



Scoped Environmental Impact Statement

for

Proposed Wasaga Shores Subdivision

Town of Wasaga Beach, County of Simcoe

Prepared for
VanderMeer Homes

Prepared by
Hensel Design Group Inc.

July 2017





July 18, 2017

Mr. Ary VanderMeer
Vandermeer Homes
7942 36/37 Nottawasaga SR
RR 1
Nottawa, ON L0M 1P0

Dear Mr. VanderMeer:

**Re: Betty Blvd. – Scoped Environmental Impact Study, Town of Wasaga Beach,
Simcoe County**

On behalf of our project team, Hensel Design Group Inc. (HDG) is pleased to submit a *Scoped Environmental Impact Statement* (EIS) related to your proposed residential development on Betty Blvd., Town of Wasaga Beach, County of Simcoe. This report will also be forwarded to the applicable review agencies. The scope of this EIS has fully considered the requirements of the Provincial Policy Statement, Town of Wasaga Beach and County of Simcoe Official Plans.

Our review in summary has concluded that the development proposal is feasible from an environmental prospective in so long as the mitigation measures outlined herein are implemented.

We have greatly appreciated being a part of your team. If you should have any questions or concerns regarding this submission, please do not hesitate to contact us.

Sincerely,

HENSEL DESIGN GROUP INC.

Michael J. Hensel, OALA, CSLA
Senior Development Consultant

MJH:sh

Table of Contents

Letter of Transmittal

	Page
1. Introduction	4
1.1 Site Location.....	4
1.2 Study Goals and Objectives	4
2. Natural Heritage Policy	6
2.1 Provincial Policy Statement (PPS)	7
2.1.1 Relevance to the Development Proposal	7
2.2 County of Simcoe Official Plan	8
2.2.1 Relevance to the Development Proposal	8
2.3 Town of Wasaga Beach Official Plan	8
2.3.1 Relevance to the Development Proposal	9
2.4 Nottawasaga Valley Conservation Authority	9
2.4.1 Relevance to the Development Proposal	10
2.5 Endangered Species Act.....	10
2.5.1 Relevance to the Development Proposal	10
2.6 Species at Risk Act	10
2.6.1 Relevance to the Development Proposal	10
3. Study Area	12
3.1 Field Investigations.....	12
3.1.1 Collection and Review of Background Information	12
3.1.2 Field Reconnaissance and Inventories.....	13
3.1.3 Vegetation Resources.....	14
3.2 Background Reports.....	15
3.3 Terrain	15
3.3.1 Geology and Soils.....	15
3.3.2 Hydrology.....	15
3.4 Vegetation	15
3.4.1 Regional Vegetation.....	15
3.4.2 Terrestrial Units.....	16
3.5 Wildlife Resources.....	18
3.5.1 Birds.....	22
3.5.2 Mammals.....	22
3.5.3 Reptiles	22
3.5.4 Amphibians	23
3.5.5 Fish and Fish Habitat	23
3.6 Wildlife and Wildlife Habitat.....	23
3.6.1 Birds.....	25
3.6.2 Mammals.....	25
3.6.3 Herpetofauna	25
3.6.4 Species At Risk Screening.....	26

3.6.5	Candidate Significant Wildlife Habitat Screening.....	26
3.6.6	Habitat Connectivity/Linkage	26
4.	Significant Natural Heritage Features.....	27
4.1	Significant Valleylands	27
4.2	Significant Woodlands	27
4.2.1	Woodland Size	28
4.2.2	Ecological Function	28
4.2.3	Uncommon Characteristics.....	29
4.2.4	Economic and Social Values	29
4.3	Significant Wetlands	29
4.4	Unevaluated Wetland	29
4.5	Areas of Natural and Scientific Interest	29
4.6	Significant Wildlife Habitat	29
4.7	Natural Heritage Information Centre.....	30
4.8	Species At Risk	31
5.	Proposed Development Concept	31
6.	Impacts Assessment.....	33
7.	Additional Recommendations.....	36
8.	Conclusion.....	37
9.	References	1

List of Figures

Figure 1	Site Location	5
Figure 2	NVCA Regulation Limits	11
Figure 3	Ecological Land Classification	19
Figure 4	Breeding Birds and Breeding Amphibians.....	24
Figure 5	Development Concept	32

List of Tables

Table 1.	List of Vegetation Communities (ELC Units) On and Abutting the Subject Lands	20
Table 2:	Summary of Potential Impacts to Natural Heritage Features	34

Appendices

Appendix A	Schedule D, Town of Wasaga Beach Official Plan
Appendix B	Vascular Plant Species Observed on the Subject Lands
Appendix C	Photographs of Plant Species Observed on the Subject Lands
Appendix D	Breeding Birds Observed on the Subject Lands
Appendix E	Mammals and Herptofauna Species Observed on the Subject Lands
Appendix F	NHIC Records for the Subject and Adjacent Lands

1. Introduction

Hensel Design Group Inc. (HDG) was retained by Mr. Ary Vandermeer in April 2016 to prepare a Scoped Environmental Impact Study (EIS) related to a proposed residential development on Betty Blvd. in the Town of Wasaga Beach, County of Simcoe. HDG is part of a team with C.C. Tatham & Associates Ltd. (engineering), Loft Planning Inc. (planning) and the report prepared by HDG should be read in conjunction with the works of C.C. Tatham & Associates Ltd and Loft Planning Inc.

1.1 Site Location

The subject lands are described as, Parts of Lots 34 and 35, Concession 3, Town of Wasaga Beach, County of Simcoe. The subject lands are shown on Figure 1.

1.2 Study Goals and Objectives

The purpose of this EIS is to provide a detailed description and background review of the physical and ecological characteristics of the natural heritage features from the subject lands including the functions, significance and sensitivity. Additionally, this report will address potential impacts to these features and outline how impacts can be minimized or mitigated. In consideration of this information, recommended protection and/or mitigation measures will ensure that the proposed development conforms to the requisite policies as outlined herein.

The policies and technical requirements of the Official Plans for the Town of Wasaga Beach and the County of Simcoe, and Provincial Policy Statement (PPS) have been considered as part of this study.

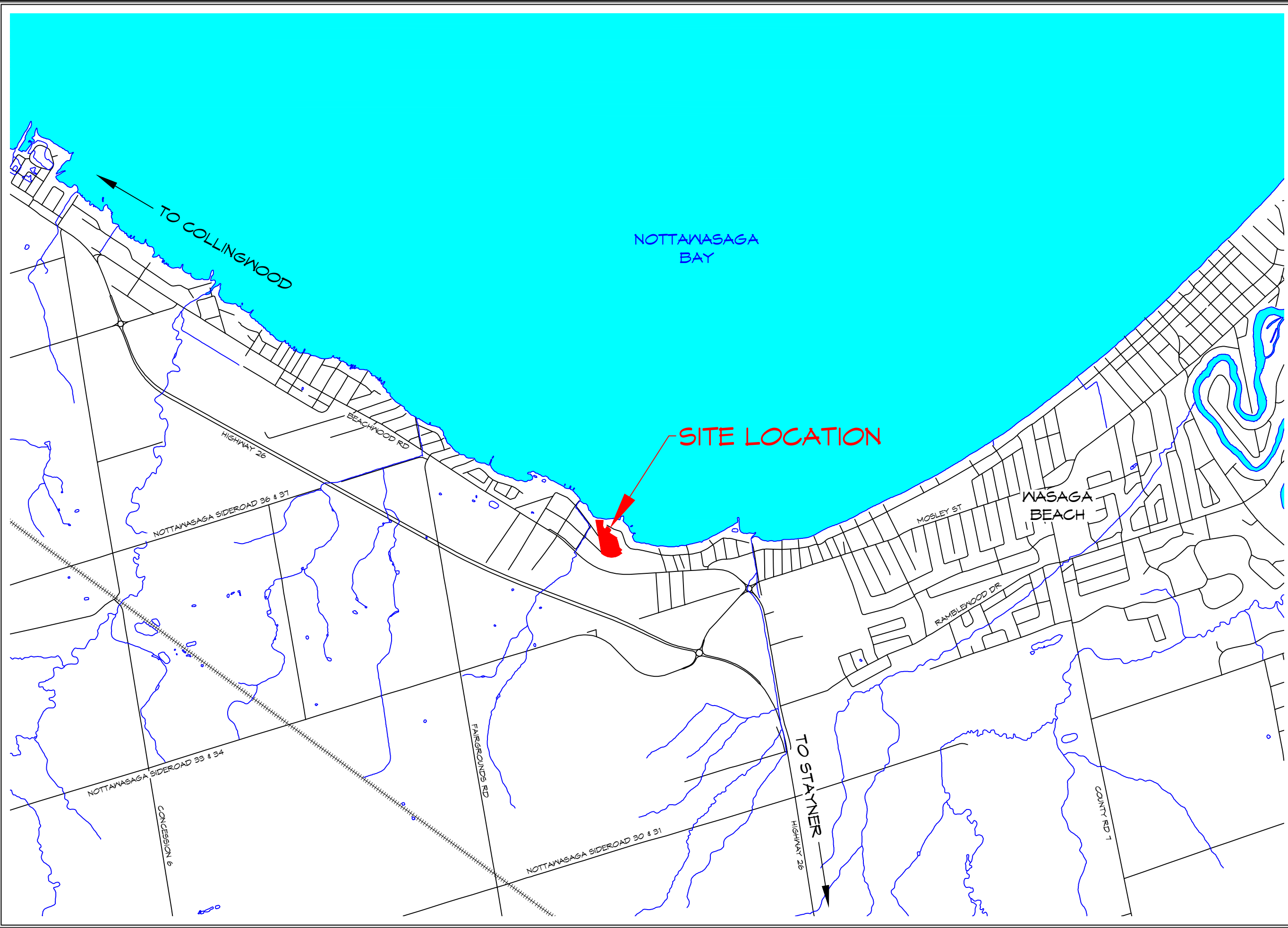
The goal of this EIS is to provide the following:

- a) Ensure that the proposed development can proceed in a manner that will not result in negative impacts to significant ecological features and functions.
- b) Demonstrate conformity to the Provincial Policy Statement, the County of Simcoe Official Plan, the Town of Wasaga Beach Official Plan, and the Conservation Authorities Act.

The specific objectives that will be completed as part of this EIS include the following:

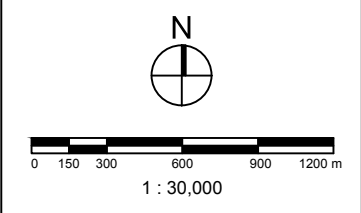
- a) Provide an evaluation of the ecological features and functions of the subject lands through detailed background review and field investigations.
- b) Identify and map any and all significant features (i.e. any significant habitat for Species at Risk), key ecological attributes, and sensitivities of the subject lands.

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Key Plan (n.t.s.)

- Legend**
- SITE LOCATION
 - ROADS
 - RAILWAY
 - WATERCOURSE
 - WATERBODY



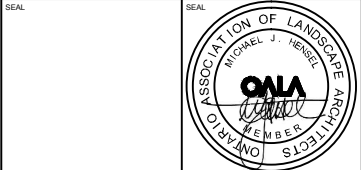
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Advancing Sustainable Development Solutions
372 Peel St. Collingwood, Ontario, L4Y 3W4
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PROJECT
WASAGA SHORES
Wasaga Beach, Ontario

TITLE
SITE LOCATION



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- c) Confirm the appropriate development proposal, buffers and setbacks to adjacent features through an evaluation of the ecological features and functions.
- d) Determine the need for buffers for any and all natural features and provide recommendations for the mitigation and protection of natural heritage features and functions.
- e) Complete a detailed assessment of potential impacts to natural heritage features;
- f) Identify appropriate mitigation that minimizes the potential impact of each component of the development proposal and/or propose area/habitat offsetting; and,
- g) Assess long term and cumulative effects of the proposed development along with adjacent land use.

2. Natural Heritage Policy

Provincial and municipal planning policies guided the preparation of natural heritage constraints and opportunities for the proposed development on the subject lands. Existing background policy information sources were reviewed to identify any mapped natural heritage features that may occur on or within 5km to the subject lands. In addition, a review of background data from various sources pertaining to the subject lands and adjacent lands was also completed. These policies and background information sources include:

- a) Ontario Provincial Policy Statement (2014);
- b) County of Simcoe Official Plan (2007);
- c) Town of Wasaga Beach Official Plan (2016);
- d) Nottawasaga Valley Conservation Authority - Ontario Regulation 172/06 (2006)
- e) Ministry of Natural Resources Natural Heritage Reference Manual (2010) and the Significant Wildlife Habitat Technical Guide (2000);
- f) Ontario Natural Heritage Information Centre database (2016) (www.nhic.mnr.gov.on.ca);
- g) The Ontario Breeding Bird Atlas (www.birdsontario.org);
- h) The Species At Risk Public Registry (www.sararegistry.gc.ca);
- i) Ontario *Endangered Species Act* (2007);
- j) Federal *Species At Risk Act* (2002);
- k) Aerial photographs.

2.1 Provincial Policy Statement (PPS)

The Provincial Policy Statement addresses the protection of Natural Heritage Features in relation to development.

According to the Provincial Policy Statement (2014), various provincially defined natural features shall be protected for the long term. Relevant sections state:

“2.1.2 The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing linkages between and among *natural heritage features* and *areas*, *surface water features* and *ground water features*.

2.1.4 *Development and site alteration* shall not be permitted in :

- a) *significant wetlands* in Ecoregions 5E, 6E and 7E, and
- b) *significant coastal wetlands*

2.1.5 *Development and site alteration* shall not be permitted in:

- a) *significant wetlands* in the Canadian Shield north of Ecoregions 5E, 6E and 7E;
- b) *significant woodlands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- c) *significant valleylands* in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Mary's River);
- d) *significant wildlife habitat*; and
- e) *significant areas of natural and scientific interest*; and
- f) coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)

unless it has been demonstrated that there will be no *negative impacts* on the natural features or the *ecological functions*.

2.1.6 *Development and site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements*.

2.1.7 *Development and site alteration* shall not be permitted in *habitat of endangered species and threatened species*, except in accordance with *provincial and federal requirements*.

2.1.8 *Development and site alteration* shall not be permitted *on adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.4, 2.1.5 and 2.1.6 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.”

2.1.1 Relevance to the Development Proposal

This development proposal shall be consistent with policy statements made under the Act.

2.2 County of Simcoe Official Plan

The Greenland System (Section 3.8 of the County of Simcoe Official Plan) is intended “to ensure that the scale, form and location of development is such that the features and functions of the natural heritage system are sustained for future generations”. This Greenland Natural Heritage System is based on a report entitled “**Development of a Natural Heritage System for the County of Simcoe**” (Gartner Lee Limited 1996, revised 2008). Within the context of the County of Simcoe Official Plan the Greenland designation includes wetlands, ANSI’s, significant woodlands, significant wildlife habitat, significant valley lands, fish habitat, environmentally sensitive areas, major lake, river and creek systems and Niagara Escarpment Natural Areas.

2.2.1 Relevance to the Development Proposal

No part of the development proposal is located within or abutting lands identified by the County of Simcoe as part of the Greenland System.

2.3 Town of Wasaga Beach Official Plan

According to Section 13.1 of the TWBOP, the objectives of the Natural Heritage Policies is to “*maintain, conserve, and enhance the quality and integrity of the natural heritage system features and ecological processes, including air, water, land, and living resources for the benefit of future generations.*” The objectives also include the protection of wetlands, ravines and watercourses, the habitat of endangered species, and to prevent the diminishment of ecosystem biodiversity. Further, the Town of Wasaga Beach wants to encourage and promote the use of a variety of planning engineering and resource management approaches and techniques to accomplish these objectives for the long term conservation of the Natural Heritage System.

Section 13.4.1 of the Official Plan states that the Natural Heritage System features and areas are to be conserved, maintained, and enhanced and not subject to the impact of incompatible and inappropriate land uses and development. The areas designated as Category 1 (where development will not be permitted) and Category 2 (where development may be permitted when and EIS has demonstrated that it will not negatively impact the natural features or functions of areas) are shown in Schedule A-1 and Schedule D. This mapping shows no Natural Heritage System designations on or adjacent the subject lands, however Lamont Creek is zoned as Environmental Protection (See Appendix C).

Category 1 lands are primarily characterized as natural areas of high environmental quality, significance and/or sensitivity. They include environmentally significant lands or waters including Provincially Significant Wetlands, natural watercourses and ravines, significant habitat of any endangered or threatened species and significant parabolic dunes outside of the Provincial Park.

Category 2 lands are of lesser environmental significance although may include areas of high environmental quality. They include lands that may be adjacent to Category 1 Lands, within or adjacent to Areas of Natural and Scientific Interest, Significant Wildlife Habitat, natural connections through valley corridors or other linkages between areas of the natural heritage system, shoreline, beach and dune conservation areas, Fish Habitat and Significant Woodlands and Valleylands.

2.3.1 Relevance to the Development Proposal

Schedule D of the Official Plan indicates that a small portion in the southwest corner of the subject lands is categorized as Natural Heritage System – Category 2 Lands (See Appendix A). No other natural heritage policies have been indicated on or adjacent to the subject lands.

2.4 Nottawasaga Valley Conservation Authority

Ontario Regulation 172/06 is the Generic Regulation of the Conservation Authorities Act, which came into effect in May 2006, specific to the regulation of development, interference with wetlands, and alterations to shorelines and watercourses. Under this regulation, hazardous lands, wetlands, shorelines and areas susceptible to flooding, and associated allowances within the Authority are delineated by the “Regulation Limit” shown on maps that are filed by the Authority. HDG acquired NVCA mapping of the Hazard Regulation Limit(s) for the subject lands. The Generic Regulation layer indicates that the areas adjacent to the existing watercourses located within the subject lands are a potential flood and meander hazard.

Regulation 172/06, *‘Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation’*, requires that a permit be obtained from the Authority when undertaking any of the following:

- Straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream or watercourse or interfering in any way with a wetland;
- Development adjacent or close to the shoreline of inland lakes, in river or stream valleys, hazardous lands, wetlands or lands adjacent to wetlands.

Development as defined by the Conservation Act includes:

- The construction, reconstruction, erection or placing of a building or structure of any kind, or changes to an existing building or structure to alter its size or purpose;
- Site grading;
- The temporary or permanent placing, dumping or removal of any material, originating on the site or elsewhere.

The intent of the permit process is to ensure that activities in these areas will not result in a risk to public safety or property damage and that the natural features are protected through the conservation of land.

Under Ontario Regulation 172/06 Section 2, development is prohibited in or on the areas within the NVCA jurisdiction that are prone to flooding or meander hazards. The flood hazard line of the Regulation Limit is typically associated with the stable top of bank or regulatory floodplain plus a setback to facilitate access to the top of bank. Similarly, the meander belt line is depicted as the maximum extent of the predicted meander belt of the watercourse plus an allowance of 15m on each side. The Regulation Limit follows the maximum extent of the combined floodplain and meander belt limits. Under this regulation, written permission to develop within prohibited areas or alter a watercourse is required. Acquisition of this permission requires the completion of an Application for Permission to be filed with the Authority. It should therefore be assumed that an authorization would be required for any fill or alterations within the Regulation Limit area. If the extent of the fill or

alterations identified in the Development Plan were deemed significant, an Environmental Impact Study may be triggered.

2.4.1 Relevance to the Development Proposal

The subject lands are located within the Regulation Limit Area (see Figure 2).

2.5 Endangered Species Act

The Provincial *Endangered Species Act* (2007) protects the endangered species that are listed on the regulations under the act. It specifically prohibits wilful harm to endangered species that are listed in regulations under the Act and the wilful destruction of, or interference with, their habitats.

The Natural Heritage Information Centre tracks and maintains data on Ontario's endangered species and was consulted as to the listed species on or within five kilometres of the subject lands.

2.5.1 Relevance to the Development Proposal

The search of the Natural Heritage Information Centre found that there were two element occurrence of a Species At Risk reported on or adjacent to the subject lands.

2.6 Species at Risk Act

The Federal *Species at Risk Act* (2002) is designed to prevent wildlife species from becoming extinct or extirpated; help in the recovery of extirpated, endangered or threatened species; and to ensure that species of special concern do not become endangered or threatened.

The Act maintains an on-line registry of species at risk which is the official Federal list of wildlife species at risk. Species are classified as being either extirpated, endangered, threatened, or a special concern. Once the species becomes listed, the measures to protect and recover a listed wildlife species are implemented.

2.6.1 Relevance to the Development Proposal

A Species at Risk information request was submitted to the MNR Midhurst District. The Ontario Breeding Bird Atlas (Bird Studies Canada *et al.* 2006) records for Region 13 – Simcoe; Breeding Bird Squares 17NK52 and 17NK62 were also reviewed to provide a perspective of potential birds breeding on the property and abutting lands.

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Key Plan (n.t.s.)

Legend

- APPROXIMATE PROPERTY BOUNDARY
- ROADS
- WATERCOURSE
- NVCA GENERIC REGULATION MAPPING

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PROJECT: **WASAGA SHORES**
 Wasaga Beach, Ontario

TITLE: **NVCA GENERIC REGULATION MAPPING**

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3. Study Area

3.1 Field Investigations

3.1.1 Collection and Review of Background Information

Background natural environment data was solicited from the Ministry of Natural Resources & Forestry (MNR), Nottawasaga Valley Conservation Authority (NVCA), Town of Wasaga Beach and County of Simcoe. Data was collected prior to and during the site reconnaissance and inventory of the subject property vegetation cover in 2016. The Town's Official Plan was also consulted for information on land use and natural environment designations pertaining to the subject property (Town of Wasaga Beach 2016).

A coloured orthophoto (Simcoe County 2016) that provided coverage of the subject property and abutting lands was obtained and used as a field base map. The preliminary boundaries and types of vegetation communities were overlaid onto the coloured orthophoto and subsequently refined through ground-truthing by an experienced Biologist who is part of the HDG Team. The ELC map by Azimuth Environmental Consulting (2012) and a revised ELC map (Azimuth 2013) prepared for a previous owner were used as a starting point for the ELC mapping, with refinements completed in 2016 by HDG.

Types of vegetation communities included natural terrestrial vegetation communities (e.g., upland cedar woodland, upland cedar-poplar woodland, lowland white birch-mixed woodland) and wetland vegetation communities (green ash treed swamp, poplar treed swamp). Surrounding land uses were noted including the types, extent and connectivity.

Documentation and other sources reviewed for natural environment data included but were not limited to:

- **Life Science Areas of Natural and Scientific Interest in Site District 6-6 – A Review and Assessment of Significant Natural Areas in Site District 6-6** (Hanna 1984);
- **Natural Heritage Resources of Ontario: Bibliography of Life Science Areas of Natural and Scientific Interest in Ecological Site Regions 6E and 7E, Southern Ontario** (Riley *et al.* 1997);
- **Development of a Natural Heritage System for the County of Simcoe** (Gartner Lee Limited 1996);
- **County of Simcoe Digital Orthorectified Imagery** (County of Simcoe 2008, 2012, 2013 and 2015);
- **Natural Heritage Information Centre (NHIC) Internet Database/Biodiversity Explorer** (NHIC 2016);
- **County of Simcoe Official Plan** (Council adopted January 22 2013 and partially approved by the OMB April 19, 2013 version);
- **Official Plan of the Town of Wasaga Beach Official Plan** (Town of Beach 2016);

- **Town of Wasaga Beach West End Natural Heritage Review** (Azimuth Environmental Consulting Inc. 2010);
- **Town of Wasaga Beach Natural Heritage System – Background Review and Landscape Model** (Nottawasaga Valley Conservation Authority 2005); and,
- **Environmental Impact Study South-West Portion of Lot 35, Concession 3, Town of Wasaga Beach, County of Simcoe** (Azimuth Environmental Consulting Inc. 2012)

In addition to the reports listed above, various databases were searched for flora and fauna records on-site or in the surrounding area. These websites and databases included:

- **Atlas of the Mammals of Ontario** (Dobbyn 1994)
- **Ontario Breeding Bird Atlas (OBBA)** (Bird Studies Canada *et al.* 2006)
- **Ontario's Reptile and Amphibian Atlas** (Ontario Nature 2016)

Background information was also garnered to assess the subject property for potential Species At Risk (SAR) and Candidate Significant Wildlife Habitat (SWH) in and abutting the property, based on either species presence and/or habitat types arising from the wildlife surveys.

Agency Contacts

The following resource agency staffs were contacted regarding natural environment data for the subject lands and abutting properties.

- Graham Findlay, Area Biologist – Ministry of Natural Resources & Forestry (MNR) Midhurst District Office
- David Featherstone, Manager, Watershed Monitoring – Nottawasaga Valley Conservation Authority (NVCA)

3.1.2 Field Reconnaissance and Inventories

Site inspections and inventories of the natural terrestrial and wetland features within the subject lands were undertaken on April 20, May 26, May 27 and June 23, 2016. Supplemental vegetation data by Azimuth Environmental was garnered based on field inventory dates of June 13, August 5, August 8 and September 17, 2013 from the abutting property to the south of the Betty Boulevard unopened road allowance. Field surveys were undertaken to ensure complete coverage of the natural terrestrial and wetland features and inherent flora, including abutting lands along the subject property perimeter. During all site visits, botanical, soils, drainage and wildlife data were also noted and recorded, along with a photographic record, where applicable.

Vertebrate terrestrial species (birds, mammals, amphibians and reptiles) were documented on each site visit based on visual contact (direct sightings) and/or on the basis of indirect evidence (e.g. vocalizations, tracks, scats, pellets, burrows, nests, feathers, browse, etc.). Survey methods used to identify, delineate and characterize the vegetation communities, floristics, wildlife and wildlife habitat, and ecological functions on and abutting the property follow acceptable protocols (e.g., two dawn breeding bird surveys conducted at least 10 days apart) are summarized in the following sub-sections.

3.1.3 Vegetation Resources

The boundaries of the vegetation communities were delineated through aerial photographic interpretation (spring 2015 orthophotos) and ground-truthing. The botanical inventories included those features on the subject property and abutting the property perimeter. Field visit dates for detailed plant surveys were conducted on April 20, May 27 and June 23, 2016 and supplemented with abutting Azimuth data (June 13, August 5, August 8 and September 17, 2013).

All vegetation features were characterized following the protocols and terminology of the Ecological Land Classification (ELC) system of the MNR, entitled “**Southern Ontario Ecological Land Classification – Vegetation Type List**” (Lee 2008). This protocol is a revision and update of the “**Ecological Land Classification for Southern Ontario – First Approximation and Its Application**” (Lee *et al.* 1998). In addition to the ELC system, additional characterization and potential rarity of the on-site vegetation communities was aided through a review of the Natural Heritage Resources of Ontario: Vegetation Communities of Southern Ontario (Bakowsky 1997).

The classification of the general vegetation communities were characterized according to species composition and physiognomic characteristics. The nomenclature for the flora observed is consistent with and relied on the following authorities:

- Lycopodiaceae to Aspleniaceae Cody, W. J., and D. F. Britton. 1989. **Fern and Fern Allies of Canada.** Publication 1829/E, Agriculture Canada, Research Branch, Ottawa.
- Taxaceae to Orchidaceae – Voss, E. G. 1972. **Michigan Flora. Part 1: Gymnosperms and Monocots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 55.
- Saururaceae to Cornaceae – Voss, E. G. 1985. **Michigan Flora. Part 2: Dicots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 59.
- Pyrolaceae to Compositae – Voss, E. G. 1996. **Michigan Flora. Part 3: Dicots.** Cranbrook Institute of Science and University of Michigan Herbarium. Bulletin 61.
- Newmaster, S. G., A. Lehela, P. W. C. Uhlig, S. McMurray, M. J. Oldham, and Ontario Forest Research Institute. 1998. **Ontario Plant List.** FRI Paper No. 123.
- Bradley, D. J. 2013. **Southern Ontario Vascular Plant Species List.** 3rd Edition. Science & Information Branch Southern Science and Information Section. Ontario Ministry of Natural Resources, Peterborough, Ontario. SIB SSI SR-03, 78 p.

The rarity or significance for vegetation communities and vascular plants (floristics) on the subject lands was determined from standard status lists, published literature and the NHIC dataquery web-site (NHIC 2016). Sources for flora included Bakowsky (1997), Argus and Pryer (1990), Environment Canada (2002), COSEWIC (2017), Province of Ontario (2007), MNR (2017), Oldham and Brinker (2009), Argus *et al.* (1982-1987) and Riley *et al.* (1989). Rare plant species (Species At Risk in Ontario – SARO) included those listed and regulated under the Federal **Species At Risk Act, 2002** and the Province of Ontario **Endangered Species Act, 2007**, as amended. The determination for plant species rarity consisted of a straightforward comparison of the plant species recorded on-site with those listed in these source references.

3.2 Background Reports

As part of the subject land assessment, available relevant reports were reviewed for information relating to natural heritage features and functions of the subject lands. This included the Functional Servicing Report (July 2017), the Preliminary Stormwater Management Report (July 2017) prepared by C.C. Tatham and Associates Inc., a Planning Justification Report prepared by Loft Planning Inc. (2017) and the Geotechnical Investigation Report prepared by Soil Engineers Ltd. (June 2017).

3.3 Terrain

3.3.1 Geology and Soils

Geotechnical investigations were completed by Soil Engineers Ltd. The investigation has revealed that beneath a veneer of topsoil and a layer of earth fill in places, the site is underlain by a stratum of glacial till with embedded layers of silty clay (Soil Engineers Ltd., 2017).

3.3.2 Hydrology

The site is characterized by two catchment areas identified as Catchment 100 and Catchment 101 on the Pre-Development Drainage Plan (DP-1) prepared by C.C. Tatham. Catchment 101 is 3.64 ha of vacant wood lot north of Beachwood Road consisting of a mix of coniferous and deciduous trees with smaller shrub trees. This catchment drains to Nottawasaga Bay by a small watercourse which traverses the property (C.C. Tatham, 2017).

3.4 Vegetation

3.4.1 Regional Vegetation

The lands that border Georgian Bay, including the subject property are termed the Simcoe Lowlands. Based on Chapman and Putnam (1984), the VanderMeer property that abuts the north edge of the unopened portion of Betty Boulevard (See Appendix C Photograph 1) is situated in the Nottawasaga Basin section of the Simcoe Lowlands, at the west end of the Town of Wasaga Beach.

Based on Rowe (1972), the subject property lies within the Huron-Ontario Section of the Great Lakes-St. Lawrence Forest Region, which extends to the southern portion of Georgian Bay. Sugar maple (*Acer saccharum*) and beech (*Fagus grandifolia*) were common over the whole area. Associates include white ash (*Fraxinus americana*), basswood (*Tilia americana*), eastern white cedar (*Tsuga occidentalis*), red ash (*Fraxinus pennsylvanica*), yellow birch (*Betula alleghaniensis*), white birch (*Betula papyrifera*), red maple (*Acer rubrum*), red oak (*Quercus rubra*) and bur oak (*Quercus macrocarpa*). Other trees include eastern hemlock (*Tsuga canadensis*), eastern white pine (*Pinus strobus*), balsam fir (*Abies balsamea*), largetooth aspen (*Populus grandidentata*), trembling aspen (*Populus tremuloides*), hop hornbeam (*Ostrya virginiana*), black cherry (*Prunus serotina*) and bitternut hickory (*Carya cordiformis*). Trees in river-bottoms and swamps include eastern white cedar, silver maple (*Acer saccharinum*), white elm (*Ulmus americana*), black ash (*Fraxinus nigra*) and green ash (*Fraxinus pennsylvanica* var. *subintegerrima*).

According to Rowe (1972), the original forest cover in many parts of southern and central Ontario has been cleared for settlement and cultivation, and consequently, contiguous, extensive forest tracts are relatively uncommon. Tableland woodland cover remaining within settlement (urban, semi-rural and lake shoreline) areas is usually disturbed and/or in various stages of successional growth. In the area of the subject property, rural and subdivision development is progressing, particularly along Highway 26, Shore Lane (See Appendix C, Photographs 2 and 3), and the Georgian Bay shoreline, resulting in varying degrees of forest fragmentation.

3.4.2 Terrestrial Units

The subject property is predominantly covered in a mosaic of contiguous forested stands, namely deciduous and mixed, along with small pockets of unevaluated wetlands namely treed swamp (See Figure 3). Upland and lowland forested stands include: Fresh-Moist White Cedar Coniferous Forest (FOCM4-1); Dry-Fresh White Cedar- Poplar Mixed Forest (FOMM4-2); and Fresh-Moist White Birch Mixed Forest (FOMM8-2). Wetland stands include: Green Ash Mineral Deciduous Swamp (SWDM2-2); and Poplar Mineral Deciduous Swamp (SWDM4-5).

Field visits were undertaken on-site during spring and summer seasons (April 20, May 26, May 27, and June 23, 2016) to ensure all representative vegetation communities and floristics were covered and inventoried. The botanical data was supplemented with field data collected by Azimuth Environmental Consulting Inc. on June 13, August 8 and September 17, 2013.

The following sub-sections in conjunction with Table 1 (ELCs), a master list of vascular plant species found on the subject lands (Appendix B) and the representative photographs in Appendix C provide qualitative descriptions and provide a visual perspective of the cultural and natural features that lie on and about the subject property.

Fresh-Moist White Cedar Coniferous Forest (FOCM4-1)

Situated in the northwest portion of the subject property is a contiguous wooded stand dominated by eastern white cedar (See Appendix C, Photograph 4). Other trees in the overstory and understory include white birch, trembling aspen, white spruce white elm, hawthorn, and yellow birch. The shrub and vine stratum contain red-osier dogwood, round-leaved dogwood, poison ivy (*Rhus radicans*), common buckthorn, choke cherry and buffaloberry.

Groundcover species noted include wood betony (*Stachys officinalis*), eastern bracken fern (*Pteridium aquilinum*), herb-robert (*Geranium robertianum*), wild lettuce (*Lactuca virosa*), large-leaved aster (*Aster macrophyllus*), Canada anemone (*Anemone canadensis*), heart-leaved twayblade (*Neottia cordata*), bulblet fern (*Cystopteris bulbifera*), wild sarsaparilla (*Aralia nudicaulis*), white baneberry (*Actaea pachypoda*), wild lily-of-the-valley (*Maianthemum canadense*), starry false Solomon's-seal (*Maianthemum stellatum*), helleborine (*Epipactis helleborine*), barren strawberry (*Waldsteinia fragarioides*), forget-me-not (*Myosotis scorpiodes*), large yellow lady's-slipper (*Cypripedium parviflorum var. pubescens*), and common dandelion (*Taraxacum officinale*).

Dry-Fresh White Cedar-Poplar Mixed Forest (FOMM4-2)

In the central portion of the subject property is a contiguous stand characterized as white cedar-poplar mixed woodland (FOMM4-2), dominated by eastern white cedar and trembling aspen (See Appendix C, Photographs 5 and 6). Other trees and shrubs include white birch, white pine, white spruce, common buckthorn (*Rhamnus cathartica*), eastern hemlock, nannyberry (*Viburnum lentago*), scattered red pine (*Pinus resinosa*), red-osier dogwood, serviceberry (*Amelanchier arborea*), and balsam fir (*Abies balsamea*).

Typical groundflora species include common bearberry (*Arctostaphylos uva-ursi*), wild sarsaparilla, starry false Solomon's-seal, garlic mustard (*Alliaria petiolata*), round-lobed hepatica (*Anemone americana*), large-leaved aster, rose twisted-stalk (*Streptopus lanceolatus*), gay-wings (*Polygaloides pauciflora*), common blue violet (*Viola sororia*), Pennsylvania sedge (*Carex pennsylvanica*), eastern bracken fern, goldthread (*Coptis trifolia*), kidney-leaved buttercup (*Ranunculus abortivus*), bluebead lily (*Clintonia borealis*), red baneberry (*Actaea rubra*) and creeping buttercup (*Ranunculus repens*).

Fresh-Moist White Birch Mixed Forest (FOMM8-2)

This lowland stand fronts onto the shoreline of Georgian Bay and its semi-open canopy is dominated by eastern white cedar, white birch and trembling aspen (See Appendix C, Photograph 7). Other trees in the overstory and understory include yellow birch, white spruce, eastern hemlock, balsam poplar, and white ash. The dense shrub stratum contains common buckthorn, glossy buckthorn (*Frangula alnus*), silky dogwood (*Cornus amomum*), red-osier dogwood, meadowsweet (*Spiraea alba*), winterberry (*Ilex verticillata*), round-leaved dogwood, poison ivy, ninebark (*Physiocarpus opulifolius*), and pasture gooseberry (*Ribes cynosbati*).

The weedy and herbaceous forb groundcover contains wild sarsaparilla, wild lily-of-the-valley, Canada anemone, woodland strawberry (*Fragaria vesca*), forget-me-not, large-leaved aster, early meadowrue (*Thalictrum dioicum*), eastern bracken fern, garlic mustard, cursed crowfoot (*Ranunculus sceleratus*), herb-robert, fringed loosestrife (*Lysimachia ciliata*), early goldenrod (*Solidago juncea*), panicked aster (*Symphotrichum lanceolatum*), creeping buttercup, wild geranium (*Geranium maculatum*), and red baneberry.

Wetland Units

Green Ash Mineral Deciduous Swamp (SWDM2-2)

There are two unevaluated wetland features characterized as green ash treed swamp, along with other trees such as black ash, trembling aspen and white elm (See Appendix C, Photographs 8, 9 and 10). The mineral soils were saturated and mucky in April, with only small shallow pools of standing stagnant water. Other woody associates include eastern white cedar, maple-leaved viburnum (*Viburnum acerifolium*), red-osier dogwood, common buckthorn, nannyberry, silky dogwood, red maple, round-leaved dogwood, wild red raspberry (*Rubus idaeus*), white birch, poison ivy, and smooth currant (*Ribes americanum*).

The wet saturated mineral soils support a groundcover of blue flag (*Iris versicolor*), wild basil (*Clinopodium vulgare*), wild mint (*Mentha arvensis*), tall goldenrod (*Solidago altissima*), purple-

stemmed aster (*Symphotrichum puniceum*), fragrant bedstraw (*Galium triflorum*), Joe pye-weed (*Eupatorium maculatum*), marsh St. John's-wort (*Triadenum fraseri*), beggar-ticks (*Bidens frondosa*), fox sedge (*Carex vulpinoidea*), narrow-leaved cattail (*Typha angustifolia*), marsh marigold (*Caltha palustris*), awl-fruited sedge (*Carex stipata*), paniced aster, northern willow-herb (*Epilobium ciliatum*), deadly nightshade (*Solanum dulcamara*) and spotted jewelweed (*Impatiens capensis*).

Poplar Mineral Deciduous Swamp (SWDM4-5)

There are two small unevaluated wetland features, as shown on Figure 3, both on the eastern property boundary and extending off-site (See Appendix C, Photographs 11 and 12). Trembling aspen is dominant and both contained standing stagnant water until late May. Other trees and shrubs in and bordering these wetland units include white elm, red-osier dogwood, white spruce, eastern white cedar, alternate-leaved dogwood, green ash, winterberry, balsam poplar and smooth currant.

Groundcover is lacking given the standing stagnant water and mucky saturated mineral soils, only sensitive fern, and forget-me-not were noted.

Floristics

In terms of floristics, Appendix B contains a list of plant species found on-site during the 2016 botanical surveys and includes the 2013 Azimuth Environmental Consulting Inc. data.

3.5 Wildlife Resources

The VanderMeer Home property was surveyed to ascertain the inherent wildlife and wildlife usage on various dates in 2016 (April 20, May 26, May 27 and June 23), and included a dawn breeding bird survey on June 23, 2016 following the Ontario Breeding Bird Atlas (OBBA) inventory protocols (Bird Studies Canada 2006). Nocturnal wildlife surveys in 2016 were not considered necessary, nor warranted, for birds such as eastern whip-poor-will (*Caprimulgus vociferus*) – Threatened and common nighthawk (*Chordeiles minor*) – Special Concern species, based on the lack of sight records identified during the background data review and general lack of breeding habitat on-site. Regardless, brief site visits were conducted during full moon phases in 2016 (late May and late June) while surveying other properties in the Collingwood area, with no calls noted for either species. The 2016 data was supplemented with wildlife data collected on April 28, May 29, June 2, June 6 and June 20, 2013 by Azimuth for the abutting property to the south.

Breeding bird surveys were previously conducted on June 6 and June 20, 2013, as well as June 23, 2016. All observations and data collection were completed by an experienced field biologist. Breeding birds were targeted but incidental observations were recorded as well during these dates, as well as during other (e.g., botanical) surveys. Morning surveys (June 6 and June 20, 2013, June 23, 2016) were performed between a half hour before sunrise and through to approximately 10:00 a.m.

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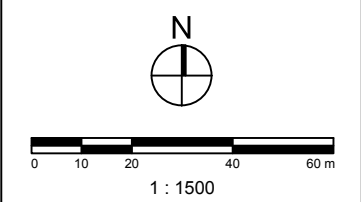


Key Plan (n.t.s.)

Legend

- APPROXIMATE PROPERTY BOUNDARY
- ROADS
- WATERCOURSE
- ECOLOGICAL LAND CLASSIFICATION

FODM8-2: FRESH-MOIST WHITE BIRCH MIXED FOREST
 FOCM4-1: FRESH-MOIST WHITE CEDAR CONIFEROUS FOREST
 SWDM2-2: GREEN ASH MINERAL DECIDUOUS SWAMP
 FOMM4-2: DRY-FRESH WHITE CEDAR-POPLAR MIXED FOREST
 SWDM4-5: POPLAR MINERAL DECIDUOUS SWAMP



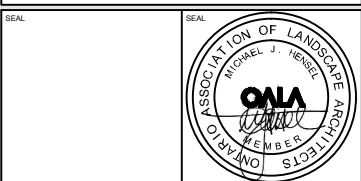
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PROJECT
WASAGA SHORES
 Wasaga Beach, Ontario

TITLE
ECOLOGICAL LAND CLASSIFICATION



Scale: 1:1,500	Drawing No.
Date: July 2017	Fig 3
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Table 1. List of Vegetation Communities (ELC Units) On and Abutting the Subject Lands

ELC Code	Vegetation Type	Summary Description
FOCM4-1	Fresh-Moist White Cedar Coniferous Forest	<ul style="list-style-type: none"> - upland stand dominated by eastern white cedar - other woody associates in understory and shrub stratum include white birch, trembling aspen, white spruce, white elm, hawthorn, red-osier dogwood, round-leaved dogwood, poison ivy, yellow birch, common buckthorn, choke cherry and buffaloberry - characteristic groundflora includes eastern bracken fern, wild sarsaparilla, white baneberry, wild lily-of-the-valley, starry false Solomon's-seal, helleborine, barren strawberry, forget-me-not, common dandelion, large yellow lady's-slipper
FOMM4-2	Dry-Fresh White Cedar-Poplar Mixed Forest	<ul style="list-style-type: none"> - a relatively large block of upland mixed forest dominated by eastern white cedar and trembling aspen - other trees in the understory include white elm, white birch, white spruce, red oak, serviceberry, white pine, eastern hemlock, and balsam fir - shrubs include staghorn sumac, red-osier dogwood, choke cherry, alternate-leaved dogwood, pasture gooseberry, common buckthorn, highbush cranberry and wild red raspberry, and ninebark - groundcover species include bearberry, wild sarsaparilla, starry false Solomon's-seal, gay-wings, common blue violet, garlic mustard, round-lobed hepatica, wild basil, red baneberry, rose twisted-stalk, three-leaved Solomon's-seal, large-leaved aster, creeping buttercup, large yellow lady's-slipper, wild columbine, Pennsylvania sedge, thimbleweed, bluebead lily, bracken fern, goldthread, and kidney-leaved buttercup

FOMM8-2	Fresh-Moist White Birch Mixed Forest	<ul style="list-style-type: none"> - small pocket of lowland woodland in northwest corner dominated by eastern white cedar, trembling aspen, and white birch - other trees in the overstory and understory include yellow birch, white spruce, eastern hemlock, balsam poplar, and white ash - shrub and vine species include common buckthorn, glossy buckthorn, silky dogwood, red-osier dogwood, meadowsweet, winterberry, round-leaved dogwood, poison ivy, ninebark and pasture gooseberry - typical groundflora includes wild sarsaparilla, wild lily-of-the-valley, Canada anemone, woodland strawberry, forget-me-not, large-leaved aster, early meadowrue, eastern bracken fern, garlic mustard, cursed crowfoot, herb-robert, red baneberry, fringed loosestrife, early goldenrod, bracken fern, panicked aster, and calico aster
SWDM2-2	Green Ash Mineral Deciduous Forest	<ul style="list-style-type: none"> - two unevaluated wetland units characterized as green ash treed swamp - green ash dominant, along with black ash, trembling aspen, and white elm - other woody associates include eastern white cedar, maple-leaved viburnum, red-osier dogwood, common buckthorn, nannyberry, silky dogwood, red maple, round-leaved dogwood, wild red raspberry, Virginia creeper, riverbank grape, white spruce, white birch, poison ivy, and smooth currant - groundcover contains creeping buttercup, blue flag, wild basil, meadow horsetail, purple loosestrife, fragrant bedstraw, wild mint, tall goldenrod, purple-stemmed aster, fringed loosestrife, beggar-ticks, narrow-leaved cattail, hairy buttercup, forget-me-not, smooth buttercup, Joe pye-weed, fox sedge, early meadowrue, marsh marigold, deadly nightshade, spotted jewelweed, marsh St. John's-wort, and awl-fruited sedge, panicked aster, flat-topped white aster, and northern willow-herb
SWDM4-5	Poplar Mineral Deciduous Swamp	<ul style="list-style-type: none"> - two small unevaluated wetland features dominated by trembling aspen - other trees and shrubs include white elm, red-osier dogwood, white spruce, eastern white cedar, alternate-leaved dogwood, green ash, winterberry, balsam poplar, and smooth currant - groundcover consists standing stagnant water and mucky mineral soils

Amphibian surveys, 3 visits were completed in the evenings for amphibians (April 28, May 29, June 21, 2013 and April 20, May 27 and June 23, 2016) as well as to target night calling birds such as; common nighthawks, whip-poor-will and any other potential nocturnal species in the area. The surveys conducted in April also included a search for large stick nests and evidence of raptors and other large early nesters. Three point counts were established for the breeding bird surveys to provide an understanding of abundance and to sample all of the vegetation communities. Four point counts were used for all of the evening amphibian call surveys to cover the unevaluated wetland communities. All wildlife surveys were conducted on the most favourable weather conditions according to the MNRF protocols. There were no marginal or adverse weather conditions encountered during any of the surveys. A property near the Collingwood Hyundai dealership property on Highway 26 was surveyed in tandem with the on-site amphibian call surveys, as a control site.

3.5.1 Birds

A dawn breeding bird survey (June 23 2016) was conducted between 6:00a.m. and 7:00a.m. and was supplemented with Azimuth breeding bird surveys conducted on June 6, 2013 (between 5:49a.m. and 6:10a.m.) and on June 20, 2013 (between 5:57a.m. and 6:14a.m.). The breeding bird point counts followed standard MNRF protocols, with site surveys spaced more than one week apart under suitable weather conditions (low wind, little or no precipitation) following the breeding evidence of the Ontario Breeding Bird Atlas (Bird Studies Canada 2006). This standardized method was supplemented with roving methods utilized during the botanical surveys on April 20, May 26, May 27, and June 23, 2016 and sightings from the Azimuth data (June 6, June 13, June 20, August 8, and September 17, 2013). All bird species seen and heard on or abutting the property were tallied.

Observations were coded using the behavioural codes of the OBBA (e.g., S – Singing Male, P – Pair, etc.). Weather conditions experienced on each survey date were recorded, and included parameters such as air temperature, wind speed and direction, cloud cover, and precipitation.

3.5.2 Mammals

Observations of mammals were recorded during all daytime and nighttime field surveys related to wildlife, as well as incidental observations during the botanical surveys. Observation dates were April 20, May 26, May 27, and June 23, 2016 and included the Azimuth data collected on June 6, June 13, June 20, August 8, and September 17, 2013.

3.5.3 Reptiles

Observations of reptiles were recorded during all daytime and nighttime field surveys related to wildlife, as well as incidental observations during the botanical surveys. Observation dates were April 20, May 26, May 27, and June 23, 2016 and included the Azimuth data collected on June 6, June 13, June 20, August 8, and September 17, 2013.

Standard lists and published literature used to determine the status or rarity of fauna included Environment Canada (2002), COSEWIC (2017), Province of Ontario (2007), MNR (2017), Austen *et al.* (1994), Bird Studies Canada *et al.* (2006), Dobbyn (1994) and Cadman *et al.* (2007). The determination for wildlife species rarity consisted of a straightforward comparison of property and abutting land wildlife species recorded, with those listed in these source references.

3.5.4 Amphibians

Amphibian surveys were conducted on April 20, May 26, May 27 and June 23, 2016 following the protocols outlined in the Marsh Monitoring Program (Bird Studies Canada *et al.* 2009). This provides an adequate measure of calling amphibians during their breeding season. Three visits were undertaken at four fixed stations, namely within and adjacent to the four on-site unevaluated wetland features (See Figure 4). Weather conditions were highly variable throughout the spring breeding period. The surveys were all conducted within accepted limits and there were no concerns regarding reduced activity due to inclement weather. As during all site visits, incidental wildlife observations were recorded to add to the subject property database. The unevaluated wetland features on the south side of the Betty Boulevard unopened road allowance was also used as a control site, in addition to the Collingwood Hyundai dealership control site. Azimuth data garnered from the adjacent property to the south (April 28, May 29 and June 12, 2013) was included the database.

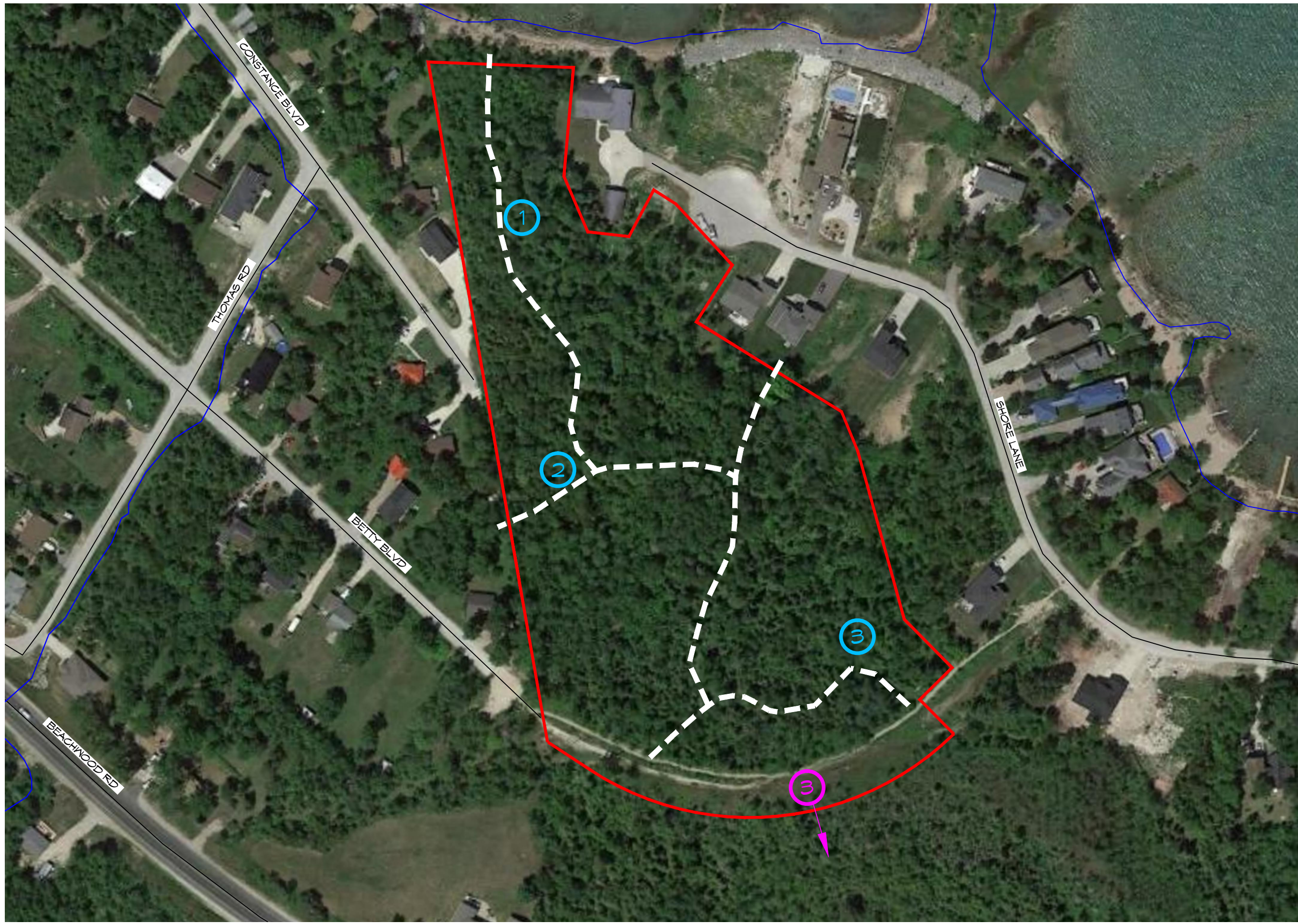
3.5.5 Fish and Fish Habitat

There were no surface watercourses or ponds on the subject property and none of the wetland features contained sufficient water depths to be deemed as fish habitat. A small portion of the subject property fronts onto the open waters of Georgian Bay. However, no fish biomass surveys of this waterbody were warranted.

3.6 Wildlife and Wildlife Habitat

The natural terrestrial features (FOCM4-1, FOMM4-2, FOMM8-2) on and abutting the subject property are comprised mainly of: fresh-moist white cedar forest (FOCM4-1); dry-fresh white cedar-poplar mixed forest (FOMM4-2); and fresh-moist white birch mixed forest (FOMM8-2), with some variations and small inclusions in each. The wetland features (SWDM2-2, SWDM4-5) are comprised mainly of: green ash deciduous swamp (SWDM2-2); and poplar deciduous swamp (SWDM4-5), with some variations and small inclusions in each. All of these terrestrial and wetland features cover all of the subject property and provide wildlife habitat – life cycle opportunities (e.g., breeding, nesting, resting, roosting, feeding) for birds, mammals and amphibians that were noted and recorded during specific wildlife field inventories or noted as incidental observations during the botanical inventories. Figure 4 shows the type and extent of each of the vegetation communities (wildlife habitats) mapped and inventoried during 2013 and 2016. Most of the wildlife species encountered and deemed possible or probable breeders are considered rural-tolerant and urban-tolerant wildlife species.

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Key Plan (n.t.s.)

Legend

- APPROXIMATE PROPERTY BOUNDARY
- ROADS
- WATERCOURSE
- - - TRAIL
- ① BIRDING LOCATIONS
- ③ AMPHIBIAN STATIONS

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PROJECT: **WASAGA SHORES**
 Wasaga Beach, Ontario

TITLE: **BREEDING BIRDS & BREEDING AMPHIBIANS**

SEAL

Scale: 1:1,500	Drawing No. Fig 4
Date: July 2017	
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The following sub-sections provide summaries of the wildlife inventories conducted on the subject property during the spring and summer months of 2016 and supplemented with the 2013 Azimuth data.

3.6.1 Birds

Forty-four (44) bird species were detected during dawn bird surveys at 3 point count stations (as shown on Figure 4), and as listed in Appendix D. Of these species, thirty-six (36) species showed evidence of breeding in habitat on the subject property. The other eight (8) species were either flying overhead (with no breeding evidence) or observed in suitable habitat but no breeding evidence noted.

Examples of bird species considered common and breeding on the subject property and within this geographic area include: mourning dove (*Zenaidura macroura*), blue jay (*Cyanocitta cristata*), red-eyed vireo (*Vireo olivaceus*), yellow warbler (*Setophaga petechial*), American robin (*Turdus migratorius*), black capped chickadee (*Poecile atricapillus*), American crow (*Corvus brachyrhynchos*), brown-headed cowbird (*Molothrus ater*), northern cardinal (*Cardinalis cardinalis*), common grackle (*Quiscalus quiscula*), American goldfinch (*Carduelis tristis*), red-winged blackbird (*Agelaius phoeniceus*), great-crested flycatcher (*Myiarchus crinitus*), Baltimore oriole (*Icterus galbula*); gray catbird (*Dumetella carolinensis*); downy woodpecker (*Picoides pubescens*), and red-breasted nuthatch (*Sitta canadensis*).

3.6.2 Mammals

Appendix E contains a summary of the mammal species detected on and abutting the subject property. The list includes the following mammal species (and NHIC SRank): eastern cottontail (*Sylvilagus floridanus*, S5); eastern chipmunk (*Tamias striatus*, S5); eastern gray squirrel (*Sciurus carolinensis*, S5); red squirrel (*Tamiasciurus hudsonicus*, S5); northern raccoon (*Procyon lotor*, S5); American porcupine (*Erethizon dorsatum*, S5); and white-tailed deer (*Odocoileus virginianus*, S5). None of these species is listed as a Species At Risk (SAR) under the **Endangered Species Act, 2007** (Province of Ontario 2007).

3.6.3 Herpetofauna

Appendix E contains a list of herpetofauna (amphibians and reptiles) detected on and abutting the subject property. Amphibian species included: spring peeper (*Pseudacris crucifer*); western chorus frog (*Pseudacris triseriata*); wood frog (*Lithobates sylvaticus*); northern leopard frog (*Rana pipiens*), gray treefrog (*Hyla versicolor*); and eastern garter snake (*Thamnophis sirtalis sirtalis*).

The results of evening amphibian calling surveys (Call Stations 1-4 as shown on Figure 4) revealed minimal calling activity (Code 1, with minimal numbers of 1-2), with no abundant calls at any of the Call Stations. Call Stations were surveyed on April 20, May 26 and June 23, 2016. Note: spring peeper (*Pseudacris crucifer*), wood frog (*Lithobates sylvatica*), western chorus frog (*Pseudacris triseriata*), northern leopard frog (*Lithobates pipiens*) and gray treefrog (*Hyla versicolor*) were all heard calling in

abundance at the Collingwood Hyundai dealership property on Highway 26 (UTM 17T 564582 E 4927319 N), during the subject property surveys.

Calling activity on April 20, 2016 (Start Time 2030hr, Air Temperature 12°C, Beaufort Wind 0 - northwest, Cloud Cover 50%, Precipitation - Nil, Background Noise – 1, Observer D. G. Cunningham) included the following with abundance codes: Call Station 1 - spring peeper 1(1) and wood frog 1(1); Call Station 2 – None; Call Station 3 – spring peeper 1(1); Call Station 4 – None.

Call activity of May 26, 2016 ((Start Time 2100hr, Air Temperature 21°C, Beaufort Wind 0 - west, Cloud Cover 50%, Precipitation light drizzle, Background Noise – 1, Observer D. G. Cunningham) included the following with abundance codes: Call Station 1 – gray treefrog 1(1); Call Station 2 – None; Call Station 3 – None; Call Station 4 – spring peeper 1(1).

Calling activity of June 23, 2016 (Start Time 22:00, Air Temperature 17°C, Beaufort Wind 0 - northwest, Cloud Cover 0%, Precipitation - Nil, Background Noise – 1, Observer D. G. Cunningham) included the following: Call Station 1 – grey treefrog 1(2) and northern leopard frog 1(1); Call Station 2 – None; Call Station 3 – None; Call Station 4 – None.

The only reptile species noted was a eastern garter snake (*Thamnophis sirtalis sirtalis*), observed within the Betty Drive unopened road allowance at the south edge of the subject property.

3.6.4 Species At Risk Screening

For the purposes of this report, Species at Risk (SAR) are considered to be those species formally designated federally and provincially by COSEWIC and COSSARO, respectively. SAR listings at both the federal and provincial levels were reviewed. The Natural Heritage Information Centre (NHIC) files were accessed to review relevant observational data records for the property and abutting lands.

A Species at Risk information request was submitted to the MNRF Midhurst District. The Ontario Breeding Bird Atlas (Bird Studies Canada *et al.* 2006) records for Region 13 – Simcoe; Breeding Bird Squares 17NK62 were also reviewed to provide a perspective of potential birds breeding on the property and abutting lands.

3.6.5 Candidate Significant Wildlife Habitat Screening

The results of the wildlife field investigations also identified a variety of habitat features and their inherent wildlife functions. Candidate Significant Wildlife Habitat (SWH) and the criteria used to identify and assess this potential designation are outlined in the MNRF's Ecoregion 6E Criterion Schedule (MNRF 2015b).

3.6.6 Habitat Connectivity/Linkage

Natural habitats (terrestrial and wetland vegetation communities) are lacking in the vicinity of the subject lands and are mainly restricted to the south of the Betty Boulevard unopened road allowance and to the south of Highway No. 26. Shoreline and interior residential exists on Shore Lane to the north and 74 Street North to the east. Shoreline and interior residential exists to the west along Constance Boulevard, Betty Boulevard and Highway No. 26. These as-built land uses and major

roadways (e.g., Highway No. 26) preclude any quality habitat connectivity-linkage to north, east and west. Connectivity-linkage at present exists across the unopened road allowance of Betty Boulevard, but more or less terminated at Highway No. 26.

4. Significant Natural Heritage Features

The following is an assessment of significant natural heritage features that must be included in the environmental assessment of proposed developments. Under the Provincial Policy Statement, it is the responsibility of the planning authorities to identify significant natural heritage features, including significant valleylands, wetlands, woodlands, and wildlife habitat. The following sections provide an evaluation of the subject property's existing features in context with the MNR criteria for the identification of significance under the Provincial Policy Statement and the related potential impacts associated with the development proposal. These criteria are then compared to the actual site conditions to determine if the potential for significance exists. These criteria are detailed in the Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement (April 2010).

4.1 Significant Valleylands

There are no significant valleylands on the subject lands.

4.2 Significant Woodlands

The PPS states that development and site alteration may be permitted in significant woodlands provided that there will be no negative impacts to the identified natural features and functions that lend significance to the woodland. Woodlands as defined by the PPS are:

“treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products.

Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels.”

Significant, with regards to woodlands is defined in the PPS as:

“an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history”.

The Natural Heritage Reference Manual outlines the recommended Significant Woodland Evaluation Criteria and Standards using woodland size, ecological function, possession of uncommon characteristics and economic and social values to determine the woodland's significance. Those criteria are explained and weighed against the characteristics of the subject property below.

4.2.1 Woodland Size

- Woodland areas are considered to be generally continuous even if intersected by narrow gaps 20 m or less in width between crown edges.
- Size value is related to the scarcity of woodland in the landscape derived on a municipal basis with consideration of differences in woodland coverage among physical sub-units (e.g., watersheds, biophysical regions).
- Size criteria should also account for differences in landscape-level physiography (e.g., moraines, clay plains) and community vegetation types.

Neither the County of Simcoe nor the Town of Wasaga Beach Official Plans have identified the subject lands as locally or provincially significant woodlands.

4.2.2 Ecological Function

a) Woodland Interior

- Interior habitat more than 100 m from the edge (as measured from the limits of a continuous woodland as defined above) is important for some species.
- For purposes of this criterion, a maintained public road would create an edge even if the opening was not wider than 20 m and did not create a separate woodland.

b) Proximity to other woodlands or other habitats

- Woodlands that overlap, abut or are close to other significant natural heritage features or areas could be considered more valuable or significant than those that are not.
- Patches close to each other are of greater mutual benefit and value to wildlife.

Interior habitats are identified as important woodland features. A rule of thumb used to identify woodland interior uses 100 m as the edge zone. Therefore, a woodland with some portions of the stand more than 100 m from any edge would possess interior habitats. Using this calculation, the subject lands contain a very minor interior woodland habitat as it does not provide sufficient canopy coverage (slightly more than 100m) to provide interior habitat.

c) Linkages

- Linkages are important connections providing for movement between habitats.
- Woodlands that are located between other significant features or areas can be considered to perform an important linkage function as “stepping stones” for movement between habitats.

The treed portion of the subject lands is contiguous to woodland south of the subject lands.

Alone, the subject lands do not provide a corridor function for the movement of animals (see 4.5.1.2).

d) Water Protection

- Source water protection is important.
- Natural hydrological processes should be maintained.

The subject lands are not located within a sensitive or threatened watershed.

e) Woodland Diversity

- Certain woodland species have had major reductions in representation on the landscape and may need special consideration.
- More native diversity is more valuable than less diversity.

The diversity of trees on the subject lands should not qualify the woodlands as significant.

4.2.3 Uncommon Characteristics

- *Woodlands that are uncommon in terms of composition, cover type, quality, age and age structure should be protected;*
- *Older woodlands (i.e. woodlands greater than 100 years old) are particularly valuable for several reasons including their contributions to genetic, species and ecosystem diversity.*

The woodlands present on the subject lands do not contain any uncommon woodland types, and are not greater than 100 years old.

4.2.4 Economic and Social Values

- *Woodlands that have high economic or social values through particular site characteristics or deliberate management should be protected.*

There are no managed woodlands on the subject lands.

4.3 Significant Wetlands

There are no significant wetlands on or adjacent to the subject lands.

4.4 Unevaluated Wetland

There are four small areas of unevaluated wetland, totaling 0.36ha, of area within the subject lands.

4.5 Areas of Natural and Scientific Interest

There are no areas of Natural and Scientific Interest located on or adjacent to the subject lands

4.6 Significant Wildlife Habitat

The Natural Heritage Policies of the PPS (Section 2.3.1) identify four principal components of Significant Wildlife Habitat. These are:

1. Seasonal Concentrations of Animals;
2. Animal Movement Corridors;
3. Rare Vegetation Communities or Specialized Habitats; and
4. Habitats of Species of Conservation Concern.

Only one of the SWH criteria applies to the subject property, based on the Significant Wildlife Habitat (SWH) assessment as shown in Table 2, The relevant SWH criteria follows: Special Concern & Rare Wildlife Species, as it pertains to eastern wood pewee - a Special Concern species under the **ESA, 2007** (Province of Ontario 2007), recorded as a possible breeder. Based on the data collected in 2013 and 2016, parts of the upland vegetation community (FOMM4-2) may qualify as Candidate Significant Wildlife Habitat, with this designation left to the discretion of the Town. At present, the terrestrial and wetland vegetation communities are not designated as SWH in the Town's Official Plan.

4.7 Natural Heritage Information Centre

HDG conducted a search of the Natural Heritage Information Centre database for element occurrences of natural areas, and living legacy sites in proximity to the subject lands (see Appendix D). Nine element occurrence for species were recorded in the 1km x 1km grid (data square 17NK6924) in which the subject lands are located. There were two (1) element occurrences of species at risk reported. The first species was element occurrence EO ID 91671, is a record for Northern Map Turtle (*Graptemys geographica*), last recorded in 1961. This species has an NHIC S-Rank of S3 with a Federal and Provincial status of Special Concern. This species of turtle was not observed on-site during any of the wildlife surveys conducted in 2016.

The second occurrence of species at risk was EO ID 104238 and is a record for Lake Sturgeon (Great Lakes – Upper St. Lawrence River population) (*Acipenser fulvescens*) which was observed in 2010. This species has an S-Rank of S2 and a Federal and Provincial status of Threatened. As no fisheries data was recorded from the subject lands, there were no observations of this species during the 2016 field surveys.

EO ID 21550 is an element occurrence of Prairie Warbler (*Setophaga discolor*) with an S-Rank of S3B.

The fourth element occurrence was for Woodland Pinedrops (*Pterospora andromedea*) EO ID 33969. This has an S-Rank of S2.

EO ID 34960 is an element occurrence of Schweinitz's Sedge (*Carex schweinitzii*) with an S-Rank of S3.

EO ID 35636, is a record for long-eared bat (*Myotis septentrionalis*), last recorded at that location on June 11, 1974. This species is listed as a Restricted Species. This species of bat was not observed on-site during any of the wildlife surveys conducted.

An element occurrence (59926) of Stiff Yellow Flax (*Linum medium var. medium*) was also identified within 5km of the subject lands, with an S-Rank of S3?.

The eighth element occurrence is for Houghton's Flatsedge (*Cyperus houghtonii*), EO ID 68144 with an S-Rank of S3.

The last element occurrence is EO ID 94698 for Zebra Mussel (*Dreissena polymorpha*). This species does not have an S-Rank.

As the subject lands are not connected to any significant natural areas, and construction is not expected to encroach on areas outside the subject lands, the proposal is not expected to create any impact to the habitats of the above noted species.

4.8 Species At Risk

There were two (1) element occurrences of species at risk reported during a search of the NHIC. Northern Map Turtle (*Graptemys geographica*), last recorded in 1961 and has a Federal and Provincial status of Special Concern. This species of turtle was not observed on-site during any of the wildlife surveys conducted in 2016.

The second occurrence of species at risk Lake Sturgeon (Great Lakes – Upper St. Lawrence River population) (*Acipenser fulvescens*) which was observed in 2010. This species has a Federal and Provincial status of Threatened. As no fisheries data was recorded from the subject lands as the proposed development does not encroach into Georgian Bay, there were no observations of this species during the 2016 field surveys.

5. Proposed Development Concept

The proposed development concept for the subject land consists of the construction of 22 single family dwellings. The development site will be severed into the proposed 22-lot subdivision. Betty Boulevard will be extended to connect with Shore Lane while Constance Boulevard will be extended to bisect Betty Boulevard (See Figure 5). Stormwater management (SWM) will be achieved through the use of bioswales, culverts and municipal storm sewers. Drainage for most of lots 9 and 10 is proposed to drain uncontrolled to the northwest corner of the development where it will be discharged into Nottawasaga Bay.

Nottawasaga Bay requires Level 1 'Enhanced' water quality treatment to Provincial standards. The proposed SWM plan must achieve 80% total suspended solids (TSS) removal prior to off-site discharge. Level 1 'Enhanced' treatment will be satisfied utilizing an oil-grit separator and bioswales in accordance with the MOECC Guidelines. Bioswales will be incorporated into the design to reduce pollutant and sediment transport from being released downstream. The check dams will decrease flow velocities and encourage ponding & infiltration into the bioswales (See Preliminary Stormwater Management Report prepared by C.C.Tatham, July 2017).

In order to provide Municipal servicing and grading to manage stormwater runoff, all existing vegetation within the development parcel will be removed. The existing subject lands contain small pocket wetlands that are fragmented and provide limited ecological function. The development proposal includes the removal of these pocket wetlands and the provision for offsetting this removal by way of providing an offset of enhanced plantings, bioswale creation, offsite compensation and/or a combination thereof (See Section 7).

Date Plotted: September 17, 2017 File Location: Q:\Projects\HDG\Wasaga Shores\ACAD\DWG\HDG\WS_Fig5_Air.dwg



Key Plan (n.t.s.)

Legend

- APPROXIMATE PROPERTY BOUNDARY
- ROADS
- ECOLOGICAL LAND CLASSIFICATION

SOURCE: BASE PROVIDED BY BOWERS & JONES SURVEYING LTD.

N

1 : 1500

No.	Revision	Date	Int.

THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND REPORT ANY ERRORS OR OMISSIONS TO THE CONSULTANT BEFORE COMMENCING OR PROCEEDING WITH ANY WORK.

DO NOT SCALE THIS DRAWING.

Hensel Design Group
 Advancing Sustainable Development Solutions
 372 Peel St. Collingwood, Ontario, L4Y 3W4
 Phone: 705-443-8394 Fax: 705-443-8494

PROJECT
WASAGA SHORES
 Wasaga Beach, Ontario

TITLE
DEVELOPMENT PROPOSAL

SEAL

Scale: 1:1,500	Drawing No.
Date: July 2017	Fig 5
CAD File: HDG_WS_Fig5_Air	
Drawn by: CM	
Checked by: MH	
Job No.:	

6. Impacts Assessment

Potential impacts to the existing natural heritage systems located on the subject and adjacent resulting from the proposed development plan on the subject and adjacent lands were compiled through research of literature and relevant authorities, as well as through on-site analysis.

The current plan for the proposed development is based on efforts to avoid impacts to the natural heritage features and functions of the subject and adjacent lands, achieve an economically feasible development, and accommodate engineering requirements.

A summary of anticipated impacts from development and proposed mitigation is outlined in Table 2.

Table 2: Summary of Potential Impacts to Natural Heritage Features

Category	Function of Feature	Potential Impact	Anticipated Impacts/Proposed Mitigation
Hydrology	Groundwater Recharge	Surface run-off will increase due to the creation of hard surfaces. Water quality will be impacted by the addition of suspended sediments and/or chemicals.	With implementation of best management practices as a part of the SWM Plan, post-development runoff will be managed such that off-site flows will not exceed pre-development rates for all storms excluding the Regional Storm. Water quality objectives will be achieved on-site through the use of Low Impact Development techniques including enhanced bioswales and grassed side-yard and rear-yard swales as well as an oil-grit separator for the R.O.W (see Stormwater Management Report, C.C. Tatham & Associated Ltd. November 2017).
Vegetation	Upland Communities	The upland vegetation within the subject lands is predominantly deciduous scattered with some coniferous. The proposed development will result in the clearing of all vegetation from the subject lands.	The upland vegetation found within the subject lands is not significant. The removal of vegetation on the subject lands will be partially mitigated by proposed landscape plantings and naturalization of rear yard buffer strips and creation of vegetated bioswales.
	Wetland Communities	0.36ha of existing wetland vegetation within the subject lands will be removed.	The existing unevaluated wetland areas located within the subject lands will be removed. The small wetland pockets were thoroughly evaluated for species composition and wildlife habitat potential and were determined to be insignificant. Through discussions with the NVCA, offsetting for the loss of these features is required. Offsetting will be provided by way of enhancement plantings, bioswale creation, offsite compensation and/or a combination thereof.
Wildlife	Bird Habitat	Of the bird species observed which would be affected by this development, none of the species are rare or occur in numbers that would qualify as significant.	Tree removal and site alterations should occur outside prime bird breeding season (preferably occurring from October to mid-March, and not during April 15 to July 30).
	Mammals	Of the mammals observed which would be affected by this development, none of the species are rare or occur in numbers that would qualify as significant. The proposed development will impact the range of habitats found within the subject lands presently being used by mammals.	Removal of the existing open and forested areas on the subject lands will reduce available habitat for mammals. No mitigation is proposed.
	Amphibians & Reptiles	Of the amphibians observed which would be affected by this development, none of the species are rare or occur in numbers that would qualify as significant. The proposed development will impact the limited habitat found within the subject lands presently being used by amphibians.	Removal of the small pocket wetlands on the subject lands will reduce available habitat for amphibians. Through discussions with the NVCA, offsetting for the loss of these features is required. Offsetting will be provided by way of enhancement plantings, bioswale creation, offsite compensation and/or a combination thereof.
Significant Natural Habitat	Landscape Connectivity	The wooded natural features on-site extend off-site to the south which provide pre-development habitat continuity for wildlife. Residential development to the east and	The proposed development plan will not provide the opportunity to improve or establish any potential corridor function of natural heritage

Category	Function of Feature	Potential Impact	Anticipated Impacts/Proposed Mitigation
		west eliminates the potential for any habitat connectivity/linkage.	features within or adjacent to the subject lands.
Significant Natural Habitat	Woodlands	There are no significant woodlands located within the subject lands. The existing vegetation will be removed within the proposed development area.	There is no compensation or mitigation proposed for removal of woodland vegetation other than for providing landscaping guidelines for future homeowners.

7. Additional Recommendations

Anticipated impacts and proposed mitigation is outlined above in Table 2 and this section presents additional recommendations that should also be considered as part of the detailed design for implementation prior to, during and post-construction to help reduce or eliminate impacts to the identified natural heritage features and functions within or adjacent to the subject lands. As well, these additional recommendations provide guidance to the final detailed design of the development plan as the project proceeds through the site plan process:

1. Prior to the commencement of construction, temporary barrier fencing should be installed to protect natural heritage features warranting protection from construction impacts. The barrier fence functions to avoid inadvertent intrusion from operation of machinery or other activities. The fencing should be installed under the supervision of a biologist or landscape architect, and maintained and remain in place until final grading and landscaping has been completed.
2. Mitigation for the removal of the noted 0.36ha of pocket wetlands located within the subject lands must be provided in the form of enhanced plantings, bioswale creation, offsite compensation and/or a combination thereof. A Condition of Draft Plan Approval shall require that final details of the mitigation be confirmed with the NVCA.
3. Barrier fencing should be placed at the property line or at the drip-line of trees where trees identified for retention and/or protection on adjacent lands are identified. Avoid inadvertent root compaction. In the event that roots or branches of trees to be protected are inadvertently damaged during construction, they should be clean cut as soon as possible. Exposed roots should then be covered with topsoil and mulched under the guidance of a biologist, arborist or landscape architect.
4. Soft engineering and bioengineering techniques are recommended in favour of hard engineering and hardened structures (i.e. rip rap, concrete) to control surface erosion wherever possible.
5. A construction work plan should designate specific locations for stockpiling of soils and other materials, as well as ensuring that vehicle refueling occurs off-site.
6. Areas that are to be cleared for development but are planned to later undergo landscape plantings should implement plans that includes native planting materials wherever appropriate.
7. Vegetation clearing should occur outside of the breeding bird season (April 15 to July 30) to prevent nest destruction.
8. No further studies are required to supplement the understanding of the natural heritage features of the subject lands.

8. Conclusion

Based on the information known from the site and the corresponding proposed development plan prepared by C.C. Tatham and Associates., we conclude that the proposed development is feasible from a natural heritage perspective, in so long as the recommendations and mitigations (including loss of wetland offset) identified herein are implemented. There are no natural heritage features to be retained on the subject lands that require buffers from development to be provided. The existing pond located in the northwest corner of the subject lands is being used for stormwater management purposes and will remain naturalized post-development.

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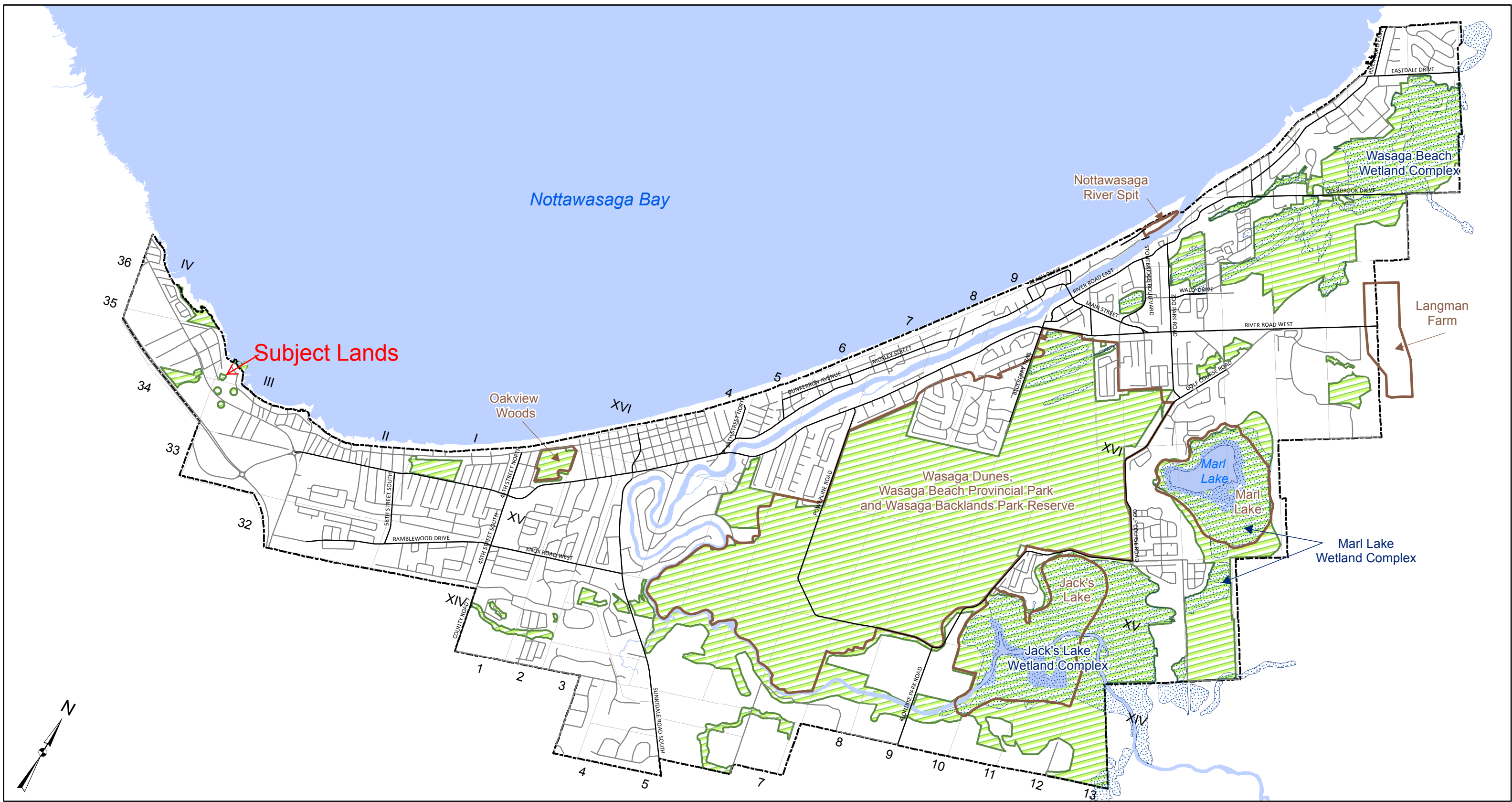
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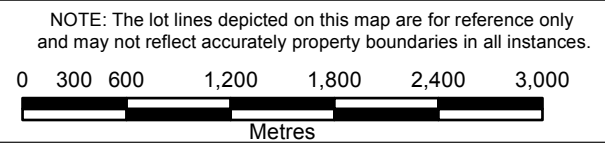
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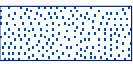

Appendix A

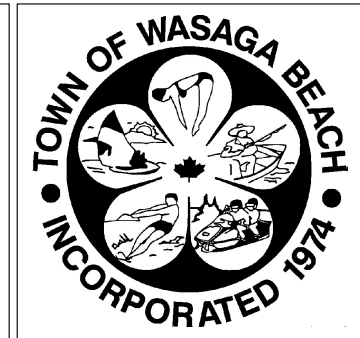
Schedule D, Town of Wasaga Beach Official Plan



Adopted by Council: September 9, 2003
 Approved by the County of Simcoe: June 22, 2004
 Consolidated: February 29, 2016



-  ANSI (Area of Natural and Scientific Interest)
-  Provincially Significant Wetland Complex
-  Natural Heritage System Category 1 and 2 Lands



Schedule 'D' Natural Heritage System

Official Plan of the Town of Wasaga Beach

Appendix B

Vascular Plant Species Found on the Subject Lands

Appendix B. List of Vascular Plants Observed on the Subject Lands

SCIENTIFIC NAME	COMMON NAME	FOCM4-1	FOMM4-2	FOMM8-2	SWDM2-2	SWDM4-5	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Abies balsamea</i>	balsam fir		X				G5	S5		
<i>Acer negundo</i>	Manitoba maple		X	X			G5	S5		
<i>Acer rubrum</i>	red maple	X			X		G5	S5		
<i>Acer saccharum</i>	sugar maple		X	X			G5	S5		
<i>Actaea pachypoda</i>	white baneberry	X					G5	S5		
<i>Actaea rubra</i>	red baneberry	X	X	X			G5	S5		
<i>Agrostis gigantea</i>	redtop				X		G5	S5		
<i>Agrostis stolonifera</i>	creeping bent grass				X		G5	SNA		
<i>Alliaria petiolata</i>	garlic mustard		X	X			GNR	SNR		
<i>Amelanchier arborea</i>	downy serviceberry		X				G5	S5		
<i>Amphicarpa bracteata</i>	hog-peanut				X		G5	S5		
<i>Anemone americana</i>	round-lobed hepatica		X				G5	S5		
<i>Anemone canadensis</i>	Canada anemone	X		X	X		G5	S5		
<i>Anemone virginiana</i>	thimbleweed		X				G5T5	S5		
<i>Apocynum androsaemifolium</i>	spreading dogbane		X	X			G5	S5		
<i>Aquilegia canadensis</i>	wild columbine		X				G5	S5		
<i>Aralia hispida</i>	bristly sarsaparilla		X				G5	S5		
<i>Aralia nudicaulis</i>	wild sarsaparilla	X	X	X			G5	S5		
<i>Arctium minus</i>	common burdock	X					GNR	SNA		
<i>Arctostaphylos uva-ursi</i>	bearberry		X				G5	S5		
<i>Asclepias incarnata</i>	swamp milkweed				X		G5	S5		
<i>Asclepias syriaca</i>	common milkweed	X	X	X			G5	S5		
<i>Asparagus officinalis</i>	wild asparagus		X				G5?	SNA		
<i>Athyrium filix-femina var. angustum</i>	northeastern lady fern	X	X		X		G5T5	S5		
<i>Barbarea vulgaris</i>	yellow rocket				X		GNR	SNA		
<i>Betula alleghaniensis</i>	yellow birch	X		X			G5	S5		
<i>Betula papyrifera</i>	white birch	X	X	X	X		G5	S5		
<i>Bidens frondosa</i>	beggar-ticks				X		G5	S5		
<i>Calamagrostis canadensis</i>	Canada bluejoint grass				X		G5	S5		
<i>Caltha palustris</i>	marsh marigold				X		G5	S5		
<i>Carex bebbii</i>	Bebb's sedge				X		G5	S5		
<i>Carex blanda</i>	woodland sedge	X	X				G5?	S5		
<i>Carex gracillima</i>	graceful sedge	X	X	X			G5	S5		
<i>Carex pensylvanica</i>	Pennsylvania sedge		X				G5	S5		
<i>Carex stipata</i>	awl-fruited sedge				X		G5	S5		
<i>Carex vulpinoidea</i>	fox sedge				X		G5	S5		
<i>Caulophyllum thalictroides</i>	blue cohosh	X					G4G5	S5		
<i>Cicuta maculata</i>	water-hemlock				X		G5	S5		
<i>Cirsium arvense</i>	Canada thistle			X			GNR	SNA		
<i>Clematis virginiana</i>	virgin's-bower	X	X				G5	S5		

Appendix B. List of Vascular Plants Observed on the Subject Lands

SCIENTIFIC NAME	COMMON NAME	FOCM4-1	FOMM4-2	FOMM8-2	SWDM2-2	SWDM4-5	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Clinopodium vulgare</i>	wild basil	X	X	X	X		G5	S5		
<i>Clintonia borealis</i>	bluebead lily		X				G5	S5		
<i>Coptis trifolia</i>	goldthread		X							
<i>Cornus alternifolia</i>	alternate-leaved dogwood	X	X			X	G5	S5		
<i>Cornus amomum</i>	silky dogwood			X	X		G5	S5		
<i>Cornus rugosa</i>	round-leaved dogwood	X		X	X		G5	S5		
<i>Cornus stolonifera</i>	red-osier dogwood	X	X	X	X	X	G5	S5		
<i>Corylus cornuta</i>	beaked hazel	X					G5	S5		
<i>Crataegus macracantha</i>	large-thorned hawthorn	X					GNRTNR	SU		
<i>Cypripedium parviflorum var. pubescens</i>	large yellow lady's slipper	X	X	X			G5T5	S5		
<i>Cystopteris bulbifera</i>	bulblet fern	X					G5	S5		
<i>Daucus carota</i>	wild carrot			X			GNR	SNA		
<i>Doellingeria umbellata</i>	flat-topped aster		X		X		G5T5	S5		
<i>Dryopteris carthusiana</i>	spinulose wood-fern	X	X				G5	S5		
<i>Echinocystis lobata</i>	wild cucumber				X		G5	S5		
<i>Eleocharis erythropoda</i>	red-stemmed spike-rush				X		G5	S5		
<i>Epilobium glandulosum</i>	northern willowherb				X		G5?	S5		
<i>Epilobium parviflorum</i>	small-flowered willowherb				X		GNR	SNA		
<i>Epipactis helleborine</i>	helleborine	X					GNR	SNA		
<i>Equisetum arvense</i>	field horsetail	X			X		G5	S5		
<i>Equisetum hyemale</i>	common scouring-rush			X			G5	S5		
<i>Equisetum pratense</i>	meadow horsetail				X					
<i>Erigeron canadensis</i>	Canada horseweed	X		X			G5	S5		
<i>Erigeron hyssopifolius</i>	daisy fleabane	X			X		G5	S5		
<i>Erythronium americanum</i>	yellow trout-lily	X	X				G5	S5		
<i>Eupatorium perfoliatum</i>	common boneset				X		G5	S5		
<i>Eurybia macrophylla</i>	large-leaved aster	X	X	X			G5	S5		
<i>Eutrochium maculatum</i>	spotted Joe-pye weed				X		G5T5	S5		
<i>Fragaria vesca</i>	woodland strawberry	X		X	X		G5	S5		
<i>Fragaria virginiana</i>	common strawberry	x	X	X			G5	S5		
<i>Franguls alnus</i>	glossy buckthorn	X		X	X		GNR	SNR		
<i>Fraxinus americana</i>	white ash	X		X			G5	S4		
<i>Fraxinus nigra</i>	black ash				X		G5	S4		
<i>Fraxinus pennsylvanica</i>	green ash			X	X	X	G5	S5		
<i>Galium palustre</i>	marsh bedstraw				X		G5	S5		
<i>Galium triflorum</i>	fragrant bedstraw	X			X		G5	S5		
<i>Geranium maculatum</i>	wild geranium			X						
<i>Geranium robertianum</i>	herb-robert	X		X			G5	S5		
<i>Geum aleppicum</i>	yellow avens	X					G5	S5		
<i>Glyceria striata</i>	fowl mannagrass				X		G5	S5		
<i>Hydrophyllum virginianum</i>	Virginia waterleaf	X	X				G5	S5		

Appendix B. List of Vascular Plants Observed on the Subject Lands

SCIENTIFIC NAME	COMMON NAME	FOCM4-1	FOMM4-2	FOMM8-2	SWDM2-2	SWDM4-5	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Hypericum perforatum</i>	common St. John's-wort	X	X	X	X		GNR	SNA		
<i>Ilex verticallata</i>	winterberry				X	X	G5	S5		
<i>Impatiens capensis</i>	spotted jewelweed				X		G5	S5		
<i>Iris versicolor</i>	blue flag				X		G5	S5		
<i>Juncus tenuis</i>	path rush	X	X				G5	S5		
<i>Lactuca serriola</i>	prickly lettuce	X					GNR	SNA		
<i>Leonurus cardiaca</i>	motherwort	X					GNR	SNA		
<i>Listera cordata</i>	heart-leaved twayblade	X	X				G5	S5		
<i>Lithospermum officinale</i>	European gromwell		X				GNR	SNA		
<i>Lonicera morrowii</i>	Morrow's honeysuckle	X		X			GNR	SNA		
<i>Lonicera tatarica</i>	tartarian honeysuckle	X	X	X			GNR	SNA		
<i>Lycopus europaeus</i>	European water-horehound				X		GNR	SNA		
<i>Lysimachia ciliata</i>	fringed loosestrife			X	X		G5	S5		
<i>Lythrum salicaria</i>	purple loosestrife				X		G5	SNA		
<i>Maianthemum canadense</i>	wild lily-of-the-valley	X	X	X	X		G5	S5		
<i>Maianthemum stellatum</i>	starry false solomon's-seal	X	X		X		G5	S5		
<i>Maianthemum trifolium</i>	three-leaved solomon's-seal		X				G5	S5		
<i>Matteuccia struthiopteris</i>	ostrich fern				X		G5	S5		
<i>Mentha arvensis</i>	wild mint				X		G5	S5		
<i>Myosotis laxa</i>	small forget-me-not	X		X	X		G5	S5		
<i>Onoclea sensibilis</i>	sensitive fern	X				X	G5	S5		
<i>Ostrya virginiana</i>	hop hornbeam		X				G5	S5		
<i>Oxalis montana</i>	common wood-sorrel	X					G5	S5		
<i>Parthenocissus quinquefolia</i>	Virginia creeper	X			X		G5	S4?		
<i>Phalaris arundinacea</i>	reed canary grass				X		G5	S5		
<i>Physocarpus opulifolius</i>	ninebark		X	X			GNR	S5		
<i>Picea glauca</i>	white spruce	X	X	X	X	X	G5	S5		
<i>Pinus resinosa</i>	red pine		X				G5	S5		
<i>Pinus strobus</i>	white pine		X				G5	S5		
<i>Plantago lanceolata</i>	English plantain	X					G5	SNA		
<i>Plantago major</i>	common plantain			X			G5	S5		
<i>Poa compressa</i>	Canada bluegrass	X	X				GNR	SNA		
<i>Polygaloides pauciflora</i>	gay-wings		X				G5	S5		
<i>Populus balsamifera</i>	balsam poplar			X		X	G5	S5		
<i>Populus grandidentata</i>	large-tooth aspen			X	X	X	G5	S5		
<i>Populus tremuloides</i>	trembling aspen	X	X		X		G5	S5		
<i>Prunus serotina</i>	black cherry	X					G5	S5		
<i>Prunus virginiana</i>	choke cherry	X	X				G5	S5		
<i>Pteridium aquilinum</i>	eastern bracken fern	X	X	X			G5	S5		
<i>Quercus rubra</i>	red oak	X	X				G5	S5		
<i>Ranunculus abortivus</i>	kidney-leaved buttercup		X							

Appendix B. List of Vascular Plants Observed on the Subject Lands

SCIENTIFIC NAME	COMMON NAME	FOCM4-1	FOMM4-2	FOMM8-2	SWDM2-2	SWDM4-5	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Ranunculus acris</i>	common buttercup				X		G5	SNA		
<i>Ranunculus hispidus</i>	bristly buttercup	X					G5T5	S5		
<i>Ranunculus repens</i>	creeping buttercup		X		X		GNR	SNA		
<i>Ranunculus sceleratus</i>	cursed crowfoot			X			G5T5	SNA		
<i>Ranunculus septentrionalis</i>	swamp buttercup				X		G5T5	S5		
<i>Rhamnus cathartica</i>	common buckthorn	X	X	X	X		GNR	SNA		
<i>Rhus radicans</i>	poison ivy	X	X	X	X		G5	S5		
<i>Rhus typhina</i>	staghorn sumac		X				G5	S5		
<i>Ribes americanum</i>	wild black currant		X				G5	S5		
<i>Ribes cynosbati</i>	pasture gooseberry	X	X	X			G5	S5		
<i>Ribes rubrum</i>	northern red currant		X	X	X	X	G4G5	SNA		
<i>Robinia pseudoacacia</i>	black locust						G5	SNA		
<i>Rosa multiflora</i>	multiflora rose						GNR	SNA		
<i>Rubus idaeus ssp. idaeus</i>	wild red raspberry		X		X		G5T5	SNA		
<i>Rubus occidentalis</i>	black raspberry				X		G5	S5		
<i>Rumex obtusifolius</i>	great water dock				X		GNR	SNA		
<i>Salix discolor</i>	pussy willow				X		G5	S5		
<i>Salix eriocephala</i>	Missouri river willow				X		G5	S5		
<i>Sambucus canadensis</i>	common elderberry		X	X	X		G5T5	S5		
<i>Sambucus racemosa</i>	red-berried elder	X					G5	S5		
<i>Shepherdia canadensis</i>	buffaloberry	X	X	X			G5	S5		
<i>Silene latifolia</i>	baldder campion		X				GNR	SNA		
<i>Sisyrinchium montanum</i>	blue-eyed grass		X				G5T4T5	S5		
<i>Solanum dulcamara</i>	deadly nightshade	X			X	X	GNR	SNA		
<i>Solidago altissima ssp. altissima</i>	tall goldenrod				X		GNR	S5		
<i>Solidago canadensis</i>	Canada goldenrod				X		G5T5	S5		
<i>Solidago juncea</i>	early goldenrod			X			G5	S5		
<i>Spiraea alba</i>	meadowsweet			X			G5	S5		
<i>Stachys officinalis</i>	wood betony	X					G5	S5		
<i>Streptopus roseus</i>	rose-twisted stalk		X	X			G5T5	S5?		
<i>Symphotrichum cordifolium</i>	heart-leaved aster	X	X	X			G5	S5		
<i>Symphotrichum lanceolatum</i>	panicked aster			X	X		G5T5	S5		
<i>Symphotrichum lateriflorum</i>	calico aster	X	X	X	X		G5	S5		
<i>Symphotrichum novae-angliae</i>	New England aster	X					G5	S5		
<i>Symphotrichum puniceum</i>	purple-stemmed aster				X		G5	S5		
<i>Symphotrichum urophyllum</i>	arrow-leaved aster		X	X			G4G5	S4		
<i>Taraxacum officinale</i>	common dandelion	X					G5	SNA		
<i>Thalictrum dioicum</i>	early meadow-rue	X		X	X		G5	S5		
<i>Thalictrum pubescens</i>	tall meadow-rue			X	X		G5	S5		
<i>Thelypteris palustris</i>	marsh fern				X		G5	S5		
<i>Thuja occidentalis</i>	eastern white cedar	X	X	X	X	X	G5	S5		
<i>Tilia americana</i>	basswood	X					G5	S5		

Appendix B. List of Vascular Plants Observed on the Subject Lands

SCIENTIFIC NAME	COMMON NAME	FOCM4-1	FOMM4-2	FOMM8-2	SWDM2-2	SWDM4-5	G-RANK	S-RANK	SARA, 2002	ESA, 2007
<i>Toxicodendron rydbergii</i>	Rydberg's poison ivy	X					G5	S5		
<i>Triadenum fraseri</i>	marsh St. John's-wort				X		G5	S5		
<i>Trifolium pratense</i>	red clover			X			GNR	SNA		
<i>Trillium erectum</i>	red trillium		X				G5	S5		
<i>Tsuga canadensis</i>	eastern hemlock		X	X			G5	S5		
<i>Tussilago farfara</i>	colt's-foot		X				GNR	SNA		
<i>Typha angustifolia</i>	narrow-leaved cattail				X		GNR	SNA		
<i>Typha latifolia</i>	broad-leaved cattail				X		G5	S5		
<i>Ulmus americana</i>	American elm	X	X		X	X	G5?	S5		
<i>Vaccinium angustifolium</i>	low sweet blueberry		X				G5	S5		
<i>Verbascum thapsus</i>	common mullein		X	X			GNR	SNA		
<i>Verbena hastata</i>	blue vervain				X		G5	S5		
<i>Veronica serpyllifolia</i>	thymeleaf speedwell	X	X				G5TNR	SNA		
<i>Viburnum acerifolium</i>	maple-leaf viburnum				X		G5	S5		
<i>Viburnum lentago</i>	nannyberry		X		X		G5	S5		
<i>Viburnum trilobum</i>	highbush cranberry	X	X				GNR	S5		
<i>Vicia cracca</i>	cow vetch			X			GNR	SNA		
<i>Viola cucullata</i>	marsh blue violet				X		G4G5	S5		
<i>Viola pubescens var. pubescens</i>	downy yellow violet	X	X				G5T5	S5		
<i>Viola sororia</i>	woolly blue violet	X	X				G5	S5		
<i>Vitis riparia</i>	riverbank grape	X	X	X	X		G5	S5		
<i>Waldsteinia fragarioides</i>	barren strawberry	X	X				G5	S5		

Legend		
<u>Provincial Rank (SRANK)</u>	<u>SARA, 2002</u>	<u>ESA, 2007</u>
S1 - Critically Imperiled	NAR - Not at Risk	NAR - Not at Risk
S2 - Imperiled	SC - Special Concern	SC - Special Concern
S3 - Vulnerable	T - Threatened	THR - Threatened
S4 - Apparently Secure	E - Endangered	END - Endangered
S5 - Secure		
SNA - Non Applicable or equivalent to non-native		

Appendix C

Photographs of Plant Species Observed on the Subject Lands



Photograph 1. Eastward view of unopened road allowance (Betty Blvd), abutting south edge of property



Photograph 2. As-built and on-going construction of single-family houses along Shore Lane, at north edge of property



Photograph 3. Westward view of as-built shoreline development along Georgian Bay, at northwest edge of subject property



Photograph 4. View inside a portion of fresh-moist white cedar coniferous forest (FOCM4-1), dominated by eastern white cedar, along with white birch, trembling aspen, white elm, white spruce and yellow birch



Photograph 5. Inside view of dense dry-fresh white cedar-poplar mixed forest (FOMM4-2) dominated by eastern white cedar and trembling aspen, along with white birch, white pine, eastern hemlock, buckthorn and dogwoods



Photograph 6. FOMM4-2 showing dense shrub stratum and eastern white cedar regrowth under a canopy of eastern white cedar, trembling aspen and white birch



Photograph 7. Northward view along trail within lowland stand of fresh-moist white birch mixed forest (FOMM8-2), with co-dominant of cedar, white spruce, balsam poplar, white ash and trembling aspen



Photograph 8. Inside view of green ash treed swamp (SWDM2-2), along east edge of subject property, showing lush groundcover of ferns, sedges and grasses



Photograph 9. View of green ash treed swamp (SWDM2-2), showing small pools of shallow stagnant water (May), with dense shrub stratum of dogwood



Photograph 10. Small unit of green ash treed swamp (SWD2-2) along north edge of unopened road allowance (Betty Blvd), showing a shallow pool of standing stagnant water in April



Photograph 11. Interior view of the southern poplar deciduous swamp (SWDM4-5) unit that extends off-site to the east, with stagnant water during April, but dry by end of May



Photograph 12. Interior view of the northern poplar deciduous swamp (SWDM4-5) unit that extends off-site to the east, with deep stagnant water during April, but dry by end of May

Appendix D

Breeding Birds Observed on the Subject Lands

Appendix D. Bird Species List for VanderMeer Homes Property (2013, 2016)

FAMILY	SCIENTIFIC NAME	COMMON NAME	Point Count Station ³			Breeding Evidence ¹	Conservation Rank Information ²			
			1	2	3		S RANK	G RANK	SARO STATUS	COSEWIC Status
Anatidae	<i>Anas platyrhynchos</i>	mallard	P			Possible	S5	G5		
Anatidae	<i>Branta canadensis</i>	Canada goose	FO			None	S5	G5		
Ardeidae	<i>Ardea herodias</i>	great blue heron	FO			None	S4	G5		
Bombycillidae	<i>Bombycilla cedrorum</i>	cedar waxwing			C	Possible	S5B	G5		
Cardinalidae	<i>Cardinalis cardinalis</i>	northern cardinal			P	Probable	S5	G5		
Cardinalidae	<i>Pheucticus ludovicianus</i>	rose-breasted grosbeak			S	Possible	S4B	G5		
Cardinalidae	<i>Piranga olivacea</i>	scarlet tanager		S		Possible	S4B	G5		
Cathartidae	<i>Cathartes aura</i>	turkey vulture			FO	None	S5B	G5		
Charadriidae	<i>Charadrius vociferus</i>	killdeer			A	Probable	S5B,S5N	G5		
Columbidae	<i>Zenaidura macroura</i>	mourning dove			C	Probable	S5	G5		
Corvidae	<i>Corvus brachyrhynchos</i>	American crow		C		Probable	S5B	G5		
Corvidae	<i>Cyanocitta cristata</i>	blue jay		C	C	Probable	S5	G5		
Emberizidae	<i>Melospiza melodia</i>	song sparrow			X	Probable	S5B	G5		
Emberizidae	<i>Pooecetes gramineus</i>	vesper sparrow			X	None	S4B	G5		
Emberizidae	<i>Zonotrichia albicollis</i>	white-throated sparrow		S		Possible	S5B	G5		
Emberizidae	<i>Spizella passerina</i>	chipping sparrow		C		Probable	S5B	G5		
Fringillidae	<i>Carduelis tristis</i>	American goldfinch	P	S	P	Possible	S5B	G5		
Hirundinidae	<i>Tachycineta bicolor</i>	tree swallow		C		Probable	S4B	G5		
Icteridae	<i>Agelaius phoeniceus</i>	red-winged blackbird		S		Probable	S4	G5		
Icteridae	<i>Molothrus ater</i>	brown-headed cowbird			C	Possible	S4B	G5		
Icteridae	<i>Quiscalus quiscula</i>	common grackle	C	C	C	Probable	S5B	G5		
Icteridae	<i>Icterus galbula</i>	Baltimore oriole			S	Probable	S4B	G5		
Laridae	<i>Larus delawarensis</i>	ring-billed gull	FO			None	S5B,S4N	G5		
Mimidae	<i>Dumetella carolinensis</i>	gray catbird		S	S	Probable	S4B	G5		
Mimidae	<i>Toxostoma rufum</i>	brown thrasher			S	Possible	S4B	G5		
Paridae	<i>Poecile atricapillus</i>	black-capped chickadee	C	C	C	Probable	S5	G5		
Parulidae	<i>Geothlypis trichas</i>	common yellowthroat		S		Possible	S5B	G5		
Parulidae	<i>Mniotilta varia</i>	black-and-white warbler			S	Possible	S5B	G5		
Parulidae	<i>Seiurus autocapilla</i>	ovenbird		S		Possible	S4B	G5		
Parulidae	<i>Setophaga petechia</i>	yellow warbler	S			Probable	S5B	G5		
Passeridae	<i>Passer domesticus</i>	house sparrow			X	None	SNA	G5		
Phalacrocoracidae	<i>Phalacrocorax auritus</i>	double-crested cormorant	FO			None	S5B	G5		
Picidae	<i>Colaptes auratus</i>	northern flicker		C	C	Probable	S4B	G5		
Picidae	<i>Picoides pubescens</i>	downy woodpecker		C	C	Probable	S5	G5		
Picidae	<i>Sphyrapicus varius</i>	yellow-bellied sapsucker		H	H	Possible	S4B	G5		
Sittidae	<i>Sitta canadensis</i>	red-breasted nuthatch			C	Possible	S5	G5		
Sittidae	<i>Sitta carolinensis</i>	white-breasted nuthatch		C		Possible	S5	G5		
Scolopacidae	<i>Actitis macularias</i>	spotted sandpiper	H			Possible	S5	G5		
Sturnidae	<i>Sturnus vulgaris</i>	European starling			X	None	SNA	G5		
Turdidae	<i>Turdus migratorius</i>	American robin	C	C	V	Probable	S5B	G5		
Tyrannidae	<i>Contopus virens</i>	eastern wood-pewee			C	Possible	S4B	G5	SC	SC
Tyrannidae	<i>Myiarchus crinitus</i>	great crested flycatcher		C	C	Possible	S4B	G5		
Vireonidae	<i>Vireo olivaceus</i>	red-eyed vireo			C	Possible	S5B	G5		
Vireonidae	<i>Vireo gilvus</i>	warbling vireo			C	Possible	S5B	G5		

Point Count Survey Duration - at least 10 minutes/station

Dawn Bird Survey Observation Conditions:

June 6, 2013; Start Time 0549hr/ End Time 06:21hr; Observer - Azimuth Environmental Consulting Inc.

June 20, 2013; Start Time 0557hr/ End Time 0621hr; Observer - Azimuth Environmental Consulting Inc.

June 23, 2016: Start Time 0600hr/End Time 0700hr; Observer - David G. Cunningham (CEA)

¹Highest level of breeding evidence detected based on Ontario Breeding Bird Atlas (OBBA) criteria and Breeding Evidence Codes

²Conservation Rank - from Ontario Ministry of Natural Resources & Forestry, Natural Heritage Information Centre, Species at Risk in Ontario Lists and Environment Canada/COSEWIC Lists

S-rank - S1 - Extremely Rare, S2 - Very Rare, S3 - Rare to Uncommon, S4 - Common, S5 - V NAR - Not at Risk

G-Rank - G1 - Critically Imperiled, G2 - Imperiled, G3 - Vulnerable, G4 - Apparently Secure, G5 - Secure

³Breeding Evidence Codes: e.g, **S** Singing male detected during either 2013 or 2016 surveys

Breeding Evidence Breeding Evidence Codes

None FO - Species observed Flying Over showing no signs of use of subject or adjacent lands

Observed X - Species observed, no evidence of breeding

Possible H - Species observed in its breeding season in suitable nesting habitat

Note S or C - Singing male(s) present (S), or breeding calls heard (C), in suitable nesting habitat in breeding season

Probable P - Pair observed in suitable nesting habitat in nesting season

Probable D - Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation.

Probable V - Visiting probable nest site

Probable A - Agitated behaviour or anxiety calls of an adult

Probable B - Brood Patch on adult female or cloacal protuberance on adult male

Probable N - Nest-building or excavation of nest hole.

Confirmed DD - Distraction display or injury feigning.

Confirmed NU - Used nest or egg shells found (occupied or laid within the period of the survey)

Confirmed FY - Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight

Confirmed AE - Adult leaving or entering nest sites in circumstances indicating occupied nest

Confirmed FS - Adult carrying fecal sac.

Confirmed CF - Adult carrying food for young.

Confirmed NE - Nest containing eggs.

Confirmed NY - Nest with young seen or heard

Note : Possible if only one observation of S or C, Probable if evidence of S or C in same place on two or more dates a week or more apart

Appendix E

Mammals and Herptofauna Species Observed on the Subject Lands

Appendix E. List of Mammal and Herpetofauna Species Observed or Heard (2013, 2016) on or Abutting the Subject Lands

Common Name	Scientific Name
<i>Mammals</i>	
eastern cottontail	<i>Sylvilagus floridanus</i>
eastern chipmunk	<i>Tamias striatus</i>
eastern gray squirrel	<i>Sciurus carolinensis</i>
red squirrel	<i>Tamiasciurus hudsonicus</i>
northern raccoon	<i>Procyon lotor</i>
American porcupine	<i>Erethizon dorsatum</i>
white-tailed deer	<i>Odocoileus virginianus</i>
<i>Amphibians and Reptiles</i>	
spring peeper	<i>Pseudacris crucifer</i>
western chorus frog	<i>Pseudacris triseriata</i>
wood frog	<i>Lithobates sylvatica</i>
northern leopard frog	<i>Lithobates pipiens</i>
gray treefrog	<i>Hyla versicolor</i>
eastern garter snake	<i>Thamnophis sirtalis sirtalis</i>

Appendix F

Natural Heritage Information Centre Search Results

Appendix F. NHIC Search – Data Square 17NK6924

Element Type	Common Name	Scientific Name	SRank	SARO Status	COSEWIC Status	Last Obs Date	EO ID	Details URL
SPECIES	Prairie Warbler	Setophaga discolor	S3B	NAR	NAR	1927-06-09	21550	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=21550
SPECIES	Woodland Pinedrops	Pterospora andromedea	S2			1948-07-28	33969	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=33969
SPECIES	Schweinitz's Sedge	Carex schweinitzii	S3				34960	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=34960
RESTRICTED SPECIES	RESTRICTED SPECIES	RESTRICTED SPECIES				1974-06-11	35636	
SPECIES	Stiff Yellow Flax	Linum medium var. medium	S3?				59926	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=59926
SPECIES	Houghton's Flatsedge	Cyperus houghtonii	S3			1973-08-20	68144	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=68144
SPECIES	Northern Map Turtle	Graptemys geographica	S3	SC	SC	1961-?	91671	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=91671
SPECIES	Zebra Mussel	Dreissena polymorpha	SNA			1998-07-21	94698	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=94698
SPECIES	Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	Acipenser fulvescens pop. 3	S2	THR	THR	2010-09-01	104238	http://nhic.mnr.gov.on.ca/reports/public_details.php?source=1kmgriddetail&nhic_eo_id=104238