown (eolian) deposits consisting of fine to very fine sand and silt and coarse-textured marine deposits of sand and gravel with minor silt and clay<sup>2</sup> along the northern shoreline of Lake Erie as shown in Figure 2. Due to the nature of deposition, eolian deposits have an open (honeycomb) structure with very high void ratios. The clay or calcium carbonate components of eolian deposits play an important role as a

- 1 Chapman, E.J., and Putnam, D.F., 1984: The Physiographic of Southern Ontario; Ontario Geological Survey. Special Volume 2. 270p. Accompanied by Map P.2715 (coloured), scale 1:600 000.
- 2 Ontario Geological Survey 2003. Surficial geology of southern Ontario; Ontario Geological Survey, Miscellaneous Release--Data 128



binder, acting to hold the deposit together. Upon wetting, however, either the water soluble calcium carbonate bonds dissolve or the large negative pore pressures within the clay that are holding the deposit together are reduced, resulting in increased likelihood of shear failure and/or large settlement. This cementation can impart pseudo cohesive properties<sup>3</sup> when samples of eolian deposits are tested for shear strength and can also enable these weakly to moderately cemented deposits to stand at relatively steep slope angles, as is seen at the Site in the photograph below.



**Figure 1.1 Relatively steep shoreline slope**

The bedrock underlying the soil overburden in the region and at the Site, consists of sedimentary rock (limestone, dolostone, shale) of the Detroit River Group, Onondaga Formation<sup>4</sup>, as shown on Figure 3. This bedrock is expected to be encountered between 175 m amsl and 170 m amsl based on the bedrock topography maps<sup>5</sup> as shown on Figure 4.

GHD understands that the Property owner intends to construct a single-storey residential dwelling at the Site complete with a septic system. The geotechnical review and slope stability review are required to confirm the suitability of the Site for the proposed residential development and identify constraints associated with soil bearing capacity and slope stability.

<sup>3</sup> Collins B.D. Sitar N. (2009): Geotechnical Properties of Cemented Sands in Steep Slopes, *Journal of Geotechnical and Geoenvironmental Engineering*, Vol. 135, No. 10, p 1359-1366

<sup>4</sup> Ontario Geological Survey 2006. 1:250 000 Scale Bedrock Geology of Ontario; Ontario Geological Survey, Miscellaneous Release-Data 126-revised. ISBN 0-7794-5172-4.

<sup>5</sup> Kelly, R.I., Brunton, F.R. and van Haften, S. 2006. Bedrock topography and overburden thickness mapping, southern Ontario; Ontario Geological Survey, Miscellaneous Release - Data 207, ISBN 1-4249-2550-9.



## 2. Geotechnical Review

### 2.1 Technical Summary

The following summary of technical information has been identified by GHD based on a review of the November 2010 report entitled *Geotechnical Investigation, Feasibility Study and Slope Stability Assessment Report* prepared by AMEC Earth & Environmental a division of AMEC Americas Limited (AMEC):

- The report is prepared for a proposed one story dwelling with one level of underground basement.
- Four boreholes were drilled on site, two of which (BH-1 and BH-2) were advanced to 9.8 and 9.6 m below ground surface (m bgs) at the proposed residential dwelling location. The other two boreholes (BH-3 and BH-4) were advanced to depths of 3.1 and 5.2 m bgs at the proposed septic system location. Borehole elevations presented in the report were based on a survey plan dated 1986 and it was assumed that the surface conditions (elevations) had not changed between 1986 and 2010.
- One grain size analysis was completed on the native soil to assess soil permeability for septic system design. Moisture content analysis was completed on all recovered soil samples.
- Subsurface conditions logged in boreholes indicate that the Site is covered by 50 to 100 mm of topsoil and surficial fill material (about 0.2 m in BH-1 and BH-2) which is underlain by a sand deposit. All boreholes were terminated within the sand deposit. The compactness of the soil layers was evaluated based on N values measured during drilling activities which ranged between 2 and more than 50.
- Boreholes were left open upon completion and remained dry. Natural moisture content of the samples ranged from 2 to 7%.
- The report indicates that the native sand is suitable to support the shallow foundations of the proposed residential dwelling. The report recommends a bearing capacity of 80 kPa under Serviceability Limit State (SLS) condition and 120 kPa under factored Ultimate Limit State (ULS) condition for footings founded on the native sand in an undisturbed condition. The total settlement associated with the recommended bearing capacities is reported as 25 mm.
- A minimum soil cover of 1.2 m or equivalent insulation for foundations is recommended to provide frost cover.
- The foundations are recommended to be founded at 183.6 m amsl or deeper on the south side of the proposed residential dwelling and all other footings are recommended to be founded below an upward line extending from the south side of the proposed residential dwelling to the north side of the proposed residential dwelling on a 3 horizontal to 1 vertical (3H:1V) slope.
- The report recommends a Seismic Site Class 'E' for the design of the proposed residential dwelling.
- The soils are classified as Type 3 soil above the groundwater table as per Ontario Occupational Health and Safety Act (OHSA).



- A slope stability assessment was completed for the steepest slope (identified as the south slope) with 1.5H:1V inclination. Signs of instability on the western edge of the slope were observed along with a lack of vegetation and signs of localized erosion due to storm water runoff (approximately 0.5 m deep gully).
- The result of the slope stability assessment shows a factor of safety of 1.1 under static conditions. The report recommends the combination of a retaining wall and a 2H:1V slope for the steep section of the slope to accommodate the proposed residential dwelling. The report also provides a stable top of bank line based on a 2H:1V slope requirement. For erosion protection a layer of clay and vegetation to cover the slope surface is recommended. It is also suggested that regrading be conducted to reduce localized erosion from storm water runoff.
- The report cautions about slope protection on the eastern portion of the Property during construction and recommends protection by means of shoring systems to ensure no damage occurs to the neighbouring structure.
- It is indicated in the report that a single dwelling with a walk-out basement is a feasible option but may require Niagara Peninsula Conservation Authority permit.

## 2.2 Technical Review Comments

Based on GHD's review of the 2010 AMEC geotechnical report, the following comments are provided:

- In general, the field work completed was appropriate for its purpose. The field program provided was limited but included sufficient subsurface information for preliminary geotechnical recommendations. It is noted that it is common practice to extend geotechnical boreholes to depths extending from the top of the slope to below the toe of slope. Based on slope heights of 8 and 9 m, the boreholes drilled on Site do not extend below the toe of slope elevation.
- Limited soil laboratory testing was completed. Additional soil gradation could provide a better understanding of the soil composition, especially where low N values (soft soils) were encountered.
- The recommended bearing capacities are considered suitable for the encountered soil deposit.
- No recommendation is provided for the design of the basement walls or for shoring design. This may be required for detailed design.
- The National Building Code of Canada requires either a deep borehole (to 30 m below foundation level) or geophysical testing to support a seismic site classification. No geophysical testing was carried out at the Site and the boreholes drilled are not deep enough to provide the seismic site classification. In the absence of this information, conservative values were assumed for the deeper soils. On this basis, the Class E seismic site classification may be overly conservative; however this cannot be confirmed unless additional investigation is completed.
- The slope stability analysis was completed for one of the steepest slopes (1.5H:1V) on Site and resulted in factor of safety above 1 but less than 1.5, which is an industry accepted safety factor. The



report recommends that the slopes be kept at 2H:1V; however the analyses only illustrate the lowest factor of safety and do not show the factor of safety associated with a 2H:1V slope.

- The suggested means of preventing wind and storm water runoff erosion of the slope consists of constructing a vegetated clay layer over the existing grade. Depending on the changes to the slope during the last 10 years and completion of a coastal review, alternative slope remediation measures may be appropriate.

Based on the review of the November 2010 report, recent Site visits and a recent topographical survey completed by GHD, the AMEC 2010 geotechnical investigation is considered appropriate for the proposed residential development. While at this stage additional geotechnical investigation is not considered necessary, recommendations for the design of the basement walls and for shoring design can be included as part of the detailed design, if required.

### 3. Slope Stability Assessment

The recent topographical survey completed by GHD indicates that slight slope changes have occurred at the Site. Notably, a steep slope of 1.4H:1V was measured at a similar location as was analyzed by AMEC in their 2010 report. On this basis, a slope stability assessment was performed for the existing slope to the south of the proposed residential dwelling. The geometry of the slope is based on the recent topographic survey completed by GHD. Background and Approach

Subsurface soil conditions documented in the AMEC 2010 report were used to estimate soil characteristics for this assessment.

Analyses were performed on two cross sections identified as A-A and D-D on the topographic survey included as Attachment A. The stability analyses are included as Figure 5 to Figure 8 in Attachment B. Both static and pseudo-static (i.e., seismic) conditions were analyzed for the selected cross-sections. Cross-section A-A has the steepest gradient of 1.4H:1V and cross-section D-D has a slope gradient of 2H:1V.

The slope stability analysis was carried out using the SLOPE/W 2019 R2 software package produced by GEO-STUDIO International Ltd. Each trial was modeled using the Morgenstern-Price method, and the optimized critical slip-surface was selected. In general, this approach calculates a factor of safety that represents the ratio of forces resisting a failure (i.e., shear strength, friction, etc.) to those favouring failure (weight, external loading, etc.). Theoretically, a factor of safety of 1.0 or greater would represent a stable slope. The Ontario Ministry of Natural Resources and Forestry (MNR)<sup>6</sup> has developed a table of recommended minimum factors of safety based on the land use above or below the slope. These factors of safety take into account the consequences or risks to land use or life of a slope failure. The MNR recommended factors of safety are reproduced below,

<sup>6</sup> MNR (2002): Technical Guide, River & Stream Systems: Erosion Hazard Limit, Queens Printing Press, Toronto, p134

**Table 3.1 MNRF Recommended Minimum Factors of Safety**

No.	Usage	Land Use	Design Minimum Factor of Safety
A	Passive	No buildings near slope, farm field, bush forest, timberland, woods, wasteland, badlands, tundra	1.10
B	Light	No habitable structures near slope, recreational parks, golf courses, buried small utilities, tile beds, barns, garages, swimming pools, sheds, satellite dishes, dog houses	1.20 to 1.30
C	Active	Habitable or occupied structures near slope, residential, commercial and industrial buildings, retaining walls, storage/warehousing of non-hazardous substances	1.30 to 1.50
D	Infrastructure and Public Sue	Public use structures or buildings (i.e., hospitals, schools, stadiums), cemeteries, bridges, high voltage power transmission lines, towers, storage/warehousing of hazardous materials, waste management areas.	1.40 to 1.50

The above design minimum recommended factors of safety are for static conditions. A minimum factor of safety of 1.5 under static conditions was targeted for this study. For seismic conditions, which is a transient condition, a factor of safety of 1.0, which represents perfect equilibrium conditions was targeted..

The selected geotechnical parameters for the Site soils used in the analysis is summarized in Table 3.1 below.

**Table 3.2 Geotechnical Parameters**

Material	Unit Weight (kN/m <sup>3</sup> )	Cohesion (kPa) Drained (Factored for seismic)	Internal Friction Angle (°)
Stone Revetment - High Strength Material	26	NA	NA
Eolian Deposits			
Compact Sand/Silt	19	6	37
Loose Sand/Silt	19	6	30
Compact foreshore (beach) sands	19	0	30
Notes:			
- Slope/W High Strength Material Model is used for the stone Revetment.			

The groundwater elevation at the Site was assumed to be the same as that of Lake Erie (approximately 175 m asl which is consistent with GHD's observations and those presented in the AMEC 2010 report.

Two scenarios were assumed for the analysis as listed below:

- A global stability of the overall slope under static condition.



- A global stability of the overall slope under pseudo-static condition – in this analysis a horizontal coefficient of 50% of the PGA (under 2% probability of exceedance in 50 years) which is equal to 0.092 at the site location was assumed for seismic loading.

#### 4. Sanitary Service Review

The sanitary design was undertaken in accordance with the 2006 Ontario Building Code (OBC). Since then, the 2012 OBC and 2019 OBC have taken effect, yet the updates do not affect this particular design. It is recommended that the design reference the updated version of code.

#### 5. Discussion and Recommendations

A summary of the analyses is shown in Table 3.2 below, with the analysis for each condition provided on Figure 5 to Figure 8 in Attachment B.

**Table 3.2 Summary of Analyses**

Analysis	Cross-Section/ Figure	Gradient (H:V)	Factor of Safety		Stable Slope setback Allowance (m) <sup>(1)</sup>
			Minimum Required	Calculated	
Global Stability - Static	A-A Figure 5	1.4:1	1.5	1.2	5.0
Global stability - Pseudo Static	A-A Figure 6	1.4:1	1.0	1.0	2.0
Global Stability - Static	D-D Figure 7	2.0:1	1.5	1.3	2.0
Global stability - Pseudo Static	D-D Figure 8	2.0:1	1.0	1.1	1.83
Notes:					
(1) Industry accepted guidelines of safe slope allowance (stable top of slope) is based on the factor of safeties of 1.5 for static condition and 1.0 for pseudo-static condition.					

Based on the results of the analyses, as summarized in Table 3.2, the following conclusions and recommendations are presented:

- Analyses completed show factors of safety less than 1.5 under static conditions. A factor of safety of 1.5 under static conditions was achieved at 5 m and 2 m, as measured from the top of the slope for the 1.4H:1V and 2H:1V slopes, respectively. A slope stability analysis was not completed for the west slope. Due to the similar steepness of the slope to Section A-A, it is recommended that a Stable Top of Slope setback allowance of 5 m should be used along the west side slope.
- Using the results of analyses discussed in the bullet item above, the recommended long term Stable Top of Slope allowance is shown on Figure 9.

The AMEC 2010 report suggests altering the slope to keep the safe slope inclination of 2H:1V where steeper slopes are present. This would require the removal of the existing vegetative cover on the slopes. It is strongly recommended that the existing vegetative cover not be disturbed as loss of this



growth will reduce the slope stability. As an alternative, the long-term stable top of slope can be considered at an offset distance of 2 m and 5 m inland from the existing top of slope at cross-sections A-A and D-D, respectively, which meets the AMEC 2H:1V slope criterion.

- Construction staging areas should not be located near the top of slope. No heavy construction equipment should be allowed near the top of slope or within the safe slope allowance of 5 m.
- 

Should you have any questions on the above, please do not hesitate to contact

us. Sincerely,

GHD



Hassan Gilani, M.Sc., P.Eng.

HG/MG/1

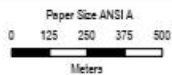
A handwritten signature in black ink, appearing to read 'Jennifer Penton'.

Jennifer Penton, Ph.D.



## **Attachment: Figures 1 to 10**

11218340 – Geotechnical and Slope Stability Review



Map Projection: Transverse Mercator  
 Horizontal Datum: North American 1983  
 Grid: NAD 1983 UTM Zone 17N

**MCDOWELL RESIDENCE**  
 2149 (10288) LAKESHORE ROAD, WAINFLEET, ON  
 SLOPE STABILITY EVALUATION

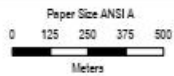
Project No. 11218340  
 Revision No. -  
 Date Nov 17, 2020

**SITE LOCATION MAP**

**FIGURE 1**

C:\GDP\PROJECTS\11218340\11218340\_Layout\030\_SlopeStabilityEvaluation\11218340\_SlopeStabilityEvaluation\_GSD01.mxd

Data source: MNRF NRVIS, 2016. Produced by GHD under licence from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer 2020.



**MCDOWELL RESIDENCE**  
2L49 (10288) LAKESHORE ROAD, WAINFLEET, ON  
SLOPE STABILITY EVALUATION

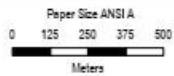
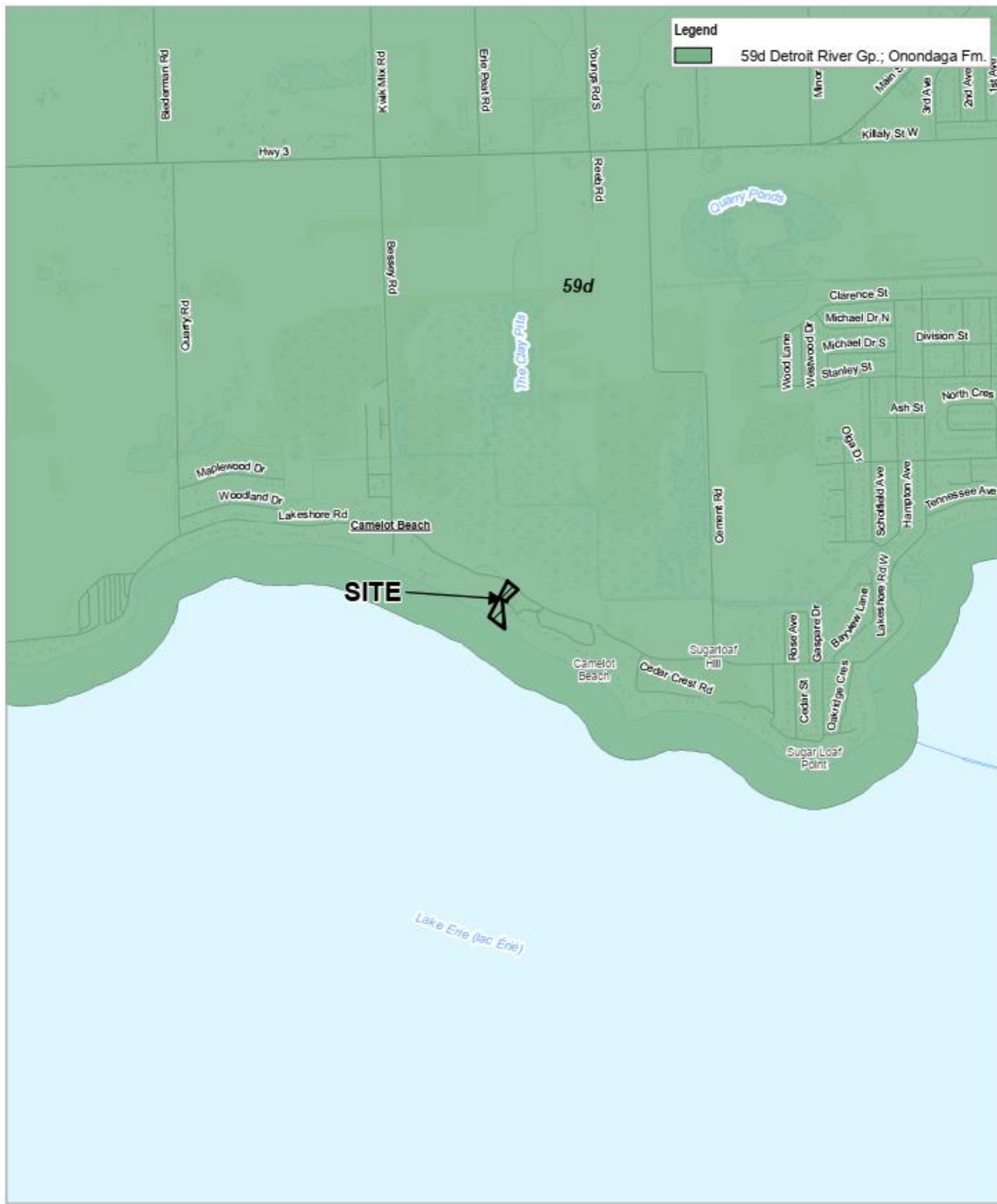
Project No. 11218340  
Revision No. -  
Date Nov 17, 2020

**SURFICIAL GEOLOGY**

**FIGURE 2**

C:\GEO\PROJECTS\11218340\11218340\Layouts\2020\_SlopeStabilityEvaluation\11218340\_SlopeStabilityEvaluation\_026602.mxd

Data source: MNRP HRMS, 2016. Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry. © Queen's Printer 2020. Ontario Geological Survey, 2021. Surficial geology of southern Ontario. Ontario Geological Survey, Miscellaneous Release—Data 126.



**MCDOWELL RESIDENCE**  
 2L49 (10288) LAKESHORE ROAD, WAINFLEET, ON  
 SLOPE STABILITY EVALUATION

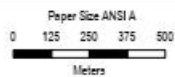
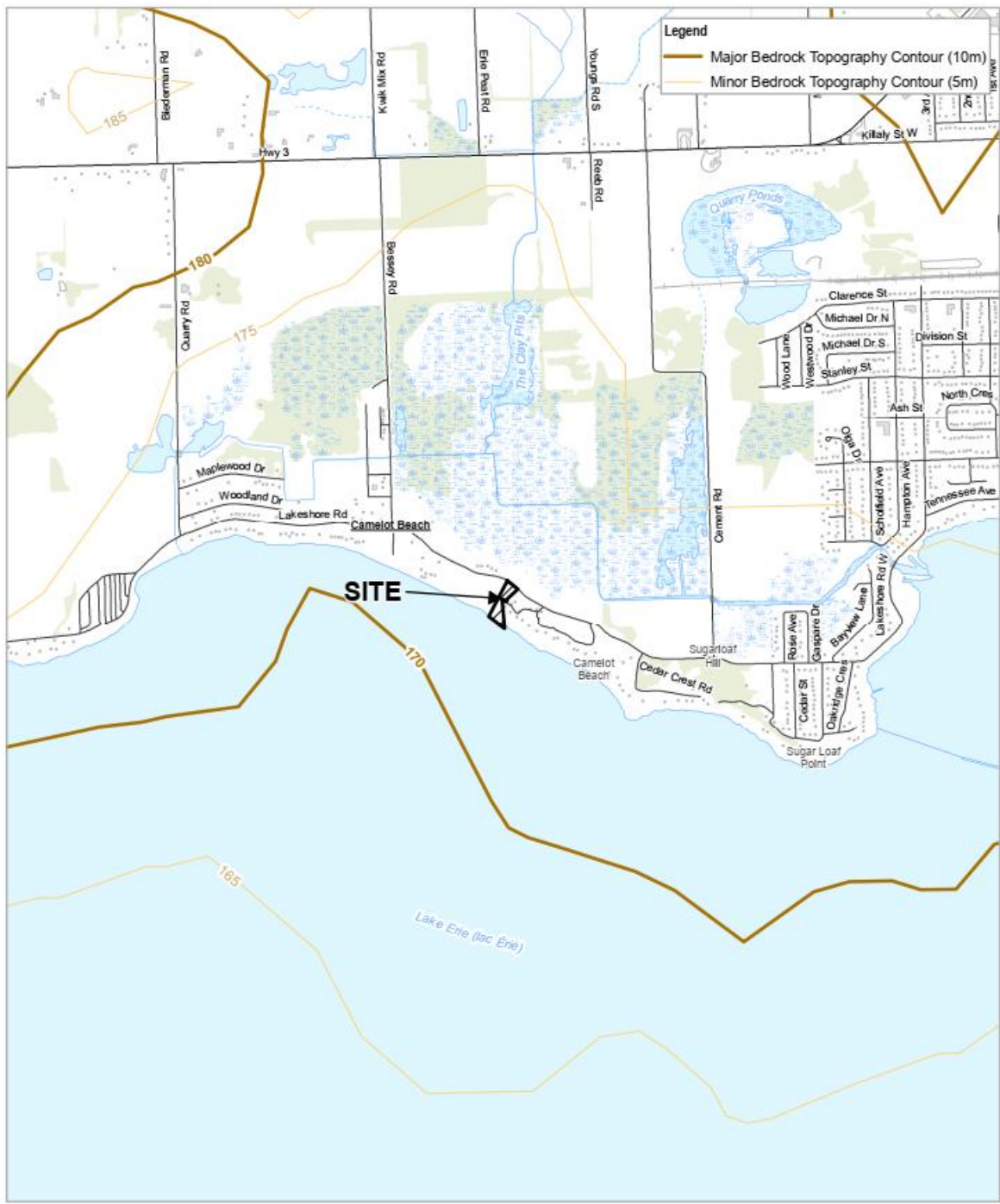
Project No. 11218340  
 Revision No. -  
 Date Nov 17, 2020

**BEDROCK GEOLOGY**

**FIGURE 3**

C:\GSD\PROJECTS\11218340\11218340\Layouts\2020\_SlopeStabilityEvaluation\11218340\_SlopeStabilityEvaluation\_020201.mxd

Data source: MINRP 18195, 2018. Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Quarterly Printer 2020. Adapted from Ontario Geological Survey 2006, 1:250 000 Scale Bedrock Geology of Ontario; Ontario Geological Survey, Miscellaneous Release—Data 125-revised, ISBN 0-7798-5172-4.



Map Projection: Transverse Mercator  
Horizontal Datum: North American 1983  
Grid: NAD 1983 UTM Zone 17N



**MCDOWELL RESIDENCE**  
2L49 (10288) LAKESHORE ROAD, WAINFLEET, ON  
SLOPE STABILITY EVALUATION

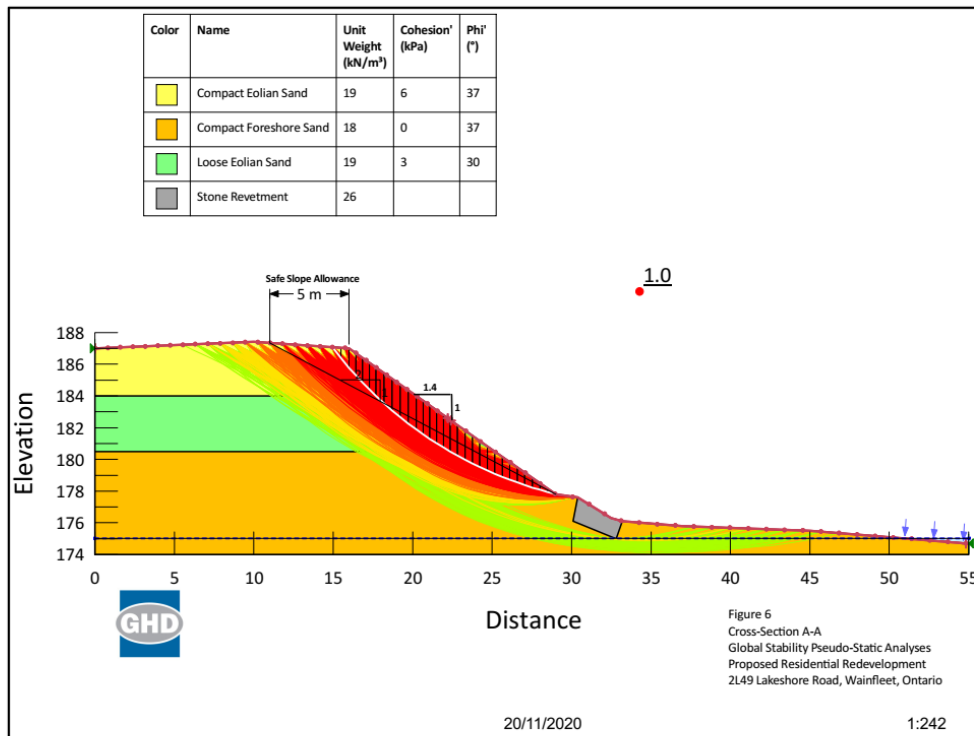
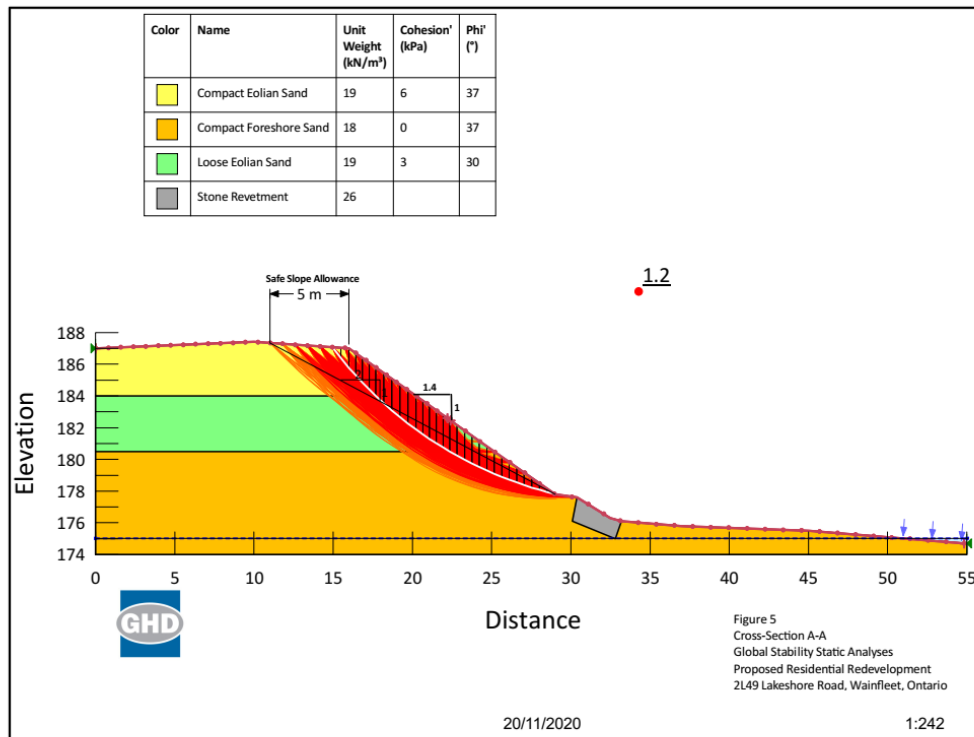
Project No. 11218340  
Revision No. -  
Date Nov 17, 2020

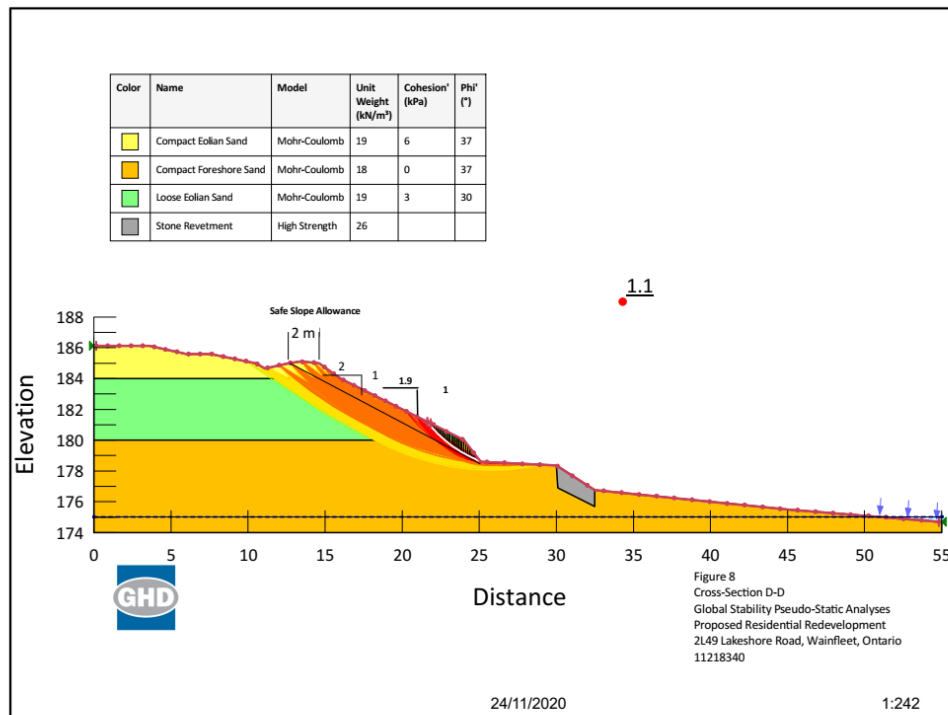
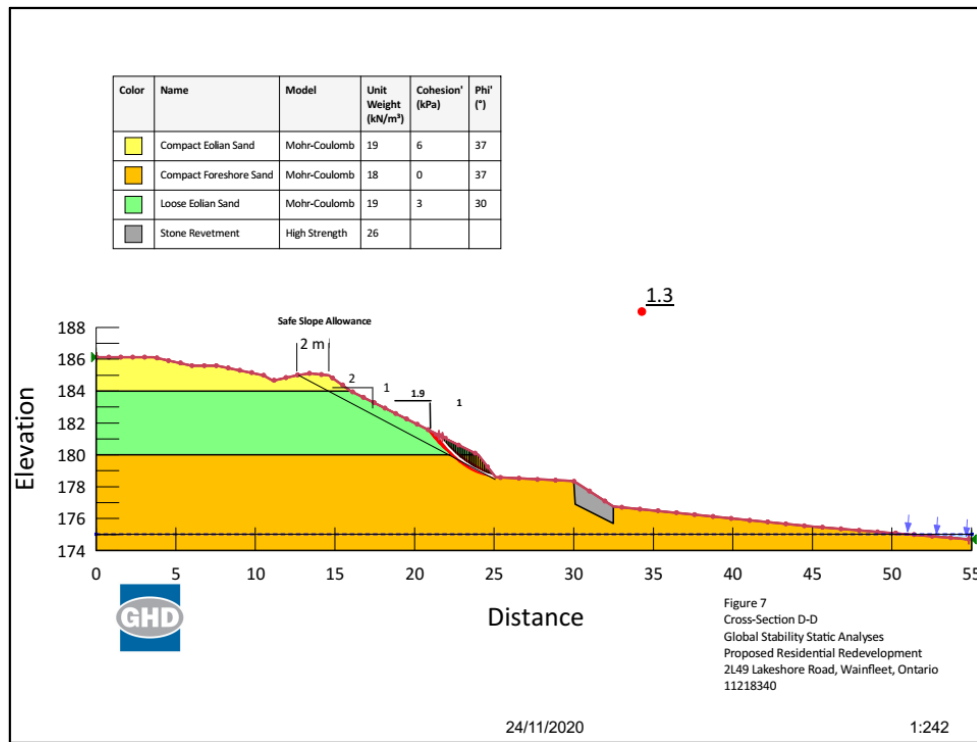
**BEDROCK TOPOGRAPHY**

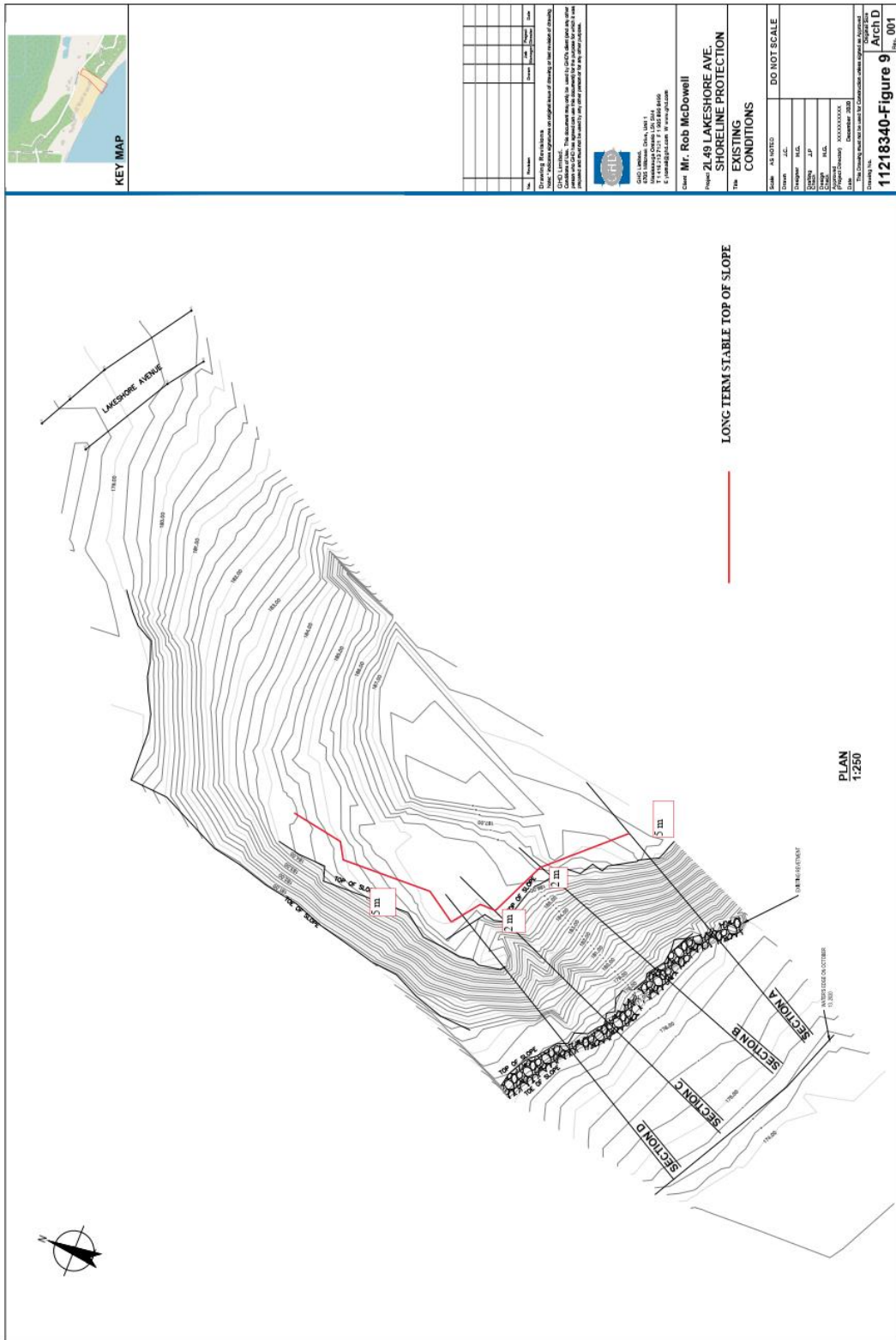
**FIGURE 4**

C:\GIS\PROJECTS\11218340\11218340\Layouts\10288\_SlopeStabilityEvaluation\_022020.mxd

Date source: MNRP, 1976/85, 2018. Produced by GHD under license from Ontario Ministry of Natural Resources and Forestry, © Queen's Printer, 2020. Gao, C., Shiota, J., Kelly, R.A., Brunton, F.R. and van Heellen, S. 2009. Bedrock topography and overburden thickness mapping, southern Ontario. Ontario Geological Survey, Miscellaneous Release - Date 2011, ESR11-1429-2009-6.









## ANNEX 6: SANITARY SEWAGE APPRAISAL



TG103046

October 12, 2010

Mr. Robert McDowell  
928 Valleyview Road  
Pittsburgh, PA., USA  
15243

Attention: Mr. McDowell

**RE: Sanitary Sewage Appraisal  
Proposed Residence  
2L49 Lakeshore Road  
Township of Wainfleet, Ontario**

Dear Mr. McDowell:

As authorized by yourself ("the Client") on September 13, 2010, AMEC Earth & Environmental, a division of AMEC Americas Limited ("AMEC") has undertaken a sanitary sewage appraisal of a residential lot which is located at 2L49 Lakeshore Road in the Township of Wainfleet ("the Site"). The appraisal is to demonstrate whether the lot can support a sewage disposal system for a residential dwelling that meets current Ontario Building Code criteria. The terms of reference for this work were outlined in AMEC's proposal dated September 9, 2010.

It is understood that the Realtor who is handling the sale of the lot, contacted the Development Services Division of Regional Niagara to discuss whether a hydrogeologic investigation would be required to address concerns of whether sewage effluent from the proposed residential dwelling would adversely impact groundwater in terms of nitrate concentrations. On September 20, 2010, AMEC contacted Mr. Dino Maddalena, Development Services Division who advised AMEC that he would not require a nitrate calculation for the 1 acre lot as it was his understanding that the proposed dwelling was to have three bedrooms and would be less than 2000 ft<sup>2</sup> in area.

#### 1.0 Site Setting

The Site is located in the southeast portion of the Township of Wainfleet, west of Cement plant Road, as shown on the Site Location Plan, Figure 1. The irregular shaped lot extends from Lakeshore Road to the water's edge of Lake Erie. There is an aeolian sand dune occupying most of the lot which has a fairly gentle slope on the north side of the lot and a much steeper southern slope adjacent to Lake Erie.

Currently, the Site is vacant but it is proposed to construct a single story dwelling, with a basement, at the location shown on the Site and Borehole Plan on Figure 2 enclosed.

AMEC Earth & Environmental  
A division of AMEC Americas Limited  
3300 Merrittville Highway, Unit No 5  
Thorold, Ontario  
L2V 4Y6

Tel +905 687 6616  
Fax +905 687 6620

Mr. Robert McDowell  
Sewage Appraisal  
2L49 Lakeshore Road, Township of Wainfleet, Ontario



## 2.0 Project Description

Based on an email dated September 21, 2010, it is understood that the Client's preliminary design is for a 5 bedroom residence, with a walkout basement, which would total 3000 ft<sup>2</sup> or 278 m<sup>2</sup>. There is to be a full bathroom in the basement.

## 3.0 Sewage Design

In Ontario, sewage disposal systems with a daily design sewage flow of less than 10,000 L/day are designed in accordance with Part 8 of the 2006 Building Code which was enacted by Ontario Regulation 350/06 and its amendments. The design for this sewage system is in accordance with criteria contained in the Code and Guide for Sewage Systems 2006 ("C & G 2006").

It is understood that once final plans for the residence have been prepared then a design will be submitted with the sewage permit application that will be reviewed by the Building Services Division, Public Works Department, Regional Municipality of Niagara who are responsible for administering Part 8 of the OBC in the Township of Wainfleet.

As outlined in Section 8.1.2.1 of the C & G 2006, the classification of the sewage disposal system used with a leaching bed is a Class 4 system. Two of the main criteria for design of an on-Site sewage system are the amount of sewage to be disposed of (the daily design sewage flow) and the ability of the soil to accept sewage effluent (the T time of the soil).

### 3.1 Daily Design Sewage Flow

Section 8.2 of the C&G 2006 describes daily sewage design standards. Table 8.2.1.3.A lists daily design sewage flows for various residential occupancies. For a five bedroom dwelling, a volume of 2,500 L/day is shown where there are a maximum of 20 water producing fixture units and the dwelling has a maximum finished floor area of a of 200 m<sup>2</sup>. For each 10 m<sup>2</sup> greater than 200 m<sup>2</sup>, an additional design volume of 100 L/day must be included and for each fixture unit more than 20, an additional 50 L/day must be considered with the maximum calculated volume to be used. Thus for this Site, based on finished area, and five bedrooms, a daily design volume of 3,300 L/day is calculated.

### 3.2 Boreholes, Groundwater Conditions and Estimate of T time

On September 20, 2010, AMEC hired a drilling contractor to advance four boreholes (BH 1 to BH 4) on Site at the locations shown on Figure 2. BH 1 and BH 2 were located in the proposed building area to a depth of 9.6 m while BH 3 and BH 4 were located on the south side of the Lot where a sewage disposal system is to be constructed. BH 3 was terminated at a depth of 3.1 m while BH was extended to 5.2 m below ground surface. Soil samples were taken at regular intervals by driving a split spoon sampler. Below surficial fill, all boreholes encountered brown moist fine sand to their depth of termination.

All boreholes were dry and open upon completion of their drilling.

Mr. Robert McDowell  
Sewage Appraisal  
2L49 Lakeshore Road, Township of Wainfleet, Ontario



A grain size analysis was undertaken in AMEC's laboratory upon sample 3 of BH 3. The result of the gradation can be found on the Grain-Size Distribution enclosed in Figure 3. This gradation was compared to gradation curves in Supplementary Standard SB-6 in the C&G 2006 in order to estimate its T time. The estimated T time of the sandy soil was 2 to 5 min/cm.

### **3.3 Proposed Sewage Disposal System**

#### **3.3.1 Overview**

A septic tank will be used for primary treatment of the sanitary sewage. It cannot be located within 1.5 m of a structure. Depending on the elevation of the main floor of the dwelling, effluent can likely flow by gravity from the house to the septic tank. Sewage from the basement may need to be pumped to the septic tank. Regardless, treated effluent from the septic tank can flow by gravity to a distribution box located before the header of the leaching tile bed. The leaching tile bed will consist of 4 rows of tile, each 21 m in length. The leaching tile will be located in a relatively level area north of the house, to the east of the driveway, between elevation 182.3 m and 182.5 m.

#### **3.3.2 Treatment Unit**

For residential occupancies, the minimum working capacity of the septic tank must have of volume of 2 times the design daily flow (Section 8.2.2.3 (1)), which in this case is 6,600 L. An example of a commercially available, suitably sized septic tank is enclosed as Figure 4.

Over time, the non-carbonaceous portion of the sewage will build up in the septic tank. Sentence 8.9.3.4(1) requires that the tank be cleaned when the sludge and scum occupy more than 1/3 of the capacity of the tank. The contents of the tank will need to be pumped and hauled for off-Site disposal by a licensed waste hauler.

#### **3.3.3 Effluent Filter**

Sentence 8.6.2.1(1&2) requires that an effluent filter be installed in the outlet flow path of every septic tank that discharges effluent to a leaching bed and that it shall conform to requirements of NSF/ANSI 46. The effluent filter is to be sized to accommodate the daily design sewage flow of 3300 L/day. Some septic tank suppliers supply effluent filters that fit within their tanks. The advantage of this is that the filter support brackets are designed for that particular filter and do not need modification.

#### **3.3.4 Distribution Box**

The effluent will flow by gravity to a distribution box via flexible PVC piping. The distribution box will allow the pressure to be dissipated so that the effluent will flow by gravity to the headers of the leaching tile. An example of a suitably size distribution box is enclosed as Figure 5.

Mr. Robert McDowell  
Sewage Appraisal  
2L49 Lakeshore Road, Township of Wainfleet, Ontario



### 3.3.5 Leaching Bed

As outlined in Section 8.7.3.1(2), where sewage is treated in a septic tank, the length of tile distribution pipe shall not be less than determined by the formula  $L=QT/200$  where L is the total length of distribution pipe in metres; Q is the total daily design sanitary sewage flow in Litres and T is the design percolation rate.

Based on a design Q of 3,300 L/day and a T time of 5 cm/min, then 82.5 m of distribution piping are required.

Leaching tile must be set back 3 m from a property line and can be placed in an area where the grade does not exceed 25 %. A review of available topographic mapping shows that there is an area to the east of the driveway between elevation 182.3 m and 183.0 m where four rows of tile, each 21 m in length can be placed at 1.6 m centres. This will provide 84 m of tile in an area 4.8 m by 21.0 m which is 3 m from the property line and leaves 4 to 5 m from the edge of the driveway.

The leaching tile trenches will need to be excavated about 60 cm in depth with 15 cm of approved stone below and 5 cm of stone above 10 cm leaching tile. Excavated sand will be used to fill the remainder of the trenches to near grade. A minimum of 5 cm of suitable sandy topsoil shall be placed on top of the sand backfill and the entire area either seeded with grass seed or sodded. The final grade of the leaching bed shall be set to direct precipitation water off the bed area. If sod is used, it will need to be watered frequently until it becomes established.

### 3.3.6 Setbacks

Applicable setbacks include locating the septic tank a minimum of 1.5 m from a structure and leaching tile a minimum 3 m from property line and 15 m from a drilled well with a watertight casing to 6 m and 30 m from any other well. Based on the plan provided and current layout, the leaching tile will not be located be within 30 m of a water well as the closest water well identified was approximately 60 m east of the Site.

Leaching tile must also be located a minimum of 90 cm above the high water table. The base of the leaching tile is expected to be higher than elevation 181.5 m. The boreholes extended to approximate Elevation 175.5 m and did not encounter groundwater. Thus the base of the leaching tile trenches should be a minimum of 6.0 m above the groundwater table.

## 4.0 Closure

The above described design of the sewage disposal system for the proposed residence at 2L49 Lakeshore Road in the Township of Wainfleet is based on data provided by the Client, the Client's representatives and Ontario Building Code criteria, all of which were current at the time of report preparation.

The Report Limitations, as attached, are an integral part of this report.

Mr. Robert McDowell  
Sewage Appraisal  
2L49 Lakeshore Road, Township of Wainfleet, Ontario



We trust that this proposal is sufficient for your needs. However, should additional information be required, please contact the undersigned.

Sincerely,

**AMEC Earth & Environmental**  
**A division of AMEC Americas Limited**

Prepared by:

Randall Secord, C.E.T.  
Senior Environmental Technologist

Reviewed by:

Peter McGlone, P. Eng.  
Principal

3 copies Client

Attachments:

- Report Limitations
- Figure 1 - Site Location Plan (1)
- Figure 2 - Site and Borehole Location Plan (1)
- Figure 3 - Grain-Size Distribution (1)
- Figure 4 - Septic Tank (1)
- Figure 5 - Distribution Box (1)
- General Report Notes (1)
- Record of Borehole Logs (4)

Mr. Robert McDowell  
Sewage Appraisal  
2L49 Lakeshore Road, Township of Wainfleet, Ontario



## REPORT LIMITATIONS

---

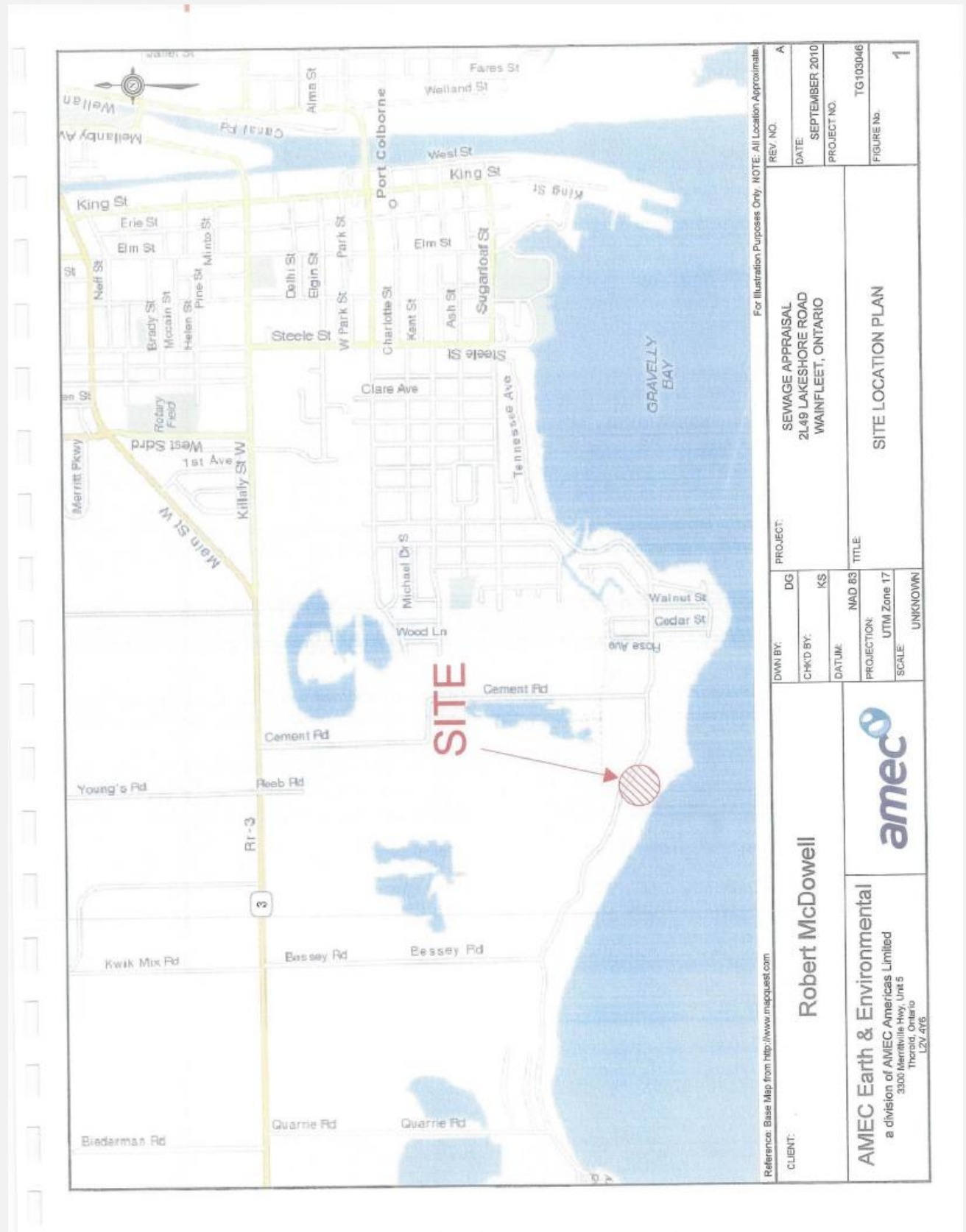
The conclusions and recommendations given in this report are based on information determined at the borehole locations. The information contained herein in no way reflects on the environmental aspects of the project, unless otherwise stated. Subsurface and groundwater conditions between and beyond the boreholes may differ from those encountered at the borehole locations, and conditions may become apparent during construction, which could not be detected or anticipated at the time of the site investigation. It is recommended practice that the Geotechnical Engineer be retained during the construction to confirm that the subsurface conditions across the site do not deviate materially from those encountered in the boreholes.

The design recommendations given in this report are applicable only to the project described in the text, and then only if constructed substantially in accordance with the details stated in this report. Since all details of the design may not be known, we recommend that we be retained during the final design stage to verify that the design is consistent with our recommendations, and that assumptions made in our analysis are valid.

The comments made in this report relating to potential construction problems and possible methods of construction are intended only for the guidance of the designer. The number of boreholes may not be sufficient to determine all the factors that may affect construction methods and costs. For example, the thickness of surficial topsoil or fill layers may vary markedly and unpredictably. The contractors bidding on this project or undertaking the construction should, therefore, make their own interpretation of the factual information presented and draw their own conclusions as to how the subsurface conditions may affect their work. This work has been undertaken in accordance with normally accepted geotechnical engineering practices. No other warranty is expressed or implied.

The benchmark and elevations mentioned in this report were obtained strictly for use by this office in the geotechnical design of the project. They should not be used by any other party for any other purpose.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. AMEC Americas Limited accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.



Reference: Base Map from <http://www.mapquest.com>

For Illustration Purposes Only. NOTE: All Location Approximate.

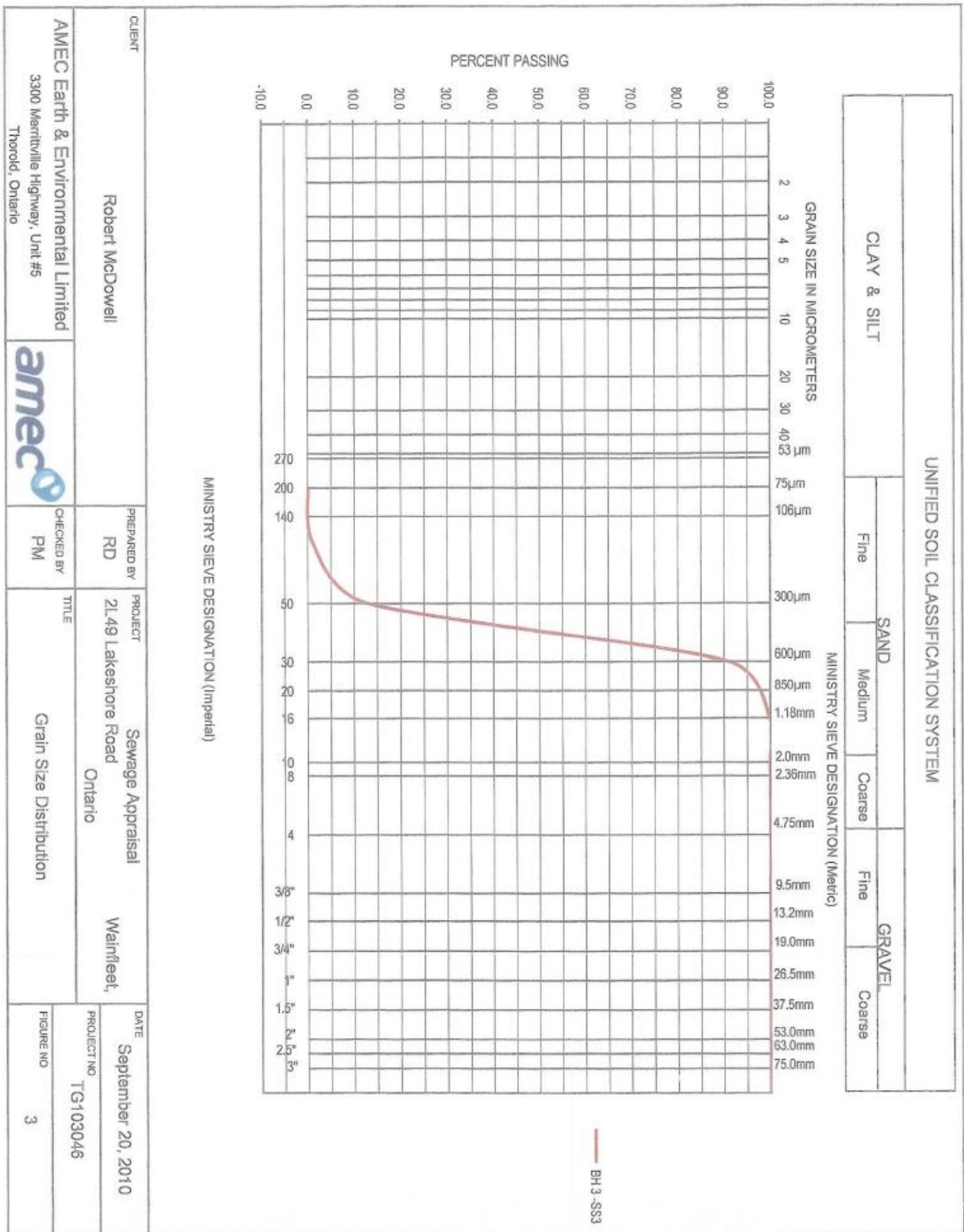
CLIENT:	<b>Robert McDowell</b>		REV. NO.:	A	
DWN BY:	DG	PROJECT:	SEWAGE APPRAISAL 2L49 LAKESHORE ROAD WAINFLEET, ONTARIO		
CHK'D BY:	KS	DATUM:	MAD 83		
PROJECTION:	UTM Zone 17		DATE:	SEPTEMBER 2010	
SCALE:	UNKNOWN		PROJECT NO.:	TG 103046	
			TITLE:	SITE LOCATION PLAN	
<b>AMEC Earth &amp; Environmental</b> a division of AMEC Americas Limited 3300 Merrittville Hwy, Unit 5 Thorold, Ontario L2V 4T6			FIGURE NO.:	1	

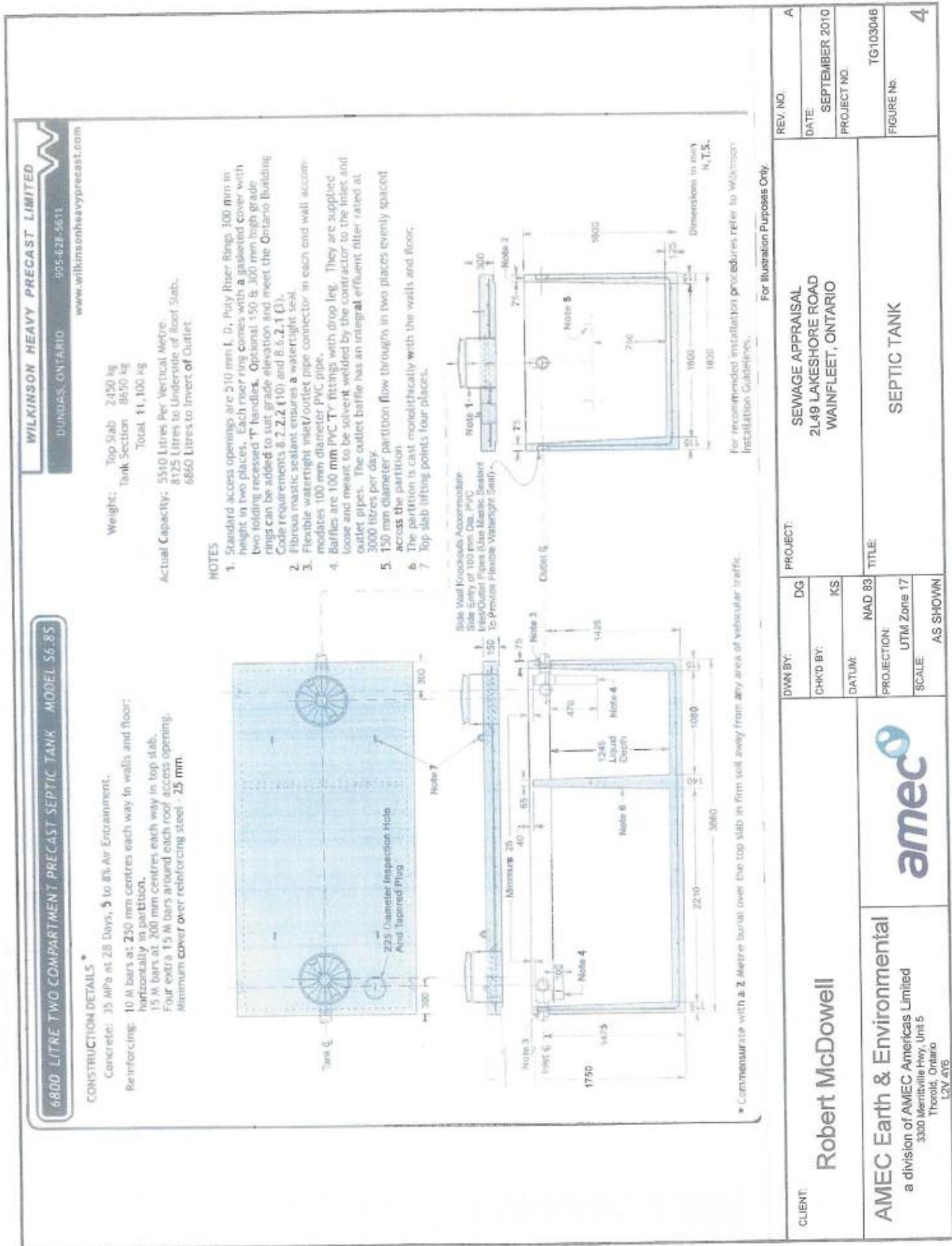


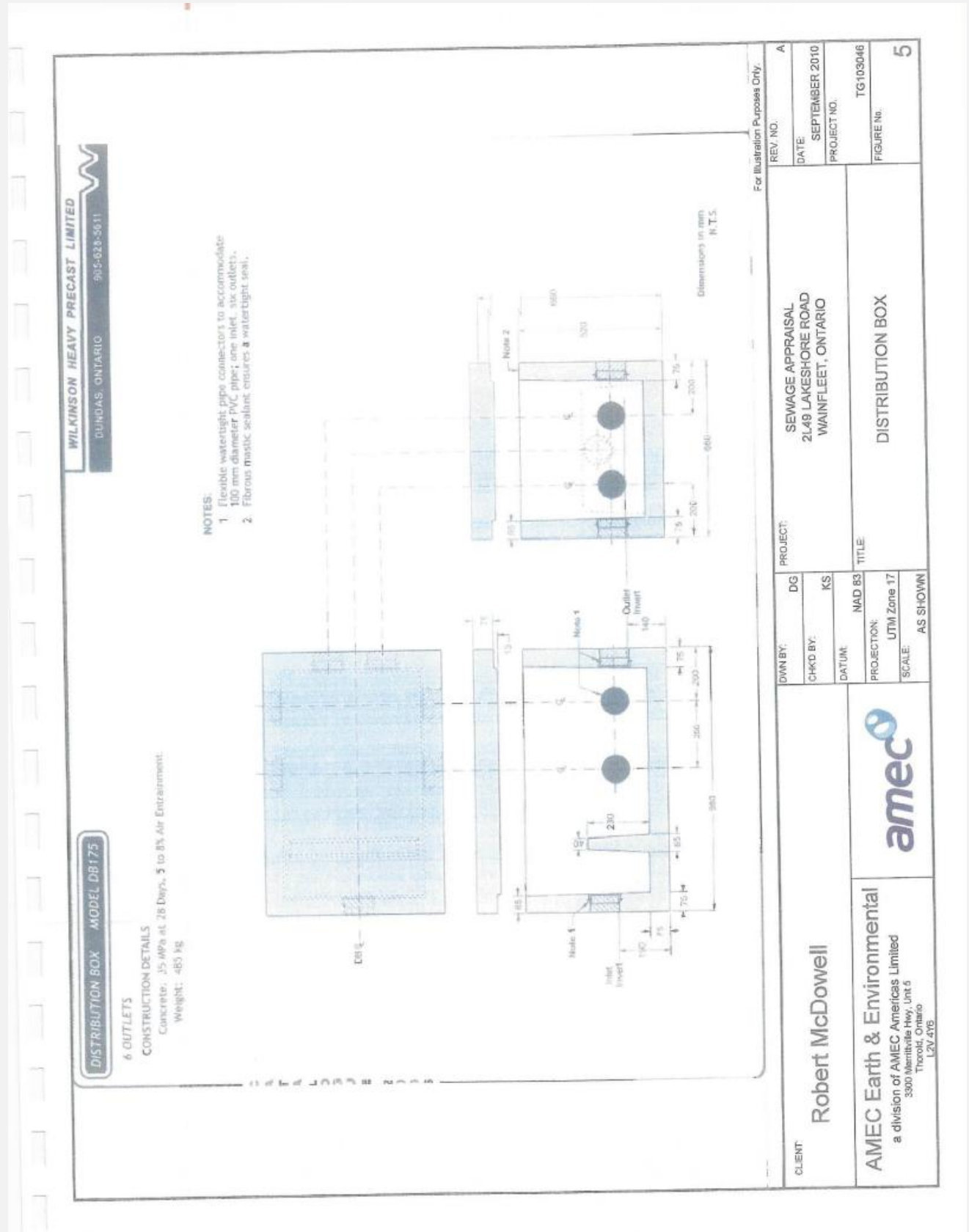
Reference: Base Map from Niagara Navigator.

For Illustration Purposes Only. NOTE: All Location Approximate.

CLIENT: <b>Robert McDowell</b> AMEC Earth & Environmental a division of AMEC Americas Limited 3300 Merriville Hwy, Unit 5 Thorold, Ontario L2V 4Y6	LEGEND: 	SITE BOUNDARY BOREHOLE LOCATION	DWN BY: DG CHKT BY: KS DATUM: NAD 83 PROJECTION: UTM Zone 17 SCALE: AS SHOWN	PROJECT: SEWAGE APPRAISAL 2L49 LAKESHORE ROAD WAINFLEET, ONTARIO	REV. NO. A DATE: SEPTEMBER 2010 PROJECT NO. TG103046 FIGURE NO. 2
		TITLE: SITE AND BOREHOLE PLAN			







Mr. Robert McDowell  
 Sewage Appraisal  
 2L49 Lakeshore Road, Township of Wainfleet

TG103046  
 September 2010

**GENERAL REPORT NOTES**

**DEFINITIONS OF PENETRATION RESISTANCE**

Standard penetration resistance 'N': -- The number of blows required to advance a standard split spoon sampler 30 cm into the subsoil, driven by means of a 63.5 kg hammer falling freely a distance of 70 cm.

Dynamic penetration resistance: -- The number of blows required to advance a 50 mm, 60 degree cone, fitted to the end of drill rods, 30 cm into the subsoil, the driving energy being 475 Joules per blow.

**SAMPLE TYPE ABBREVIATIONS USED IN BOREHOLE LOGS**

S.S.	Split spoon	T.W.	Thinwall open	R.C.	Rock core
A.S.	Auger sample	T.P.	Thinwall piston	W.S.	Washed sample
	P.H.	Sample pushed hydraulically	P.M.	Sample pushed manually	

**SOIL TEST SYMBOLS USED IN BOREHOLE LOGS**

<input type="checkbox"/>	Standard penetration resistance	▼	Laboratory vane	○	Unconfined compression
<input checked="" type="checkbox"/>	Dynamic penetration resistance	▲	Field vane	●	Undrained triaxial
		×	Penetrometer	S	Sensitivity

**CONVENTIONAL SOIL DESCRIPTIONS**

**COHESIVE (CLAYS ETC.)**

**GRANULAR (SANDS ETC.)**

<u>Consistency</u>	<u>'N' blows/30cm</u>	<u>c kPa</u>	<u>Denseness</u>	<u>'N' blows/30 cm</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		

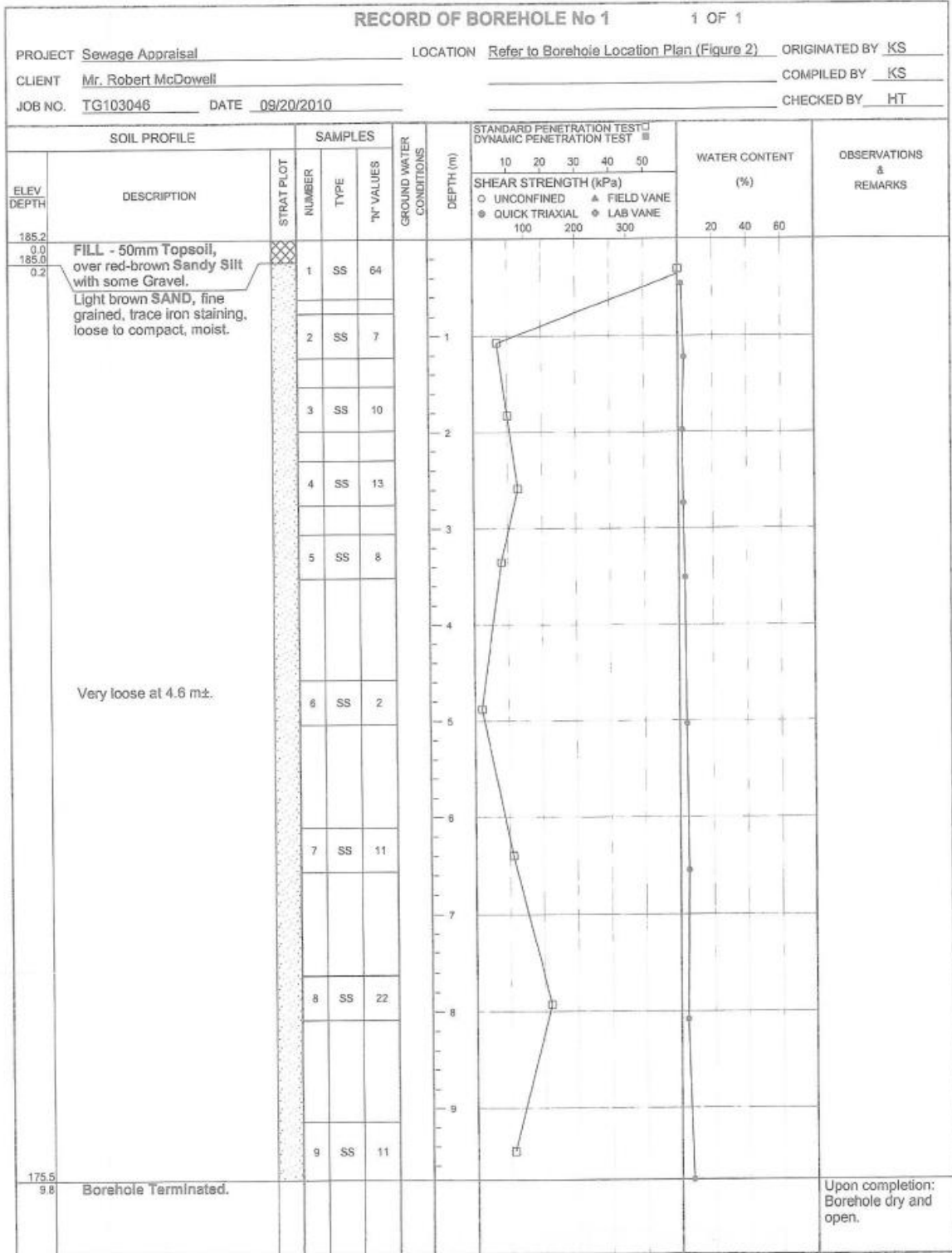
**ABBREVIATIONS FOR MOISTURE CONDITIONS**

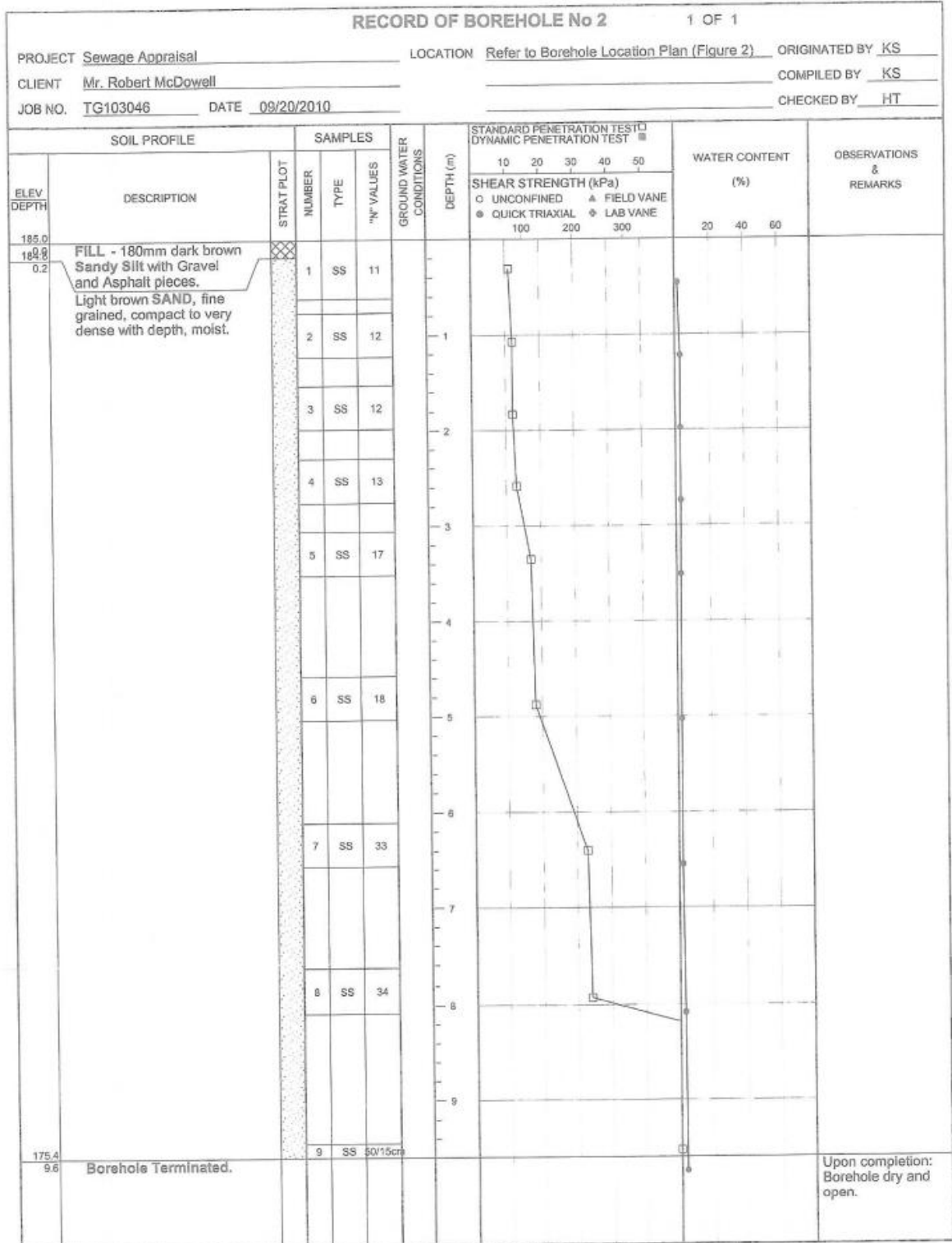
sdtpl - slightly drier than the plastic limit.  
 dtpl - drier than the plastic limit.  
 apl - about the plastic limit.

swtpl - slightly wetter than the plastic limit.  
 wtpl - wetter than the plastic limit.  
 mwtpl - much wetter than the plastic limit.

**NOTE**

The soil conditions, profiles, comments, conclusions and recommendations found in this report are based upon the samples recovered during the field work. Soils are heterogeneous materials and, consequently, variations (possibly extreme) may be encountered at site locations away from boreholes. During construction, competent, qualified inspection personnel should verify that no significant variations exist from the conditions described in this report.







RECORD OF BOREHOLE No 3										1 OF 1				
PROJECT <u>Sewage Appraisal</u>			LOCATION <u>Refer to Borehole Location Plan (Figure 2)</u>			ORIGINATED BY <u>KS</u>								
CLIENT <u>Mr. Robert McDowell</u>						COMPILED BY <u>KS</u>								
JOB NO. <u>TG103046</u>			DATE <u>09/20/2010</u>			CHECKED BY <u>HT</u>								
ELEV DEPTH	SOIL PROFILE		SAMPLES		GROUND WATER CONDITIONS	DEPTH (m)	STANDARD PENETRATION TEST <input type="checkbox"/> DYNAMIC PENETRATION TEST <input type="checkbox"/>				WATER CONTENT (%)	OBSERVATIONS & REMARKS		
	DESCRIPTION	STRAT PLOT	NUMBER	TYPE			"N" VALUES	SHEAR STRENGTH (kPa)						
							10	20	30	40	50	20	40	60
							○ UNCONFINED	△ FIELD VANE	● QUICK TRIAXIAL	◇ LAB VANE				
							100	200	300					
183.1														
189.0		FILL - 80mm Topsoil, over 80mm dark brown Silty Clay, mottled, dtpl. Light brown SAND, fine grained, compact to loose with depth, moist.												
0.2			1	SS	10									
			2	SS	17									
			3	SS	8									
			4	SS	5									
			5	SS	7									
180.1														
3.1		Borehole Terminated.												Upon completion: Borehole dry and open.



RECORD OF BOREHOLE No 4										1 OF 1			
PROJECT <u>Sewage Appraisal</u>			LOCATION <u>Refer to Borehole Location Plan (Figure 2)</u>			ORIGINATED BY <u>KS</u>							
CLIENT <u>Mr. Robert McDowell</u>						COMPILED BY <u>KS</u>							
JOB NO. <u>TG103046</u>			DATE <u>09/20/2010</u>			CHECKED BY <u>HT</u>							
ELEV DEPTH	SOIL PROFILE DESCRIPTION	STRAT PLOT	SAMPLES			GROUND WATER CONDITIONS	DEPTH (m)	STANDARD PENETRATION TEST DYNAMIC PENETRATION TEST		WATER CONTENT (%)	OBSERVATIONS & REMARKS		
			NUMBER	TYPE	"N" VALUES			10	20			30	40
								SHEAR STRENGTH (kPa)					
								○ UNCONFINED	△ FIELD VANE				
								● QUICK TRIAXIAL	◇ LAB VANE				
								100	200	300			
181.3 0.0 181.1 0.2	FILL - 100mm Topsoil, over 100mm dark brown Silty Clay, mottled, trace Gravel, dtpl. Light brown SAND, fine grained, very loose to compact, moist.		1	SS	10		0.2	□					
			2	SS	7		0.5	□					
			3	SS	5		1.0	□					
			4	SS	4		1.5	□					
			5	SS	4		2.0	□					
			6	SS	14		5.2	□					
176.1 5.2	Borehole Terminated.										Upon completion: Borehole dry and open.		

## ANNEX 7: COASTAL STUDY



### **Coastal Study**

2L49 Lakeshore Road  
Wainfleet, Ontario

Rob McDowell  
928 Valleyview Rd  
Pittsburgh, PA  
15243-1022 US



GHD | 455 Phillip Street Unit #100A Waterloo Ontario N2L 3X2 Canada | 11218340 | Report No 2 | May 2021



## Table of Contents

1. Introduction.....	1
2. Regional Perspective .....	1
3. Local Perspective .....	2
4. Limits of Natural Hazards.....	6
5. Recommendations .....	10
Appendix A: Full drawings.....	12

## Figure Index

Figure 1 Regulated Shoreline Extent as per the NPCA Watershed Explorer .....	3
Figure 2 NPCA Watershed Explorer Search Results for Subject Property with Approximate Proposed Building Envelope.....	7
Figure 3 Historical Erosion Analysis.....	9
Figure 4 Long-Term Stable Top of Slope and 100-Year Erosion Hazard Line .....	10



## 1. Introduction

GHD was retained by Mr. Rob McDowell to complete a Coastal Study in support of a proposed single family residential development at 2L49 Lakeshore Road in Wainfleet, Ontario (hereinafter referred to as the site or subject property) on the shore of Lake Erie. GHD understands that it is the intention of the property owner to construct a building with full basement and sewage disposal system on the currently undeveloped property. This development was previously assessed by AMEC in 2010, and the now 10-year old documents have been reviewed by GHD to assess any required updating in order to align current regulations and guidelines. Based on the Record of Pre-Consultation document, it was concluded that the Slope Stability Assessment, including the Review of the 2010 Study, should be updated to include a Coastal Study, which would address the existing wave-based erosion and flood hazards, as well as list potential mitigation methods (if necessary). This Coastal Study addresses the required updates, coastal processes (from regional and local perspectives), natural hazard limits, and recommendations for mitigation methods and next steps in the development of the property.

## 2. Regional Perspective

The property is located within the eastern basin of Lake Erie, the shoreline of which is mostly dominated by limestone bedrock with only a thin overburden (Boyd, 1981). The orientation of the lake aligns with the predominant southwest wind direction, allowing long fetch distances to build up large waves which can erode the shore of the northeastern part of the lake. Due to the presence of bedrock, erosion is generally not as severe in the western basin. Boyd (1981) states that, during times of high water levels, one storm can cause nearly half the damage occurring typically in one year, and highlights the importance of awareness and planning for storm surge elevations.

Beach deposits, if present, can fluctuate within the headlands, but only a nominal amount of material is transported eastward (Reinders, 1988). Lake Erie's littoral drift is supply-limited (meaning there is more sediment transported by wave energy than sediment sources can supply). The large curved scallops between the headlands/spits allow for a discrete littoral sub-cell setup, with limited erosion of the sediment-providing bluffs, and rivers and streams, whose outlets can accumulate coarser sediments (Boyd, 1981).

Reinders (1988) identified the area of the subject property to be within Lake Erie's littoral cell E-11, which reaches from west of Port Ryerse to the Niagara River. Cell E-11 consists of a low glacial plain shoreline with outcropping of bedrock, creating many small headlands with some beaches on their western sides), such as found at the subject property. The net littoral drift is identified by Reinders (1988) to be eastward, with the volume of 25,000 m<sup>3</sup>/yr. The same report notes that nearshore sediments as being glacial deposits and bedrock. Sand bodies are limited to being 10-30 cm thick (Reinders, 1988, p.76), and tend to be limited in extent. Within the cell E-11, bluff erosion and stream discharges are not considered to be a major contributor to littoral drift because of the resistant bedrock nature found along the majority of the shoreline (Reinders, 1988, p. 76).

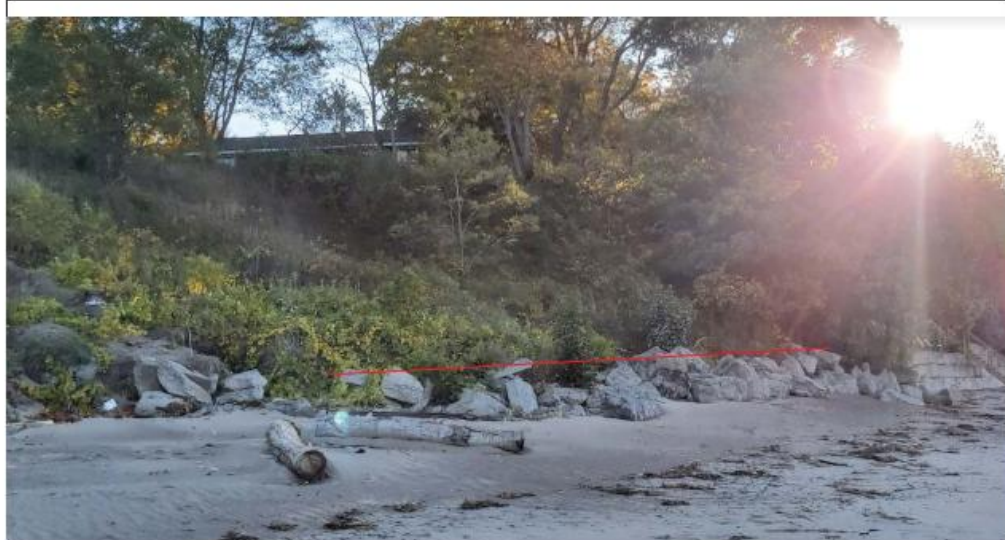


### 3. Local Perspective

The property shows a wide beach (25 m - 30 m from the water line (on the day of the topographic survey) to the toe of the bluff), which is flanked by a steep, vegetated, sandy slope of approximately 10 m height. This height is then maintained over approximately 30 m before sloping back down gradually towards the northern end of the property. Such backshore dunes (also called bluffs) are typical of this area, as the wind is able to transport sand landward over the wide beach, forming said backshore dune from locally available coarse material (Boyd, 1981). According to Boyd (1981), the shoreline reach at the subject property is designated the title of a Group Two Profile, indicating wide beaches with steep inland sand profiles (dunes), which coincides with the observations made during the site inspection in September 2020 by GHD. Boyd (1981) further states that the beach zone in the Group Two Profiles, is wide and stable, providing sufficient protection of the backshore dunes from wave-based erosion. Group Two Profiles tend to experience annual changes in the beach profile, but not in the overall net volume of material comprising the beach zone. Rather than causing erosion, storm waves have been noted to carry sand landward during lake setup conditions (Boyd, 1975). Further insight to erosion is provided in Section 4 *Limits of Natural Hazards*.

The subject property, as shown in Figure 1, is considered to be partially located within the Regulated Shoreline Extent area, as defined based on the Great Lakes Shoreline Flood and Erosion Mapping database of the shoreline hazard line features, publicly provided on the NPCA Watershed Explorer. The subject property owner is aware of permitting requirements, should they wish to develop their land within the Regulated Shoreline Extent.





Section of beach, full toe of dune, and section of vegetated dune on subject property (red line)



25 m -30 m wide beach on subject property, facing west



25 m -30 m wide beach and toe of dune on subject property, facing east



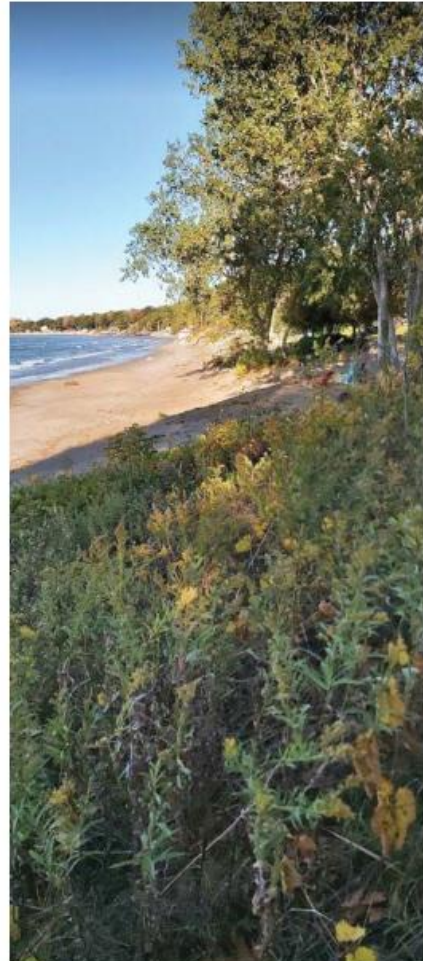
Toe of western side of dune



Toe of eastern side of dune



Toe of dune showing large armourstone, facing west



Heavily vegetated dune, facing west



View from the top of the dune. Overlooking heavy vegetation leading down to the wide beach.

#### **4. Limits of Natural Hazards**

The subject property is within the area regulated by the NPCA as the Great Lakes Shoreline component under the Generic Regulation of the Conservation Authorities Act known as Ontario Regulation 97/04. Publicly available data depict the extents of the shoreline regulated area as determined by extending from the currently mapped shoreline (2002) inland to the greatest of either the shoreline erosion (100 year erosion rate, dynamic beach), or shoreline flood (100-year flood level, wave uprush) hazards.





information indicating that the site profile has a wide and stable beach zone which provides sufficient protection of backshore dunes from wave-based erosion, along with the confirmed presence of well-established vegetative cover on the bluffs. As such, a site-specific erosion allowance hazard has been created using the established stable top of slope (Geotechnical Slope Stability Review (GHD, 2020)) together with site-specific 100-year erosion rates. This approach and the establishment of the site-specific erosion rates follow the guidelines provided in the NPCA Policy Document (dated September 2018).

Publicly available photographs of sufficient quality were obtained and reviewed by GHD for the years 1954, 2000, 2006, 2010, 2013, and 2018. Comparison of these photographs revealed that there is a maximum change in the dune vegetation line (toe of the dune) of 5.2 m inland between 1954 (red line) and 2000-2018 (orange, yellow, green, blue, purple lines), as shown on Figure 3.

The aerial photograph review also indicated no evidence of the rock revetment constructed at the toe of the dune until 2000. Further, there is no evidence of erosion of the dune between the years of 2000 and 2018.

The following was considered in developing a site-specific erosion rate:

- The largest change in the dune vegetation line of 5.2 m inland occurred between 1954 and 2000. This equates to an annual erosion rate of 0.11 m/year, which aligns with the results provided in Shoreplan's Lake Erie Shoreline Management Plan Update (2010).
- A 70-year design life is assumed for the existing rock revetment.
- With an assumed installation in 2000, as supported by the historical aerial photograph review, the revetment has 49 years remaining in its design life during which no erosion can be expected.

Note that the above listed assumptions were confirmed with the NPCA before being applied.

Based on the foregoing, there would be 5.61 m of erosion over the next 100 years assuming that the rock revetment is not reconstructed after 49 years and 0.11 m of erosion occurs in each of the remaining 51 years. As such, the site-specific erosion hazard limit should be considered at 5.61 m set back from the Stable Top of Slope (on the lake-facing slope only) as provided in the Geotechnical Slope Stability Review (GHD, 2020) and shown as the 100-Year Erosion Hazard Line on Figure 4.



Figure 3 Historical Erosion Analysis



**Figure 4 Long-Term Stable Top of Slope and 100-Year Erosion Hazard Line**

Note that full drawings of Figures 3 and 4 are included in Appendix A.

## 5. Recommendations

Based on the Coastal Study, including review of historical information, a site inspection, review of NPCA regulatory requirements, and development of site-specific erosion rates, the current lake-facing slope could erode 5.6 m in the next 100 years. A newly constructed revetment would reduce this erosion to 3.3 m over the next 100 years. It is noted that the proposed building footprint would still be within the erosion hazard if a new revetment is installed. Annual visual assessments of the vegetation on the dune are recommended in order to determine whether the existing rock revetment is fulfilling its design purpose against significant erosion, as would be indicated by the progressive disappearance of vegetative cover on the dune.



Geotechnical expertise should be sought if construction of the proposed dwelling is considered within the proposed building envelope beyond the erosion hazard limit as well as the stable top of slope.

It is noted that the 2010 plan also proposed that the building envelope extend beyond the top of the stable slope which, at that time, would have also required geotechnical expertise if the proposed building footprint extended beyond the stable top of slope.

All of Which is Respectfully Submitted,

GHD

A handwritten signature in black ink, appearing to read 'Jennifer Penton'.

Jennifer Penton, Ph.D.  
JP/MG/01



Max Osburn, P.Eng.



## **Appendix A: Full drawings**



<b>Legend</b>		Paper Size ANSIA				
Approximate Foot of Dune	2010	Property Boundary	0 3.5 7 10.5 14			
1954	2013		Meters			
2000	2018		Map Projection: Transverse Mercator			
2006			Horizontal Datum: North American 1985			
			Grid: NAD 1985 UTM Zone 17N			

\\G:\Projects\11218340\_11218340\_11218340\_SlopeStabilityEvaluation\11218340\_SlopeStabilityEvaluation\_C05001.mxd  
Printdate: 15-Mar-2021 1:44:07

	<b>MCDOWELL RESIDENCE</b> 2L49 (10288) LAKESHORE ROAD, WAINFLEET, ON SLOPE STABILITY EVALUATION	Project No. 11218340 Revision No. - Date Mar 15, 2021
<b>HISTORIC EROSION ANALYSIS</b>		<b>FIGURE 1</b>

Date source: Property - Niagara Peninsula Conservation Authority, 2016; Foot of Dune - GHD, 2021



## ANNEX 8: WORK PERMIT AYGU-2025-PLA-00079-WP-001

Ministry of Natural  
Resources

Ministère des ressources  
naturelles



Monday, November 3, 2025

AYGU-2025-PLA-00079-WP-  
001

Rob McDowell  
10288 Lakeshore Road  
Wainfleet, ON  
L3K 5V4

Dear Permittee,

**RE: Work Permit AYGU-2025-PLA-00079-WP-001**

Enclosed is the subject work permit which authorizes you to **Install Erosion Control** at the location specified on the permit. Please familiarize yourself with the conditions of the work permit prior to undertaking the work. The contractor and the equipment operator must be provided with a copy of this work permit and be familiar with the conditions prior to proceeding with any work. A copy of the work permit must be available on site while the work is being conducted.

**No in-water work is permitted between March 1 and July 1.** This authorization does not release you of the responsibility for obtaining any other permits that may be required under federal, provincial or municipal legislation. This includes any requirements under the *Endangered Species Act* which is now administered by the Ministry of Environment, Conservation, and Parks.

The *Ontario Heritage Act* regulates archaeological resources in Ontario. During the course of your project work, should you accidentally discover archaeological artefacts, please stop all work, secure the site and contact the Ministry of Tourism, Culture and Sport, Archaeology Programs Unit, by email at [Archaeology@ontario.ca](mailto:Archaeology@ontario.ca), or by phone at 416-212-8886. Also, please notify the Ministry of Natural Resources (MNR) Cultural Heritage Specialist Renée Bellini by email at [Renee.Bellini@ontario.ca](mailto:Renee.Bellini@ontario.ca).

In accordance with the *Cemeteries Act*, R.S.O. 1990 c. C.4, should you accidentally discover human remains during the course of your project work, you are required to stop all work, secure the site and notify the Ontario Provincial Police along with the MNR.

You may contact **Belinda Ahoni**, by phone at **226-219-6443** or by email to **[Lands.Aylmer@Ontario.ca](mailto:Lands.Aylmer@Ontario.ca)**, if you have any further questions regarding this matter.

Sincerely,

*Belinda Ahoni*

**Belinda Ahoni**  
**Integrated Resource Management Technical Specialist**

Ministry of Natural Resources- /encl



**Work Permit /  
Permis de travail**

**Permit No./Permis No.  
AYGU-2025-PLA-00079-WP-  
001**

This permit is issued under the authority and provisions of the following indicated Provincial Acts and their regulations, and is subject to the limitations and provisions thereof and is also subject to the terms and conditions herein.  
Ce permis est émis conformément aux dispositions des lois provinciales ci-après et des règlements y afférents et est sujet aux restrictions et dispositions de ce lois et règlements ainsi qu'aux conditions ci-énoncées.

**[X] Section 2(1), Regulation 975, as amended, Public Lands Act/Loi sur les terres publiques, Règlement 975 tel que modifié, article 2(1)**

**Note: The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, etc. approval as may be required nor does it relieve the permittee from the requirements of any other legislation.  
Remarque : La délivrance d'un permis n'exonère pas le demandeur de l'obligation d'obtenir l'autorisation de tout autre organisme, commission, gouvernement, etc. qui pourrait être exigée, non plus qu'elle exempte le détenteur des dispositions des lois.**

The Permit is issued to: Ce Permis est délivré à:

Name of Permittee/Nom du détenteur: Rob McDowell

Post Office Address/Adresse postale: 10288 Lakeshore Road, Wainfleet, ON ,L3K 5V4

To conduct an operation from November 4, 2025 to and including the November 3, 2026

Pour effectuer des travaux du November 4, 2025 jusqu'au November 3, 2026

at location/à l'emplacement: PCL 8-1 SEC 59M174; LT 8 PL 59M174; S/T PTS 2, 6 & 7 59R6705 IN FAVOUR OF PTS 1 & 2 59R3860 AS IN RO421779 ; S/T

RO554732 WAINFLEET

As per your application dated/conformément à la / Demande de permis en date du:

2025-06-19

For the purpose of / Aux fins de:

**Subject to the following conditions:/Et sous les conditions suivantes:**

1. The Permittee shall keep this permit or a true copy thereof on the work permit area./ Le détenteur conservera ce permis ou une copie conforme sur les lieux des travaux.
2. The person in charge of the operation conducted under this permit shall produce and show this permit or the true copy kept on the work permit area to any officer whenever requested by the officer. / Le responsable des travaux couverts par ce permis doit produire le permis ou sa copie conforme si un agent lui demande.
3. Other conditions as listed on the reverse side of this permit as well as those contained in Schedule(s) D attached. Autres conditions énoncées au verso de ce permis ainsi que celles apparaissant aux annexes suivantes .

Place of Issue/Emis à: Aylmer - Guelph District	
Date/Date de délivrance: <b>Nov 3, 2025</b>	Signature of Issuing Officer/Signature du délivreur: <i>Dranna Lyndell</i>

Personal Information on this form is collected under the authority of Section 13 of the Public Lands Act, R.S.O. 1990, the Lakes and Rivers Improvement Act, R.S.O. 1990, and Regulation 975 as amended, and the information will be used for the purposes of the Act and Regulations. Questions about this information should be directed to the local MNR office.

Les renseignements personnels exigés dans les présentes sont recueillis en vertu de la Loi sur l'aménagement des lacs et des rivières et du règlement 975 de l'Ontario tel que modifié. Ils seront utilisés selon les termes de la Loi et des règlements. Veuillez

adresser toute question à ce sujet au bureau du MRN. Une liste des bureaux du MRN avec adresses et numéros de téléphone en français est disponible.

Conditions

Conditions

It is agreed by the parties hereto that:

- 1) This Work Permit gives the permittee only the right to carry out work on the described site for the purpose specified in this permit and does not convey any right, title or interest in the land.
- 2) The permittee covenants to indemnify and forever save and keep harmless the Crown, its officers, servants and agents from and against any and all claims, demands, suits, actions, damages, loss, cost or expenses arising out of any injury to persons, including death, or loss or damage to property of others which may be or be alleged to be caused by or suffered as a result of or in any manner associated with the exercise of any right or privilege granted to the permittee by this Work Permit.
- 3) a) A permittee is an occupier under the Trespass to Property Act and the Occupier's Liability Act and shall take such care as in all circumstances of the case is reasonable to see that persons entering on the premises, and the property brought on the premises by these persons, are reasonably safe while on the premises. b) Any posting of signs or notices pursuant to the Trespass to Property Act and the Occupier's Liability Act, on the work permit area, shall be subject to prior approval of the issuing officer. The location and format of all signs and notices must be approved by an officer. c) The permittee agrees to remove all signs or notices on termination of the permit, or at the direction of the issuing officer. d) The permittee agrees to post any signs or notices as required or directed by an officer.
- 4) This Work Permit shall not be assigned or transferred.
- 5) The permittee may, with the approval of the District Manager, or will, at the District Manager's request, remove the improvements, property or other assets from the public lands and leave the site in a clean and safe condition, restored as much as possible to its original state except where the requirement to restore is waived in writing by the District Manager.
- 6) a) Upon termination of this permit, the permittee has no right to, or reasonable expectation of, the issuance of a new permit based on prior work on the land. b) The successive issuance of any permit or permits for work on the land described herein will not create any future rights or interests whatsoever in the land.
- 7) Violations of any of the conditions constitutes an offence.

Les parties conviennent que:

- 1) Ce permis de travail autorise le détenteur à effectuer les travaux sur le terrain décrit aux fins énoncées dans ce permis. Il ne confère aucun droit, titre ou intérêt sur le terrain.
- 2) Le détenteur indemnifiera et protégera la Couronne, ses agents, fonctionnaires et représentants de toute poursuite, demande, procès, dommages, perte ou coûts découlant de blessures, décès ou dommages matériels à autrui qui pourrait être causés ou infligés, ou présumer être causés ou infligés de quelque façon que ce soit, par l'exercice des droits ou privilèges accordés par ce permis à son détenteur.
- 3) a) Le détenteur est considéré comme un occupant aux termes de la Loi sur l'entrée sans autorisation et de la Loi sur la responsabilité des occupants et il doit prendre toute mesure qui, dans la situation, est considérée raisonnable afin que les personnes entrant sur les lieux, et les biens apportés par ces personnes, soient raisonnablement sécuritaires lorsqu'ils sont sur les lieux. b) Les avis ou panneaux exigés par la Loi sur l'entrée sans autorisation et la Loi sur la responsabilité des occupants et installés sur les lieux de travail couverts par le permis doivent être préalablement approuvés par le délivreur. L'emplacement et le format des affiches ou des avis doivent être approuvés par le délivreur. c) Le détenteur convient d'enlever ces avis ou panneaux conformément à la Loi sur l'entrée sans autorisation à l'expiration du permis ou sur l'ordre du délivreur. d) Le détenteur accepte de poser des affiches ou des avis à la demande du délivreur.
- 4) Ce permis ne peut être ni cédé ni transféré.
- 5) Le détenteur peut, sous réserve de l'approbation du chef de district, ou doit à sa demande, enlever les aménagements, les biens ou autres avoirs des terres publiques et laisser le site propre et sûr, restauré dans toute la mesure du possible à sa condition originale sauf s'il en est dispensé par écrit par le chef de district.
- 6) a) À l'expiration de ce permis, il sera décidé de délivrer un nouveau permis conformément aux règlements afférents à la Loi sur les terres publiques et le détenteur n'a aucun droit, ni ne peut raisonnablement s'attendre, à ce qu'un nouveau permis lui soit accordé uniquement parce que des travaux ont été effectués sur le site. b) La délivrance successive de permis d'effectuer des travaux sur le terrain décrit ici ne confère aucun droit ou intérêt futur sur ce terrain.
- 7) Les infractions à ces conditions sont punies par la Loi.

Ministry of Natural Resources  
Ministère des ressources naturelles



## Schedule "D" Work Permit Conditions Report

**Submission ID:** AYGU-2025-PLA-00079

**Approval Number:** AYGU-2025-PLA-00079-WP-001

**Proponent:** Rob McDowell

- 
- The extent of the project must front lands owned by the permit holder and in no way encroach upon neighbouring properties
  - All work shall be carried out within the approved Work Permit Area (WPA) only. Any work outside the approved WPA will require separate approval or an amendment to this Work Permit.
  - Wheeled or tracked machinery or equipment used in connection with the activity must be operated from dry land, on ice surface or operated from a barge or vessel, and must be stored on dry land or stored on a barge or vessel.
  - The Permit Holder shall not undertake any work in the water between the following dates March 1 - July 1
  - Sediment controls containing the work area must be installed before the work begins, must be maintained for the duration of the work, and must not be removed until after the area has stabilized.
  - Any material that results from the activity, including sediment, debris and aquatic vegetation, must be immediately disposed of on dry land and in a manner that prevents it from entering or re-entering the water body.
  - The Permit Holder shall ensure machinery arrives on the work permit area site in a clean condition and is to be maintained throughout all work activities free of fluid leaks.
  - The Permit Holder shall wash, refuel and service machinery and store fuel and other materials for the machinery away from the water to prevent entry into the water.
  - The Permit Holder shall keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
  - The issuance of this permit does not relieve the applicant from the responsibility of acquiring any other agency, board, government, etc. approval as may be required. Applicants are responsible for ensuring compliance with any other applicable legislation, including requirements under the Fisheries Act (Canada).
  - The attached application is provided for your convenience; works are to be completed as set out in this application, unless contrary to any terms or conditions of this permit. In the event of conflict between the application and any terms or conditions of this permit, the terms and conditions set out in this permit shall prevail.
  - If human remains or artifacts associated with human remains are encountered at the Described Lands, the Permittee shall immediately notify the police or a

**Ministry of Natural Resources**  
**Ministère des ressources naturelles**



coroner appointed under the Coroners Act, and the Ministry. In addition, unless otherwise required or permitted by law, the Permittee shall immediately: a. cease all activities at the location(s) where the human remains were uncovered, and b. refrain from disturbing or causing the disturbance of the human remains or artifacts. If previously unknown artifacts, as defined in O. Reg. 170/04 made under the Ontario Heritage Act, are uncovered at the Described Lands (a "Discovery"), the Permittee shall immediately cease all activities and refrain from disturbing or causing the disturbance of the unknown artifacts at the specific location of the Discovery, promptly give notice to the Ministry, and engage a licensed archaeologist to undertake an assessment at the Described Lands.



Ministry of Natural  
Resources and Forestry

## Work Permit Application for Works on Shore Lands for Erosion Control

*Public Lands Act, R.S.O.1990*

### Are you planning to conduct work along a shoreline?

The Ministry of Natural Resources and Forestry (MNRF) reminds landowners that a work permit may be required before working in the water or along your shoreline.

### Instructions

If you wish to complete the application manually rather than electronically, please click "Print Blank Form".

Use this form if you intend to construct a new or expand an existing erosion control structure<sup>1</sup> on shore lands<sup>2</sup> along your waterfront property<sup>3</sup>. This form may be utilized to apply for work involving filling or dredging of shore lands for erosion control.

<sup>1</sup> For the purpose of the work permitting process, an erosion control structure shall be considered as anything that is placed, or constructed in order to protect a shoreline from erosion. Examples of erosion control structures include gabion baskets, armour stone, groynes and retaining walls.

<sup>2</sup> Shore lands are lands covered or seasonally inundated by the water of a lake, river, stream or pond.

<sup>3</sup> Waterfront property means a parcel of land that has a boundary on a lake, river, stream or pond, or is separated from a lake, river, stream or pond only by, an unopened road allowance, or a strip of public lands that is not more than 30 metres in perpendicular width from the lake, river, stream or pond.

### What is a Work Permit?

A work permit is issued under the authority of the *Public Lands Act*, R.S.O.1990 to authorize activities on public lands and shore lands. Public lands mean any lands under the control and management of the MNRF, including the beds of most lakes and rivers in Ontario. A Work Permit ensures that specific activities on public lands and shore lands have regard for the environment, other users and neighbouring landowners.

### Timelines for Work Permit Reviews

The Ministry has a service standard of 21 business days for the review and issuance of work permits for erosion control structures. Note that the Ministry must assess and fulfill the duty to consult with Indigenous communities as well as review some structures for engineering requirements. This may extend review timelines.

If you are in doubt on whether a Work Permit is required; please contact your local [ministry work centre](#).

Please submit this application by mail or email to your local [ministry work centre](#).

### Collection of Personal Information

Personal information on this form is collected under the authority of Section 13 of the *Public Lands Act*, R.S.O.1990 and Ontario Regulation 975 as amended, and the information will be used for the purposes of the Act and Regulations.

Questions about this should be directed your local [ministry work centre](#).

Fields marked with an asterisk (\*) are mandatory.

#### 1. Applicant Details

Application Date (yyyy/mm/dd) \*

2025/06/13

#### Name of Applicant (Property owner)

Last Name \*

McDowell

First Name \*

Rob

Name of Business or Corporation (if applicable)

**Mailing Address of Applicant**

Unit Number	Street Number *	Street Name *	PO Box
	10288	Lakeshore Road	
City/Town *	Province or State *		Postal Code/Zip Code *
Wainfleet	Ontario		L3K 5V4
Country *	Telephone Number *		Mobile Number
Canada	412-221-4453 ext.		
Email *			
mcdorob@gmail.com			

If someone is acting on your behalf (for example a contractor) please complete the section below.

I/We hereby appoint Chris Patterson, P.Eng., - Patterson Engineering

as our agent for the purpose of future correspondence with the Ministry of Natural Resources and Forestry in regard to this application and authorization.

Any correspondence should be forwarded to:  
(Unless specified otherwise, all correspondence will be forwarded to the landowner)

Name \*  
Chris Patterson, P.Eng.

Telephone Number *	Email *
226-346-1350	cpatterson@pattersonengineering.ca

**Specify time period in which work will occur**

In general, in-water work should not take place during fish spawning season or during the time of other critical fish life stages as set out in the In-water Work Timing Window Guidelines, available at:

Proposed start date (yyyy/mm/dd) 2025/07/01 Proposed completion date (yyyy/mm/dd) 2025/09/01

or

no in-water work will occur

Equipment to be used  
Excavator

**2. Application Description**

Please provide a brief description of your project and how the work will be done. Explain the method of construction, phasing of construction, duration of the work and site access. \*

This project includes the installation of a proposed armour stone revetment. The top elevation of the wall is to be approximately 179 m. The contractor will use an excavator with a large bucket attachment to move and put the armour stones in place. This project will be done in one phase and will take approximately 2-3 weeks. Access to site will be completely on land and no in-water will occur. The site is accessible from Lakeshore road directly onto the subject property and directly to the shoreline. There will be no access from neighbouring properties.

Please identify the proposed method(s) to prevent material from entering water during construction as well as method(s) of preventing any sedimentation or erosion of shoreline materials and lake bed sediments while doing in-water work (e.g. silt screens, geotextile cloth, etc.) \*

There will be erosion and sediment controls installed at the site prior to any installation to ensure no material or sedimentation enters the Lake. The erosion and sediment control types are attached to this application and will follow the Ontario Provincial Standards Drawings.

Please identify type of erosion control being proposed - see examples below \*

- New Rip Rap                       Concrete Wall                       Gabion Baskets  
 Armour Stone                       Groyne                       Other

Please provide rationale for your structure type (why did you choose the certain type of structure above? E.g., effective, feasible etc.) \*  
[Armour stone revetment dissipates the wave energy and helps to reduce long term erosion.](#)

### 3. Structure location and size (relative to your property)

Please identify the dimensions of the structure you are seeking approvals for. See sketch examples of dimensions below.

Specify measurement unit \*  Metre  Feet

Length as measured parallel to the shoreline (m) *	Depth as measured perpendicular to the shoreline (m) *
<a href="#">90.9</a>	<a href="#">2</a>
Height as measured bottom to top (m) *	Total square metres (m <sup>2</sup> ) *
<a href="#">4.4</a>	<a href="#">181.8</a>

### 4. Site Location

Lot	Conc	Township
		<a href="#">Wainfleet</a>

MNRF Work Centre *	County, District or Regional Municipality *
<a href="#">Aylmer District</a>	<a href="#">Wainfleet</a>

Latitude and Longitude or UTM Coordinates	Name of Waterbody *
<a href="#">42.861439, -79.379339</a>	<a href="#">Lake Erie</a>

Other Location Description (street address of work site)

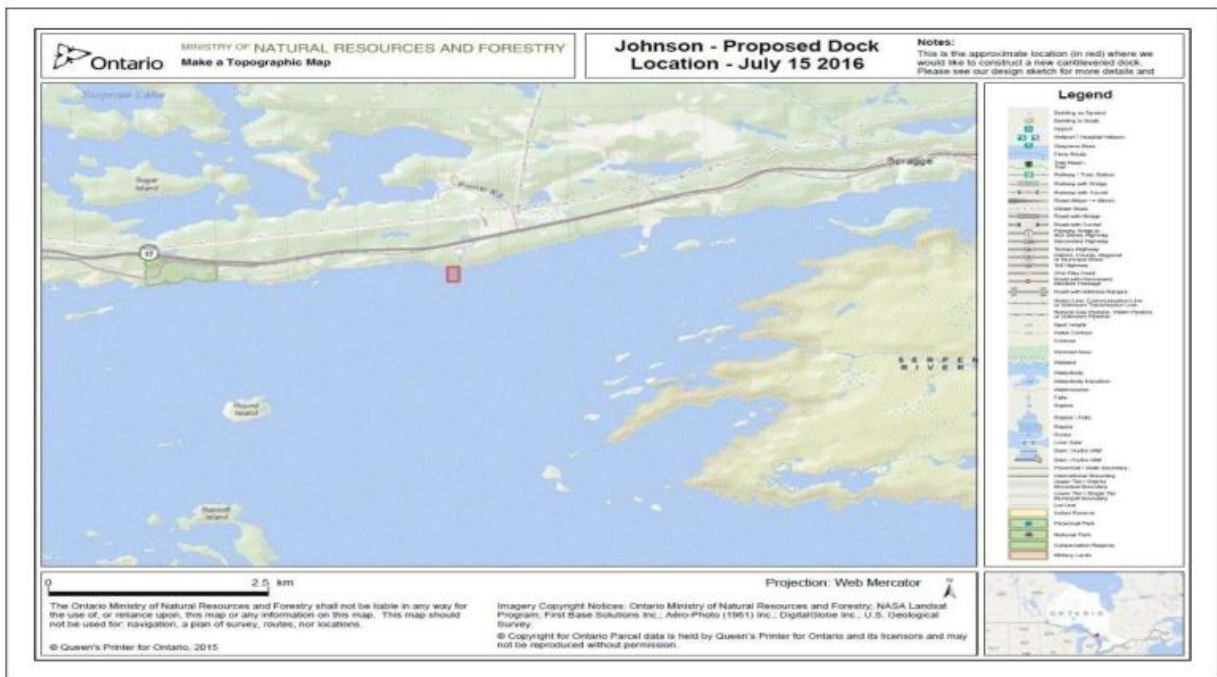
### 5. Reference Map and Photos

Your application cannot be processed without including this information

Please attach a photo of shoreline where work is proposed to be undertaken. These will help better process your application.

Please attach a reference map to this application with large extent view of your property and the surrounding area. Standard reference map templates can be accessed using our "make a topographic map" tool online.

- see map example below.



**Note: This form and any attachments can not exceed 9MB in size in total.**

- I acknowledge that MNRF will not process my application until all required attachments are submitted, by submitting this form without the attachments I understand it is my responsibility to submit them by email. \*

**6. Instructions for Erosion Control Structures Sketch and Project Description**

Please attach two sketches (bird's eye view and cross section). Include property lines, shoreland area that is seasonally inundated by water as well as the proposed structure dimensions. Please ensure that you sign and date each sketch submitted with your application. See examples below.

- I acknowledge that MNRF will not process my application until all required attachments are submitted, by submitting this form without the attachments I understand it is my responsibility to submit them by email. \*

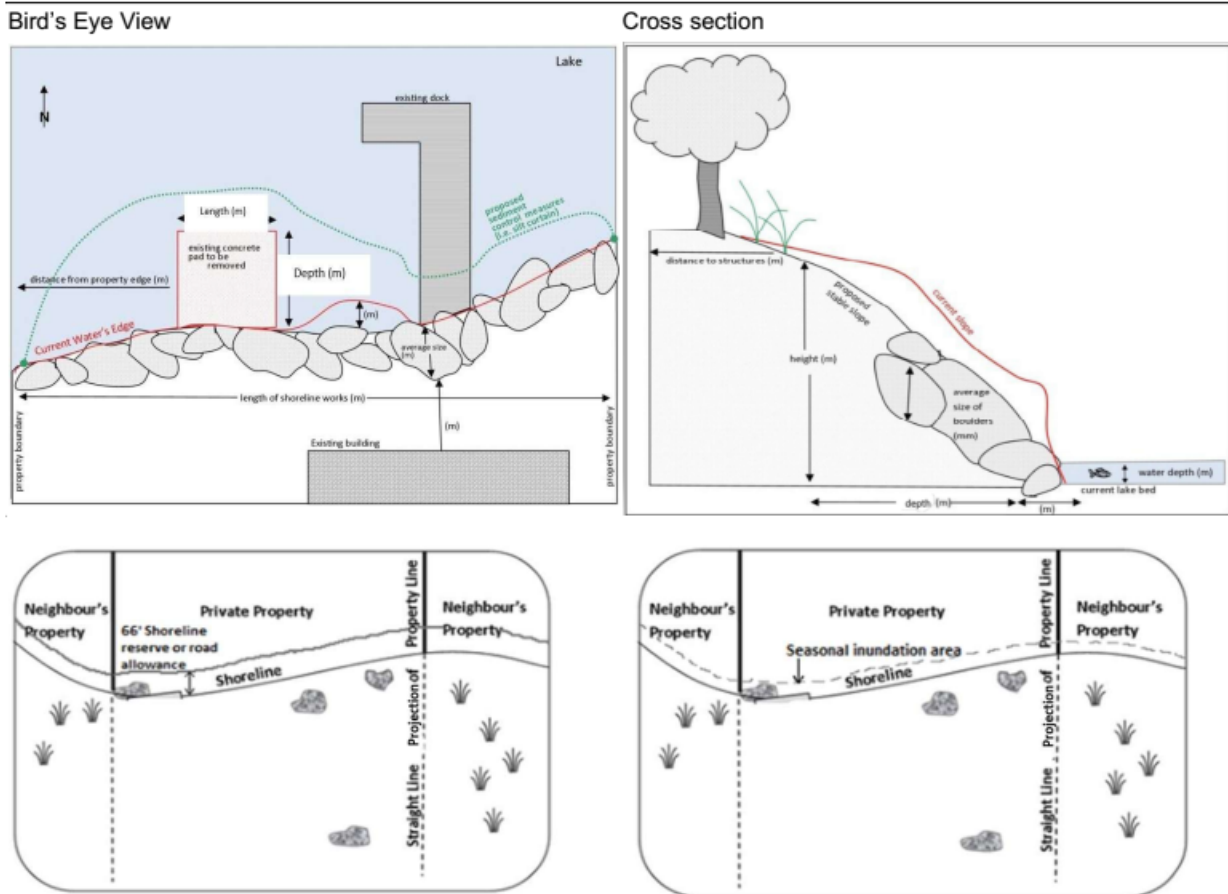


Figure 1: Example of where a property abuts a Crown shoreline reserve or road allowance.

Figure 2: Example of where a property is owned to the water's edge but subject to seasonal inundation (shore lands).

For proposed projects involving fill placement (i.e. new erosion control structures, shoreline filling and/or stabilization), the following items must be included \*

- detailed cross section information with measurements
- detailed plan view (bird's eye) with measurements
- Proposed materials (i.e. Rounded granite boulders)
- Sediment and erosion control measures
- Details regarding construction techniques / equipment

**7. Attestations**

- I will place the proposed structure or works directly in front of work permit applicant lands and within the straight line projection of the boundaries with neighbouring properties. (see Fig.1 and 2 above) \*
- The proposed structure or works will not adversely impact neighbouring properties. I have notified immediate neighbouring property owners about the proposed structure or works. No comments were received or comments received are as follows: \*
- Where the proposed structure or works will be placed entirely or partially on lands that form part of a municipal road allowance, all required approvals or consents from the municipality have been obtained. \*

- The land upon which the proposed structure or works is to be located is not subject to any contravention of the *Public Lands Act* or any permits or approvals issued thereunder. The proposed structure or works will not contravene any previously issued approval or authorization. \*
- The proposed structure or works run parallel to the water's edge at a distance that is the minimum distance required to protect the waterfront property, or the abutting unopened road allowance or strip of public lands, as the case may be, from erosion. \*
- I acknowledge that the issuance of any authorization under the *Public Lands Act* in respect of the proposed structure or works does not relieve me or any one doing work on my behalf from complying with any other applicable requirements of law in respect of the proposed structure or works, including without limitation construction activities (e.g. *Endangered Species Act*, *Building Code Act*). The responsibility of determining any such requirements and of obtaining any other required authorizations lies solely with me as the applicant. \*

The construction or placement of the proposed structure complies with the following and I will provide supporting documentation as it relates to the attestations below, should it be requested:

(Please check only one from options a) or b) below) \*

- a) Any applicable Municipal Official Plan and zoning by-laws
- b) The structure will be placed outside of organized municipal boundaries.
  
- a) All applicable requirements under the *Conservation Authorities Act* (Ontario)
- b) The structure will be placed outside of conservation authority boundaries.
  
- All applicable requirements under the *Navigation Protection Act* (Canada) \*
  
- All applicable requirements under the *Fisheries Act* (Canada) \*

---

## 8. Signature

---

- By clicking this box, I: \*
- certify that the information provided in this application is true, correct and complete.
- confirm that I am of the age of majority;
- agree that, if any authorization is issued under the *Public Lands Act* in respect of the subject matter of this application, I will comply with the terms and conditions of such authorization (or, if I am submitting this application on behalf of the corporation, the corporation agrees to comply with the terms and conditions of such authorization); and
- understand that I am affixing my electronic signature to this application, with the intent to be bound as an applicant (or, if I am submitting this application on behalf of a corporation, I represent that I have the authority to bind the corporation and the corporation agrees to be bound as applicant).





Version	Date
Rev. 1	22/04/23
Rev. 2	22/04/23
Rev. 3	22/04/23

Project: 10279  
 Client: 10279  
 Address: 10279, 10282 & 10288 Lakeshore Rd  
 Date: Sept 22, 2024



NOTES:  
 ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
 GEORTEXT MAPPING  
 ANY MATERIAL USED IN CONSTRUCTION OR BACKFILLING ACTIVITIES IS TO BE  
 IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO  
 BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE  
 PROTECTION WORKS UNLESS AUTHORIZED BY THE MPCA

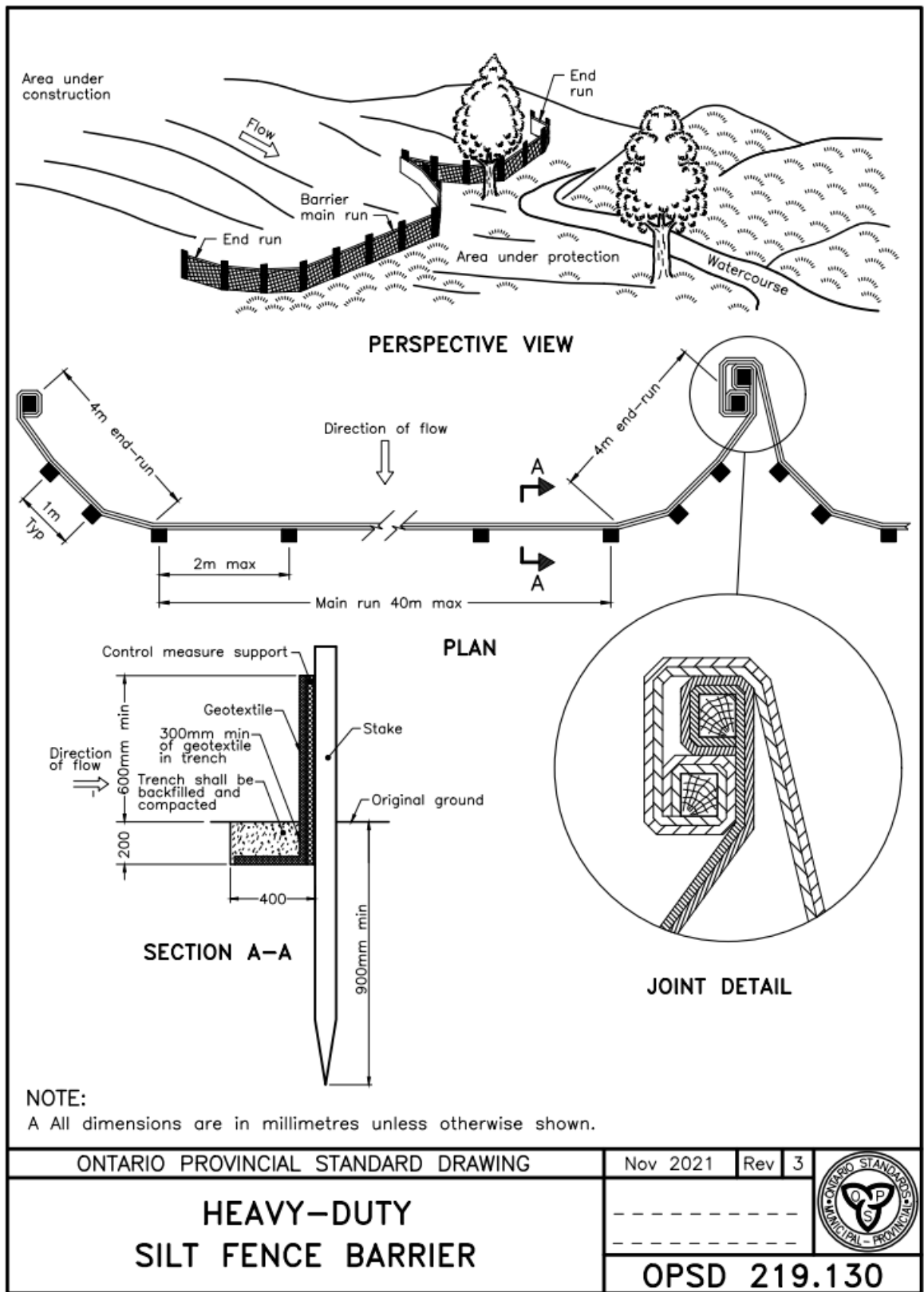
EXISTING SITE PLAN  
 SCALE: 1/16" = 1'-0"

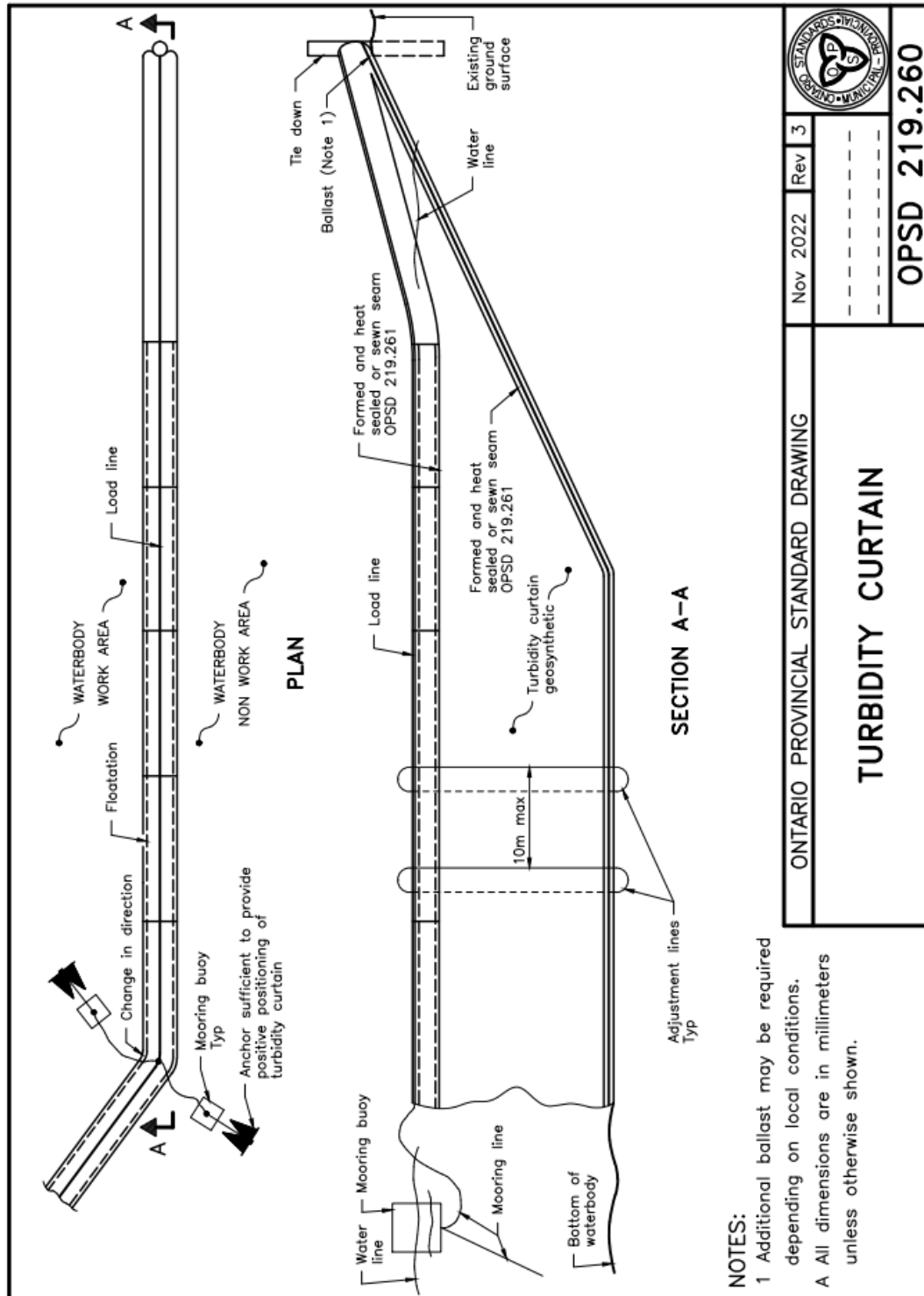








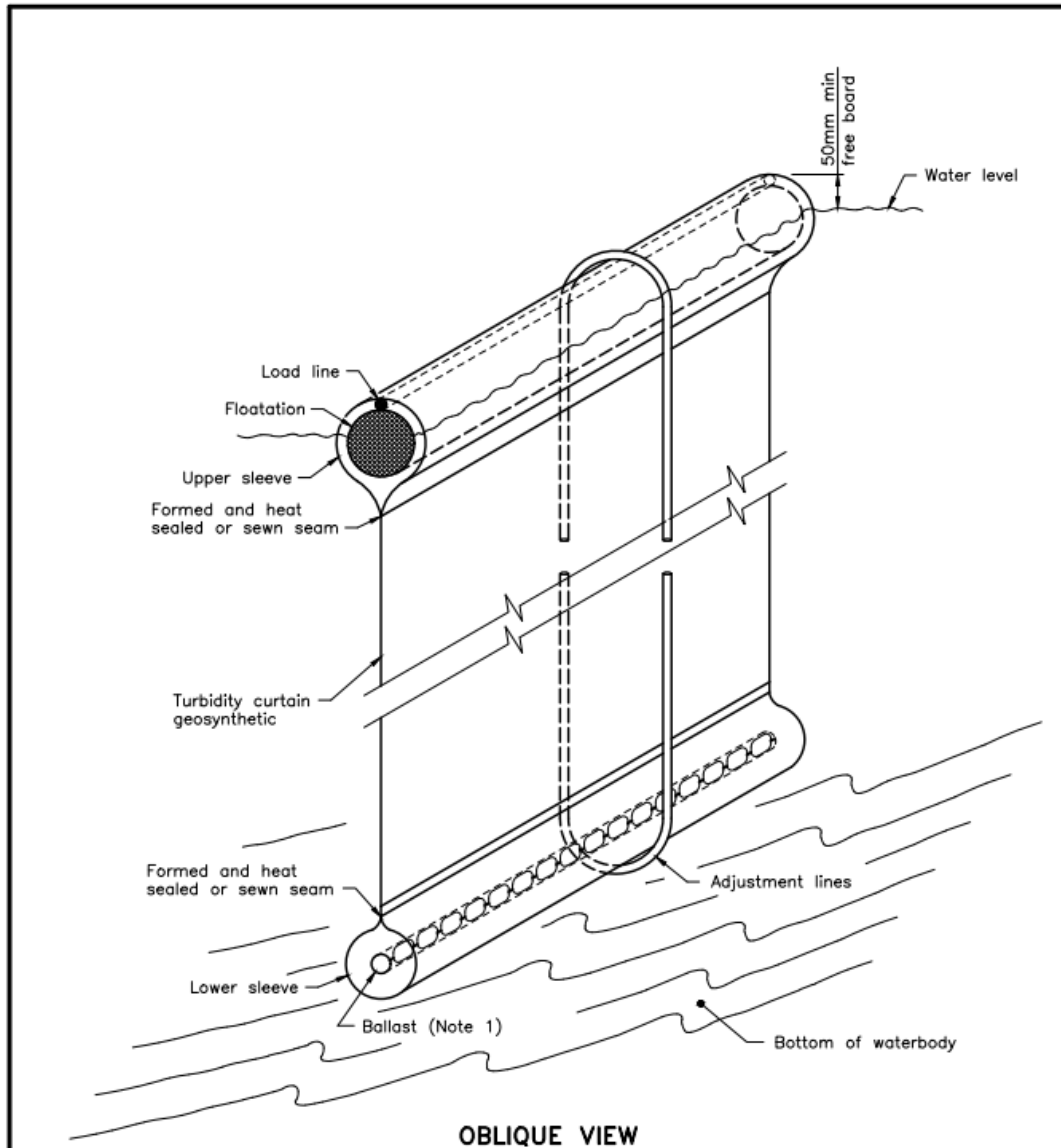




**NOTES:**

- 1 Additional ballast may be required depending on local conditions.
- A All dimensions are in millimeters unless otherwise shown.

	
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2022 Rev 3
<h2 style="margin: 0;">TURBIDITY CURTAIN</h2>	
<b>OPSD 219.260</b>	



**NOTES:**

- 1 Additional ballast may be required depending on local conditions.
- A All dimensions are in millimeters.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2022	Rev 3	
<b>TURBIDITY CURTAIN</b>	-----		
SEAM DETAIL	<b>OPSD 219.261</b>		

**PATTERSON ENGINEERING**  
**Shoreline Photo Log**



10288 Lakeshore Road,  
Wainfleet, Ontario  
L3K 5V4



**1.0 Drone Photo Log – March 6, 2024**



Figure 1 – Oblique aerial of the existing residence and shoreline conditions, looking north.



Figure 2 – Oblique aerial of the existing shoreline protection at the subject and east neighbouring properties, looking north.

- 2 -



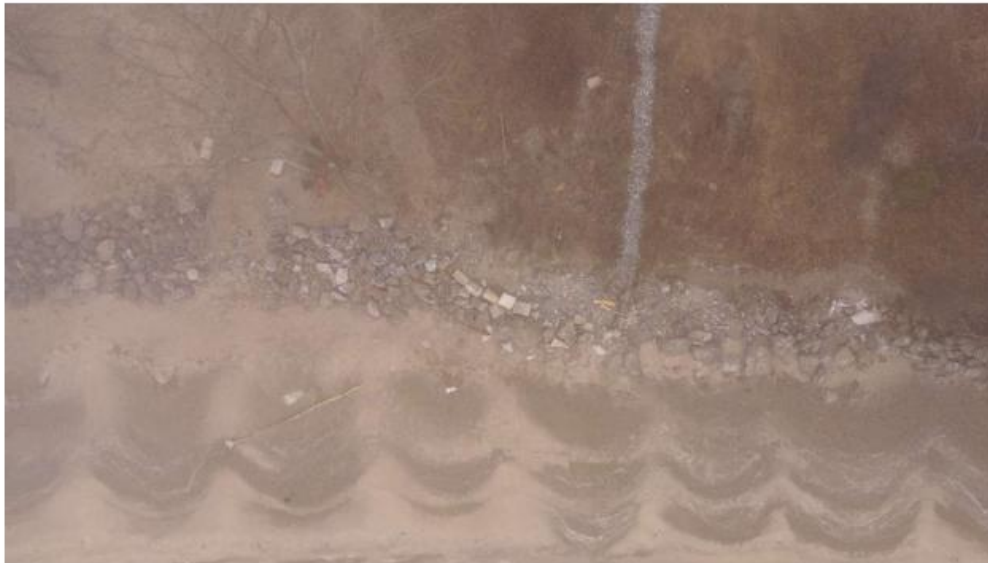


Figure 3 – Aerial showing the existing shoreline conditions of the subject property.



Figure 4 – Existing shoreline protection at the subject property.



Figure 5 – Existing shoreline protection at the east neighbouring property.

**2.0 Photo Log – March 6, 2024**



Figure 6 – Existing shoreline protection, looking east.



Figure 7 - Existing shoreline protection, looking west.



Figure 8 - Existing shoreline protection and drainage, looking north.



Figure 9 – Existing shoreline conditions, looking west.

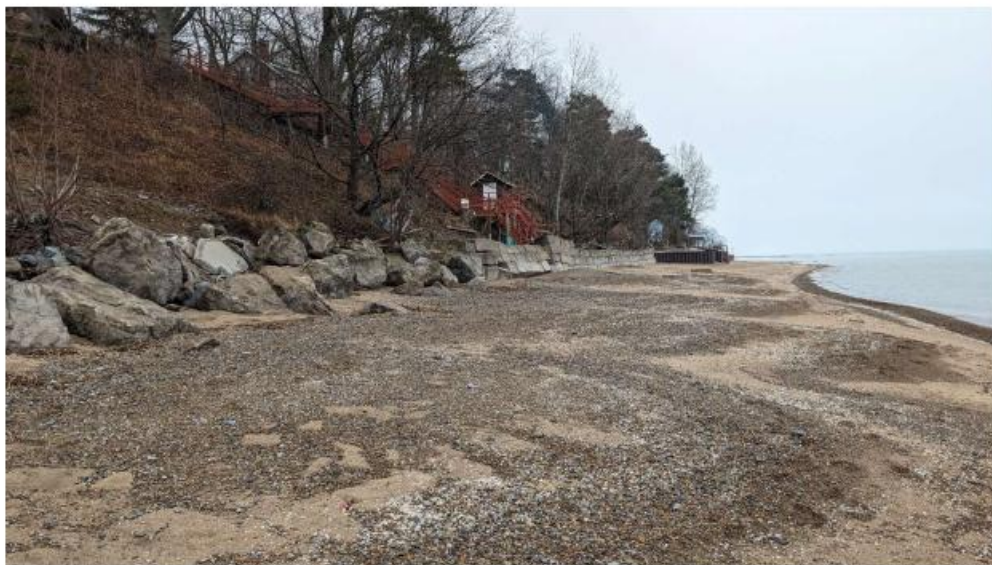


Figure 10 - Existing shoreline conditions, looking east.



Figure 11 – Existing shoreline protection at the subject and east neighbouring property, looking north-east.



Figure 12 – Existing shoreline protection at the subject property, looking north-west.

ANNEX 9: N.P.C.A. PERMIT NO. 202401479 DATED SEPTEMBER 26, 2025, FOR WORK TO BE UNDERTAKEN AT 10288 LAKESHORE ROAD IN THE MUNICIPALITY OF WAINFLEET.



3350 Merrittville Hwy. Unit 9  
Thorold Ontario L2V 4Y6  
905.788.3135 | info@npca.ca | npca.ca

September 26, 2025

**File Number PLPER202401479**

Rob McDowell  
c/o Chris Patterson  
5593 Eleventh Line  
Merlin, ON N0P 1W0

Dear Chris Patterson:

**SUBJECT: N.P.C.A. PERMIT NO. 202401479 DATED SEPTEMBER 26, 2025 FOR WORK TO BE UNDERTAKEN AT 10288 LAKESHORE ROAD IN THE MUNICIPALITY OF WAINFLEET.**

Enclosed with this letter is a Permit issued by the Niagara Peninsula Conservation Authority (the "NPCA").

You are responsible to read and understand all of the limitations, terms and conditions that govern your Permit. If necessary, you should obtain whatever assistance and advice you may need to ensure your full compliance with the terms and conditions of the Permit.

If you wish to make any changes to the scope, nature or location of the work authorized by your Permit, you must first notify the NPCA to ensure that no further approvals or amendments to the Permit are required.

Kindly note that this Permit has been issued by the NPCA pursuant to the *Conservation Authorities Act* and Ontario Regulation 41/24, only. It does not relieve you from the need to comply with all other applicable federal, provincial or municipal statutes, regulations or by-laws, and the issuance of this Permit will not be a defense if you breach any other law or regulation that may apply to the work.

Should you have any questions regarding this Permit please contact Kartiki Sharma, Watershed Planner at (905) 788-3135 ext. 278.

Yours truly,

David Deluce MCIP, RPP  
Director, Planning & Development  
Niagara Peninsula Conservation Authority

Prepared by:

Kartiki Sharma  
Watershed Planner  
Niagara Peninsula Conservation Authority



3350 Merrittville Hwy. Unit 9  
 Thorold Ontario L2V 4Y6  
 905.788.3135 | info@npca.ca | npca.ca

## NPCA PERMIT NO. 202401479

This Permit is issued pursuant to s. 28.1 of the *Conservation Authorities Act, R.S.O. 1990, c. C.27* and *O. Reg. 41/24*.

### IMPORTANT (PLEASE READ)

The permission granted for development pursuant to this Permit is limited to the Permitted Works as stated in this Permit and is subject to compliance by the permit holder with the following:

- a) the provisions of **Ontario Regulation 41/24** (*Prohibited Activities, Exemptions and Permits*);
- b) the **General Terms & Conditions** set out herein; and
- c) such **Specific Terms & Conditions** as may be attached in a Schedule appended hereto.

This Permit is non-transferrable, applies only for the purpose of undertaking the Permitted Works at the Site, and remains in effect only for the period of validity stated. Any variation to the terms of this Permit must receive prior written approval from the NPCA in order to be effective,

Permit holder ("**Permittee**"):

Name of Permittee: Rob McDowell c/o Chris Patterson

Mailing Address of Permittee: 5593 Eleventh Line, Merlin, ON N0P 1W0

Telephone No. of Permittee: 226-346-1350 Email Address of Permittee: cpatterson@pattersonengineering.ca

Location ("**Site**"):

Location of Permitted Works: 10288 Lakeshore Road

Name of Municipality: Wainfleet

Period of validity (unless cancelled or extended by the NPCA in writing):

Permit Start Date: September 26, 2025

Permit Expiration Date: September 26, 2027




3350 Merrittville Hwy. Unit 9  
 Thorold Ontario L2V 4Y6  
 905.788.3135 | info@npca.ca | npc.ca

Permitted work ("**Permitted Works**"):

The Permitted Works are works undertaken for the purpose of:  Installation of Shore Protection
and which works are in conformity with the application of the Permittee dated:  May 14, 2024
and which works are in accordance with the NPCA-stamped drawings here listed:  Drawing Set, prepared by Patterson Engineering, dated 22/04/2024, last revised 12/09/2025.

Permit issued by (not valid unless signed by authorized signatory):

Place of Issue:  <b>City of Thorold, Ontario.</b>	C.A.O./Secretary-Treasurer or Director, Planning and Development  
Issuing Authority:  <b>Niagara Peninsula Conservation Authority</b>	Date (DD/MM/YYYY):  26/09/2025

**Note:** This Permit includes the General Terms & Conditions (attached hereto) and any Specific Terms & Conditions required by the NPCA and contained in a schedule hereto. This Permit also incorporates by reference any documents identified in the preceding sections.



3350 Merrittville Hwy. Unit 9  
Thorold Ontario L2V 4Y6  
905.788.3135 | info@npca.ca | npca.ca

## NPCA PERMIT NO. 202401479

### GENERAL TERMS & CONDITIONS

1. **Limited effect of Permit** The issuance of this Permit by the Niagara Peninsula Conservation Authority ("NPCA") indicates only that the Permitted Works are authorized by the NPCA in accordance with the *Conservation Authorities Act* and Ontario Reg. 41/24. The work permitted by the NPCA may also require the Permittee to obtain additional authorizations, approvals, permits, consents or agreements from other governmental agencies and in certain cases, private persons whose legal rights and interests may be impacted by the work. The Permittee is warned that a failure to obtain such other approvals or permissions may expose the Permittee to prosecution by other regulatory bodies or to civil proceedings instituted by private persons notwithstanding the issuance of this Permit.
2. **Indemnity in the event of civil proceedings related to the permitted work** In the event of civil proceedings being instated by a third party where the NPCA is named as a party by reason of having approved the permitted work or development, the Permittee, on behalf of itself and its agents and contractors, jointly and severally agrees to fully indemnify and hold harmless the NPCA and its directors, officers, staff, servants and agents, which indemnity shall include on a full indemnity basis their reasonable legal fees and costs, of and from any and all claims, demands, losses, causes of action, damage, lawsuits, judgments, of whatever kind and nature, that arise out of, in connection with, or by reason of the permitted work or development.
3. **Notices required to be given** Referencing the NPCA Permit Number shown at the top of this Permit, and within the time-frames stated below, the Permittee shall advise the NPCA by email to [permits@npca.ca](mailto:permits@npca.ca) of the following events:
  - a. **Upon commencement** The Permittee shall give notice of its intention to commence work at the Site on a particular date by notifying the NPCA not less than one (1) full business day (business days do not include weekends or statutory holidays) prior to commencing the permitted work;
  - b. **Upon completion** The Permittee shall give notice of the date on which the permitted work was completed by notifying the NPCA not more than ten (10) business days following the completion of the permitted work; and
  - c. **Upon receipt of a complaint** Within five (5) business days of receiving a complaint relating in any way to the permitted work, the Permittee shall notify the NPCA of the complaint and provide the NPCA with such particulars of the complainant and the complaint as the NPCA may request, including any action which the Permittee has taken or proposes to take with regard to the complaint.



3350 Merrittville Hwy. Unit 9  
Thorold Ontario L2V 4Y6  
905.788.3135 | info@npca.ca | npca.ca

4. **Entry upon lands** The Permittee shall grant entry to representatives of the NPCA onto lands and buildings at the Site at all times during daylight hours that such entry is requested, in order for the NPCA to make such surveys, examinations, investigations, inspections or inquiries as the NPCA and its representatives may consider necessary.
5. **Permit to be kept at the Site** The Permittee shall keep available at the Site this Permit, or else a true copy of same, including both these General Terms and Conditions and any Special Terms and Conditions appended hereto. The person in charge of the work at the Site shall produce and show this Permit (or true copy thereof) to any NPCA Officer when so requested.
6. **Offences** Work carried out in contravention of this Permit, including any condition attached hereto, constitutes an offence under the *Conservation Authorities Act* and may lead to charges being laid against the Permittee by the NPCA. The Permittee is warned that upon conviction of an offence under the *Conservation Authorities Act*, the Permittee and its agents and contractors may be liable to a substantial fine or to imprisonment, or both.
7. **Cancellation** The NPCA may cancel this Permit or add to or amend any of the conditions included herewith, at any time and without prior notice, if the NPCA determines that:
  - a. the works are not in conformity with the Permit;
  - b. the information presented to obtain the Permit was materially false or misleading; or
  - c. the works or method of construction used in the work are having or will have detrimental impacts on the environment.
8. **Terms and conditions forming part of Permit** These General Terms and Conditions, together with any Specific Terms and Conditions imposed by the NPCA as a condition of permitting the work, are an integral part of the Permit and all parts thereof shall be deemed to constitute one document.



3350 Merrittville Hwy. Unit 9  
Thorold Ontario L2V 4Y6  
905.788.3135 | info@npca.ca | npca.ca

## **NPCA PERMIT NO. 202401479**

### **SCHEDULE – SPECIFIC TERMS & CONDITIONS**

In addition to the General Terms and Conditions, the following Specific Terms and Conditions apply to this Permit:

1. Construction shall be limited to the limit of work area depicted on the approved drawing and clearly identified on site (preferably using visible construction fence) prior to any site alteration. No equipment, machinery or materials shall extend beyond the limit of work area into any other sections of the shoreline hazard.
2. No fill or alteration of the natural vegetation, or development is to take place within any other section of the shoreline hazard that exists on the property, other than what is currently proposed.
3. All areas of disturbed soil shall be stabilized and re-vegetated with an appropriate ground cover immediately upon completion of work and restored to a pre-disturbed state or better. All re-vegetated areas shall be monitored on a regular basis (weekly) to ensure that vegetation has established successfully, and re-vegetating shall be conducted during the growing season as appropriate to ensure vegetative cover of disturbed areas.
4. Sediment and erosion control measures shall be installed as needed to ensure no migration of sediment into the watercourse/wetland/other feature. Sediment and erosion controls shall be inspected regularly and maintained in good working order throughout the construction period and until all areas of exposed soil have been stabilized. If the sediment and erosion control measures are not functioning properly, no further work shall continue until the sediment and/or erosion problem is addressed.
5. All mitigation measures as outlined on the approved drawings must be implemented and adhered to for this project.
6. All works and access shall be conducted on lands owned by the applicant. Should the applicant require work on or access lands not owned by the applicant, written permission shall be submitted to the NPCA for review and approval.
7. Upon completion of the shore protection, NPCA will require a letter from Patterson Engineering that the shore protection has been installed as designed and is in good repair.
8. As per NPCA Policies, a 5-metre-wide access corridor to and along the shoreline protection works for equipment and machinery must be provided in order to undertake future maintenance and repair.



3350 Merrittville Hwy. Unit 9  
Thorold Ontario L2V 4Y6  
905.788.3135 | [info@npca.ca](mailto:info@npca.ca) | [npca.ca](http://npca.ca)

9. Vehicles and equipment should not enter the water and should be kept away from the slope to prevent destabilization of the slope and damage to the existing shore protection.

#### **Other Agencies Notices**

10. In-water works are subject to the *Fisheries Act*, which is administered by the Department of Fisheries and Oceans (DFO). To determine if your project requires approval under the *Fisheries Act*, please contact DFO at 1-855-852-8320 or by email at [fisheriesprotection@dfo-mpo.gc.ca](mailto:fisheriesprotection@dfo-mpo.gc.ca).

11. This area may contain Species at Risk, which are protected under the *Endangered Species Act*. To find out if your project requires approval under the *Endangered Species Act*, please contact the Ontario Ministry of Environment, Conservation and Parks at [SAROntario@ontario.ca](mailto:SAROntario@ontario.ca).

12. This watercourse may be subject to in-water timing restrictions to protect fish and fish habitat. To find out about any in-water timing restrictions, please contact the Ministry of Natural Resources and Forestry Vineland Office at 905-562-1175.

13. Vegetation removal is subject to the *Migratory Birds Convention Act*. To find out about any restrictions to your project, please contact Environment Canada at [ec.enviroinfo.ec@canada.ca](mailto:ec.enviroinfo.ec@canada.ca) or call 1-800-668-6767.



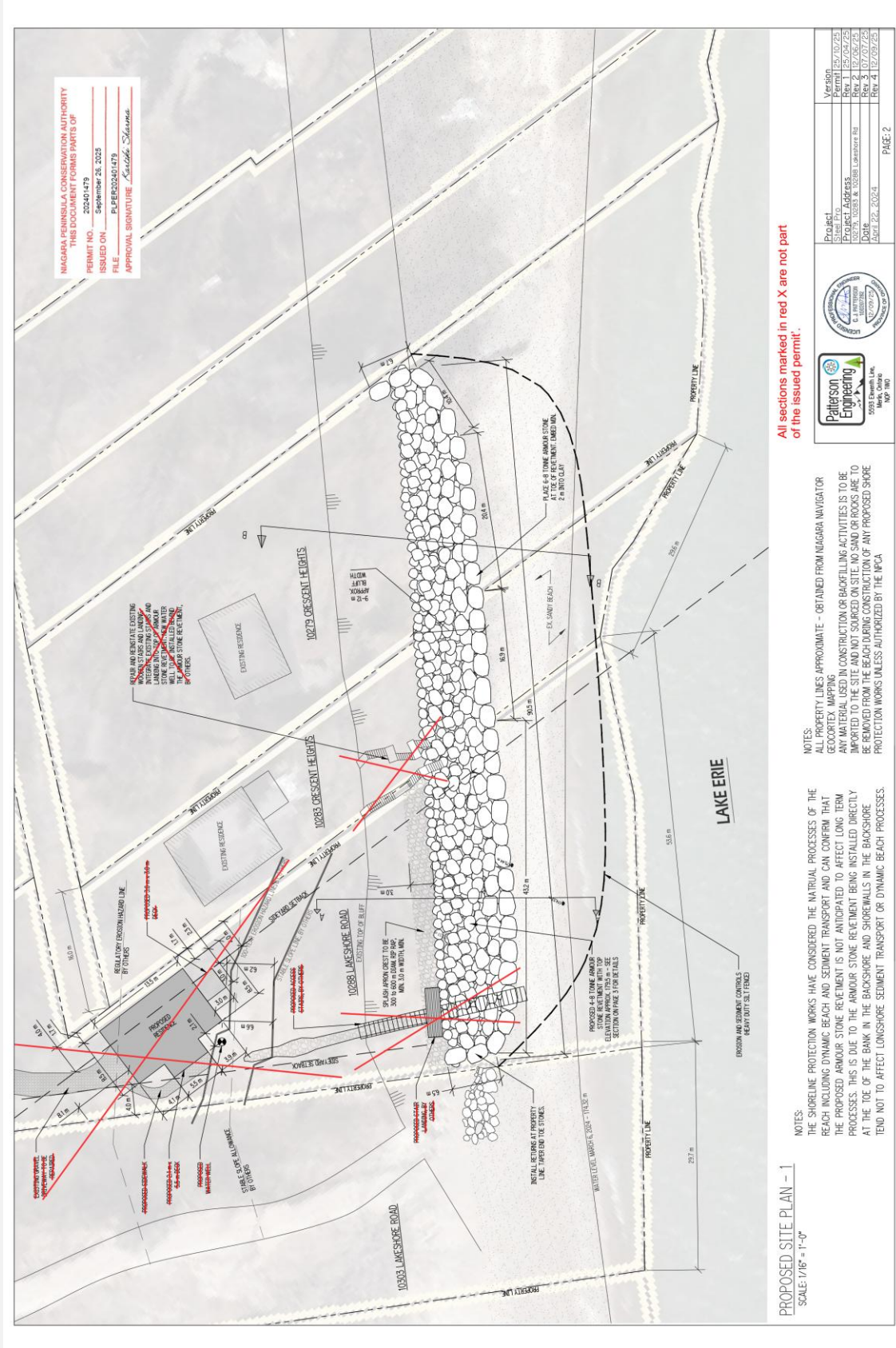


Project	Version
Project Address	Rev. 1 25/07/24
DOB	Rev. 2 12/08/24
DATE	Rev. 3 12/08/24
DATE	Rev. 4 12/08/24
DATE	Rev. 5 12/08/24
DATE	Rev. 6 12/08/24
DATE	Rev. 7 12/08/24
DATE	Rev. 8 12/08/24
DATE	Rev. 9 12/08/24
DATE	Rev. 10 12/08/24
DATE	Rev. 11 12/08/24
DATE	Rev. 12 12/08/24
DATE	Rev. 13 12/08/24
DATE	Rev. 14 12/08/24
DATE	Rev. 15 12/08/24
DATE	Rev. 16 12/08/24
DATE	Rev. 17 12/08/24
DATE	Rev. 18 12/08/24
DATE	Rev. 19 12/08/24
DATE	Rev. 20 12/08/24
DATE	Rev. 21 12/08/24
DATE	Rev. 22 12/08/24
DATE	Rev. 23 12/08/24
DATE	Rev. 24 12/08/24
DATE	Rev. 25 12/08/24
DATE	Rev. 26 12/08/24
DATE	Rev. 27 12/08/24
DATE	Rev. 28 12/08/24
DATE	Rev. 29 12/08/24
DATE	Rev. 30 12/08/24
DATE	Rev. 31 12/08/24
DATE	Rev. 32 12/08/24
DATE	Rev. 33 12/08/24
DATE	Rev. 34 12/08/24
DATE	Rev. 35 12/08/24
DATE	Rev. 36 12/08/24
DATE	Rev. 37 12/08/24
DATE	Rev. 38 12/08/24
DATE	Rev. 39 12/08/24
DATE	Rev. 40 12/08/24
DATE	Rev. 41 12/08/24
DATE	Rev. 42 12/08/24
DATE	Rev. 43 12/08/24
DATE	Rev. 44 12/08/24
DATE	Rev. 45 12/08/24
DATE	Rev. 46 12/08/24
DATE	Rev. 47 12/08/24
DATE	Rev. 48 12/08/24
DATE	Rev. 49 12/08/24
DATE	Rev. 50 12/08/24
DATE	Rev. 51 12/08/24
DATE	Rev. 52 12/08/24
DATE	Rev. 53 12/08/24
DATE	Rev. 54 12/08/24
DATE	Rev. 55 12/08/24
DATE	Rev. 56 12/08/24
DATE	Rev. 57 12/08/24
DATE	Rev. 58 12/08/24
DATE	Rev. 59 12/08/24
DATE	Rev. 60 12/08/24
DATE	Rev. 61 12/08/24
DATE	Rev. 62 12/08/24
DATE	Rev. 63 12/08/24
DATE	Rev. 64 12/08/24
DATE	Rev. 65 12/08/24
DATE	Rev. 66 12/08/24
DATE	Rev. 67 12/08/24
DATE	Rev. 68 12/08/24
DATE	Rev. 69 12/08/24
DATE	Rev. 70 12/08/24
DATE	Rev. 71 12/08/24
DATE	Rev. 72 12/08/24
DATE	Rev. 73 12/08/24
DATE	Rev. 74 12/08/24
DATE	Rev. 75 12/08/24
DATE	Rev. 76 12/08/24
DATE	Rev. 77 12/08/24
DATE	Rev. 78 12/08/24
DATE	Rev. 79 12/08/24
DATE	Rev. 80 12/08/24
DATE	Rev. 81 12/08/24
DATE	Rev. 82 12/08/24
DATE	Rev. 83 12/08/24
DATE	Rev. 84 12/08/24
DATE	Rev. 85 12/08/24
DATE	Rev. 86 12/08/24
DATE	Rev. 87 12/08/24
DATE	Rev. 88 12/08/24
DATE	Rev. 89 12/08/24
DATE	Rev. 90 12/08/24
DATE	Rev. 91 12/08/24
DATE	Rev. 92 12/08/24
DATE	Rev. 93 12/08/24
DATE	Rev. 94 12/08/24
DATE	Rev. 95 12/08/24
DATE	Rev. 96 12/08/24
DATE	Rev. 97 12/08/24
DATE	Rev. 98 12/08/24
DATE	Rev. 99 12/08/24
DATE	Rev. 100 12/08/24

NOTES:  
 ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
 ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
 GEOREFERENCED MAPS  
 ANY MATERIAL USED IN CONSTRUCTION OR BACKFILLING ACTIVITIES IS TO BE  
 IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO  
 BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE  
 PROTECTION WORKS UNLESS AUTHORIZED BY THE INCA

NIAGARA PENINSULA CONSERVATION AUTHORITY  
 THIS DOCUMENT FORMS PARTS OF  
 PERMIT NO. 202401479  
 ISSUED ON September 26, 2025  
 FILE # P1PR202401479  
 APPROVAL SIGNATURE *Kathleen Chalmers*

EXISTING SITE PLAN  
 SCALE: 1/8" = 1'-0"



NIAGARA PENINSULA CONSERVATION AUTHORITY  
 THIS DOCUMENT FORMS PART OF  
 PERMIT NO. 20240-479  
 ISSUED ON September 28, 2025  
 FILE P/PEE/202401479  
 APPROVAL SIGNATURE *Kathleen Williams*

All sections marked in red X are not part of the issued permit.

NOTES:  
 ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR GEOCONTEXT MAPPING  
 ANY MATERIAL USED IN CONSTRUCTION OR BACKFILLING ACTIVITIES IS TO BE IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE PROTECTION WORKS UNLESS AUTHORIZED BY THE NPCA

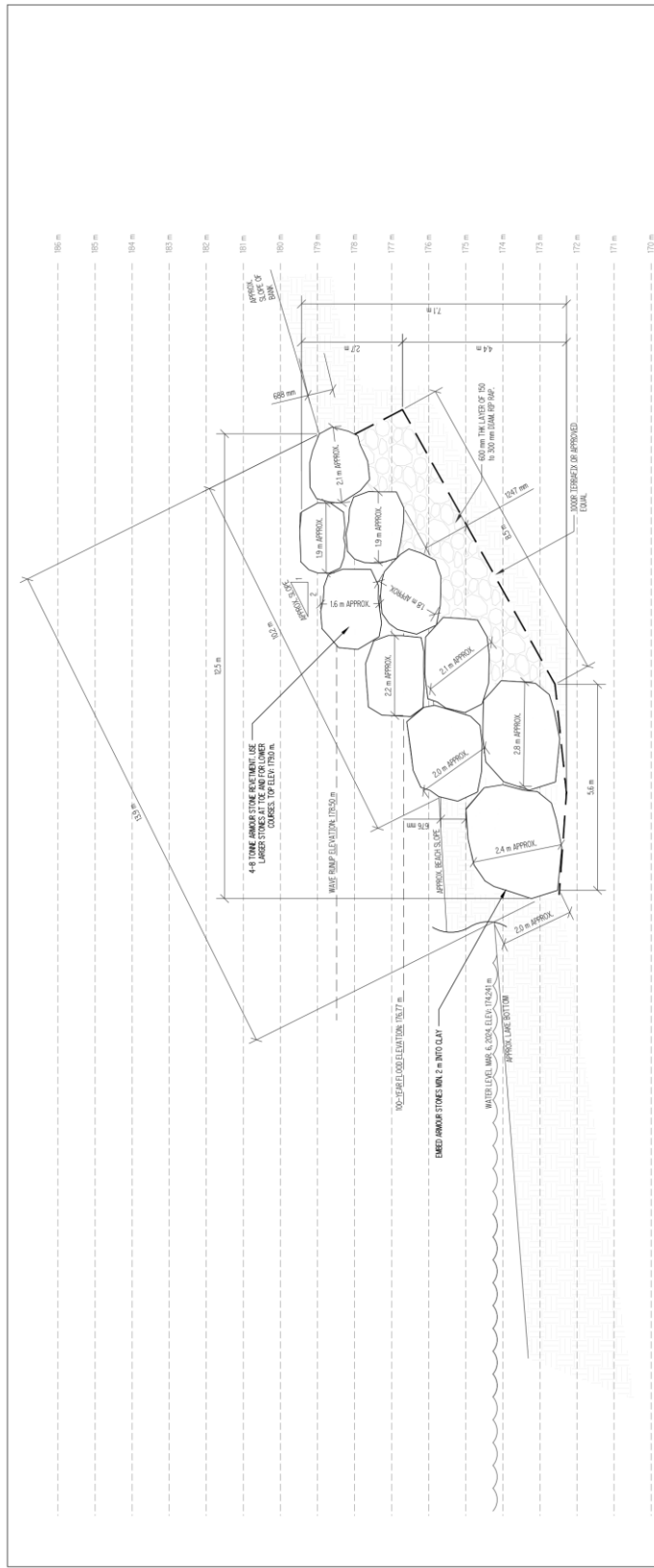
NOTES:  
 THE SHORELINE PROTECTION WORKS HAVE CONSIDERED THE NATURAL PROCESSES OF THE REACH INCLUDING DYNAMIC BEACH AND SEDIMENT TRANSPORT AND CAN CONFIRM THAT THE PROPOSED ARMOUR STONE REINEMENT IS NOT ANTICIPATED TO AFFECT LONG TERM PROCESSES. THIS IS DUE TO THE ARMOUR STONE REINEMENT BEING INSTALLED DIRECTLY AT THE TOE OF THE BANK IN THE BACKSHORE AND SHOREWALLS IN THE BACKSHORE TEND NOT TO AFFECT LONGSHORE SEDIMENT TRANSPORT OR DYNAMIC BEACH PROCESSES.

PROPOSED SITE PLAN - 1  
 SCALE: 1/16" = 1'-0"

Project	Version
Project Address	Rev. 1 12/07/2023
10279, 10283 & 10288 Lakeshore Rd	Rev. 2 02/04/25
Date	Rev. 3 07/02/25
DATE PLOTTED	Rev. 4 12/02/25
PAGE 2	







PROPOSED SECTION B-B  
SCALE: 1/4" = 1'-0"

NIAGARA PENINSULA CONSERVATION AUTHORITY  
THIS DOCUMENT FORMS PARTS OF  
PERMIT NO. 202401479  
ISSUED ON September 26, 2023  
FILE PLPER202401479  
APPROVAL SIGNATURE *Karlheinz Steinhilber*

NOTES:  
ALL PROPERTY LINES APPROXIMATE - OBTAINED FROM NIAGARA NAVIGATOR  
GEOCONTEXT MAPPING  
ANY MATERIAL USED IN CONSTRUCTION OR BACKFILLING ACTIVITIES IS TO BE  
IMPORTED TO THE SITE AND NOT SOURCED ON SITE. NO SAND OR ROCKS ARE TO  
BE REMOVED FROM THE BEACH DURING CONSTRUCTION OF ANY PROPOSED SHORE  
PROTECTION WORKS UNLESS AUTHORIZED BY THE INPCA



Project	Version
Project Address	Rev. 1 25/07/23
DOB	Rev. 2 12/08/23
DATE	Rev. 3 12/07/23
DATE	Rev. 4 12/07/23
DATE	Rev. 1 12/07/23

PAGE: 4

## ANNEX 10: PRE-CONSULTATION AGREEMENT

**Record of Pre-Consultation**

Township of Wainfleet  
 Planning Department  
 31940 Highway #3  
 Wainfleet, ON L0S 1V0  
 Tel: 905-899-3463 Fax: 905-899-2340



A pre-consultation meeting is required prior to the acceptance of an application for Official Plan Amendment, Zoning Bylaw Amendment, Draft Plan of Subdivision or Condominium, Site Plan Control, Severance or Easement. The pre-consultation meetings are hosted by the Planning Department and may include representatives from various Township Departments or external agencies as required.

The pre-consultation meeting allows the applicant and/or their representatives to present and discuss the development proposal with relevant staff and also provides staff the opportunity to clarify the application process, provide preliminary comments on the development proposal, identify key issues and the approvals that will be required and confirm the supporting information/materials that must be submitted with the application in order to be considered a complete application under the Planning Act.

**Pre-Consultation Meeting Date:** *Thursday, April 23, 2020*

**Please note that this meeting was held electronically via Zoom.**

PROPERTY INFORMATION			
Property Address: Vacant Lot	Roll Number: 271400000104200	Legal Description: Plan 59M-174, Lot 8	Lot Area:

PROPERTY OWNER/AGENT INFORMATION	
Name of Registered Owner: Robert McDowell	
Mailing Address: 928 Valleyview Road, Pittsburgh PA 15243 – 1022 USA	
Phone Number: 412-221-4453	Email Address: mcdorob@gmail.com
Name of Authorized Agent: Steven Rivers, South Coast Consulting	
Mailing Address:	
Phone Number: 905-733-8843	Email Address: steven.p.rivers@gmail.com

DESCRIPTION OF PROPOSED DEVELOPMENT		
<ul style="list-style-type: none"> <li>Proposed minor variance to permit the construction of a single detached dwelling</li> <li>Variances required for interior side yard setback (east side) and rear yard setback</li> </ul>		
<b>Application Type:</b>		
<input type="checkbox"/> Reg Official Plan Amendment	<input checked="" type="checkbox"/> Minor Variance	<input type="checkbox"/> Zoning Amendment
<input type="checkbox"/> Local Official Plan Amendment	<input type="checkbox"/> Consent (Severance)	<input type="checkbox"/> Site Plan Approval
<input type="checkbox"/> Draft Plan of Subdivision/Condo	<input type="checkbox"/> Holding Zone	<input type="checkbox"/> Other

PLANNING INFORMATION	
Regional Official Plan Designation	Rural Area
Conformity with Regional Official Plan land use designations and policies?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Subject to the requirements discussed below.
If no, what is the nature of the amendment needed?	N/a
Township Official Plan Designation	Lakeshore Residential w/ Hazard Lands & Environmental Conservation Area (ECA)
Conformity with Township Official Plan land use designations and policies?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown Subject to requirements discussed below.
If no, what is the nature of the amendment needed?	n/a
Township Zoning	Residential Lakeshore – RLS.C15-13h w/ Hazard Overlay  Exception 13h Zoning Provisions: <ul style="list-style-type: none"> <li>• Minimum landscaped area: 60%</li> <li>• All buildings or structures to be constructed on Lot 8 shall be constructed within the building apron as set forth on Map A-5b (Appendix A)</li> <li>• Minimum interior side yard abutting an attached garage with no rooms above: 2m and 5m for the other interior side yard</li> <li>• Minimum interior side yard in all other cases: 4m</li> <li>• Maximum height for a dwelling: 7.5m</li> <li>• Maximum lot coverage for accessory buildings: 93m2 provided the total lot coverage for all buildings and structures on the lot does not exceed the maximum lot coverage for the zone</li> </ul>
Conformity with Township Zoning?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Unknown
If no, what is the nature of the amendment needed?	Proposed minor variance for reductions to the interior side yard setback (east) and rear yard setback.
Is Site Plan Approval required?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

AGENCY COMMENTS	
Agency	Comments
Niagara Peninsula Conservation Authority (NPCA)	<ul style="list-style-type: none"> <li>- The subject property is partially within the NPCA Regulated Area as it is impacted by shoreline hazards.</li> <li>- To further consider the feasibility of development and/or site alteration on the subject property the NPCA will require:</li> <li>- 1. Confirmation of the location of the Stable Top of Slope undertaken by a qualified Geotechnical Engineer including all associated structural setbacks. The Geotechnical Engineer establishes the scope of work required to locate the Stable Top of Slope based on the nature, location and scope of the proposed development.</li> <li>- 2. Confirmation of the condition of the existing shore protection. Should the shore protection be substandard, new shore protection shall be designed by a qualified Coastal Engineer in order to adequately mitigate shoreline erosion and the dynamic beach hazard.</li> <li>- 3. Confirmation that adequate area exists to install an appropriate subsurface sewage disposal system. The NPCA would require that a 10 year old study be updated.</li> <li>- Additionally, it should be noted that NPCA Policy 5.25, New Habitable structures and Additions, state that new habitable buildings/structures are not permitted within the stable slope allowance or the dynamic beach hazard.</li> </ul>
Niagara Region – Planning & Development Services	<ul style="list-style-type: none"> <li>- The subject property is designated as Rural Area in the Regional Official Plan (ROP).</li> <li>- The Rural Area designation permits rural residential development and the Region notes that this is an existing lot of record.</li> <li>- The subject property is adjacent to Lake Erie and exhibits high potential for the finding of archaeological resources. As such, at minimum a Stage 1 Archaeological Assessment will be required to be submitted in support of the minor variance application. The study should address all areas of development and/or site alteration including the location of the dwelling, septic area and shorewall (if one is proposed).</li> <li>- The subject property also contains and is adjacent to portions of the Region's Core Natural Heritage System (CNHS) being Type 1 Fish Habitat (Lake Erie).</li> <li>- The subject property is also mapped as part of the 2019 Growth Plan's Natural Heritage System as the feature on and adjacent to the property is considered a Key Hydrologic and Key Natural Heritage Feature (KHF/KNHF) and as such the natural heritage policies identified in the Growth Plan apply.</li> <li>- The subject property is also identifies as a Groundwater Protection Area (HVA).</li> <li>- Growth Plan policies require a Natural Heritage Evaluation when development and/or site alteration is proposed within 120m of a KHF/KNHF and Regional policies require the completion of an Environmental Impact Study (EIS) when development and/or site alteration is proposed within 30m of Type 1 Fish Habitat.</li> <li>- Growth Plan policies also require that a 30m Vegetation Protection Zone (VPZ), as measured from the outside boundary of the Significant Valleyland/Fish Habitat, be established as natural, self-sustaining vegetation. Development and/or site alteration are not permitted within this KHF/KNHF or it's VPZ.</li> <li>- Since site alteration and development is proposed within 120m of the identified features, a scoped EIS should be developed consistent with Policy 7.B.2 of the ROP.</li> <li>- Terms of reference for the EIS should be submitted to the Region for review prior to commencement of the study.</li> <li>- Region also noted that the habitat of Fowler's Toad, a Provincially Endangered Species, is likely present on the subject property. Consistent with ROP Policy 7.B.1.3, significant habitat of threatened and endangered species is considered Environmental Protection Area (EPA) where</li> </ul>

Niagara Region – Planning & Development Services (cont'd)	development or site alteration is not permitted. The habitat requirements of threatened and endangered species must be defined in consultation with the Ministry of Environment, Conservation and Parks (MECP). Regional staff recommend that they be contacted early in the process. The MECP has established a one-window e-mail account for this purpose: <a href="mailto:SAROntario@ontario.ca">SAROntario@ontario.ca</a> . Regional Environmental Planning staff request a copy of any correspondence with the MECP as it relates to threatened and/or endangered species concerns.
Township of Wainfleet – Planning Department	<ul style="list-style-type: none"> <li>- Subject property is designated as Lakeshore Residential, Hazard Lands and Environmental Conservation Area under the Official Plan. Subject property is also within an Area of High Aquifer Vulnerability (HVA).</li> <li>- Subject property is zoned Residential Lakeshore – RLS.C15-13h with a Hazard Overlay in Zoning Bylaw 034-2014.</li> <li>- A single detached dwelling is a permitted use in the Lakeshore Residential designation and in the RLS zone subject to requirements (discussed below).</li> <li>- Hazard Lands designation requires development to generally be directed to areas outside of hazardous lands adjacent to Lake Erie – please see comments from the NPCA regarding the stable top of slope and requirement for the geotechnical study.</li> <li>- HVA requires a hydro-geological study to assess whether the development will have any negative impact on the quantity and quality of surface and ground water as well as other items listed in Official Plan Policy 4.2.5.</li> <li>- Development and/or site alteration within and on adjacent lands to an Environmental Conservation Area requires the completion of an Environmental Impact Study to assess whether or not the proposed development will have a negative impact on the feature.</li> <li>- Variances required include side yard setback, rear yard setback and building outside the building apron identified in Map A-5b (Appendix A).</li> <li>- Rear yard is measured from the dynamic beach hazard or from the shorewall, where one exists.</li> <li>- Township will require a planning brief that addresses how the application meets the four tests under Section 45 of the Planning Act.</li> </ul>
Township of Wainfleet – Building/Septic Department	- Did not attend, no comments received
Township of Wainfleet – Drainage Department	- Did not attend, no comments received
Township of Wainfleet – Operations/Roads Department	<ul style="list-style-type: none"> <li>- Did not attend, provided verbal comments to Planning Department</li> <li>- There appears to be an existing entrance to Lakeshore Road with a curb cut</li> <li>- If the proposed driveway is required to be widened or moved, then the Township will require an Entrance permit and the cost of the alterations to the curb will be at the property owner's expense. The property owner would be required to submit plans for the entrance and curb details with the application for Township approval. The property owner then hires a contractor to complete the work and the Township will inspect for compliance.</li> </ul>
Township of Wainfleet – Fire & Emergency Services	- Did not attend, no comments received
Other: Rob McDowell, Property Owner	<ul style="list-style-type: none"> <li>- Rob purchased the property in 2010 and a significant amount of due diligence was completed prior to purchasing – an engineering firm was hired to see if the property could support a structure and servicing was looked at</li> <li>- Held off on building initially as there was discussion about servicing coming along Lakeshore Road.</li> </ul>

<b>COMPLETE APPLICATION REQUIREMENTS</b>						
Required information and studies to be submitted with the application(s). Studies identified with an asterisk* will likely require a peer review at the cost of the developer.						
Local	Region	NPCA	Reports, Studies, Plans (See Notes for additional details)	No. of Copies		Notes
				Elect Digital	Paper	
X			Planning Justification Report	1	3	Planning Brief to address 4 tests under S. 45
			Draft Plan of Subdivision			
			Draft Local Official Plan Amendment			
			Land Use/Market Needs*			
	X		Archaeology Assessment	1	2	
			Cultural Heritage Impact Assessment*			
X	X		Environmental Impact Study	1	3	
			Environmental Planning Study/ Sub-Watershed Study			
			Tree Inventory Preservation Plan			
			Floodplain and Hazard Lands Boundary Plan			
			Environmental Site Assessment			
			Air Quality/Noise & Vibration Study*			
			Minimum Distance Separation I & II			
			Sensitive Land Use Report (D-series)			
X		X	Slope Stability Report / Geotechnical Study	1	3	
		X	Storm water Management/ <b>Lot Grading</b>	1	3	Grading/Drainage Plan
			Transportation Impact Study/Parking Impact Analysis			
X			Hydro geological Study/Private Servicing Plans*	1	3	
			Soil report			
X	X	X	Reference Plan/Concept Drawing			
			Other:			

**APPLICATION & REVIEW FEES**

Below is the list of fees required at time of submission of the complete application. Please note that the fees listed are the current as of the date of the pre-consultation meeting and may change from time to time. The applicant should contact the appropriate agencies to confirm fees prior to submission of the application.

Application	Wainfleet	Niagara Region	NPCA	Comments
Regional Official Plan Amendment				
Local Official Plan Amendment				
Zoning Bylaw Amendment				
Temporary Use Bylaw				
Removal of Holding Symbol				
Plan of Subdivision/Condominium				
Development Agreement				
Site Plan Approval				
Consent				
Minor Variance	\$1,193	\$420	\$410	
Township Septic Review Fee				
Floodplain Mapping Review				
Stormwater Management Review				
Environmental Impact Study (EIS) Review		\$2,245		See Note 1
Other: Geotechnical Study Review			\$505	
Other: Grading & Drainage (Minor)			\$380	

**Notes:**

Note 1 (Region Fees): A fee of \$400 is due upon submission of the terms of reference for the EIS. This will be deducted from the Major EIS review fee once the EIS is submitted for a full review.

<b>RECORD OF PRE-CONSULTATION CLAUSES</b>	
Mutual Agreement	The purpose of this document is to identify the information required to commence processing and evaluating an application as set out in the Planning Act. This pre-consultation process is designed to proceed based on mutual agreement of the parties as shown by the signatures below.
No Decision Implied	Pre-consultation does not imply or suggest any decision whatsoever on behalf of staff or the municipality to either support or refuse the application.
Adhering to Current Regulations	The applicant should be aware that the information provided is accurate as of the date of the pre-consultation meeting. Should an application not be submitted in the near future, and should other policies, by-laws or procedures be approved by the Province, Municipality, Region or other agencies prior to the submission of a formal application, the applicant will be subject to any new policies, by-laws or procedures that are in effect at the time of submission of a formal application. If an application is not submitted within 1 year, it is advisable that the applicant confirm with the municipality the directives of the original pre-consultation meeting.
Incomplete Applications	Any application submitted without the information identified in this record of pre-consultation will be deemed incomplete and not processed. Alternately, staff may recommend refusal of the application based upon insufficient information to properly evaluate the application.
Public Information	The applicant acknowledges that the Municipality and Region considers application forms and all supporting materials including studies and drawings, filed with any application to be public information and to form part of the public record. With the filing of an application, the applicant consents and hereby confirms that the consent of the authors of all supporting reports have been obtained, to permit the Municipality and Region to release the application without any supporting materials either for its own use in processing the application, or at the request of a third party, without further notification to, or permission from, the applicant.
Required Studies	It is hereby understood that during the review of the application additional studies or information may be required as a result of issues arising during the processing of the application or the review of the submitted studies. If the Municipality or Region does not have sufficient expertise to review and determine that a study is acceptable, the Municipality may require a peer review. The Terms of Reference for a peer review is determined by the Municipality or Region and paid for by the applicant. Some studies may require NPCA review and clearance/approval – in this instance the NPCA review fee shall be paid by the applicant.

**SIGNATURES**

Sarah Ivins Township Planning Staff (Print Name)	Township Planning Staff (Signature)	April 23, 2020 Date
Erin Shacklette Township Planning Staff (Print Name)	Township Building Staff (Signature)	April 23, 2020 Date
Township Drainage Staff (Print Name)	Township Drainage Staff (Signature)	Date
Township Operations Staff (Print Name)	Township Operations Staff (Signature)	Date
Township Fire Staff (Print Name)	Township Fire Staff (Signature)	Date
Lindsay Earl Niagara Region Staff (Print Name)	Niagara Region Staff (Signature)	April 23, 2020 Date
Jessica Abrahamse NPCA Staff (Print Name)	NPCA Staff (Signature)	April 23, 2020 Date
Rob McDowell Owner (Print Name)	Owner (Signature)	April 23, 2020 Date
Owner (Print Name)	Owner (Signature)	Date
Steven Rivers Agent (Print Name)	Agent (Signature)	April 23, 2020 Date
Other (Print Name)	Other (Signature)	Date
Other (Print Name)	Other (Signature)	Date