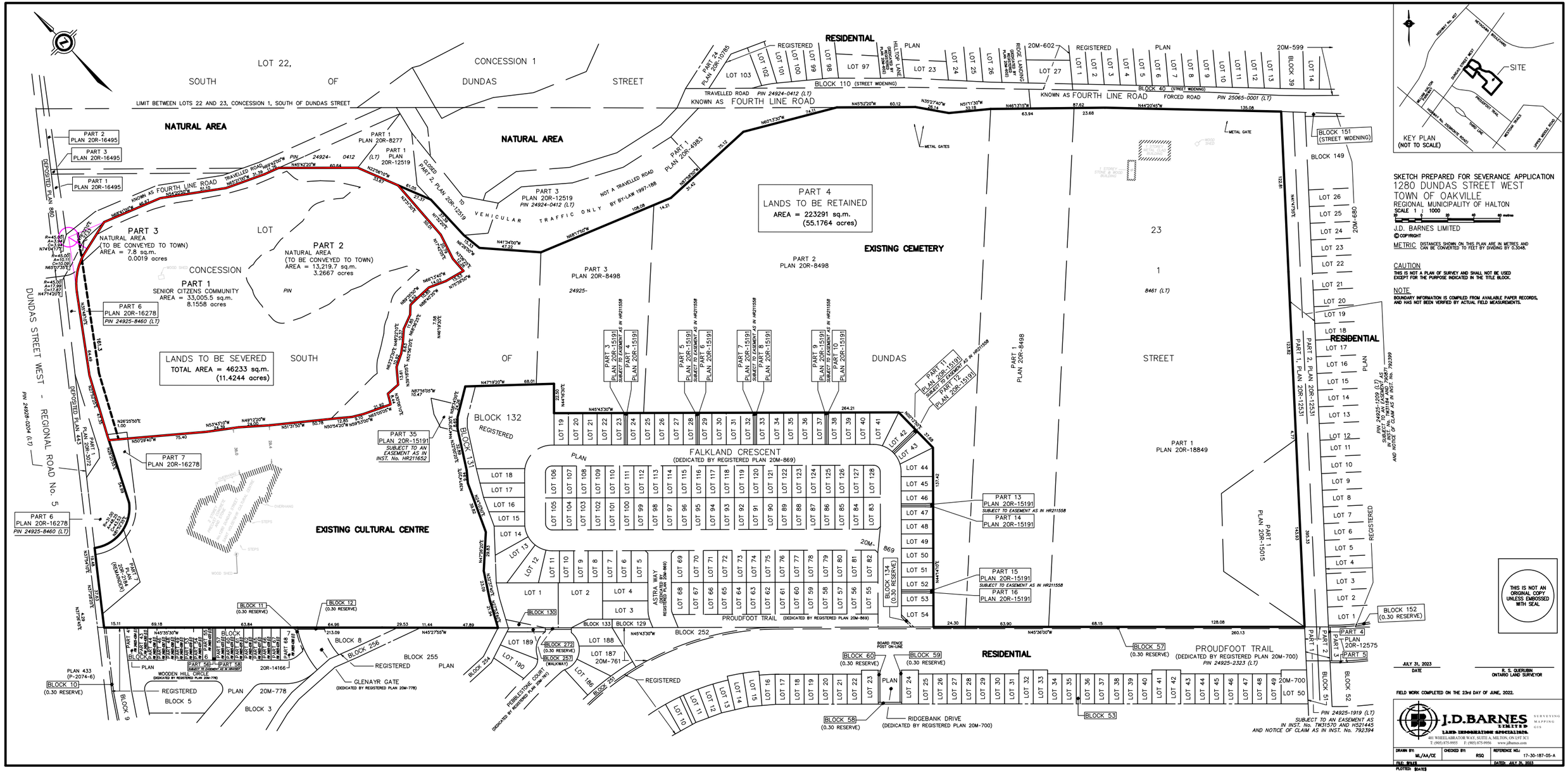


Data Source: JD Barnes

CONSENT SKETCH

1280 Dundas St W
Oakville, ON

Easement - Instrument HR211652:
In favour of the Town of Oakville access and maintenance of stormwater management infrastructure

- Lot Frontage
- Hypothetical Lot Line Calculation as per Zoning By-Law 2014-014
- Subject Lands
- Natural Area Boundary

Site Statistics	
Distance to nearest Town Line	± 3.6 km
Distance to Dundas St W Bridge across Sixteen Mile Creek	± 80 m
Street Width - Dundas St W Width	± 52 m
Street Width - Fourth Line	± 8.5 m

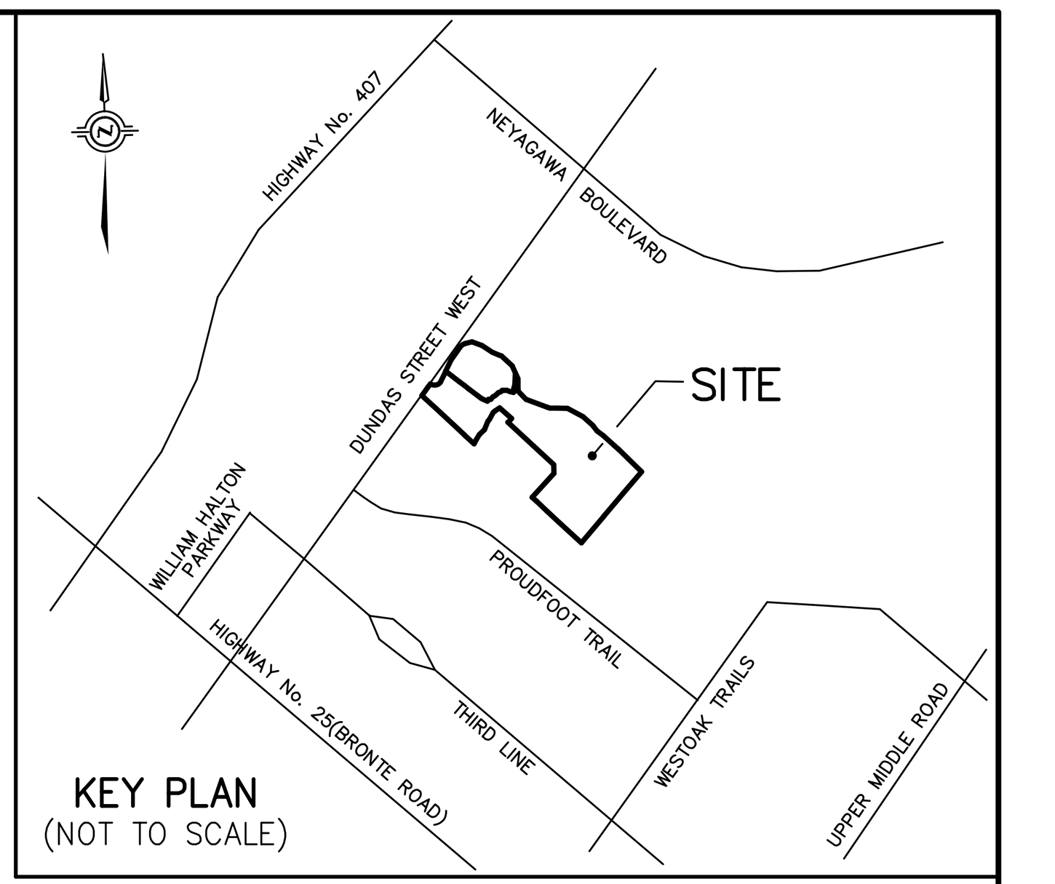
Retained Lands	
Lot Area	223,291 m^2
Lot Frontage	61.4 m
Severed Lands	
Total Lot Area	46,233 m^2
Developable Area	33,005.5 m^2
Natural Area	13,219.7 m^2
Lot Frontage	161.3 m

Date: August 1, 2023

Scale: NTS

N:\1741\TA - 4TH LINE AND DUNDAS, OAKVILLE (ST. VOLODMYR'S SITE)\1 - MHBC DOCUMENTS\SEVERANCE SKETCHES\2023-08-01\1741A CONSENT SKETCH (2023-08-01).DWG

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
204-442 BRANT STREET, BURLINGTON, ON, L7R 2G4 | P: 905.639.8686 | WWW.MHBCPLAN.COM



SKETCH PREPARED FOR SEVERANCE APPLICATION

1280 DUNDAS STREET WEST

TOWN OF OAKVILLE

REGIONAL MUNICIPALITY OF HALTON

SCALE 1 : 1000

20 0 20 40 60 metres

J.D. BARNES LIMITED

METRIC DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

CAUTION

THIS IS NOT A PLAN OF SURVEY AND SHALL NOT BE USED EXCEPT FOR THE PURPOSE INDICATED IN THE TITLE BLOCK.

NOTE

BOUNDARY INFORMATION IS COMPILED FROM AVAILABLE PAPER RECORDS, AND HAS NOT BEEN VERIFIED BY ACTUAL FIELD MEASUREMENTS.

THIS IS NOT AN ORIGINAL COPY UNLESS EMBOSSED WITH SEAL

JULY 31, 2023
DATE

R. S. QUERUBIN
ONTARIO LAND SURVEYOR

FIELD WORK COMPLETED ON THE 23rd DAY OF JUNE, 2022.

J.D.BARNES LIMITED
SURVEYING MAPPING GIS
LAND INFORMATION SPECIALISTS
401 WHEELABRATOR WAY, SUITE A, MILTON, ON L9T 3C1
T: (905) 875-9955 F: (905) 875-9956 www.jdbarnes.com

DRAWN BY:	CHECKED BY:	REFERENCE NO.:
ML/AA/CE	RSQ	17-30-187-05-A

FILE: G:\17-30-187\05\Drawing\17-30-187-05-A.dgn | DATED: JULY 31, 2023

PLOTTED: 8/1/2023

MHBC | PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE

September 16, 2024

Heather McCrae
Secretary Treasurer
Committee of Adjustment
Town of Oakville
1225 Trafalgar Road
Oakville, ON L6H 0H3

Via email: coarequests@oakville.ca

Dear Ms. McCrae:

RE: APPLICATION FOR SEVERENCE
1280 DUNDAS STREET WEST
OUR FILE: 17411A

On behalf of our client, Delmanor Oakville Inc. who is working directly with St. Volodymyr's Cathedral of Toronto, we are pleased to submit an application for consent to sever a portion of the existing lands municipally addressed as 1280 Dundas Street West (the "Subject Lands") to create a new lot for the purposes of developing a senior citizens' community. In support of this application, please find enclosed the following:

1) Consent Application form;
2) Severance Sketch, prepared by MHBC Planning;
3) Survey Sketch, prepared by J.D. Barnes Limited;
4) OLT Decision issued April 25 (Case No OLT-22-003970);
5) OLT Amending Decision issued May 8,2023 (Case No OLT-22-003970); and
6) Environmental Impact Study, dated April 13, 2023, with figures dated April 5, 2023.

Please note we acknowledge the following fees:

7) Town Consent Application fee in the amount of $9,324.00 (Paid – July 7, 2023);
8) Conservation Halton Consent Application fee in the amount of $2,445.00 (Paid – October 18, 2023); and
9) Region Consent Application fee in the amount of $1,220.89 (Paid – July 7, 2023); and
10) Town Deferral Fee in the amount of $394.00 (Fee to be provided under separate cover).

PROPOSED CONSENT

The proposal seeks to sever the northern east quadrant of the Subject Lands, between Sixteen Mile Creek and St. Volodymyr Cultural Centre for a senior citizens' community. The retained lands will have approximately 61.4 metres of frontage along Dundas Street West. The severed lands will have approximately 161.3 metres of frontage along Fourth Line. The attached consent sketch describes the retained and severed lots.

As identified on the Consent Sketch, provided with this application, the retained lot is identified as Part 4. The severed lot consists of three parts (Parts 1, 2 and 3). Part 1 is the developable area of the severed lot in which the proposed Senior Citizens' Community will be developed in the future. Part 2 and 3 comprise the Natural Area on the severed lands which will be conveyed to the Town of Oakville through this application.

	Retained Lot (Part 4)	**Severed Lot (Parts 1, 2 and 3)**
Lot Area	± 223,291 m²	± 46,233 m² (13,227.5 m² of Natural Area will be conveyed to the Town of Oakville – Part 2 and 3)
Lot Frontage	± 61.4 m	± 161.3 m
Proposed Use	Cultural Centre and Cemetery	Senior Citizens' Community

BACKGROUND

Existing Site

The Subject Lands are approximately 27.05 hectares in total area. The Subject Lands have frontage onto a number of roads, with a primary lot frontage of approximately 61.4 metres on Dundas Street West. In addition to Dundas Street West, the Subject Lands also abut Fourth Line and Proudfoot Trail. Fourth Line is divided into two quadrants that are connected by a pedestrian walkway. The north section of Fourth Line has approximately 475 metres of frontage abutting the Subject Lands and the south section has approximately 460 metres. There is approximately 283 metres of frontage on Proudfoot Trail.

The Subject Lands are currently occupied with the St. Volodymyr Cultural Centre and cemetery. The northern east quadrant of the Subject Lands is currently vacant. The Subject Lands are connected to municipal water and sewer services.

The Subject Lands are located within the Parks and Open Space & Private Open Space designations of the Official Plan. Subject Lands are zoned Private Open Space with Site Specific Provisions (O2-122), Natural Area (N) and Cemetery (CEM). The severed lands are within the portion designated Private Open Space and zoned as Private Open Space with Site Specific Provisions. The Site Specific Provision permits senior citizens housing in the Private Open Space designation.

An OLT settlement hearing was held on April 19, 2023 where an interim Zoning By-law was approved for the subject lands, permitting the seniors citizens' community. The OLT decision dated April 25, 2023, and amending decision dated May 8, 2023, are attached.

Surrounding Land Uses

The lands to the north of the Subject Lands are zoned Future Development (FD) and consist of the White Oaks Communications Ltd. Radio Towers.

The lands to the west of the Subject Lands are zoned Residential Low Zone (RL6) and Residential Medium Zone (RM1) and are predominately single detached dwellings and townhouses.

The lands to the south of the Subject Lands are zoned Residential Low Zone (RL8) and Residential Low Zone (RL9) and are predominately single detached dwellings and townhouses.

The lands to the east of the Subject Lands are zoned Residential Low Zone (RL5), Residential Low Zone (RL8) and Natural Area (N) and are predominately single detached dwellings, townhouses and Sixteen Mile Creek Natural Area.

The severed lands, given its location, would be buffered to the west by the existing St. Volodymyr cultural centre, to the south by Natural Area, to the east by Fourth Line and Natural Area and to the north by Fourth Line.

PLANNING ANALYSIS AND JUSTIFICATION

Planning Act

Section 51(24) of the *Planning Act* requires that regard be had for the following considerations when creating new lots:

- *"the health, safety, convenience, accessibility for persons with disabilities and welfare of the present and future inhabitants of the municipality;"*

  The proposed consent will not impact the health, safety, convenience, accessibility for persons with disabilities and welfare of the present and future inhabitants of the municipality. Given the intent of the severed land is to develop a senior citizens' community, the applicant in association with the Town of Oakville will ensure that the proposed development will be planned and designed in accordance with the applicable legislation, including the Ontario Building Code and the Accessibility for Ontarians with Disabilities Act.

- *"the effect of development of the proposed subdivision on matters of provincial interest as referred to in section 2;"*

The proposed consent is consistent with the matters of provincial interest listed in Section 2 of the *Planning Act as follows:*

- *The applicant has been working with the Town and Region and providing the necessary environmental studies and follow-up work to ensure the protection of natural areas. The limits of development have been established through the Zoning By-law OLT approval and approved EIS;*
- *The applicant has been working with the surrounding operator of the AM radio towers to ensure* **appropriate steps are taken in relation to the proposed development's proximity to the AM Radio Station, which have been incorporated into an agreed upon minutes of settlement as a result of the OLT hearing***;*
- *The proposed* **senior citizens'** *community will be designed to ensure accessibility for the residents;*
- *The proposed consent assists with facilitating a safe and healthy community as the Official Plan directs that senior citizen's housing is permitted on these lands;*
- *The proposed development intends to provide a continuum of care from independent living to assisted living providing a full range of senior citizens housing;*
- *As noted above, the proposed consent will implement the Official Plan site specific policy permitting Senior Citizen's housing, which would make this location an appropriate location of growth and development.*

- *"whether the proposed subdivision is premature or in the public interest; "*

The proposed consent is for the purposes of creating a new lot for a future senior citizens' community on the vacant portion of the Subject Lands. The remainder of the Subject Lands have been developed with a Cultural Centre and a Cemetery. The future senior citizens' community will operate independently from the remainder of the lands. Both the retained and severed lands have access to existing municipal roads and services. The Subject Lands are subject to a Zoning By-law Amendment, which was approved by the OLT through a settlement with the Town, Region and Conservation Authority (OLT-22-003970) to allow for the senior citizens' community, and the Site Plan Approval process is progressing to develop the proposed severed parcel. Therefore, the proposed consent is not premature and is in the public interest.

- *"whether the plan conforms to the official plan and adjacent plans of subdivision, if any; "*

The retained and severed lots conform to the respective Official Plan policies. The severed lands will facilitate the development of senior citizen's housing, which is a site specific permitted use, and at the same time will ensure that appropriate buffers are in place with the surrounding natural area, in accordance with the OLT approval, and per recent discussions with the Town of Oakville, the Natural Area will be conveyed to the Town of Oakville. The severed lot will have frontage and access to Fourth Line. The retained lands will continue to serve as a cultural centre

and cemetery with frontage on Dundas Street West. The severed lot is over 100 metres to the nearest subdivision and is buffered to the west by the existing cultural centre and to the south by the Natural Area, so impacts to any adjacent plans of subdivision are not anticipated.

- *"the suitability of the land for the purposes for which it is to be subdivided; "*

  The proposed severance will create a lot utilizing the existing road network facilitate a use that is already permitted in the Official Plan. The proposed severed lands are currently vacant and will be used for a future senior citizens' community, with zoning approval at the OLT and to be approved through a Site Plan Application which was deemed complete on December 12, 2022.

- *"if any affordable housing units are being proposed, the suitability of the proposed units for affordable housing; "*

  Not applicable to this application.

- *"the number, width, location and proposed grades and elevations of highways, and the adequacy of them, and the highways linking the highways in the proposed subdivision with the established highway system in the vicinity and the adequacy of them; "*

  The overall Subject Lands have existing access to the surrounding road network via Fourth Line (North Section), Fourth Line (South Section) and Proudfoot Trail. A new access onto Fourth Line (North Section) is proposed to service the proposed senior citizens' community of the severed lands. This segment of Fourth Line connects to a signalized intersection at Dundas St W.

- *"the dimensions and shapes of the proposed lots; "*

  The existing Subject Lands are already irregularly shaped due to the existing uses and natural heritage features. The proposed consent will divide the lands to create a more logical lot fabric and still preserve the natural areas, as agreed upon at the OLT.

- *"the restrictions or proposed restrictions, if any, on the land proposed to be subdivided or the buildings and structures proposed to be erected on it and the restrictions, if any, on adjoining land; "*

  Not applicable to this application.

- *"conservation of natural resources and flood control; "*

  Working with the Town, Region and Conservation Authority, the Natural Area and appropriate buffering and delineation has been agreed to through the OLT mediation and subsequent settlement. The delineation of the Natural Area and

appropriate buffers ensures that the proposed development does not impact the surrounding natural area. The engineering of the severed lands provides stormwater controls to ensure that appropriate flow controls are provided from the severed lands, and will be further refined through the site plan application.

- *"the adequacy of utilities and municipal services; "*

  Utilities and municipal services already exist and service the existing Cultural Centre and Cemetery. The proposed senior citizens' community is anticipated to be developed on full municipal services.

- *"the adequacy of school sites; "*

  Not applicable to this application.

- *"the area of land, if any, within the proposed subdivision that, exclusive of highways, is to be conveyed or dedicated for public purposes; "*

  Not applicable to this application.

- *"the extent to which the plan's design optimizes the available supply, means of supplying, efficient use and conservation of energy; and "*

  Matters with respect to energy efficiency and conservation will be dealt with through the Site Plan Application and Building Permit process for the proposed senior citizens' community.

- *"the interrelationship between the design of the proposed plan of subdivision and site plan control matters relating to any development on the land, if the land is also located within a site plan control area designated under subsection 41 (2) of this Act or subsection 114 (2) of the City of Toronto Act, 2006. 1994, c. 23, s. 30; 2001, c. 32, s. 31 (2); 2006, c. 23, s. 22 (3, 4); 2016, c. 25, Sched. 4, s. 8 (2). "*

  The Subject Lands are subject to Site Plan Control for future development of the senior citizens' community and such matters are being dealt with through the Site Plan Approval process.

Provincial Policy Statement 2020

The Provincial Policy Statement (PPS) provides policy direction on matters of provincial interest related to land use planning and development with the goal of enhancing the quality of life for all Ontarians. The *Planning Act* requires that decisions affecting a planning matter "be consistent with" the policies of the PPS. The proposed consent is consistent with the PPS as it provides, among other things, lots that are of suitable size to support the proposed senior citizens' community, creates investment-ready land and optimizes the long-term availability and use of land on full municipal services.

Growth Plan for the Greater Golden Horseshoe 2020

The Growth Plan for the Greater Golden Horseshoe (Growth Plan) provides a framework for implementing the provincial government's vision for building stronger, prosperous communities by better managing growth in the Greater Golden Horseshoe. The *Planning Act* also requires that decisions affecting a planning matter "conform with" the Growth Plan. The proposal conforms to the Growth Plan by developing a designated Built-Up Area to promote more efficient use of existing, vacant and underutilized open space lands, which have site-specific permissions, and ensuring there is availability of suitably sized development parcels in an appropriate location to accommodate a senior citizens' community for an aging population on full municipal services.

Halton Region Official Plan

As identified on Map 1 "Regional Structure" of the Regional Official Plan, a portion of the Subject Lands have been identified as Regional Natural Heritage System. An Environmental Impact Study (EIS) has been prepared by SLR Consulting (Canada) Ltd., in coordination with the Town of Oakville, Region of Halton and Halton Conservation Authority for the Natural Area, and appropriate buffering and delineation has been agreed to through the OLT mediation and settlement to ensure the proposed development does not negatively impact the surrounding the natural area.

The Region of Halton Official Plan requires the following to be considered when proposing development within the Regional Natural Heritage System

118 (2) It is the policy of the Region to apply a systems based approach to implementing the Regional Natural Heritage System by:

a) Prohibiting development and site alteration within significant wetlands, significant coastal wetlands, significant habitat of endangered and threatened species and fish habitat except in accordance with Provincial and Federal legislation or regulations;

As noted in Section 4.2.11, 6.1.4 and 7.5 of the EIS, no candidate significant wildlife habitats were identified on the Subject Lands outside of the delineated natural area. The EIS identifies appropriate buffers on Figure 3 to the natural area to ensure wildlife will not be negatively impacted.

b) Not permitting the alteration of any components of the Regional Natural Heritage System unless it has been demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions; in applying this policy, agricultural operations are considered as compatible and complementary uses in those parts of the Regional Natural Heritage System under the Agricultural System and are supported and promoted in accordance with policies of this Plan;

The development limit line is discussed in Section 6.1.6 of the EIS and is illustrated on Figure 3. The development limit line was derived from the outermost boundary of the natural heritage and physical constraints and their respective buffers and setbacks. The following constraints were

considered when determining the development limit; hazard lands, significant valleylands, long-term stable top of slope, staked top of bank, significant woodlands, significant wildlife habitat and tree protection zones. The delineated development limit ensures there will be no negative impacts on the natural feature and areas or their ecological functions. The results of the study have been accepted through the OLT mediation and settlement.

c) *Refining the boundaries of the Regional Natural Heritage System in accordance with Section 116.1; and*

The development limit line is discussed in Section 6.1.6 of the EIS and is illustrated on Figure 3. The development limit line was derived from the outermost boundary of the natural heritage and physical constraints and their respective buffers and setbacks. The following constraints were considered when determining the development limit; hazard lands, significant valleylands, long-term stable top of slope, staked top of bank, significant woodlands, significant wildlife habitat and tree protection zones. The delineated development limits has been reviewed and agreed to by the Town, Region and Conservation Authority.

d) *Introducing such refinements at an early stage of the development or site alteration application process and in the broadest available context so that there is greater flexibility to enhance the ecological functions of all components of the system and hence improve the long-term sustainability of the system as a whole.*

As noted above, the delineated development limit has taken into consideration all required constraints and appropriate buffers to maintain the ecological function of the Natural Heritage System and ensure long-term sustainability.

118 (3) It is the policy of the Region to require the proponent of any development or site alteration that meets the criteria set out in Section 118(3.1) to carry out an Environmental Impact Assessment (EIA), unless:

a) *the proponent can demonstrate to the satisfaction of the Region that the proposal is minor in scale and/or nature and does not warrant an EIA;*

An EIS has been prepared and approved through the OLT settlement and is provided with this application.

b) *it is a use conforming to the Local Official Plan and permitted by Local Zoning By-laws;*

The proposed senior citizens' community complies with the Site Specific policies of the Oakville Official Plan, which specifically permit Senior Citizen's Housing. A Zoning By-law Amendment has been approved through an interim order by the OLT (OLT-22-003970). Submission of this severance application

will assist in the final drafting of the Zoning By-law to ensure appropriate lot lines, setbacks, etc. are established to permit the proposed senior citizens' community.

c) *it is a use requiring only an amendment to the Local Zoning By-law and is exempt from this requirement by the Local Official Plan; or*

The proposed senior citizens' community complies with the Site Specific policies of the Oakville Official Plan. A Zoning By-law Amendment has been approved through the interim order by the OLT (OLT-22-003970). Submission of this severance application will assist in the final drafting of the Zoning By-law to ensure appropriate lot lines, setbacks, etc. are established to permit the proposed senior citizens' community facility.

d) *exempt or modified by specific policies of this Plan.*

The proposed senior citizens' community is situated within the Urban Area portion of the Subject Lands. The approved EIS identified the development limits and buffer associated with the Regional Natural Heritage System to ensure the development does not negatively impact the feature. The study findings have been reviewed and agreed upon with Halton Region staff.

The purpose of an EIA is to demonstrate that the proposed development or site alteration will result in no negative impacts to that portion of the Regional Natural Heritage System or unmapped Key Features affected by the development or site alteration by identifying components of the Regional Natural Heritage System as listed in Section 115.3 and their associated ecological functions and assessing the potential environmental impacts, requirements for impact avoidance and mitigation measures, and opportunities for enhancement. The EIA, shall, as a first step, identify Key Features on or near the subject site that are not mapped on Map 1G.

The EIS has identified all Key Features which are illustrated of Figure 2 of the report. All Key Features and appropriate buffers have been considered in the EIS, which was reviewed and approved by Halton Region staff.

118 (3.1) It is the policy of the Region to set the criteria for the requirement of an EIA for proposed developments and site alterations as follows:

a) *agricultural buildings with a footprint not exceeding 1,000 sq m or single detached dwellings on existing lots and their incidental uses that are located wholly or partially inside or within 30 m of any Key Feature of the Regional Natural Heritage System other than those areas where the only Key Feature is a significant earth science area of natural and scientific interest; if the proposed buildings or structures are located entirely within the boundary of an existing farm building cluster surrounded by woodlands, no EIA is required as long as there is no tree removal within the woodlands;*

b) *agricultural buildings with a footprint over 1,000 sq. m that are located wholly or partially inside or within 30m of the Regional Natural Heritage System; and*
c) *all other developments or site alterations, including public works, that are located wholly or partially inside or within 120m of the Regional Natural Heritage System.*

The Subject Lands are located within 120 m of the Regional Natural Heritage System. As such, an EIS has been prepared to identify the Natural Area and confirm appropriate development limits, physical constraints and policy directed setbacks and buffers. Figure 3 of the EIS identifies the delineated Natural Area and development limit line. These limits have been approved through coordination with the Town, Region and Conservation Authority, and the Natural Area will be conveyed to the Town of Oakville.

Livable Oakville Plan

The Subject Lands are designated "Parks and Open Space with Site Specific Exceptions" and "Private Open Space" in the Livable Oakville Plan.

The "Parks and Open Space with Site Specific Exceptions" designation permits a place of worship, a youth hostel, a community centre, senior citizens' housing, conservation uses and active and passive recreational uses.

The Official Plan contains policies that outline conditions which must be met when creating new lots.

28.14.1 Consents may be permitted for the creation of a new lot, boundary adjustments, rights-of-way, easements, long-term leases and to convey additional lands to an abutting lot, provided an undersized lot is not created.

28.14.2 Applications for consent to create new lots may only be granted where:

a) a plan of subdivision is not necessary;

A plan of subdivision is not necessary as this application proposes the creation of one new lot and is not proposing any new public roads. As such, the application for consent is an appropriate application for this proposal. Any conveyance of environmental lands to the Town does not require planning act consent.

b) the number of resulting lots is three or less;

The severance will create two lots in total.

c) the lot can be adequately serviced by water, wastewater and storm drainage facilities;

The Subject Lands have access to existing municipal water and wastewater systems

d) no extension, improvement or assumption of municipal services is required;

The subject lands are located within the urban boundary and built-up area of the Town of Oakville and are serviceable from mains located in the immediate area. Detailed servicing design will be addressed prior to final site plan approval.

e) the lot will have frontage on a public street and access will not result in traffic hazards;

The retained parcel will maintain approximately 61.4 m of frontage on Dundas Street. The severed parcel will have approximately 161.3 m of frontage on Fourth Line (North Section).

f) the lot will not restrict the ultimate development of adjacent lands;

The land surrounding the Subject Lands has already been developed. The proposed severance will not restrict any future development of adjacent lands.

g) the size and shape of the lot conforms with the requirements of the Zoning Bylaw, is appropriate to the use proposed and is compatible with adjacent lots; and,

As per the table below, the in-effect Zoning By-law does not have requirements for minimum lot frontage or area. The severed and retained lots provide ample lot frontage and area to allow for the proposed senor citizens' community and the existing cultural centre and cemetery to function efficiently. As previously noted, the Zoning for the Subject Lands has been approved through the interim order by the OLT (OLT-22-003970). Submission of this severance application will assist in the final drafting of the Zoning By-law to ensure appropriate lot lines, setbacks, etc. are established to facilitate the proposed senior citizens' community.

	Required	**(Retained – Part 4) Cultural Center and Cemetery**	**(Severed – Parts 1, 2 and 3) Senior Citizens' Community**
Minimum Lot Frontage	N/A	± 61.4 m	± 161.3 m
Minimum Lot Area	N/A	± 22.33 ha	± 4.62 ha (± 1.32 ha of Natural Area to be conveyed to the Town of Oakville)

The retained and severed lots comply with the "Parks and Open Space with Site Specific Exceptions" and "Private Open Space" designations and Private Open Space with Site Specific Provisions (O2-122), Natural Area (N) and Cemetery (CEM) Zone policies by facilitating the development of a senior citizens' community.

h) the consent conforms to all relevant policies of this Plan

As per the above analysis, the proposed consent application conforms with the consent policies of the Livable Oakville Plan.

The Official Plan contains policies regarding Land Acquisition and Parkland Dedication.

28.12.1 The Town recognizes that public acquisition of hazard lands, open space lands and lands designated Natural Area improves opportunities for conservation, protection, enhancement and stewardship of natural features and the mitigation and management of natural hazards.

The consent for severance application defines the Natural Area associated with the proposed senior citizens' community (severed lands). The previous deferral resulted in extensive discussions with Town Staff and have led to conclude that a Deferred Consent Agreement is the most effective way to protect the Natural Area on the retained lands. This agreement will ensure that any future development will consider the balance of the Natural Area

28.12.2 The Town shall require the conveyance of hazard lands, open space lands and lands designated Natural Area through the development process as permitted by the Planning Act and in accordance with the policies of this Plan.

The Natural Area associated with the proposed senior citizens' community is being conveyed to the Town. Thorough discussions with Town Staff, it has been determined that a Deferred Consent Agreement will be executed as a condition of approval to ensure the Natural Area on the retained lands is considered in any future development application on those lands respectively.

28.12.3 Where public ownership cannot be achieved through conveyance, the Town may secure the long-term protection of hazard lands, open space lands and lands designated Natural Area through other means including easement agreements, land exchange, long-term lease, land trusts, and land protection under the planning process among other measures that may be at its disposal.

As described above, the Natural Area associated with the proposed senior citizens' community is being conveyed to the Town. The Deferred Consent Agreement, as agreed to by staff, will ensure the Natural Area on the retained lands is considered in any future development application in the future.

CONCLUSION

Based on the above analysis, the proposed consent conforms to the current policy and regulatory framework. The proposed consent will maintain the existing uses on the retained lands, and enable

the development of a senior citizens' community on the severed lands, in accordance with the permissions of the Town of Oakville Official Plan and OLT approved Zoning By-law.

Please do not hesitate to contact us should you have any questions.

Thank you,
MHBC

Oz Kemal, BES, MCIP, RPP
Partner

cc. J. Nanos, Delmanor West Oak Inc.
C. Smith, Delmanor West Oak Inc.

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

Prepared by:

SLR Consulting (Canada) Ltd.

300 Town Centre Blvd., Suite 200
Markham, ON L3R 5Z6

SLR Project No:

209.V40574

April 13, 2023

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Appendices

1.0 INTRODUCTION

SLR Consulting (Canada) Ltd. (SLR) was retained by Delmanor West Oak Inc. to undertake an Environmental Impact Study (EIS) in support of a Zoning By-law Amendment (ZBA) for a proposed transitional retirement facility on lands located at 1280 Dundas St. W. and Fourth Line in the Town of Oakville (the Town). An EIS is required due to the presence of natural heritage and physical features (Natural Areas) within and adjacent to the Site being subject to the Official Plan (OP) policies of the Town and portions of the Site being under the jurisdiction of Conservation Halton (CH) through Ontario Regulation 162/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses. Portions of the Subject lands are designated under the Town's OP as Private Open Space and Natural Area (Schedule H) within the built boundary (Schedule A2). These lands are also included as an exception under policy 27.3.2 which permits uses including senior citizens' housing. This EIS was prepared based on pre-consultation and subsequent and on-going consultation with the Town and CH and in accordance with the CH EIS Guidelines (2005). The EIS report has been updated to reflect the Region of Halton's Environmental Impact Assessment (EIA) Guidelines (June 17, 2020) and a copy of Appendix D-3 of the guidelines is included in **Appendix A**.

1.1 Goals and Objectives

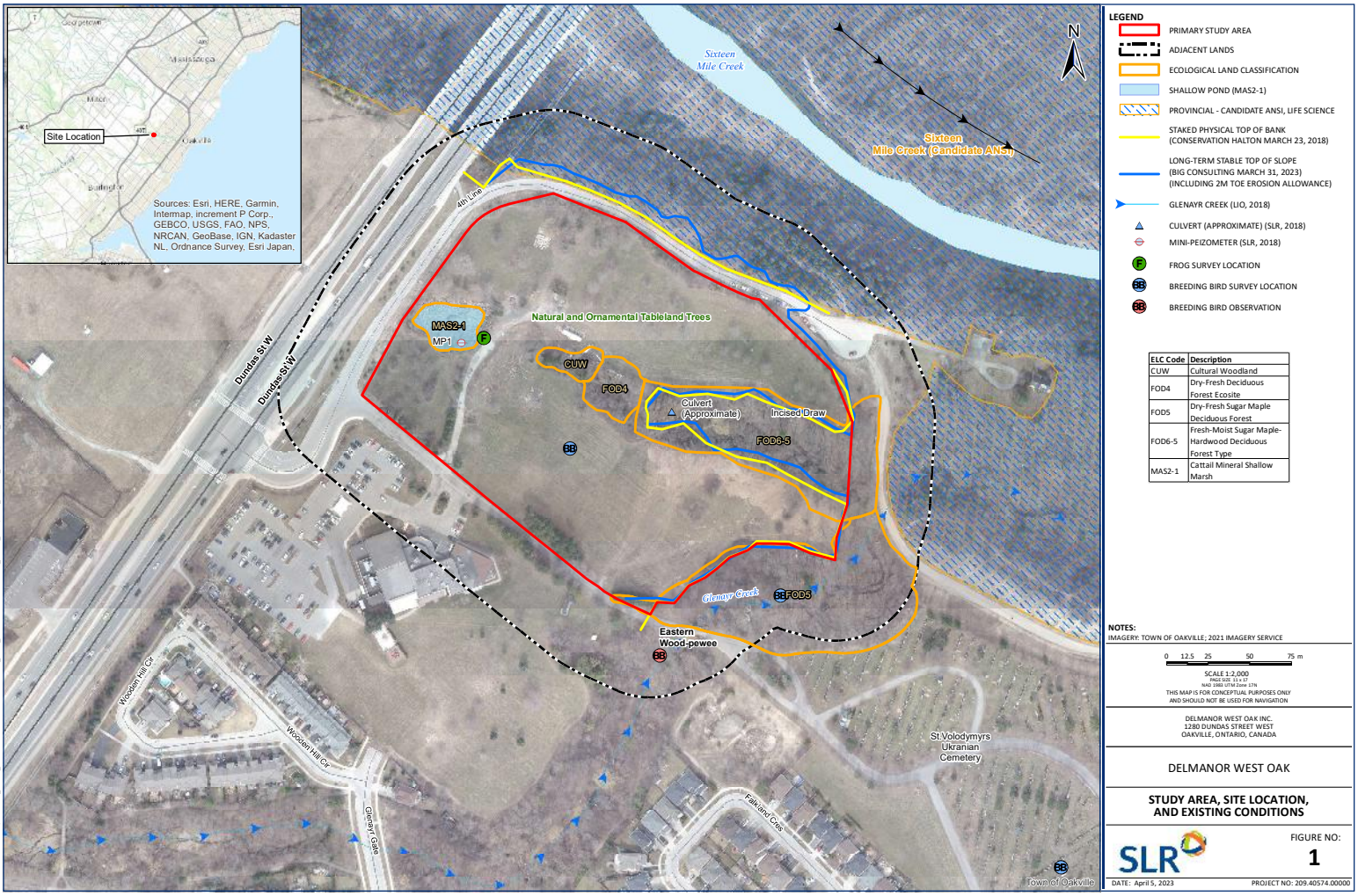
The purpose of this study is to review the proposed ZBA application and the conceptual Site Plan in the context of the Town of Oakville Official Plan (2016), in addition to the *Planning Act*, the Provincial Policy Statement (PPS) and other relevant policies as identified below. The objective of the exercise was to identify Natural Areas and confirm the appropriate limit of development using a constraints trace overlay method together with the application of policy directed set-backs and appropriate buffers.

The following instruments provide the applicable regulatory and policy framework for the zoning review:

- Provincial Policy Statement, Policy 2.1, 2020
- Endangered Species Act (ESA), 2007
- Ontario Regulation 162/06: Development, Interference with Wetlands and Alterations to Shorelines and Watercourses (CH)
- Livable Oakville Plan 2009 Town of Oakville Official Plan) and associated Schedules (January 15, 2016 Consolidation)
- Region of Halton Official Plan and associated Schedules (Office Consolidation June 19, 2018)
- Halton Region Integrated Growth Management Strategy (2019)

1.2 Site Location and Description

The Subject Property (the Site) is located at 1280 Dundas St. W. and Fourth Line in the Town within the Regional Municipality of Halton (HR). It is bounded at the northwest by the Dundas Street and Fourth Line, to the northeast by Fourth Line and Sixteen Mile Creek and to the east and southeast by Glenayr Creek, a tributary of the Sixteen Mile Creek. Specifically, the Delmanor Site is located on the east side of the north-south driveway access that serves the St. Volodymyr's lands (**Figure 1**). This EIS will primarily focus on the Site with consideration of features on adjacent lands in accordance with Policy 2.1 of the PPS (2020).



LEGEND

- PRIMARY STUDY AREA
- ADJACENT LANDS
- ECOLOGICAL LAND CLASSIFICATION
- SHALLOW POND (MAS2-1)
- PROVINCIAL - CANDIDATE ANSI, LIFE SCIENCE
- STAKED PHYSICAL TOP OF BANK (CONSERVATION HALTON MARCH 23, 2018)
- LONG-TERM STABLE TOP OF SLOPE (BIG CONSULTING MARCH 31, 2023) (INCLUDING 2M TOE EROSION ALLOWANCE)
- GLENAYR CREEK (LIO, 2018)
- CULVERT (APPROXIMATE) (SLR, 2018)
- MINI-PEIZOMETER (SLR, 2018)
- FROG SURVEY LOCATION
- BREEDING BIRD SURVEY LOCATION
- BREEDING BIRD OBSERVATION

ELC Code	Description
CUW	Cultural Woodland
FOD4	Dry-Fresh Deciduous Forest Ecosite
FOD5	Dry-Fresh Sugar Maple Deciduous Forest
FOD6-5	Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type
MAS2-1	Cattail Mineral Shallow Marsh

NOTES:
IMAGERY: TOWN OF OAKVILLE; 2021 IMAGERY SERVICE

0 12.5 25 50 75 m

SCALE 1:2,000
PAGE SIZE: 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

DELMANOR WEST OAK INC.
1280 DUNDAS STREET WEST
OAKVILLE, ONTARIO, CANADA

DELMANOR WEST OAK

STUDY AREA, SITE LOCATION, AND EXISTING CONDITIONS

SLR

FIGURE NO: **1**

DATE: April 5, 2023 PROJECT NO: 209.40574.00000

The Site is positioned within the Sixteen Mile Creek watershed and under CH jurisdiction. The Site was formerly used for active agriculture and has been primarily used and maintained for passive recreation by St. Volodymyr. In addition to the adjacent treed Sixteen Mile Creek valley and Glenayr Creek, the primary natural features include incised draw feature and its associated woodland, a remnant agricultural pond, and sporadically occurring mature tableland trees, maintained for aesthetic purposes.

The study area includes the site and the immediately adjacent features associated with this reach of Sixteen Mile Creek. All figures show the limits of the Study Area. The study area was chosen based on the connectivity of the natural features to the site considering the limitations that Dundas Street West and Fourth Line pose to ecological function.

2.0 AGENCY CONSULTATION AND FIELD STUDIES

Representatives from the Town and CH were engaged during the preparation of this EIS, including site visits regarding feature staking and subsequent constraint boundary adjustments. Please refer to Appendix A for the Record of Consultation and a copy of the Draft Terms of Reference (ToR). Based on consultation and timing of the project the ToR has yet to be approved however the EIS was completed in keeping with the Region's Guidelines and a comprehensive scope was employed with only minor scoping. A copy of the Scoping and Terms of Reference Checklist from the Region's Guidelines (Appendix D-2) is also included in Appendix A.

Correspondence and meetings/site visits included:

- In-field physical top of slope and staking of features in the central and southern portions of the Site with CH, dated 28 March 2018; A visual assessment of the watercourse, pond and hydrologic feature was also completed while on-site
- Pre-consultation meeting with Town, dated 23 October 2019
- Consultation with Halton Region regarding process requirements via email chain, dated 7 November 2019
- Consultation initiation with CH regarding process requirements via email chain, dated 7 November 2019
- SLR memo to CH regarding the regulation limit of the on-site remnant pond, dated 19 November 2019
- CH recommended a scoped Environmental Impact Assessment (EIA) be completed to
- support this application in consultation with CH, the Town and Region (Bain, December
- 10, 2019)
- CH advised the applicant that the pond is not a regulated wetland as per CH’s policies
- (Bain, January 8, 2020). However, the wetland may be protected under other applicable
- municipal policies that will need to be reflected within the report
- A pre-consultation meeting with the Town of Oakville, Region of Halton, and CH staff, April 29, 2020
- Meeting with CH to discuss limits of development, dated July 2020
- A top of bank (TOB) confirmation visit by SLR, Geo Morphix, BIG and Conservation Halton on February 6, 2023

- Significant Woodland staking by SLR, Kuntz Forestry Consulting, and Halton Region on February 8, 2023

Consultation with the Ministry of the Environment, Conservation and Parks (MECP) will be completed during the Site Plan Application phase. Additional requirements and permits may be required by MECP. All correspondence with MECP will be provided to the Region and Town as part of the Site Plan Application process.

2.1 Field Study Timing

A summary of the field studies performed by SLR is provided in Table 1 and accompanied by a summary discussion of study methods in the following sections; field survey station locations are also provided in Figure 1.

Table 1: Summary of Field Studies

Date	Task	Weather[1]
March 28, 2018	SLR and CH staff staked Top of Bank; initial HDF assessment, A visual assessment of the watercourse, pond and hydrologic feature was also completed while on-site.	With Emma DeFields (edefields@hrca.on.ca); Mike Mestyan and Darko Straijn
April 26, 2018	Installation of mini-piezometers in wetland	Weather: part sun / Beaufort 2 / Temp: high: 25.1°C low: 1.6°C;
May 3, 2018	Amphibian Survey No. 1 of 2 SAR habitat, SWH	Weather: clear / Beaufort 0 / Temp: high: 21°C low: 10°C
May 5, 2018	Water levels survey; HDF flow regime review	Weather: clear / Beaufort 1/ Temp 15.5°C
May 31, 2018	Amphibian Survey No. 2 of 2	Weather: light rain; Beaufort 2 / Temp: 20°C
June 18, 2018	Breeding Bird Surveys No. 1 of 2 Passive bat ARU monitoring (hand-held, in-situ). Deployed Bat Acoustic Recording Unit (ARU), SAR habitat, SWH	Weather: clear / Beaufort 0-1/ Temp 13°C

[1] The Beaufort Wind Scale is a tool used to estimate wind conditions. [0] Air calm, smoke rises vertically [1] Light air movement, smoke drifts, [2] Wind felt on face, leaves rustle [3] Leaves and small twigs in continual motion, wind extends light flags [4] Wind raises dust, loose paper, moves small branches [5] Small trees begin to sway, white crested wavelets form on inland waters [6] Large branches in motion

Date	Task	Weather[1]
June 26, 2018	Breeding Bird Survey No.2 of 2, Recover Bat ARU, SAR habitat, SWH	Weather: clear / Beaufort 0/ Temp 13°C
September 13, 2018	Groundwater level measurements	n/a
December 10, 2019	Water pond levels (winter)	Weather: Clear / Beaufort 0/ Temp 0°C
July 27 & 29, 2020	Tree Inventory and ELC – Kuntz	n/a
August 26, 2021	Geo Morphix Field Assessments	n/a
November 2, 2021	Confirm ELC, site features and conditions for revised submission	Weather: Clear / Beaufort 1/ Temp 5°C
February 6, 2023	Confirmation of Top of Bank – SLR, Geo Morphix, BIG and Conservation Halton	N/A
February 8, 2023	Significant Woodland staking – SLR, Kuntz, Halton Region	N/A

3.0 METHODOLOGY

Existing conditions were characterized through a review of secondary source materials combined with field investigations to assess and delineate natural features.

The details associated with these tasks are described in the sections below.

3.1 Background Review

A secondary source review and desktop analysis were performed for data on the potential presence of wildlife, in particular rare species, as well as to support the identification and characterization of natural heritage features and functions within and adjacent to the Site. The following documents were reviewed:

- Ontario Geological Survey Mapping (OGS)
- Recent air photos of the site
- Bird Studies Canada, 2005. Ontario Breeding Bird Atlas (OBBA)
- E-Bird Ontario (Online records Database for Oakville)
- Ontario Ministry of Natural Resources and Forestry (MNRF), 2020. Natural Heritage Information Centre (NHIC) rare species records

- Ontario Ministry of Natural Resources and Forestry, Land Information Ontario "Make a Map" 2019, Accessed September 2019 and July 2020
- Ontario Ministry of Natural Resources and Forestry, Land Information Ontario (LIO), Wetlands, ANSI, Natural Features, LIO metadata, Downloaded October 2019
- Oakville Wildlife Strategy (OWLS), 2012
- Ontario Species at Risk List (O. Reg. 230/08) under the ESA 2007
- Fisheries and Oceans Canada Distribution Maps for Fish and Mussel Species at Risk (online accessed June 2020, modified 2019-08-23)
- Halton Natural Areas Inventory (2003, 2004)
- Growth Plan for Greater Horseshoe (2019)
- Green Belt Plan
- Oakville Tree By-law (No.2008-156)
- Oakville Zoning By-law (OZBA) (2020)
- Region of Halton Official Plan (HROP) and associated Schedules, Office Consolidation June 19, 2018
- Town of Oakville, 2016. Official Plan Office Consolidation (Oakville OP)), January 15, 2016

The methodologies used to perform these field studies are provided in the following sections, together with a summary of the purpose and dates of the 2018 / 2019 field studies presented in Table 1.gan

3.2 Site Characterization

Field studies included vegetation community characterization with a botanical inventory, tree inventory, amphibian surveys, breeding bird surveys, bat acoustic monitoring, and general Species at Risk (SAR) habitat surveys during appropriate and accepted timing windows. Additionally, evidence of wildlife presence was recorded during various field investigations from incidental direct sightings, and indirectly from such indicators as nests, tracks, scats, browse and burrows.

3.2.1 Flora and Vegetation Communities

Vegetation communities were delineated and classified generally following the principles of the *Ecological Land Classification (ELC) for Southern Ontario: First Approximation and its Application* (Lee et. al., 1998) by Kuntz during their July 2020 field investigations in support of the tree inventory. ELC communities provide the basis for establishing habitat baseline conditions and support the SAR habitat and SWH screening exercises.

SLR's detailed Botanical Inventory was scoped to the tableland area and existing pond with a general botanical review competed (dominate species and understory composition to characterise the valleyland. Please refer to Appendix B for the botanical inventory list.

Presence surveys for Butternut trees and Butternut seedlings were completed by an MECP-qualified Butternut Health Assessor, concurrent with other SLR field investigations.

Survey Limitations

While every effort was used to detect the presence of Butternut and Black Ash by visual examination, seedlings are difficult to detect due to visibility restrictions. Furthermore, seed dispersal (squirrels) may occur and seeds may remain dormant for prolonged periods. Thus, seedlings may occur in the future especially if a parent tree occurs in proximity to the Site.

3.2.2 Feature Staking

SLR ecologists and CH confirmed and staked the boundary of the top of bank and vegetation dripline during a site walk on March 18, 2018. This exercise focused on the incised draw feature internal to the Site and the Glenayr Creek valley bounding the Site to the east and southeast. An initial review of the remnant agricultural pond was also performed during this visit. The agreed-upon staked feature delineations were surveyed by professional surveyors and are illustrated in the figures provided in this report. Staking of the Significant Woodland along the eastern edge of the Site was completed by SLR, Halton Region, and Kuntz Forestry Consulting Inc. on February 8, 2023.

3.2.3 Tree Inventory and Shade Impact Study

A tree inventory was undertaken on 27 and 29 July 2020 by Kuntz Forestry Consulting Inc. (Kuntz), dated 24 August 2020 (Appendix C). The tree inventory addresses the Town of Oakville's requirements for tree inventory and preservations plans and provides a Shade Impact Study within as well.

3.2.4 Herptiles

Secondary source literature was reviewed to identify known records of reptiles and/or amphibians potentially found within the Site, including the NHIC database. Amphibian surveys were undertaken to determine the presence of breeding amphibians and the presence of SAR species (e.g., Western Chorus Frog (*Pseudacris triseriata*)).

To understand potential breeding habitats for amphibians, calling surveys followed the general methodology of the Marsh Monitoring Program (MMP) (BSC, 2009) (adapted to site conditions) during appropriate weather conditions. One station was selected in the Site for the SLR 2018 nocturnal frog call-count surveys. Survey times are coordinated with several other ecologists conducting similar assessments at other locations throughout Southern Ontario via an email circulation used to assist surveyors in targeting the prime breeding window for early and late breeders. As climate change has the potential to shift the incidence of calling amphibians, it is increasingly important to coordinate surveys based on weather conditions and seasonal trends. Calling evidence was recorded on a scale of L0-L3 and interpreted as follows:

- L0 – No calling
- L1 – Individuals can be accurately counted; calls do not overlap
- L2 – Some calls are simultaneous, number of individuals can be estimated
- L3 – Full chorus, calls overlap, individuals cannot be estimated

Reptile habitat surveys and incidental presence observations were conducted concurrently with breeding bird surveys and vegetation surveys. Reptiles are particularly difficult to document and are mainly identified by identifying potential suitable supporting habitat and searching for evidence of activity in suitable habitats or through incidental observation. For example, evidence of basking individuals and

potential nesting sites for reptiles were assessed, including seeking evidence of potential overwintering habitats for turtles and evidence of potential snake hibernacula sites.

3.2.5 Breeding Birds

Scoped breeding bird surveys of the tableland area and valleyland and edge were undertaken during the breeding window in June 2018. Additional observations were also recorded during other site surveys. Surveys followed standard methodologies and weather conditions established by the Ontario Breeding Bird Atlas (OBBA) (i.e., between 5:30 and 10:00, low winds, no precipitation and suitable temperatures, two visits at least 10 days apart). Breeding evidence was recorded generally and evaluated as probable, possible or confirmed (e.g., singing male, pair observed or adult carrying food) in accordance with the standard protocols. Breeding bird field survey results are summarized in Appendix D, along with the OBBA results.

3.2.6 Bats

Given the recent endangered status of four species of bats under the ESA (2007), coupled with the presence of mature trees, the need to address bats was justified.

General guidance for bat surveys related to development projects under the ESA (2007) does not describe a method that fits all projects. Thus, the protocol should be adapted to the local landscape and existing conditions. While draft guidance documents have been prepared by various MNRF districts for internal use, no formal document has been developed providing direction for use by non-MNRF personnel. Surveys of tree suitability and building review are generally the preferred preliminary step to identify potential bat use. A cursory review for bat habitat presence/absence was completed concurrent with other SLR field investigations, the purpose of which was to determine if potential roost habitat occurs and if bats occur generally within the context of the Site, importantly within the tableland areas. The survey did not involve a targeted emergence review of individual trees.

Scoped emergence surveys with detections observed using active (handheld) heterodynes Bat Box II, Echo Metre Touch [EMT]) were used by an SLR biologist experienced and qualified in conducting bat surveys which identify bat pulses (fly-over passes) to evaluate presence in-situ (active monitoring) over two nights, coupled with passive monitoring through the deployment of an ARU June 18 through 26, 2018. Bat signals (or pulses) recorded by the ARU and handheld units were processed using SonoBat software with an automated call measurement and identification tool capability. SAR Bats in Ontario, such as Myotis species and Tri-coloured Bats, have a detection frequency equal to or greater than 40 kHz, (high), whereas non-SAR bats (e.g., Big Brown Bat, Silver-haired Bat, Hoary Bat) produce call signatures that are well below this threshold (low).

Survey Limitations

While every effort was used to detect the presence of bats by visual examination and the use of ARUs, the absence of key signals is not an indication that occurrence may not occur in the future. The mobility of these species means that it is difficult to rule out bats using any type of structure for roosting or habitat for foraging in the future.

3.2.7 Aquatic Habitat

Aerial imagery, MNRF's LIO base mapping data, the NHIC and DFO online databases, and Official Plan schedules and mapping were reviewed to determine the presence of any aquatic features or fish habitat within the Site.

The presence/absence of surface water in the incised draw feature internal to the Site was performed as part of multiple field visits undertaken primarily for other purposes. No aquatic habitat mapping or fish collection was deemed necessary based on the condition and slope of this feature. The function and significance of this feature were further evaluated using the Evaluation, Classification and Management of Headwater Drainage Features Guideline (TRCA & CVC, 2014). This guideline assists in the characterization and classification of headwater water drainage feature (HDF) conditions and the determination of recommended management scenarios.

A mini-piezometer was installed and investigate the shallow groundwater/surface water interaction within the remnant pond for six months in 2018. Periodic groundwater elevations within the pond were obtained to determine whether the pond receives seasonal groundwater contributions and to assess pond function. Periodic observations of discharge (presence/absence) were made during various site visits in the spring and summer of 2018.

Finally, a CCTV investigation of the pond outlet culvert and subterranean drain was completed in the fall of 2019 to investigate the existence of a connection between this feature and the incised draw feature (HDF) in the centre of the Site.

3.2.8 Species of Conservation Concern

For this EIS, species that are designated federally, provincially and which are of regional or local interest (e.g., rare to the watershed or municipality) are collectively identified as Species of Conservation Concern (SOCC). Species protected under the ESA (2007) and aquatic species federally listed on Schedule 1 of the *Species at Risk Act* (SARA) are also included in this category. Secondary data sources are included above in Section 3.1 while targeted wildlife investigations performed as part of this study included amphibian, breeding bird and bat surveys (Sections 3.2 to 3.7). Given the scope of this assessment, a habitat-based approach was also applied to evaluate the potential for SOCC to occur within the Site and adjacent lands.

Screening of natural heritage information was undertaken using data listed in Sections 3.1 and 3.2, including current MECP guidelines *Clients Guide to Preliminary Screening for Species at Risk (Draft 2019)* within and adjacent to the Site to identify potential candidate species to be included in this assessment.

3.2.9 Significant Wildlife Habitat

The criteria provided in the MNRF Significant Wildlife Habitat Technical Guide and Ecoregion Criterion Schedules 7E (MNRF, 2015) for significant wildlife habitat (SWH) were reviewed. Anthropogenic features do not qualify as SWH, and therefore were not assessed.

4.0 EXISTING CONDITIONS

To characterize the site and immediately adjacent lands a review of available information was completed. Policy information was reviewed to determine the connection between the context of policy and planning and the site conditions. Following the background, secondary source and historical information review an assessment of the current site conditions was completed at the site.

4.1 Secondary Source Review Results

Below are the details of the information collected through background and secondary sources.

4.1.1 Landscape Context

The Site occurs within the Lake Erie Lowland Ecoregion (7E) of the Mixedwood Plains Ecozone (Environment Canada 2005). Ecoregion 7E contains Carolinian forest where vegetation is typically quite diverse, with common woodland tree species including sugar and silver maple, beech, white and red oak, shagbark hickory, black walnut, butternut, red and black ash, balsam poplar, black cherry, bitternut hickory, and tulip tree.

The Site is entirely within the South Slope Physiographic Region of southern Ontario (Chapman and Putnam, 1984). In Oakville, the South Slope includes the strip of land between the Lake Iroquois shoreline to the south and the Peel Plain to the north. The topography in the till plain is typified by gently undulating to fluted with low relief and poor to moderate drainage. Drainage in the study area generally follows a linear pattern.

Active surrounding development together with historic agricultural and existing passive recreational practices on the Site have influenced the naturalized vegetation and habitat of the Site.

4.1.2 Subwatershed

The Site falls within the Sixteen Mile Creek Watershed (CH, 2020), within its Main Branch Subwatershed (MOECC, 2017; CH, 2019). This Subwatershed is characterized by the Sixteen Mile Creek valley, a prominent feature forming the northeastern boundary of the Site, which is deeply incised down to underlying shale (MOECC, 2017). The Creek's valley provides a major discharge area, and seeps are found along the walls of the valley (*ibid*).

4.1.3 Land Use and Zoning By-law Designations

A review of the *Planning and Justification Report: 1280 Dundas Street West* (MacNaughton Hermsen Britton Clarkson Planning Limited, 2020) indicates that the Site, which is currently vacant, forms a portion of the St. Volodymyr Cultural Centre. There are future plans to create a sperate development block, while the St. Volodymyr Cultural Centre and associated cemetery will remain to its south as its own parcel. The report indicates surrounding land uses as follows:

- The Oakville OP Schedule A1: Urban Structure (2016) designates the Site and surrounding area as Residential Area, as Urban Area, per Map 16: Key Features within the Greenbelt and Regional Natural Heritage Systems of the HROP (2018), and Private Open Space within the Oakville OP Schedule H (2016). It is zoned Private Open Space (O2 sp:122) (OZBA, 2020)
- To the north, the Site is bounded by 4th Line, then Dundas Street West, beyond which are additional vacant lands in use by telecommunication facilities and also designated as Urban Area (HROP, 2018). It is zoned primarily Existing Development (ED) by (OZBA, 2020)
- To the east, the Site is bounded Fourth Line where it ends near the south; there, it becomes municipal right-of-way. Further east beyond the road are valleylands associated with Sixteen Mile Creek, designated as Key Features (HROP, 2018) and as Natural Area by the Oakville OP Schedule H (2016). It is zoned Natural Area (N) by Oakville Zoning By-law (OZBA, 2020)
- To the south lies the Glenayr Creek valley which is also designated as Key Features (HROP, 2018) and Natural by Oakville OP Schedule H (2016), beyond which lies St. Volodymyr Ukrainian Cemetery designated Private Open Space by Oakville OP (2016), then a residential neighbourhood, all designated as Urban Area (HROP, 2018) with the residential designated as Low-Density Residential by Oakville OP Schedule H (2016). It is zoned a combination of Natural

Area, Cemetery (CEM), Stormwater Management Facility (SMF), and Residential Low (RL6) (OZBA, 2020)

- To the west lies the St. Volodymyr Cultural Centre, beyond which lies residential which is designated as Low, Medium and High Density Residential by Oakville OP Schedule H (2016). It is zoned a combination of Natural Area, Park (O1), Residential Low (RL7), and Residential Medium (RM1) (OZBA, 2020)

4.1.4 Designated Natural Heritage Features

A review of the NHIC Make-A-Map natural feature mapping online tool (2020) designates Sixteen Mile Creek as Urban River Valley. The Creek, along with the wooded portions within the Site, are also therein designated as Natural Heritage System.

Policy 16.1 of the Town's OP provides the permitted uses and protection direction for land development applications positioned within or adjacent to Natural Areas. Schedule B of the Town's OP identifies the Sixteen Mile Creek valley as an Area of Natural and Scientific Interest (ANSI) and an Environmental Sensitive Area (ESA) (**Figure 1**). The Halton Natural Areas Inventory (HNAI, 2006) identified a significant portion of the Sixteen Mile Creek valley as ESA #16. The boundary of the ESA extends along the Sixteen Mile Creek valley from Derry Road south to Lake Ontario. Due to its size, this area supports a significant number of native plant and wildlife species, including nationally, provincially, and locally rare species. The length and location of the valley allow movement of both terrestrial and aquatic species, including migrating birds, and large mammals such as white-tailed deer and fish.

This valley together with the Glenayr Creek valley forming the east and southeast boundary of the Site and a portion of the incised draw feature is also identified as Valleylands and Floodplain on Schedule B and their treed portions are identified as Woodlands. Existing conditions are illustrated on **Figure 1**.

The site investigations and data analysis completed in support of this EIS together with the feature staking exercises in March 2018 and February 2023 have further refined the position and extent of these Natural Areas and identified Significant Wildlife Habitat (SWH) and Natural Corridors within the adjacent larger valley systems.

4.1.5 Geological, Hydrogeological and Hydrological Conditions

The site and surrounding lands are located within the South Slope physiographic region. This region is situated on the southern slope of the Oak Ridges Moraine and is characterized by a subdued morainic topography that is underlain by till plains with sand and gravel deposits. Drainage of the region is typically oriented and controlled by the direction of the predominant regional south-facing slope with exposed red shales of the Queenston Formation common on valley walls. The surficial geology is characterized by clay to silt-textured till derived from glaciolacustrine deposits or shale. (Geo Morphix Ltd., 2021)

The available well records (MECP, 2021) note that the site within the vicinity of the pond is comprised of clay to a depth of 2 m and underlain by shale (soft to approximately 4 m). Fresh groundwater is located approximately 4 m below the ground surface. Groundwater at the bottom of the incised channel feature within the area of the tributary that confluences to the east with Sixteen Mile Creek noted salty groundwater at a depth of approximately 46 m below the ground surface.

Historical air photos were obtained by Geo Morphix as part of the erosion hazard and mitigation assessment. The aerial photos show drainage features in a northwest-to-southeast orientation coming from upstream actively cultivated areas. The central ravine with a narrow woody riparian buffer was

apparent as early as the 1934 air photo obtained. In the 30s residential development was visible on the site. The pond which currently exists on site was constructed by the 1954 aerial photo and also showed a connection through a narrow-forested buffer but it was not apparent if flows travelled above or below grade. In the 1970s it appears that any potential upstream connection north of Dundas Street West was redirected to flow directly east to Sixteen Mile Creek.

Based on the available secondary sources the hydrology of the site seems to be divided to the north by Dundas Street West and to the east by Sixteen Mile Creek. Any source of flows within the incised drainage feature would be sustained by overland flows with very limited potential for seeps or groundwater input.

4.2 Field Results

The following sections outline the existing conditions at the site based on the field studies completed to characterize the site between March 2018 and November 2021.

4.2.1 Flora and Vegetation Communities

A review of the NHIC database indicated no occurrence records for flora ranked provincially as Endangered, Threatened, or Special Concern.

The natural vegetation communities assessed by Kuntz (2020) within the Site and the immediate valleylands are considered common and secure in Ontario. No regionally or locally rare flora was observed. Table 2 outlines the communities assessed and summarizes the dominant vegetation cover. For further tableland vegetation composition, please refer to the accompanying *Tree Inventory and Preservation Plan & Shade Impact Analysis Report* (Kuntz 2020) (Appendix C).

Table 2: Summary of Vegetation Communities

Vegetation Community Type	Community Characterization	Comments
Pond – MAS2--1	Cattail Marsh Reed Canary Grass Multiflora Rose Zigzag Goldenrod Spotted Jewelweed	Crack willow riparian with Manitoba maple

Vegetation Community Type	Community Characterization	Comments
Tableland (Anthropogenic) No ELC Code	Community resulting from or maintained by cultural or anthropogenic-based disturbance. Vegetation communities often have a large proportion of non-native plant species. Black Locust Basswood Black Walnut Silver Maple Common Lilac Tufted Vetch Norway Spruce White Spruce	Manicured grass, and former amenity area (barn, storage structures) with planted trees
Remnant Hedgerow No ELC Code	Planted rows of Coniferous trees Cedar, Spruce Eastern White Cedar	Top of finger to staked valleyland Limit Refuse dumping, storage
Vegetation north of Incised Channel FOD4: Dry-Fresh Deciduous Forest Ecosite and CUW: Cultural Woodland	Community resulting from or maintained by cultural or anthropogenic-based disturbance. Vegetation communities often have a large proportion of non-native plant species. Black Locust Manitoba Maple Ash Buckthorn Sumac Cedar Crack Willow Dog Strangling Vine Burdock Goldenrod species\ Garlic mustard	Treed community (deciduous dominated with “old field species” on the tableland outside of the staked top of bank)

Vegetation Community Type	Community Characterization	Comments
Incised Channel FOD6-5: Fresh-Moist Sugar Maple-Hardwood Deciduous Forest Type	Sugar Maple Black Locust White Ash Beech Basswood Red Maple Shagbark Hickory Crack Willow White Oak Bitternut Hickory	Treed community within the valley (deciduous dominated) with "old field species" concentrated at the top of the channel slope
Valleyland FOD5: Dry-Fresh Sugar Maple Deciduous Forest	Red Oak Manitoba maple Black Walnut White Ash Maple Species. Associations of: Common Buckthorn Spreading Dogbane Tartarian Honeysuckle Chicory Tall Goldenrod	Treed community (deciduous dominated with fringes of "old field species").

SLR's Botanical Inventory (**Appendix B**) yielded 85 species of plants, all of which are considered common and secure in Ontario. No SAR or SOCC vegetation communities or species were encountered during SLR's surveys; this included no observations of Butternut trees or seedlings, though this species is known to occur in the general area, and might be present off-site however, SLR did not have permission to access the adjacent lands.

4.2.2 Tree Inventory and Shade Impact Study

The 2020 Kuntz tree inventory documented 193 trees, as well as 13 tree polygons, within 6 m of the proposed development and the road right-of-way. Of these, the proposed development will require the removal of 137 trees and 13 tree polygons, while the remaining trees can be retained through adherence to the Kuntz (2020) mitigation and avoidance recommendations. No tree SAR were encountered. The Kuntz (2020) shade impact study indicated that the impacts of shade on the tree communities from the proposed development will be minimal.

4.2.3 Herptiles

A review of the NHIC database indicated no occurrence records for reptiles or amphibians ranked provincially as Endangered, Threatened, or Special Concern.

Suitable available habitat for amphibians is limited on site and scoped to the pond (wetland) with calling activity also limited for a pond (offsite in the cemetery) and the Sixteen Mile Creek valley north of the site (fourth Line) at the Dundas Street bridge crossing. Spring Peepers (L2), Gray Tree Frog (*Hyla versicolor*) (L2), Northern Leopard Frog (L1) and Green Frogs (L2) were heard within the Site at the pond. The significance of the pond is included in Sections 4.2.11 and 7.1.

American Toads (*Anaxyrus americanus*) (L1) were heard dispersed in the open manicured areas. This is not uncommon for this species as it is a habitat generalist and will move frequently in a larger area and occupy small field "puddles". Calling activity for frogs at the nearby reference site on the same night were calling at levels 2 and 3, indicating that the low numbers observed on-site can be attributed to the presence of suboptimal habitat (hydroperiods, shallow standing water depth, etc.) as opposed to weather conditions. Discussion of the limited presence of amphibians at the pond and the isolated habitat is further discussed in Section 7.1.

4.2.4 Breeding Birds

A review of the OBBA 10 km by 10 km map square 17PJ01, which overlays the Site, yielded 91 records of potential breeding birds. Note that the vast majority are unlikely to find suitable breeding habitat within a project's boundaries, as is the case with this Site. A review of the NHIC database indicated occurrence records for two bird SAR: Northern Bobwhite (*Colinus virginianus*) ranked as Endangered, and Barn Swallow (*Hirundo rustica*) ranked as Threatened. Northern Bobwhite are generally historic records, and no supporting habitat is found within or adjacent to the Site, therefore it is not anticipated to be present. Barn Swallow was not observed breeding nor foraging in or adjacent to the Site during SLR's breeding bird field investigations.

Birds observed on the Site during SLR's breeding surveys are typical of forested areas and urban environments. These species are tolerant to disturbances within the landscape and able to adapt to changing environments. Not surprisingly observations were limited for the Tableland areas. For example, American Crow (*Corvus brachyrhynchos*), American Goldfinch (*Spinus tristis*), American Robin, Eastern, King Bird, Eastern Phoebe, and Red Winged Black Bird were frequently encountered within the Valleyland. Two Red-tailed Hawks were observed overhead (no nest could be located) on one occasion. Table 3 below provides a summary of breeding birds observed during SLR breeding bird surveys.

One SOCC bird, the Eastern Wood-pewee (*Contopus virens*), was also observed by SLR during the early June on one visit only within the Glenayr Creek valley; it is ranked provincially as Special Concern. A single male was heard singing within from within the Glenayr Creek valleyland to the east of the Site; as such, it is considered a "probable" breeder, though likely a vagrant. Efforts to detect breeding individuals over the subsequent surveys did not record this species. Given this species was detected in suitable habitat within the adjacent valleyland community, it is presumed breeding habitat.

Table 3. SLR Breeding Birds Observed

Latin Name	Common Name	S-Rank[2]	SARA Schedule 1[3]	[4]SARO	SLR Observation	NHIC Result
Sayornis phoebe	Eastern Phoebe	S5B			x	
Myiarchus crinitus	Great Crested Flycatcher	S4B			x	

[2] S-Ranks - Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned
in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

S1 Critically Imperiled—Critically imperilled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from
the state/province.

S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or
state/province.

S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure—Common, widespread, and abundant in the nation or state/province.

S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

SX Apparently extirpated from Ontario, with little likelihood of rediscovery. Typically not seen in the province for many decades, despite searches at known historic sites.

SNA (Formally SE) Exotic; not believed to be a native component of Ontario's flora.

[3] **SARA** - Species at Risk Act (S.C. 2002, c. 29) Act current to 2018-07-05 and last amended on 2018-05-30.

[4] SARO - ONTARIO REGULATION 230/08 under the Endangered Species Act, 2007 species at risk in Ontario list. Act current to 2018-08-01. COSEWIC (Committee on the Status of Endangered Wildlife in Canada)

EXT Extinct - A species that no longer exists.

EXP Extirpated - A species no longer existing in the wild in Canada, but occurring elsewhere.

END Endangered - A species facing imminent extirpation or extinction.

THR Threatened - A species likely to become endangered if limiting factors are not reversed.

SC Special Concern (formerly vulnerable) - A species that may become a threatened or an endangered species because of a
combination of biological characteristics and identified threats.

NAR Not At Risk - A species that has been evaluated and found to be not at risk of extinction given the current circumstances.

DD Data Deficient (formerly Indeterminate) - Available information is insufficient to resolve a species' eligibility for assessment or to permit an assessment of the species' risk of extinction.

* - Species on Schedule 1 of Species At Risk Act (SARA)

Latin Name	Common Name	S-Rank[2]	SARA Schedule 1[3]	[4]SARO	SLR Observation	NHIC Result
Buteo jamaicensis	Red-tailed Hawk	S5		NAR	x	
Colinus virginianus	Northern Bobwhite	S1	END	END		x
Contopus virens	Eastern Wood-pewee	S4B	SC	SC	x	
Tyrannus tyrannus	Eastern Kingbird	S4B			x	
Hirundo rustica	Barn Swallow	S5B	THR	THR		x
Cyanocitta cristata	Blue Jay	S5			x	
Corvus brachyrhynchos	American Crow	S5B			x	
Poecile atricapillus	Black-capped Chickadee	S5			x	
Troglodytes aedon	House Wren	S5B			x	
Sturnus vulgaris	European Starling	SNA			x	
Cardinalis cardinalis	Northern Cardinal	S5			x	
Melospiza melodia	Song Sparrow	S5B			x	
Agelaius phoeniceus	Red-winged Blackbird	S4			x	
Haemorhous mexicanus	House Finch	SNA			x	
Turdus migratorius	American Robin	S5B			x	
Quiscalus quiscula	Common Grackle	S5B			x	

4.2.5 Bats

Where suitable treed habitats occur, such as larger snag trees with loose bark and cavities in woodland areas, hedgerows and landscape trees, potentially suitable roosting and foraging habitat is present for SAR bats, and bats generally. Winter hibernation habitats are not present, however; summer roost sites can be under the loose bark of dead trees, the hollows of trees or within man-made structures.

Trees were assessed as having good opportunities for roosting bats (generally) but limited in the tableland area for Northern Myotis and/or Tri-coloured Bats based on current science and species biology. Mature trees and snag tree areas are associated with valleyland limits along the Top of Slope. Given that in Ontario Little Myotis (SAR) is often associated with buildings, trees are likely to be used by non-SAR such as Big Brown Bat or Hoary Bat.

During the active surveys using hand-held devices, only low-frequency calls were documented, indicating the presence of non-SAR bats. The emergence counts were low (only a few individuals at dusk) with few bat passes recorded on the devices or visually observed foraging over the tableland area.

Evidence of bats was detected at the passive ARU monitoring station established near the pond area. This is also the cluster area where the larger deciduous trees occur within the tableland area. Few high-frequency calls of SAR bats were detected at this station. The following species were identified with 98% accuracy of identification: Silver-haired Bat and Hoary Bat were recorded more frequently, with some recordings of Big Brown Bat and a few Eastern Red Bats. The high-frequency detections (SAR bats) were faint, indicating observations were at a distance from the observer and at the range limits of the ARU. The valleyland may likely provide roost opportunities for SAR bats, particularly Northern Myotis. Habitat for both SAR and non-SAR bats is protected within the features outside of the development limits.

4.2.6 Mammals

The site is likely to provide suitable habitat for urban tolerant mammals. Wildlife observed were characteristic of the culturally influenced landscapes of urban areas where species are tolerant to disturbances within the landscape and able to adapt to changing environments. Wildlife observed included Eastern Grey Squirrel (*Sciurus carolinensis*) Eastern Chipmunk (*Tamias striatus*), Raccoon (*Procyon lotor*) and White-tail Deer.

4.2.7 Aquatics

From a watershed perspective, the Site is positioned in the Lower Main Branch of Sixteen Mile Creek which extends approximately from Highway 407 to the north, south to Lake Ontario. As a consequence, the majority of the Sixteen Mile Creek drainage area occurs upstream of the Site. The steep sided valley wall of the Lower Main Branch of Sixteen Mile Creek occurs to the northeast of the Site, adjacent to Fourth Line. This valley's long-term stable top-of-slope (LTSTS) feature illustrated in all of the Figures was derived by BIG Consultants in support of the subject application.

The Lower Branch of Sixteen Mile Creek provides fish habitat for a variety of minnow and dater fish species including Blacknose Dace (*Rhinichthys atratulus*), Longnose Dace (*Rhinichthys cataractae*), Common Shiner (*Luxilus cornutu*), Fantail Darter (*Etheostoma flabellare*) Rainbow Darter (*Etheostoma caeruleum*). While water temperature monitoring by CH (2011) indicates this branch generally provides habitat for warm water resident fish species, the fish species assemblage indicates warm-cool water habitat is present. Migratory salmonids including salmon and rainbow trout (*Oncorhynchus mykiss*) are

also present in the fall (Conservation Halton 2013. Long Term Environmental Monitoring Program Grindstone Creek, Sixteen Mile Creek and Supplemental Monitoring. Conservation Halton, Burlington, ON. 176 pp.).

Glenayr Creek, a tributary of Sixteen Mile Creek bounds the Site to the southeast. This tributary exhibits intermittent, seasonal flow. Diverse substrates include clay, silt and gravel with some evidence of cobble. This small tributary valley has relatively steep densely treed valley walls with an average bankful width of 1.9 m (Town of Oakville North Oakville Creeks Subwatershed Study, 2006). No existing fish community data was available for this tributary. Given that the conceptual site plan avoids disturbance of fish habitat, no fish community sampling or habitat mapping was undertaken as part of this study.

The incised draw feature protruding westward into the centre of the Site appears to only receive and convey ephemeral surface run-off derived from the lands immediately surrounding the feature. While historically this feature may have received additional discharge from the remnant pond, recent CCTV investigations of the pond outlet culvert concluded the subsurface pipe is blocked/collapsed at more than one location. As such, the pond does not contribute to discharge into this HDF. Early spring flow was observed on March 23, 2018. Discharge was not observed in this feature during subsequent site visits performed in May and June 2018 for amphibian and breeding bird surveys. This feature connects to Glenayr Creek valley and the woodland habitat of both features is contiguous. While considered and evaluated as a candidate HDF, this densely treed incised draw feature almost exclusively provides terrestrial habitat.

4.2.7.1 HDF Evaluation

When considered in the context of the HDF Evaluation, Classification and Management Guidelines (TRCA & CVC, 2014) the following values were identified:

Hydrology Classification: Flow observations indicated that the HDF is ephemeral (that is: present only for short periods when there is greater rainfall). The remnant pond does not contribute discharge into this HDF and therefore the HDF has Contributing functions.

Riparian Vegetation: Woodland vegetation exists throughout this feature, extending along the feature's floor and along each side. The approximate width of the woodland feature varies between 20 m toward the centre of the Site to nearly 40 m near its connection to the Glenayr Creek valley. For this reason, the feature was evaluated as providing an Important Riparian function.

Fish and Fish Habitat: None. The subject HDF does not provide direct habitat. Similarly, it is unlikely that its ephemeral discharge through a perched outlet culvert provides enough flow to contribute to fish habitat in Glenayr Creek during periods when fish may be present in that feature.

Terrestrial Habitat Classification: Woodland is present throughout this feature. No amphibian calls were recorded within this feature. At a local landscape scale, this feature provides movement opportunities for non-amphibian wildlife by connecting Glenayr Creek to the remnant pond. For this reason, the feature was evaluated as providing Important Contributing terrestrial habitat function.

Management Recommendations: In accordance with the HDF Evaluation, Classification and Management Guidelines, the management recommendation for the incised draw feature HDF is Protection. Interestingly, this recommendation is based almost exclusively on its terrestrial attributes of woodland and local landscape connecting functions.

4.2.7.2 Aquatic Species at Risk

Silver Shiner (*Notropis photogenis*), a federally and provincially Threatened fish species, is identified as being present or potentially present within the Lower Branch of Sixteen Mile Creek and Glenayr Creek according to the DFO online SAR mapping tool (accessed September 2020). The Recovery Potential Assessment of Silver Shiner in Canada (DFO, 2012) cites the known location of Silver Shiner in Sixteen Mile Creek being 9 km ESE of Milton and therefore within the North Oakville Creeks Subwatershed lying north of Dundas Street and the Subject site. This document also notes that no sampling effort, specifically targeting Silver Shiner has been performed south of Dundas Street in the Sixteen Mile Creek watershed. Taking a precautionary approach, it is reasonable to assume that Silver Shiner could be present in the main Lower Branch of Sixteen Mile Creek adjacent to and downstream of the study area. However, given that typical suitable habitat for Silver Shiner consists of medium to large streams or rivers, usually with widths generally greater than 20 m with pools as deep as 2 m (DFO, 2012), habitat for this species is unlikely to occur in Glenayr Creek bounding the southeast limit of the Site.

Silver Shiner is a small minnow sized fish related to Carp that are often found in schools. Spawning occurs in May and June in Ontario over about a two week period, at water temperatures of 18-23 °C. This fish is primarily a surface feeder that consumes aquatic insects, crustaceans, flatworms, surface insects, and algae (DFO 2012).

While it appears relatively little is known about the threats to Silver Shiner survival and recovery, it appears that dam construction, channelization, and deteriorating water quality (turbidity, pollution and impoundments) have been responsible for population declines in other jurisdictions such as Ohio. The provincial ESA, 2007 website (MECP, 2020) suggests significant alteration of aquatic habitat, water temperature and water chemistry as threats to the species together with rapid or permanent alteration of water quantity and significant alteration of riparian and floodplain conditions. Similarly, DFO (2012) describes the greatest threats to the survival and persistence of Silver Shiner in Canada as habitat reduction, fragmentation or habitat degradation attributed to turbidity and sedimentation; nutrient loading and contaminant or other toxic substance introductions as possible threats to the survival of this species. In Sixteen Mile Creek specifically, DFO suggests that the greatest threats to Silver Shiner populations are contaminants or other toxic substances. nutrient loading and flow management.

4.2.8 Wetlands

The on-site pond located near the western site boundary can also be described using the ELC system as a Cattail Mineral Marsh (MAS2-1) (Figure 2). This feature was the subject of multiple field investigations and discussions with Conservation Halton (CH) planners and biologists. A Limits and Significance of Wetlands memorandum is provided in Appendix E. This memorandum provides additional context behind SLR and CH's evaluation of significance for the on-site pond. The memorandum provides additional background on the pond's history and current conditions. The pond was constructed sometime between 1934 and 1954. In 2004, the vegetation buffer connecting the pond to the central ravine was reduced and pond outflows were directed through an underground culvert to the central ravine channel. In recent years, the open water area of the pond was reduced as vegetation encroached inward, likely indicating a change in surface water flow and/or a deliberate draining of the pond. Groundwater investigations in 2018 determined that groundwater contributions to the pond were absent.

The pond is not identified as provincially significant by the NDMNRF, nor would it qualify as such using the Ontario Wetland Evaluation System (OWES) and therefore it is not a significant wetland under the Provincial Policy Statement (PPS, 2020).

It is presumed that historically the pond received more water from upstream and likely overtopped on occasion into the minor valley feature. Past roadway improvements altered inflow water contributions and then, as part of past agricultural practices on the land, the feature's outlet was piped underground into the minor valley feature. This pipe was recently investigated as part of the application's supporting studies using a CCTV camera and was found to be blocked.

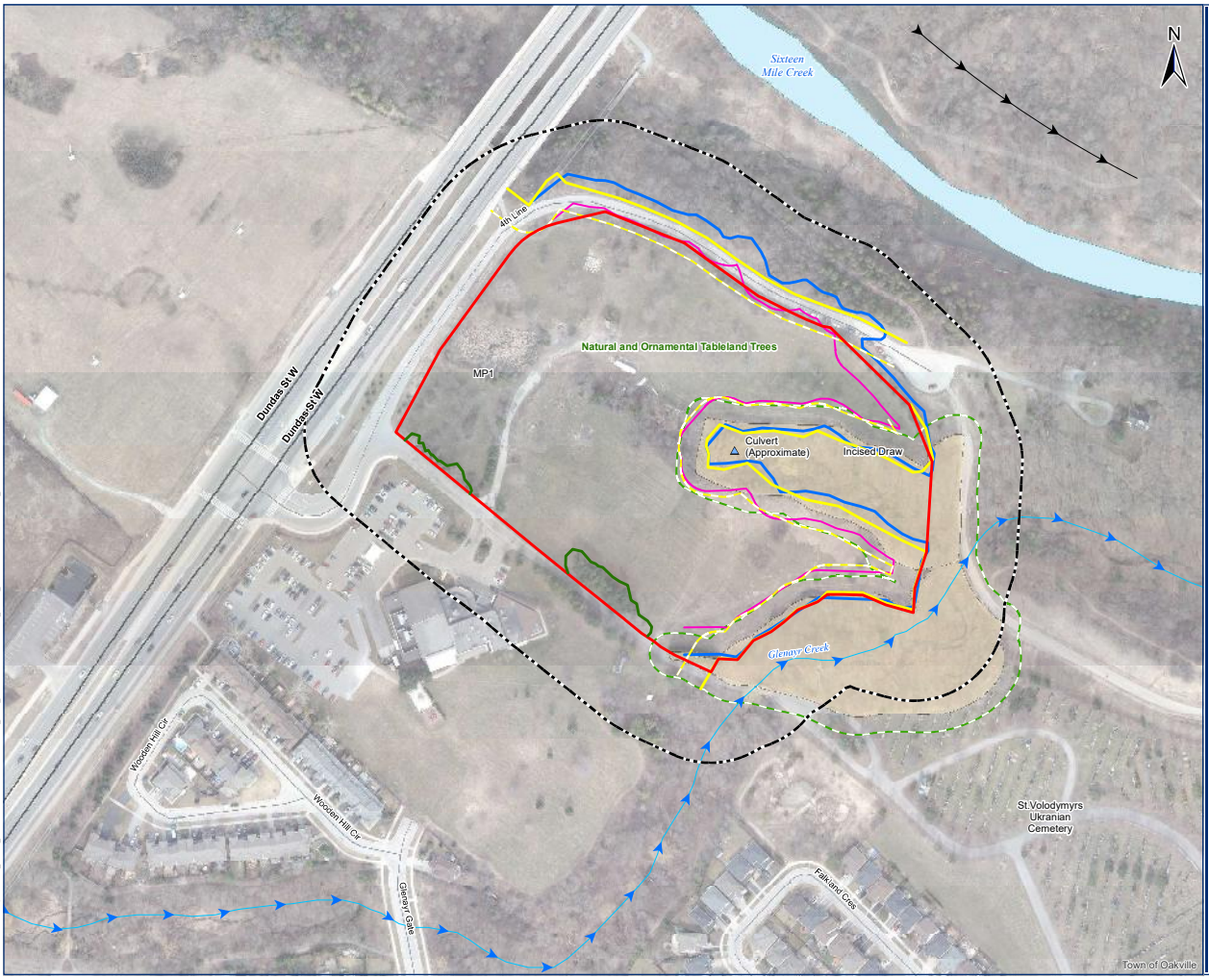
Based on the data gathered and the discussions with CH, it was determined that, while the pond provides isolated low-quality functions / minor wildlife habitat opportunities at a local scale it plays a nearly negligible role at an RNHS / watershed scale. Based on these findings, staff at CH elected not to regulate the feature as part of the lands which would require an alteration permit.

For similar reasons, the pond is not found to be a significant wetland through ROP Sections 268 and 267.5 as it is not a Provincially Significant Wetland nor does it occur within the defined Regional Natural Heritage System (RNHS) or provide an important ecological contribution to the Regional Natural Heritage System.

The primary influencing factors in these determinations include:

- the past alteration of the pond's hydrology (inflow) as a result of improvements to Dundas Street West,
- the presence of a near monoculture of cattails limiting diversity of habitats,
- the presence of frog species in relatively low abundance and below thresholds for SWH
- the knowledge that the pond likely freezes to the bottom during some winters – a condition that would kill any overwintering frogs and result in periodic resetting of small frog populations that inhabit the feature
- the absence of groundwater contributions as determined by in situ monitoring of a minipeizometer, and,
- the disconnect of the outflow from the minor valley feature or incised draw located in the midportion of the site and therefore negligible contribution to discharge to the Sixteen Mile Creek Valley or RNHS

The Limits and Significance of Wetlands memorandum in Appendix E concludes that with the changes in upstream flow contributions, the termination of water retention, the clear anthropogenic origin of the pond, and the existing disconnect with the downstream incised draw, the pond is best characterized as an isolated constructed depression on the landscape. In the continued absence of upgradient flow contributions and water management, it is anticipated that this feature will soon become a drier meadow habitat. As such, the pond is not considered a wetland and does not form part of the Regional NHS per ROP policy 115.3(6).



LEGEND

- PRIMARY STUDY AREA
- ADJACENT LANDS
- SIGNIFICANT WOODLAND AND SIGNIFICANT WILDLIFE HABITAT
- TREE PROTECTION ZONE (KUNTZ, 2021)
- STAKED PHYSICAL TOP OF BANK (CONSERVATION HALTON MARCH 23, 2018)
- 15M SET-BACK OF TOP OF BANK
- LONG-TERM STABLE TOP OF SLOPE (BIG CONSULTING MARCH 31, 2023) (INCLUDING 2M TOE EROSION ALLOWANCE)
- LTSTOS 15 M SET-BACK
- 10 M BUFFER TO SIGNIFICANT WOODLAND
- GLENAYR CREEK (LIO, 2018)
- CULVERT (APPROXIMATE) (SLR, 2018)

NOTES:

IMAGERY: TOWN OF OAKVILLE; 2021 IMAGERY SERVICE

0 12.5 25 50 75 m

SCALE 1:2,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

DELMANOR WEST OAK INC.
1280 DUNDAS STREET WEST
OAKVILLE, ONTARIO, CANADA

DELMANOR WEST OAK

NATURAL FEATURE CONSTRAINTS

SLR

FIGURE NO: **2**

DATE: April 5, 2023

PROJECT NO: 209.40574.00000

4.2.9 Significant Valleylands

The ROP does not define valleylands as the Region defers to the definition in the Provincial Policy Statement (PPS). Accordingly, the PPS defines as valleylands "a natural area that occurs in a valley or other landform depression that has water flowing through or standing for some period of the year." Using this definition, the Sixteen Mile Creek valley, Glenayr Creek and the incised draw qualify as valleylands. As the Sixteen Mile Creek valley and Glenayr Creek valley are wooded, contain perennial discharge and provide interior Candidate and Confirmed SWH, they are ecologically important features, contributing to the quality and diversity of the RNHS and are found to be Significant Valleylands at a regional level under Section 276.4 of the ROP. The incised draw, while less important at a regional scale due to its ephemeral discharge and smaller size, also qualifies as a Significant Valleyland due to its mature woodland cover forming a contiguous landscape connection to the other two Significant Valleylands; Sixteen Mile Creek valley and Glenayr Creek valley. Qualifying as Significant Valleylands at a regional level means that these valleylands are also considered Significant Valleylands under Policy 2.1.5 of the PPS (2020).

4.2.10 Species of Conservation Concern

The background screening, coupled with the SLR field investigations, identified potential SOCC. The list was scoped to species which may occur on the Site based on the presence of suitable habitat and excluded those species that do not have habitat affinities on the site or are historical (i.e., observations made greater than 40 years). Recently, Black Ash has been designed as Special Concern and Threatened respectively by Committee on the Status of Endangered Wildlife in Canada (COSEWIC) but is not currently listed under O. Reg. 230/08 *Species at Risk in Ontario List* under the ESA (2007). This species is included as it may be listed within the next five years. The review provided in Table 4 below includes a summary of species relevant to the proposed application.

Table 4. Species of Conservation Concern Screening

Common Name[5]	Scientific Name	Status[6]	Habitat Description	Habitat Present Within the Site	Surveys Conducted	Likelihood of Occurrence on Site	Potential to be Impacted	Mitigation/Compliance Requirements
Mammals								
[1]Tri- Coloured Bat	*Perimyotis subflavus*	SARA – Endangered ESA – Endangered	Forests and Barns	Limited (potentially suitable trees)	Yes ARU	Limited	None to little	The timing window for tableland tree removals; Protect valleyfeature/draw feature
[1,7]Little Brown	*Myotis lucifugus*	SARA – Endangered ESA – Endangered	Attics, abandoned buildings and barns (summer); caves/abandoned mines (winter)	No	Yes ARU	Unlikely	No	None required
[1]Northern Long-eared Bat	*Myotis septentrionalis*	SARA – Endangered ESA – Endangered	Forested areas	Limited (potentially suitable trees)	Yes ARU	Limited	None to little	The timing window for tableland tree removals; Protect valleyfeature/draw feature

[5] Source: MNRF, SARO List, SLR Experience
[6] Species at Risk Public Registry, SARO, NHIC (accessed November 2021)
[7] Previous Studies

Designation Status

Provincial Status - Species at Risk in Ontario list maintained by the Ontario Ministry of Natural Resources and Forestry, O.Reg. 230/08. Endangered Species Act Regulation OMNR S.O. 2007, Chapter 6. Schedules 1 thru 5.4. O. Reg. 242/08.

Regional or Local

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC). S3 [Vulnerable] Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

Common Name[5]	Scientific Name	Status[6]	Habitat Description	Habitat Present Within the Site	Surveys Conducted	Likelihood of Occurrence on Site	Potential to be Impacted	Mitigation/Compliance Requirements
[1]Eastern Small-footed Bat	*Myotis leibii*	SARA – Not Listed ESA – Endangered	Rocks, rock outcrops, buildings, under bridges, caves, mines or hollow trees	Limited (potentially suitable trees)	Yes ARU	Limited	None to little	The timing window for tableland tree removals; Protect valleyfeature/draw feature
Avian								
[1]Barn Swallow	*Hirundo rustica*	SARA – Threatened ESA – Threatened	Structures, barns	No	BBS (not observed)	Unlikely	No	None
[1, 3] Chimney Swift	*Chaetura pelagica*	SARA – Threatened ESA – Threatened	Structures and Natural treed cavities	No	BBS (not observed)	Unlikely	No	None
[1,3] Red-headed Woodpecker	*Melanerpes erythrocephalus*	SARA – Endangered ESA – Special Concern	Forests	Suitable trees in association with the Valleyland/draw	BBS (not observed)	Limited	No	Protect valley feature/draw feature
[1] Wood Thrush	*Ammodramus savannarum*	SARA - Threatened ESA – Special Concern	Deciduous and mixed forests where there are large trees, moderate understory, shade, and abundant leaf litter for foraging	No	BBS (not observed)	Unlikely	No	None
[1,3]Eastern Wood-pewee	*Contopus virens*	SARA – Special Concern ESA – Special Concern	Deciduous forest and woodland, nearly any forested habitat, even smaller woodlots as long as it is fairly open	Suitable trees in association with the Valleyland/draw	BBS (1 male observed, not observed during subsequent breeding bird surveys)	Occurs on site	Yes	Protect valleyfeature/draw feature

Common Name[5]	Scientific Name	Status[6]	Habitat Description	Habitat Present Within the Site	Surveys Conducted	Likelihood of Occurrence on Site	Potential to be Impacted	Mitigation/Compliance Requirements
Evening Grosbeak	*Coccothraustes vespertinus*	SARA – Special Concern ESA – Special Concern	Winter in forests and feed in both deciduous and coniferous trees, often at higher elevations; backyard feeders	No	BBS (not observed)	Unlikely	No	None
Herpetofauna								
[2]Snapping Turtle	*Chelydra serpentina*	SARA – Special Concern ESA – Special Concern	Watercourses small wetlands and marsh features provide opportunities and movement corridors	Yes (valleyland provides a movement corridor; pond)	Incidental wildlife during all surveys and fieldwork	Limited in the valleyland and pond	Yes – from pond removal only	Species is special concern and habitat is not protected; timing windows required to protect species
[1]Midland Painted Turtle	*Chrysemys picta marginata*	SARA – Special Concern ESA – Not Listed	Watercourses small wetlands and marsh features provide opportunities and movement corridors	Yes (valleyland provides a movement corridor; pond)	Incidental wildlife during all surveys and field work	Limited in the valleyland and pond	Yes – from pond removal only	Species is special concern and habitat is not protected; timing windows required to protect species
Flora								
[1]Butternut	*Juglans cinerea*	SARA – Endangered ESA – Endangered	Moist, well-drained soil and is often found along streams; well-drained gravel sites (rarely on dry rocky soil); does not do well in shade; often grows in sunny openings and near forest edges	Valleyland/draw feature (not observed)	Tree Inventory/ELC	Limited and not observed	No	None

Common Name[5]	Scientific Name	Status[6]	Habitat Description	Habitat Present Within the Site	Surveys Conducted	Likelihood of Occurrence on Site	Potential to be Impacted	Mitigation/Compliance Requirements
[1,3] Black Ash	*Fraxinus americana*	Not Designated under SARA or ESA but recently (2018) listed as Threatened by COSEWIC	Swampy woodlands	Valleyland/draw feature (not observed)	Tree Inventory/ELC	Limited and not observed	No	None
Woodland Flax	*Linum virginianum*	S2 Not Designated under SARA or ESA	Openings in forests, edges of forests, and dirt roads through forests on non-weedy roadsides on dry to dry-mesic thin soils	Tableland edge of the draw feature (not observed)	Tree Inventory/ELC	Limited and not observed	No	None

4.2.11 Significant Wildlife Habitat

The significance of an area as wildlife habitat is often difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. This is why, under the PPS, the planning authorities have the responsibility to identify and designate Significant Wildlife Habitat. Wildlife habitat significance includes:

- Seasonal concentration areas (e.g., conifer forests for deer wintering);
- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation interest, excluding the habitats of endangered and threatened species which are protected under the 2020 PPS and 2007 ESA); and
- Animal movement corridors.

Using criteria outlined in Ecoregion 7E Criterion Schedules and the guidance provided in the Natural Heritage Reference Manual (MNRF, 2010), no candidate SWH was identified for the tableland areas based on a review of secondary source material and/or confirmed through targeted field studies while a limited number of Candidate or Confirmed SWH features have been identified in the adjacent wooded valleylands. Below is a summary of the findings. The full SWH assessment table can be found in Appendix D.

The following candidate SWH areas were identified:

- Woodland Area-Sensitive Bird Breeding Habitat
- Bat Maternity Colony

The following SWH were confirmed:

- Special Concern and Rare Wildlife Species (Eastern Wood-peewee)

A Presence and Limits of Significant Wildlife Habitat memorandum is provided in Appendix F in response to concerns from Halton Region regarding the presence and limits of SWH within the property. The memorandum states that the candidate and confirmed SWH components listed above were identified in the adjacent wooded valleylands associated with Glenayr Creek and the adjacent Sixteen Mile Creek valleylands as well as the densely treed portions of the incised draw based on its connection to these other valley features. Protection of these features through the application of vegetation and slope stability buffers and setbacks to the Sixteen Mile Creek and Glenayr Creek valleylands and the incised draw should also protect and maintain the SWH identified within them.

4.2.12 Significant Woodlands

In accordance with Sections 277 and 295 of the Region's Official Plan, the incised draw feature includes a significant woodland. The EIS determined the woodland is significant based on Section 277.

> *Significant Woodland means a Woodland 0.5ha or larger determined through a Watershed Plan, a Sub-watershed Study or a site-specific Environmental Impact Assessment to meet one or more of the four following criteria:*

(1) the Woodland contains forest patches over 99 years old,

*(2) **the patch size of the Woodland is 2 ha or larger if it is located in the Urban Area**, or is 4 ha or larger if it is located outside the Urban Area but below the Escarpment Brow, or 10 ha or larger if it is located outside the Urban Area but above the Escarpment Brow,*

(3) the Woodland has an interior core area of 4 ha or larger, measured 100m from the edge, or

*(4) **the Woodland is wholly or partially within 50 m of a major creek or certain headwater creek** or within 150m of the Escarpment Brow.*

As the woodland is significant the definition of woodland in Section 295 is also assumed to be met. The limits of the Significant Woodland staked by SLR, Halton Region, and Kuntz Forestry Consulting, as well as a 10-metre woodland buffer, are shown on Figure 2.

4.2.13 Natural Corridors and Linkages

The Sixteen Mile Creek valley and Glenayr Creek provide a Natural Corridor for wildlife movement between the natural features (woodlands) both on and off-site. The connections occur along the east-to-west linear corridor at the south edge of the study area and north-south corridor along the Sixteen Mile Creek valley providing a direct connection to habitats up and downstream beyond the Site boundaries. The treed incised draw feature provides limited connection between features off-site although it likely provides a local function within the site for refuge and movement of urban tolerant wildlife. All three of these woodland valley features are included in the Regional Natural Heritage System (ROP 2018, Map 1).

4.2.14 Natural Hazards

Natural hazards are the result of naturally occurring physical and environmental processes that can pose a safety risk, particularly if human activities interfere with these processes (OMNR, 2001). The valley slopes within and adjacent to the study area are the natural hazards requiring analysis and delineation. and will inform the developable envelope of the Site. These valley slopes, including Sixteen Mile Creek, Glenayr Creek and the incised draw protruding into the Site were subject to geotechnical and slope stability analyses by BIG Consultants and a toe erosion threshold analysis by Geo Morphix, where appropriate. The results of each of these complementary studies and in particular, the long-term stable top of slope (LTSTS)), informed the delineation of the developable envelope of the Site illustrated (Figure 3). The LTSTOS determined by BIG Consultants illustrated in Figures 2 and 3 this report represents the limit of valley erosion hazards (Natural Hazards) where the slope is stable in terms of long-term stability (BIG, 2022 and Technical Memo dated March 31, 2023).

The Town of Oakville's OP Policy 10.13.2 states that no new development or site alteration is permitted within hazard lands without the approval of the Conservation Authority. CH regulates all watercourses, valleylands, wetlands, Lake Ontario and Hamilton Harbour shoreline and hazardous lands, as well as lands adjacent to these features including a distance of 15 m from the greater limit of the erosion or flooding hazards associated with Sixteen Mile Creek and its tributaries. As per the Town of Oakville's OP Policy 16.1.9 for Valleylands and CH policy, no new development is permitted within 15 m of the stable top of slope or flooding and erosion hazards

associated with Major Valleys, which include Sixteen Mile Creek and its tributaries. The subject lands within 15 m of the established LTSTS and top of bank for the Site are illustrated in Figure 3. The greater of these set-back constraints represent the hazard land limit.

5.0 DESCRIPTION OF THE SITE PLAN

A review of the *Planning and Justification Report* (MHBC, 2020) indicates that the Site will be severed as a separate development block from the St. Volodymyr Cultural Centre and cemetery lands with which it is currently associated. Currently, there is no severance application in place. The development will consist of an 8-storey seniors' residence with 315 suites, with an additional 27 seniors-friendly townhouse units, for a total of 342 units. Overall, this will provide 34 assisted living suites, 34 memory care suites, 116 independent supportive living suites, 131 independent living suites, and 27 independent townhouses.

5.1 Site Servicing

The Functional Servicing Study completed by RVA (2021) as part of the ZBA application provides the following summary of the proposed servicing for the Site. Additional development and servicing details will be provided for the site plan application.

"Water: A new municipal distribution main constructed along a portion of the Fourth Line frontage of the site and continuing westerly along the south side of Dundas Street West can provide the required domestic and fire service for the site. This new watermain will have terminating interconnections at the existing 1200 mm Ø Regional transmission located on the north side of Dundas Street West opposite the site and the existing 200 mm Ø distribution watermain located on Wooden Hill Circle west of the site. The location of the proposed interconnection with the transmission main coincides with the proposed interconnection proposed to service the development lands on the north side of Dundas Street West.

Sanitary: A new 200 mm Ø municipal sanitary sewer constructed from the Site westerly within the Dundas Street West ROW and discharging into the existing 1200 mm Ø sanitary trunk sewer at a location approximately 150 m east of the Proudfoot Trail intersection, will provide sanitary servicing for the site. The resultant service connection to the site will be relatively shallow (1.2 m frost cover) and, as a result, sanitary drainage from within the Site will drain by gravity to a private pumping station with a force main that discharges to a control MH and service connection located near the Fourth Line property line.

Storm: The existing site generally drains to the south into a defined environmental feature which is also a drainage draw. Adjacent storm sewers on Dundas Street West and Fourth Line were not designed to accept drainage from the Site.

It is proposed to reuse or reconstruct an existing outlet pipe into the drainage draw. To mitigate the impacts of the development, a stormwater management (SWM) plan will be implemented to provide discharge rate control, erosion control, water balance and quality control for discharge from the developed site. Prior to detailed design, criteria and target parameters for these measures will be confirmed through consultation with Conservation Halton."

6.0 ENVIRONMENTAL CONSTRAINTS

6.1 Constraints and Identification of Buffers and/or Vegetation Protection Zones

Policy 16.1 of the Town's OP provides the permitted uses and protection direction for land development applications positioned within or adjacent to Natural Areas. Schedule B of the Town's OP identifies the Sixteen Mile Creek valley as an Area of Natural and Scientific Interest (ANSI) and an Environmental Sensitive Area (Figure 1). This valley together with the tributary valley forming the east and southeast boundary of the Site and a portion of the internal incised draw feature is also identified as Valleylands and Floodplain on Schedule B and their treed portions are identified as Woodlands.

The site investigations and data analysis completed in support of this EIS together with the feature staking exercises in March 2018 and February 2023 performed with CH and Halton Region staff have further refined the position and extent of these Natural Areas and identified Significant Wildlife Habitat (SWH) and Natural Corridors within the adjacent larger valley systems.

Accordingly, the set-backs/buffers summarized below in Table 5 have been adopted in the ZBA application:

Table 5: Minimum Setbacks/Buffers as Identified by CH Policy, ROP and Policy 16.1 of the Town's OP

Feature	Reference	Set-back/Buffer
ANSI	As mapped in OP	As determined through an EIS
Environmentally Sensitive Area	Regional OP	As determined through an EIS
Woodland	Dripline	10 m
Natural Hazards / Major Valleylands*	Established Long-term stable top-of-slope (LTSTS) and staked Top of Bank	15 m
Fish Habitat	Sixteen Mile Creek and Glenayr Creek	30 m for coldwater creeks
Significant Wildlife Habitat	As Identified in OP or determined through an EIS	As determined through an EIS
Natural Corridors	As determined through an EIS	As determined through an EIS

*Both the Town and CH policies apply

6.1.1 ANSI and ESA Buffer

Owing to the natural separation distance between the Site and the Sixteen Mile Creek valley and the majority of the ANSI and Environmentally Sensitive Area, buffer determination was guided by the setbacks applied to other Natural Areas and features including LTSTS. The position of Fourth Line and the municipal trailhead parking lot adjacent to the northeast and eastern boundary of the Site represent an existing disturbance and land uses that do not require protection using

relatively large setbacks. The buffer to the ANSI and ESA boundary north and northeastern boundary of the Site includes the 15 m setback being applied to this Major Valleyland (Figure 3).

6.1.2 Valleylands

As discussed in consultation with the Town and CH and in accordance with the Town of Oakville's OP Policy 16.1.9, development or site alteration shall not be permitted within the valley or within 15 metres of the stable top-of-bank of valleys and tributaries, except for compatible permitted recreational uses, essential public works and utilities subject to the requirements of this Plan. Accordingly, a 15 metre setback to the LTSTS or top of bank (whichever is greater) of the Sixteen Mile Creek Valley and Glenayr Creek Valley has been adopted in the ZBA (Figure 3).

Finally, portions of additional land beyond the 15 m setback to the LTSTS and top of bank are also proposed for passive recreational treatment and tree planting to achieve the Town's canopy cover target. and. These areas are depicted as Tree Planting Areas in Figure 3. Combined, these lands and those to be restored within 15 metres of the LTSTS of the incised draw will provide compatible land use and functions to complement the Region's NHS.

6.1.3 Fish Habitat and Headwater Drainage Feature

No encroachment into the riparian habitat of Sixteen Mile Creek or Glenayr Creek will occur. As previously noted, the top of bank of the incised draw feature and Glenayr Creek were staked in March 2018 with CH staff and further delineation of the LTSTOS was completed by BIG consultants in support of the subject application. The limits of these features, together with the woodland boundary and applicable buffers and setbacks were used to establish the limit of development for the Site. In doing so, the protection of fish habitat is achieved and promoted in the subject application.

By extension, the application also implements the HDF management recommendation of "Protection" for the incised draw feature from Section 4.2.6.1 as both the feature and its discharge contribution to Glenayr Creek are preserved and enhanced in the concept plan.

6.1.4 Significant Wildlife Habitat

Confirmed and Candidate SWH were identified through the background review, in combination with targeted wildlife inventories that identified SWH within the adjacent Valleylands. Although the tablelands were not identified as having SWH, the incised draw feature is connected with the woodland canopy that provides candidate SWH for Woodland Area-Sensitive Bird Breeding Habitat and confirmed SWH for Special Concern and Rare Wildlife (Eastern Wood-peewee). Maintenance of these features and the application of vegetation and slope stability buffers and set-backs applied to both the Sixteen Mile Creek valleyland, Glenayr Creek and the incised draw are equally appropriate to protect the SWH identified on and adjacent to the Site.

6.1.5 Natural Corridors and RNHS

The Natural Corridor functions of the Regional Natural Heritage System (RNHS), including Sixteen Mile Creek valley, the Glenayr Creek valley and the incised draw, will be protected within the appropriately assigned set-backs and buffers applied to these features. The adoption of a 15 m set-back from the LTSTS along both the Sixteen Mile Creek valley and Glenayr Creek valley features will adequately protect the natural wildlife corridor functions of these features due to

their steep valley walls and dense woodland vegetation creating a natural separation between tableland activities (such as potential trails) and other potential uses and the valley floor along which animals can move.

The proposed use of the Site as a transitional retirement facility is a compatible land use adjacent to the RNHS and its natural corridor functions as the site will be under single ownership ensuring appropriate positioning and use of passive outdoor amenities (patios, gazebo, private walking trails, etc.). Single ownership also reduces the risk of incursion and disturbance into the natural edge as is often associated with multi-unit residential developments adjacent to valleylands.

Issues to be discussed as part of the impact assessment phase include:

- Determination of appropriate buffers to the ANSI, ESA, SWH and Natural Corridor;
- Minor refinements and adjustments to established setbacks and buffers of other Natural Areas;
- Significant Valleylands;
- Removal of remnant pond;
- Removal of tableland trees;
- Proposed stormwater outfall; and,
- Compatibility of the proposed development with adjacent Natural Features.

6.1.6 Final Development Limit

The Development Limit Line illustrated in Figure 3 was derived from the outermost boundary of the natural heritage and physical constraints and their respective buffers and setbacks. Constraints included hazard lands, Significant Valleylands and LTSTS, staked top of bank, significant woodlands and SWH. These features are depicted in Figure 2. As discussed in Section 6.1.2, a 15 metre setback was applied to the LTSTS and top of bank (whichever is greater) of the Sixteen Mile Creek Valley and Glenayr Creek Valley.

7.0 IMPACT ASSESSMENT AND MITIGATION

The site plan was overlain on mapping of existing conditions and policy constraints to illustrate the strong degree of alignment and conformity with the Town's Natural Area protection policies (OP Section 16.1) and to identify minor refinements and adjustments to established set-backs and buffers (Figure 3). As provided above in Section 6, a few issues require discussion in this impact assessment section due to the adoption and adherence to the set-backs/buffers in the Site Plan. Further details related to impact assessment will be addressed at the Site Plan approval stage once the zoning has been approved. At this time only impacts based on conceptual details can be addressed.

The following sections outline the direct, indirect and cumulative impacts based on the concept plan for zoning approval. Additional impacts will be discussed and mitigation provided at Site Plan Approval.

7.1 Removal of Remnant Pond

The existing pond positioned along the midwestern boundary of the Site is a remnant man-made pond from past agricultural practices on the landscape. Flow contributions toward the pond were previously reduced during upgrades to Dundas St. West and the pond's outflow toward the incised draw feature also became obstructed over the past unknown number of years, leaving the feature isolated on the landscape. The pond has a typical depth of approximately 1 m to 1.5 m. Evening amphibian surveys recorded low levels of activity, Chorus Frogs were not observed/detected during any of the survey events; as such, it is not providing suitable habitat to wildlife.

Through correspondence and information sharing between SLR ecologists and CH in December 2019 and January 2020, it was determined by CH that the pond would not be added to the CH Regulation Limit. The removal of the pond as part of the ZBA application is not considered an impact on the local Sixteen Mile Creek, since the pond is isolated and likely functioned ecologically as a wildlife sink, meaning outflow contributions and wildlife dispersal from the feature are limited and the quality of the habitat present is low.

7.2 Established Natural Heritage System Set-backs and Buffers

Challenges posed by the local topography and the configuration and position of NHS within the Site were accommodated in the conceptual site plan such that minor adjustments to the applicable set-backs and buffers were avoided. The applicable set-backs and buffers in combination with the feasibility of the proposed development plan provide an appropriate level of protection to the adjacent NHS and its ecological functions (Figure 3).

The selection of vegetation species to be planted in the buffer will be determined during detailed design, although species selection will consist of a pallet of native woodland and edge tolerant species and, where possible, those naturally occurring within the Sixteen Mile Creek watershed.

Existing conditions at the site, up to the limit of the woodland, are currently manicured lawn. The proposed conditions, including plantings along the edges, will reduce the limit of manicured lawn. The final proposed setback is determined as more than adequate since less area will be maintained following development. Plantings between the limit of the woodland edge and the setback for the LTSTOS will provide additional stability to the slope.

7.3 Significant Valleylands

The Sixteen Mile Creek valley, Glenayr Creek and the incised draw qualify as valleylands and were found to be Significant Valleylands at a regional level under Section 276.4 of the ROP and by extension are also considered Significant Valleylands under Policy 2.1.5 of the PPS (2020). All Significant Valleylands and their LTSTS are retained and protected in the conceptual site plan.

7.4 Proposed Stormwater Outfall

For the protection of fish and fish habitat in the downstream receiving bodies of Sixteen Mile Creek and Glenayr Creek, water quality control objectives of enhanced (80%) TSS removal and erosion control will be utilized at this Site. Details relating to stormwater quality and quantity

controls to protect fish and fish habitat will be provided as part of the supporting documentation to the Site Plan application.

The Functional Servicing Report (FSR), prepared by RV Anderson and Associates, proposes to discharge treated stormwater (STM) at a controlled rate into the incised draw feature (**Figure 3**). The outfall will consist of a pipe supported by a headwall positioned at the upstream end of the feature near its origin on the landscape. It is envisioned that the outfall will include the construction of a rock lined plunge pool and additional rocky ramps along a portion of the draw length down gradient. Placement of the rock will be done in a manner that limits disturbance of the existing vegetation lining the feature's walls. While the extent of rock reinforcement and size of rock required will be determined at detailed design, it is anticipated that the rock material will become naturalized into the feature over time as herbaceous and woody vegetation naturally become re-established. If determined to be required based on the degree of potential disturbance, restoration planting could be included as part of and/or following construction.

A Stormwater Outfall Location and Impact Assessment Memorandum is provided in Appendix G. This memorandum addresses concerns from the Region of Halton regarding the selection of the stormwater outfall location and its potential impact on the receiving ravine feature and associated NHS. The memorandum discusses alternative stormwater management solutions and methods considered, including the use of adjacent storm sewers on Dundas Street West and Fourth Line or the regional storm sewer within Dundas. On-site alternatives including Low Impact Development (LID) techniques and incorporating roof scuppers with downspouts into building design are also discussed. The memorandum also evaluates alternative outfall types, designs, and locations and discusses potential impacts during construction and mitigation. In accordance with Section 233 of the ROP, the proposed outfall is considered “essential” after the consideration of all other alternatives. The memorandum demonstrates conformity with Sections 118 (2) and (3) of the ROP as no negative impacts on the RNHS are anticipated as a result of the outfall installation.

Geo Morphix (2021) determined that the natural drainage area to the incised draw has been largely reduced from the construction and improvements over time related to Dundas Street West. Also, as previously noted, the pipe that formerly directed discharge from the pond toward the incised draw feature is blocked in more than one location. The use of this incised draw feature to convey treated STM toward Glenayr Creek will reinstate intermittent flow into the feature following freshet and storm events of greater than 5 mm. It was stated by Geo Morphix (2021) that returning a portion of the flow to the feature would be beneficial to the downstream system since intermittent flow within this feature likely occurred when the upstream pond was larger and the connection (via surface or later via subsurface) was active.

While many aquatic functions are not anticipated to be created in this feature due to its steep gradient, benthic macroinvertebrates will likely become established in the interstitial voids created in the rock lined invert. The purposeful creation of step pools along the invert may prolong the discharge hydroperiod and promote the retention of standing water for use by wildlife.

During construction, effective sediment and erosion control measures will be used to prevent the entry of sediment into Glenayr Creek. Regular inspection of these measures to ensure they are functioning properly will be completed during construction and until re-vegetation has

successfully been established. Additional environmental protection measures will be developed as part of the Site Plan and future detailed design.

7.5 Species at Risk – Silver Shiner and Eastern Wood-pewee

The protection of Silver Shiner is achieved and promoted in the subject application Stormwater management will provide both on-site quantity and quality controls. Water quality control objectives of enhanced (80%) TSS removal and erosion control will be utilized at this Site. It is envisioned that the stormwater discharge will be directed to the Central incised draw feature in the centre of the Site. Details relating to stormwater quality and quantity controls to protect Silver Shiner will be provided as part of the supporting documentation to the Site Plan application.

Although the habitat of the Eastern Wood-pewee is not protected through the Species at Risk Act, significant wildlife habitat within the incised channel/valleyland has been protected through the proposed plan and ultimately protects the Eastern Wood-pewee.

7.6 Tableland Tree Removal

All tableland trees were tagged and documentation of their species, size and health was reported by Kuntz (2020). These data have been used to calculate tree removal quantities and identify appropriate restoration plantings and valuation calculations in accordance with the Town's Tree Replacement Formula / Cash-in-lieu formula. All opportunities will be investigated to compensate on or adjacent to the Site to minimize the effect of the tree removals. Additional compensation in the form of cash in lieu to the Town (if required) will be identified during detail design in accordance with an approved site plan application.

The encroachment and removal of individual trees will remove habitat (foraging and nesting/shelter) for resident and migratory birds and common urban mammal species however none of these features is known to provide specialized or unique habitat opportunities. Many of the trees to be removed are non-native plant species or native plant species commonly occurring within adjacent urban and rural landscapes of the Sixteen Mile Creek watershed. The effect of the removal of Candidate SWH (maternity roost sites for SAR bats) provided by the tableland trees will be negligible due to the abundance of suitable trees within the retained valley systems on and adjacent to the Site. The removal of Candidate SWH (maternity roost sites for SAR bats) and protection of the induvial bats will be addressed using appropriate timing removal schedules for the protection of SAR bat species and confirmed with the MECP as part of a parallel approvals process under the provincial ESA (2007).

The three treed areas of interest as noted in the Town’s development engineering urban forestry staff comments have been retained with the revised concept plan. These three areas are indicated in Figure 3.

7.7 Potential Effects of Lighting

While the core of the Sixteen Mile Creek valley occurs well beyond the likely influence of any lighting, the proposed project will potentially introduce additional night-time light sources to the tableland area and the edge of the Sixteen Mile Creek ESA and Glenayr Creek. The direct effects of artificial lighting on wildlife have been widely studied and documented. Potentially affected

wildlife includes bats, songbirds, and even invertebrates such as moths and fireflies. In general, artificial lights can alter an animal's circadian rhythm or create miss-cues that initiate activities such as foraging (feeding & substance), sheltering, mating and reproducing and communicating. For instance, artificial lights can attract and disorient animals such as moths and other flying night-time insects or potentially deter a nocturnal animal from using the area. For bats, potential effects can include changes to roost emergence times, degradation of existing and potential roost quality, and effects on foraging patterns.

Mitigating the potential effects of artificial night-time light on wildlife can be achieved through the selection of lighting formats, lighting design and layout and operational procedures.

The first objective would be to use only the minimum amount of light needed for the task. Selecting light sources known to be less intrusive or altering of wildlife behaviour can also reduce potential impacts from artificial lighting in natural settings. The use of low-pressure sodium, high-pressure sodium, metal halide and light emitting diodes (LEDs) is preferred over traditional sources of lighting. For this reason, the use of these types of light sources (or similar) will be considered in the design of the buildings and its amenities.

Design elements that should be used include downcast lighting or direct lighting or installing directional accessories such as shields or baffles to direct light and reduce light spill-over and illumination into adjacent habitat components. Similarly, roadway lighting can be designed with a light distribution pattern that spreads the length of the roadway so that adjacent areas are not illuminated.

Operationally, areas not requiring full time illumination can be fitted with motion activated lights to reduce the duration of illumination and maintain darker areas of adjacent habitat.

The above recommendations are included as guidance toward reducing the potential effects of artificial night-time light on wildlife. The issue will be examined and addressed more thoroughly during subsequent design phases as part of the photometric/light pollution study however, at a minimum, all exterior light fixtures will be shielded to meet the IESNA full cut-off classification or an up-light rating of 0.

7.8 Bird-Friendly Design Elements

The proposed addition of an 8-story building adjacent to greenways such as the Sixteen Mile Creek valley corridor can present a potential for collision and harm to resident and migratory birds. To deter bird collisions and reduce potential harm to birds design elements and mitigation provided in the City of Toronto Bird Friendly Development Guideline and Toronto Green Standard (TGS) "Bird Collision Deterrence" and the "Light Pollution" performance measures and best practices will be incorporated into the building design as part of the SPA application and future design phases. This will include glass treatment at applicable elevation zones. The issue will be examined and addressed more thoroughly during subsequent design phases.

7.9 Compatibility of ZBA

While previously presented in Section 6.0, the compatibility of the proposed land use adjacent to the existing Natural Areas should be recognized. The proposed use of the site as a transitional retirement care facility means the use and maintenance of the Site's boundaries along the natural features will be under the direct control of a single owner. Single ownership and the construction

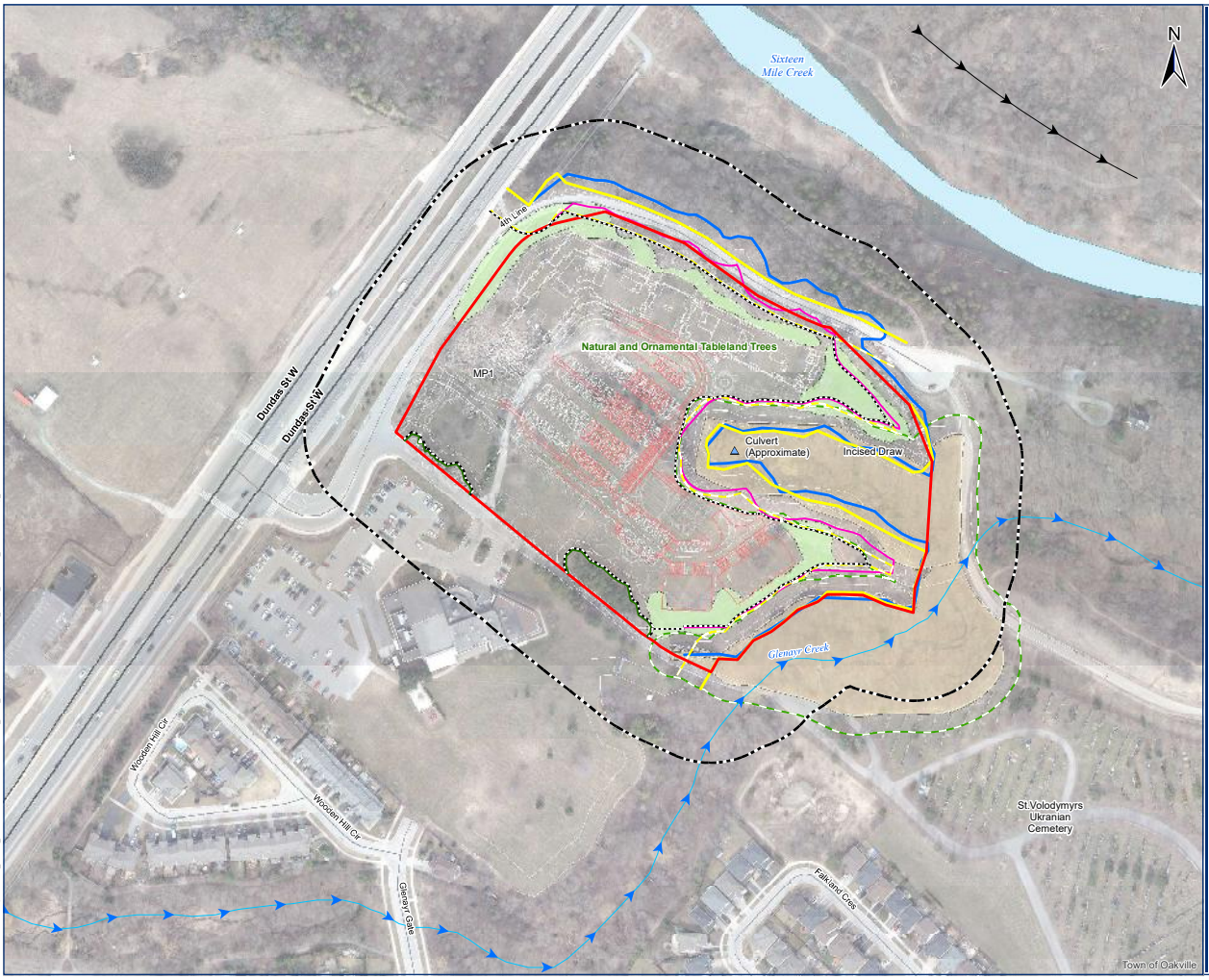
of a single facility with passive outdoor amenities (patios, private walking trails, etc.) adjacent to the larger Sixteen Mile Creek valley corridor will reduce the risk of incursion and disturbance into the natural edge as is often associated with multi-unit residential developments adjacent to valleylands. The conceptual Site Plan also contemplates passive private recreational uses on both sides of the incised draw feature consisting of minor trails and resting/viewing areas for the senior residents of the property (Figure 3).

The potential effects on wildlife within the Sixteen Mile Creek valley from security and pathway night-time lighting can be minimized by using design elements including downcast lighting or direct lighting or installing directional accessories such as shields or baffles to direct light and reduce light spill-over and illumination into adjacent habitat components. Operationally, areas not requiring full time illumination could be fitted with motion activated lights to reduce the duration of illumination and maintain darker areas of adjacent habitat. In addition, the use of low-pressure sodium, high-pressure sodium, metal halide and light emitting diodes (LEDs) is preferred over traditional sources of lighting.

7.10 Summary of Mitigation Proposed

The proposed plan for zoning provides the following mitigation measures to maintain the health, features and function of the NHS components. The measures will reduce and/or eliminate short and long-term impacts of the proposed concept development plan. Additional mitigation will be proposed where applicable in the site plan application.

- Avoidance of the incised draw feature and significant wildlife habitat/woodland
- Buffers and setbacks of adequate size to preserve the function of the features and enhance the edge between the features and the development
- Dedication of the Natural Heritage Features to the Region and more restrictive zoning
- Construction timing windows to avoid impact on sensitive fauna
- Stormwater Management and sediment control to reduce short- and long-term impacts on the features and associated habitat within the overall landscape including the use of Low Impact Development (LID) features
- Tree protection plans for areas of concern (areas along the western and northern property limits)



LEGEND

- PRIMARY STUDY AREA
- ADJACENT LANDS
- SIGNIFICANT WOODLAND AND SIGNIFICANT WILDLIFE HABITAT
- TREE PLANTING AREA

CONCEPTUAL SITE PLAN

- SITE PLAN (ICKE BROCHU ARCHITECTS)
- AVOIDANCE THROUGH DESIGN ADJUSTMENTS
- DEVELOPMENT LIMIT LINE
- TREE PROTECTION ZONE (KUNTZ, 2021)
- STAKED PHYSICAL TOP OF BANK (CONSERVATION HALTON MARCH 23, 2018)
- 15M SET-BACK OF TOP OF BANK
- LONG-TERM STABLE TOP OF SLOPE (BIG CONSULTING MARCH 31, 2023) (INCLUDING 2M TOE EROSION ALLOWANCE)
- LTSTOS 15 M SET-BACK
- 10 M BUFFER TO SIGNIFICANT WOODLAND
- GLENAYR CREEK (LIO, 2018)
- CULVERT (APPROXIMATE) (SLR, 2018)

NOTES:

IMAGERY: TOWN OF OAKVILLE; 2021 IMAGERY SERVICE

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SCALE 1:2,000
PAGE SIZE 11 x 17
NAD 1983 UTM Zone 17N
THIS MAP IS FOR CONCEPTUAL PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION

DELMANOR WEST OAK INC.
1280 DUNDAS STREET WEST
OAKVILLE, ONTARIO, CANADA

DELMANOR WEST OAK

DEVELOPMENT LIMIT AND SITE PLAN OVERLAY

SLR

FIGURE NO: **3**

DATE: April 5, 2023

PROJECT NO: 209.40574.00000

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8.0 LEGISLATIVE AND POLICY CONFORMITY

This EIS was prepared in the context of the policy framework identified in Section 3. The purpose of this section is to identify the key pieces of applicable environmental legislation, regulations and/or policies to be respected throughout the planning, construction and operation of the proposed development plan and to demonstrate how the ZBA application and conceptual Site Plan achieve conformity and compliance (Table 6).

Table 6. Summary of Policy Conformity

Policy		Conformity	Rationale
The Growth Plan for the Greater Golden Horseshoe (GGH), 2019	Section 4.2.2 - New development or site alteration must demonstrate no negative impacts on key natural heritage features or key hydrologic features	Conforms	The application conforms to these policies; no development or site alteration is proposed within the NHS features and their boundaries have been refined based on field and empirical studies. Appropriate set-backs and buffers have been applied to all features of provincial significance and it has been demonstrated through an EIS that no negative impacts on these features or their ecological functions will occur.
Greenbelt Plan (2017)	The Site occurs beyond the boundaries of the provincial Greenbelt although the Greenbelt Plan designates Sixteen Mile Creek valley as an Urban River Valley.	Conforms	The designation as an Urban River Valley recognizes the creek as a key component of the long-term health of the Greenbelt Plan's Natural System. Only publicly owned lands are subject to the policies of the Urban River Valley designation meaning the Greenbelt Plan's policies do not apply to the subject application.
Provincial Policy Statement (2020)	Policy 2.1	Conforms	No development or site alteration is proposed within the features of provincial significance and their boundaries have been refined based on field and empirical studies. Appropriate set-backs and buffers have been applied to all features of provincial significance and it has been demonstrated through an EIS that no negative impacts on these features or their ecological functions will occur. Passive recreation areas will be cited adjacent to much of the features of provincial significance on and adjacent to the Site.

Policy		Conformity	Rationale
Endangered Species Act, 2007		In Compliance	No SAR identified on the Site To avoid harm to potentially occurring SAR bat species, tree removal should not occur between April to September when bats are in summer day or maternity roosts.
Migratory Birds Convention Act (MBCA, 1994)		In Compliance	Vegetation clearing will not occur within the breeding bird period provided under Environment Canada guidance for periods of highest nesting probability (i.e. cannot occur generally between April 1st and August 31st)
Fisheries Act	Prohibits harmful alteration, disruption or destruction of fish habitat	In Compliance	Fish and direct fish habitat adjacent to the Site will not be directly affected. Stormwater controls will achieve Enhanced level quality per the MECP SWM manual and CH erosion control standards
Halton Region Official Plan Sections 115.3, 117.1, and 118, (June 19, 2018, Office Consolidation)	Regional Natural Heritage System (NHS) include Key Features and requirement for an EIS	Conforms	No development or site alteration is proposed within the Key Features, including Significant Woodlands and wetlands that form part of the Regional NHS, identified per Sections 115.3 and 117.1 and their boundaries have been refined based on field and empirical studies. Appropriate set-backs and buffers have been applied to all Key Features in consultation with the Region and/or CH and it has been demonstrated through this EIS that no negative impacts on these features or their ecological functions will occur. The EIS has been prepared to ensure that the proposed development has accounted for Section 118 (2), (3) and (3.1). The development plan accounts for the protection of the Regional Natural Heritage System from development and site alteration. Passive recreation areas will be cited adjacent to many of the Key Features on and adjacent to the Site

Policy		Conformity	Rationale
*Town of Oakville Official Plan Policy 16.1 and Schedule B (August 28, 2018 C*onsolidation).	Natural Area protection and Requirements for setbacks and buffers. Relevant natural features include: • Woodlands • Valleylands • Significant Wildlife Habitat • ESA • ANSI • Fish Habitat and, • Natural Corridors	Conforms	No development or site alteration is proposed within the Natural Areas and their boundaries have been refined based on field and empirical studies. Appropriate setbacks and buffers have been applied to all Natural Areas and it has been demonstrated through an EIS that no negative impacts on these features or their ecological functions will occur. Passive recreation areas will be cited adjacent to much of the Natural Areas on and adjacent to the Site. .

9.0 RECOMMENDATIONS

The following are recommended based on the assessment provided above to support the ZBA application. Additional recommendations will be included as applicable in a future application for site plan approval.

9.1 Land Severance

- An EIA or addendum to this EIA would need to be submitted in support of a proposed severance to demonstrate that the severance meets Section 118 (3) of the ROP and the systems approach outlined in Section 118(2).

9.2 RNHS Land Dedication

- Any lands identified as being part of the RNHS are to be gratuitously dedicated to a public body such as the Town or CH (as determined), to ensure their long-term protection.

9.3 Stormwater Management Outfall

- At detailed design, an Environmental Implementation Report (EIR) and engineering and landscape plans will confirm that the design of the SWM outfall pipe has been implemented based on the recommendations for mitigation described in Appendix G, with particular reference to limiting the area of disturbance, installing sediment and erosion control measures and ecological restoration of this area.

9.4 Edge Management and Tree Replacement

- Tree replacement should occur in accordance with the Arborist Report.

- Details of the re-vegetation in the location of the proposed SWM outfall will be provided as part of the Site Plan application. In general, restoration should be carried out immediately following construction and include a native plant seed mix using a biomulch or other approved technique to provide a solid base for the seeds to establish and is resistant to erosion and the addition of woody plant species.
- The native plant seed mix should include species that are attractive to native pollinators (e.g., Milkweed for Monarch habitat).
- Fencing should be installed around the buffer of the RNHS (including Significant Woodland) to ensure that the area is not further impacted by an increase in human presence.

9.5 Avoidance of Harm to Wildlife

- Aside from tree replacement planting and other compensation provided in the Arborist Report mitigation should include performing vegetation removal outside of the period from March to September to avoid impacts to breeding birds, and potential occupation of treed roosts (individual trees) by bats.

9.6 Protection and Recovery of Silver Shiner

- Stormwater management should provide both on-site quantity and quality controls. Water quality control objectives of enhanced (80%) TSS removal and erosion control should be utilized at this Site.

9.7 Best Management Practices

- All outdoor lighting (including any new street lighting and external lighting on buildings) should be directed towards the ground and/or away from the natural areas.
- The erosion and sediment control strategy for the STM outfall construction will be designed in conformance with the Town and CH guidelines.

10.0 CONCLUSIONS

The analysis of the natural heritage features and functions associated with Site and adjacent lands confirm the proposed use of the subject lands as provided in the ZBA application and the conceptual Site Plan can proceed in conformity/compliance with the applicable regulatory and policy framework, including the policies of the PPS, the Town of Oakville Official Plan, the Region of Halton OP and Growth Strategy, CH policies and guidelines, Ontario Regulation 162/06 and the ESA (2007) to protect key natural heritage features and their functions. This will be achieved by respecting the recommended development limits, including the established setback and buffers adjacent to the top of bank and valley woodland edge, improving stormwater quality run-off and providing naturalization and ecological enhancements within the buffers.

11.0 STATEMENT OF LIMITATIONS

This report has been prepared and the work referred to in this report has been undertaken by SLR Consulting (Canada) Ltd. (SLR) for Delmanor West Oak Inc., hereafter referred to as the "Client". The report has been prepared in accordance with the Scope of Work and agreement between SLR and the Client. It is intended for the sole and exclusive use of the Client. Other than by the Client and as set out herein, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted unless payment for the work has been made in full and express written permission has been obtained from SLR.

This report has been prepared for specific application to this site and site conditions existing at the time work for the report was completed. Any conclusions or recommendations made in this report reflect SLR's professional opinion.

Information contained within this report may have been provided to SLR from third-party sources. This information may not have been verified by a third party and/or updated since the date of issuance of the external report and cannot be warranted by SLR. SLR is entitled to rely on the accuracy and completeness of the information provided from third-party sources and has no obligation to update such information.

Nothing in this report is intended to constitute or provide a legal opinion. SLR makes no representation as to the requirements of compliance with environmental laws, rules, regulations or policies established by federal, provincial or local government bodies. Revisions to the regulatory standards referred to in this report may be expected over time. As a result, modifications to the findings, conclusions and recommendations in this report may be necessary.

The Client may submit this report to related environmental regulatory authorities or persons for review and comment purposes.

Sincerely,

SLR Consulting (Canada) Ltd.

Prepared by:

Michael Roy, B.Sc.
Principal Ecologist

Reviewed by:

Kim Logan, P.Geo. (Limited), P.Biol.
Senior Ecologist

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Appendix A Record of Consultation

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

From: Colleen Bain
To: Dale Leadbeater
Cc: Kara Green; Michael Roy; Jess Taylor
Subject: RE: 1280 Dundas Street W., Oakville - Delmanor
Date: January 08, 2020 9:54:10 AM
Attachments: image011.png
image012.png
image013.png
image014.png
image015.png
image017.png

Hi Dale,

Hope you had a great holiday season!

I just wanted to provide an update based on internal discussions regarding the pond on the site. It has been determined that the pond would not be regulated by CH. As such, the valley feature is the limit of the CH regulated portion of the property, the extent of which is still to be determined by the required geotechnical slope stability study.

Please let me know if you'd still like to meet.

Best regards,

Colleen Bain, MES (Planning)
Environmental Planning Analyst

Conservation Halton
2596 Britannia Road West, Burlington, ON L7P 0G3
905.336.1158 ext. 2257 | Fax 905.336.6684 | cbain@hrca.on.ca
conservationhalton.ca

From: Dale Leadbeater <dleadbeater@slrconsulting.com>
Sent: December 20, 2019 3:26 PM
To: Colleen Bain <cbain@hrca.on.ca>
Subject: RE: 1280 Dundas Street W., Oakville - Delmanor

Hi! Thanks for this…just checking with the team for timing. I know that Jan 7 doesn't work.

Happy Holidays!

Dale

Dale Leadbeater, B.Sc., B.Ed., P.Biol., R.P.Bio.
Principal Ecologist
905-415-7248
416-996-6976
dleadbeater@slrconsulting.com
SLR Consulting (Canada) Ltd.
300 Town Centre Blvd, Suite 200, Markham, ON L3R 5Z6

From: Colleen Bain <cbain@hrca.on.ca>
Sent: December 20, 2019 2:36 PM
To:
Cc:
Subject: RE: 1280 Dundas Street W., Oakville - Delmanor

Hi Dale,

Are you available to meet at the CH Administrative Building (2596 Britannia Road West, Burlington) from 2:00-3:00pm on Tuesday January 7th or Monday January 13th?

Let me know if either of these work for you, and if not please provide some alternative dates and times.

Happy holidays,

Colleen Bain, MES (Planning)
Environmental Planning Analyst

Conservation Halton
2596 Britannia Road West, Burlington, ON L7P 0G3
905.336.1158 ext. 2257 | Fax 905.336.6684 | cbain@hrca.on.ca
conservationhalton.ca

Season's Greetings with all the best for the New Year. The office will be closed Tuesday, December 24 at 1:00 pm and will re-open on Thursday, January 2 at 8:30 am. Emails, voicemail messages and faxes will not be retrieved during this time. Please also note that I will be away from the office for the holidays starting Friday December 20.

From: Dale Leadbeater <dleadbeater@slrconsulting.com>
Sent: December 10, 2019 1:56 PM
To: Colleen Bain <cbain@hrca.on.ca>
Cc: Kara Green <KGreen@tridel.com>; Michael Roy <mroy@slrconsulting.com>; Jess Taylor <jtaylor@hrca.on.ca>
Subject: Re: 1280 Dundas Street W., Oakville - Delmanor

Excellent! Thanks so much. I had a wetland biologist and fisheries biologist out last Friday so I have a little more information.

I appreciate you getting back to me and look forward to the dates.

Cheers

Sent from my iPhone

Dale Leadbeater, B.Sc., B.Ed., P.Biol., R.P.Bio.
Principal Ecologist

905-415-7248
416-996-6976
dleadbeater@slrconsulting.com

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300 Town Centre Blvd, Suite 200, Markham, ON L3R 5Z6

On Dec 10, 2019, at 1:03 PM, Colleen Bain <cbain@hrca.on.ca> wrote:

Good afternoon Dale,

Sorry we keep missing each other on the phone, thank you for your patience.

We are having internal discussions about the wetland, and would also like to meet with you to discuss. I will provide potential meeting dates within the next week or so.

Best regards,

Colleen Bain, MES (Planning)
Environmental Planning Analyst

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2596 Britannia Road West, Burlington, ON L7P 0G3
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conservationhalton.ca

From: Dale Leadbeater <dleadbeater@slrconsulting.com>
Sent: December 5, 2019 3:26 PM
To: Colleen Bain <cbain@hrca.on.ca>
Cc: 'Kara Green' <KGreen@Tridel.com>; Michael Roy <mroy@slrconsulting.com>
Subject: 1280 Dundas Street W., Oakville - Delmanor

Greetings Colleen!

I'm following up on our conversation regarding the features on the above property, most notably the pond and the HDF in the middle of the site. I believe that you were going to discuss with Emma regarding the information you have (site photos among the data). I would like to meet at either of our offices or on the site to discuss the function and extent of regulated area. As you are aware, this is of great consequence to the potential future use of the property.

Please let me know when we could get together.

Kind regards
Dale

Dale Leadbeater, B.Sc., B.Ed., P.Biol., R.P.Bio.
Principal Ecologist

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Appendix B Field Sheets

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

Amphibian Call Survey

Project Name/No: Tridel

Date: May 3, 2018 **Observers:** KLF/LSG

Overnight Temp (21:00 to 5:00): High: 17 Low: 14 Overnight Precip? ☐YES ☒NO

Station : 1 of 1 **Time of Survey:** Start 22:00 End 22:50

UTM: E 600952 N 4812348 ±2m

Direction: W **Distance** 25 m

Air Temp (°C): Start: 16 End: 16 **RH (%):** 80 **Sky Code[1]:** 1 **Wind[2] :** 0

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☒ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow ☒ manicured	☒ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other: Road (Dundas), church	Other:

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]			L1			L1				
Count			6			3				

Comments: rainfall during day and some rain fall on days prior to survey/ noise from road = level 2 but calling can be distinguished

---

Station : _____ of _____ **Time of Survey:** Start _____ End _____

UTM: E _____ N _____

Direction: _____ **Distance:** _____ m

Air Temp (°C): Start: ____ End: ____ **RH (%):** _____ **Sky Code[1]:** _____ **Wind[2] :** _____

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow	☐ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other:	Other:

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]										
Count										

Comments: _____

[1] NAAMP/ Beaufort Sky Code
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain 7 = snow or snow/rain mix 8 = showers
9 = thunderstorms

[2] Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

[3] Call Level Codes
Level 1 – individual calls can be counted, no overlap
Level 2 – some calls can be counted, some overlap
Level 3 – calls continuous and overlapping, individuals not distinguishable

This sheet was developed following guidelines of the Marsh Monitoring Program (MMP) developed by Bird Studies Canada, in partnership with Environment Canada and adapted from Ecoplans Limited

Amphibian Call Survey

Project Name/No: _____

Date: _____ **Observers:** _____

Overnight Temp (21:00 to 5:00): High: _____ Low: _____ Overnight Precip? ☐YES ☐NO

Station : _____ of _____ **Time of Survey:** Start _____ End _____

UTM: E _____ N _____

Direction: _____ **Distance** _____m

Air Temp (°C): Start: _____ End: _____ **RH (%):** _____ **Sky Code[1]:** _____ **Wind[2] :** _____

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐Agricultural Field / Meadow	☐Marsh ☐Swamp☐ Vernal Pool ☐ Nat. Pond ☐Natural swale / depression ☐Excavated Ditch/Pond ☐Impoundment
Other: _____	Other: _____

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]										
Count										

Comments: _____

_____

_____

Station : _____ of _____ **Time of Survey:** Start _____ End _____

UTM: E _____ N _____

Direction: _____ **Distance:** _____ m

Air Temp (°C): Start: _____ End: _____ **RH (%):** _____ **Sky Code[1]:** _____ **Wind[2] :** _____

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐Agricultural Field / Meadow	☐Marsh ☐Swamp☐ Vernal Pool ☐ Nat. Pond ☐Natural swale / depression ☐Excavated Ditch/Pond ☐Impoundment
Other: _____	Other: _____

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]										
Count										

Comments: _____

_____

_____

[1]NAAMP/ Beaufort Sky Code
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain 7 = snow or snow/rain mix 8 = showers
9 = thunderstorms

[2] Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

[3] Call Level Codes
Level 1 – individual calls can be counted, no overlap
Level 2 – some calls can be counted, some overlap
Level 3 – calls continuous and overlapping, individuals not distinguishable

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SPPE L? in valley disturbed By Road noise. → SAFETY issue several cars ent did not get out of car

Ontario

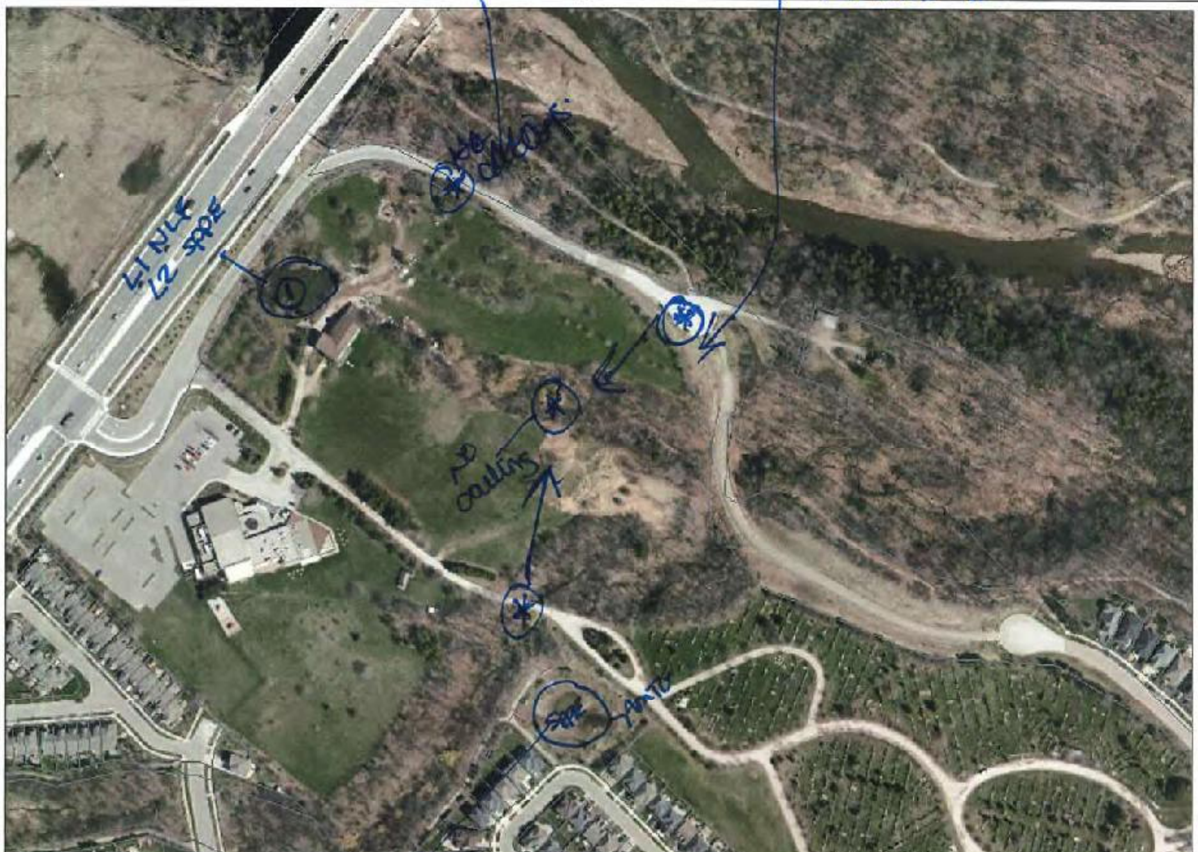
Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

1280 Dundas Street West, Oakville

A wanted to Listen hear But could not.

Notes: Amphibian Survey 1



MAY 3 | 2015
KCF / LG
onsite
22:00 / 22:50
Beau. 0
Temp: 16°C
Overcast Light rain in day

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- River Valley Connections

Land Use Designations

- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

0.2 0 0.1 0.2 Kilometers

Scale: 1 : 4,513

L1 SPPE x3
L1 PNTO x2

Note: WCF calling on site Saturday April 28 forward.

Amphibian Call Survey

Project Name/No: Oakville 209.40574.0

Date: May 31 / 18 **Observers:** Lorry Wickett

Overnight Temp (21:00 to 5:00): High: ____ Low: ____ Overnight Precip? ☐YES ☐NO

Station : 1 of 3 **Time of Survey:** Start 2154 End 2159

UTM: E 600952 N 4812348 ±2m

Direction: W **Distance** 25 m

Air Temp (°C): Start: 30 End: 30 **RH (%):** 88 **Sky Code[1]:** PC(1) **Wind[2] :** SW-5-10

Landscape Context:	**Water Feature:** mmm/mms
☐ Upland Forest ☐ Treed Swamp ☒ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow ☒ manicured	☒ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other: Road (Dundas), church	Other:

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]					2		2			
Count					4 or 5		4 or 5			

Comments: Good calling - rain in first 1/2 of day but no rain during survey.

Station : 2 of 3 **Time of Survey:** Start 2140 End 2145

UTM: E ____ N ____

Direction: ____ **Distance:** ____ m

Air Temp (°C): Start: 30° End: 30° **RH (%):** ____ **Sky Code[1]:** ____ **Wind[2] :** SW-5-10km/h Partly

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow	☐ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other:	Other:

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]			NO	CALLING.						
Count										

Comments:

[1] NAAMP/ Beaufort Sky Code
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain 7 = snow or snow/rain mix 8 = showers
9 = thunderstorms

[2] Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

[3] Call Level Codes
Level 1 – individual calls can be counted, no overlap
Level 2 – some calls can be counted, some overlap
Level 3 – calls continuous and overlapping, individuals not distinguishable

This sheet was developed following guidelines of the Marsh Monitoring Program (MMP) developed by Bird Studies Canada, in partnership with Environment Canada and adapted from Ecoplans Limited

Amphibian Call Survey

Project Name/No: Oakville 209 40574

Date: May 31 / 18 **Observers:** Larry Wickett

Overnight Temp (21:00 to 5:00): High: ____ Low: ____ Overnight Precip? ☐YES ☐NO

Station : 3 of 3 **Time of Survey:** Start 2132 End 2137

UTM: E ____ N ____

Direction: ____ **Distance** ____m

Air Temp (°C): Start: ____ End: ____ **RH (%):** ____ **Sky Code[1]:** ____ **Wind[2] :** ____

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow	☐ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other: ____	Other: ____

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]					1					
Count					2					

Comments: on west side of Driveway

very humid - rain early AM / dry night

Station : 3 of 3 **Time of Survey:** Start 2201 End 2204

UTM: E ____ N ____

Direction: ____ **Distance:** ____ m

Air Temp (°C): Start: 30 End: 30 **RH (%):** ____ **Sky Code[1]:** PC **Wind[2] :** SW - 5-10

Landscape Context:	**Water Feature:**
☐ Upland Forest ☐ Treed Swamp ☐ Suburban / Urban ☐ Marsh / Thicket Swamp ☐ Agricultural Field / Meadow	☐ Marsh ☐ Swamp ☐ Vernal Pool ☐ Nat. Pond ☐ Natural swale / depression ☐ Excavated Ditch/Pond ☐ Impoundment
Other: ____	Other: ____

	WOFR	CHFR	SPPE	AMTO	GRTR	NLFR	GRFR	BULL	Other	Other
Level[3]			NO CALLING							
Count										

Comments: ____

[1] **NAAMP/ Beaufort Sky Code**
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain 7 = snow or snow/rain mix 8 = showers
9 = thunderstorms

[2] Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

[3] Call Level Codes
Level 1 – individual calls can be counted, no overlap
Level 2 – some calls can be counted, some overlap
Level 3 – calls continuous and overlapping, individuals not distinguishable

This sheet was developed following guidelines of the Marsh Monitoring Program (MMP) developed by Bird Studies Canada, in partnership with Environment Canada and adapted from Ecoplans Limited

June 26, 2018 sky: 0 temp: 11°C start 05:15
Lot [redacted] wind: 0 16°C end. 07:00

Breeding Bird Survey Form

Project No.: 209.46574 **Project Name:** Tridel - 1280 Dundas Street W

Date: June 26, 2018 **Time Start:** 0515 **Observers:** LG

Location or Site ID: — **Time Stop:** 07:00 **Beaufort Sky Code:** 0

Ppt: 0 **Temp:** start: 11°C end: 18°C **Beaufort Wind Scale:** 0

Location:

Include Highest Breeding Evidence for species in "Total Column"

Species	Tally	Total
Alder Flycatcher		
Am. Crow	1 CF	1
Am. Goldfinch		
Am. Kestrel		
Am. Redstart		
Am. Robin	𝍸 CF	9
B.-c. Chickadee	III S	3
Baltimore Oriole		
Black & White W.		
Black-b. Cuckoo		
Blue Jay	II S	2
Br. Thrasher		
Br.-h. Cowbird		
C. Grackle	𝍸 S	6
C. Waxwing		
C. Yellowthroat		
Canada Goose		
Chestnut-side W.		
Chipping Sparrow		
Downy Woodp.		
E. Kingbird	1 H	1
E. Phoebe	IIII CF	4
E. Starling	𝍸 F	5
Field Sparrow		

Species	Tally	Total
Gr. Crest Flycatcher	1 S	1
Gray Catbird		
Hairy Woodp.		
House Sparrow		
House Wren	II S	2
Indigo Bunting		
Killdeer		
Least Flycatcher		
Mallard		
Mourning Dove		
Mourning Warbler		
N. Cardinal	II S	2
N. Flicker		
N. Waterthrush		
Nashville Warbler		
Ovenbird		
Red-br. Nuthatch		
Red-eye Vireo		
Red-t. Hawk		
Red-w. Blackbird	𝍸 CF	10
Rose-br. Grosbeak		
Ruby-thr. Hum.		
Ruffed Grouse		
Savannah Sparrow		

Species	Tally	Total
Scarlet Tanager		
Song Sparrow	IIII S	4
Spotted Sand.		
Swamp Sparrow		
Tree Swallow		
Veery		
Vesper Sparrow		
Warbling Vireo		
White-br. Nuthatch		
White-thr. Sp.		
Willow Flycatcher		
Winter Wren		
Yellow Warbler		
Red-tailed Hawk	II P	2
House Finch	1 S	1
*Wood Thrush		
*E. Wood Pewee	1 S	1
*Bobolink		
*E. Meadowlark		
*Barn Swallow		

Notes

*eastern cottontail, gray squirrel, red squirrel

* *Complete SAR field form for all species of conservation concern.*

SLR

Proj. No. Date:

Species	Tally	Total	Species	Tally	Total	Species	Tally	Total

Notes:

[2] **NAAMP/ Beaufort Sky Codes**
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
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4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix
8 = showers 9 = thunderstorms

[3] **Beaufort Wind Scale**
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, raises dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

SLR

Species of Conservation Concern Observation Form
WILDLIFE

Project Name and No.
Reference UNIT / Associated ELC POLYGON No: FOD
(i.e. side road name/ lot and concession number)

Date and Time (24 hr) of Observation: June 26, 2018 08:00

Identify Species Encountered (If known) or describe physical characteristics (*i.e. colour, markings, etc.*):

Eastern Wood-pewee

Name of Observer and contact number: Lyndsay Greene

Photo Taken: yes ☐ No ☒

SPECIES INFORMATION

Species Description (*number of individuals, approx size, male, female*): 1 singing male

Status (circle all that apply):
- (Alive)
- Dead
- Injured

Behavior (circle all that apply):
- Basking
- Feeding
- Nesting
- (Other) - singing

Additional Comments:

Follow Up Required- : yes ☐ No ☒ *I.e. hibernacula/ gestation / nesting probability*

SITE CONDITIONS

Weather: Beaufort Wind 0 Sky Code 0 Temperature °C: 11-18°C

Additional Comments:

Geographic Location:
UTM Coordinates : Zone 17 T Easting 601060 Northing: 4812144
Additional location markers (if available) :

Habitat Conditions of Sighting Location (circle all that apply):

Roadway / Gravel shoulder	Rock Outcrop	Lake
Utility Corridor	Open Meadow/Field	Marsh
Trail	(Forest/woodland)	Swamp treed
(Residential)	Shoreline/ Bank	Swamp shrub
		(River/ Stream) - Valley system with creek

Additional Notes/Comments:

2NAAMP/ Beaufort Sky Codes
0 = clear (no cloud cover)
1 = partly cloudy (scattered or broken) or variable
2 = cloudy or overcast
3 = sandstorm, duststorm or blowing snow
4 = fog, smoke, thick dust, or haze
5 = drizzle or light rain
6 = rain
7 = snow or snow/rain mix
8 = showers
9 = thunderstorms

3Beaufort Wind Scale
0 = calm, smoke rises vertically (0-2km/hr)
1 = Light air movement, smoke drifts (3-5)
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3= Gentle breeze, leaves & twigs in constant motion (12-19)
4= Moderate breeze, small branches moving, raises dust & loose paper (20-30);
5= Fresh breeze, small trees begin to sway (31-39)
6= Strong breeze, large branches in motion (40-50)

Location

Date 26 Jan 2018

Project / Client

☐ SWT - opposite gw wells.
PRUVIRG, ERA of COCC

☐ at PetroCan - filled - CUM
~~HERLANA~~ PASSATI

☐ c facing - SAL x FRAG
then Pe hedge

Location 12810 Dundas

Date 26 Mar 2018

Project / Client 209.40574

need floodplain meander belt } Emma

Emma, Sarah, Alan } CVC

staking along rail excludes some tableland - Dave thinks stable ToB

Sam JD Barnes
?
Mike

will overcome not an issue

discussed c̄ MM

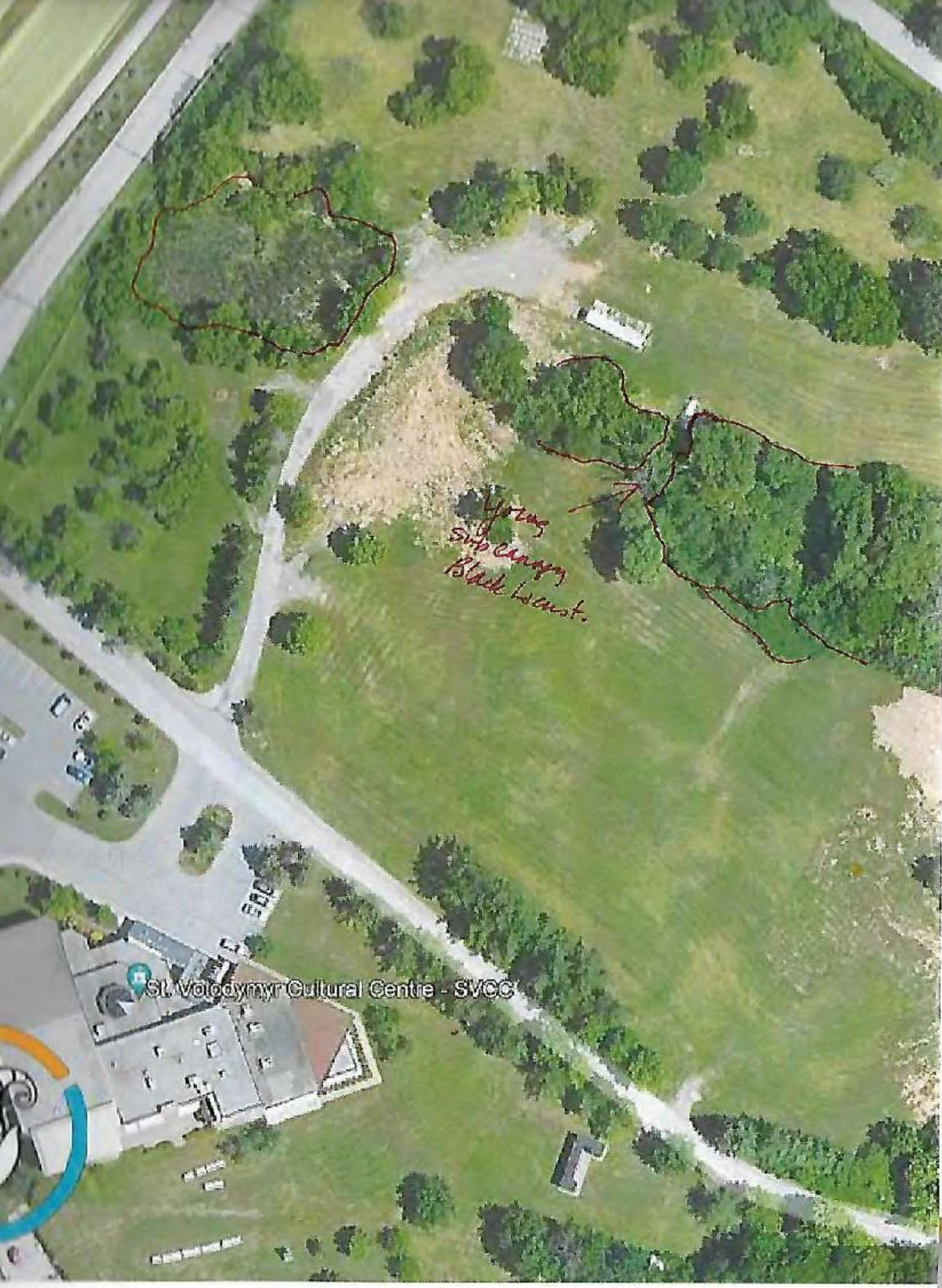
Bohdan, George } church

AMRO
BCCH
RWBB

Δ in drainage c̄ Dundas widening directed east to valley - cut off from pond

pond drying up

fill ?



4 Nov 2021 Delmanor 10:00 am
K. Logan 3° ⅛ 2

Lf pond : muskrat MBR
den x 3 DAL
Lf outfall
Lf outfall into valley.

Valley feature - N. ROBPSEU; ACEPLAT
below gap - slopes SAL x RUBE CARCARO
ACENEGU Or
RHACATH. Ow
invert - RHACATH RUBSAMI? Bd
ALLPETI Aw
GEUM
DIPFUL
garbage RUBIDEA
IMPCAPE

Downstream - more natur
SOLFLEX Mh AC: RUBR
SYMLANC Bd
Or
Id

Appendix C Tree Inventory

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

Tree Inventory and Preservation Plan &
Shade Impact Analysis Report
1280 Dundas Street West
Oakville, Ontario

prepared for

Delmanor West Oak Inc.
4800 Dufferin Street
Toronto, Ontario
M3H 5S9

prepared by

KUNTZ
FORESTRY
CONSULTING Inc.

146 Lakeshore Road West
PO Box 1267 Lakeshore W PO
Oakville ON L6K 0B3
t: 289.837.1871
e: consult@kuntzforestry.ca

31 July 2020
Revision 1: 24 August 2020

KUNTZ FORESTRY CONSULTING INC Project P2451

Table of Contents

1.0 Introduction

Kuntz Forestry Consulting Inc. was retained by Delmanor West Oak Inc. to complete a Tree Inventory and Preservation Plan & Shade Impact Analysis Report in support of a proposed development application for the eastern portion of the property located at 1280 Dundas Street West in Oakville. The property is located south of Dundas Street West and west of Fourth Line within a residential area. The property is adjacent to the Sixteen Mile Creek natural heritage feature.

The work plan for the tree preservation study included the following:

- Prepare an inventory of tree resources over 10cm DBH occurring on and within six metres of the proposed development, and trees of all sizes on the road right-of-way;
- Evaluate potential tree saving opportunities based on proposed development plans; and
- Document the findings in a Tree Inventory and Preservation Plan Report.

The work plan for the shade impact analysis included the following:

- Obtain Ecological Land Classification (ELC) data for vegetation resources on the subject property east of the proposed buildings and on the adjacent natural heritage vegetation community on the east side of Old Fourth Line;
- Review shade studies prepared by ICKE Brochu Architects Inc.;
- Evaluate potential impacts of shade on vegetation communities assessed; and
- Document the findings in a Shade Impact Analysis Report.

The results of the evaluation are provided below.

2.0 Methodology

Tree Inventory and Preservation Plan

Field assessments for the tree inventory were conducted on 27 July 2020 and 29 July 2020. Trees measuring over 10cm DBH on and within six metres of the subject property and trees of all sizes on the road right-of-way were identified in the tree inventory. Trees were located using the topographic survey provided, aerial imagery, and estimates made in the field. Trees were tagged by surveyors with the numbers 137 – 139, 142 – 174, 176 – 183, 185 – 203, 205 – 299, 301, and 305 – 395. Trees that were not surveyed were labeled with the numbers 1 – P34.

All individual tree resources included in the inventory were visually assessed for condition utilizing the following parameters:

Tree # - number assigned to tree that corresponds to Figure 1.
Species - common and botanical names provided in the inventory table.
DBH - diameter (centimetres) at breast height, measured at 1.4 metres above the ground.
Condition - condition of tree considering trunk integrity, crown structure, and crown vigour. Condition ratings include poor (P), fair (F) and good (G).
Drip Line – Crown radius; and
Comments - additional relevant detail.

Where trees were situated in groups, they were inventoried in tree polygons. Trees within a tree polygon were inventoried using a 100% tally analysis by species, size class, and quality. On private property, trees with a DBH of 10cm or greater were included in the stand tally analysis. Within the City right-of-way, trees of all sizes were included in the stand tally analysis. Trees were assessed for condition utilizing the following parameters.

Species: Common and botanical names provided in the inventory table;
Size Class (DBH): 1 – 24cm / 10 – 24cm, 26 – 36cm, 38 – 48 cm, 50cm and above
Quality Class: Acceptable Growing Stock (AGS), Unacceptable Growing Stock (UGS)

Trees classified as AGS are trees with no major defects in the bole and exhibit a relatively good crown structure and vigour. Trees classified as UGS are trees with a major defect in the bole or exhibiting a relatively poor crown structure or vigour. Refer to Table 1 and Table 2 for the detailed tree inventory.

Shade Impact Analysis

Field assessments were conducted on 29 July 2020. The areas to be assessed were informed by the Sun/Shadow Study prepared by Icke Brochu Architects Inc. on 27 May 2020. Vegetation communities on the subject property east of the proposed buildings and on the adjacent top-of-bank natural heritage vegetation community on the east side of Old Fourth Line were visually assessed to determine vegetation types and plant associations. Trees along the slope on the east side of Old Fourth Line were not assessed, as the Sun/Shadow Study indicated that these trees would not be impacted. Information obtained during the field assessments was used to assess how potential shade impacts from the proposed development may affect existing vegetation communities.

Tree Valuation

A tree valuation was calculated for the trees proposed for removal within the road right-of-way based on the information obtained by the tree inventory and stand tally analysis conducted in the field. The value was calculated using the Reproduction Cost Method – Trunk Formula Technique as described in the Guide for Plant Appraisal, 10th Edition (CTLA, 2019). The value was calculated using the Trunk Formula Technique. This method is described in the Guide for Plant Appraisal, 10th Edition (CTLA 2018). The Ontario Supplement (2003) provides regionally relevant data pertaining to basic costs for trees.

Trunk Formula Technique

This method is used for trees that are larger than what is commonly available for transplant from a nursery. The Unit Tree Cost of the replacement tree is derived from a survey of nurseries or supplied by the Regional Plant Appraisal Council and published within the Ontario Supplement (2003). For Ontario, the unit tree cost has been set at \$6.51/cm^2 within the Supplement and this value has been used for the calculation. For trees that were small enough in size to be replaced with nursery stock, the price of the nursery stock was obtained through wholesale price quotes from multiple nurseries throughout southern Ontario.

The Basic Tree Cost is calculated by multiplying the unit tree cost by the cross-sectional area of the subject tree. For multi-stemmed trees, the appraised trunk area considers the cross-sectional area of all stems. The Appraised Value is calculated by multiplying the Basic

Reproduction Cost by the three depreciation factors (Condition Rating, Functional Limitation Rating, and External Limitation Rating, as described in the Guide).
The appraised value of trees is therefore calculated using the following equation:

Basic Tree Cost = Appraised Tree Trunk Area X Unit Tree Cost

Appraised Value = Basic Tree Cost X Condition Rating X Functional Limitation Rating X External Limitation Rating

Functional Limitation Ratings and External Limitation Ratings are calculated according to the methods outlined in the guide. Condition ratings were calculated based on the assessed condition of the trees on the site and in accordance with the guide. For trees in polygons, the average DBH was used to calculate the appraisal value. For trees with appraisal values less than $744.00 (Town of Oakville's minimum value per tree), their values were set to $744.00.

3.0 Tree Inventory and Preservation Plan

Existing Site Conditions

The subject area is currently occupied by vacant meadow lands with scattered landscape trees and an asphalt driveway. A wooded area exists along the east and south boundaries of the subject area. The western portion of the property (which is not proposed for development) is occupied by the St. Vlodymyr Cultural Centre. Tree resources exist in the form of landscape trees and natural regeneration. Refer to Figure 1 for the existing site conditions.

Individual Tree Resources

The tree inventory documented 193 trees and 13 tree polygons and within six metres of the proposed development and within the road right-of-way. Tree resources are comprised of Silver Maple (*Acer saccharinum*), Eastern White Cedar (*Thuja occidentalis*), Manitoba Maple (*Acer negundo*), White Pine (*Pinus strobus*), White Ash (*Fraxinus americana*), Apple species (*Malus* sp.), Norway Maple (*Acer platanoides*), White Elm (*Ulmus americana*), White Spruce (*Picea glauca*), Black Walnut (*Juglans nigra*), Basswood (*Tilia americana*), Willow species (*Salix* sp.), Black Locust (*Robinia pseudoacacia*), Eastern Redcedar (*Juniperus virginiana*), Horsechestnut (*Aesculus hippocastanum*), Yew species (*Taxus* sp.), Sugar Maple (*Acer saccharum*), English Oak (*Quercus robur*), Japanese Walnut (*Juglans ailantifolia*), Red Oak (*Quercus rubra*), Blue Spruce (*Picea pungens*), Hazelnut species (*Corylus* sp.), Bur Oak (*Quercus macrocarpa*), Norway Spruce (*Picea abies*), Scots Pine (*Pinus sylvestris*), Cherry species (*Prunus* sp.), Pear species (*Pyrus* sp.), Black Cherry (*Prunus serotina*), Austrian Pine (*Pinus nigra*), Amur Maple (*Acer ginnala*), and Silk Lilac (*Syringa reticulata*). Refer to Table 1 and Table 2 for the full tree inventory and Figure 1 for the location of trees reported in the tree inventory.

Trees 290 and 293 were identified as a Japanese Walnuts (*Juglans ailantifolia*), which can often be confused with Butternut. Pure, naturally-occurring Butternut are protected by the Endangered Species Act (ESA). A visual assessment of Trees 290 and 293 was conducted by KFCI and the trees were identified as Japanese Walnuts, therefore Butternut Health Assessments are not required.

Proposed Works

The proposed development includes the demolition of the existing asphalt road and the construction of a seniors living complex with multiple buildings, a parking lot, multiple vehicle laneways, amenity areas, and landscaping upgrades. Two vehicle entranceways are proposed on the north side of the development. Refer to Figure 1 for the existing conditions and proposed site plan.

Development Impacts/Tree Removals

The following sections provide a discussion and analysis of impacts, tree removal requirements, and tree preservation relative to the proposed development and existing conditions.

The removal of Trees 1, 2, 6 – 8, 10, 12 – 31, P33, 137 – 139, 142 – 174, 176 – 183, 185 – 203, 205 – 226, 233 – 236, 244, 253, 257, 258, 263, 278 – 299, 301, 305 – 351, 353, and 368 – 395 is required to accommodate the proposed site plan. Trees 1, 2, 168, 176, 179, 197 – 199, 201, 206 – 208, and 293 conflict with the proposed vehicle laneways. Trees 29 and P33 have trunks that conflict with the proposed entranceways off Fourth Line. Trees P24, and 174 are located close to the proposed laneways such that their roots and / or trunks will be impacted by construction. Trees 6 – 8, P13, P17, 18, 137 – 139, 142 – 161, 169 – 172, 180, 193 – 196, 209 – 222, 236, 289 – 292, 294 – 299, 301, 305, 311, 312, 343, 347 – 350, and 378 – 394 conflict with the proposed buildings. Trees 12, 223, 234, 235, 284 – 288, 306, 368 – 377, and 395 are located close to the proposed buildings such that their roots and / or crowns would be impacted by construction. Trees 14 – 16, 162 – 164, 166, 280, 282, 313 – 342, and 344 – 346 conflict with the proposed parking lot. Trees 10, 165, 167, 177, 178, 189 – 192, 200, 203, 278, 279, 281, and 283 conflict with the proposed landscaping upgrades. Trees 19, 20, 181 – 188, 202, 205, 307 – 310, and 351 conflict with the proposed amenity areas. Trees 25 – 28, 30, and 31 have tree protection zones that conflict with the proposed development feature walls along Fourth Line. Tree 22 is advised for removal due to its proximity to Tree 353.

Trees 21, 23, 150, 166 – 180, 189, 190, 194, 196, 210, 216/219, 224 – 226, 233, 244, 253, 257, 258, 263, 283, 290, 293, 299, 311, and 353 are in poor or hazardous condition and their removal is advised regardless of the site plan.

Trees 1, 2, 7, 8, 10, 12 – 14, 16 – 18, 20 – 23, 137 – 139, 142 – 174, 176 – 183, 185 – 203, 205 – 226, 233 – 236, 244, 253, 257, 258, 263, 278 – 299, 301, 305 – 351, 353 and 368 – 395 are greater than 15cm DBH, therefore a permit will be required prior to their removal. Trees 25 – 31 and P33 are located within the road right-of-way and a permit is required prior to the removal of these trees.

Tree Preservation

Preservation of Trees 3 – P5, P9, P11, 32, P34, 227 – 232, 237 – 243, 245 – 252, 254 – 256, 259 – 262, 264 – 277, 352, 354 – 367 and trees within the woodland south of the proposed development will be possible with the use of appropriate tree protection measures as indicated on Figure 1. Tree protection measures must be implemented prior to the proposed work to ensure tree resources designated for retention are not impacted by the proposed development. Refer to Figure 1 for the location of required tree preservation

fencing, general Tree Protection Plan Notes, tree preservation fence details. Special mitigation measures are prescribed for P5, P9, P11 and the trees in the environmental feature on the south side of the property, as described below.

P5, P9, and P11

It is recommended that trees in poor and / or hazardous conditions within tree polygons P5, P9, and P11 are removed prior to development. Prior to the proposed work, tree protection fencing should be placed at the dripline edge of these polygons, as shown in Figure 1.

South Environmental Feature

Prior to construction, tree protection fencing should be placed either at the dripline edge of the retained trees within the existing environmental feature or along the property boundary, depending on what option provides the most tree protection. For the trees adjacent to the proposed vehicle laneway, tree protection fencing should be placed 2.5 metres south of the laneway to provide adequate space for construction. Construction of the vehicle laneway must not encroach within the driplines of any retained trees within the adjacent protected environmental feature. Refer to Figure 1 for the location of the tree protection fencing.

Tree Valuation

Refer to Table 3 for the results of the tree valuation. The total value of all Town-owned trees proposed for removal is $17,856.00.

4.0 Shade Impact Analysis

Vegetation Resources

The vegetation features in the subject area subject to the shade analysis were assessed using Ecological Land Classification (ELC). Field investigations conducted on 29 July 2020 used visual observations to determine the ELC community. Communities are described below according to the Ecological Land Classification system for southern Ontario (Lee *et al. 1998, draft 2008).*

Dry-Fresh Sugar Maple Deciduous Forest Ecosite

The vegetation communities on the subject property east of the proposed buildings and on the adjacent natural heritage vegetation community on the east side of Old Fourth Line (top of bank) were both identified as a Dry-Fresh Sugar Maple Deciduous Forest Ecosite (FOD5). Trees were predominantly young to mid-age and had a canopy cover of greater than 60%. The ecosite community was found to be disturbed by anthropogenic activity, as evidenced by the presence of meadow and roadside species. Dominant tree species included Sugar Maple (*Acer saccharum*), Eastern White Cedar (*Thuja occidentalis*), Basswood (*Tilia americana*), and Black Locust (*Robinia pseudoacacia*) with occurrences of White Ash (*Fraxinus americana*), Willow species (*Salix* sp.), Trembling Aspen (*Populus tremuloides*), Black Walnut (*Juglans nigra*), White Oak (*Quercus alba*), Bur Oak (*Quercus macrocarpa*), White Pine (*Pinus strobus*), and Manitoba Maple (*Acer negundo*). Dominant shrub species included Staghorn Sumac (*Rhus typhina*) and Common Buckthorn (*Rhamnus cathartica*), with occurrences of Serviceberry (*Amelanchier* sp.), Common Lilac (*Syringa vulgaris*), Rose

(*Rosa* sp.), and Hawthorn (*Crataegus* sp.). Herbaceous species included Grasses, Raspberry (*Rubus* sp.), Riverbank Grape (*Vitis riparia*), Canada Thistle (*Cirsium arvense*), Goldenrod (*Solidago* sp.), Virginia Creeper (*Parthenocissus quinquefolia*), Garlic Mustard (*Alliaria petiolate*), and Common Burdock (*Arctium minus*).

Shade Impacts

The impacts of shade from the proposed development will be minimal on the tree communities, as the dominant native species such as Sugar Maple, Eastern White Cedar, and Basswood are shade tolerant. Trees species with a moderate occurrence on site such as White Ash, White Oak, Bur Oak, and White Pine are partially shade tolerant and will be minimally affected by the shade created by the proposed development. Tree species such as Willow species, Black Walnut, and Trembling Aspen are shade intolerant and may be displaced from the community and replaced with more shade tolerant species over time. These species, however, were found in low-moderate occurrences and the overall community will be minimally affected. Refer to the table below for details of the shade impact analysis for the tree species observed.

Shade Impact Analysis of Tree Species

Tree Species	Shade Tolerance	Impacts
High Occurrence		
Sugar Maple (*Acer saccharum*)	Shade Tolerant	Negligible
Eastern White Cedar (*Thuja occidentalis*)	Shade Tolerant	Negligible
Basswood (*Tilia americana*)	Shade Tolerant	Negligible
Black Locust (*Robinia pseudoacacia*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time. This species is invasive and therefore not desirable in the vegetation community.
Moderate Occurrence		
White Ash (*Fraxinus americana*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Willow species (*Salix* sp.)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time.
White Oak (*Quercus alba*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Bur Oak (*Quercus macrocarpa*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
White Pine (*Pinus strobus*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Manitoba Maple (*Acer negundo*)	Shade Tolerant	Negligible
Low Occurrence		
Black Walnut (*Juglans nigra*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time.
Norway Spruce (*Picea abies*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Trembling Aspen (*Populus tremuloides*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time.

The impacts of shade from the proposed development may impact the shrub community, as Staghorn Sumac, which dominates the shrub layer, is shade intolerant. Shade from the proposed development may cause the displacement of this species over time as it is replaced with more shade tolerant species such as Common Buckthorn. Common Lilac may be impacted as it is also shade intolerant; however, it is invasive and therefore not desirable in the vegetation community. Other shrub species observed are partially shade tolerant and will be minimally affected by the shade created by the proposed development. Refer to the table below for details of the shade impact analysis for the shrub species observed.

Shade Impact Analysis of Shrub Species

Shrub Species	Shade Tolerance	Impacts
High Occurrence		
Staghorn Sumac (*Rhus typhina*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time.
Common Buckthorn (*Rhamnus cathartica*)	Shade Tolerant	Negligible
Moderate Occurrence		
Serviceberry (*Amelanchier* sp.)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Common Lilac (*Syringa vulgaris*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time. This species is invasive and therefore not desirable in the vegetation community.
Low Occurrence		
Rose (*Rosa* sp.)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Hawthorn (*Crataegus* sp.)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.

The shade created by the proposed development may impact the herbaceous species found in the subject area. Shade intolerant species such as Grasses, Canada Thistle, and Goldenrod, which were found in high occurrences, may be displaced over time and replaced by prolific shade tolerant herbaceous species such as Virginia Creeper, Garlic Mustard, Common Burdock, and Riverbank Grape. Refer to the table below for details of the shade impact analysis for the herbaceous species observed.

Shade Impact Analysis of Herbaceous Species

Herbaceous Species	Shade Tolerance	Impacts
High Occurrence		
Riverbank Grape (*Vitis riparia*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Canada Thistle (*Cirsium arvense*)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time. This species is invasive and therefore not desirable in the vegetation community.

Goldenrod (*Solidago* sp.)	Shade Intolerant	Shade from proposed development may cause the displacement of species over time.
Moderate Occurrence		
Virginia Creeper (*Parthenocissus quinquefolia*)	Shade Tolerant	Negligible
Garlic Mustard (*Alliaria petiolate*)	Shade Tolerant	Negligible
Common Burdock (*Arctium minus*)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.
Low Occurrence		
Raspberry (*Rubus* sp.)	Intermediate Shade Tolerant	Proposed development will only create partial shade on species. Impacts will be minimal to none.

Overall, there will be minimal impacts on the tree, shrub, and herbaceous communities located on the subject property east of the proposed buildings and on the adjacent natural heritage vegetation community on the east side of Old Fourth Line (top of bank). It is unlikely that the shade created by the proposed development will create erosion on the slope, as only the top of bank will be partially shaded and the sloped areas will not experience an increase in shade.

5.0 Summary and Recommendations

Kuntz Forestry Consulting Inc. was retained by Delmanor West Oak Inc. to complete a Tree Inventory and Preservation Plan & Shade Impact Analysis in support of a development application for the property located at 1280 Dundas Street West in Oakville. A tree inventory was conducted and reviewed in the context of the proposed site plan.

The findings of the study indicate a total of 193 trees and 13 tree polygons on and within six metres of the subject property and within the right-of-way. The removal of 137 trees and nine tree polygons will be required to accommodate the proposed site plan. All other trees can be saved provided appropriate tree protection measures are installed prior to development.

The findings of the shade analysis indicate that there will be minimal impacts on the tree, shrub, and herbaceous communities located on the subject property east of the proposed buildings and on the adjacent natural heritage vegetation community on the east side of Old Fourth Line (top of bank).

The following recommendations are suggested to minimize impacts to trees identified for preservation. Refer to Figure 1 for the location of the required tree protection fencing, general Tree Protection Plan Notes, and tree preservation detail.

- Tree protection barriers and fencing should be erected at locations as prescribed on Figure 1. All tree protection measures should follow the guidelines as set out in the tree preservation plan notes and the tree preservation fencing detail.
- No construction activity including surface treatments, excavations of any kind, storage of materials or vehicles, unless specifically outlined above, is permitted within the area identified on Figure 1 as a tree protection zone (TPZ) at any time during or after construction.

- Branches and roots that extend beyond prescribed tree protection zones that require pruning must be pruned by a qualified Arborist or other tree professional. All pruning of tree roots and branches must be in accordance with Good Arboricultural Standards.
- Site visits, pre, during and post construction is recommended by either a certified consulting arborist (I.S.A.) or registered professional forester (R.P.F.) to ensure proper utilization of tree protection barriers. Trees should also be inspected for damage incurred during construction to ensure appropriate pruning or other measures are implemented.

Respectfully Submitted,
Kuntz Forestry Consulting Inc.

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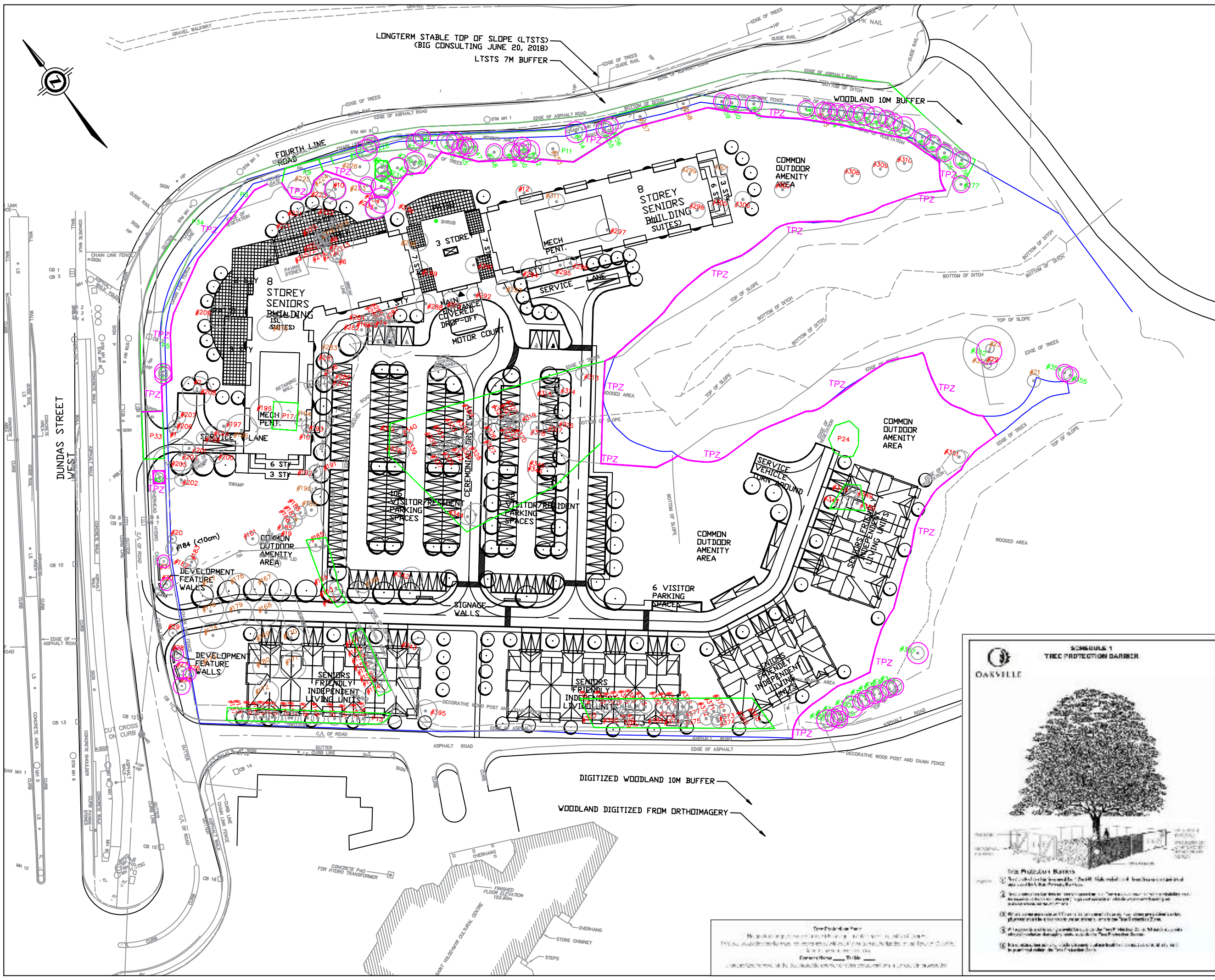


LEGEND

Tree Inventory

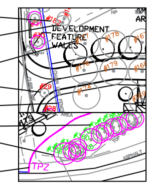
Refer to Table 1 and Table 2 of the report dated 24 August 2020. Trees greater than 10cm on or within six metres of the subject property and trees of all sizes within the City right-of-way were included in the inventory.

Tree Removals

The removal of 137 trees and nine tree polygons is required to accommodate the proposed development. Removals are indicated with RED or ORANGE labels.

Tree Preservation

Preservation of 56 trees and four tree polygons will be possible with appropriate tree protection measures. Trees identified for preservation are indicated with GREEN labels. Tree protection measures must be implemented prior to the construction phase (earth works). Minimum tree preservation zones and required tree preservation fencing is indicated in MAGENTA.



TREE PROTECTION PLAN NOTES

- It is the applicants' responsibility to discuss potential impacts to trees located near or wholly on adjacent properties or on shared boundary lines with their neighbours. Should such trees be injured to the point of instability or death the applicant may be held responsible through civil action. The applicant would also be required to replace such trees to the satisfaction of Urban Forestry.
- Tree protection barriers shall be installed to standards as detailed in this document and to the satisfaction of Urban Forestry.
- Tree protection barriers must be installed using plywood clad hoarding (minimum 19mm or ¾" thick) or an equivalent approved by Urban Forestry.
- Where required, signs as specified in Section 4, Tree Protection Signage must be attached to all sides of the barrier.
- Prior to the commencement of any site activity such as site alteration, demolition or construction, the tree protection measures specified on this plan must be installed to the satisfaction of Urban Forestry.
- Once all tree/site protection measures have been installed, Urban Forestry staff must be contacted to arrange for an inspection of the site and approval of the tree/site protection requirements. Photographs that clearly show the installed tree/site protection shall be provided for Urban Forestry review.
- Where changes to the location of the approved TPZ or sediment control or where temporary access to the TPZ is proposed, Urban Forestry must be contacted to obtain approval prior to alteration.
- Tree protection barriers must remain in place and in good condition during demolition, construction and/or site disturbance, including landscaping, and must not be altered, moved or removed until authorized by Urban Forestry.
- No construction activities including grade changes, surface treatments or excavation of any kind are permitted within the area identified on the Tree Protection Plan or Site Plan as a tree protection zone (TPZ). No root cutting is permitted. No storage of materials or fill is permitted within the TPZ. No movement or storage of vehicles or equipment is permitted within the TPZ. The area(s) identified as a TPZ must be protected and remain undisturbed at all times.
- All additional tree protection or preservation requirements, above and beyond the installation of tree protection barriers, must be undertaken or implemented as detailed in the Urban Forestry approved arborist report and/or the approved tree protection plan and to the satisfaction of Urban Forestry.
- If the minimum tree protection zone (TPZ) must be reduced to facilitate construction access, the tree protection barriers must be maintained at a lesser distance and the exposed portion of TPZ must be protected using a horizontal root protection method approved by Urban Forestry.
- Any roots or branches indicated on this plan which require pruning, as approved by Urban Forestry, must be pruned by an arborist. All pruning of tree roots and branches must be in accordance with good arboricultural practice. Roots that have received approval from Urban Forestry to be pruned must first be exposed using pneumatic (air) excavation, by hand digging or by a using low pressure hydraulic (water) excavation. The water pressure for hydraulic excavation must be low enough that root bark is not damaged or removed. This will allow a proper pruning cut and minimize tearing of the roots. The arborist retained to carry out crown or root pruning must contact Urban Forestry no less than three working days prior to conducting any specified work.
- The applicant/owner shall protect all by-law regulated trees in the area of consideration that have not been approved for removal throughout development works to the satisfaction of Urban Forestry.
- Convictions of offences respecting the regulations in the Street Tree By-law and Private Tree By-law are subject to fines. A person convicted of an offence under these by-laws is liable to a minimum fine of $500 and a maximum fine of $100,000 per tree, and /or a Special Fine of $100,000. The landowner may be ordered by the City to stop the contravening activity or ordered to undertake work to correct the contravention.
- Prior to site disturbance the owner must confirm that no migratory birds are making use of the site for nesting. The owner must ensure that the works are in conformance with the Migratory Bird Convention Act and that no migratory bird nests will be impacted by the proposed work no less than 48 hours prior to conducting any specified work.

No.	Issue/Revisions	Date	By
1	Report Submission	31 July '20	KD
2	Report Resubmission	24 Aug. '20	KD

Base Data: J.D. Barnes Ltd. (survey), ICKE Brochu Architects Inc. (site plan)

KUNTZ FORESTRY CONSULTING Inc.

Client: Delmanor West Oak Inc.
4800 Dufferin Street
Toronto, ON

Property: 1280 Dundas Street West
Oakville, ON

Existing Conditions, Proposed Site Plan, Tree Inventory & Preservation Plan

Project	P2451	Figure 1
Date	24 August 2020	
Scale	1:500	

Table 1. Tree Inventory

Location: 1280 Dundas Street West, Oakville Date: 27 July 2020 and 29 July 2020 Surveyors: KD

Tree #	Common Name	Scientific Name	DBH	TI	CS	CV	CDB	DL	mTPZ	A. mTPZ	Oakville Tree No.	Comments	Ownership	Action
1	Black Locust	*Robinia pseudoacacia*	16	F	F	F-G	10	3	-	-	-	Asymmetrical crown (M), bow (L), stem wound (M) at 0.5 metres, stem wound (H) at base, deadwood (M), epicormic branching (L)	Private	Remove
2	Black Locust	*Robinia pseudoacacia*	10, 8	G	F	F		3	-	-	-	Co-dominant stems at 0.25 metres, bow (L), asymmetrical crown (H), suppressed	Private	Remove
3	Black Locust	*Robinia pseudoacacia*	12	G	G	G		3	2.4	-	-		City	Retain
4	Black Locust	*Robinia pseudoacacia*	5 - 11 (Ave: 9)	G	F	F-G		2.5	2.4	-	-	Multi-stem at base	City	Retain
P5	Refer to Table 2												Shared	Retain
6	Manitoba Maple	*Acer negundo*	12	P-F	P-F	P-F		5	-	-	-	Bow (H), asymmetrical crown H), epicormic branching (H)	Private	Remove
7	Yew species	*Taxus* sp.	12, 8	F-G	P-F	F		1.5	-	-	-	Co-dominant stems at base, asymmetrical crown (H), suppressed	Private	Remove
8	Eastern White Cedar	*Thuja occidentalis*	23	P-F	P-F	G		4	-	-	-	Stem wound (H) from base to 1.5 metres, lean (M)	Private	Remove
P9	Refer to Table 2												Private	Retain
10	Black Locust	*Robinia pseudoacacia*	37	F-G	F-G	F-G	5	5	3	-	-	Asymmetrical crown (M), deadwood (L)	Private	Remove
P11	Refer to Table 2												Shared	Retain
12	Apple species	*Malus sp.*	~50, ~40	P-F	P-F	P-F	15	4	-	-	-	Pruning wounds (H), epicormic branching (H), one stem previously failed	Private	Remove
P13	Refer to Table 2												Private	Remove
14	Eastern White Cedar	*Thuja occidentalis*	16	P	P	P-F		3	-	-	-	Stem wound (H) from base to 3 metres, fused to Tree 286, lean (M)	Private	Remove
15	Eastern White Cedar	*Thuja occidentalis*	~14	P-F	F-G	F		1.5	-	-	-	Pruning wounds (L)	Private	Remove
16	Eastern White Cedar	*Thuja occidentalis*	18, 15	P	P	P-F		4	-	-	-	Stem wounds (H), co-dominant stems at base, bow (H), top-down dieback on large stem	Private	Remove
P17	Refer to Table 2												Private	Remove
18	Manitoba Maple	*Acer negundo*	~12, ~12	F	F	F	15	2.5	-	-	-	Co-dominant stems at base	Private	Remove
19	Eastern White Cedar	*Thuja occidentalis*	5 - 12 (Ave: 10)	F-G	F	F-G		2	-	-	-	Multi-stem at base, included bark (M)	Private	Remove
20	Manitoba Maple	*Acer negundo*	~30	P-F	P-F	P-F		6	-	-	-	Lean (M), epicormic branching (H)	Private	Remove
21	White Ash	*Fraxinus americana*	10 - 25 (Ave: 15)	P-F	P-F	P-F	20	3	-	-	-	Coppice growth (H), multi-stem at base, deadwood (M), EAB present	Neighbouring	Remove (Condition)
22	Apple species	*Malus sp.*	~25	F	P-F	F		4	-	-	-	Bow (M), asymmetrical crown (H), epicormic branching (H)	Neighbouring	Remove
23	Sugar Maple	*Acer saccharum*	~30	P	F	F-G		5	-	-	-	Canker (H) at 1.5 metres, asymmetrical crown (H)	Neighbouring	Remove (Condition)
P24	Refer to Table 2												Private	Remove
25	Blue Spruce	*Picea pungens*	~10	G	G	G		1	2.4	-	-	Vine competition (M)	City	Remove
26	Manitoba Maple	*Acer negundo*	~7, ~4	F-G	F-G	G		1	1.8	-	-	Co-dominant stems at 0.25, included fence	City	Remove
27	Blue Spruce	*Picea pungens*	~10	G	G	G		1.5	2.4	-	-	Vine competition (L)	City	Remove
28	Blue Spruce	*Picea pungens*	~7	G	F-G	F-G		1	1.8	-	-	Asymmetrical crown (H), deadwood (H)	City	Remove
29	Red Oak	*Quercus rubra*	~6	F-G	F	F		1	-	-	-		City	Remove
30	Manitoba Maple		1 - 5	G	F	G		1	1.8	-	-	Multi-stem at base	City	Remove
31	Hazelnut species	*Corylus sp.*	4	F	F	P-F	50	0.5	1.8	-	-	Asymmetrical crown (H), deadwood (L)	City	Remove
32	Black Locust	*Robinia pseudoacacia*	~7, ~5	G	F	F-G		2	1.8	-	-	Co-dominant stems at 1 metre	City	Retain
P33	Refer to Table 2												City	Remove
P34	Refer to Table 2												City	Retain

137	Silver Maple	*Acer saccharinum*	48	P-F	F	P-F	15	3.5	-	-	-	Stem wound (H) at 1 metre, co-dominant stems at 3 metres, included bark (M), deadwood (L), epicormic branching (H), broken branches (M)	Private	Remove
138	Eastern White Cedar	*Thuja occidentalis*	~25	G	F-G	G		1.5	-	-	-	Co-dominant stems at 3 metres	Private	Remove
139	Silver Maple	*Acer saccharinum*	30	F	F	P	15	3.5	-	-	-	Top-down dieback, epicormic branching (M)	Private	Remove
142	Silver Maple	*Acer saccharinum*	36	F-G	F-G	P-F	15	3	-	-	-	Epicormic branching (M), top-down dieback	Private	Remove
143	Eastern White Cedar	*Thuja occidentalis*	~15	G	F-G	F-G		1.5	-	-	-	Suppressed, asymmetrical crown (L)	Private	Remove
144	Eastern White Cedar	*Thuja occidentalis*	~18	G	F-G	F0G		1.5	-	-	-	Suppressed, asymmetrical crown (L)	Private	Remove
145	Silver Maple	*Acer saccharinum*	~35	F-G	F	P-F	15	4.5	-	-	-	Co-dominant stems in crown, top-down dieback, epicormic branching (M)	Private	Remove
146	Silver Maple	*Acer saccharinum*	~35	F-G	F	P-F	15	4.5	-	-	-	Co-dominant stems at 3 metres, top-down dieback, broken branches (M), epicormic branching (M)	Private	Remove
147	Eastern White Cedar	*Thuja occidentalis*	~20, ~18	F-G	F	G		1.5	-	-	-	Co-dominant stems at base	Private	Remove
148	Eastern White Cedar	*Thuja occidentalis*	18	F	P-F	F		1.5	-	-	-	Lost leader	Private	Remove
149	Silver Maple	*Acer saccharinum*	45	F-G	F	F	10	6	-	-	-	Co-dominant stems at 5 metres, epicormic branching (M)	Private	Remove
150	Silver Maple	*Acer saccharinum*	~35	F	F	P	50	5	-	-	-	Top-down dieback, pruning wounds (M), epicormic branching (H)	Private	Remove (Condition)
151	Eastern White Cedar	*Thuja occidentalis*	21	F	F-G	P-F	10	2	-	-	-		Private	Remove
152	Eastern White Cedar	*Thuja occidentalis*	19.5	F	G	F		1.5	-	-	-		Private	Remove
153	Eastern White Cedar	*Thuja occidentalis*	23	G	F-G	G		1.5	-	-	-	Asymmetrical crown (M)	Private	Remove
154	Refer to Table 2												Private	Remove
155	Refer to Table 2													
156	Refer to Table 2													
157	Refer to Table 2													
158	Refer to Table 2													
159	Refer to Table 2													
160	Refer to Table 2													
161	Refer to Table 2													
162	Refer to Table 2												Private	Remove
163	Refer to Table 2													
164	Refer to Table 2													
165	Refer to Table 2													
166	Manitoba Maple	*Acer negundo*	~60	P-F	P-F	P		4				Epicormic branching (H), coppice growth (H), broken branches (H)	Private	Remove (Condition)
167	Apple species	*Malus sp.*	51	P	P-F	P-F		5	-	-	-	Epicormic branching (H), pruning wounds (H), trunk is hollow	Private	Remove (Condition)
168	Apple species	*Malus sp.*	39	P	P-F	P	15	5	-	-	-	Pruning wounds (H), cavities (H), epicormic branching (H), deadwood (L)	Private	Remove (Condition)
169	Apple species	*Malus sp.*	49	P-F	P-F	P	20	5	-	-	-	Pruning wounds (H), cavities (M), epicormic branching (H)	Private	Remove (Condition)
170	Apple species	*Malus sp.*	~50	P	P-F	P	20	6	-	-	-	Cavity (H) at 0.5 metres, deadwood (M), bow (M), epicormic branching (H)	Private	Remove (Condition)
171	Apple species	*Malus sp.*	39	P	P	P	20	4.5	-	-	-	Cavity (H) at base, deadwood (H), epicormic branching (H), pruning wound (H)	Private	Remove (Condition)
172	Apple species	*Malus sp.*	~35	P-F	P-F	P	50	4	-	-	-	Deadwood (H), epicormic branching (H)	Private	Remove (Condition)
173	Apple species	*Malus sp.*	39	P	P	P	20	5	-	-	-	Cavity (H) at 0.75 metres, epicormic branching (H), co-dominant stems at 2 metres, deadwood (H)	Private	Remove (Condition)
174	Apple species	*Malus sp.*	~40	P-F	P	P	10	4	-	-	-	Sweep (H), epicormic branching (H), cavity (M) at 0.5 metres	Private	Remove (Condition)
176	Apple species	*Malus sp.*	~40	P-F	P-F	P	25	4	-	-	-	Pruning wounds (H), epicormic branching (H), deadwood (H)	Private	Remove (Condition)

177	Apple species	*Malus sp.*	39, 34	P	P-F	P	20	4	-	-	-	Deadwood (H), pruning wounds (H), co-dominant stems at 0.5 metres, epicormic branching (H)	Private	Remove (Condition)
178	Apple species	*Malus sp.*	46, 32	P	P-F	P	20	4	-	-	-	Deadwood (H), epicormic branching (H), codominant stems at 1 metre	Private	Remove (Condition)
179	Apple species	*Malus sp.*	46	P	P-F	P		5	-	-	-	Cavity (M) at 1 metre, deadwood (H), epicormic branching (H)	Private	Remove (Condition)
180	Apple species	*Malus sp.*	34	P	P	P	40	4	-	-	-	Stem wound (H) at base, deadwood (H), epicormic branching (H)	Private	Remove (Condition)
181	Manitoba Maple	*Acer negundo*	~40, ~20, ~15	F	P-F	P-F	10	6	-	-	-	Multi-stem at base, deadwood (L), epicormic branching (H)	Private	Remove
182	Manitoba Maple	*Acer negundo*	10 - 20 (Ave: 15)	P-F	P-F	P-F		5	-	-	-	Multi-stem at base, sweep (H), epicormic branching (H)	Private	Remove
183	Manitoba Maple	*Acer negundo*	10 - 30 (Ave: 20)	P	P	P		4	-	-	-	Multi-stem at base, epicormic branching (H), stem wound (H) at 2 metres, deadwood (M)	Private	Remove
185	White Pine	*Pinus strobus*	~20	G	G	F-G		2	-	-	-		Private	Remove
186	Manitoba Maple	*Acer negundo*	~25	F	P-F	F		4	-	-	-	Sweep (H), co-dominant stems at 2 metres, epicormic branching (M)	Private	Remove
187	White Spruce	*Picea glauca*	~25	G	F-G	F-G	5	2.5	-	-	-		Private	Remove
188	Black Walnut	*Juglans nigra*	18	G	G	G		3	-	-	-	Asymmetrical crown (L)	Private	Remove
189	Cherry species	*Prunus sp.*	24	P	F-G	P		2.5	-	-	-	Epicormic branching (H), stem decay (H), co-dominant stems at 1.5 metres	Private	Remove (Condition)
190	Basswood	*Tilia americana*	20	P	F-G	F		2.5	-	-	-	Stem wound (H) from base to crown, epicormic branching (M)	Private	Remove (Condition)
191/192	Silver Maple	*Acer saccharinum*	29, 25, 17	F	F	P-F	5	5	-	-	-	Co-dominant stems at base and 0.75 metres, pruning wounds (M), epicormic branching (H), stem wound (H) on branch	Private	Remove
193	White Spruce	*Picea glauca*	22	G	G	G		3	-	-	-		Private	Remove
194	White Spruce	*Picea glauca*	~20	F	G	P	80	2.5	-	-	-	Almost dead	Private	Remove (Condition)
195	Silver Maple	*Acer saccharinum*	25 - 35 (Ave: 30)	F	F	F	10	8	-	-	-	Multi-stem at 1 metre, included bark (H), epicormic branching (M)	Private	Remove
196	Willow species	*Salix sp.*	57, 36	P	P	F		8	-	-	-	Co-dominant stems at 0.25 metres, broken branches (H), cavity (M) at base, epicormic branching (M)	Private	Remove (Condition)
197	Eastern White Cedar	*Thuja occidentalis*	20	F-G	F-G	G		2	-	-	-	Pruning wounds (L), sweep (L), asymmetrical crown (M)	Private	Remove
198	Eastern White Cedar	*Thuja occidentalis*	19	F-G	F	F		2	-	-	-	Included bark (M), co-dominant stems at 2 metres, sweep (M)	Private	Remove
199	Eastern White Cedar	*Thuja occidentalis*	17	F-G	F	F-G		2	-	-	-	Asymmetrical crown (H), sweep (L)	Private	Remove
200	Manitoba Maple	*Acer negundo*	~40, ~25	P-F	P-F	P	10	5	-	-	-	Coppice growth (H), epicormic branching (H), deadwood (L), asymmetrical crown (M), small stem dead, co-dominant stems at base	Private	Remove
201	Manitoba Maple	*Acer negundo*	23	F	F	P-F		6	-	-	-	Sweep (H), epicormic branching (H), broken branches (H), stem wound (H) in crown	Private	Remove
202	Manitoba Maple	*Acer negundo*	10 - 30 (Ave: 25)	P-F	P-F	P		4.5	-	-	-	Deadwood (H), eroding on slope, multi-stem at base, coppice growth (L), epicormic branching (H), lost leader on large stem	Private	Remove
203	Willow species	*Salix sp.*	~80	P-F	P-F	F		8	-	-	-	Asymmetrical crown (H), stem wound (H) in crown, epicormic branching (M)	Private	Remove
205	Willow species	*Salix sp.*	43, 35	P-F	F	P-F		7	-	-	-	Small stem dead, co-dominant stems at 0.75 metres, epicormic branching (H), stem wound (H) at 5 metres	Private	Remove
206	Black Locust	*Robinia pseudoacacia*	26, 16	F-G	F	F-G	10	3	-	-	-	Exposed roots (M), co-dominant stems at base and 1.75 metres, deadwood (M), broken branches (M), epicormic branching (L)	Private	Remove

207	Black Locust	*Robinia pseudoacacia*	20, 17, 14	F	F	F-G	5	3.5	-	-	-	Multi-stem at base, stem wound (H) at base on small stem, stem wound (H) at base on medium stem, deadwood (L), broken branches (L)	Private	Remove
208	Silver Maple	*Acer saccharinum*	30 - 45 (Ave: 40)	G	F	F	10	7	-	-	-	Multi-stem at 1 metre, deadwood (L), epicormic branching (M)	Private	Remove
209	Pear species	*Pyrus sp.*	~50	G	G	P-F	10	3	-	-	-	Epicormic branching (H), deadwood (L)	Private	Remove
210	Willow species	*Salix sp.*	5 - 120	P	P	P	10	10	-	-	-	Epicormic branching (H), large stem failing, pruning wounds (H), lean (M) --> hazard	Private	Remove (Condition)
211	Willow species	*Salix sp.*	~75, ~60	F	F	P-F		7	-	-	-	Epicormic branching (H), co-dominant stems at 0.5 metres	Private	Remove
212 / 213	Manitoba Maple	*Acer negundo*	~20, ~16	F	F	F		4	-	-	-	Co-dominant stems at base, epicormic branching (M), deadwood (L), bow (L)	Private	Remove
214	Manitoba Maple	*Acer negundo*	~20, ~12	F	P-F	F		4	-	-	-	Lean (M), co-dominant stems at 1 metre, epicormic branching (M), asymmetrical crown (H)	Private	Remove
216/219	Basswood	*Tilia americana*	~35, 26	P-F	P	P-F	15	5	-	-	-	Sweep (L) on large stem, sweep (H) on small stem, deadwood (M), epicormic branching (M)	Private	Remove (Condition)
215/217	Basswood	*Tilia americana*	33, 18	P-F	P-F	P-F	10	5	-	-	-	Bow (H), epicormic branching (H), asymmetrical crown (H), bark peeling, sweep (M), broken branches (M)	Private	Remove
218	Basswood	*Tilia americana*	26, 22, 10, 8	F	F	F		5	-	-	-	Multi-stem at base, included bark (M), included metal stake, epicormic branching (M)	Private	Remove
220	Manitoba Maple	*Acer negundo*	~35, ~15, ~10	P-F	P-F	P-F		6	-	-	-	Multi-stem at base, epicormic branching (H), coppice growth (M)	Private	Remove
221	Eastern White Cedar	*Thuja occidentalis*	29	P-F	F-G	G		2	-	-	-	Seam (H) from base to 1.5 metres, sweep (L), pruning wounds (M)	Private	Remove
222	Manitoba Maple	*Acer negundo*	10 - 25 (Ave: 15)	F	P-F	P		5	-	-	-	Epicormic branching (H), multi-stem at base	Private	Remove
223	Eastern Redcedar	*Juniperus virginiana*	30	F	F-G	G		2.5				Asymmetrical crown (L), stem wound (M) from base to 1.5 metres	Private	Remove
224	Horsechestnut	*Aesculus hippocastanum*	~55	P	F	P	20	5				Trunk is hollow, deadwood (H) -->hazard	Private	Remove (Condition)
225	-	-	-	-	-	-	-	-	-	-	-	Dead -->hazard	Private	Remove (Condition)
226	Black Locust	*Robinia pseudoacacia*	56	P-F	F	P	25	5		-	-	Deadwood (H), top-down dieback, vine competition (L), wildlife cavities (M)	Private	Remove (Condition)
227	Manitoba Maple	*Acer negundo*	~25, ~15	F	F	P-F	15	4	3	-	-	Deadwood (L), co-dominant stems at 0.75 metres, epicormic branching (H)	Shared	Retain
228	Manitoba Maple	*Acer negundo*	16	F	F	P-F		2	2.4	-	-	Coppice growth (H), epicormic branching (H), co-dominant stems at 1.75 metres	City	Retain
229	Refer to Table 2												Private	Retain
230	Refer to Table 2													
231	Refer to Table 2													
232	Refer to Table 2													
233	Yew species	*Taxus* sp.	29	F-G	F	P	30	3	2.4	-	-	Pruning wounds (M), stem wound (M) at 1.25 metres, deadwood (M)	Private	Remove (Condition)
234	Black Locust	*Robinia pseudoacacia*	~40, ~40	P-F	F	P-F	10	5	3.6	-	-	Brackets present, one stem dead, multi-stem at 1 metre, epicormic branching (M)	Private	Remove
235	Black Locust	*Robinia pseudoacacia*	~40	P-F	F-G	F	10	4	3	-	-	Brackets present, epicormic branching (M), vine competition (M), deadwood (L)	Private	Remove
236	Cherry species	*Prunus sp.*	33	G	F-G	F	5	3	-	-	-	Pruning wounds (M), epicormic branching (H), asymmetrical crown (L)	Private	Remove
237	Black Locust	*Robinia pseudoacacia*	34	G	G	F-G		4	3	-	-	Deadwood (L)	Private	Retain

238	Horsechestnut	*Aesculus hippocastanum*	50	F-G	F	F	10	7	3	-	-	Asymmetrical crown (M), deadwood (L), epicormic branching (M), seam (M) from base to 2 metres, co-dominant stems at 1.5 metres	Private	Retain
239/240	Black Locust	*Robinia pseudoacacia*	36, 30	F-G	F	F-G		6	3	-	-	Co-dominant stems at base, broken branches (M), bow (L) on small stem, deadwood (L)	Private	Retain
241	Black Locust	*Robinia pseudoacacia*	~25	F	F	F		4	2.4	-	-	Co-dominant stems at 1.5 metres, included bark (H), vine competition (M)	Private	Retain
242	Sugar Maple	*Acer saccharum*	~30	F-G	F	F		3	2.4	-	-	Asymmetrical crown (H), pruning wounds (H)	City	Retain
243	Eastern White Cedar	*Thuja occidentalis*	10 - 30 (Ave: 15)	F-G	F	G		2.5	3	-	-		Private	Retain
244	Eastern White Cedar	*Thuja occidentalis*	~15	P-F	P	P-F		3	2.4	-	-	Lean (H), vine competition (H)	Private	Remove (Condition)
245	Black Locust	*Robinia pseudoacacia*	25	F	F	F		4	2.4	-	-	Co-dominant stems at 1.5 metres, included bark (H), vine competition (M)	Private	Retain
246	White Pine	*Pinus strobus*	~18	F-G	F-G	F		2.5	2.4	-	-	Vine competition (H), crook (M) in crown	Private	Retain
247	Eastern White Cedar	*Thuja occidentalis*	~15	G	G	G		1.5	2.4	-	-		Private	Retain
248	Black Locust	*Robinia pseudoacacia*	~25	F-G	F-G	F		2.5	2.4	-	-	Vine competition (H)	Private	Retain
249	Black Walnut	*Juglans nigra*	~20	F-G	F	F-G		3.5	2.4	-	-	Vine competition (H), asymmetrical crown (H)	Private	Retain
250	Black Locust	*Robinia pseudoacacia*	18, 6	F	F	F		4	2.4	-	-	Small stem dead, asymmetrical crown (H), vine competition (H)	Private	Retain
251	Black Walnut	*Juglans nigra*	27	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M), vine competition (L)	Private	Retain
252	Black Locust	*Robinia pseudoacacia*	~40	F-G	F	F	10	6	3	-	-	Included bark (M), vine competition (H), deadwood (M)	Private	Retain
253	-	-	-	-	-	-	-	-	-	-	-	Dead	Private	Remove (Condition)
254	Sugar Maple	*Acer saccharum*	49	F	F	F-G	10	7	3	-	-	Girdling roots (M), broken branches (M), cavities (L), asymmetrical crown (L)	City	Retain
255	English Oak	*Quercus robur*	26	G	G	F-G	5	4	2.4	-	-	Asymmetrical crown (L)	Private	Retain
256	Willow species	*Salix sp.*	~25	F	P-F	P-F		5	2.4	-	-	Epicormic branching (H), bow (M)	Shared	Retain
257	Willow species	*Salix sp.*	~50, ~30	P	P-F	P-F		6	-	-	-	Cavity (H) at base, stem wound (H) on small stem from base to 3 metres, epicormic branching (H), co-dominant stems at base	City	Remove (Condition)
258	Willow species	*Salix sp.*	~50, ~40	P-F	F	P		7	-	-	-	Sweep (M), epicormic branching (H), co-dominant stems at 0.5 metres	City	Remove (Condition)
259	White Pine	*Pinus strobus*	24	G	G	G		3	2.4	-	-		City	Retain
260	Black Locust	*Robinia pseudoacacia*	27	F-G	F	P-F	10	4	2.4	-	-		City	Retain
261	Black Locust	*Robinia pseudoacacia*	19, 16	F	F	F	10	3	2.4	-	-	Cavity (L) at union, co-dominant stems at 0.5 metres	City	Retain
262	Black Locust	*Robinia pseudoacacia*	~18	G	F-G	F-G		3	2.4	-	-	Asymmetrical crown (L)	City	Retain
263	Black Locust	*Robinia pseudoacacia*	26	P-F	P-F	F-G		4	2.4	-	-	Included bark (L), crack (M) at union, stem wound (H) at 3 metres from previous branch failure	City	Remove (Condition)
264	Black Locust	*Robinia pseudoacacia*	25	F-G	F	F-G		3.5	2.4	-	-	Included bark (M), broken branches (L)	City	Retain
265	Black Locust	*Robinia pseudoacacia*	~30	F-G	F	F-G		4	2.4	-	-	Co-dominant stems at 1.5 metres, broken branches (L)	City	Retain
266	White Pine	*Pinus strobus*	~25	G	G	G		3	2.4	-	-		City	Retain
267	Black Locust	*Robinia pseudoacacia*	23	F	F	F-G		4	2.4	-	-	Included bark (M), crack (M) at union, deadwood (L), broken branches (L)	City	Retain
268	Black Locust	*Robinia pseudoacacia*	29, 13, 12	F-G	F-G	F-G		5	3	-	-	Included bark (M), co-dominant stems at 1 and 1.25 metres	City	Retain
269	White Pine	*Pinus strobus*	~35	G	G	G		4	3	-	-		City	Retain
270	Black Locust	*Robinia pseudoacacia*	5 - 15 (Ave:12)	G	F-G	F-G		3.5	2.4	-	-	Multi-stem at 1.25 metres, asymmetrical crown (M)	City	Retain
271	Black Locust	*Robinia pseudoacacia*	26	F	F	F	10	4.5	2.4	-	-	Broken branches (M), deadwood (M)	City	Retain
272	White Pine	*Pinus strobus*	~35	G	G	G		3.5	3	-	-		City	Retain

273	Black Locust	*Robinia pseudoacacia*	~30	G	G	F-G		4	2.4	-	-		City	Retain
274	Norway Spruce	*Picea abies*	~30	G	G	G		3	2.4	-	-		City	Retain
275	White Oak	*Quercus alba*	15	G	G	G		2.5	2.4	-	-		City	Retain
276	Black Locust	*Robinia pseudoacacia*	~25	F-G	F-G	F-G		4	2.4	-	-	Asymmetrical crown (L)	City	Retain
277	Black Locust	*Robinia pseudoacacia*	21	F	F	F-G		3.5	2.4	-	-	Multi-stem at 1.25 metres, asymmetrical crown (M)	City	Retain
278	Norway Maple	*Acer platanoides*	23	G	G	G		4.5	-	-	-		Private	Remove
279	Norway Spruce	*Picea abies*	~18	G	F-G	G		2.5	-	-	-	Asymmetrical crown (M)	Private	Remove
280	Norway Spruce	*Picea abies*	~15	G	F-G	G		2.5	-	-	-	Asymmetrical crown (M)	Private	Remove
281	Norway Maple	*Acer platanoides*	19, 8	F-G	F	F-G		5	-	-	-	Co-dominant stems at base, dead stem of Tree 283 leaning on trunk	Private	Remove
282	Manitoba Maple	*Acer negundo*	31	F	F	P-F		3.5	-	-	-	Epicormic branching (H), lean (L), co-dominant stems at 1.5 metres	Private	Remove
283	Willow species	*Salix sp.*	~90	P	P	P	30	7	-	-	-	Deadwood (H), one stem dead, one stem previously failed, co-dominant stems at 1.5 metres, epicormic branching (H), cavity (H) at base from previous stem failure, top-down dieback -->hazard	Private	Remove (Condition)
284	Eastern White Cedar	*Thuja occidentalis*	19.5	P-F	P-F	F		2.5	-	-	-	Sweep (M), seam (H) from base to 1.5 metres, asymmetrical crown (H)	Private	Remove
285	Eastern White Cedar	*Thuja occidentalis*	~28	P-F	P-F	P-F		2	-	-	-	Seam (H) from base to 5 metres, lost leader, lean (M)	Private	Remove
286	Manitoba Maple	*Acer negundo*	26, ~14, ~12, ~8	P-F	P-F	F		4	-	-	-	Multi-stem at base, fused stems, stem wound (H) at base, bow (M), fused at base with Tree 14	Private	Remove
287	Eastern White Cedar	*Thuja occidentalis*	~25	F	F	F		2	-	-	-	Stem wound (M) from 0.5 metres to 1.5 metres, sweep (L), asymmetrical crown (H)	Private	Remove
288	Black Locust	*Robinia pseudoacacia*	34	G	F-G	F-G		4	-	-	-	Pruning wounds (L), epicormic branching (M), deadwood (L)	Private	Remove
289	Black Locust	*Robinia pseudoacacia*	36	F-G	F-G	F-G		4	-	-	-	Included bark (M), deadwood (L)	Private	Remove
290	Japanese Walnut	*Juglans ailantifolia*	37	P-F	F	P	10	5				Epicormic branching (H), sweep (M), deadwood (L), stem wound (H) at base from previous stem failure	Private	Remove (Condition)
291	Apple species	*Malus sp.*	44	F	P-F	F		3.5	-	-	-	Pruning wounds (M), crook (H), epicormic branching (M)	Private	Remove
292	Black Locust	*Robinia pseudoacacia*	23	G	F-G	G		4	-	-	-	Broken branches (L), asymmetrical crown (L)	Private	Remove
293	Japanese Walnut	*Juglans ailantifolia*	31	P-F	P-F	P	10	3				Epicormic branching (H), coppice growth (H), deadwood (L), lean (L), cavity (H) at 5 metres	Private	Remove (Condition)
294	Black Walnut	*Juglans nigra*	56	G	G	F-G		8	-	-	-	Epicormic branching (M), pruning wounds (L), asymmetrical crown (L)	Private	Remove
295	Black Walnut	*Juglans nigra*	46	G	F-G	F-G		8	-	-	-	Asymmetrical crown (L), co-dominant stems at 2 metres, epicormic branching (L), pruning wounds (L), broken branches (L)	Private	Remove
296	Black Walnut	*Juglans nigra*	40	G	F	F		8	-	-	-	Co-dominant stems at 3 metres, pruning wounds (M), asymmetrical crown (M), deadwood (L), epicormic branching (M)	Private	Remove
297	Bur Oak	*Quercus macrocarpa*	77	G	G	P-F	5	8	-	-	-	Epicormic branching (H), deadwood (L)	Private	Remove
298	Black Locust	*Robinia pseudoacacia*	27	G	F-G	G		2.5	-	-	-	Pruning wounds (L), broken branches (L)	Private	Remove
299	White Ash	*Fraxinus americana*	~40	P	G	P	90	4	-	-	-	EAB present	Private	Remove (Condition)
301	-	-	-	-	-	-	-	-	-	-	-	Dead	Private	Remove (Condition)
305	Black Locust	*Robinia pseudoacacia*	17	F	F	F-G		2.5	-	-	-	Sweep (M), pruning wounds (L), stem wound (M) at base	Private	Remove
306	Black Locust	*Robinia pseudoacacia*	27	G	F-G	G		3	-	-	-	Co-dominant stems at 1.5 metres	Private	Remove
307	Black Locust	*Robinia pseudoacacia*	43	F-G	F	G		4	-	-	-	Pruning wounds (M), co-dominant stems at 1.5 metres, included bark (L)	Private	Remove

308	Black Locust	*Robinia pseudoacacia*	23	G	F-G	G		3.5	-	-	-	Pruning wounds (L), co-dominant stems at 2 metres	Private	Remove
309	Black Locust	*Robinia pseudoacacia*	24	G	F	G		3	-	-	-	Co-dominant stems at 1.5 metres, stem wound (H) in crown, pruning wounds (L), broken branches (L)	Private	Remove
310	Black Locust	*Robinia pseudoacacia*	24	F-G	F	G		3.5	-	-	-	Pruning wounds (M), multi-stem at 1.75 metres, asymmetrical crown (L)	Private	Remove
311	Apple species	*Malus sp.*	~50	P	F	P-F	30	3.5	-	-	-	Epicormic branching (H), deadwood (H), cavity (H) at 0.5 metres	Private	Remove (Condition)
312	Black Locust	*Robinia pseudoacacia*	29	F-G	F-G	F-G		3.5	-	-	-	Included bark (M), deadwood (L)	Private	Remove
313	Refer to Table 2												Private	Remove
314	Refer to Table 2													
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340	Refer to Table 2													
341	Refer to Table 2													
342	Norway Maple	*Acer platanoides*	37	G	F-G	G		4.5	-	-	-		Private	Remove
343	Sugar Maple	*Acer saccharum*	29	F-G	F-G	G		4.5	-	-	-	Co-dominant at 3 metres	Private	Remove
344	Refer to Table 2												Private	Remove
345	Refer to Table 2													
346	Refer to Table 2													
347	Refer to Table 2												Private	Remove
348	Refer to Table 2													
349	Refer to Table 2													
350	Refer to Table 2													
351	Black Walnut	*Juglans nigra*	19.5	G	F	G		3.5	-	-	-	Co-dominant stems at 1.75 metres	Private	Remove
352	Red Oak	*Quercus rubra*	52	F-G	F	F-G		7	3.6	-	-	Sweep (L), asymmetrical crown (M)	Neighbouring	Retain
353	Black Cherry	*Prunus serotina*	~50, ~30	P	P	P			-	-	-	Dead --> hazard	Neighbouring	Remove (Condition)
354	Black Walnut	*Juglans nigra*	25	P-F	F-G	F	10	4	2.4	-	-	Stem wound (H) at base, filled piled at base, deadwood (L)	Neighbouring	Retain
355	Black Walnut	*Juglans nigra*	26	F	F	F		4.5	2.4	-	-	Co-dominant stems at 1.75 metres, asymmetrical crown (M), fill piled at base, epicormic branching (M), chlorosis (L), stem wound (L) at base	Neighbouring	Retain

356	White Spruce	*Picea glauca*	36	G	F-G	F-G		3	3	-	-	Pruning wounds (M), asymmetrical crown (M)	Neighbouring	Retain
357	White Spruce	*Picea glauca*	26	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M)	Neighbouring	Retain
358	White Spruce	*Picea glauca*	24	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M), pruning wounds (L)	Neighbouring	Retain
359	White Spruce	*Picea glauca*	29	G	G	G		3.5	2.4	-	-	Asymmetrical crown (L)	Neighbouring	Retain
360	White Spruce	*Picea glauca*	~35	G	G	G		3.5	3	-	-	Asymmetrical crown (L)	Neighbouring	Retain
361	White Spruce	*Picea glauca*	~30	G	G	G		3.5	2.4	-	-		Neighbouring	Retain
362	White Spruce	*Picea glauca*	~30	G	F-G	F-G		3.5	2.4	-	-	Asymmetrical crown (M)	Neighbouring	Retain
363	White Spruce	*Picea glauca*	~25	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M)	Neighbouring	Retain
364	White Spruce	*Picea glauca*	~28	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M)	Neighbouring	Retain
365	White Spruce	*Picea glauca*	~25	G	F-G	G		3.5	2.4	-	-	Asymmetrical crown (M)	Neighbouring	Retain
366	White Spruce	*Picea glauca*	~22	G	G	G		2.5	2.4	-	-		Neighbouring	Retain
367	Pear species	*Pyrus sp.*	37	F	F-G	F		4	3	-	-	Cavity (L) at base, cavity (L) at 1 metre, deadwood (L), asymmetrical crown (L), epicormic branching (M)	Neighbouring	Retain
368	Refer to Table 2												Private	Remove
369	Refer to Table 2													
370	Refer to Table 2													
371	Refer to Table 2													
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394	Refer to Table 2													
395	White Spruce	*Picea glauca*	24	F	P-F	F-G		4	-	-	-	Topped at 3 metres, crook (H) from topping cut	Private	Remove

Codes		
DBH	Diameter at Breast Height	*(cm)*
TI	Trunk Integrity	*(G, F, P)*
CS	Crown Structure	*(G, F, P)*
CV	Crown Vigor	*(G, F, P)*
CDB	Crown Die Back	*(%)*
DL	Dripline	*(m)*
mTPZ	minimum Tree Protection Zone	*TPZ (m) based on Town of Oakville's Tree Protection During Construction (Prcedure EN-TRE-001-001) from base of tree*
A. mTPZ	Actual minimum Tree Protection Zone	*Actual TPZ (m) achievable during construction from base of tree*
~ = estimate; (L) = light; (M) = moderate; (H) = heavy		

Table 2. Stand Tally Analysis of Tree Polygons

Trees 154 - 161

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
White Spruce (*Picea glauca*)	4	1	2	0	0	0	0	0	6	1
Scots Pine (*Pinus sylvestris*)	1	0	0	0	0	0	0	0	1	0
Total Number of Trees	5	1	2	0	0	0	0	0	7	1

Trees 162 - 165

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Manitoba Maple (*Acer negundo*)	1	2	0	0	0	0	0	0	1	2
White Spruce (*Picea glauca*)	1	3	1	0	0	0	0	0	2	3
Black Walnut (*Juglans nigra*)	0	1	0	0	0	0	0	0	0	1
Bur Oak (*Quercus macrocarpa*)	0	0	1	0	0	0	0	0	1	0
Total Number of Trees	2	6	2	0	0	0	0	0	4	6

Trees 229 - 232

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Black Locust (*Robinia pseudoacacia*)	6	0	0	0	0	0	0	0	6	0
Total Number of Trees	6	0	0	0	0	0	0	0	6	0

Trees 313 - 340 and 344 - 346

Tree Size Class >	Polewood (5 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
White Ash (*Fraxinus americana*)	0	0	0	0	0	1	0	1	0	2
Black Walnut (*Juglans nigra*)	0	0	1	0	0	0	0	0	1	0
Manitoba Maple (*Acer negundo*)	5	5	0	2	0	2	0	0	5	9
Black Locust (*Robinia pseudoacacia*)	10	0	4	0	0	0	0	0	14	0
White Pine (*Pinus strobus*)	10	1	2	0	0	0	0	0	12	1
Cherry species (*Prunus* sp.)	1	1	1	0	1	1	0	0	3	2
Apple species (*Malus* sp.)	0	0	0	2	0	1	0	0	0	3
Willow species (*Salix* sp.)	0	0	0	0	0	0	1	2	1	2
Pear species (*Pyrus s*p.)	0	0	1	0	0	0	0	0	1	0
Total Number of Trees	26	7	9	4	1	5	1	3	37	19

Trees 347 - 350

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Manitoba Maple (*Acer negundo*)	2	3	0	1	0	0	0	0	2	4
Total Number of Trees	2	3	0	1	0	0	0	0	2	4

Trees 368 - 394

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
White Pine (*Pinus strobus*)	3	0	9	0	7	1	0	0	19	1
Austrian Pine (*Pinus nigra*)	1	0	3	0	0	0	0	0	4	0
Sugar Maple (*Acer saccharum*)	1	0	2	0	0	0	0	0	3	0
Total Number of Trees	5	0	14	0	7	1	0	0	26	1

P5

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Black Locust (*Robinia pseudoacacia*)	7	2	0	0	0	0	0	0	7	2
Manitoba Maple (*Acer negundo*)	1	0	0	0	0	0	0	0	1	0
White Ash (*Fraxinus americana*)	0	2	0	0	0	0	0	0	0	2
Black Walnut (*Juglans nigra*)	0	1	0	0	0	0	0	0	0	1
Total Number of Trees	8	5	0	0	0	0	0	0	8	5

P9

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Black Locust (*Robinia pseudoacacia*)	1	2	0	0	0	0	0	0	1	2
Eastern White Cedar (*Thuja occidentalis*)	4	0	0	0	0	0	0	0	4	0
Total Number of Trees	5	2	0	0	0	0	0	0	5	2

P11

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Eastern White Cedar (*Thuja occidentalis*)	45	1	0	0	0	0	0	0	45	1
Manitoba Maple (*Acer negundo*)	1	0	0	0	0	0	0	0	1	0
White Ash (*Fraxinus americana*)	4	12	0	0	0	0	0	0	4	12
White Pine (*Pinus strobus*)	3	0	0	0	0	0	0	0	3	0
Black Locust (*Robinia pseudoacacia*)	8	0	0	0	0	0	0	0	8	0
Sugar Maple (*Acer saccharum*)	1	0	0	0	0	0	0	0	1	0
Black Walnut (*Juglans nigra*)	2	0	0	0	0	0	0	0	2	0
White Oak (*Quercus alba*)	0	1	0	0	0	0	0	0	0	1
Cherry species (*Prunus* sp.)	3	0	0	0	0	0	0	0	3	0
White Elm (*Ulmus americana*)	0	2	0	0	0	0	0	0	0	2
Apple species (*Malus* sp.)	1	0	0	0	0	0	0	0	1	0
Willow species (*Salix* sp.)	0	0	0	0	0	1	0	0	0	1
Total Number of Trees	68	16	0	0	0	1	0	0	68	17

P13

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Eastern White Cedar (*Thuja occidentalis*)	10	2	0	0	0	0	0	0	10	2
Total Number of Trees	10	2	0	0	0	0	0	0	10	2

P17

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Eastern White Cedar (*Thuja occidentalis*)	1	0	0	0	0	0	0	0	1	0
White Spruce (*Picea glauca*)	1	0	0	0	0	0	0	0	1	0
Black Walnut (*Juglans nigra*)	1	0	0	0	0	0	0	0	1	0
Total Number of Trees	3	0	0	0	0	0	0	0	3	0

P24

Tree Size Class >	Polewood (10 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Amur Maple (*Acer ginnala*)	5	3	0	0	0	0	0	0	5	3
Total Number of Trees	5	3	0	0	0	0	0	0	5	3

P33

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Black Locust (*Robinia pseudoacacia*)	16	0	0	0	0	0	0	0	16	0
Blue Spruce (*Picea pungens*)	1	0	0	0	0	0	0	0	1	0
Total Number of Trees	17	0	0	0	0	0	0	0	17	0

P34

Tree Size Class >	Polewood (1 - 24 cm DBH)		Small (26 - 36 cm DBH)		Medium (38 - 48 cm)		Large (50 cm +)		Total All Sizes	
Species	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*	*AGS*	*UGS*
Black Locust (*Robinia pseudoacacia*)	9	0	0	0	0	0	0	0	9	0
Silk Lilac (*Syringa reticulata*)	3	0	0	0	0	0	0	0	3	0
Blue Spruce (*Picea pungens*)	3	0	0	0	0	0	0	0	3	0
Manitoba Maple (*Acer negundo*)	3	2	0	0	0	0	0	0	3	2
Black Walnut (*Juglans nigra*)	5	0	0	0	0	0	0	0	5	0
Bur Oak (*Quercus macrocarpa*)	1	0	0	0	0	0	0	0	1	0
White Elm (*Ulmus americana*)	0	1	0	0	0	0	0	0	0	1
White Ash (*Fraxinus americana*)	0	1	0	0	0	0	0	0	0	1
Total Number of Trees	24	4	0	0	0	0	0	0	24	4

Table 3. Tree Valuation of Town-Owned Trees

1280 Dundas Street West, Oakville				*Appraised Trunk Area (cm^2)*	*Unit Tree Cost (RPAC)*	*Basic Tree Cost ($)*	Depreciation			*Appraised Tree Value*	*Minimum Value Per Tree ($)*	Quantity of Trees	*Final Appraised Tree Value*
							Condition Rating (%)	*Functional Limitation Rating (%)*	*External Limitation Rating (%)*				
Tree	**Common Name**	**DBH**	**OC**										
25	Blue Spruce	10	G	79	6.51	511.30	0.9	0.8	1	$ 368.13	$ 744.00	1	$ 744.00
26	Manitoba Maple	8	F-G	50	6.51	327.23	0.75	0.8	1	$ 196.34	$ 744.00	1	$ 744.00
27	Blue Spruce	10	G	79	6.51	511.30	0.9	0.8	1	$ 368.13	$ 744.00	1	$ 744.00
28	Blue Spruce	7	F-G	38	6.51	250.53	0.75	0.8	1	$ 150.32	$ 744.00	1	$ 744.00
29	Red Oak	6	F	28	6.51	184.07	0.5	0.8	1	$ 73.63	$ 744.00	1	$ 744.00
30	Manitoba Maple	7	F	38	6.51	250.53	0.5	0.8	1	$ 100.21	$ 744.00	1	$ 744.00
31	Hazelnut species	4	P-F	13	6.51	81.81	0.25	0.8	1	$ 16.36	$ 744.00	1	$ 744.00
P33	Black Locust	7	G	38	6.51	250.53	0.9	0.8	1	$ 180.39	$ 744.00	16	$ 11,904.00
	Blue Spruce	7	G	38	6.51	250.53	0.9	0.8	1	$ 180.39	$ 744.00	1	$ 744.00
													$ 17,856.00

Latin Name	Common Name	SRank[1]
Symphyotrichum novae-angliae	New England Aster	S5
Picea abies	Norway Spruce	SNA
Picea glauca	White Spruce	S5
Pinus nigra	Black Pine	SNA
Pinus strobus	Eastern White Pine	S5
Pinus sylvestris	Scots Pine	SNA
Juniperus virginiana	Eastern Red Cedar	S5
Thuja occidentalis	Eastern White Cedar	S5
Salix petiolaris	Meadow Willow	S5
Phalaris arundinacea	Reed Canary Grass	S5
Phleum pratense	Common Timothy	SNA
Populus tremuloides	Trembling Aspen	S5
Juglans nigra	Black Walnut	S4?
Ostrya virginiana	Eastern Hop-hornbeam	S5
Quercus macrocarpa	Bur Oak	S5
Quercus rubra	Northern Red Oak	S5
Rumex crispus	Curly Dock	SNA
Chenopodium album	White Goosefoot	SNA
Dianthus armeria	Deptford Pink	SNA
Saponaria officinalis	Bouncing-bet	SNA
Ranunculus acris	Tall Buttercup	SNA
Alliaria petiolata	Garlic Mustard	SNA
Capsella bursa-pastoris	Common Shepherd's Purse	SNA
Hesperis matronalis	Dame's Rocket	SNA
Fragaria virginiana	Wild Strawberry	S5
Geum aleppicum	Yellow Avens	S5
Geum urbanum	Wood Avens	SNA
Potentilla recta	Sulphur Cinquefoil	SNA
Rosa multiflora	Multiflora Rose	SNA
Rubus occidentalis	Black Raspberry	S5
Solidago flexicaulis	Zigzag Goldenrod	S5
Crataegus macracantha	Large-thorned Hawthorn	S5
Securigera varia	Common Crown-vetch	SNA
Lotus corniculatus	Garden Bird's-foot Trefoil	SNA
Medicago lupulina	Black Medic	SNA
Melilotus albus	White Sweet-clover	SNA
Robinia pseudoacacia	Black Locust	SNA
Vicia cracca	Tufted Vetch	SNA
Trifolium hybridum	Alsike Clover	SNA
Oxalis stricta	Upright Yellow Wood-sorrel	S5
Euphorbia cyparissias	Cypress Spurge	SNA
Syringa vulgaris	Common Lilac	SNA
Toxicodendron radicans	Poison Ivy	S5
Rhus typhina	Staghorn Sumac	S5
Acer tataricum ssp. ginnala	Amur Maple	SNA
Acer negundo	Manitoba Maple	S5
Acer platanoides	Norway Maple	SNA
Acer saccharum	Sugar Maple	S5
Impatiens capensis	Spotted Jewelweed	S5
Rhamnus cathartica	Common Buckthorn	SNA
Vitis riparia	Riverbank Grape	S5
Tilia americana	American Basswood	S5
Tilia cordata	Little-leaf Linden	SNA
Daucus carota	Wild Carrot	SNA
Fraxinus americana	White Ash	S4
Apocynum androsaemifolium	Spreading Dogbane	S5
Apocynum cannabinum var. hypericifolium	Clasping-leaved Hemp Dogbane	S5
Vincetoxicum rossicum	European Swallow-wort	SNA
Convolvulus arvensis	Field Bindweed	SNA
Glechoma hederacea	Ground Ivy	SNA
Leonurus cardiaca	Common Motherwort	SNA
Prunella vulgaris	Self-heal	S5
Solanum triflorum	Cut-leaved Nightshade	SNA
Plantago lanceolata	English Plantain	SNA
Galium mollugo	Smooth Bedstraw	SNA
Lonicera tatarica	Tartarian Honeysuckle	SNA
Dipsacus fullonum	Common Teasel	SNA
Ambrosia artemisiifolia	Common Ragweed	S5
Arctium lappa	Great Burdock	SNA
Arctium minus	Common Burdock	SNA
Cichorium intybus	Chicory	SNA
Cirsium arvense	Canada Thistle	SNA
Cirsium vulgare	Bull Thistle	SNA
Erigeron annuus	Annual Fleabane	S5
Lactuca serriola	Prickly Lettuce	SNA
Leucanthemum vulgare	Oxeye Daisy	SNA
Tripleurospermum inodorum	Scentless Chamomile	SNA
Sonchus arvensis	Field Sow-thistle	SNA
Sonchus oleraceus	Common Sow-thistle	SNA
Taraxacum officinale	Common Dandelion	SNA
Solidago altissima	Tall Goldenrod	S5
Parthenocissus vitacea	Thicket Creeper	S5
Syringa reticulata	Japanese Tree Lilac	SNA
Salix x fragilis	(Salix alba X Salix euxina)	SNA

[1]**S-Ranks** - Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural

S1 Critically Imperiled—Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled—Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable—Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

S4 Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 Secure—Common, widespread, and abundant in the nation or state/province.

S#S# Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

sites.

SNA (Formally SE) Exotic; not believed to be a native component of Ontario's flora.

Appendix D Significant Wildlife Habitat Assessment Table

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
Seasonal Concentration Areas of Animals					
Waterfowl Stopover and Staging Areas (Terrestrial) **Rationale**: Habitat important to migrating waterfowl	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	CUM1 CUT1 Plus evidence of annual spring flooding from meltwater or run-off within these Ecosites. Fields with seasonal flooding and waste grains in the Long Point, Rondeau, Lake St. Clair, Grand Bend and Point Pelee areas may be important to Tundra Swans.	•Fields with sheet water during Spring (mid-March to May) •Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl •Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available <u>Information Sources</u> •Anecdotal information from the landowner, adjacent landowners or local naturalist clubs may be good information in determining occurrence. •Reports and other information available from Conservation Authorities •Sites documented through waterfowl planning processes (eg. EHJV implementation plan) •Field Naturalist Clubs •Ducks Unlimited Canada •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •Any mixed species aggregations of 100 or more individuals required •The flooded field ecosite habitat plus a 100-300m radius, dependent on local site conditions and adjacent land use is the significant wildlife habitat •Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates) •SWH MIST Index #7 provides development effects and mitigation measures	Habitat criteria not met. No large fields capable of supporting sheet flow or agricultural areas which provide for stopover areas.
Waterfowl Stopover and Staging Areas (Aquatic) **Rationale**: Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the ecodistrict.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan Canada Goose Cackling Goose Snow Goose Northern Shoveler Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	•Ponds, marshes, lakes, bays, coastal inlets and watercourses used during migration. Sewage treatment ponds and storm water ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify •These habitats have an abundant food supply (mostly aquatic invertebrates and vegetation in shallow water). <u>Information Sources</u> •Environment Canada •Naturalist clubs often are aware of staging/stopover areas. •OMNRF Wetland Evaluations indicate presence of locally and regionally significant waterfowl staging. •Sites documented through waterfowl planning processes (e.g., EHJV implementation plan) •Ducks Unlimited projects •Element occurrence specification by Nature Serve: http://www.natureserve.org •Natural Heritage Information Centre (NHIC) Waterfowl Concentration Area	Studies carried out and verified presence of: •Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days •Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH •The combined area of the ELC ecosites and a 100m radius area is the SWH •Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are significant wildlife habitat. •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). •SWH MIST Index #7 provides development effects and mitigation measures	Habitat criteria not met. No large ponds or reservoirs capable of supporting shelter areas as stopovers.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
	Redhead				
Shorebird Migratory Stopover Area **Rationale**: High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird's Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel Ruddy Turnstone Sanderling Dunlin	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	•Shorelines of lakes, rivers and wetlands, including beach area, bars and seasonally flooded, muddy and un-vegetated shoreline habitats •Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to midJune and early July to October •Sewage treatment ponds and storm water ponds do not qualify as SWH. <u>Information Sources</u> •Western hemisphere shorebird reserve network •Canadian Wildlife Service (CWS) Ontario Shorebird Survey •Bird Studies Canada •Ontario Nature •Local birders and naturalist clubs •Natural Heritage Information Centre (NHIC) Shorebird Migratory Concentration Area	Studies confirming: •Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) •Whimbrel stop briefly (100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #8 provides development effects and mitigation measures	Habitat criteria not met. No lakes shorelines or coastal areas
Raptor Wintering Area **Rationale**: Sites used by multiple species, a high number of individuals and used annually are most significant	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl Special Concern: Short-eared Owl Bald Eagle	Hawks/Owls: Combination of ELC Community Series; need to have present one Community Series from each land class; Forest: FOD, FOM, FOC. Upland: CUM, CUT, CUS, CUW. Bald Eagle: Forest Community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	•The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors •Raptor wintering (hawk/owl) sites need to be >20 ha with a combination of forest and upland •Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands •Field area of the habitat is to be wind swept with limited snow depth or accumulation. •Eagle sites have open water and large trees and snags available for roosting <u>Information Sources</u> •OMNRF Ecologist or Biologist •Naturalist clubs •Natural Heritage Information Centre (NHIC) Raptor Winter Concentration Area •Data from Bird Studies Canada •Results of Christmas Bird Counts •Reports and other information available from Conservation Authorities	Studies confirming: •Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period) •Whimbrel stop briefly (100 Whimbrel used for 3 years or more is significant. •The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100m radius area •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #8 provides development effects and mitigation measures. Studies confirm the sue of these habitats by: •One or more Short-eared Owls or; one of more Bald Eagles or; at least 10 individuals and two of the listed hawk/owl species	Habitat criteria not met. While Redtail Hawk was observed, woodland and fields do not extend > than 20 ha. It is recognized that the woodland and Valleyland are likely to provided refuge for Hawks and Owls in the winter this habitat is not uncommon in the Halton Region and does not meet criteria threshold.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
				•To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. •The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #10 and #11 provides development effects and mitigation measures.	
Bat Hibernacula **Rationale**: Bat hibernacula are rare habitats in all Ontario landscapes.	Big Brown Bat	Bat Hibernacula may be found in these ecosites: CCR1 CCR3 CCA1 CCA2 (Note: buildings are not considered SWH)	•Hibernacula may be found in caves, mine shafts, underground foundations and Karsts •Active mine sites should not be considered as SWH •The locations of Bat Hibernacula are relatively poorly known. Information Sources •OMNRF for possible locations and contact for local experts •Natural Heritage Information Centre (NHIC) Bat Hibernaculum •Ministry of Northern Development and Mines for location of mine shafts. •Clubs that explore caves (eg. Sierra Club) •University Biology Departments with bat experts.	•All sites with confirmed hibernating bats are SWH •The area includes 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms •Studies are to be conducted during the peak swarming period (Aug. – Sept.). Surveys should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #1 provides development effects and mitigation measures.	Habitat criteria not met. No known Karst, escarpment areas or rock features (caves).
Bat Maternity Colonies **Rationale**: Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes	Big Brown Bat Silver-haired Bat	Maternity colonies considered SWH are found in forested Ecosites. All ELC Ecosites in ELC Community Series: FOD, FOM, SWD, SWM	•Maternity colonies can be found in tree cavities, vegetation and often in buildings (buildings are not considered to be SWH). •Maternity roosts are not found in caves and mines in Ontario •Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25cm dbh) wildlife trees •Female bats prefer wildlife trees (snags) in early stages if decay, class 1-3 or class 1 or 2 •Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred Information Sources •OMNRF for possible locations and contact for local experts •University Biology Departments with bat experts.	•Maternity colonies with confirmed use by: o>10 Big Brown Bats o>5 adult female Silver-haired Bats •The area of habitat includes the entire woodland or a forest stand ELC Ecosite or an Eco-element containing the maternity colonies •Evaluation methods for maternity colonies should be conducted following methods outlined in the "Bats and Bat Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #12 provides the development effects and mitigation measures.	**Candidate** Woodlands within the valleyland will be protected and any tree removals required will be completed during the appropriate timing windows.
Turtle Wintering Areas **Rationale**: Generally sites are the only known sites in the area. Sites with the	Special Concern: Midland Painted Turtle Northern Map Turtle Snapping Turtle	Snapping and Midland Painted Turtles: SW, MA, OA and SA; FEO and BOO. Northern Map Turtle: Open water areas such as deeper rivers or streams	•For most turtles, wintering areas are in the same general areas as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. •Overwintering sites are permanent water bodies, large wetlands and bots or fens with adequate dissolved oxygen. •Manmade ponds such as sewage lagoons or storm water ponds should not be considered SWH.	•Presence of five overwintering Midland Painted Turtles is significant. •One or more Northern Map Turtle or Snapping Turtle overwintering within a wetland is significant. •The mapped ELC ecosite area with the overwintering turtles is the SWH. If the hibernation	Habitat criteria not met. The onsite pond is small with limited depth and organics, reduced oxygenated waters and likely freezes to the bottom in severe winters. No

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
highest number of individuals are most significant		and lakes with current can also be used as overwintering habitat.	Information Sources •EIA/EIS studies carried out by conservation authorities. •Field naturalists clubs. •OMNRF ecologist or biologist •NHIC	site is within a stream or river, the deep-water pool where the turtles are overwintering is the SWH. •Overwintering areas may be identified by searching for congregations (basking areas) of turtles on warm, sunny days during the fall (September to October) or spring (March to May). Congregation of turtles is more common where wintering areas are limited and therefore significant. •SWH MIST Index #28 provides development effects and mitigation measures for turtle wintering habitat	turtles were observed in the pond or anywhere on site during numerous site visits conducted in early mornings, mid-day and evenings in the spring and summer of 2018 or during supplemental site visits in fall 2021.
Reptile Hibernaculum **Rationale**: Generally sites are the only known sites in the area. Sites with the highest number of individuals are	Snakes: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake Special Concern: Milksnake Eastern Ribbonsnake	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator	•For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. •Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line •Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock ground cover. Information Sources •In spring, local residents or landowners may have observed the emergence of snakes on their property (e.g. old dug wells). •Reports and other information available from Conservation Authorities. •Field Naturalist Clubs •University herpetologists •Natural Heritage Information Centre (NHIC)	Studies confirming: •Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. •Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (eg. foundation or rocky slope) on sunny warm days in Spring (Apr/May) and Fall (Sept/Oct) •NOTE: If there are Special Concern Species present, then site is SWH •NOTE: Sites for hibernation possess specific habitat parameters (e.g. temperature, humidity, etc) and consequently are used annually, often by many of the same individuals of a local population (i.e. strong hibernation site fidelity). Other critical life processes (e.g. mating) often take place in close proximity to hibernacula. •The feature in which the hibernacula is located plus a 30 m radius area is the SWH •SWH MIS Index #13 provides development effects and mitigation measures for snake hibernacula	Habitat is not present. No features assessed on site occur with potential to penetrate deep below the frost line. Hibernation sites may occur on adjacent lands associated with the valleyland system and or structures located off site.
Colonially -Nesting Bird Breeding Habitat (Bank and Cliff) **Rationale**: Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles Cliff faces, bridge abutments, silos, barns. Habitat found in the following ecosites: CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1	•Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. •Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. •Does not include a licensed/permitted Mineral Aggregate Operation. Information Sources •Reports and other information available from Conservation Authorities •Ontario Breeding Bird Atlas	Studies confirming: •Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. •A colony identified as SWH will include a 50m radius habitat area from the peripheral nests •Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #4 provides development effects and mitigation measures.	Habitat criteria not met. No exposed banks observed on site or immediately adjacent.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
populations. All swallow population are declining in Ontario.		CLT1	•Bird Studies Canada NatureCounts http://www.birdscanada.org/birdmon •Field Naturalist Clubs		
Colonially -Nesting Bird Breeding Habitat (Tree/Shrubs) **Rationale**: Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	Great Blue Heron Black-crowned Night Heron Great Egret Green Heron	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	•Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. •Most nests in trees are 11 to 15 m from ground, near the top of the tree. <u>Information Sources</u> •Ontario Breeding Bird Atlas colonial nest records. •Ontario Heronry Inventory 1991 available from Bird Studies Canada or NHIC (OMNRF). •Natural Heritage Information Centre (NHIC) Mixed Wader Nesting Colony •Aerial photographs can help identify large heronries. •Reports and other information available from Conservation Authorities. •MNRF District Offices •Field Naturalist Clubs	Studies confirming: •Presence of 2 or more active nests of Great Blue Heron or other listed species. •The habitat extends from the edge of the colony and a minimum 300m radius or extent of the Forest Ecosite containing the colony or any island	Habitat criteria not met. No stick nests observed or evidence of nest structures by herons in proximity to the Site.
Colonially -Nesting Bird Breeding Habitat (Ground) **Rationale**: Colonies are important to local bird population, typically sites are only known colony in area and are used annually	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull Common Tern Caspian Tern Brewer's Blackbird	Any rocky island or peninsula (natural or artificial) within a lake or large river (two-lined on a 1:50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird) MAM1 – 6 MAS1 – 3 CUM CUT CUS	•Nesting colonies of gulls and terns are on islands or peninsulas associated with open water or in marshy areas. •Brewers Blackbird colonies are found loosely on the ground in or in low bushes in close proximity to streams and irrigation ditches within farmlands. Information Sources •Ontario Breeding Bird Atlas, rare/colonial species records. •Canadian Wildlife Service •Reports and other information available from Conservation Authorities. •Natural Heritage Information Centre (NHIC) Colonial Waterbird Nesting Area •MNRF District Offices •Field Naturalist Clubs	Studies confirming: •Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5 active nests for Common Tern or >2 active nests for Caspian Tern •Presence of 5 or more pairs for Brewer's Blackbird •Any active nesting colony of one or more Little Gull, and Great Blackbacked Gull is significant •The edge of the colony and a minimum 150m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island	Habitat criteria not met. No exposed rocks or island peninsulas.
Migratory Butterfly Stopover Areas **Rationale**: Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that	Painted Lady Red Admiral Special Concern: Monarch	Combination of ELC Community Series; need to have present one Community Series from each landclass: FIELD: CUM, CUT, CUS FOREST: FOC, FOD, FOM, CUP	•A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present, and will be located within 5 km of Lake Erie or Lake Ontario •The habitat is typically a combination of field and forest, and provides the butterflies with a location to rest prior to their long migration south •The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are requirements for this habitat	Studies confirm: •The presence of Monarch Use Days (MUD) during fall migration (Aug/Oct). MUD is based on the number of days the site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur •Observational studies are to be completed and	Habitat criteria not met. Habitat criteria not met. Site not within 5 km of Lake Ontario or meet size criteria. Subject property is manicured.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
migrate south for the winter.		Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	•Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes Information Sources •MNRF District Offices •Natural Heritage Information Centre (NHIC) •Agriculture Canada in Ottawa may have list of butterfly experts •Field Naturalist Clubs •Toronto Entomologists Association	need to be done frequently during the migration period to estimate MUD. •MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant. •SWH MIST Index #16 provides development effects and mitigation measures.	
Landbird Migratory Stopover Areas **Rationale**: Sites with a high diversity of species as well as high numbers are most significant.	All migratory songbirds Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptor species: Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997. Schedule 7: Specially Protected Birds (Raptors)	All Ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD	•Woodlots >5 ha in size and within 5 km of Lake Erie and Lake Ontario. If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat •If multiple woodlands are located along the shoreline those woodlands <2 km from Lake Erie and Lake Ontario are more significant •Sites have a variety of habitats: forest, grassland and wetland complexes •The largest sites are more significant •Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and within 5 km of Lake Erie and Lake Ontario are Candidate SWH Information Sources •Bird Studies Canada •Ontario Nature •Local birders and field naturalist clubs •Ontario Important Bird Areas (IBA) Program	Studies confirm: •Use of the habitat by >200 birds/day and with >35 species and with at least 10 bird species recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant •Studies should be completed during spring (Mar.- May) and fall (Aug.- Oct.) migration using standardized assessment techniques. Evaluation to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #9 provides development effects and mitigation measures	Habitat criteria not met. Valleylands and woodland are not part of the typical migration path within 5 km of the Great Lakes.
Deer Winter Congregation Areas **Rationale**: Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce	White-tailed Deer	All forested Ecosites with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Conifer plantations much smaller than 50 ha may also be used.	•Woodlots >100 ha in size or if large woodlots are rare in a planning area, woodlots >50 ha •Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands •Large woodlots >100 ha and up to 1,500 ha are known to be used annually by densities of deer that range from 0.1-0.5 deer/ha •Woodlots with high densities of deer due to artificial feeding are not significant. Information Sources •MNRF District Offices •LIO/NRVIS	Studies confirm: •Deer management is an MNRF responsibility, deer winter congregation areas considered significant will be mapped by MNRF •Use of the woodlot by white-tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF •Studies should be complete4d during winter (Jan./Feb.) when >20 cm of snow is on the ground using aerial survey techniques, ground road surveys, or a pellet count deer survey •SWH MIST Index #2 provides development effects and mitigation measures	Not mapped by MNRF.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
or avoid the impacts of winter conditions					
Rare Vegetation Communities					
Cliffs and Talus Slopes **Rationale**: Cliffs and Talus Slopes are extremely rare habitats in Ontario.	Any ELC Ecosite within Community Series: TAO TAS TAT CLO CLS CLT	A Cliff is vertical to near vertical bedrock >3 m in height. A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	•Most cliff and talus slopes occur along the Niagara Escarpment <u>Information Sources</u> •The Niagara Escarpment Commission has detailed information on location of these habitats •OMNRF Districts •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	•Confirm any ELC Vegetation Type for Cliffs or Talus Slopes •SWH MIST Index #21 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.
Sand Barren **Rationale**: Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage development and forestry	ELC Ecosites: SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow (SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always <60%	Sand barrens typically are exposed sand, generally sparsely vegetated and caused by a lack of moisture, periodic fires and erosion. Usually located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered but less than 60%.	•A sand barren area >0.5 ha in size <u>Information Sources</u> •The Niagara Escarpment Commission has detailed information on location of these habitats •OMNRF Districts •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	•Confirm any ELC Vegetation Type for Sand Barrens •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) •SWH MIST Index #20 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.
Alvar **Rationale**: Alvars are extremely rare habitats in Ecoregion 7E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species**: *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum*	An Alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animal species. Vegetation cover varies from patchy to barren with a less than 60% tree cover	•An Alvar site >0.5 ha in size •Alvar is particularly rare in Ecoregion 7E where the only known sites are found in the western islands of Lake Erie <u>Information Sources</u> •Alvars of Ontario (Federation of Ontario Naturalists, 2000) •Conserving Great Lakes Alvars (Ontario Nature) •OMNRF Districts •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	•Field studies identify that four of the five Alvar Indicator Species at a Candidate Alvar Site is significant •Site must not be dominated by exotic of introduced species (<50% vegetative cover are exotic spp.) •The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses •SWH MIST Index #17 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
	These indicator species are very specific to Alvars within Ecoregion 7E				
Old Growth Forest **Rationale**: Due to historic logging practices and land clearance for agriculture, old growth forest is rare in Ecoregion 7E.	Forest Community Series: FOD FOC FOM SWD SWC SWM	Old Growth Forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multilayered canopy and an abundance of snags and downed woody debris.	Woodland area is >0.5 ha <u>Information Sources</u> •OMNRF Forest Resource Inventory mapping •OMNRF Districts •Field Naturalist Clubs •Conservation Authorities •Sustainable Forestry License (SFL) companies will possibly know locations through field operations •Municipal forestry departments	Field studies will determine: •If dominant tree species of the forest are >140 years old, then the area containing these trees is SWH •The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present) •The area of forest ecosites combined or an eco-element within an ecosite that contain the old growth characteristics is the SWH •Determine ELC vegetation types for the forest area containing the old growth characteristics •SWH MIST Index #23 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.
Savannah **Rationale**: Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	A Savannah is a tallgrass prairie habitat that has tree cover between 25-60% In Ecoregion 7E, known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the Toronto area (north of Lake Ontario).	•No minimum size to site •Site must be restored or a natural site. Remnant sites such as railway right-ofways are not considered SWH <u>Information Sources</u> •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	Field studies confirm: •One or more of the Savannah indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 7E should be used. •Area of the ELC Ecosite is the SWH •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) •SWH MIST Index #18 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.
Tallgrass Prairie **Rationale**: Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	A tallgrass prairie has ground cover dominated by prairie grasses. An open tallgrass prairie habitat has <25% tree cover. In Ecoregion 7E, known tallgrass prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in the	•No minimum size to site •Site must be restored or a natural site. Remnant sites such as railway right-of ways are not considered SWH <u>Information Sources</u> •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	Field studies confirm: •One or more of the Prairie indicator species listed in Appendix N should be present. Note: savannah plant spp. List from Ecoregion 7E should be used. •Area of the ELC Ecosite is the SWH •Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic spp.) •SWH MIST Index #19 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
		Toronto area (north of Lake Ontario).			
Other Rare Vegetation Communities **Rationale**: Plant communities that often contain rare species which depend on the habitat for survival.		Provincially rare (S1, S2, S3) vegetation communities are listed in Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). Any ELC Ecosite Code that has a possible ELC Vegetation Type that is provincially rare is candidate SWH. Rare Vegetation Communities may include beaches, fens, forest, marsh, barrens, dunes and swamps.	•ELC Ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). •MNRF/NHIC will have up to date listing for rare vegetation communities. <u>Information Sources</u> •Natural Heritage Information Centre (NHIC) has location information available on their website •Field Naturalist Clubs •Conservation Authorities	•Field studies should confirm if an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of the Significant Wildlife Habitat Technical Guide (MNRF, 2000). •Area of the ELC Vegetation Type polygon is the SWH. •SWH MIST Index #37 provides development effects and mitigation measures	Habitat criteria not met– none observed during numerous site visits conducted.
Specialized Habitat for Wildlife					
Waterfowl Nesting Area **Rationale**: Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	All upland habitats located adjacent to these wetland ELC Ecosites are Candidate SWH: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, SWT1, SWT2, SWD1, SWD2, SWD3, SWD4 NOTE Includes adjacency to Provincially Significant Wetlands	•A waterfowl nesting area extends 120 m from a wetland (>0.5 ha) or a wetland (>0.5 ha) and any small wetlands (0.5 ha) within 120 m or a cluster of 3 or more small (40 cm dbh) in woodlands for cavity nest sites. <u>Information Sources</u> •Ducks Unlimited staff may know the locations of particularly productive nesting sites •MNRF Wetland Evaluations for indication of significant waterfowl nesting habitat •Reports and other information available from Conservation Authorities	Studies confirmed: •Presence of 3 or more nesting pairs for listed species excluding Mallards, or; •Presence of 10 or more nesting pairs for listed species including Mallards. •Any active nesting site of an American Black Duck is considered significant. •Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •A field study confirming waterfowl nesting habitat will determine boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest •SWH MIST Index #25 provides development effects and mitigation measures.	Habitat criteria not met. Pond is too small and dominated by cattails (choked with no open water). None observed during numerous site visits conducted.
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat **Rationale**: Nest sites are fairly uncommon in Eco - region 7E and are used annually by the se species. Many suitable nesting locations may be lost	Osprey SPECIAL CONCERN Bald Eagle	ELC Forest Community Series: FOD, FOM, FOC, SWD, SWM and SWC directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	•Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. •Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a notch within the tree's canopy. •Nests located on man-made objects are not to be included as SWH (e.g. telephone poles and constructed nesting platforms) <u>Information Sources</u> •NHIC compiles all known nesting sites for Bald Eagles in Ontario	Studies confirm the use of these nests by: •One or more active Osprey or Bald Eagle nests in an area •Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. •For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH, maintaining undisturbed shorelines with large trees within this area is important •For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the	Habitat criteria not met. On-site valleyland is a minor feature consisting of ephemeral discharge. No stick nets observed observed during numerous site visits conducted. Sixteen Mile Creek valley is a major river corridor and may provide this habitat function.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
due to increasing shoreline development pressures and scarcity of habitat.			•MNRF values information (LIO/NRVIS) will list known nesting locations. Note: data from NRVIS is provided as a point and does not represent all the habitat •Nature Counts, Ontario Nest Records Scheme data. •OMNRF District. •Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented •Reports and other information available from Conservation Authorities. •Field Naturalists clubs	habitat from 400-800 m is dependent on sight lines from the nest to the development and inclusion of perching and foraging habitat •To be significant a site must be used annually. When found inactive, the site must be known to be inactive for > 3 years or suspected of not being used for >5 years before being considered not significant. •Observational studies to determine nest site use, perching sites and foraging areas need to be done from early March to mid-August. •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #26 provides development effects and mitigation measures	
Woodland Raptor Nesting Habitat **Rationale**: Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	May be found in all forested ELC Ecosites. May also be found in SWC, SWM, SWD and CUP3.	•All natural or conifer plantation woodland/forest stands >30 ha with > 4 ha of interior habitat. Interior habitat determined with a 200 m buffer. •Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests, within tops or crotches of trees. Species such as Cooper's Hawk nest along forest edges sometimes on peninsulas or small offshore islands. •In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest <u>Information Sources</u> •OMNRF Districts •Check the Ontario Breeding Bird Atlas or Rare Breeding Birds in Ontario for species documented •Check data from Bird Studies Canada •Reports and other information available from Conservation Authorities	Studies confirm: •Presence of one or more active nests from species list is considered significant •Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha areaof habitat is the SWH. The 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest. •Barred Owl – A 200m radius around the nest is the SWH •Broad-winged Hawk and Coopers Hawk, – A 100m radius around the nest is the SWH •Sharp-Shinned Hawk – A 50m radius around the nest is the SWH •Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. •SWH MIST Index #27 provides development effects and mitigation measures	Habitat criteria not met. While Redtail Hawk was observed, woodland does not have greater than > 30 ha with >4ha of interior habitat. It is recognized that the woodland and valleyland are likely to provide nesting for hawks and owls however this habitat is not uncommon in Halton Region and does not meet criteria threshold.
Turtle Nesting Areas **Rationale**: These habitats are rare and when identified will often be the only breeding site for local populations of turtles	**Special Concern**: Midland Painted Turtle Northern Map Turtle Snapping Turtle	Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC Ecosites: MAS1, MAS2, MAS3, SAS1, SAM1, SAF1, BOO1, FEO1	•Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. •For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and is located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH.	Studies confirm: •Presence of 5 or more nesting Midland Painted Turtles. •One ore more Northern Map Turtles or Snapping Turtles nesting is a SWH. •The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area	Limited opportunities for nesting along the pond with no nests observed or evidence of predated nests indicating usage

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
			•Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes and rivers are most frequently used. Information Sources •Use Ontario Soil Survey reports and maps to help find suitable substrate for nesting turtles (well-drained sands and fine gravels). •Check the Ontario Herpetofaunal Summary Atlas records or other similar atlases for uncommon turtles; location information may help to find potential nesting habitat for them. •Natural Heritage Information Centre (NHIC). •Field naturalist clubs.	dependent on slope, riparian vegetation and adjacent land use is the SWH. •Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30 to 100 m area of habitat. •Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. •SWH MIST Index #28 provides development effects and mitigation measures for turtle nesting habitat.	
Seeps and Springs **Rationale**: Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer Salamanders	Seeps/springs are areas where ground water comes to the surface. Often they are found within headwater areas within forested habitats. Any forested Ecosite within the headwater areas of a stream could have seeps/springs.	•Any forested area (with <25% meadow/field/ pasture) within the headwaters of a stream or river system •Seeps and springs are important feeding and drinking areas. Especially in the winter will support a variety of plant and animal species. Information Sources •Topographical Map. •Thermography. •Hydrological surveys conducted by Conservation Authorities and MOECC. •Field Naturalists Clubs and landowners. •Municipalities and Conservation Authorities may have drainage maps and headwater areas mapped	Studies confirm: •Presence of 5 or more nesting Midland Painted Turtles. •One ore more Northern Map Turtles or Snapping Turtles nesting is a SWH. •The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30 to 100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. •Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30 to 100 m area of habitat. •Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. •SWH MIST Index #28 provides development effects and mitigation measures for turtle nesting habitat. Field studies confirm: •Presence of a site with 2 or more seeps/springs should be considered SWH. •The area of an ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and ground water condition need to be considered in delineation the habitat •SWH MIST Index #30 provides development effects and mitigation measures	Habitat criteria not met. Not observed during field evaluations in proximity to the valley edge.

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
Amphibian Breeding Habitat (Woodland). **Rationale**: These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	•Presence of a wetland, pond or woodland pool (including vernal pools) >500 m2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. •Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat. Information Sources •Ontario Herpetofaunal Summary Atlas (or other similar atlases) for records •Local landowners may also provide assistance as they may hear spring-time choruses of amphibians on their property. •OMNRF Districts and wetland evaluations •Field Naturalist clubs •Canadian Wildlife Service Amphibian Road Call Survey •Ontario Vernal Pool Association: http://www.ontariovernalpools.org	Studies confirm: •Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or egg masses) or 2 or more of the listed frog species with Call Level Codes of 3. •A combination of observational study and call count surveys will be required during the spring (Mar.-Jun.) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands •The habitat is the wetland area plus a 230m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. •SWH MIST Index #14 provides development effects and mitigation measures	No woodland breeding vernal pools ponds observed during numerous site visits conducted.
Amphibian Breeding Habitat (Wetlands) **Rationale**: Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	ELC Community Classes SW, MA, FE, BO, OA and SA. Typically these wetland ecosites will be isolated (>120 m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g. Bullfrog) may be adjacent to woodlands.	•Wetlands >500m2 (about 25m diameter), supporting high species diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats •Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators •Bullfrogs require permanent water bodies with abundant emergent vegetation. Information Sources •Ontario Herpetofaunal Summary Atlas (or other similar atlases) •Canadian Wildlife Service Amphibian Road Surveys and Backyard Amphibian Call Count. •OMNRF Districts and wetland evaluations. •Reports and other information available from Conservation Authorities	Studies confirm: •Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant •The ELC ecosite wetland area and the shoreline are the SWH •A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. •If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. •SWH MIST Index #15 provides development effects and mitigation measures	While Low calling levels of (L1/ L2) Gray Tree Frog, Northern Leopard Frog and Green Frogs where observed during site visits conducted, the abundance of individuals recorded do not indicate the presence of significant amphibian habitat as defined in the SWH Criteria. Furthermore, it is anticipated that the small pond likely freezes to the bottom in severe winters, resulting in mortality of burrowing frogs. **For this reason, the pond is considered an ecological "sink" vs productive dispersion habitat.**
Woodland Area - Sensitive Bird Breeding Habitat	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula	All Ecosites associated with these ELC Community Series: FOC, FOM, FOD, SWC, SWM, SWD	•Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs old) forest stands or woodlots >30 ha	Studies confirm: •Presence of nesting or breeding pairs of 3 or more of the listed wildlife species.	**Candidate** Eastern Wood-pewee was noted as a probable breeder in the incised

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
Rationale: Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds	Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker Special Concern: Cerulean Warbler Canada Warbler		•Interior forest habitat is at least 200 m from forest edge habitat <u>Information Sources</u>: •Local birder clubs. •Canadian Wildlife Service (CWS) for the location of forest bird monitoring. •Bird Studies Canada conducted a 3-year study of 287 woodlands to determine the effects of forest fragmentation on forest birds and to determine what forests were of greatest value to interior species •Reports and other information available from Conservation Authorities.	•Note: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH •Conduct field investigations in spring and early summer when birds are singing and defending their territories •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #34 provides development effects and mitigation measures HABITATS OF SPECIES OF CONSERVATION CONCERN	channel and will be protected.
Habitat for Species of Conservation Concern (Not including Endangered or Threatened Species)					
Marsh Breeding Bird Habitat **Rationale**: Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	American Bittern Virginia Rail Sora Common Gallinule American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan Special Concern: Black Tern Yellow Rail	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 For Green Heron: all SW, MA and CUM1 sites	•Nesting occurs in wetlands. •All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present •For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water <u>Information Sources</u> •OMNRF District and wetland evaluations. •Field Naturalist clubs •Natural Heritage Information Centre (NHIC) Records. •Reports and other information available from Conservation Authorities. •Ontario Breeding Bird Atla	Studies confirm: •Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species •Note: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH •Area of the ELC ecosite is the SWH. •Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #35 provides development effects and mitigation measures	Pond is very small with limited shallow water (choked by cattails). Marsh birds were not heard during evening Amphibian surveys or early Dawn Breeding Bird surveys.
Open Country Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow Special Concern: Short-eared Owl	CUM1 CUM2	•Large grassland areas (includes natural and cultural fields and meadows) >30 ha •Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e. no row cropping or intensive hay or livestock pasturing in the last 5 years) •Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older. •The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species <u>Information Sources</u> •Agricultural land classification maps, Ministry of Agriculture. •Local bird clubs. •Ontario Breeding Bird Atlas	Field studies confirm: •Presence of nesting or breeding of 2 or more of the listed species •A field with 1 or more breeding Short-eared Owls is to be considered SWH •The area of SWH is the contiguous ELC ecosite field areas •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #32 provides development effects and mitigation measures	Habitat criteria not met

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
			•EIA/EIS Reports and other information available from Conservation Authorities		
Shrub/Early Successional Bird Breeding Habitat **Rationale:** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	Indicator Species: Brown Thrasher Clay-coloured Sparrow Common Species: Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher Special Concern: Yellow-breasted Chat Golden-winged Warbler	CUT1, CUT2, CUS1, CUS2, CUW1, CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species	•Large field areas succeeding to shrub and thicket habitats >10 ha in size •Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e. no row-cropping, haying or live-stock pasturing in the last 5 years) •Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species •Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands <u>Information Sources</u> •Agricultural land classification maps, Ministry of Agriculture. •Local bird clubs. •Ontario Breeding Bird Atlas •Reports and other information available from Conservation Authorities	Field studies confirm: •Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species •A habitat with breeding Yellow-breasted Chat or Goldenwinged Warbler is to be considered as Significant Wildlife Habitat •The area of the SWH is the contiguous ELC ecosite field/thicket area. •Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories •Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects" •SWH MIST Index #33 provides development effects and mitigation measures	Habitat criteria not met
Terrestrial Crayfish **Rationale**: Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	Chimney or Digger Crayfish; (Fallicambarus fodiens) Devil Crayfish or Meadow Crayfish; (Cambarus diogenes)	MAM1, MAM2, MAM3, MAM4, MAM5, MAM6, MAS1, MAS2, MAS3, SWD, SWT, SWM CUM1 with inclusions of above meadow marsh ecosites can be used by terrestrial crayfish	•Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for terrestrial crayfish •Constructs burrows in marshes, mudflats, meadows, the ground can't be too moist. Can often be found far from water •Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well-formed. <u>Information Sources</u> •Information sources from "Conservation Status of Freshwater Crayfishes" by Dr. Premek Hamr for the WWF and CNF, March, 1998	Studies confirm: •Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites •Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH •Surveys should be done April to August in temporary or permanent water. Note the presence of burrows or chimneys are often the only indicator of presence, observance or collection of individuals is very difficult •SWH MIST Index #36 provides development effects and mitigation measures	Habitat criteria not met
Special Concern and Rare Wildlife Species **Rationale**: These species are quite rare or have experienced significant population declines in Ontario.	All Special Concern and Provincially Rare (S1, S2, S3, SH) plant and animal species. Lists of these species are tracked by the NHIC	All plant and animal element occurrences (EOs) within a 1 km or 10 km grid. Older EOs were recorded prior to GPS being available, therefore location information may lack accuracy.	•When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC Ecosites <u>Information Sources</u> •Natural Heritage Information Centre (NHIC) will have Special Concern and Provincially Rare (S1-S3, SH) species lists with element occurrences data. •NHIC Website "Get Information": http://nhic.mnr.gov.on.ca •Ontario Breeding Bird Atlas	Studies confirm: •Assessment/inventory of the site for the identified special concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. •The area of the habitat to the finest ELC scale that protects the habitat features and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a	**Confirmed** Presence of Eastern Wood-pewee was noted on a single visit as discussed in Section 4.2.4

Ecoregion 7E Wildlife Habitat	Wildlife Species	Candidate SWH		Confirmed SWH	Assessment of Habitat in EIA Study Area
		ELC Ecosite Codes	Habitat Criteria and Information Source	Defining Criteria	
			•Expert advice should be sought as many of the rare spp. Have little information available about their requirement	species e.g. specific nesting habitat or foraging habitat. •SWH MIST Index #37 provides development effects and mitigation measures	
Animal Movement Corridors					
Amphibian Movement Corridors Rationale: Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely important for local populations.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1	•Movement corridors between breeding habitat and summer habitat •Movement corridors must be determined when amphibian breeding habitat is confirmed as SWH (Amphibian Breeding Habitat, Wetland) <u>Information Sources</u> •MNRF District Office. •Natural Heritage Information Centre (NHIC). •Reports and other information available from Conservation Authorities. •Field Naturalist Clubs	•Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites •Corridors should consist of native vegetation, with several layers of vegetation. Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant •Corridors should have at least 15m of vegetation on both sides of waterway or be up to 200m wide of woodland habitat and with gaps	Amphibian migrations or movement were not observed along the open fields or along the disturbed hedgerow rows connected to the valley during numerous site visits conducted. While frogs may disperse from the adjacent valley woodland areas, the pond has not been confirmed as a significant breeding pond through the surveys completed. There are no other identified features (breeding, upland habitats on the west side of the property or west adjacent lands that would suggest significant movement corridors.
Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 7E					
7E-2 **Bat Migratory Stopover Area** **Rationale**: Stopover areas for long distance migrant bats are important during fall migration	Hoary Bat Eastern Red Bat Silver-haired Bat	No specific ELC types.	• Long distance migratory bats typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information. <u>Information Sources</u> • OMNRF for possible locations and contact for local experts • University of Waterloo, Biology Department	• Long Point (42°35'N, 80°30'E, to 42°33'N, 80°03'E) has been identified as a significant stop- over habitat for fall migrating Silverhaired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration. • The confirmation criteria and habitat areas for this SWH are still being determined. • SWH MIST Index #38 provides development effects and mitigation measures	Criteria not met. The site is located in ecodistrict 7E-4.

Appendix E Limits and Significance of Welands Memorandum

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

SLR Consulting (Canada) Ltd.
200-300 Town Centre Boulevard, Markham, ON L3R 5Z6

Markham Office Number: 905 415 7248

February 17, 2023

Memorandum

To: Cam Smith
Tridel / Delmanor West Oak Inc.

From: Michael Roy, SLR Consulting

cc::

Subject: LIMITS AND SIGNIFICANCE OF WETLANDS WITHIN THE SUBJECT PROPERTY LOCATED AT 1280 DUNDAS ST. WEST, TOWN OF OAKVILLE

The purpose of this technical memorandum is to address the issue raised by staff from the Region of Halton regarding the limits and significance of wetlands on the property located at 1280 Dundas St. West in the Town Oakville.

SLR Consulting (Canada) Ltd. (SLR) was retained by Delmanor West Oak Inc. to undertake an Environmental Impact Study (EIS) in support of a Zoning By-law Amendment (ZBA) for a proposed transitional retirement facility on lands located 1280 Dundas St. W. and Fourth Line in the Town of Oakville (the Town). Accordingly, an EIS was prepared in September 2020 as part of a zoning by-law amendment (ZBA) application and updated in 2022 as part of a second submission. The purpose of the EIS was to review the proposed ZBA application and the conceptual Site Plan in the context of the Town of Oakville Official Plan (2016) the Region of Halton Official Plan (Interim Office Consolidation November 10, 2021) and applicable provincial policies including section 2.1 of the Provincial Policy Statement (PPS) (MMAH, 2020).

The EIS did not identify any wetlands on or adjacent to the subject property. The EIS identified a remnant agricultural pond on the property in the northwestern quadrant of the site. As part of the EIS field data collection and issues identification steps, this pond was the subject of investigation and a period of consultation with representatives of Conservation Halton (CH). Based on the evidence provided by SLR ecologists in the fall of 2019, CH confirmed in January 2020 that the remnant agricultural pond would not be regulated. The EIS addressed the pond's functions and the potential impacts associated with its proposed removal as contemplated in the ZBA application and the related conceptual site plan.

Comments received from the Region of Halton through the ZBA application process, and a subsequent Ontario Land Tribunal (OLT) mediation process requested additional supporting information regarding the presence of wetlands on the subject property. The following discussion summarizes the findings of the EIS that no wetlands occur on the property while providing additional background on the remnant agricultural pond's history and relatively recent condition of no longer containing open water.

Site History

A series of historical aerial photographs were obtained by Geo Morphix (2021) as part of the erosion hazard and mitigation assessment for the property. Historical aerial photographs from 1934 (1:20,000), 1954 (1:15,840), 1965 (1:20,000), 1974 (1:25,000), 1978 (1:10,000), and 1985 (1:40,000) from the Ministry of Natural Resources and National Air Photo Library as well as recent satellite imagery from Google Earth Pro were reviewed to determine changes to the channel and surrounding land use and land cover. This information, in part, also provides an understanding of the historical factors that contributed to the creation and condition of the on-site remnant agricultural pond and is summarized below in Table 1.

Table 1. Historical Factors That Contributed to The Creation and Condition of The On-Site Remnant Agricultural Pond

Aerial Photo Date	Observations
1934	Pond is absent. Drainage features in a northwest to southeast orientation coming from upstream actively cultivated areas. The central ravine with a narrow woody riparian buffer was apparent although the pond does not exist. Residential development is visible on the site.
1954	The pond is present on site and was constructed sometime between 1934 and 1954. The inflow source for the constructed pond is not discernable. A surface water connection through a narrow-woodland feature is evident but it is not apparent if flows travelled above or below grade.
1965	Pond exists. The Dundas Street Bridge over Sixteen Mile Creek had expanded from two lanes to four lanes between 1954 and 1965. The driveway access off Dundas Street was also relocated further west, likely to accommodate the bridge widening.
1974	Pond exists. Image suggests that the drainage feature in the field north of Dundas Street West that may have historically fed the pond was directed to a roadside ditch on the north side of Dundas Street West and permanently redirected east to Sixteen Mile Creek.
1978	Pond is present. Construction was underway to widen Dundas Street West from two lanes to four lanes on either side of Sixteen Mile Creek.
1985	Pond is present. Despite the expansion of linear infrastructure, overall land use changes within and around the property were relatively limited between 1954 and 1985 and vegetation within and around the pond feature became increasingly established.

Recent Condition and Changes in the Pond Environment

Between 1985 and May 2013 the open water pond retains the same shape and the extent of surrounding upland vegetation also remains relatively the same. In 2004, one of the rural residential buildings within the subject lands was removed. At this time, the vegetation buffer spanning from the pond to the central ravine was reduced, which was presumably associated with the building removal process. It is clear during this time that the pond outflows were directed through an underground culvert to the central ravine channel.

By October 2014 and through to 2015, the open water area of the pond appears to shrink as vegetation encroachment is evident from the margins inward toward the centre to from a "V" shape of open water that occupies approximately one third the original pond surface. This likely indicates the effects of a change in surface water in flow and/or a purposeful draining of the pond had occurred sometime prior and the absence of groundwater recharge.

By April 2016, the remaining barn structure was removed while the open water portion of the pond remained similar to the previous year. September and October 2016 Google imagery indicates the open water portion of the pond had disappeared or dried. By May 2018 open water occupied approximately 10% of the pond area and cattails (*Typha latifolia*) and Reed Canary Grass (*Phalaris arundinacea*) had become well established along the pond floor (Photo 1). In June 2018 through to October 2022, evidence of open water is scarce to absent in the pond. This indicates a change in water inflow and/or a purposeful draining of the pond that continued to exert an influence on the succession of the pond environment toward a drier habitat during this period.

Photo 1. March 2018 – Shallow standing water amongst recently established vegetation. Note constructed berms are clearly evident in the background.

Pond Characteristics and Functions

The former remnant agricultural pond has an approximate surface area of 0.9 ha (900 m^2). The absence of standing water experienced over the past five years reveals clear evidence the remnant agricultural pond is surrounded by steep sided banks and that it is a purposefully constructed depression historically (prior to 1954) created by excavation and likely stock piling of spoil material. Standing water was likely maintained in this pond over most of its existence by impounding water behind a constructed outflow pipe. From 2018 and onward, obstruction of the out-flow pipe had been removed and the outflow pipe was observed to be dry and elevated above the pond floor.

In 2018, SLR installed a mini-piezometer in the remnant agricultural pond to investigate the shallow groundwater / surface water interaction within this feature for a duration of six months. Periodic groundwater elevations within this feature were obtained to determine whether the remnant agricultural pond receives seasonal groundwater contributions and assess its function on the landscape. The results of this investigation revealed the absence of groundwater contributions into the feature.

A CCTV investigation of the remnant agricultural pond outlet culvert and subterranean drain was completed in fall 2019 to investigate connection between this feature and the incised draw feature in the centre of the Site. The investigation revealed that the outlet pipe was blocked in at least two locations; one in the upper section and one closer toward the outlet. This feature is no longer able to / does not contribute water toward the incised draw as it likely did for decades prior when it contained water. Therefore, it is an isolated feature on the landscape. This is one of the primary reasons why CH determined that the remnant agricultural pond would not be regulated.

Suitable available habitat for amphibians is limited on site and was determined on-site to include the remnant agricultural pond and Glenayr Creek crossing in the adjacent cemetery as well as the Sixteen Mile Creek valley north of the site. During the 2018 field season, four frog species were detected calling from within the remnant agricultural pond including Spring Peepers (L2[1] - 6 individuals), Gray Tree Frog (L2 – 5 individuals), Northern Leopard Frog (L1 – 3 individuals) and Green Frogs (L2 – 5 individuals). Based on these species and the relatively low calling levels observed during site visits, the abundance of individuals recorded do not indicate the presence of significant amphibian habitat as defined in the provincial Significant Wildlife Habitat Criteria Criterion Schedules for Ecoregion 7E (OMNRF, 2015). These low numbers could also reflect that these are individuals dispersing from other sites and that breeding is not successful at this location. Furthermore, it is anticipated that the isolated shallow standing water in this feature likely freezes to the bottom in severe winters, resulting in mortality of any burrowing frogs (if present). For this reason, the remnant agricultural pond is considered an ecological "sink" rather than productive dispersion habitat, meaning outflow contributions and wildlife dispersal from the feature are limited and the quality of the habitat present is low.

[1] Calling evidence recorded on a scale of L0-L3 and interpreted as follows:

- L0 – No calling
- L1 – Individuals can be accurately counted; calls do not overlap
- L2 – Some calls overlap, number of individuals can be estimated
- L3 – Calls continuous and overlapping, individuals not distinguishable

Conclusion

As a result of the past changes in upstream flow contributions, the termination of purposeful water retention and the existing disconnect with the downstream incised draw and clear anthropogenic origin evident through the air photo analysis, the remnant agricultural pond is best characterized as an isolated constructed depression on the landscape. While wetland affiliated plant species such as cattails and Reed Canary Grass have recently become established across much of the feature's bottom, these species have opportunistically become established in the absence of deeper open water being maintained, much the same way they commonly occupy the margins of natural ponds and constructed stormwater ponds. Their presence should not be interpreted as meaning the feature is a wetland, but rather an indication that in relatively short period of time between 2014 and 2018 and toward the present, the remnant agricultural pond has rapidly undergone a change in its soil moisture regime and is undergoing succession toward a drier community. In the continued absence of upgradient flow contributions and water management, it is anticipated that this feature will soon become a drier meadow habitat depression on the landscape.

In conclusion, the remnant agricultural pond is not wetland and therefore it does not form part of the Regional Natural Heritage System (NHS) per ROP policy 115.3(6) which cites wetlands other than those considered significant as being a component of the NHS.

Appendix F Presence and Limits of Significant Wildlife Habitat Memorandum

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

SLR Consulting (Canada) Ltd.
200-300 Town Centre Boulevard, Markham, ON L3R 5Z6

Markham Office Number: 905 415 7248

February 17, 2023

Memorandum

To: Cam Smith
Tridel / Delmanor West Oak Inc.

From: Michael Roy, SLR Consulting

cc::

Subject: PRESENCE AND LIMITS OF SIGNIFICANT WILDIFE HABITAT WITHIN THE SUBJECT PROPERTY LOCATED AT 1280 DUNDAS ST. WEST, TOWN OF OAKVILLE

The purpose of this technical memorandum is to address the issue raised by staff from the Region of Halton regarding the presence and limits significant wildlife habitat (SWH) within the property located at 1280 Dundas St. West in the Town Oakville.

SLR Consulting (Canada) Ltd. (SLR) was retained by Delmanor West Oak Inc. to undertake an Environmental Impact Study (EIS) in support of a Zoning By-law Amendment (ZBA) for a proposed transitional retirement facility on lands located 1280 Dundas St. W. and Fourth Line in the Town of Oakville (the Town). Accordingly, an EIS was prepared in September 2020 as part of a zoning by-law amendment (ZBA) application and updated in 2022 as part of a second submission. The purpose of the EIS was to review the proposed ZBA application and the conceptual Site Plan in the context of the Town of Oakville Official Plan (2016) the Region of Halton Official Plan (Interim Office Consolidation November 10, 2021) and applicable provincial policies including section 2.1 of the Provincial Policy Statement (PPS) (MMAH, 2020).

As part of the analysis performed during the preparation of the EIS, two candidate SWH components (Woodland Area-Sensitive Bird Breeding Habitat and Bat Maternity Colonies) and one confirmed SWH component (Special Concern and Rare Wildlife Species - Eastern Wood-peewee) were identified within the property.

Comments received from the Region of Halton through the ZBA application process, and a subsequent Ontario Land Tribunal (OLT) mediation process requested additional supporting information regarding the presence and limits of significant wildlife habitat (SWH) within the subject property. The following discussion summarizes the findings of the EIS and clarifies statements within the original EIS regarding the presence of SWH within the subject property.

Significant Wildlife Habitat

The significance of an area as wildlife habitat is often difficult to appropriately determine at the site-specific level, as the assessment must incorporate information from a wide geographic area and consider other factors such as regional resource patterns and landscape effects. This is why, under the PPS, the

planning authorities have the responsibility to identify and designate Significant Wildlife Habitat. Significant Wildlife habitat significance includes:

- Seasonal concentration areas (e.g., conifer forests for deer wintering);
- Rare vegetation communities or specialized habitats for wildlife;
- Habitats of species of conservation interest, excluding the habitats of endangered and threatened species which are protected under the 2020 PPS and 2007 ESA); and
- Animal movement corridors.

Using criteria outlined in the provincial Significant Wildlife Habitat Criteria Criterion Schedules for Ecoregion 7E (OMNRF, 2015) and the guidance provided in the Natural Heritage Reference Manual (MNRF, 2010), no candidate SWH was identified for the tableland areas based on a review of secondary source material and/or confirmed through targeted field studies, while two candidate SWH components (Woodland Area-Sensitive Bird Breeding Habitat and Bat Maternity Colonies) and one confirmed SWH component (Special Concern and Rare Wildlife Species - Eastern Wood-peewee) were identified within the property. These SWH components were identified in the adjacent wooded valleylands associated with Glenayr Creek and the adjacent Sixteen Mile Creek valley lands as well as the densely treed portions of the incised draw based on its connection to these other valley features. The full SWH assessment table can be found in Appendix D of the EIS and appended here for ease of reference.

Protection of these features through the application of vegetation and slope stability buffers and setbacks to the Sixteen Mile Creek and Glenayr Creek valleylands and the incised draw should also protect and maintain the SWH identified within them.

The original version of the EIS contained a discussion on Amphibian Breeding Habitat SWH being present within the property in the remnant agricultural pond. This determination was erroneously based on an extrapolation of the number of individuals present. During the 2018 field season, four frog species were detected calling from within the remnant agricultural pond including Spring Peepers (L2[1] - 6 individuals), Gray Tree Frog (L2 – 5 individuals), Northern Leopard Frog (L1 – 3 individuals) and Green Frogs (L2 – 5 individuals).

The data evaluation methods employed suggested that for every male there is assumed one female and therefore numbers likely exceed 20 individuals for the species recorded. While this is not a standard method of analysis, a closer review of the data collected by SLR ecologists in 2018 reveals the number of individuals (abundance) of each species recorded was between 3 and 6. This means that even using the non-standard extrapolation method, none of the species would have been present in numbers even approaching 20 and therefore do not indicate the presence of significant amphibian habitat as defined in the provincial Significant Wildlife Habitat Criteria Criterion Schedules for Ecoregion 7E (OMNRF, 2015). These low numbers could also reflect that these are individuals dispersing from other sites and that breeding is not successful at this location. Furthermore, it is anticipated that this small shallow pond likely freezes to the bottom in severe winters, resulting in mortality of burrowing frogs. For this reason, the pond is considered an ecological "sink" rather than productive dispersion habitat, meaning outflow contributions and wildlife dispersal from the feature are limited and the quality of the habitat present is low.

[1] Calling evidence recorded on a scale of L0-L3 and interpreted as follows:

- L0 – No calling
- L1 – Individuals can be accurately counted; calls do not overlap
- L2 – Some calls overlap, number of individuals can be estimated
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Appendix G Stormwater Outfall Location and Impact Assessment Memorandum

Environmental Impact Study (Rev 2) in Support of a Zoning By-law Amendment

Delmanor West Oak Inc.

SLR Project No. 209.V40574

April 13, 2023

SLR Consulting (Canada) Ltd.
200-300 Town Centre Boulevard, Markham, ON L3R 5Z6

Markham Office Number: 905 415 7248

February 17, 2023

Memorandum

To: Cam Smith
Tridel / Delmanor West Oak Inc.

From: Michael Roy, SLR Consulting

Reviewed By: David Stafford, P.Eng.,
R.V. Anderson Associates Limited

cc::

Subject: STORMWATER OUTFALL LOCATION AND IMPACT ASSESSMENT FOR THE SUBJECT PROPERTY LOCATED AT 1280 DUNDAS ST. WEST, TOWN OF OAKVILLE

The purpose of this technical memorandum is to address the issue raised by staff from the Region of Halton regarding the selection of the stormwater outfall location and its potential impact on the receiving ravine feature and associated Natural Heritage System (NHS) at 1280 Dundas St. West in the Town Oakville.

SLR Consulting (Canada) Ltd. (SLR) was retained by Delmanor West Oak Inc. to undertake an Environmental Impact Study (EIS) in support of a Zoning By-law Amendment (ZBA) for a proposed transitional retirement facility on lands located at 1280 Dundas St. W. and Fourth Line in the Town of Oakville (the Town). Accordingly, an EIS was prepared in September 2020 as part of a zoning by-law amendment (ZBA) application and updated in 2022 as part of a second submission. The purpose of the EIS was to review the proposed ZBA application and the conceptual Site Plan in the context of the Town of Oakville Official Plan (2016) the Region of Halton Official Plan (Interim Office Consolidation November 10, 2021) and the applicable provincial policies including section 2.1 of the Provincial Policy Statement (PPS) (MMAH, 2020).

R.V. Anderson Associates Limited (RVA) was retained by the Owner to prepare a Functional Servicing and Stormwater Management Study (FS+SWMS) in support of a Zoning By-Law Amendment (ZBA). Accordingly, an FS+SWMS report was prepared by RVA (December 21, 2021) in reference to Stormwater servicing criteria set by the Town of Oakville Development Engineering Procedures & Guidelines Manual and the stormwater management requirements and policies listed in "Conservation Halton Guidelines for Stormwater Management Engineering Submissions" manual to mitigate the impacts of the Site redevelopment on the receiving waters.

Stormwater Management Summary

The existing Site drainage can generally be divided into four (4) drainage catchment areas and three drainage outlets. These are generally described as follows:

i. Catchment A: Drainage overland (minor and major events) which outlets to the West Valley Feature (WVF) (Outlet P1) located along the south limits of the Site. The West Valley Feature

protrudes into the Site as a drainage draw and has been identified as an environmental feature. This drainage feature continues generally in a south direction where it conveys drainage to Glenayr Creek which is a tributary to Sixteen Mile Creek.

ii. Catchment B: Drainage overland (minor and major events) towards an existing basin/remnant agricultural pond located at the north end of the site adjacent to the Fourth Line ROW. This pond basin catchment was not considered to contribute appreciable surface runoff to the WVF even during major storm events as its outlet pipe was determined to be blocked or abandoned following a CCTV investigation in 2019.

iii. Catchment C: Drainage overland (minor and major events) which outlets to the South West Valley (SWV) located at the southwest corner of the Site (Outlet P3). Runoff down this valley flows into Glenayr Creek and ultimately continues in an easterly direction converging with drainage from the West Valley Feature downstream where it ultimately discharges to Sixteen Mile Creek.

iv. Catchment D: Drainage overland (minor and major events) with drainage conveyed towards Fourth Line along the eastern permitter of the Site (Outlet P2).

The site redevelopment requires the implementation of stormwater management (SWM) to mitigate the impacts of the development on the environment. The SWM measures employed must include controls to limit peak discharge rates to predevelopment conditions, treat stormwater to achieve water quality targets (80% TSS removal) and measures to control the volume of average annual runoff (water balance) if released to a natural receiving waterbody is required.

Stormwater Management Alternatives Considered

Alternative stormwater management solutions and methods were considered in the development of the and FS+SWMS report. These included:

1. Using adjacent storm sewers on Dundas Street West and Fourth Line: A review of invert depths and size of the Fourth Line sewer revealed that it is not at a suitable depth that would facilitate a piped connection from the site. Furthermore, a review of the capacity of these systems determined they were not designed to accept drainage from the Site and therefore the municipal minor storm sewer system located within the Fourth Line ROW is not a suitable storm drainage outlet for the entirety of the Site. For this reason, and based on the existing Site generally draining to the south into a defined environmental feature which is also a drainage draw known as the West Valley Feature, an alternative stormwater management plan is required within the site.
2. Using the Regional storm sewer within Dundas: The Fourth Line storm sewer ultimately connects to a Regional storm sewer located within Dundas Street. This Regional storm sewer discharges to Sixteen Mile Creek. Similar to the Fourth Line storm sewer, the Regional storm sewer within Dundas Street is of insufficient depth to facilitate a piped storm connection from the site. With respect to sewer capacity, the Dundas Street storm sewer was not designed to consider the subject site as a catchment. Furthermore, in general, the Region would not accept a direct storm connection from a private site.

For this reason, and based on the approximately 81.5% of the existing Site generally draining to the south into a defined environmental feature which is also a drainage draw known as the West Valley Feature, an alternative stormwater management plan is required within the site.

On-site Stormwater Management Alternative Considered

1. Using Low Impact Development (LID) techniques: LIDs will be used in catchment areas C & D. Generally, the catchment areas draining to these outlets are primarily comprised of landscaped

surfaces. For these areas, storm drainage using surface swales and LID measures would be employed with the goal to eliminate the need for a piped outfall. Hard surfaces, such as pathways or small patio areas, within these areas would sheet drain to pervious landscaped surfaces and swales. In some cases, culverts may be needed to allow drainage swales to pass under a pathway but, buried on-site sewers would be avoided for these areas. Swales would be directed toward the proposed LID infrastructure such as bio-retention swales and/or soakaway pits. Grading design to allow runoff to discharge as sheet overland drainage to the existing Fourth Line and South West Valley outlets (P2 and P3 respectively) in a more natural overland manner to eliminate the need for a piped outfall will be investigated as the project evolves throughout the Site Plan Approval Stage of the project.

2. **Designing the building to employ roof scuppers with downspouts that discharge to the ground surface:** The configuration of the building requires roof drain piping to be run within the building and interconnect to pipes which must discharge below grade. In that regard, it is noted that designing the building to employ roof scuppers with downspouts that discharge to the ground surface is undesirable from a building design perspective, but would also represent a hazard of freezing ice during winter months, considering the building use and the walkways and amenity areas surrounding the building.
3. **Capture, detention and retention of storm flow and discharge to a natural receiving water body:** As previously stated, approximately 81.5% of the existing Site generally drains to the south into a West Valley Feature (WVF). The configuration of the proposed development requires a relatively large parking lot and associated internal roadways and driveways. With respect to stormwater rate control, the Town of Oakville requires stormwater detention during frequent storm events to be housed below grade. Consequently, a SWM plan was developed to capture, detain and retain storm flow from within the site and discharge to a natural receiving water body.

Proposed Stormwater Management Plan

In consideration of the above targets and constraints, a SWM plan was developed that employed surface runoff via naturalized swales or a sheet runoff over pervious surface areas, where those opportunities were presented. Alternative SWM methods were considered, such as the implementation of pervious paving techniques, however best practice for these types of approaches would still require an overflow relief for larger storm events.

For the protection of fish and fish habitat in the downstream receiving bodies of Sixteen Mile Creek and Glenayr Creek, water quality control objectives of enhanced (80%) TSS removal and erosion control will be utilized at this Site. Therefore it was determined that the drainage of the more urbanized impervious areas (i.e., parking lots and internal roadways) would be best served through the employment of catchbasins to capture stormwater and convey it to underground storage (as required by the Town) consisting of two sub-surface modular stormwater tanks (SWM Facility #1 and SWM Facility #2) where it could be infiltrated into the ground and, for larger storm events, released at a controlled rate to a natural receiving waterbody. SWM facilities will be located below the main centralized parking lot. This approach of buried stormwater management facilities and associated the outlet would also facilitate the required storm connections from the building.

Proposed Stormwater Outfall Alternatives Considered

Alternative Outfall Types

As described previously, consideration was given to the alternatives of a piped outlet versus conveyance channels (swales) to form a stormwater outlet versus an overland flow outlet. While a more dispersed

overland surface flow outlet would represent the most natural method of discharging to the drainage draw, it is not conducive to the purposeful SWM measures that must be implemented to collect convey and treat stormwater on a developed site. As a result, it was elected to employ more dispersed overland flow discharge where the opportunity to do so presented itself (in some of the previous areas that border the Site (portions of Catchments C & D).

Alternative Outfall Design

With respect to a piped versus swale type outlet, in order to address some of the constraints with respect to collecting buried piped stormwater discharge from the building, and the Town's requirement to detain stormwater below grade, a piped outlet at some locations could not be avoided.

Consequently, it was concluded that a piped outfall roughly in the same location as the existing piped outlet from the existing pond feature represented the most suitable approach to the outfall type and location to support the redevelopment of the Site.

Alternative Outfall Locations

Notwithstanding the physical constraints associated with a connection to the adjacent storm sewers, consideration must be given to existing drainage patterns. In that regard, conservation authorities will generally not support a diversion of drainage from its natural drainage path. As the surface drainage from the majority of the subject site currently drains to the WFV, this represents the most suitable outlet for drainage from the redevelopment site.

As previously stated, approximately 81.5% of the existing Site generally drains to the south into a West Valley Feature (WVF) and therefore represents the reasonable storm outlet for the Site. The Functional Servicing Report (FSR), prepared by RV Anderson and Associates, proposes to discharge treated stormwater (STM) at a controlled rate into the incised draw feature (WVF). Alternative locations for the release of this SWM discharge revealed the most preferred location was the location of an existing/historic piped discharge from the remnant overland pond positioned to the north, which at one time was part of a much large upstream catchment and conveyance system of stormwater into the WVF.

Alternative outfall locations into the WVF included discharging via a pipe to the area in the vicinity of the conveyance culvert over the Fourth Line walking trail and near just upstream of the WVF channels confluence with Glenayr Creek. Here, the gradient of the WFV is appreciably less than the majority of the upstream sections, although similar to the uppermost reach near the existing (and abandoned) outflow pipe. While piping and out-letting STM water to this location was determined to be feasible along either side of the WVF, potential impacts from construction would be quite substantial due to the extreme depth of the incised valley, the dominance of bedrock and the need to remove and disturb the intact mature woodland within the valley at this location.

In contrast, locating the STM outfall at the uppermost end of the WVF and potentially using the existing outfall pipe could be achieved with far fewer potential impacts from construction since the location is only a few metres below the tableland, occurs mainly in surficial overburden material (vs bedrock) and is positioned along the terminus of the significant woodland. In addition, it is anticipated that returning stormflow to this valley system will likely result in positive benefits to the Natural Heritage System as the small channel naturally recovers from a prolonged disruption in surface flow.

Geo Morphix (2021) determined that the natural drainage area to the incised draw has been largely reduced from the construction and improvements over time related to Dundas Street West. Also, the pipe that formerly directed discharge from the former agricultural pond to the incised draw feature is blocked in more than one location. The use of this incised draw feature to convey treated STM toward

Glenayr Creek will reinstate intermittent flow into the feature following the spring freshet and storm events of greater than 5 mm. It was stated by Geo Morphix (2021) that returning a portion of the flow to the feature would be beneficial to the downstream system since intermittent flow within this feature likely occurred when the upstream pond was larger and the connection (via surface or later via subsurface) was active. Further, SLR concurs with this position in that, while direct fish habitat is not anticipated to be created in this feature due to its steep gradient, benthic macroinvertebrates will likely become established in the interstitial voids created in the naturally occurring shale bed channel and the purposeful creation of step pools along the invert may prolong the discharge hydroperiod and promote the retention of standing water for use by wildlife.

For these reasons, locating the STM outfall at the uppermost end of the WVF and potentially using the existing outfall pipe was selected as the preferred alternative for this project.

Stormwater Management Design Considerations

A fluvial geomorphology assessment has been completed by Geo Morphix (2021) to support the detailed design of the proposed STM outfall, including establishing erosion thresholds of the receiving incised valley channel. The post-development outflows will be controlled to the erosion threshold determined by Geo Mophix up to the 5-year storm whereas in pre-development conditions they exceed the erosion threshold following the 2-year.

The outfall will consist of a pipe supported by a headwall positioned at the upstream end of the feature near its origin on the landscape. It is envisioned that the outfall will include the construction of a rock-lined plunge pool and additional rocky ramps along a portion of the draw length down gradient. Placement of the rock will be done in a manner that limits disturbance of the existing vegetation lining the feature's walls. While the extent of rock reinforcement and size of rock required will be determined at detailed design, it is anticipated that the rock material will become naturalized into the feature over time as herbaceous and woody vegetation naturally become re-established.

Potential Impacts During Construction and Mitigation

The construction of the STM outfall will likely require an open cut at the brow of the incised valley slope. While the details of this activity such as cut width, duration of construction and material storage and handling will be determined and addressed as part of the detailed design, the following discussion provides a general assessment of potential impacts and mitigation related to this activity.

Based on the conceptual design of the STM outlet, it is estimated that the open cut will require the removal of a small number of trees and shrubs within this work area. Fortunately, the location of the outfall coincides with the terminus of the incised valley feature and its associated woodland. Here, dominant vegetation likely requiring removal or root disturbance/injury consists of a few smaller trees including locust and one large mature Crack Willow tree. Protection of adjacent trees and refined tally of trees to likely be injured or removed and the required replacement compensation will be determined by the project arborist (Kuntz Forestry) as part of the Site Plan application process. Prior to construction, tree hoarding using protection fencing must be installed in accordance with the Arborist Report.

To reduce the potential for direct harm to birds and their nests (including Eastern Wood-pewee) in accordance with the Migratory Birds Convention Act (MCBA), 1994, tree or vegetation clearing shall be undertaken outside of the general nesting period for forest nesting migratory birds in this region (C2) as identified by Environment and Climate Change Canada (ECCC) (i.e., between April 1 and August 31) (ECCC 2019) MBCA.

Removal and loss of these trees are not considered an impact on the Region's NHS (Significant Woodland, Significant Valleyland and SWH) as they will be replaced with a suite of native woodland and edge tolerant species and, where possible, those naturally occurring within the Sixteen Mile Creek watershed. The Eastern Wood-pewee habitat (confirmed SWH) and candidate SWH components (Woodland Area-Sensitive Bird Breeding Habitat and Bat Maternity Colonies) occur within the larger FOD community positioned further downslope and in the Glenayr and Sixteen Mile Creek valleylands and, as such, are avoided by the construction of the preferred SWM outfall.

During construction, effective sediment and erosion control measures will be used to prevent the entry of sediment into incised draw valley and Glenayr Creek. Regular inspection of these measures to ensure they are functioning properly will be completed during construction and until re-vegetation has successfully been established. Additional environmental protection measures will be developed as part of the Site Plan and future detailed design.

Valley Slope Restoration

Upon completion of the STM outfall installation, the cut will be backfilled with engineered fill and top dressed using organic material and the slope replanted using a slope restoration planting program consisting of native woody vegetation and ground cover. While the details of the restoration will be determined as part of detailed design, it is envisioned that following compaction, the slope will be stabilized using bioengineering techniques including FILTREXX ® SILTSOXX or similar and planted with live stakes to keep the soil in place and prevent erosion. Compost should be applied and tilled in to provide the necessary organic component to the soil prior to seeding and restorative planting of woody vegetation.