Howard Bouffard Technical Report: Natural Heritage Assessment

for:

The Town of LaSalle

by:

LGL Limited
environmental research associates

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Name	Title	Signature
prepared by:		
Beverly Saunders, M.Sc., EP	Senior Land Use Planner	
reviewed by:		
Grant Kauffman, MES.	Senior Planning Ecologist, Vice-President Ontario Region	

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LGL Limited
environmental research associates
445 Thompson Drive, Unit 2
Cambridge, Ontario N1T 2K7
519-622-3300
cambridge@lgl.com
LGL Limited

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1.0 Introduction

LGL Limited (LGL) was retained by the Town of LaSalle to identify a natural heritage system for the Howard Bouffard Secondary Plan Area. LGL's scope of work was identified in collaboration with The Planning Partnership and the Town of LaSalle and included the following tasks:

1. Review existing information sources of natural heritage information (as of January 2023), including submitted Environmental Impact Assessments, applicable local planning documents, Essex Region Conservation Authority inventory reports and mapping, and provincial mapping and aerial photography;
2. Prepare a desktop Ecological Land Classification (ELC) of vegetation communities based on existing data sources;
3. Conduct a high-level field reconnaissance to confirm ELC communities;
4. Review the above information to identify individual natural heritage features subject to protection under the provincial and local policies;
5. Identify minimum buffers needed to protect identified natural heritage features and their ecological functions, in consideration of applicable policy;
6. Identify connectivity and restoration needs to ensure the protected features and their functions are maintained at a system level and in consideration of projected future development; and
7. Prepare recommended designation and overlay layers and provide policy comments to enable the protection of the identified natural heritage system.

This technical report presents the results of the natural heritage assessment and includes implementing policy and mapping recommendations.

1.1 Study Area

The Howard Bouffard study area (HBSA), as approved by Town of LaSalle Council on June 27th, 2024, is shown in Figure 1 and covers approximately 945 ha. It is located south and east of the Town of LaSalle Town Centre Boundary and is generally bound by Malden Road to the east, Normandy Street to the North, and the Town of LaSalle boundary line to the west. The southern boundary is located just south of the Vollmer Culture and Recreation Complex and Seven Lakes Golf Course.

Current land uses within the study area are primarily residential, agricultural, recreational, and natural areas. A large portion of the study area has been designated for residential development, with portions being located as Greenway System and the Vollmer Recreation District, as indicated in the Town of LaSalle Official Plan.

The HBSA natural areas include a mosaic of forests, agricultural lands, wetland pockets, and creeks/municipal drains containing an assortment of potential fish and wildlife habitat. Trails appear to be established throughout woodland areas, though the nature of the trails have not been confirmed.

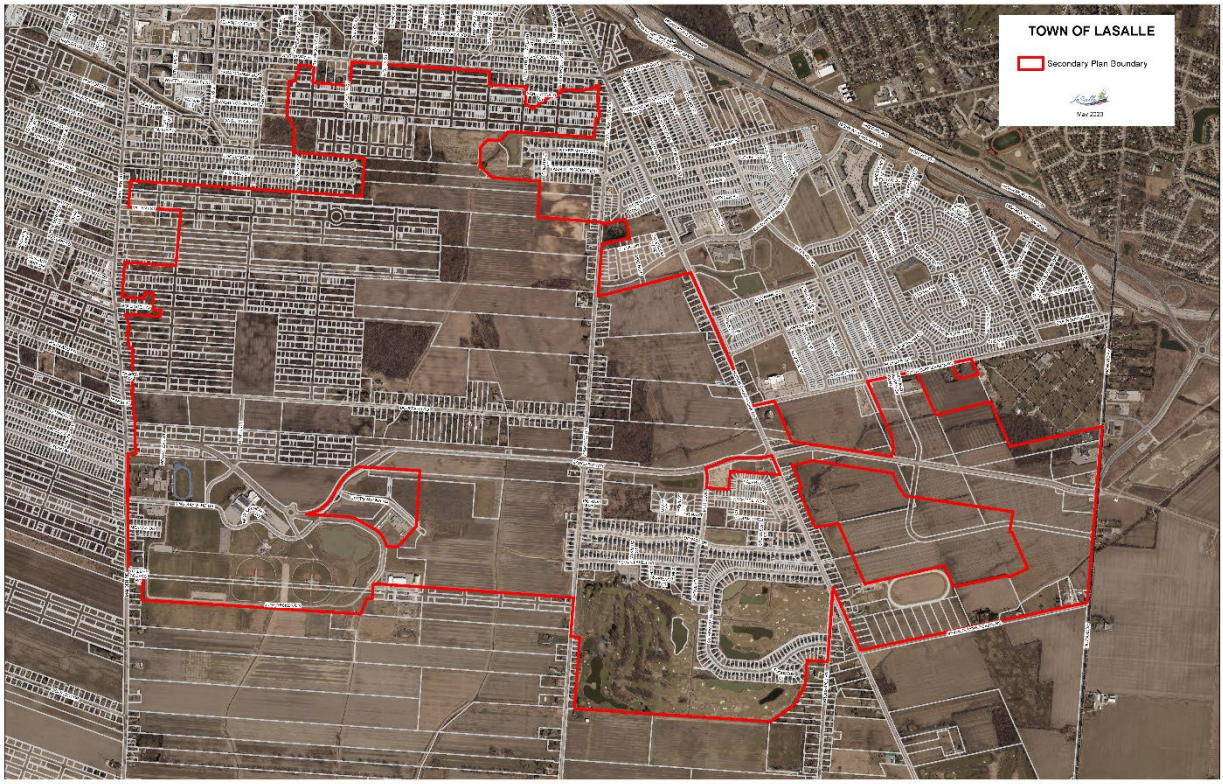


Figure 1: Howard Bouffard Study Area

2.0 Natural Heritage Policy Context

The HBSA is subject to provincial and local natural heritage policies under the *Planning Act*. LGL's approach to identifying the natural heritage system (NHS) and associated protection recommendations was developed to demonstrate conformity with the applicable policy context, including the Provincial Policy Statement, the County of Essex Official Plan, and the Town of LaSalle Official Plan. The natural heritage policy context within each of these documents is discussed below, along with a brief discussion of how this context was incorporated into LGL's natural heritage assessment approach.

2.1 Provincial Policy Statement

The Provincial Policy Statement (2020), hereby referred to as the PPS, is issued under Section 3 of the *Planning Act* and provides policy direction on matters of provincial interest related to environmental, economic, and social factors in land use planning. The policy statement includes a range of policies related to three main themes: building strong communities; wise use and management of resources; and protecting public health and safety.

According to Section 3(5) of the *Planning Act*, planning decisions made under the County of Essex Official Plan and the Town of LaSalle Official Plan shall conform with provincial plans and be consistent with the PPS.

The PPS generally directs development away from areas of natural and human-made hazards. The natural heritage policies contained in Section 2.1 of the PPS provide direction to municipalities regarding planning policies for the protection and management of natural heritage features and areas. Several natural heritage features and areas within ecoregion 7E (where the HSBA is located)[1] are protected under the PPS, including:

- significant wetlands and significant coastland wetlands, where development is prohibited;
- fish habitat and habitat of endangered species and threatened species where development is prohibited, except in accordance with provincial and federal legislation, as described in Appendix A (Applicable Legislation Summary); and
- significant woodlands, significant valleylands, significant wildlife habitat, significant areas of natural and scientific interest, and other coastal wetlands where development is prohibited, unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

The PPS also states that development and site alteration[2] is prohibited on lands adjacent to natural heritage features, unless it has been demonstrated that there will be no negative impacts on the adjacent natural features or their ecological functions.

LGL based our approach to NHS planning on conformity with the PPS in consideration of the Natural Heritage Reference Manual (2010). Specifically, LGL's approach was to:

1. Identify the provincially protected natural heritage features as "core features" and apply a minimum buffer for inclusion into a protective designation and zone;
2. Identify other natural features that may serve an ecological function to the core features and/or be a core feature and include them in an assessment overlay;
3. Identify linkage and restoration/enhancement areas that contribute to the maintenance of the core natural heritage features at a system level and include them in the restoration overlay; and
4. Recommend an environmental impact assessment and mitigation policy framework that would ensure the protection of the system when development is undertaken.

[1] https://files.ontario.ca/mnrf-ecosystemspart1-accessible-july2018-en-2020-01-16.pdf
[2] Development and site alteration have specific definitions in the PPS which include a variety of exceptions, including but not limited to infrastructure subject to the *Environmental Assessment Act.*

2.2 County of Essex Official Plan (2014)

The County of Essex Official Plan (2014), hereby referred to as the CEOP, identifies several protected natural heritage policy areas within HBSA, including:

- Lands designated “Natural Environment”, which are noted to include Provincially significant wetland or significant terrestrial features that are designated as a natural heritage feature in a local Official Plan, and features which meet specific criteria in the Essex Region Natural Heritage System Strategy or ERNHSS (see Schedule “A1” and “B1” in the CEOP).
- Lands subject to a “Natural Environment Overlay” which are noted to include lands adjacent to the “Natural Environment” designation that may contain fish habitat, significant woodlands, areas of natural and scientific interest, significant wildlife habitat, significant valleylands, and secondary priority features identified in the ERNHSS (see Schedule “B2” in the CEOP).
- Lands within a “High Priority Restoration Opportunity” overlay, as identified in the ERNHSS (see Schedule “B3” in the CEOP).

According to Section 3.4 of the CEOP, the Natural Environment Designation represents an area where development is not contemplated, and the Natural Environment and High Priority Restoration Overlays represent areas where restoration/ mitigation of impacts to natural features must be accommodated in development proposals. The CEOP further prescribes minimum buffers for some natural heritage features and encourages creation of connectivity within natural heritage systems, including along municipal drains.

LGL’s approach to ensuring conformity with the CEOP policies was to:

1. Ensure lands protected under the CEOP designations and overlays (which are not protected under the PPS) were reviewed and placed in either the proposed Environmental Protection Designation or Assessment/Restoration Overlay;
2. Ensure minimum buffers identified in the CEOP were met or exceeded and included in the Environmental Protection Designation; and
3. Review the overall NHS for the study area and identify where additional enhancements/linkages may be warranted, including near municipal drains.

2.3 Town of LaSalle Official Plan (2018)

The Town of LaSalle Official Plan (2018), herby referred to as the TLOP, includes language referring to the CEOP for natural heritage policies and associated schedules. The TLOP also introduces the Greenway System which includes existing and future potential trail systems for the area. The system is composed of natural corridors, core natural heritage sites, community/neighbourhood parks and other public open spaces; and linkages (natural or human-made). Section 3.2.2(r) of the TLOP requires development to incorporate the Greenway System, where applicable.

LGLs approach to conformity with the TLOP was to conform with the referenced CEOP policies and provide the proposed NHS to The Planning Partnership and the Town of LaSalle for consideration in the identification of the Greenway System. LGL also provided feedback on Urban Design Guidelines prepared by The Planning Partnership to ensure that the Greenway system does not result in impacts to the NHS.

3.0 Data Collection and Compilation

Information used to develop the NHS, as discussed in Section 4.0 of this report, was collected from background data sources and targeted field reconnaissance. Specifically, the data was from:

1. Desktop data sources including:
    - Essex Region Natural Heritage System Strategy, 2013
    - Town of LaSalle Candidate Natural Heritage Area Inventory, 2010
    - Essex Region Biodiversity Conservation Strategy, 2002
    - Environmental Impact Assessments (EIAs) prepared and submitted within the HBSA, as summarized in **Appendix B**;
    - Natural Heritage Information Centre mapping and occurrence records, including 2023 ortho photography, as maintained by MNRF; and
    - Essex Region Conservation Authority mapping.
2. Field surveys conducted on August 22, 23, 24, 2023 at locations throughout the HBSA, targeting lands where data gaps existed and/or aerial photography indicated changes to formerly identified vegetation communities.

The above materials were reviewed and inventoried to create a compilation of identified natural heritage information within the HBSA. This information is represented in Appendix B (Background Data Summary), Appendix C (Identified Wildlife List), Appendix D (SAR Species List), and Appendix E (Compiled ELC Vegetation Mapping) and is referenced, where applicable, within this report.

It should be noted that Appendix C and D should not be considered a complete inventory of all species at risk, wildlife, or associated habitat within the HBSA (only those currently identified through past studies). Furthermore, Appendix E represents a best approximation of vegetative communities from existing data and field reconnaissance, as all observations were made from public lands and no Permissions-to-Enter were obtained.

4.0 Natural Heritage System Analysis

LGL's approach to the NHS identification in the study area is informed by the policy context and discussed in Section 2.0 of this report. This approach requires identification all provincially and locally protected features and buffers for inclusion in Secondary Plan

Schedules and the creation of a policy framework to ensure appropriate protections are in place. Each of these steps are addressed below.

4.1 Natural Heritage System Component Assessment

A summary of the proposed NHS component structure, in consideration of the policy context discussed in Section 2.0, is shown in Table 1 below. It is LGLs recommendation that minimum buffers associated with core natural features (discussed in this section) should be incorporated into the Environmental Protection Designation.

Table 1: Natural Heritage System Component

Designation	Natural Heritage Feature Component
Environmental Protection Designation (Core Natural Features)	Significant Wetlands and a 30 metre buffer*
	Significant Woodlands and 10 metre buffer*
	Fish Habitat and a 15 metre buffer*
	Significant Wildlife Habitat**
	Habitat of Endangered and Threatened Species**
Assessment/Restoration Overlay (Other Natural Features)	Other/Unevaluated Wetlands
	Other/Unevaluated Woodlands
	Environmentally Sensitive Areas
	Primary Corridors ** and a 30 metre buffer*
	Linkages ** and a 15 metre buffer*
	Restoration and Enhancement Areas**

**Minium buffers are not to be considered automatic mitigation measures. Larger buffers may be required depending on site-specific conditions and ecological function.*
***NHS mapping provided for these features or areas is not intended to be comprehensive. Individual identification of these features on a site-by-site basis will be required.*

Based on the background data and field reconnaissance, LGL developed maps of the above-identified natural feature components in the HBSA as shown in Figure 2 and 3. Each natural heritage component and the method LGL used for its identification is discussed below. Buffer widths and adjacent lands are also discussed.

It should be noted that while coastal wetlands, significant valleylands, and significant areas of natural and scientific interest are protected under the PPS, these areas were not identified within the study area. As such, they are not discussed in this report.

4.1.1 Wetlands

Wetlands play a crucial role to an NHS both ecologically and hydrologically. Wetlands are defined in the PPS as lands that are seasonally or permanently covered by shallow water, as well as lands where the water table is close to or at the surface. In either case the presence of abundant water has caused the formation of hydric soils and has

favoured the dominance of either hydrophytic plants or water tolerant plants. The four major types of wetlands are swamps, marshes, bogs and fens. Periodically soaked or wetlands being used for agricultural purposes which no longer exhibit wetland characteristics are not considered to be wetlands for the purposes of this definition.

Both provincially identified significant wetlands and unevaluated wetlands exist in the study area. Each are discussed below.

4.1.1.1 Significant Wetlands

Significant Wetlands are defined as an area identified as provincially significant by the Ontario Ministry of Natural Resources and Forestry using evaluation procedures established by the province, as amended from time to time. The Ontario Wetland Evaluation System (OWES) is a science-based ranking system that is used to determine significance. The OWES 4th Edition was updated in 2022 (MNRF 2022).

The four principal components that are considered in a wetland evaluation are the biological, social, hydrological and special features. Based on scoring, a wetland can fall into one of two classes – Provincially Significant and Locally Significant. It takes 600 or more total points or 200 or more points in either the Biological or the Special Features component of the OWES for a wetland to be classed as PSW (MNRF 2022).

Provincial mapping identifies portions of the HBSA as within a PSW. These areas are identified in Figure 2. Provincial mapping was last updated in 2005, according to the LIO metadata, and was not modified for this assessment. No additional OWES evaluation was completed. These areas are included within the proposed Environmental Protection designation of the NHS.

4.1.1.2 Unevaluated Wetlands

Unevaluated wetlands are those which have not yet been assessed or delineated based on the OWES criteria. Where these areas were identified through the LGL ELC mapping exercise, they have been identified in Figure 3. Where these lands do not coincide with another core natural feature (e.g., significant woodland), they are included within the recommended Restoration/Assessment overlay.

4.1.2 Woodlands

Woodlands are defined in the PPS as treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots, or forested areas and vary in their level of significance at the local, regional, and provincial levels. Woodlands may be delineated according to the *Forestry Act* definition or the Province's ELC system definition for "forest". In HBSA, there are significant woodlands and "other/unevaluated" woodlands. Each are discussed below.

4.1.2.1 Significant Woodlands

With respect to significant woodlands, the PPS states that they are ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size, or the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. The Natural Heritage Reference Manual (2010) provides specific criteria for assessing woodland significance, most of which requires investigations outside of LGL's scope of work. A notable exception, however, is specific to size criteria.

Table 7-2 of the Reference Manual states that the assessment of significant can be *"...related to the scarcity of woodland in the landscape derived on a municipal basis with consideration of differences in woodland coverage among physical sub-units (e.g., watersheds, biophysical regions)."* The manual further provides specific sizes that qualify as significant, based on the forest cover in the area, and states that forests within 20 metres or less of a significant woodland would be considered contiguous.

The Essex Region Natural Heritage System Strategy (2010) provides an assessment of woodland cover the County of Essex and identifies forest cover as 4.51%. Based on this coverage, the Natural Heritage Reference Manual recommends all woodlands greater than 2 hectares should be considered significant. This is reflected in Table 3 of the CEOP. These policies are also reflected in the TLOP, which defers to the CEOP natural heritage policies directly.

Based on the above policy context, LGL undertook a size analysis of all the forest units within the ELC mapping (Appendix E). Any woodlands which met the above-noted size criteria, were greater than 20 m wide, and were located within 20 m of one another, are included within the recommended Environmental Protection designation as Significant Woodlands. These woodlands are shown in Figure 2.

4.1.2.2 Other Woodlands

Based on ELC mapping prepared by LGL, there are several other/unevaluated woodlands located within the study area, as shown in Figure 3. These woodlands may still qualify as significant based on criteria other than size and/or may constitute a valuable component to the identified NHS, particularly where they serve a function in protecting core natural features. These woodlands are recommended to be included in the Assessment/Restoration Overlay.

4.1.3 Fish Habitat

Fish habitat, as defined in the *Fisheries Act*, means spawning grounds and any other areas, including nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes. Fish includes fish,

shellfish, crustaceans, and marine animals, at all stages of their life cycles. Fish habitat provides food, cover and conditions for successful reproduction.

Fish habitat can be delineated in many ways including: waterbody type (lentic or lotic); physical characteristics (littoral/nearshore, deepwater, run/riffle/pool); thermal characteristics (warmwater, coolwater and coldwater); life cycle requirements (spawning, nursery, rearing, food supply, migration routes); and as either direct (supporting fish) or indirect (contributing to maintenance of fish habitat).

The HBSA has both identified and potential fish habitat based on information provided by ERCA, MNRF, and DFO (Appendix F). These lands are primarily associated with main municipal drains throughout the study area. The West Branch Cahill Drain and the Lepain Drain are both identified as aquatic SAR habitat.

Section 11.3.1.4 of the Natural Heritage Manual states the following regarding municipal drains and the PPS:

> "Construction and maintenance of most agricultural or municipal surface drains are subject to the Fisheries Act [...] and should be identified at a broadscale level for planning purposes under the PPS. In many cases, surface drains can provide fish habitat (Stammler et al., 2008). The vegetation along the banks of a drain, like that along natural watercourses, may play an important role in providing food and shade for water temperature regulation, as well as cover in the form of fallen branches and other accumulated vegetation.
>
> Flooded areas of drains are preferred spawning areas for some fish species (e.g., pike during spring). Even if no fish live in a particular stretch of a drainage system at a given point in time, the watercourse does not necessarily lack fish habitat. Furthermore, water from surface drains can run into streams or lakes in which fish species are present. It is important, therefore, to consider how upstream activities along a surface drain will affect species downstream and in the natural water feature into which the drain flows."

Based on the above, all municipal drains and surface water features were identified as potential warmwater fish habitat and are included within the recommended Environmental Protection designation, as shown in Figure 2.

It is recognized that there are plans to relocate and/or modify the existing municipal drainage system within the HBSA and that an Environmental Assessment for this work is ongoing. It is recommended that the Environmental Protection designation policy language provide flexibility for amendments to the NHS layers for municipal drain works without the need for an Official Plan Amendment.

4.1.4 Habitat of Endangered and Threatened Species

Habitat is defined in the *Endangered Species Act* as,

a. with respect to a species of animal, plant or other organism for which a regulation made under clause 56 (1) (a) is in force, the area prescribed by that regulation as the habitat of the species, or
b. with respect to any other species of animal, plant or other organism, an area on which the species depends, directly or indirectly, to carry on its life processes, such as reproduction, rearing, hibernation, migration or feeding,

and includes places in the area described in clause (a) or (b), whichever is applicable, that are used by members of the species as dens, nests, hibernacula or other residences; ("habitat").

When the responsibility for SAR was transitioned from the Ministry of Natural Resources and Forestry (MNRF) to the Ministry of Environment, Conservation and Parks (MECP), there was a change in direction for information and permitting requests and the process is still being resolved. Current direction is to rely on available online resources for screening purposes and to contact the MECP later in the project design process when potential impacts to SAR are better known.

Several SAR have been identified on the subject lands (see Appendix B and D) within past EIA reports. Where previously identified and not protected under a separate core feature designation, these lands were included in the NHS as core natural heritage features as shown in Figure 2. These areas are recommended for inclusion in the Environmental Protection designation

It should be noted that LGL mapping in this report is not a comprehensive inventory of all SAR habitat located within the study area and no identification or staking of habitat has been undertaken for this report. Some modifications of the previously identified SAR habitat boundaries were made to reflect recent land use changes.

4.1.5 Significant Wildlife Habitat

Wildlife habitat is defined in the PPS as areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter and space needed to sustain their populations. Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. Wildlife habitat is considered significant by the province where it is:

> "Ecologically important in terms of features, functions, representation, or amount, and contributing to the quality and diversity of an identifiable geographic area or Natural Heritage System. Criteria for determining significance may be recommended by the Province, but municipal approaches that achieve the same objective may also be used."

Significant Wildlife Habitat (SWH) is delineated using procedures described in the Significant Wildlife Habitat Technical Guide (MNRF 2000) and the appropriate Ecoregion Criteria Schedule (Ecoregion 6E). SWH generally consists of habitats of seasonal concentrations of animals, rare vegetation communities or specialized habitats for wildlife, habitat for species of conservation concern, and animal movement.

SWH identified through past EIAs in the study area are identified in Appendix A and in Figure 2 and were included in the recommended Environmental Protection designation. Like with SAR habitat, LGL mapping in this report is not a comprehensive inventory of all SWH habitat in the study area. No additional identification or staking of habitat was undertaken though modifications of previously identified SWH boundaries were made to reflect changes to land use.

4.1.6 Adjacent Lands

The Natural Heritage Reference Manual identifies distances which constitute “adjacent lands” associated with provincially protected features. In the HBSA, this distance is 120 metres. Figure 4 shows these adjacent lands in consideration of the identified core natural heritage feature areas. These lands cover most of the study area.

In consideration of the above and the fact that a comprehensive inventory of SWH and SAR habitat was not within the scope of this study, it is LGLs recommendation that all lands located within the HBSPA be subject to an assessment for natural heritage features and impacts, prior to development approvals being provided.

4.1.7 Restoration Opportunity Areas

The CEOP includes a priority restoration opportunity overlay which reflects “potential areas to enhance the fragmented system in the County”. The CEOP refers to the ERNHSS to identify these areas for the County.

The ERNHSS, past EIAs, and aerial photo analysis of NHS gaps indicate the following priority restoration opportunity areas within the HBSA, as shown in Figure 3:

1. Meadow areas north of Bouffard Road (identified in the ERNHSS as candidate natural heritage and not protected by other designations);
2. Farmlands north of Bouffard Road located between the identified significant woodland and a nearby municipal drain (identified by LGL);
3. An area of planned restoration (tallgrass prairie/oak savannah) associated with the Forest Trails development at the north end of the study area;
4. Farmlands which appear to have encroached into in the northeast corner of the study area, adjacent to the LaSalle Woods (as identified by LGL);
5. A municipally owned property which was intended to be restored previously but requires further restoration efforts (identified by LGL); and,

6. Non-forested areas of the LaSalle Woods, which were identified as both a high priority restoration area and an Environmentally Sensitive Area[3] in the ERNHSS.

These lands have been included in the recommended Assessment/Restoration overlay.

4.1.8 Linkages and Corridors

Natural linkages and corridors are generally intended to be identified on a landscape scale within watershed studies, environmental impact studies, and community plans to accommodate the natural movement patterns and dispersal of plants and animals. Section 12.3.4 of the Natural Heritage Reference Manual states the following with regards to Natural Heritage System planning:

> "… planning authorities should use planning policies and other tools that promote: … the identification and retention of alternative habitats and linkages when existing ones need to be or will be removed, reduced or interrupted; the retention of continuous open corridors between habitat patches within reasonable proximity of each other; and the retention, restoration and/or improvement of natural cover to buffer natural features, augment core areas and provide connectivity."

The CEOP further states the following as it relates to corridors and linkages:

> "The County supports the creation of new or expanded linkages between natural heritage features, where feasible. Corridors link isolated natural heritage features or enhance existing linkages, improve or enhance the ecological functions of designated natural heritage features, and strengthen the overall natural heritage system..."

In reviewing the natural heritage features identified through this study, as shown in Figures 2 and 3, it is evident that the north/south connection of West Branch Cahill Drain and specific tributaries provide connections between the identified natural heritage features. As these are the only connections between many of the features within the HBSA, these connections are crucial to the functioning of the system.

Given the connectivity the West Branch Cahill Drain provides throughout the entire NHS and its potential for a series of associated ecological functions, including wildlife movement and plant dispersal, LGL is recommending this be protected as a "primary corridor" which will necessitate greater buffer widths (see below section for more details). The remaining drainage connections between natural areas would be considered "linkages".

[3] The CEOP defines and Environmentally Sensitive Areas as those "supporting fragile ecosystems susceptible, prone or vulnerable to human impact and/or development pressures."

It is understood many of the tributaries may be relocated and that works on of the main municipal drains are proposed through the Master Drainage Study. It is LGL's recommendation that the policy framework be drafted to avoid interfering with this process when approved, but that the corridor/linkage functions be allowed to continue and/or be reestablished after these works occur.

As a final note, there are several locations within the proposed NHS where small gaps greater than 20 metres do exist between NHS features, leading to potential feature isolation when development occurs. Though not identified within the NHS mapping, LGL recommends future development proposals in the HBSA assess potential connectivity roles through an EIA prior to development to determine if vegetative connections are needed in the development design and/or to identify the best lands to include in open spaces, stormwater areas, municipal lands, and/or park lands. This will lessen challenges in wildlife/plant dispersion when development is introduced and assist in the protection of the NHS overall.

4.1.9 Buffer Widths

The PPS does not prescribe buffers or setbacks from protected features. As an alternative, the Natural Heritage Reference Manual provides guidance documents and resources to assist ecologists in identifying an appropriate width, stating:

> "As part of demonstrating that there will be no negative impacts on the natural features or their ecological functions within adjacent lands, buffers can be identified once the nature of the development is known and the extent of potential impacts can be determined."

In practice, however, buffer widths are a key tool and standard that ecologists apply to ensure protection of natural features.

The CEOP includes minimum buffers within the EIA checklist (intended for scoped small scale projects) and references a minimum 10 metre buffer (15 metres preferred) from adjacent natural areas, with 5 metres being vegetated with native species. It is our opinion this is a starting point but that greater widths will be necessary for some features.

As discussed extensively in in the Significant Wildlife Habitat Decision Support tool, the Natural Heritage Reference Manual, and a variety of other literature[4], buffers and setbacks for wildlife protection vary widely by species and site conditions. As such, for both SAR and SWH features within the HBSA, minimum setbacks are recommended to be identified on a case-by-case basis through an EIA early in the approval process.

[4] Ecological Buffer Guideline Review, Beacon Environmental, Page 88, Table 7, 2012

With respect to other types of features, Beacon Environmental prepared a buffer width literature review for Credit Valley Conservation in 2012. This assessment provides a good summary of literature to that date on the topic and indicates that:

- for watercourses, waterbodies, and wetlands, a buffer of 30 metres or higher is ideal for achieving desired effects (e.g., water quality, screening against changes in land use); and
- for upland forests a buffer of 20 metres or higher is ideal for screening of human disturbance, though may be as low as 10 m if fencing or other barriers are used to prevent encroachment.

Based on the above, which align with well-established industry standards, we recommend a 30-metre buffer be applied to the PSW as well as the identified West Branch Cahill Drain corridor and that a 10 metre buffer be applied to significant woodlands.

With regards to the other tributaries, protected as linkages and/or fish habitat, Table 11-3 of the Natural Heritage Reference Manual indicates either 30 metres or 15 metre buffers are recommended for warmwater fish habitat. Furthermore, in Table C-2 states

> "For example, streams providing habitat to species with a low sensitivity where the proposed change in land use is minor may require buffers of only 15 m."

Based on this guidance and the physical characteristics of the remaining tributaries as primarily agricultural drainage areas, we have recommended a minimum 15 metre buffer be applied.

All recommended buffers noted in this section were included in the Environmental Protection designation layer. All recommended buffer widths are considered minimum. There are no limitations on establishing buffer widths greater than the minimum, where warranted.

4.1.10 Hazard Lands

Though not considered within this assessment, which focuses on natural heritage only, we acknowledge that there are hazard lands (floodplains, wetlands, erosion lands) found within the study area which may be designated and zoned for their protection. Figure 5 indicates the floodplain hazard lands provided to us by ERCA, as well as the areas regulated under the *Conservation Authorities Act* (see Appendix A for details).

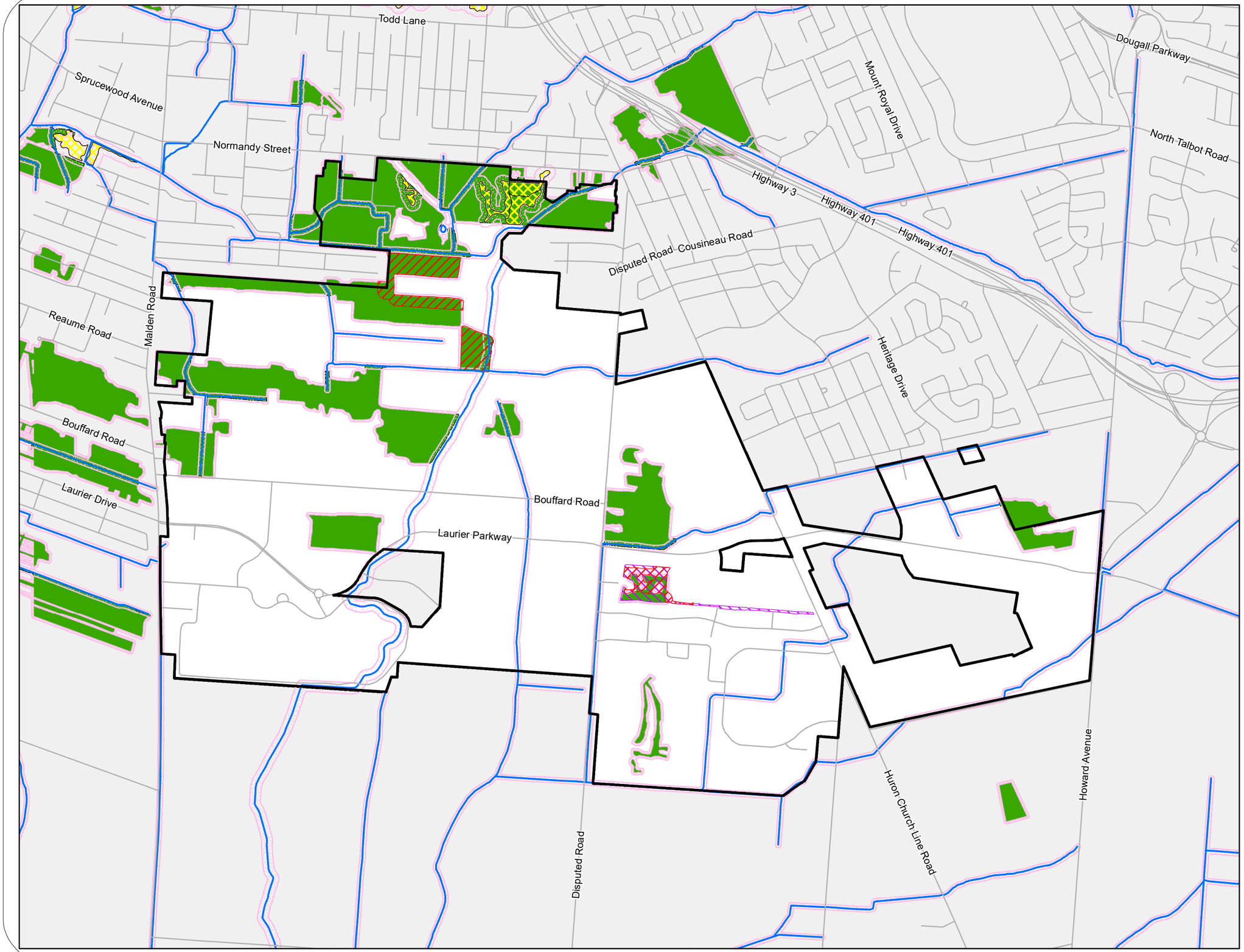
As hazard lands and associated setbacks are typically adjacent to fish habitat or waterbodies and subject to development constraints under the PPS, they represent prime areas for restoration opportunity. As such, when hazard areas are ultimately identified and incorporated into the Howard Bouffard Secondary Plan or as a part of a development proposal, these areas should be considered for revegetation/restoration for the purpose of enhancing the proposed NHS.

5.0 Summary

The recommended NHS system designation and overlays, based on the NHS components discuss Section 4.0 of this report, are represented in Figure 6. It is our recommendation that these NHS schedules be incorporated into the Secondary Plan and used to inform the preferred land use plan for the Howard Bouffard Secondary Plan Area. It is further recommended that open space, stormwater management, and restoration areas adjacent to the proposed NHS, with a particular emphasis on areas where there are connectivity gaps and/or unique ecosystem functions, be considered to enhance the NHS functionality.

Upon finalization of the land use plan, including the incorporation of any natural hazard lands, it is recommended that policy language within the Howard Bouffard Secondary Plan identify the entire planning area as an area where an EIA is required, and enable scoping of the EIA to be dictated by proximity to the natural heritage components discussed within this report.

Figures



LEGEND

- Howard Bouffard Secondary Plan Boundary
- Fish Habitat
- Significant Wildlife Habitat
- Species at Risk Habitat
- Provincially Significant Wetland
- Significant Woodland
- Buffers (Significant Wetlands - 30m, Significant Woodlands - 10m, Fish Habitat/Linkages - 15m, Primary Corridor 30m)

Meters
0 100 200 400 600 800

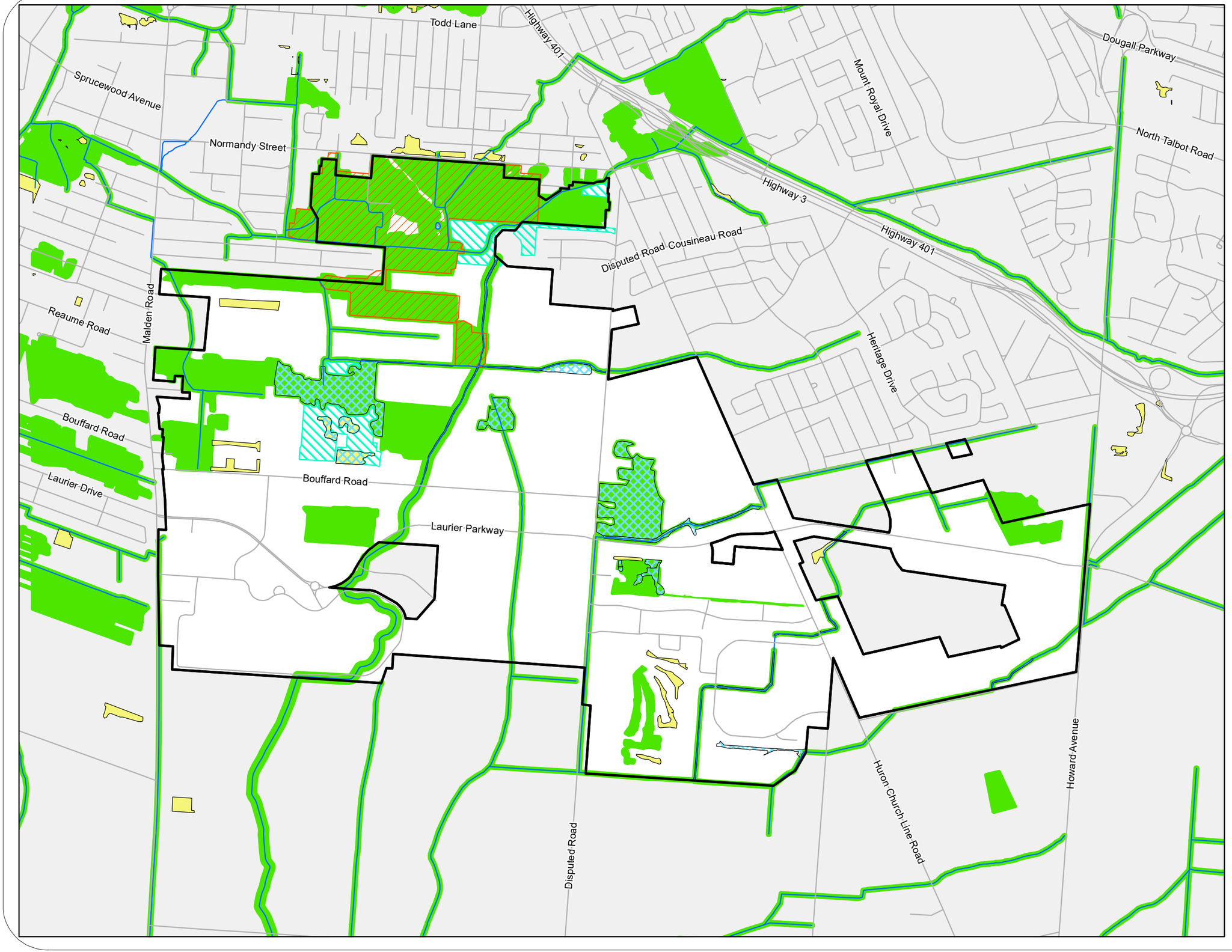
N

Howard Bouffard Secondary Plan

Figure 2 Natural Environment Designation Components

LGL LIMITED
Est. 1971
environmental research associates

Project	TA9324A	**Figure**	
Date	July 2024	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR



LEGEND

- Howard Bouffard Secondary Plan Boundary
- Fish Habitat
- Natural Environment Designation

Natural Environment Overlay

- Potential Restoration/Enhancement Areas
- LaSalle Woods ESA
- Unevaluated Wetland
- Other Woodland

N

0 100 200 400 600 800 Meters

Howard Bouffard Secondary Plan

Figure 3 Natural Environment Overlay Components

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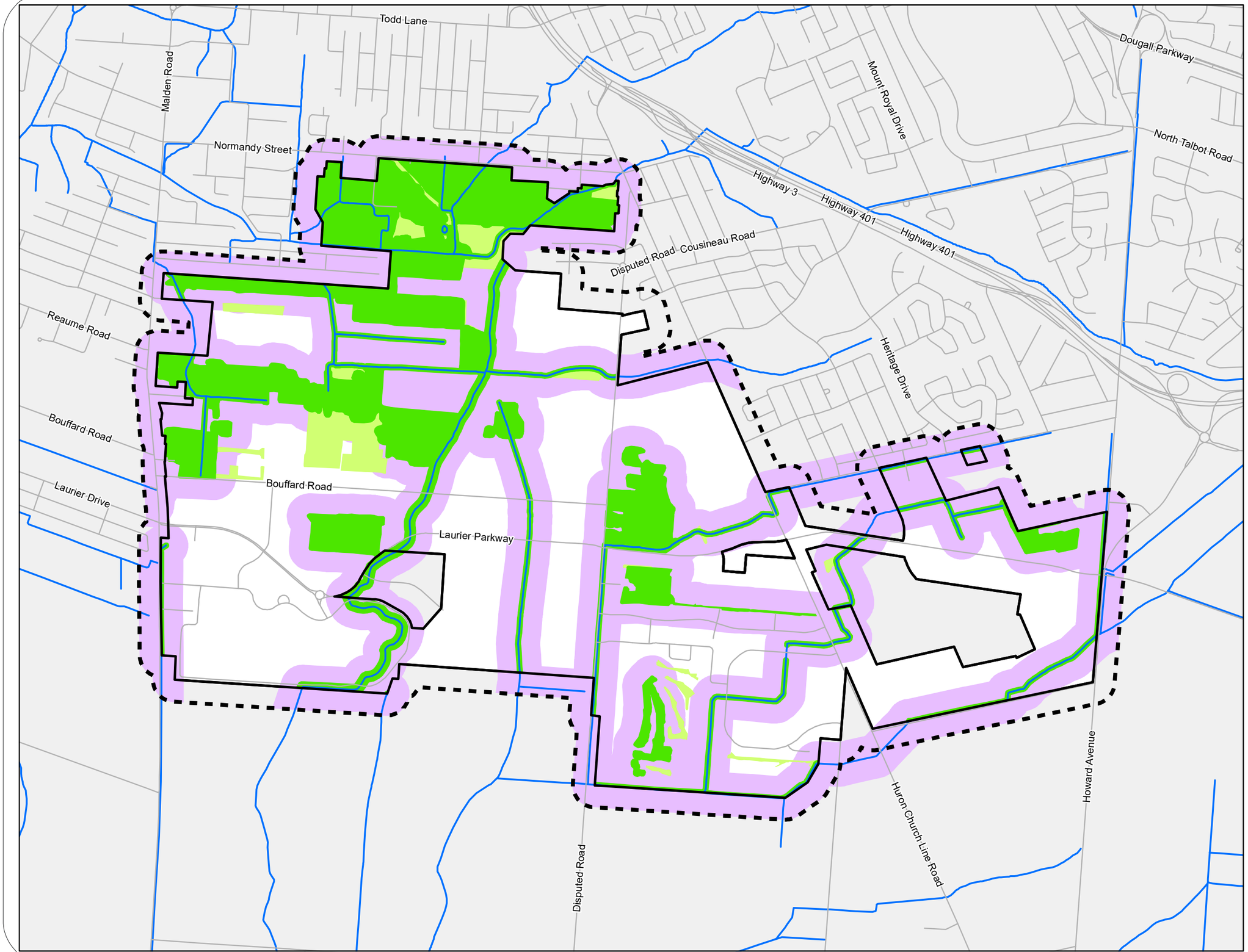
Project	TA9324A	**Figure**	
Date	July 2024	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR



LEGEND

- Howard Bouffard Secondary Plan Boundary
- 120 m Buffer from Howard Bouffard Secondary Plan Boundary
- Fish Habitat
- Environmental Protection Designation
- Feature Assessment/Restoration
- Adjacent Lands

0 100 200 400 600 800 Meters

N

Howard Bouffard Secondary Plan

Figure 4 Adjacent Lands

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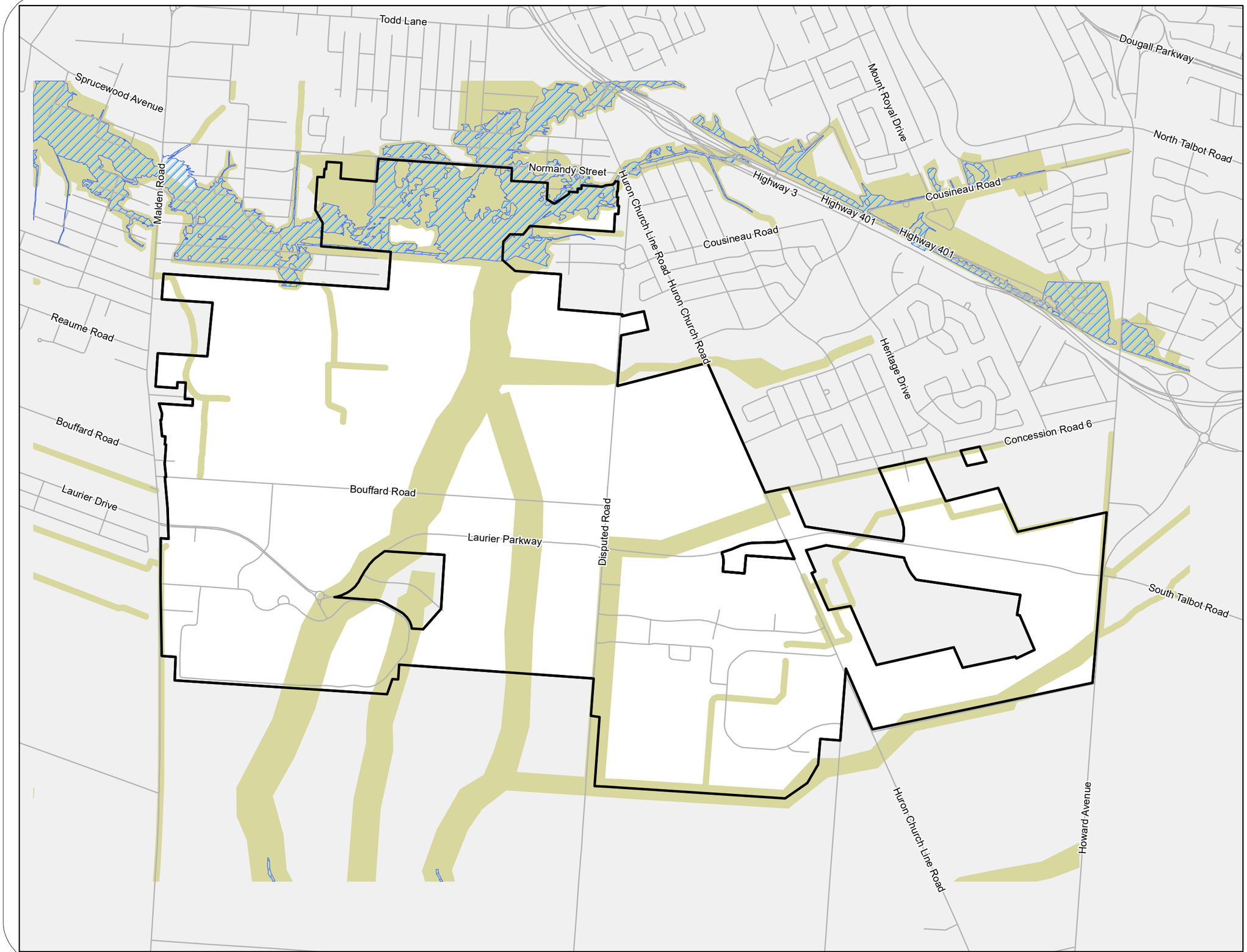
Project	TA9324A	**Figure**	
Date	July 2024	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR



LEGEND

- Howard Bouffard Secondary Plan Boundary
- 1:100 Year Flood Line (ERCA)
- Limit of Regulated Area (ERCA)

N

0 100 200 400 600 800 Meters

Howard Bouffard Secondary Plan

Figure 5 Hazard Lands and Regulated Areas

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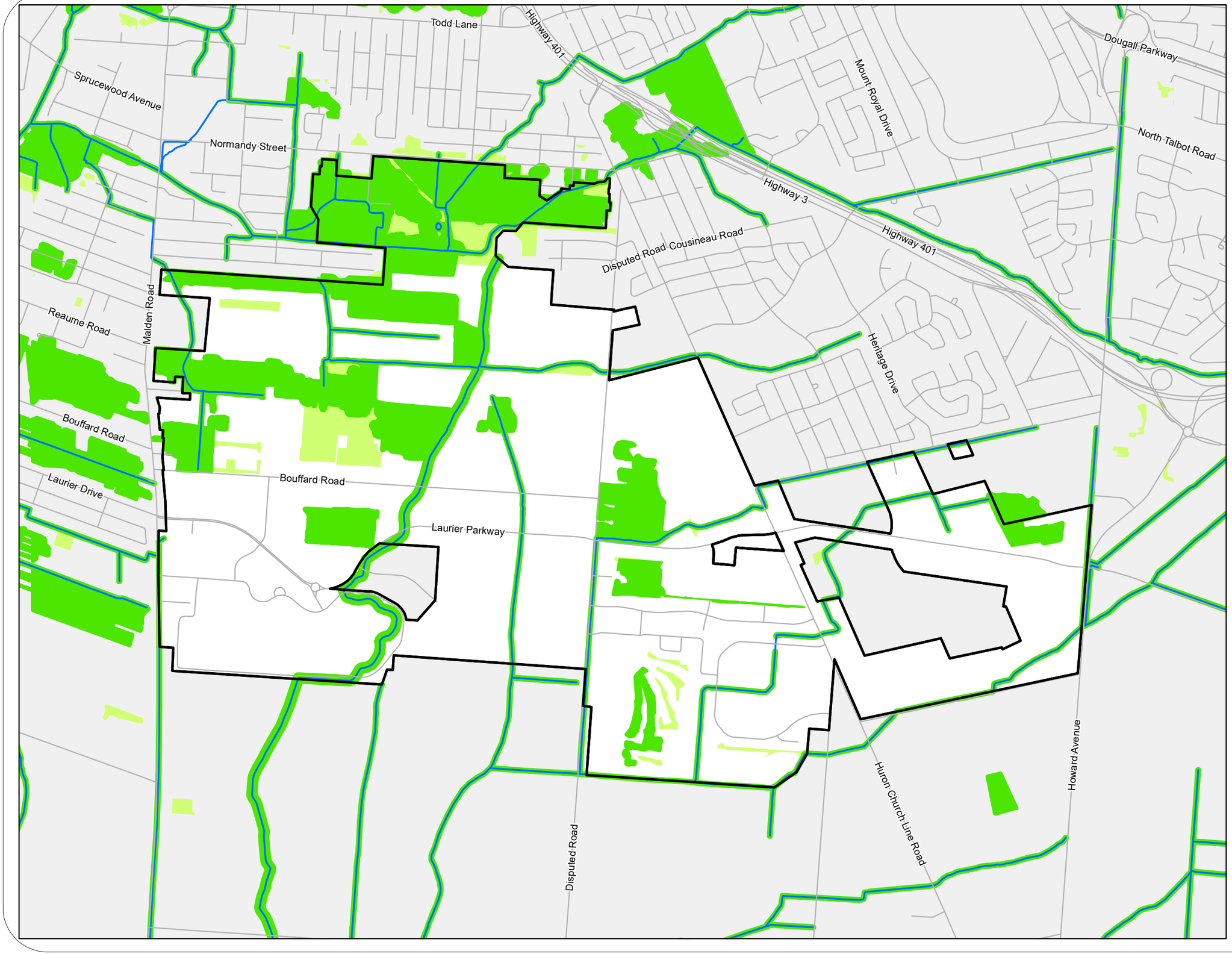
environmental research associates

Project	TA9324A	**Figure**	
Date	October 2023	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR



LEGEND

- Howard Bouffard Secondary Plan Boundary
- Fish Habitat
- Natural Environment Designation
- Natural Environment Overlay

N

0 100 200 400 600 800 Meters

Howard Bouffard Secondary Plan

Figure 6 Designation and Overlay Schedule

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Project	TA9324A	**Figure**	
Date	July 2024	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR

Appendix A - Applicable Legislation Summary

Planning Act (1990)

The Planning Act (1990) is provincial legislation in Ontario that sets out the ground rules for land use planning in Ontario. It describes how land uses may be controlled, and who may control them. The Act requires land use planning decisions integrate matters of provincial interest by requiring that all decisions be consistent with the Provincial Policy Statement and conform/not conflict with provincial plans.

Policies applicable to this study under the *Planning Act* are described in Section 3.0 of this report.

Fisheries Act (1985)

The Fisheries Act (1985) provides legal framework for regulating impacts on fish and fish habitat associated with works, undertakings, operations and activities occurring in or around fresh and marine waters throughout Canada. Five habitat protection provisions to regulate impacts to fish and fish habitat are in relation to: fish passage, in-stream flow needs of fish, serious harm to fish by any means other than fishing, permanent alteration to or destruction of fish habitat, and prohibition of deposit of deleterious substances.

All municipal drains and watercourses in the study area are considered potential habitat under the *Fisheries Act.*

Ontario Endangered Species Act (2007)

The Endangered Species Act (2007) identifies species at risk based on available scientific information and information obtained from community knowledge and Indigenous traditional knowledge. It protects species at risk and their habitat as well as promoting the recovery of species at risk. This legislation provides two types of habitat protection:

- General Habitat Protection – when a species is newly listed as endangered or threatened on the Species at Risk in Ontario (SARO) list, its habitat is also protected. The general habitat applies to areas that a species currently depends on. This protection remains in place until a species-specific habitat regulation is created or unless a temporary suspension of protections is enacted by the Minister.
- Regulated Habitat Protection – when a species is added to the SARO list, the process of identifying species-specific (or regulated) habitat begins. A habitat regulation provides greater certainty of what is meant by a species habitat. It describes features or geographic boundaries. Once a species-specific habitat regulation is created, it replaces the general habitat description.

This legislation includes tools that encourage good stewardship and benefit to species at risk. Permits or agreements are useful tools to manage activities that could harm or

harass species at risk or damage protected habitat. Permits may be granted when the activity is necessary for human health and safety; purpose of the activity is to help protect or recover the species at risk; activity will result in significant social or economic benefit to Ontario; or an activity will result in overall benefit to the species. It also includes monitoring requirements during construction and for a specified time after construction is completed.

Site-by-site assessment of SAR is required to identify associated Habitat. Currently identified habitat is summarized in Appendix B.

Species at Risk Act (2002)

The Canada *Species at Risk Act* (SARA) provides a framework for actions across Canada to ensure the survival of wildlife species and the protection of our natural heritage. It sets out how to decide which species are a priority for action and what to do to protect a species. It identifies ways governments, organizations and individuals can work together, and it establishes penalties for a failure to obey the law. Regulated species are listed in Schedules 1, 2 and 3 of the Act.

Species known to exist within the study area with subject to SARA are listed in Appendix D.

Migratory Birds Convention Act (1994)

Most species of birds in Canada are protected under the *Migratory Birds Convention Act* (MBCA). The MBCA prohibits the killing, capturing, injuring, taking, or disturbing of migratory birds (including eggs) or the damaging, destroying, removing, or disturbing of nests. Environment Canada provides Nesting Periods when migratory birds are most likely to be nesting, within a respective geographic zone and requires a permit for any activity that might harm migratory birds.

Birds that have been identified within the study area which are subject to the MBCA are listed in Appendix D.

Fish and Wildlife Conservation Act (1997)

The Ontario *Fish and Wildlife Conservation Act* (FWCA) outlines the restrictions for hunting, trapping and fishing; handling of live wildlife; sale, purchase and transport of wildlife; and licences that can be secured under the Act. Under Schedules 1 to 11 of the Act, wildlife are grouped for the purpose of regulating these species. Where there is a conflict between this Act and the *Ontario Endangered Species Act*, the provision with the most protection will prevail (s. 2 of the Fish and Wildlife Conservation Act).

Wildlife identified within the study area which are subject to the FWCA are summarized in Appendix B and C. A comprehensive assessment of wildlife habitat was not conducted for this NHS exercise and would be identified on a site by site basis at the time of any development proposal.

Conservation Authorities Act (1990)

Under the *Conservation Authorities Act* (1990), conservation authorities are empowered to regulate development and activities in or adjacent to river or stream valleys, watercourses, and hazardous lands (including wetlands, unstable soils, floodplains, steep slopes, erosion hazards, etc.). Development taking place within regulated areas may require permission through a permit from the conservation authority to confirm that the area is not altered in any way.

Regulated areas for the study area are shown in Figure 5 of the report, as shown on the ERCA website, and include land in or near rivers, streams, ponds, wetlands, steep slopes, and floodplains. It should be noted this mapping is subject to amendment based on site specific conditions and may require update in consideration of the wetlands identified within this study as well as the realignments proposed under the Master Drainage Study for the area.

Appendix B - Background Data Summary

Document Reviewed	Year	Location (see map above)	NH Features Identified	Buffer notes from document by MS	Action Taken for NHS System Identification
Woodview Estates Phase 1	2022	1	>West Branch of Cahill Drain is identified as Primary and Secondary restoration opportunities in County's official plan >West Branch of Cahill Drain and the existing hydro-corridor have been identified as potential future Greenway System by Town's OP >Property is within Regulated Habitat for Eastern Foxsnake (none observed)	**10 m buffer to the West Branch of Cahill Drain**	**Used ELC Codes for Mapping, added wildlife to inventory list**
Donato Drive Subdivision	2015	2	>SAR birds:Barn Swallow, Red-headed Woodpecker observed in the study area >SAR herps: Queensnake, Snapping Turtle observed in the study area	The only around continuous hedgerow bordering the northern edge of the property will be enhanced by 10 m Conservation Easement buffer to protect terrestrial habitat; **10 m vegetated buffer to the hedgerow was recommended (though associated conservation easement appears to include some built infrastructure)** 250m buffer around Queensnake observations (but this area is already in the 10 m Conservation Easement); **Wetlands require min 30 m buffer for wetlands adjacent to the proposed development.** It is anticipated that the maintenance of terrestrial habitat within the 1O m buffer of the Conservation Easement will minimize impacts to wildlife requiring terrestrial habitat as well as protect and enhance hedgerow vegetation communities from the proposed development in the long term.	**Incorporated ELC Mapping and Included conservation easement in the NHS with some amendments for existing infrastructure.**

Former Gietz, Laier Walters Properties	2018	3	>LaSalle Woods (north and southwestern portion of property) is part of County of Essex OP Significant Terrestial Feature and Significant Woodland >Lepain Drain is part of Primary and Secondary restoration opportunity area as per County of Essex OP >LaSalle Woods is part of Natural Environment and Core Natural Heritage Sites as per LaSalle OP >Lepain Drain, West Branch of Cahill Drain is identifed as a linkage (Potential Future Connecting Links) as per LaSalle OP >Essex Region Natural Heritage System Strategy (ERNHSS) identifies areas of existing natural heritage features and habitat restoration opportunites- mapping identifies several areas in HBSP >property falls within Regulated Habitat for Eastern Foxsnake >LaSalle Woods is protected habitat for Massasuga under ESA and Critical Habitat under SARA >Butternut and Willowleaf Aster found within the study area, so communities containing SAR is confirmed SWH >Candidate SWH bat maternity colonity mapped in LaSalle woods >Natural heritage system developed by major landowners within HB Planning Disctrict to create new habitat and provide habitat linkages -> NHS is based on Town's proposed "Greenway System" (Schedule F of Town's Official Plan) -> as part of the NHS, buffers will be added to existing natural heritage features have have little/no riparian veg/ useable wildlife or native plant species habitat, areas between fragmented woodland will be planted with native trees/shrubs/grasses, SWM ponds will be incorporated by enhancing linkages/buffer areas, the NHS will connect with existing utility corridor which will be left open or used for passive recreation to retain function as animal movement corridor	**10 m buffer to the West Branch of Cahill Drain; 10 m buffer from the dripline of LaSalle Woods, the Pit and Mounds Restoration Area, and the municipal drains**; more than 50 m from the observed Willowleaf Aster; Open Space Area additional setback between the residential development from the natural heritage features, ranging from approximately 80 m to 260 m in the southern and northern portions of the Property.	**Used ELC Mapping and added Significant Wildlife Habitat to NHS component map (already covered by significant woodland)**

Harmony Lakes South	2019	4	>woodlot in southwesten portion of property is part of County of Essex OP Natural Envionrment Overlay >Secondary restoration opportunity area on west end of property as per County of Essex OP >Essex Region Natural Heritage System Strategy (ERNHSS) identifies areas of existing natural heritage features and habitat restoration opportunites- mapping identifies several areas in HBSP >SWH in the study area includes: Terrestrial Crayfish habitat, Climbing Prairie Rose habitat, Field Thistle habitat, >Candidate SWH bat maternity colonity mapped in woodlot >Incidental wildlife- Eastern Gartersnake, Barn Swallow >woodlot is classified as significant due to crayfish habitat, habitat for SAR(Butternut/ Eastern Foxsnake) >Natural heritage system developed by major landowners within HB Planning Disctrict to create new habitat and provide habitat linkages -> NHS is based on Town's proposed "Greenway System" (Schedule F of Town's Official Plan) -> as part of the NHS, buffers will be added to existing natural heritage features have have little/no riparian veg/ useable wildlife or native plant species habitat, areas between fragmented woodland will be planted with native trees/shrubs/grasses, SWM ponds will be incorporated by enhancing linkages/buffer areas, the NHS will connect with existing utility corridor which will be left open or used for passive recreation to retain function as animal movement corridor	**10 m buffer from the adjacent wetland, significant woodland, significant wildlife habitat, and SAR; and the 10 m buffer/conservaton easement along the southern fencerow containing SAR habitat; providing a >25m protection buffer around the Butternut tree; 10m buffer to the eastern edge of the woodland for protection to the woodland and Category 2 Habitat for Eastern Foxsnake.**	**Incorporated ELC Mapping and added to wildlife/SAR lists. Incorporated SWH and Conservation Easement to NHS in accordance with EIS recommendations. Also agree that connectivity will need to be enhanced north of the feature.**

			>LaSalle woods ESA is in westernmost edge of property >the project proposed realignment and naturalization of Moore Drain as a conservation and restoration opportunity >the project proposed realignment of a portion of Cahill Drain slightly west of establish a new channel that will mark the eastern boundary of the expanded LaSalle Woods ESA with a broader riparian coordor >two Butternuts found in LaSalle ESA near confluence of Lennon and Cahill Drains	Expand LaSalle ESA from Phase 3 with a broad valley like 40 m corridor; at least 5 meters from eisitng ESA/nonESA tree dripline along northern property boundary; Moore Drian with 16 m expanded riparian corrodor; Cahill Drain with valley like riparian corridor (40 m in width); 5 m grading setback from dripline along the northern boundary to protect woods/weland edge; SWM Pond 5 m setback from existing tree dripline; Moore Drain min width 21 m; southern edge of PSW 5 meter grading setback plus 40m wide realighned Cahill Drain.	**Incorporated ELC Mapping and SAR/Wildlife List. Incorporated the restoration part of this project into a "restoration" layer. Include expansion of LaSalle woods.**
Forest Trail Estates	Nov-14	5	>Special Policy Area is in woodlot to the north of property due to occurance of Massasauga >hydrocorridor and western agircultural field was identifed for expansion to LaSalle Woods ESA by establishing tallgrass prairie >LaSalle Woods PSW adjacent north of the site		

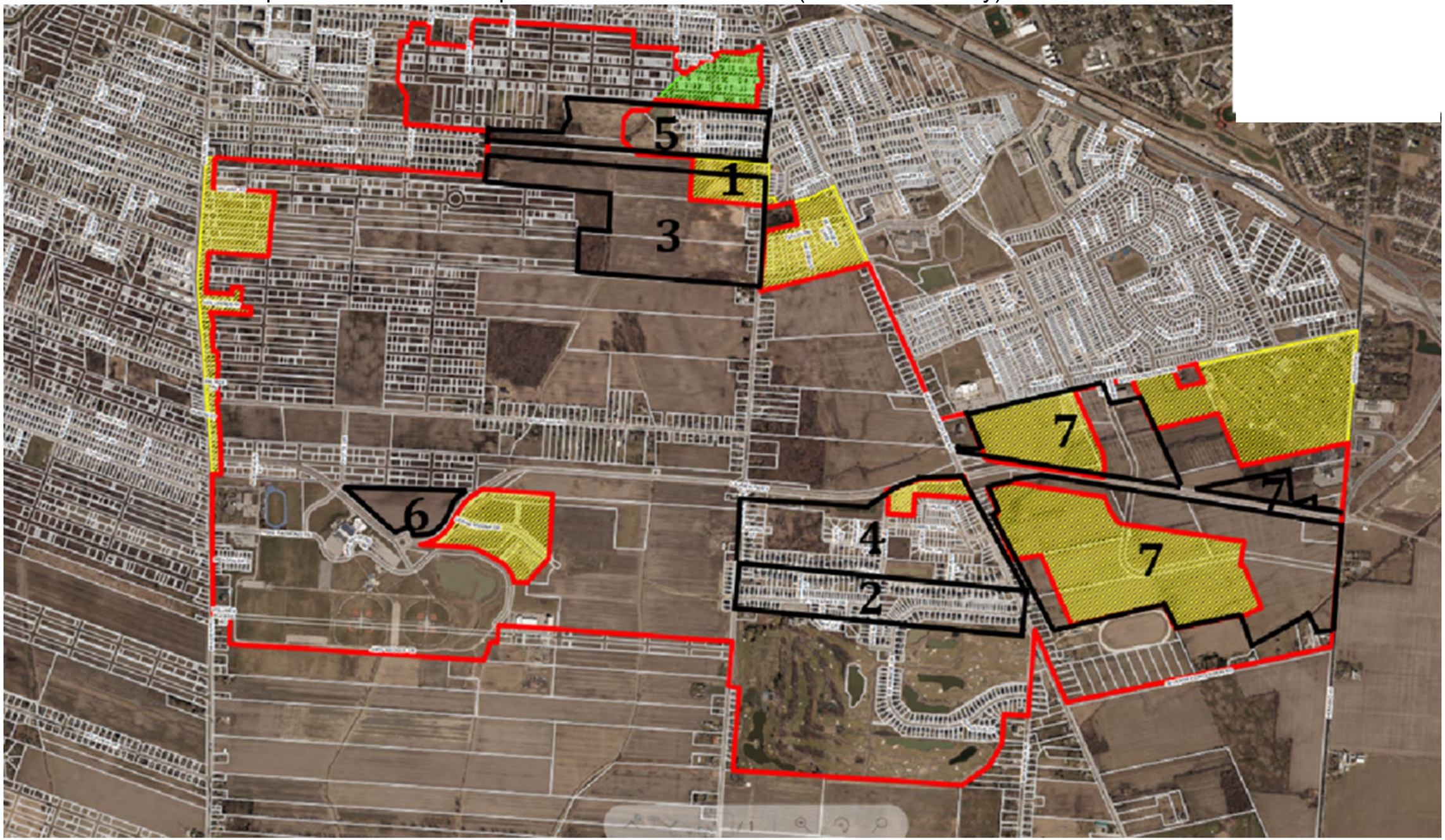
Ros-Lom Property	2018	6	>Primary and Secondary restoration opportunity area along West Branch of Cahill Drain as per County of Essex OP east of project area >woodlot to the north of the study area is identified as natural environment as per County of Essex OP >woodlot to the north of the study area is identified as Core Natural Heritage Site as per Town of LaSalle OP >West Branch of Cahill Drain east of property is identified as future connecting link as per Town of LaSalle OP >Essex Region Natural Heritage System Strategy (ERNHSS) identifies areas of existing natural heritage features and habitat restoration opportunities- mapping identifies several areas in HBSP >SAR species found in woodlot north of property: Butternut and Red Mulberry >woodlot to north is classified as significant due to size and presence of SAR >woodlot to north is candidate SWH- special concern and rare wildlife species/ bat maternity colonies >Natural heritage system developed by major landowners within HB Planning Disctrict to create new habitat and provide habitat linkages -> NHS is based on Town's proposed "Greenway System" (Schedule F of Town's Official Plan) -> as part of the NHS, buffers will be added to existing natural heritage features have have little/no riparian veg/ useable wildlife or native plant species habitat, areas between fragmented woodland will be planted with native trees/shrubs/grasses, SWM ponds will be incorporated by enhancing linkages/buffer areas, the NHS will connect with existing utility corridor which will be left open or used for passive recreation to retain function as animal movement corridor.	**10 m buffer from northern property boundary adjacent to the woodlot**	**Incorporated ELC mapping and SAR/Wildlife List.**

Stirling Lakes	2018	7	>woodland in northeast of property is identified as part of the natural environment overlay as per County of Essex OP >secondary restoration opportunity area identified along concession rd 6 and 6th concession branch drain as per County of Essex OP >potential future connecting links (drains) are identified running adjacent to Laurier Parkway and from northwest of Concession Rd 6 to Laurier Parkway as per Town of LaSalle OP >Essex Region Natural Heritage System Strategy (ERNHSS) identifies areas of existing natural heritage features and habitat restoration opportunities- mapping identifies several areas in HBSP >woodland at northeast of property is considered significant by County due to size >Willowleaf Aster (SAR) was identified in the study area >amphibians found in study area: American Toad, Green Frog, Northern Leopard Frog >woodlot to northeast is candidate SWH- special concern and rare wildlife species/ bat maternity colonies >Natural heritage system developed by major landowners within HB Planning Disctrict to create new habitat and provide habitat linkages -> NHS is based on Town's proposed "Greenway System" (Schedule F of Town's Official Plan) -> as part of the NHS, buffers will be added to existing natural heritage features have have little/no riparian veg/ useable wildlife or native plant species habitat, areas between fragmented woodland will be planted with native trees/shrubs/grasses, SWM ponds will be incorporated by enhancing linkages/buffer areas, the NHS will connect with existing utility corridor which will be left open or used for passive recreation to retain function as animal movement corridor	**10 m buffer from 3rd Concession drain**	**Incorporated ELC Mapping and SAR/Wildlife List.**

Update to the Candidate Natural Heritage Area Inventory	May-10	CA2	Various ELC Codes for the research area	None	ELC Codes Incorporated
Essex Region Biodiversity Conservation Strategy	Nov-02		Description of forest habitat and cover. Forest associated bird species. Description of riparian habitat, and wetland habitat. Identification of tallgrass prairie, savanna, and alvar. Habitat restoration opportunities.	None	Added to Wildlife List and ELC Codes.

Map

Town of LaSalle Map of Environmental Impact Assessment Locations (see numbers only)



Appendix C - Wildlife List

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Bird	*Spinus tristis*	American Goldfinch	G5	S5B					x	x		x	x			x		x	x	x	x		X				level 3
Bird	*Turdus migratorius*	American Robin	G5	S5B					x	x		x	x	x		x	x	x	x	x	x		X				
Amphibian	*Anaxyrus americanus*	American Toad	G5	S5									x		x			x									
Bird	*Spizelloides arborea*	American Tree Sparrow	G5	S4B						x				x									X				
Bird	*Scolopax minor*	American Woodcock	G5	S4B					x														X				level 4
Bird	*Icterus galbula*	Baltimore Oriole	G5	S4B					x			x			x	x	x	x	x	x	x		X				
Bird	*Hirundo rustica*	Barn Swallow	G5	S4B	Schedule 1	SC	THR	SC	x		x									x			X				level 3
Bird	*Mniotilta varia*	Black-and-white Warbler	G5	S5B						x			x										X	X (>100ha continuous forest)	X		
Bird	*Poecile atricapillus*	Black-capped Chickadee	G5	S5					x	x		x				x					x		X				
Bird	*Setophaga striata*	Blackpoll Warbler	G5	S4B					x														X				
Bird	*Cyanocitta cristata*	Blue Jay	G5	S5					x	x		x				x	x	x	x		x	P					
Bird	*Vireo solitarius*	Blue-headed vireo	G5	S5B					x														X	X (100ha of conif/mixed forest)	X		
Bird	*Dolichonyx oryzivorus*	Bobolink	G5	S4B	Schedule 1	SC	THR	THR	x														X	X (>50ha dense grassland)			level 2
Bird	*Chroicocephalus*	Bonaparte's Gull	G5	S4B, S4N					x														X		X		

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
	philadelphia																										
Bird	*Molothrus ater*	Brown-headed Cowbird	G5	S4B					x	x		x	x			x	x	x	x	x	x						
Bird	*Branta canadensis*	Canada Goose	G5	S5					x	x													X				
Bird	*Bombycilla cedrorum*	Cedar Waxwing	G5	S5B					x							x	x		x				X				
Bird	*Chaetura pelagica*	Chimney Swift	G5	S4B, S4N	Schedule 1	THR	THR	THR	x														X				
Bird	*Spizella passerina*	Chipping Sparrow	G5	S5B						x		x				x	x			x	x		X				
Bird	*Quiscalus quiscula*	Common Grackle	G5	S5B					x	x		x	x		x	x	x	x	x		x						
Bird	*Sterna hirundo*	Common Tern	G5	S4B		NAR			x														X				level 4
Bird	*Geothlypis trichas*	Common Yellowthroat	G5	S5B					x												x		X				
Bird	*Accipiter cooperii*	Cooper's Hawk	G5	S4		NAR				x							x		x			P		X (dense Carolinian forest habitat >50ha)	X		
Bird	*Junco hyemalis*	Dark-eyed Junco	G5	S5B					x														X				
Reptile	*Storeria dekayi*	Dekay's Brown Snake	G5	S5		NAR				x				x					x	x							
Bird	*Picoides pubescens*	Downy Woodpecker	G5	S5					x	x		x	x			x		x		x	x		X				
Mammals	*Sylvilagus floridanus*	Eastern Cottontail	G5	S5					x											x	x	G					
Reptile	*Thamnophis sirtalis sirtalis*	Eastern Gartersnake	G5 T5	S5						x	x		x	x					x	x	x						

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Mammals	*Sciurus carolinensis*	Eastern Grey Squirrel	G5	S5					x				x			x		x				G					
Bird	*Tyrannus tyrannus*	Eastern Kingbird	G5	S4B						x													X				level 3
Mammals	*Scalopus aquaticus*	Eastern Mole	G5	S2	Schedule 1	SC	SC	SC	x																		
Bird	*Pipilo erythrophthalmus*	Eastern Towhee	G5	S4B					x	x											x		X				level 2
Bird	*Contopus virens*	Eastern Wood-Pewee	G5	S4B	Schedule 1	SC	SC	SC	x						x	x	x	x		x	x		X				
Bird	*Sturnus vulgaris*	European Starling	G5	SNA					x	x		x	x	x	x	x	x		x	x	x						
Bird	*Spizella pusilla*	Field Sparrow	G5	S4B					x														X				level 3
Bird	*Regulus satrapa*	Golden-crowned Kinglet	G5	S5B								x											X		X		
Amphibian	*Lithobates clamitans*	Green Frog	G5	S5									x														
Bird	*Dumetella carolinensis*	Grey Catbird	G5	S4B					x	x		x	x			x	x	x	x	x	x		X				level 4
Mammals	*Marmota monax*	Ground hog	G5	S5					x																		
Bird	*Picoides villosus*	Hairy Woodpecker	G5	S5					x	x													X	X (forests with tall trees/snags >25cm)			
Mammals	*Parascalops breweri*	Hairy-tailed Mole	G5	S4					x																		
Bird	*Larus argentatus*	Herring Gull	G5	S5B, S5N					x														X				
Bird	*Eremophila alpestris*	Horned Lark	G5	S5B					x														X				level 3
Bird	*Haemorhous mexicanus*	House Finch	G5	SNA					x	x			x										X				
Mammals	*Mus musculus*	House Mouse	G5	SNA					x																		

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Bird	*Passer domesticus*	House Sparrow	G5	SNA					x	x		x	x	x													
Bird	*Troglodytes aedon*	House Wren	G5	S5B						x					x	x		x	x	x	x		X				
Bird	*Passerina cyanea*	Indigo Bunting	G5	S4B						x					x	x	x	x	x	x	x		X				
Bird	*Charadrius vociferus*	Killdeer	G5	S5B, S5N					x	x		x	x										X				
Bird	*Anas platyrhynchos*	Mallard	G5	S5					x	x				x							x		X				
Mammals	*Microtus pennsylvanicus*	Meadow Vole	G5	S5					x																		
Bird	*Zenaida macroura*	Mourning Dove	G5	S5					x	x			x		x				x	x	x		X				
Bird	*Oreothylpis ruficapilla*	Nashville Warbler	G5	S5B					x														X				
Bird	*Cardinalis cardinalis*	Northern Cardinal	G5	S5					x	x		x			x	x	x	x	x	x	x		X				
Bird	*Colaptes auratus*	Northern Flicker	G5	S4B					x			x	x					x	x				X				
Amphibian	*Lithobates pipiens*	Northern Leopard Frog	G5	S5		NAR							x														
Mammals	*Procyon lotor*	Northern Raccoon	G5	S5					x												x	F					
Bird	*Setophaga palmarum palmarum*	Palm Warbler	G5 TU	S1B					x														X				
Mammals	*Erithizon dorsatum*	Porcupine	G5	S5					x																		
Bird	*Progne subis*	Purple Martin	G5	S4B					x														X				level 2
Mammals	*Tamiasciurus hudsonicus*	Red Squirrel	G5	S5					x													F					
Bird	*Melanerpes carolinus*	Red-bellied	G5	S4					x	x					x	x	x	x		x	x		X				level 2

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
		Woodpecker																									
Bird	*Melanerpes erythrocephalus*	Red-headed Woodpecker	G5	S4B	Schedule 1	END	END	END	x														X				level 1
Bird	*Agelaius phoeniceus*	Red-winged Blackbird	G5	S4					x	x		x	x					x	x	x	x						
Bird	*Larus delawarensis*	Ring-billed Gull	G5	S5B, S4N					x														X				
Mammals	*Microtus chrotorrhinus*	Rock Vole	G4	S4					x																		
Bird	*Pheucticus ludovicianus*	Rose-breasted Grosbeak	G5	S4B					x							x		x	x		x		X				
Bird	*Regulus calendula*	Ruby-crowned Kinglet	G5	S4B					x														X				
Bird	*Tringa solitaria*	Solitary Sandpiper	G5	S4B						x			x										X				
Bird	*Melospiza melodia*	Song Sparrow	G5	S5B					x	x		x	x	x	x			x	x	x	x		X				
Bird	*Actitis macularius*	Spotted Sandpiper	G5	S5					x														X				level 3
Mammals	*Condylura cristata*	Star-nosed Mole	G5	S5					x																		
Mammals	*Mephitis mephitis*	Striped Skunk	G5	S5					x													F					
Bird	*Melospiza georgiana*	Swamp Sparrow	G5	S5B					x														X				level 2
Bird	*Tachycineta bicolor*	Tree Swallow	G5	S4B					x			x	x								x		X				
Bird	*Cathartes aura*	Turkey Vulture	G5	S5B					x													P					level 3

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Mammals	*Didelphis virginiana*	Virginia Opossum	G5	S4					x													F					
Bird	*Vireo gilvus*	Warbling Vireo	G5	S5B					x										x	x	x		X				
Bird	*Sitta carolinensis*	White-breasted Nuthatch	G5	S5					x							x							X	X (10ha continuous forest)			
Bird	*Zonotrichia leucophrys*	White-crowned Sparrow	G5	S4B					x														X				
Mammals	*Odocoileus virginianus*	White-tailed Deer	G5	S5					x							x	x	x	x	x	x	G					
Bird	*Zonotrichia albicollis*	White-throated Sparrow	G5	S5B					x														X				
Bird	*Meleagris gallopavo*	Wild Turkey	G5	S5						x		x	x								x	G					
Bird	*Cardellina pusilla*	Wilson's Warbler	G5	S4B					x														X				
Bird	*Troglodytes hiemalis*	Winter Wren	G5	S5B					x														X	X (30ha conif forest)	X		
Bird	*Aix sponsa*	Wood Duck	G5	S5					x														X				level 4
Mammals	*Microtus pinetorum*	Woodland Vole	G5	S3?	Schedule 1	SC	SC	SC	x																		
Bird	*Setophaga petechia*	Yellow Warbler	G5	S5B					x	x		x	x							x	x	x		X				
Bird	*Setophaga coronata*	Yellow-rumped Warbler	G5	S5B					x														X				
Bird	*Myiarchus crinitus*	Great Crested Flycatcher	G5	S5B											x	x	x			x	x		X				
Bird	*Vireo olivaceus*	Red-eyed Vireo	G5	S5B												x	x	x	x	x	x		X		X		
Bird	*Sayornis phoebe*	Eastern Phoebe	G5	S5B												x							X				L4

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Bird	*Baeolophus bicolor*	Tufted Titmouse	G5	S4												x		x			x		X	X (4ha shrub/sapling growth near water)			level 3
Bird	*Thryothorus ludovicianus*	Carolina Wren	G5	S4												x			x	x	x		X				level 3
Bird	*Hylocichla mustelina*	Wood Thrush	G5	S4B	Schedule 1	THR	THR	SC								x		x			x		X		X		
Mammals	*Tamias striatus*	Eastern Chipmunk	G5	S5												x		x			x	P					
Amphibian	*Pseudacris triseriata*	Western Chorus Frog (Carolinian population)	G5	S4		NAR										x			x		x						
Invertebrates	*Epargyreus clarus*	Silver-spotted Skipper	G5	S4												x			x		x						
Invertebrates	*Papilio glaucus*	Eastern Tiger Swallowtail	G5	S5												x			x			P					
Invertebrates	*Megisto cymela*	Little Wood-Satyr	G5	S5												x			x	x	x						
Bird	*Bubo virginianus*	Great Horned Owl	G5	S4													x					P					
Bird	*Empidonax traillii*	Willow Flycatcher	G5	S5B															x	x			X				
Bird	*Toxostoma rufum*	Brown Thrasher	G5	S4B															x				X				level 1
Invertebrates	*Thorybes bathyllus*	Southern Cloudywing	G5	S3															x								

Type	Scientific Name	Common Name	G-Rank	S-Rank	Schedule	COSEWIC	SARA	SARO	Donato EIA	Former Gietz, Laier, Walters	Harmony Lakes South	Ross-Lom	Sterling Lakes	Woodview Estates Phase 1 EIA	CNH's							FWCA	MBCA	SWH-TG Area Sensitive Species	Interior Species	Essex_County	Priority_Species_Essex
															CA2	CA3	CA4	CA5	TC1	TC2	TC7/CA1						
Invertebrates	*Poanes hobomok*	Hobomok Skipper	G5	S5															x								
Invertebrates	*Papilio polyxenes*	Black Swallowtail	G5	S5															x			P					
Invertebrates	*Pieris rapae*	Cabbage White	G5	SNA															x	x							
Invertebrates	*Celastrina neglecta*	Summer Azure	G5	S5															x	x	x						
Invertebrates	*Phyciodes tharos*	Pearl Crescent	G5	S4															x		x						
Invertebrates	*Danaus plexippus*	Monarch	G5	S4B, S2N	Schedule 1	END	SC	SC											x	x		P					
Bird	*Buteo jamaicensis*	Red-tailed Hawk	G5	S5		NAR															x	P					
Bird	*Phasianus colchicus*	Ring-necked Pheasant	G5	SNA																	x	G					
Bird	*Polioptila caerulea*	Blue-grey Gnatcatcher	G5	S4B																	x		X	X (30ha forest)	X		level 4
Bird	*Vermivora leucobronchialis*	Brewster's Warbler																			x		X				
Bird	*Setophaga ruticilla*	American Redstart	G5	S5B																	x		X	X (>100ha forest)			level 3
Bird	*Icterus spurius*	Orchard Oriole	G5	S4B																			X				level 3
Reptile	*Storeria occipitomaculata occipitomaculata*	Northern Red-bellied Snake	G5 T5	S5																	x						
Invertebrates	*Limenitis arthemis astyanax*	Red-spotted Purple	G5 T5	S5																	x						

Appendix D - Terrestrial Species at Risk List

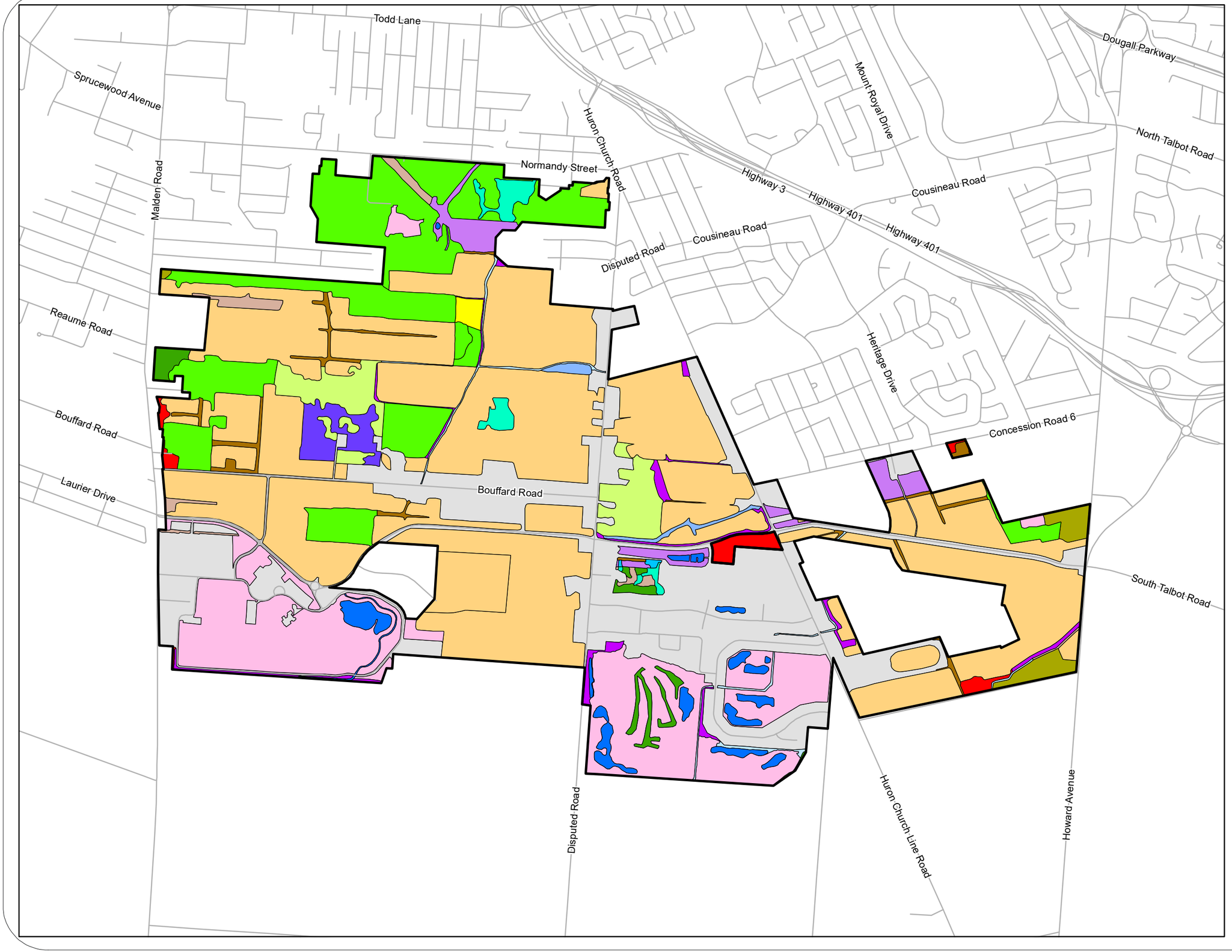
Wildlife Species at Risk Table

Type	Bird	Bird	Bird	Bird	Bird	Bird	Invertebrates	Mammals	Mammals
Scientific Name	*Hirundo rustica*	*Dolichonyx oryzivorus*	*Chaetura pelagica*	*Contopus virens*	*Melanerpes erythrocephalus*	*Hylocichla mustelina*	*Danaus plexippus*	*Scalopus aquaticus*	*Microtus pinetorum*
Common Name	Barn Swallow	Bobolink	Chimney Swift	Eastern Wood-Pewee	Red-headed Woodpecker	Wood Thrush	Monarch	Eastern Mole	Woodland Vole
G-Rank	G5	G5	G5	G5	G5	G5	G5	G5	G5
S-Rank	S4B	S4B	S4B,S4N	S4B	S4B	S4B	S4B, S2N	S2	S3?
Schedule	Schedule 1	Schedule 1	Schedule 1	Schedule 1	Schedule 1	Schedule 1	Schedule 1	Schedule 1	Schedule 1
COSEWIC	SC	SC	THR	SC	END	THR	END	SC	SC
SARA	THR	THR	THR	SC	END	THR	SC	SC	SC
SARO	SC	THR	THR	SC	END	SC	SC	SC	SC
Donato EIA		x	x	x	x			x	x
Former Gietz, Laier, Walters									
Harmony Lakes South									
Ros-Lom									
Sterling Lakes									
Woodview Estates Phase 1 EIA									
CA2				x					
CA3				x		x			
CA4				x					
CA5				x		x			
TC1							x		
TC2	x			x			x		
TC7/CA1				x		x			
FWCA							P		
MBCA	X	X	X	X	X	X			
SWH-TG Area Sensitive Species		X (>50ha dense grassland)							
Interior Species						X			
Essex County									
Priority Species Essex		level 2			level 1				

SAR Vegetation Table

Common Name	CW	GRank	COSEWIC	Nrank	SARO	SRank
Eastern Flowering Dogwood	3	G5	END	N2?	END	S2?
Black Ash	-3	G5	THR	N5		S3
Butternut	3	G3	END	N2	END	S2?
Shumard Oak	-3	G5	SC	N3	SC	S3
Climbing Prairie Rose	3	G5	SC	N2N3	SC	S2S3
Riddell's Goldenrod	-5	G5	SC	N3	SC	S3
Willow-leaved Aster	-3	G5	THR	N2	THR	S2

Appendix E - Compiled Ecological Land Classification Mapping



LEGEND

- Howard Bouffard Secondary Plan Boundary

ELC Communities (LGL)

Community Series

- Meadow
- Mixed Meadow
- Graminoid Meadow / Deciduous Thicket
- Deciduous Thicket
- Deciduous Savanna
- Deciduous Woodland
- Deciduous Forest
- Deciduous Swamp / Deciduous Forest
- Deciduous Swamp
- Thicket Swamp
- Meadow Marsh
- Shallow Marsh
- Open Aquatic
- Open Agriculture
- Treed Agriculture
- Green Lands
- Residential
- Commercial and Institutional
- Manicured

0 100 200 400 600 800 Meters

N

Howard Bouffard Secondary Plan

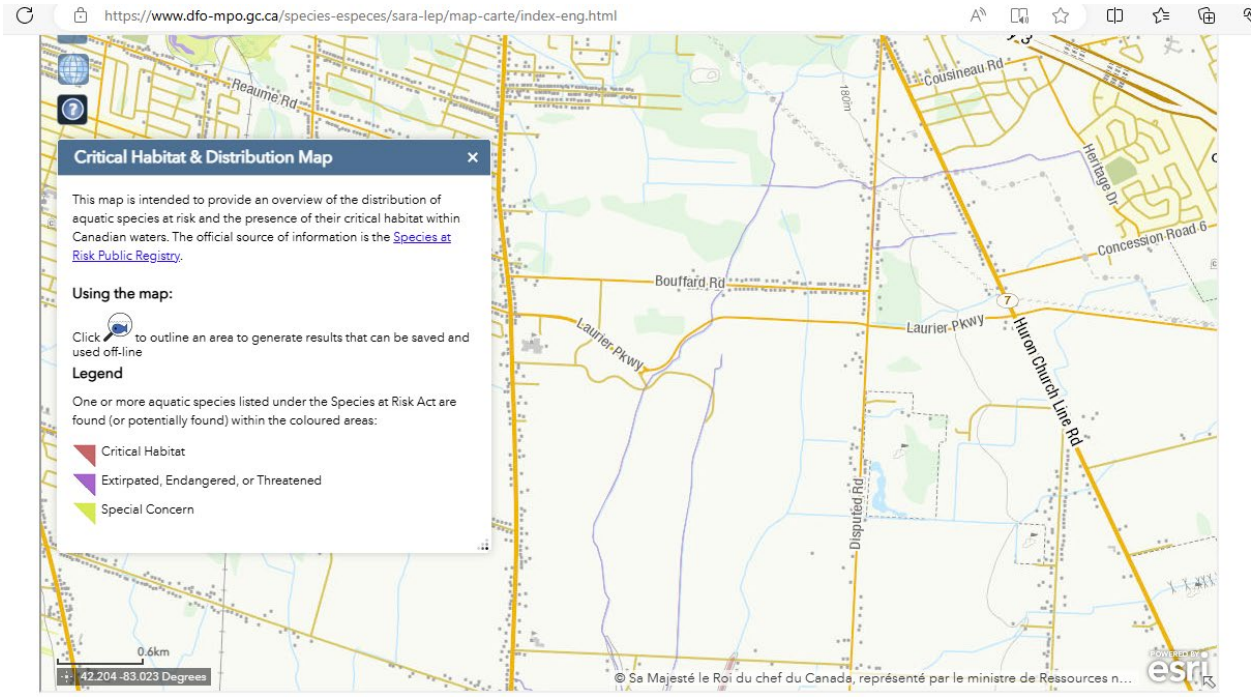
Ecological Land Classification

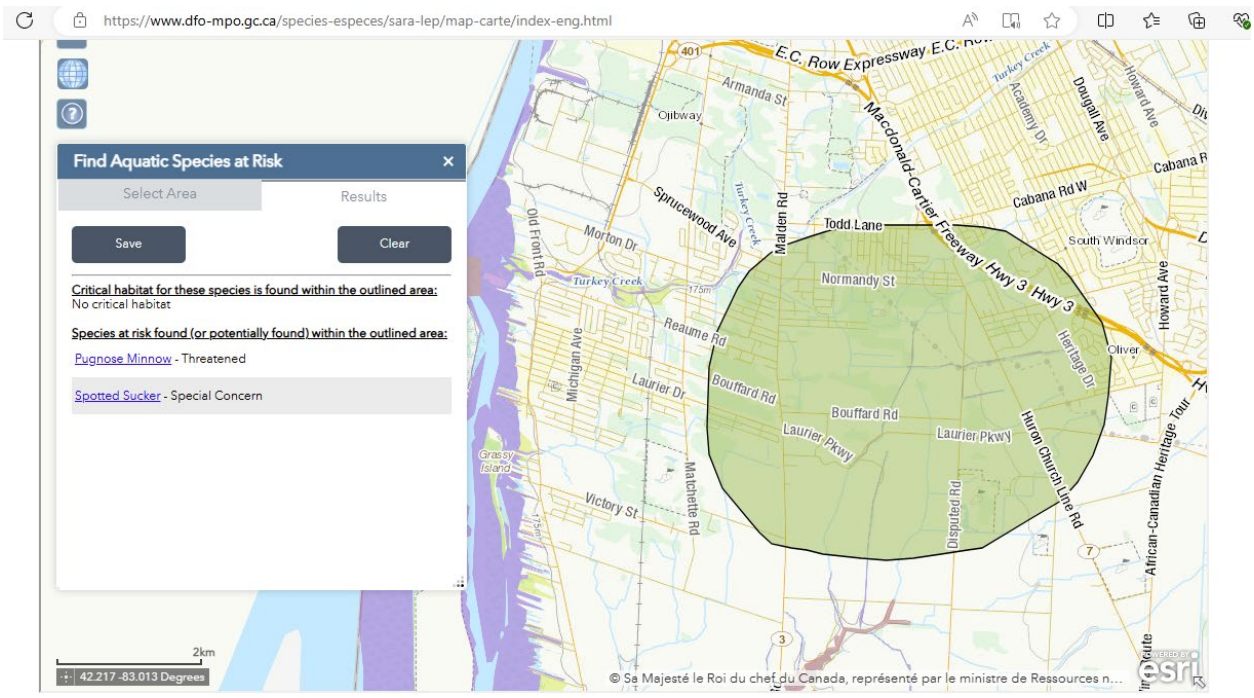
LGL Est. 1971 LIMITED
environmental research associates

Project	TA9324A	**Figure**	
Date	September 2023	**Prepared By:**	KC
Scale	1:20,000	**Verified By:**	LKR

Appendix F - Fisheries Data

DFO Aquatic SAR Mapping

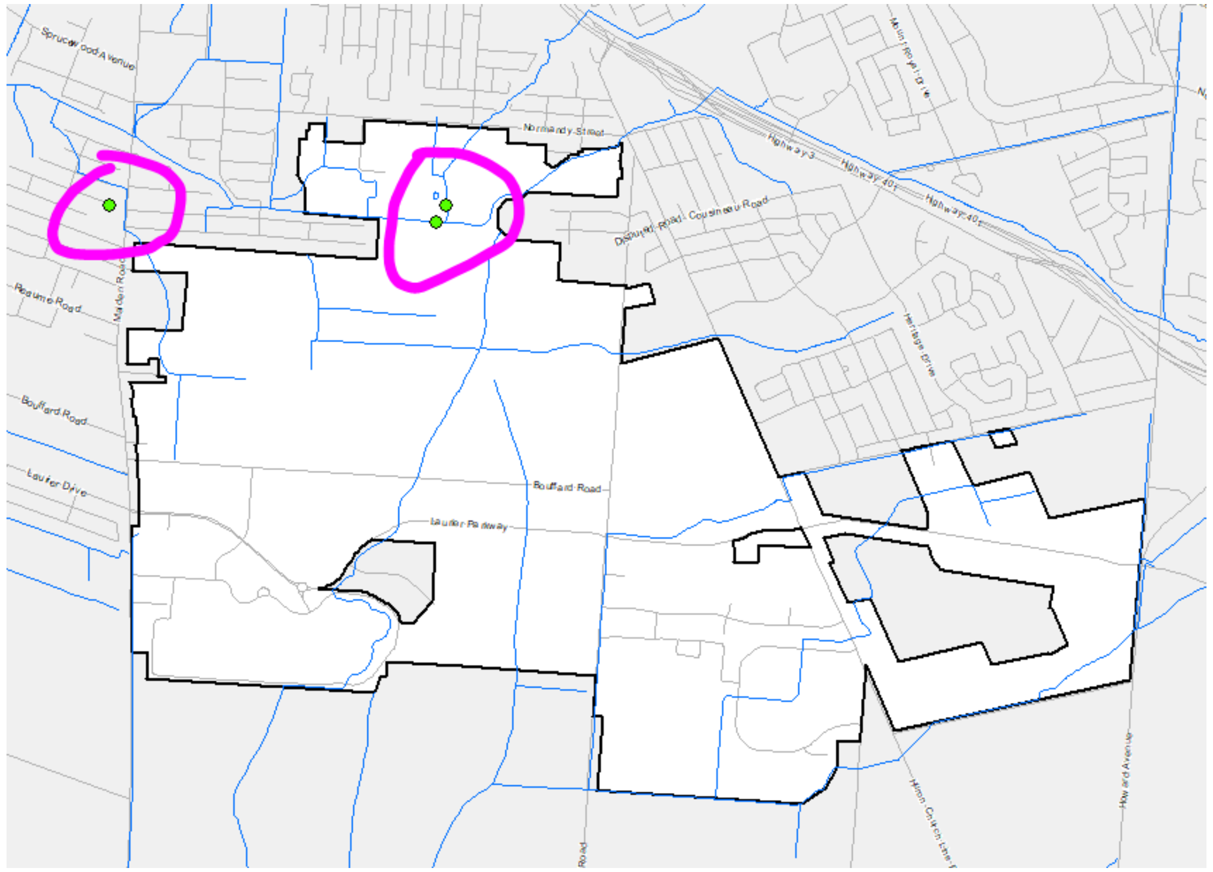




Available Fisheries Data (provided by ERCA)

OBJECTID	Record_ID	Original_ID	Secondary_ID	Scientific	FamilySci	Family	Name	Thermal Preference	Collection Date	Waterbody	LocDesc	Quantity	UTMy	UTMx	Latitude	Longitude	COSEWIC	OMNR	G_Rank	S_Rank	SARA_Sch	Source_ID	Author	ReportTitle	Observer	Method	Notes	Notes_2
1	1108	2210051-ER		*Luxilus chrysocephalus*	*Cyprinidae*	Carp and Minnow	striped shiner	cool	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042	NAR	NAR	G5	S4		36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo 18-19	
2	1109	2210051-ER		*Pimephales promelas*	*Cyprinidae*	Carp and Minnow	fathead minnow	warm	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing		
3	1110	2210051-ER		*Pimephales notatus*	*Cyprinidae*	Carp and Minnow	bluntnose minnow	warm	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042	NAR	NAR				36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo 14-15	
4	1111	2210051-ER		*Cyprinella spiloptera*	*Cyprinidae*	Carp and Minnow	spotfin shiner	warm	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo. 20-21	
5	1112	2210051-ER		*Notropis atherinoides*	*Cyprinidae*	Carp and Minnow	emerald shiner	cool	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing	photo 16-17	
6	1113	2210051-ER		*Notemigonus crysoleucas*	*Cyprinidae*	Carp and Minnow	golden shiner	cool	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing	photo 23-24	
7	1114	2210051-ER		*Cyprinus carpio*	*Cyprinidae*	Carp and Minnow	common carp	warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042		SE				36	ERCA (LL)		ERCA (LL)	Electrofishing		
8	1115	2210051-ER		*Carassius auratus*	*Cyprinidae*	Carp and Minnow	goldfish	warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042		SE	G5			36	ERCA (LL)		ERCA (LL)	Electrofishing		
9	1116	2210051-ER		*Cyprinidae*	*Cyprinidae*	Carp and Minnow	Minnow Family		2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing	unknown	
10	1117	2210051-ER		*Catostomus commersoni*	*Catostomidae*	Sucker	white sucker	cool	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042			G5	S5		36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo 22	
11	1118	2210051-ER		*Umbra limi*	*Umbridae*	Mudminnow	central mudminnow	cool/warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042						36	ERCA (LL)		ERCA (LL)	Electrofishing	photo 33 &34	
12	1119	2210051-ER		*Lepomis gibbosus*	*Centrarchidae*	Sunfish	pumpkinseed	warm	2000-05-04		Brunet Park	Many	4678396	331517	42.2396	-83.042			G5	S5		36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo 25-26	
13	1120	2210051-ER		*Micropterus salmoides*	*Centrarchidae*	Sunfish	largemouth bass	warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042			G5	S5		36	ERCA (LL)		ERCA (LL)	Electrofishing		
14	1121	2210051-ER		*Lepomis cyanellus*	*Centrarchidae*	Sunfish	green sunfish	warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042	NAR	NAR	G5	S4		36	ERCA (LL)		ERCA (LL)	Electrofishing		
15	1122	2210051-ER		*Ambloplites rupestris*	*Centrarchidae*	Sunfish	rock bass	cool	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042			G5	S5		36	ERCA (LL)		ERCA (LL)	Electrofishing	Photo 27-28	

OBJECTID	Record_ID	Original_ID	Secondary_ID	Scientific	FamilySci	Family	Name	Thermal Preference	Collection Date	Waterbody	LocDesc	Quantity	UTMy	UTMx	Latitude	Longitude	COSEWIC	OMNR	G_Rank	S_Rank	SARA_Sch	Source_ID	Author	ReportTitle	Observer	Method	Notes	Notes_2
16	1123	2210051-ER		*Ameiurus melas*	*Ictaluridae*	Bullhead Catfish	black bullhead	warm	2000-05-04		Brunet Park	Few	4678396	331517	42.2396	-83.042			G5	S3		36	ERCA (LL)		ERCA (LL)	Electrofishing		
17	1124	2210052-ER		*Pimephales promelas*	*Cyprinidae*	Carp and Minnow	fathead minnow	warm	2000-05-04		Brunet Park	Many	4678479	331571	42.2403	-83.0414						35	ERCA		ERCA	Electrofishing		
18	1125	2210052-ER		*Cyprinidae*	*Cyprinidae*	Carp and Minnow	Minnow Family		2000-05-04		Brunet Park	Few	4678479	331571	42.2403	-83.0414						35	ERCA		ERCA	Electrofishing	unknown	
19	1126	2210052-ER		*Carassius auratus*	*Cyprinidae*	Carp and Minnow	goldfish	warm	2000-05-04		Brunet Park	Few	4678479	331571	42.2403	-83.0414		SE	G5			35	ERCA		ERCA	Electrofishing		
20	1127	2210052-ER		*Lepomis gibbosus*	*Centrarchidae*	Sunfish	pumpkinseed	warm	2000-05-04		Brunet Park	Few	4678479	331571	42.2403	-83.0414			G5	S5		35	ERCA		ERCA	Electrofishing		
21	1128	2210137-ER		*Micropterus salmoides*	*Centrarchidae*	Sunfish	largemouth bass	warm	2001-08-24		Malden Footbridge	1	4678479	329841	42.24	-83.0623			G5	S5		35	ERCA		ERCA	Electrofishing		
22	1129	2210137-ER		*Centrarchidae*	*Centrarchidae*	Sunfish	sunfish family		2001-08-24		Malden Footbridge	20	4678479	329841	42.24	-83.0623						35	ERCA		ERCA	Electrofishing		
23	1130	2210137-ER		*Pimephales notatus*	*Cyprinidae*	Carp and Minnow	bluntnose minnow	warm	2001-08-24		Malden Footbridge	10	4678479	329841	42.24	-83.0623	NAR	NAR				35	ERCA		ERCA	Electrofishing		
24	1131	2210137-ER		*Dorosoma cepedianum*	*Clupeidae*	Herring	gizzard shad	cool	2001-08-24		Malden Footbridge	5	4678479	329841	42.24	-83.0623			G5	S4		35	ERCA		ERCA	Electrofishing		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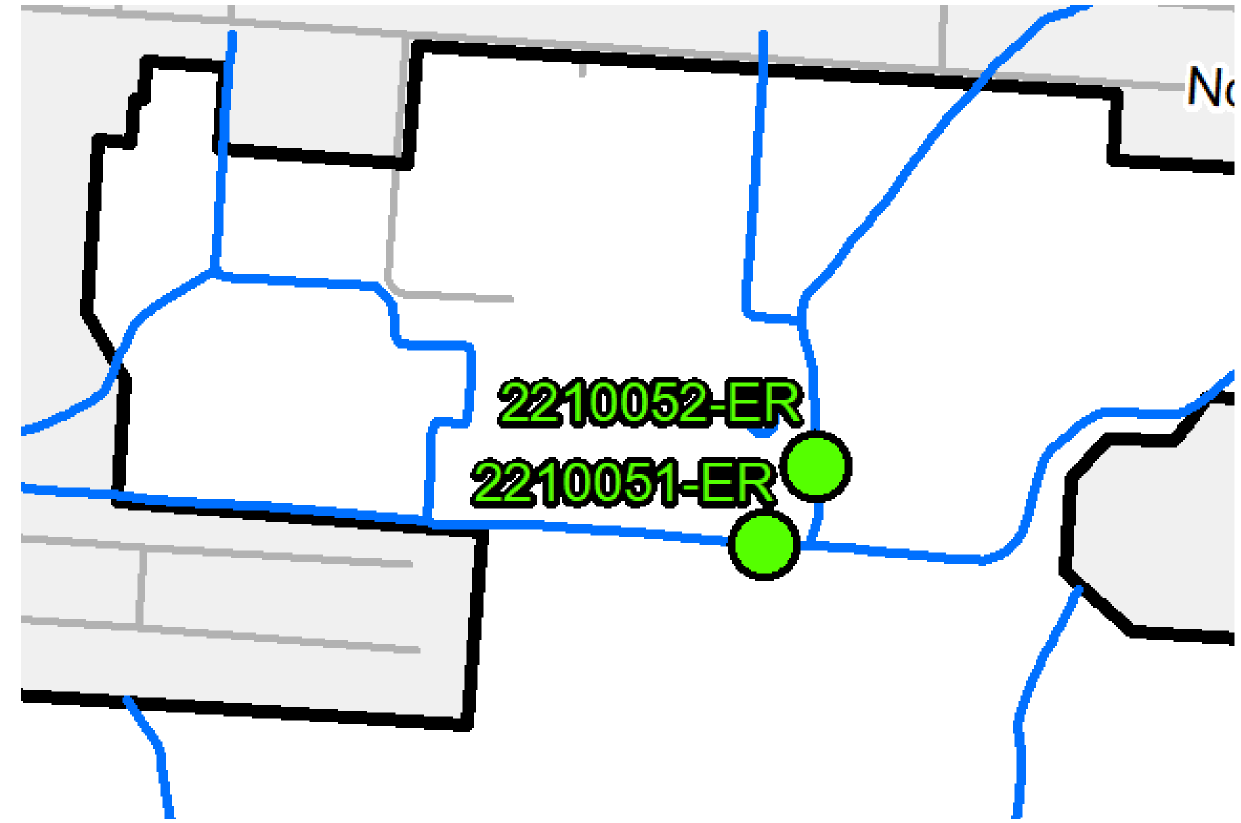
Normandy Street
Highway 3
Highway 401
Cousineau Road
Heritage Drive
Bouffard Road
Laurier Parkway
Laurier Drive
Howard Avenue


2210052-ER
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