



Guelph Innovation District Lands, Blocks 1&2, Guelph

Environmental Impact Study

Prepared for:

Fusion Homes
500 Hanlon Creek Blvd.
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NATURAL RESOURCE SOLUTIONS INC.

Aquatic, Terrestrial and Wetland Biologists

Guelph Innovation District Lands, Blocks 1&2, Guelph
Environmental Impact Study

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained by Fusion Homes to complete an Environmental Impact Study (EIS) in support of a Draft Plan of Subdivision for the Guelph Innovation District (GID) Blocks 1 and 2. The purpose of this report is to evaluate the ecologically significant features requiring protection and/or mitigation within the study area, as well as to determine the impacts of development in relation to these natural heritage features, and detailed recommendations for necessary mitigation and enhancement measures.

The GID Blocks 1 and 2 (hereafter referred to as the 'subject property') are bound by the Eramosa River in the north and east, Stone Road to the south, and Victoria Road to the west. The study area contains several Significant Natural Areas (SNAs) that are part of the City of Guelph Natural Heritage System (NHS) including Significant Valleylands, Significant Woodlands and wetlands, in addition to a number of significant plant and wildlife habitats, discussed throughout this report (City of Guelph 2024). The Eramosa River, floodplain, and wetlands within the study area are regulated by the *Conservation Authority Act* (Ontario Regulation 41/24). The subject property was previously owned by the University of Guelph which had planted thousands of trees, mostly hybrid poplars, Black Walnuts (*Juglans nigra*) and conifers, as part of their study program. These trees have since been removed, which has created a number of open country habitats that are discussed within this report.

NRSI has worked closely with other members of the project team to evaluate the conditions within the study area, including Fusion Homes, MTE (engineering), MacNaughton, Hermesen, Britton, Clarkson (MHBC) Planning Ltd, as well as Sasaki who have developed a conceptual framework plan for the development of GID Blocks 1 & 2.

This EIS report provides details on the scoping of the project study requirements, collection of background information, characterization of natural heritage features through completion of original field surveys, an assessment of the significance and sensitivity of these features, an evaluation of potential impacts and mitigation/enhancement measures, and a detailed enhancement and monitoring plan.

This EIS report has been updated from the previously submitted version (March 2025) based on comments received from City of Guelph staff (May 30, 2025) and the Grand River Conservation Authority (GRCA) (July 15, 2025). In addition, NRSI carried out a number of focused discussions with City staff on the location of Stormwater Management Facility 2 (June 2025)

which has further informed the development plan and associated impact analysis included within this revised report. This report also incorporates comments provided by City staff within their staff report on the Block Plan submission presented at the September 10th, 2025 council meeting as well as subsequent detailed technical comments provided in a letter dated September 11, 2025.

Additional comments from the indigenous communities (Mississaugas of the Credit First Nation; Six Nations of the Grand River) were also received and integrated where feasible. Finally, NRSI and the project team continues to work with other stakeholders, most notably the Guelph Arboretum staff who have provided comment through this process which has also been carefully considered and included in this analysis.

A Tree Inventory and Preservation Plan has been provided by NRSI under a separate cover (NRSI 2025a).

1.1 Proposed Undertaking

The proposed development plan for GID block Plan Areas 1 & 2 is detailed on the Block Plan prepared by MHBC (2025) with input from Sasaki on framework design. In addition, detailed engineering plans for the implementation of the development concept have been provided by MTE pertaining to stormwater management, servicing, and hydrogeology.

It is understood that the proposed development is to include residential, employment, and mixed-use in addition to blocks for open space/parks, school, Stormwater Management (SWM), and trails. Main points of vehicular access to GID 1 & 2 will be via Victoria Road South (three primary entrances) as well as Stone Road East (one primary entrance) (MHBC 2025). As detailed within the framework land use plan developed by Sasaki (2024), the College Avenue corridor will include the downtown core of the GID 1 & 2 blocks, with a central plaza, park, as well as two mixed-use 'landmark towers' at the junction of College Avenue and Victoria Road South. Three SWM blocks are proposed for the site, which includes SWM facilities 1 and 3 on the table lands as well as SWM facility 2 that is proposed to be located partially within the Significant Valleylands, but outside of other natural heritage features, as per the policies of the City of Guelph Official Plan (2022).

Proposed trails are provided as part of the development plans prepared by MTE (2025). These trails are anticipated to provide appropriate connections between the developed areas and the existing and future trails within the NHS of the valleylands. As part of this development plan, a detailed review of existing trails is to be undertaken, including information on the feasibility of trail connections and recommendations for the closure of ad hoc trails that have been utilized. This is further discussed within the impact analysis in Section 5 below, although a more detailed analysis on the feasibility of this trail network will require additional engineering plans and an associated revision to this impact analysis.

Victoria Road South is also anticipated to be widened to 4 lanes in the location of GID Blocks 1 & 2, as per the *Victoria Road Reconstruction* (R.V. Anderson Associates Ltd. 2006).

1.2 Project Scoping

1.2.1 Study Area

For the purposes of this report, the 'subject property' refers to the lands known as the GID Blocks 1 and 2, which are bound by the Eramosa River in the north and east, Stone Road to the south, and Victoria Road to the west. The 'study area' comprises the subject property plus

240m, as shown on Map 1. A study area of 240m was selected in order to consider natural heritage features beyond the subject property boundaries that have the potential to be impacted by proposed development. Although access to the broader study area beyond the subject property boundary was largely restricted, roadside assessments of these habitats were carried out, along with a review of aerial imagery.

The proposed 'development area' comprises the area largely outside of the Significant Natural Heritage features and their required buffers (primarily the table lands in the central portion of the subject property).

1.2.2 Terms of Reference

NRSI submitted a draft Terms of Reference (TOR) for the EIS to the City of Guelph and GRCA (June 15, 2022) and received comments from City staff on September 23, 2022. A revised TOR that will be incorporated into the broader Block Plan TOR has been submitted to the City and GRCA for final review (November 21, 2022) and is provided in Appendix I. A pre-consultation meeting with City staff was held on July 12, 2022 to broadly discuss project requirements moving forward. This information has been incorporated into this report. This report and the revised TOR have been developed in accordance with the *Guelph Innovation District Guidance for Preparation of Block Plans* (City of Guelph 2019a). This EIS report also integrates recommendations from the *Eramosa-Blue Springs Watershed Study* (Beak International Incorporated and Aquafor Beech Ltd. 1999).

1.2.3 Collection and Review of Background Information

Existing natural heritage information was gathered and reviewed to identify key natural heritage features and species that are reported from or have the potential to occur within the study area. Background information on the natural environment features within the study area vicinity was also gathered from the Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) online significant species database (MNRF 2022), the MNRF's Land Information Ontario (LIO) mapping, and relevant taxa-specific databases, as listed below.

Initial wildlife species lists were compiled to provide information on species reported from the vicinity of the study area (10km radius) using various online atlases and results from the where property-specific information was provided. These initial species lists were used to guide the scope and type of wildlife surveys required, as outlined in the following sections. The sources that were reviewed to inform project scoping included the following:

- City of Guelph Official Plan (2021);
- Guelph Innovation District Secondary Plan (OPA 54) (City of Guelph 2014);
- Eramosa River Blue Springs Creek Watershed Study (Beak et al. 1999);
- GRCA Regulated Area mapping and available files (GRCA 2022);
- Natural Heritage Information Centre (NHIC) Database (MNRF 2022);
- Ontario Breeding Bird Atlas (BSC et al. 2006);
- eBird online records (eBird 2022);
- Ontario Reptile and Amphibian Atlas (Ontario Nature 2019);
- Atlas of the Mammals of Ontario (Dobbyn 1994);
- Ontario Butterfly Atlas (Macnaughton et al. 2022);
- Ontario Odonata Atlas Database (OOAD 2022);
- iNaturalist online records – research grade observations (iNaturalist 2022a);
- Victoria Road Widening Arboretum Project (P-GEM Environmental Student Consultants 2024)

1.2.4 Species and Risk and Species of Conservation Concern Screening

Based on the initial species lists, a number of Species at Risk (SAR) and Species of Conservation Concern (SCC) were identified as having records near the study area. SAR are those species listed on the Species at Risk in Ontario List (MECP 2024). These include species identified by the Committee on the Status of Species at Risk in Ontario (COSSARO) as provincially Endangered, Threatened, or Special Concern. Species listed as Endangered or Threatened are protected under the Endangered Species Act (ESA) 2007, which includes protection to their habitat, and are referred to herein as “regulated SAR”.

SCC include:

- Species designated provincially as Special Concern;
- Species that have been assigned a conservation status (S-Rank) of S1 to S3 or SH by the NHIC; and,
- Species that are designated federally as Threatened or Endangered by the Committee for the Status of Endangered Wildlife in Canada (COSEWIC) but not provincially by the COSSARO. These species may be protected by the federal Species at Risk Act (SARA) if they are listed as Threatened or Endangered on Schedule 1 of the SARA, but not provincially by the *ESA*.

Habitat for SCC is considered Significant Wildlife Habitat (SWH) (OMNR 2010), which is afforded protection under the Provincial Policy Statement (PPS, OMMAH 2020) and municipal natural heritage protection policies. For the purposes of this report, the term “SAR” will refer to provincially Threatened and Endangered species regulated under the *ESA* while provincial species of Special Concern will be considered SCC.

Based on the results of the background review which identified SAR and SCC with the potential to occur within the study area, assessments of habitat suitability were made by cross-referencing each species’ known habitat preferences or requirements (e.g., OMNR 2000) with habitat availability based on satellite imagery interpretation, and available mapping (Map 2). This preliminary screening was then updated following the completion of original field surveys. The final screening is provided in Appendix II.

1.2.5 Significant Wildlife Habitat Screening

A screening for the presence of SWH was also completed for the study area. The Significant Wildlife Habitat Technical Guide (SWHTG) outlines the types of habitats that the MNRF considers significant in Ontario as well as criteria to identify these habitats for Ecoregion 6E, in which the study area is located (OMNR 2000, MNRF 2015a). The SWHTG groups SWH into four broad categories: seasonal concentration areas, rare vegetation communities and specialized wildlife habitat, habitats of SCC, and animal movement corridors. Final results of the SWH screening exercise based on original field surveys are provided in Appendix III.

1.3 Relevant Policies, Legislation and Planning Studies

Table 1 provides an overview of natural heritage-based policies, regulations and legislation that were considered and which informed the field program and analysis. Where applicable, these policies are reviewed within the discussion of natural heritage features within Section 5 and will be further assessed as part of the EIS report in order to inform development plans.

Table 1. Relevant Policies, Legislation, Planning Studies, and Guidelines

Policy/Legislation/Study	Description	Project Relevance
<i>Species at Risk Act (SARA)</i> (Government of Canada 2002)	• The SARA is a federal legislation that protects species listed as Endangered, Threatened or Special Concern on Schedule 1. • SARA prohibits killing, harming, harassing, capturing, or taking of individuals. • Prohibitions regarding individuals and residences for migratory birds and aquatic SAR apply wherever they occur in Canada (including private lands). • For terrestrial species at risk, these prohibitions only apply on federal lands. • In the case of a migratory bird species listed under the MBCA, certain SARA prohibitions protecting individuals and residences (e.g., nests or dens) of Endangered, Threatened and Extirpated species apply automatically. Additionally, Critical Habitat for these species, where identified, is protected. In the case of aquatic species at risk (fish and mussels), the species and their residence are protected in all Canadian waters, including private, provincial, and federal lands. Recovery strategies for specific species define their critical habitats, which are protected from destruction.	Several species of migratory birds protected by the SARA were identified as occurring within the Study Area based on presence of suitable habitat (full results of the SAR screening exercise are provided in Appendix II).
<i>Migratory Birds Convention Act (MBCA)</i> (Government of Canada 1994)	• The MBCA protects migratory game birds, insectivorous birds, and several other migratory non-game birds from persecution in the form of harassment. • The MBCA prohibits killing, capturing, injuring, or disturbing migratory birds, as well as destroying or disturbing their nests or eggs. Certain activities may be allowed with a permit. The Migratory Bird Regulations (MBR) came into force under the MBCA on July 30, 2022.	Any vegetation removal and grading required for the proposed development must have consideration for the MBCA and the recommended timing windows for avoidance of impacts.

Policy/Legislation/Study	Description	Project Relevance
	This added new provisions for certain migratory birds and clarifies when nests are protected. It also provides year-round protection to the nests of 18 species, that are known to re-use nests annually, now listed under Schedule 1 of the MBCA.	
Canadian Fisheries Act, 1985 (Government of Canada 2019)	• Last amended in August 2019, the federal <i>Fisheries Act</i> provides for the protection of fish and fish habitat. • The Act prohibits the 'harmful alteration, disruption, and destruction' (HADD) of fish and their habitats. • Dept. of Fisheries and Oceans (DFO) has developed an online, self-assessment tool, where proponents can determine whether their projects require DFO review based on the type of water body the work is occurring in and the nature of the proposed activity.	While there are no watercourses within the subject property or development area, the Eramosa River borders the north and eastern portions of the subject property and will need to be considered within the approach to Stormwater Management.
Provincial Planning Statement (OMMAH 2024).	• Issued under the authority of Section 3 of the Planning Act and came into effect October 20, 2024, replacing the 2020 Provincial Policy Statement.. • Section 4.1 of the PPS – Natural Heritage establishes clear direction on the adoption of an ecosystem approach and the protection of resources that have been identified as 'significant'. • The Natural Heritage Reference Manual (OMNR 2010) and the Significant Wildlife Habitat Technical Guide (OMNR 2000) were prepared by the MNRF to provide guidance on identifying natural features and in interpreting the Natural Heritage sections of the PPS.	• The following natural features, afforded consideration within the PPS, were identified within the study area and subject property: ○ Significant Woodland, ○ Significant Wetland, ○ Significant Valleyland, and ○ Significant Wildlife Habitat. • The development area is located largely located outside of these natural heritage features. •
Endangered Species Act (Government of Ontario 2007; 2020)	• The ESA prohibits killing, harming, harassing, or capturing SAR and protects their habitats from damage and destruction.	• Based on the background review and SAR/SCC screening, several SAR were identified as potentially occurring within the

Policy/Legislation/Study	Description	Project Relevance
	- Ontario Regulation 242/088 under the ESA applies to all species on the Species at Risk in Ontario List, as of June 2, 2017. - Ontario Regulation 829/21 and 830/21 may apply depending on which SAR are confirmed to be present within the Subject Property where harm to those species and their habitat may be proposed.	subject property including the development area, some of which were confirmed during field surveys (Appendix II). - These SAR are described and considered throughout this report. - Where SAR habitat overlaps with the development area, impacts are possible, and the appropriate regulations and policies of the Endangered Species Act will need to be considered and adhered to.
Protecting Ontario By Unleashing our Economy Act (Legislative Assembly of Ontario 2025)	- Bill 5, the <i>Protect Ontario by Unleashing our Economy Act</i>, 2025, received Royal Assent on June 5, 2025. - Interim changes to the ESA will be in effect from Royal Assent of Bill 5 until the SCA is officially in force. Key changes include: - Habitat is defined as physical dwellings (e.g., dens, nests, hibernacula) and the immediate surrounding area necessary for breeding, rearing, or hibernation. - Going forward, proponents will no longer have the option to pay a conservation charge instead of undertaking on-the-ground mitigation. The associated fund will also be dissolved, and the species conservation charge regime will be discontinued.	If species at risk protected by the ESA and/or their habitat are confirmed within the study area, a mitigation plan, project registration, or permit from the MECP may be required.
Fish and Wildlife Conservation Act (FWCA) (Government of Ontario 1997)	The FWCA provides protection for certain bird species not protected under the MBCA (e.g., raptors), as well as furbearing mammals and their dens or habitual dwellings, aside from the Red Fox (<i>Vulpes vulpes</i>) and Striped Skunk (<i>Mephitis mephitis</i>). Specific amphibians, invertebrates, and reptiles that are listed under Schedule 1 are also protected, along with their nests/eggs.	- Several specially protected species are reported from the Study Area. A permit from the MNR would be required to damage, destroy, or relocate a den/nest/eggs of protected species. - The timing of vegetation removal and grading activities must have consideration for bird nesting and den sites for furbearing mammals.

Policy/Legislation/Study	Description	Project Relevance
	•	•
		•
City of Guelph Official Plan (2024)	• Development is not permitted within the Natural Heritage System including minimum established buffers, with the exception of various restricted uses that may be permitted in some cases, as specified by other Official Plan policies. • Section 4.1.1.11 states that minimum buffers have not been applied to lands containing existing development which may preclude achievement of the minimum buffers. An EIS is required for redevelopment of these sites where buffer widths are established and justified.	• Natural Heritage System features are present within the study area. In general, development and site alteration are not permitted within the Natural Heritage System with the exception of permitted uses described in Section 4.1.1.11 of the OP • The following Significant Natural Area features of the Natural Heritage System are present within the subject property: ○ Significant Woodlands ○ Significant Wildlife Habitat (including Ecological Linkages) ○ Significant Valleyland ○ In addition, the subject property is located immediately adjacent to the Eramosa River, a Surface Water Feature and Fish Habitat • Habitat for Significant Species, a Natural Area feature of the Natural Heritage System, is present within the subject property and development area. • Development or site alteration may be permitted within Habitat for (locally) Significant Species providing it can be demonstrated that there will be no negative impacts to form or function.
Conservation Authorities Act (O.Reg. 41/24) (Government of Ontario 2024a)	• Regulation issued under <i>Conservation Authorities Act</i>, 2024. • Through this regulation, the conservation authority has the responsibility to regulate activities in natural and hazardous areas	• Regulated features including wetlands and watercourses (Eramosa River) are present in the study area. • A permit under Section 28.1 of the Conservation Authorities Act is required for any development within the regulation limits

Policy/Legislation/Study	Description	Project Relevance
	(i.e., areas in and near rivers, streams, floodplains, wetlands, and slopes). Regulation limit extends 30m from wetlands and 15m from watercourses.	to these features. Permits must demonstrate that the undertaking is not likely to affect the control of flooding, erosion, dynamic beaches, or pollution, or the conservation of lands.
Prohibited Activities, Exemptions and Permits (O.Reg. 41/24) (Government of Ontario 2024c)	- Regulation issued under <i>Conservation Authorities Act</i>, R.S.O. 1990. - The Minister's regulation replaced Ontario Regulation 150/06 (and all other individual conservation authority regulations) as of April 1, 2024. - The "pollution" and "conservation of land" tests for granting permission were removed from the Act and a new emphasis on public safety was added. - The Conservation Authority may grant permission for development activities if it is not likely to affect the control of flooding, erosion, dynamic beaches, unstable soil or bedrock, and when the development activities are not likely to create conditions that could jeopardize health or safety of people or damage or destroy property.	Wetlands, river valley slopes, floodplain, and watercourses are present within the Study Area and regulated by the GRCA.
GRCA's Policies for the Administration of the Prohibited Activities, Exemptions and Permit Regulations (GRCA 2025)	- The GRCA released a new policy document on May 24, 2024 in accordance with Ontario Regulation 41/24, with minor revisions provided in 2025. - Development activity, interference or alteration within a regulated area may be permitted where it can be demonstrated that GRCA's policies can be met. - Regulated areas include river or stream valleys and an allowance, including; wetlands or other areas where development activity could interfere with the hydrologic function of a wetland; lands adjacent or close to the shoreline of Lake Erie and inland lakes and an allowance; watercourses; or hazardous lands.	The EIS must demonstrate that the proposed development will not negatively impact the feature and its hydrologic function of the regulated wetland and watercourse within the Study Area.

2.0 Field Methods

A comprehensive, multi-season field program was undertaken by NRSI between 2022-2024. In total, 54 field visits were carried out between April 12th, 2022 and October 28th, 2025 to characterize the natural features within the subject property (Table 2). Monitoring stations as part of the field program are shown on Map 3.

During the field program, all observations of birds, reptiles, amphibians, mammals, butterflies, dragonflies, and damselflies were documented on all field visits. This included actual direct observations of individuals, as well as signs of wildlife presence (i.e., tracks, scat, dens, nests, etc.). The field methods employed are described in the relevant subsections below.

Table 2. Field Survey Summary

Survey Type	Protocol	Date	Start and End Time (24 hrs)	Temp. (°C)	Wind Speed (Beaufort Scale)	Precipitation
Winter Wildlife Surveys	Systematic area searches throughout all habitats	December 20 th , 2022	1055-1435	-4	2	3cm of snow approximately 24-48hrs prior to survey. Snow base: 5cm
		February 1 st , 2023	0900-1400hrs	-10	2	Trace snow in past 24hrs. Snow base: 40cm
		March 16 th , 2023	1019-1300hrs	2	3-4	--
Vegetation Community Mapping	Ecological Land Classification (ELC) (Lee et al. 1998)	May 13 th , 2022	0830-1730	18	1	None
Vascular Flora Inventories	Systematic area search by ELC polygon	May 13 th , 2022	0830-1730	18	1	None
		July 27 th , 2022	0919-1800	24	1	None
		September 9 th , 2022	0930-1715	21	0	None
		October 7 th , 2022	1000-1845	7	4	None
Breeding Bird Surveys	Ontario Breeding Bird Atlas Protocol (OBBA 2001)	June 2 nd , 2022	0604-0805	17	1	None
		June 16 th , 2022	0645-0815	20-24	1	None
Common Nighthawk	Canadian Nightjar survey Protocol (ECCC 2021)	June 16 th , 2022	2036-2110	24	0-3	None
		June 28 th , 2022	2040-2111	21	2	None

Survey Type	Protocol	Date	Start and End Time (24 hrs)	Temp. (°C)	Wind Speed (Beaufort Scale)	Precipitation
Anuran Call Surveys	Marsh Monitoring Protocol (BSC 2009b)	April 25 th , 2022	2043-2115	-	1	Drizzle
		May 17 th , 2022	2145-2215	10	2	None
		June 16 th , 2022	2134-2201	22	1-3	None
Turtle Emergence and Basking Surveys	MNRF 2015b	April 12 th , 2022	0900-1200	17	2	None
		April 28 th , 2022	1521-1535	9 (thermometer broke, used weather app)	3	None
		May 4 th , 2022	1303-1326	15	3	None
		May 11 th , 2022	0906-0942	19.5	1	None
		May 18 th , 2022	1105-1147	15	1	None
Turtle Nesting Surveys	MNRF 2016a	May 26 th , 2022	1900-2040	23	4-5	Light Rain
		June 6 th , 2022	1900-2000	20	3-4	Drizzle
		June 14 th , 2022	1925-2100	25	1	None
		June 16 th , 2022	1930-2035	28	0-2	None
		June 23 rd , 2022	1812-1831	26	2	None
Snake Visual Encounter Surveys*	MNRF 2016b (completed on all surveys in spring, summer, and fall of 2022 where weather permitted)	-	-	-	-	-
	Area searches of suitable	April 3 rd , 2023	1410-1453hrs	12	2	None

Survey Type	Protocol	Date	Start and End Time (24 hrs)	Temp. (°C)	Wind Speed (Beaufort Scale)	Precipitation
Snake Emergence Surveys	hibernacula during emergence period	April 13 th , 2023	-	24	3	None
		April 28 th , 2023	0900-0950hrs	10	2	None
		May 5 th , 2023	1230-1345	11-13	0	None
		May 12 th , 2023	0950-1115	17-22	1	None
Bat Habitat Assessment (leaf-off)	OMNR 2011, MNRF 2017a, MECP 2022a, 2022c	April 29 th , 2022	1000-1600	5	3	None
Bat Habitat Assessment (buildings)	Area search of interiors/exterior of all buildings for evidence of bat roosting	February 17, 2023	1000-1230hrs	-	-	-
Aquatic Habitat Assessments	Modified Ontario Stream Assessment Protocol (Stanfield 2013)	July 6 th , 2022	0910-1122	-	2-3	None
Insect Surveys	Systematic area search of suitable habitat.	June 2 nd , 2022	0840-1105	10-16	2	None
		July 15 th , 2022	0900-1200	21	1	None
		August 10 th , 2022	0945-1136	19-24	1	None
General Site Walk	Site walk with City staff to generally review site conditions.	July 19 th , 2022	-	-	-	-
Wetland Delineation Flagging	Ontario Wetland Evaluation (OWES)	June 15 th , 2022	-	-	-	-

Survey Type	Protocol	Date	Start and End Time (24 hrs)	Temp. (°C)	Wind Speed (Beaufort Scale)	Precipitation
Wetland Delineation Confirmation	NRSI staff met with GRCA and City staff to confirm wetland boundaries.	July 14 th , 2022	-	-	-	-
Woodland Delineation Flagging and Confirmation	Ecological Land Classification and Oak Ridges Moraine 2017	June 15 th , 2022	-	-	-	-
		August 30 th , 2022	-	-	-	-
		October 6 th , 2022	-	-	-	-
	NRSI biologists met with City staff to review and confirm the woodland dripline.	October 11 th , 2022	-	-	-	-
	NRSI met with Ryan Hamelin to review small ash stand.	July 28 th , 2025	-	-	-	-
Tree Inventory	Inventory of all trees within or adjacent to development area. Tree Technical Manual (City of Guelph 2025)	November 13 and 14 2023, December 6 2023, January 3, 2024, December 6 2024, July 10, 2025, and October 28, 2025	--	--	--	--
Butternut Health Assessment	Butternut Assessment Guidelines (Government of Ontario 2021)	August 22, 2023	--	--	--	--

*Snake Visual Encounter Surveys were completed during all surveys when suitable weather was present

2.1 Terrestrial Field Surveys

2.1.1 Vegetation Surveys

Vegetation communities within the study area, including lands adjacent to the subject property, were mapped and classified following the Ecological Land Classification (ELC) system for Southern Ontario (Lee et al. 1998). On adjacent lands within the study area where property access was prohibited, vegetation communities were classified through roadside assessments or review of aerial imagery. Details on vegetation communities were recorded including species composition, dominance, and uncommon species or features. Classification was carried out over the course of three separate, seasonal assessments of natural areas on site, with refinement of ELC classification as necessary. These assessments occurred in the spring, summer, and fall of 2022.

2.1.2 Natural Feature Delineation

Wetland Boundary

The wetland boundaries were surveyed and flagged by an NRSI biologist trained in the Ontario Wetland Evaluation System (OWES) for Southern Ontario (MNRF 2014a) on June 15, 2022. These boundaries were then reviewed and confirmed with the GRCA and City of Guelph staff on July 14, 2022 and subsequently recorded with GPS receiver capable of sub-metre accuracy.

Woodland Boundary

The woodland boundaries were reviewed by the City of Guelph on August 30, October 6 and October 11, 2022 and recorded with an ExBlue II GPS receiver capable of sub-50cm accuracy on these same dates. To determine woodland boundaries in ambiguous areas (e.g., narrow woodland 'fingers', gaps between treed areas, etc.), NRSI utilized the Oak Ridges Moraine Conservation Plan Technical Paper (Oak Ridges Moraine Land Trust 2017). The final mapping of the woodland dripline on Map 4 reflects the principals within this technical paper.

Significant Valleyland Boundary

The limit of the Significant Valleyland was walked in the field by NRSI staff who assessed this feature according to the City of Guelph criteria that states that this feature include:

'the quality and diversity of the physical expression of the river system on the landscape and measured to the uppermost break in slope associated with the valley and including the terraces on the valley slopes.'

This limit was then confirmed through a desktop exercise that involved reviewing the topographical contours and mapping the final feature boundary as shown on Map 4.

2.1.3 Bird Surveys

Breeding Bird Surveys

Two early morning breeding bird surveys were completed on June 2 and June 16, 2022. Data was recorded using standard OBBA call codes (OBBA 2001). Surveys consisted of 10-minute point counts at 11 locations on the subject property and extensive area searches through all habitat types. These surveys focused on the area within the subject property west of the rail line, although survey locations were placed in locations where auditory and visual data could be recorded from nearby areas east of the rail line towards the Eramosa River. Surveys were completed between a half-hour before sunrise and 10am. Point count locations were selected to account for a variety of habitat types (ELC communities) present in the study area (Map 3).

Common Nighthawk Surveys

Two evening Common Nighthawk (*Chordeiles minor*) breeding surveys were conducted on June 16 and 28, 2022 as per the Canadian Nightjar Survey Protocol (ECCC 2021). The Common Nighthawk surveys consisted of 10-minute call point counts, completed where habitat was present in the study area. These point count stations are shown on Map 3. Common Nighthawk surveys occurred in the evenings between June 15-July 15 and starting 30 minutes before sunset and extending one (1) hour after sunset. All birds observed, as well as the highest level of breeding evidence exhibited for each species, were recorded by an avian biologist.

2.1.4 Herpetofauna Surveys

Anuran Call Surveys

Evening anuran call surveys were conducted on April 25, May 17, and June 16, 2022 following the methods outlined in the Marsh Monitoring Program (BSC 2009b). A total of 3 stations were surveyed to capture suitable habitats within the subject property and study area, as shown on Map 3. All calling anurans heard during 3-minute call counts in a 100m radius were recorded to the species level, and included an estimate of call intensity and number of individuals present. At each station, the survey time, air and water temperature, wind speed, and cloud cover were recorded.

Turtle Emergence and Basking Surveys

The Toxicology Pond in the northern portion of the property was identified to potentially have suitable overwintering habitat for turtles. A total of 5 surveys between April 12 and May 18, 2022 were completed within habitats on the subject property, whereby suitable habitats were visually scanned, following the protocols outlined in the *Occurrence Survey Protocol for Blanding's Turtle in Ontario* (MNRF 2015b), which is suitable for identifying all turtle species.

During surveys, biologists approached each habitat quietly and walked the perimeter of the feature, scanning the open water and shoreline with binoculars to avoid disturbing any turtles that may have been using the area. Surveys were conducted on sunny, warm days; NRSI biologists also watched for turtles during all site visits within the subject property. During each visual encounter survey, detailed notes were taken that described the habitat searched, level of effort, weather conditions, and species observed.

Snake Surveys

Snake Visual Encounter Surveys were completed between April 12 and October 11, 2022 following methods outlined in the *Survey Protocol for Ontario's Species at Risk Snakes* (MNRF 2016b) during suitable weather conditions within suitable habitats (i.e., along woodland and wetland edges and within open areas). Biologists slowly walked through suitable habitats and searched under cover objects such as logs, rocks, etc. All snake species, sex (if known), number of individuals, and behaviour were recorded on a detailed observation form. Photo records were also collected when possible.

Through the completion of snake VESs, NRSI identified a number of candidate snake hibernacula. These features consisted of large piles of rocks that had historically been deposited at various locations on the edge of the NHS and within the valleylands. NRSI carried out surveys of these features during the spring emergence period on 5 separate dates in 2023 (April-May) during suitable weather in order to identify any snakes that may have recently overwintered and emerged from this feature.

2.1.5 Mammal Surveys

Winter Wildlife

Three targeted area searches for winter wildlife were carried out in the winter of 2022/2023 to identify mammal and winter bird use of the subject property. These surveys involved walking through all accessible areas of the subject property and recording evidence of wildlife use, with particular emphasis on patterns of animal movement that could indicate important corridors. Surveys were carried out when snow was present following a fresh snowfall of at least 2cm which occurred between 24-48hrs prior to the survey.

Bat Habitat Assessment

Candidate bat maternity roost habitat trees for Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) were identified during the leaf-off period and mapped in areas where development may occur. This process involved visually scanning trees in these areas following the protocol outlined in the MNRF *Survey Protocol for Species at Risk Bats within Treed Habitats for Little Brown Myotis, Northern Myotis & Tri-Colored Bats* (MNRF 2017a), MECP's *Survey Protocol for Maternity Roost Surveys (Forests/Woodlands)* (MECP 2022a) and the MECP's *2022 Bat Survey Standards Note* (MECP 2022b). Wooded areas were not assessed for candidate bat maternity colonies as all of the wooded areas are being retained and sufficient buffers will be established to ensure that any possible habitat will not be impacted by the development.

Leaf-on bat habitat assessments are typically required to assess for Tri-colored Bat habitat in the same year that acoustic monitoring or any proposed tree removals are to occur (MNRF 2017a). As such, leaf-on bat habitat assessments have not been completed at this time. Leaf-off assessments are appropriate to identify potential roosting trees based on the tree species that Tri-colored Bat prefers (e.g., Maple and Oak species).

In addition, all structures/buildings within the subject property were assessed both internally and externally for evidence that these features have been/are being utilized by bat species for roost structures. Access points such as vents, holes, or gaps in the fascia of each building were noted and each building was entered, including in any attic spaces to confirm the presence/absence of evidence of bat roosting such as guano.

2.2 Aquatic Surveys

Aquatic habitat within the Eramosa River, bordering the north and east side of the subject property, was assessed on July 6, 2022. Aquatic habitat was mapped and major habitat features such as substrates, aquatic and riparian vegetation, water quality, morphology, and cover features and quality were identified.

2.3 Headwater Drainage Features

Headwater Drainage Features (HDFs) were identified during the preliminary site visits. NRSI biologists conducted two HDF surveys within the subject property according to the methods outlined in the *Evaluation, Classification and Management of Headwater Drainage Features Guidelines* (TRCA and CVC 2014) and the Ontario Stream Assessment Protocol (OSAP) Headwater Sampling Protocol (Module S4.M11, Gorenc and Stanfield 2017). A 3rd site visit to assess the HDFs was planned, but the features were found to be dry and as such the additional site visit was deemed to be unnecessary. The HDF assessments occurred on April 13 and May 13, 2022. Available imagery was examined to identify candidate HDFs within the property prior to confirming presence on site.

In the field, each HDF feature was subdivided into reaches that were identified based on changes to riparian conditions, channel morphology, and tributary confluences. Each reach was given a unique identifier based on the following formula:

Stream Name (ER)–HDF Code (H#)–Reach Code (##)

The Stream Name refers to Eramosa River (ER); the HDF Code references a unique headwater number (1 to 2); and the Reach Code refers to each reach surveyed along the HDF, starting with 01 at the most downstream end. Where a reach break occurs, an additional number is added to the end of the Reach Code.

Each HDF was assessed to evaluate and classify its functional importance and to identify management recommendations. UTM coordinates were recorded at the upstream (origin) and downstream end of each reach.

Field work included documenting information on ecological and geomorphological form and function, and flow conditions during the field visits. Data was collected at several locations within each reach and included the following:

- Feature type;
- Riparian conditions;
- Flow conditions;
- Feature vegetation;
- Feature and bankfull widths and depths;
- Sediment deposition and transport;
- Flow measurements (if applicable);
- Site features; and
- Channel connectivity.

3.0 Existing Conditions

3.1 Soil, Terrain and Drainage

The dominant soil type within the GID lands study area is Guelph Loam, which is comprised of slightly stony, loam till with good drainage (Soil Research Institute 1962). NRSI completed soil inspections through the study area to determine some ELC types. NRSI was able to confirm that the thicket (CUT1) polygon at the south end of the property (corner of Stone Road East and Victoria Road) contained silty medium sand, without stone. Within the woodland (FOM7-2), southwest of the rail line, organic humic material with a clay like texture and no stone was noted to be present. The meadow marsh (MAM3-9) polygon along the Eramosa River also contains organic humic material with no stone, while the deciduous swamp (SWD3-3) on the north end of the subject property between the rail line and the Eramosa River was found to contain organic humic material with a silty loam texture and no stone.

The subject property is located within the Eramosa River Blue Springs Creek Watershed. The closest watercourse to the subject property is the Eramosa River, which borders the north and east sides of the subject property. The central portion of the subject property has the highest elevation within the study area and water drains towards the Eramosa River, Stone Road East and Victoria Road. During field investigations, NRSI did not observe any defined drainage channels or watercourses, but did observe three Headwater Drainage Features (HDF) (see Map 3) along the northeast boundary of the property, none of which were carrying water during the surveys.

3.2 Vegetation

3.2.1 Vegetation Communities

The subject property is comprised of a diverse mix of natural and cultural communities. Natural ELC communities comprise 103 hectares of the subject property (30.1%), while cultural ELC communities comprise 109 ha (31.8%) of the subject property. An additional 130.3 ha (38.1%) of the subject property is comprised of agricultural lands (soy) as well as mown lawn surrounding the former agriscience buildings.

A summary of ELC communities identified within the subject property is provided in Table 3 below and shown on Map 2.

Many of the cultural communities at the eastern edge of the property are coniferous plantations (see ELC codes with prefix CUP), or are cultural meadows and cultural savannahs with tree diversity dominated by species that have established from adjacent plantations.

Overall, the assemblage of communities found within the property is relatively diverse, with a total of seven natural (non-cultural) forest types and eight wetland community types, in addition to culturally-influenced communities such as plantations and meadows. The steep slope from the table lands contains numerous cliffs that represent a rare vegetation community (White Cedar Treed Carbonate Cliff Type (CLT1-1)). This community is considered provincially rare by NHIC and is ranked S3 (OMNR 2000) (Map 2). No other provincially-rare vegetation communities were observed within the study area.

Historically, the University of Guelph utilized the land for research purposes, planting trees and other vegetation in test plots. In early spring of 2021, as a part of the decades long research trial, all of the trees were removed. Recently, a cover crop of soy has been planted in certain portions of the field as shown on Map 2.

Table 3. Vegetation Communities within the Subject Property

ELC Ecosite Type	ELC Description	Environmental Characteristics
Forest		
FOC2-2	Dry - Fresh White Cedar Coniferous Forest Type	This large mid-age coniferous forest is present in the western portion of the subject property between cultural meadow and cultural woodland communities. No locally, provincially, or federally significant vegetation species were observed. Many of the trees in this community were planted. Jack Pine (<i>Pinus banksiana</i>) was present in the canopy layer. <u>Canopy:</u> Eastern White Cedar (<i>Thuja occidentalis</i>), Black Cherry (<i>Prunus serotina</i>), Manitoba Maple (<i>Acer negundo</i>). <u>Subcanopy:</u> Eastern White Cedar, Black Cherry, Common Buckthorn (<i>Rhamnus cathartica</i>). <u>Understorey:</u> Common Buckthorn, Green Ash (<i>Fraxinus pennsylvanica</i>), Choke Cherry (<i>Prunus virginiana</i>). <u>Groundcover:</u> Common Buckthorn, Thicket Creeper (<i>Parthenocissus vitacea</i>), Zigzag Goldenrod (<i>Solidago flexicaulis</i>).
FOD3-1	Dry - Fresh Poplar Deciduous Forest Type	This young deciduous forest community is present in the east-central portion of the subject property between a mixed forest community and cultural communities. No provincially or federally significant vegetation species were observed. <u>Canopy:</u> Trembling Aspen (<i>Populus tremuloides</i>), Large-toothed Aspen (<i>Populus grandidentata</i>). <u>Subcanopy:</u> Trembling Aspen, Large-toothed Aspen. <u>Understorey:</u> Common Buckthorn, Honeysuckle species (<i>Lonicera spp.</i>), European Privet (<i>Ligustrum vulgare</i>) <u>Groundcover:</u> Orchard Grass (<i>Dactylis glomerata</i>), Smooth Brome (<i>Bromus inermis</i>), Goldenrod species (<i>Solidago sp.</i>)
FOC4-1	Fresh-Moist White Cedar Coniferous Forest Type	This coniferous forest community is located between the rail line and the Eramosa River, and is dominated almost entirely by Eastern White Cedar, with a sparse subcanopy, understorey and ground layer. The locally-significant species the Round-leaved Goldenrod (<i>Solidago patula</i>) was present in the ground layer. No provincially or federally significant vegetation species were observed. <u>Canopy:</u> Eastern White Cedar, Paper Birch (<i>Betula papyrifera</i>), Trembling Aspen. <u>Subcanopy:</u> Eastern White Cedar, Paper Birch, Trembling Aspen. <u>Understorey:</u> Green Ash, Glossy Buckthorn (<i>Frangula alnus</i>). <u>Groundcover:</u> Herb Robert (<i>Geranium robertianum</i>), Rough-stemmed Goldenrod (<i>Solidago rugosa</i>), Field Horsetail (<i>Equisetum arvense</i>).
FOM4-2	Dry - Fresh White Cedar - Poplar Mixed Forest Type	This mid-age mixed forest community is present in the east-central portion of the subject property. No locally, provincially, or federally significant vegetation species were observed.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		<u>Canopy:</u> Eastern White Cedar, Trembling Aspen, American Basswood (<i>Tilia americana</i>) <u>Subcanopy:</u> Eastern White Cedar, Trembling Aspen, American Basswood. <u>Understorey:</u> Common Buckthorn, Honeysuckle species, European Privet (<i>Ligustrum vulgare</i>). <u>Groundcover:</u> Orchard Grass, Goldenrod species, Sedge species (<i>Carex spp.</i>)
FOM7-1	Fresh-Moist White Cedar – Sugar Maple Mixed Forest Type	This mid-aged community is present between the rail line and the Eramosa River, and contains a distinctive and diverse groundcover that sets it apart from the other mixed forest communities on site, which have low-diversity groundcovers dominated by non-native species. One component of this groundcover is the locally-significant species the Heart-leaved Aster (<i>Symphyotrichum cordifolium</i>). No provincially or federally significant vegetation species were observed. <u>Canopy:</u> Sugar Maple (<i>Acer saccharum</i>), American Basswood (<i>Tilia americana</i>), Eastern White Cedar. <u>Subcanopy:</u> Sugar Maple, American Basswood, Green Ash). <u>Understorey:</u> Common Buckthorn, Green Ash. <u>Groundcover:</u> Goldenrod species, Heart-leaved Aster (<i>Symphyotrichum cordifolium</i>), Herb Robert.
FOM7-2	Dry – Fresh-Moist White Cedar – Hardwood Mixed Forest Type	This mid-age mixed forest community is present at the back portions of the subject property in the north east and borders other mixed forest as well as a railway. This community is largely on old talus and rocky ground along the cliff base. The community is more wet than the adjacent mixed forest community, and it contains evidence of groundwater at the toe of the slope. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> Eastern White Cedar, American Basswood, American Elm (<i>Ulmus americana</i>). <u>Subcanopy:</u> Eastern White Cedar, American Basswood, Green Ash. <u>Understorey:</u> Alternate-leaved Dogwood (<i>Cornus alternifolia</i>), Green Ash, White Ash (<i>Fraxinus americana</i>). <u>Groundcover:</u> Herb-Robert, Bulblet Fern (<i>Cystopteris bulbifera</i>), Garlic Mustard (<i>Alliaria petiolata</i>). Contains a SWT3-5 (Red-osier Organic Thicket Swamp Type) inclusion characterized by Red-osier Dogwood (<i>Cornus sericea</i>), Field Horsetail, and a mix of Sedge species.
FOM4	Dry-Fresh White Cedar Mixed Forest Ecosite	Two of these mixed woodland communities are present within the subject property. The smaller community, located toward the west side of the property, is mid-age and contains hybrid Butternut.. <u>Canopy:</u> Eastern White Cedar, Manitoba Maple. <u>Subcanopy:</u> Common Buckthorn, Green Ash. <u>Understorey:</u> Common Buckthorn, Green Ash, Choke Cherry. <u>Groundcover:</u> Common Buckthorn, Thicket Creeper (<i>Parthenocissus vitacea</i>), Garlic Mustard.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		The larger community is a younger community centrally located along the rear of the property. This community has been highly impacted by the non-native, invasive European Buckthorn which is dominant in the subcanopy and present in the lower layers. This community contains a single inclusion: CLT1-1 (White Cedar Treed Carbonate Cliff Type). It is characterized by Eastern White Cedar and Bulblet Fern. <u>Canopy:</u> Manitoba Maple, Eastern White Cedar, American Elm . <u>Subcanopy:</u> Common Buckthorn, Manitoba Maple. <u>Understorey:</u> Common Buckthorn, Manitoba Maple. <u>Groundcover:</u> Broad-leaved Enchanter's Nightshade (<i>Circaea canadensis</i>), Herb-Robert, Common Buckthorn.
Wetland		
MAM2-2	Reed Canary Grass Mineral Meadow Marsh Type	This small marsh wetland community is located at the back eastern portion of the subject property and abuts cultural savannah and thicket communities. No locally, provincially, or federally significant vegetation species were observed. <u>Understorey:</u> Red-osier Dogwood (. <u>Groundcover:</u> Reed Canary Grass (<i>Phalaris arundinacea</i> var. <i>arundinacea</i>), Tall Goldenrod (<i>Solidago altissima</i>), Aster species (<i>Symphyotrichum</i> spp.). Contains a CUM1 complex (Mineral Cultural Meadow).
MAM2-10	Forb Mineral Meadow Marsh Type	This marsh wetland community is located in the eastern part of the subject property. No locally, provincially, or federally significant vegetation species were observed. <u>Groundcover:</u> Glossy-leaved Aster (<i>Symphyotrichum firmum</i>), Panicked Aster (<i>Symphyotrichum lanceolatum</i>), Tall Goldenrod.
MAM3-9	Forb Organic Meadow Marsh Type	Two of these Forb Organic Meadow Marsh communities are present on the subject property between the rail line and the Eramosa River. They have deep organic soils and are dominated by native moisture-loving forbs. No locally, provincially, or federally significant vegetation species were observed. <u>Subcanopy:</u> Glossy Buckthorn, Common Buckthorn. <u>Understorey:</u> Pale Dogwood (<i>Cornus obliqua</i>), Glossy Buckthorn, Willow species (<i>Salix</i> sp.). <u>Groundcover:</u> Panicked Aster, Glossy-leaved Aster (<i>Symphyotrichum firmum</i>), Reed Canary Grass. <u>Understorey:</u> Pale Dogwood, Bebb's Willow (<i>Salix bebbiana</i>). <u>Groundcover:</u> Spotted Joe Pye Weed (<i>Eutrochium maculatum</i>), Glossy-leaved Aster.

ELC Ecosite Type	ELC Description	Environmental Characteristics
SWT2	Mineral Swamp Thicket Ecosite	This swamp thicket wetland is located in the eastern portion of the subject property. Black Ash was observed within this community. No locally, provincially, or federally significant vegetation species were observed. <u>Understorey:</u> Glossy Buckthorn, Red-osier Dogwood. <u>Groundcover:</u> Tall Goldenrod, Panicked Aster, Grass-leaved Goldenrod (<i>Euthamia graminifolia</i>).
SWT3-5	Red-osier Organic Thicket Swamp Type	This Red-osier Organic Thicket Swamp community is located between the rail line and the Eramosa River, contains an inclusion of Alder Organic Thicket Swamp (SWT3-1), and is dominated by native, moisture-loving shrub and forb species. This community has evidence of groundwater influence, especially within the Alder Thicket Swamp inclusion. Within the inclusion a large proportion of the groundcover is comprised of the locally-significant species Round-leaved Goldenrod (<i>Solidago patula</i>). No provincially or federally significant vegetation species were observed. <u>Canopy:</u> Crack Willow (<i>Salix euxina</i>). <u>Subcanopy:</u> Manitoba Maple, Crack Willow. <u>Understorey:</u> Dogwood species (<i>Cornus spp.</i>), Nannyberry (<i>Viburnum lentago</i>), Glossy Buckthorn. <u>Groundcover:</u> Tall Goldenrod, Glossy-leaved Aster, Dewberry (<i>Rubus pubescens</i>).
SWD3-3	Swamp Maple Mineral Deciduous Swamp Type	This deciduous swamp community is located between the rail line and the Eramosa River, and is complexed with areas of Forb Organic Meadow Marsh (MAM3-9). The sparse canopy of trees in this community is dominated by mature Freeman's Maples, and the groundcover is dominated by a mix of shade and sun-loving wetland species. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> Freeman's Maple (<i>Acer x freemanii</i>), Eastern White Cedar. <u>Subcanopy:</u> Freeman's Maple (<i>Acer x freemanii</i>), Eastern White Cedar. <u>Understorey:</u> Red-osier Dogwood, Common Buckthorn, Nannyberry. <u>Groundcover:</u> Tall Goldenrod, Spotted Joe Pye Weed, Glossy-leaved Aster.
SWD4-1	Willow Mineral Deciduous Swamp Type	Two of these Willow Deciduous Swamp communities are present on the subject property between the rail line and the Eramosa River. Their sparse canopies are dominated by non-native tree willows, their subcanopies and understories are comprised of a mix of native and non-native moisture-loving shrubs, and their groundcovers are made up of principally native wetland species. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> Crack Willow, American Elm, Freeman's. <u>Subcanopy:</u> Green Ash, Crack Willow, American Elm. <u>Understorey:</u> Green Ash, Glossy Buckthorn, Dogwood species. <u>Groundcover:</u> Dewberry, Sensitive Fern, Spotted Jewelweed.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		<u>Canopy:</u> Crack Willow. <u>Subcanopy:</u> Crack Willow, Manitoba Maple. <u>Understorey:</u> Nannyberry, Dogwood species, Glossy Buckthorn. <u>Groundcover:</u> Glossy-leaved Aster, Panicked Aster, Tall Goldenrod.
Cultural Habitats		
CUM1	Mineral Cultural Meadow Ecosite	Five Mineral Cultural Meadow communities are present across the subject property. The canopies, subcanopies and understories of these communities, when present, are sparse and comprised of a mix on native early-succession species and non-native species that were planted or escaped from cultivation. The ground layers of these communities are dominated by cool-season pasture grasses. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> American Elm, Scots Pine (<i>Pinus sylvestris</i>), Manitoba Maple. <u>Subcanopy:</u> American Basswood, Green Ash. <u>Understorey:</u> Bell's Honeysuckle (<i>Lonicera x bella</i>), Green Ash, Pin Cherry (<i>Prunus pennsylvanica</i>). <u>Groundcover:</u> Meadow Fescue (<i>Lolium pratense</i>), Canada Goldenrod (<i>Solidago canadense</i>), Smooth Brome (<i>Bromus inermis</i>). <u>Subcanopy:</u> Green Ash. <u>Understorey:</u> Green Ash, Staghorn Sumac, Common Buckthorn. <u>Groundcover:</u> Smooth Brome, Reed Canary Grass, Goldenrod Species. <u>Canopy:</u> Norway Spruce <u>Subcanopy:</u> White Spruce (<i>Picea glauca</i>), Norway Spruce, Manitoba Maple. <u>Understorey:</u> Common Buckthorn, Trembling Aspen. <u>Groundcover:</u> Smooth Brome, Tufted Vetch, Yellow Goat's Beard (<i>Tragopogon dubius</i>). <u>Canopy:</u> Green Ash. <u>Subcanopy:</u> Common Buckthorn, Common Apple, Green Ash. <u>Understorey:</u> Common Buckthorn, European Privet, Green Ash. <u>Groundcover:</u> Smooth Brome, Tufted Vetch, Orchard Grass. <u>Subcanopy:</u> Common Buckthorn, Glossy Buckthorn. <u>Understorey:</u> Common Buckthorn, European Privet. <u>Groundcover:</u> Smooth Brome, Kentucky Bluegrass, Canada Goldenrod.
CUT1	Mineral Cultural Thicket Ecosite	Eight Mineral Cultural Thicket communities are present across the subject property. Six of the seven CUT communities are dominated by invasive shrubs, such as Common Buckthorn and Glossy Buckthorn. The largest of these CUT communities, and the largest community on the subject property, is distinct as it is the result of the historical cultivation of poplar and willow species.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		These plants are currently being maintained by coppicing; while following coppicing the community resembles a cultural meadow, after a season of growing the community is once again a cultural thicket. This CUT community is complexed with areas of cultural meadow in areas where no woody plants were planted. The largest CUT community on the property contains planted individuals of the locally-significant species Old Switch Panic grass (<i>Panicum virgatum</i>). No provincially or federally significant vegetation species were observed in the CUT communities. The following seven community descriptions apply to the naturalized but invasive-dominated cultural thicket communities. <u>Canopy:</u> Manitoba Maple, Eastern White Pine (<i>Pinus strobus</i>). <u>Subcanopy:</u> Staghorn Sumac, Common Buckthorn, Lilac (<i>Syringa vulgaris</i>). <u>Understorey:</u> Staghorn Sumac, Common Buckthorn, <u>Groundcover:</u> Orchard Grass, Common Buckthorn, Goldenrod species. <u>Canopy:</u> Manitoba Maple, Eastern Cottonwood (<i>Populus deltoides</i>). <u>Subcanopy:</u> Common Buckthorn, Glossy Buckthorn, Staghorn Sumac. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn, American Red Raspberry (<i>Rubus idaeus var. strigosus</i>). <u>Groundcover:</u> Smooth Brome, Goldenrod species, Orchard Grass. <u>Canopy:</u> Manitoba Maple. <u>Subcanopy:</u> Manitoba Maple. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn, Red-osier Dogwood. <u>Groundcover:</u> Goldenrod species, Kentucky Bluegrass, Wild Carrot. <u>Canopy:</u> Manitoba Maple, Eastern White Pine. <u>Subcanopy:</u> Common Buckthorn, Glossy Buckthorn, Red-osier Dogwood. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn. <u>Groundcover:</u> Smooth Brome, Goldenrod species. <u>Canopy:</u> American Basswood, Manitoba Maple, Black Locust (<i>Robinia pseudoacacia</i>). <u>Subcanopy:</u> Common Buckthorn, Glossy Buckthorn, American Basswood. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn, Honeysuckle species. <u>Groundcover:</u> Smooth Brome, Goldenrod species, Common Buckthorn. <u>Subcanopy:</u> Glossy Buckthorn, Common Buckthorn. <u>Understorey:</u> Glossy Buckthorn, Red-osier Dogwood.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		<u>Groundcover:</u> Smooth Brome, Goldenrod species , Aster species. <u>Canopy:</u> Crack Willow, Freeman's Maple. <u>Subcanopy:</u> Glossy Buckthorn, Common Buckthorn, Green Ash. <u>Understorey:</u> Glossy Buckthorn, Common Buckthorn, Red-osier Dogwood. <u>Groundcover:</u> Common Buckthorn, Glossy Buckthorn. The following community descriptions applies to the cultural thicket community created through the planting and coppicing of poplar and willow species. <u>Understorey:</u> Eastern Cottonwood, Purple Willow (<i>Salix purpurea</i>), Manitoba Maple. <u>Groundcover:</u> Orchard Grass, Smooth Brome, Wild Carrot.
CUT1-1	Sumac Cultural Thicket Type	One Sumac Cultural Thicket community is present in the northern part of the subject property. This young community has a sparse canopy of early succession trees and is dominated by Staghorn Sumac shrubs of varying ages. Its groundcover is dominated by early succession native and non-native forbs and cool season pasture grasses. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> Eastern Cottonwood. <u>Subcanopy:</u> Staghorn Sumac, Manitoba Maple, American Basswood. <u>Understorey:</u> Staghorn Sumac, Bell's Honeysuckle. <u>Groundcover:</u> Smooth Brome, Goldenrod species.
CUS1	Mineral Cultural Savannah Ecosite	Two Mineral Cultural Savannah communities are present in the southeastern portion of the subject property, one which lies above the cliff bisecting the subject property and one which lies between the rail line and the Eramosa River. These communities exhibit sparse canopy and subcanopy of trees; the community above the cliff contains mostly trees which have seeded in from nearby plantations, while the community between the tracks and the river has naturally occurring trees that have sparse canopy coverage due to clearing around the rail line. No locally, provincially, or federally significant vegetation species were observed. <u>Canopy:</u> Norway Spruce, Eastern White Pine, Manitoba Maple. <u>Subcanopy:</u> Common Buckthorn, Black Locust, Eastern White Pine. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn. <u>Groundcover:</u> Smooth Brome, Goldenrod species. <u>Canopy:</u> American Basswood, American Elm. <u>Subcanopy:</u> Manitoba Maple, Green Ash. <u>Understorey:</u> Green Ash, European Privet.

ELC Ecosite Type	ELC Description	Environmental Characteristics
		<u>Groundcover:</u> Kentucky Bluegrass, Orchard Grass, Canada Goldenrod.
CUW1	Mineral Cultural Woodland Ecosite	Two Mineral Cultural Woodland communities are present within the northern part of the subject property. Both of these communities display sparse canopies containing a mix of early-succession native and non-native tree species. Some mature trees are present along the shores of the Eramosa River and along the treed cliff within these communities. Inclusions of CLT1-1 (White Cedar Treed Carbonate Cliff Type) are present within both of these communities. The locally significant plant species Hoary Vervain (<i>Verbena stricta</i>) was identified in the weedy edge of the northernmost CUW1 community in two locations. No provincially or federally significant vegetation species were observed. The western CUW1 community occurs along the banks of the Eramosa River and is dominated by the native, early succession tree species Manitoba Maple. This community is highly invaded by non-native species such as Common Buckthorn, Glossy Buckthorn and Garlic Mustard. Regenerating Green Ash following the impact of Emerald Ash Borer also make up a significant part of the subcanopy and understory in this community. <u>Canopy:</u> Manitoba Maple, Freeman's Maple, Black Walnut. <u>Subcanopy:</u> Common Buckthorn, Manitoba Maple, Green Ash. <u>Understorey:</u> Green Ash, Glossy Buckthorn, Alternate-leaved Dogwood. <u>Groundcover:</u> Zig-zag Goldenrod, Garlic Mustard, Herb Robert. The eastern CUW1 community occurs on valley slope and bottomland and is comprised of mostly non-native, aggressive species and some early-succession native species. The non-native tree species Black Locust dominates the canopy of this community, while all other layers are dominated by the invasive shrub Common Buckthorn. <u>Canopy:</u> Black Locust, Manitoba Maple. <u>Subcanopy:</u> Common Buckthorn, Lilac, <i>Lonicera spp.</i> <u>Understorey:</u> Common Buckthorn, Lilac, Chokecherry. <u>Groundcover:</u> Common Buckthorn, Creeping Bellflower (<i>Campanula rapunculoides</i>).
CUP3	Coniferous Plantation	<u>Canopy:</u> Norway Spruce, Eastern White Pine, White Spruce. <u>Subcanopy:</u> Eastern White Pine, Norway Spruce, White Spruce. <u>Understorey:</u> Common Buckthorn, Glossy Buckthorn, Chokecherry. <u>Groundcover:</u> Smooth Brome, Orchard Grass, Goldenrod species.

ELC Ecosite Type	ELC Description	Environmental Characteristics
CUP3-2	White Pine Coniferous Plantation Type	<u>Canopy:</u> Eastern White Pine, Norway Spruce, Eastern Cottonwood. <u>Subcanopy:</u> Common Buckthorn, Glossy Buckthorn. <u>Understorey:</u> Common Buckthorn. <u>Groundcover:</u> Smooth Brome, Orchard Grass Goldenrod Species.

3.2.2 Vascular Flora

In total, 320 plant species were inventoried within the subject property. Of the 320 plant species inventoried, 213 (66.5%) are native. A complete list of vascular flora by ELC community is available in Appendix IV.

Vascular Flora Species at Risk/Species of Conservation Concern

A total of three SAR/SCC plant species were observed within the subject property, including potential Butternut (*Juglans cinerea*), Kentucky Coffee-tree (*Gymnocladus dioicus*) and Gray-headed Prairie Coneflower (*Ratibida pinnata*).

Butternut is considered an 'Endangered' species both provincially and federally (MECP 2024a; Government of Canada 2024). NRSI identified 4 potential Butternuts within the subject property, all of which were located within the Significant Woodland. Two of these trees were found to be dead. NRSI carried out Butternut Health Assessments (BHAs) and field hybridity tests on the remaining two trees and classified them as both Category 1 (non-retainable) and hybrids. As such, none of the trees within the subject property are protected under the ESA. A BHA report was submitted to MECP on April 3rd, 2024 and MECP confirmed receipt of this on April 9th, 2024 (Appendix X). This species is not discussed further within this report.

Kentucky Coffee-tree is considered a 'Threatened' species both provincially and federally, although this individual tree was found to be a planted individual near the existing turfgrass facility (MECP 2022a; Government of Canada 2022). However, in Ontario, this species is only considered to be Threatened within the counties in extreme southwestern Ontario and is considered to be 'not at risk' in all other counties and municipalities. As such, this species is not considered to be a SAR within Guelph or Wellington County and does not require further consideration within this report.

Gray-headed Prairie Coneflower has a sub-national (S-Rank) of S3 (Vulnerable), but is not listed as 'at risk' or 'special concern' provincially or federally (MECP 2022a; Government of Canada 2022). While the Gray-headed Prairie Coneflower, is native to Ontario, the plants found within the subject property were clearly planted in the thicket community (CUT1) by the University of Guelph and are not naturally occurring.

Locally Significant Plant Species

A total of 5 locally significant plant species (City of Guelph 2012) were observed within the subject property (Map 7), including:

- Round-leaved Goldenrod (*Solidago patula*),
- Heart-leaved Aster (*Symphyotrichum cordifolium*),
- Canada Waterleaf (*Hydrophyllum canadense*),
- Hoary Vervain (*Verbena stricta*),
- Old Field Panicgrass (*Panicum virgatum*).

3.3 Wildlife

3.3.1 Birds

In total, 112 bird species have been reported within the 10x10km OBBA square that overlaps the study area (BSC et al. 2006). Fifty-seven species were documented within the subject property during field surveys, of which 48 exhibited signs of breeding, such as males singing, females carrying food, the presence of fledged young and adults sitting on nests, etc. A complete list of bird species, along with breeding evidence, is provided in Appendix V.

A total of 21 SAR or SCC bird species are reported from the vicinity of the study area based on OBBA records and other background data (BSC et al 2006., MNRF 2022, ebird 2022). Five of these species, including Eastern Wood-Pewee (*Contopus virens*), Barn Swallow (*Hirundo rustica*), Grasshopper Sparrow (*Ammodramus savannarum*), Bobolink (*Dolichonyx oryzivorus*) and Eastern Meadowlark (*Sturnella magna*) were observed within the subject property during field surveys, as described below, and shown on Map 5.

During Common Nighthawk breeding bird surveys, nighthawks were not observed within the study area.

Despite substantial woodland and open country habitats within the subject property and adjacent lands, winter raptors were not observed within these areas on any of the winter wildlife surveys completed in 2022/2023.

Locally Significant Bird Species

In total, 21 locally significant bird species (City of Guelph 2012) were observed within the subject property during field surveys (Appendix V). Of these species, the following 16 exhibited 'possible', 'probable', or 'confirmed' evidence of breeding during breeding bird surveys:

- Common Merganser (*Mergus merganser*)
- Great Blue Heron (*Ardea herodias*)
- Green Heron (*Butorides virescens*)
- Belted Kingfisher (*Megaceryle alcyon*)

- Northern Flicker (*Colaptes auratus*)
- Willow Flycatcher (*Empidonax traillii*)
- Eastern Kingbird (*Tyrannus tyrannus*)
- Brown Thrasher (*Toxostoma rufum*)
- Savannah Sparrow (*Passerculus sandwichensis*)
- Eastern Towhee (*Pipilo erythrophthalmus*)
- Chipping Sparrow (*Spizella passerine*)
- Baltimore Oriole (*Icterus galbula*)
- Orchard Oriole (*Icterus spurius*)
- Pine Warbler (*Setophaga pinus*)
- American Redstart (*Setophaga ruticilla*)
- Rose-breasted Grosbeak (*Pheucticus ludovicianus*)

All of these species are ranked as common and secure within the province (Appendix V). The locations of observations for these species are shown on Map 5. Suitable breeding habitat for these species include a variety of both wetland and woodland habitats within the subject property, which is discussed further in Section 4.8.

3.3.2 Herpetofauna

According to the Ontario Amphibian and Reptile Atlas (Ontario Nature 2019), 27 species of herpetofauna are reported from within the 10x10km square that overlaps with the study area. Nine species, including 4 reptile and 5 amphibian species, were recorded in the subject property during 2022 field surveys. A complete list of species observed is provided in Appendix VII. The results of species-specific surveys are detailed in the following sections.

Anurans (Frogs and Toads)

Anuran call surveys detected 2 species, both of which are ranked common and secure in Ontario (Appendix VII). No SAR/SCC (MECP 2024a, Government of Canada 2024) or locally significant anuran species (City of Guelph 2012) were observed during any surveys. Table 4 below outlines the results of the anuran call surveys.

Table 4. Anuran Call Survey Results (2022)

Survey Station	April 27 th	May 17 th	June 16 th
ANR-001	None	Green Frog1(1)	Green Frog 1(3), Gray Treefrog 1(2)
ANR-002	-(dry)	-(dry)	-(dry)
ANR-003	-(dry)	-(dry)	-(dry)

Code 1 = Individuals can be counted; calls not simultaneous. Estimated number of individuals in brackets.
 Code 2 = Calls distinguishable; some simultaneous calling. Estimated number of individuals in brackets.
 Code 3 = Full chorus; calls continuous and overlapping.

Turtles

One turtle species, the Midland Painted Turtle (*Chrysemys picta marginata*) was observed during field surveys. The Midland Painted Turtle is common and secure in Ontario (MNRF 2024). Midland Painted Turtles were observed during turtle basking surveys in the Toxicology Pond, which is located immediately adjacent to the former agriscience building. Evidence of a nest was observed during turtle nesting surveys, and a hatchling painted turtle was found within the valleylands. NRSI biologists identified one possible test pit just north of the Toxicology Pond, but species could not be confirmed. A total of 5 Midland Painted Turtles were observed basking within the Toxicology Pond over a period of 5 surveys, which may include the same individuals being seen multiple times.

Snakes

Three species of snake were observed throughout the subject property including Smooth Greensnake (*Opheodrys vernalis*), Dekay's Brownsnake (*Storeria dekayi*) and Eastern Gartersnake (*Thamnophis sirtalis sirtalis*). Smooth Greensnake and Dekay's Brownsnake are both considered locally significant species, although they are both likely under reported due to their cryptic behaviour (City of Guelph 2012). Both of these species are ranked as common and secure within the province (Appendix VII). The locations of locally significant species are shown on Map 7.

Snakes were not identified as emerging from any of the candidate snake hibernacula, and upon closer review of these features it was found that they provided only marginal wintering habitat for snakes as they did not appear to provide access below the frostline. As a result, it is unlikely that these features are functioning as a hibernation structure for snakes. It is likely that hibernation sites for snake species in the subject property are associated with areas of exposed bedrock such as near the cliff faces (Map 2).

3.3.3 Insects

Butterflies

According to the Ontario Butterfly Atlas, 90 butterfly species are reported to occur within the 10x10km atlas square that overlaps with the study area (Macnaughton et al. 2022). NRSI biologists observed 26 butterfly species during surveys completed within the subject property, which included one significant species, the Monarch (*Danaus plexippus*). A complete list of butterfly species observed by NRSI biologists is provided in Appendix VII.

Monarch is listed Provincially as Special Concern (MECP 2024) and Federally as Endangered (Government of Canada 2024). The locations of Monarch observations are shown on Map 6. Milkweed is ubiquitous throughout the subject property, with particularly high densities within two clusters (Milkweed Cluster #1 and #2) as shown on Map 6. Milkweed and Monarchs are discussed in further detail in Section 4.5.

Odonates

According to the Ontario Odonate Atlas, 58 odonate species are reported to occur within the 10x10km atlas square that overlaps with the study area (OOAD 2022). NRSI biologists observed 14 odonate species during surveys completed within the subject property, which included one provincially rare species, the Swamp Darner (*Epiaeschna heros*) (Map 6), further discussed in Section 4.5.4. A complete list of odonate species observed by NRSI biologists is provided in Appendix VIII.

Bumble Bees

NRSI biologists observed 6 bumble bee species during surveys completed within the subject property, including the Common Eastern Bumble Bee (*Bombus impatiens*), Half-Black Bumble Bee (*Bombus vagans*), Two-spotted Bumble Bee (*Bombus bimaculatus*), Northern Amber Bumble Bee (*Bombus borealis*), and Yellow-banded Bumble Bee (*Bombus terricola*). Yellow-banded Bumble Bee is a 'Species of Special Concern' provincially. This species is further discussed in Section 4.5.4 and the location of this observation is shown on Map 6.

Locally Significant Insect Species

In total, 3 locally significant butterfly species and a single locally significant odonate species (City of Guelph 2012) were observed within the subject property during field surveys:

- Delaware Skipper (*Anatryone logan*),
- Common Sootywing (*Pholisora catullus*)
- Giant Swallowtail (*Papilio cresphontes*).
- Halloween Pennant (*Celithemis eponina*),

All of these species are ranked as common and secure within the province (Appendix III).

3.3.4 Mammals

According to the Mammal Atlas of Ontario, 46 mammal species are reported to occur within the 10x10km atlas square that overlaps with the study area (Dobbyn 1994). NRSI biologists

observed 11 mammal species all of which are considered to be common in Ontario with secure populations. No SAR, SCC or locally significant mammal species were observed during field surveys. A list of mammal species observed to date is provided in Appendix IXIX.

Bat Habitat Assessment

Four SAR bat species have the potential to occur within the subject property: Eastern Small-footed Myotis (*Myotis leibii*), Little Brown Myotis (*Myotis lucifungus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*). Isolated candidate bat trees were identified throughout the developable portions of the subject property. Wooded areas within the NHS were not assessed for candidate bat maternity colonies as all of the wooded areas are being retained and sufficient buffers will be placed to ensure that any potential habitat will not be impacted by the development. In addition, the structures associated with the agriscience facilities were surveyed and confirmed to be unsuitable for roosting bat. Significance of the bat habitat assessments is further discussed further in Section 5.3.

Winter Wildlife Surveys

A total of 11 mammal species (including a *Peromyscus* spp.) were observed during winter wildlife surveys in late 2022 and early 2023 (Table 5). The vast majority of these species were encountered within the NHS that is associated with the Significant Valleylands along the Eramosa River. Wildlife movement was relatively heavy across these areas, and the river valley is clearly being utilized as a movement corridor by a wide range of wildlife species. Wildlife movement was relatively sparse across the open fields and table lands of the proposed development area, with the exception of more mobile animals such as Eastern Coyote. It was noted during surveys that the rail line is very loud, and the movement of the train through these areas likely temporarily disperses wildlife away from these areas of the subject property. Movement of some wildlife beneath the bridges on Victoria Road South and Stone Road East was noted, and it is likely that these locations are functioning as wildlife crossings of these busy roads. Very little movement of wildlife was noted at other at-grade crossing locations on these roads.

Table 5. Winter Wildlife Survey Species Observations

Common Name	Scientific Name
American Mink	<i>Neovison vison</i>
Eastern Coyote	<i>Canis latrans</i>
Eastern Cottontail	<i>Sylvilagus floridanus</i>
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>
Ermine	<i>Mustela erminea</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>
Mouse sp.	<i>Peromyscus sp.</i>
Red Fox	<i>Vulpes vulpes</i>
Red Squirrel	<i>Sciurus vulgaris</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

3.4 Aquatic Features

3.4.1 Aquatic Habitat

The Eramosa River is a large, perennial watercourse that originates to the northeast in the headwaters near Erin, Ontario. The Eramosa River borders the northern side of the subject property, entering to the east and flowing generally northwest (Map 2). The river has a natural meander with evidence of erosion including bank undercutting present in various locations as a result of heightened flows during storm events and increased load from the spring freshet. The watercourse is characterized by a low-moderate gradient with riffle, run, and pool habitats throughout, offering variable habitats for a diverse fish community. The wetted width of the river at the time of the survey ranged from 16.8m to greater than 30m; while bankfull ranged from 18.7m to greater than 30m. Full measurements of the morphology of the river were not possible due to the width and depths throughout the majority of the river, with depths exceeding wadable depths (>1.2m) in various locations.

Substrates throughout the Eramosa River varied depending on the habitat type, with coarser substrates predominant in faster flows, such as riffle habitat. The coarser substrates, such as boulder, cobble, gravel and pebble, were dominant throughout the watercourse, reflective of the moderate gradient present throughout. Finer sediments such as silt, muck, and detritus were also present in areas of slower water velocity such as backwater or pool habitats, where deposition could occur. Coarse woody debris (CWD) was also present throughout various habitat types in the river, providing additional in-stream habitat and cover. In-stream aquatic vegetation consisted was dominated by emergent vegetation including Cattail (*Typha sp.*) and Arrowhead (*Sagittaria sp.*) with lesser quantities of submergent vegetation included Pondweed (*Potamogeton sp.*), Slender Naiad (*Najas flexilis*), and Watermilfoil (*Myriophyllum sp.*). Algae

build up was also observed within various backwater habitats, specifically upstream of an old railway bridge crossing that has dammed with debris and produced a deep pond-like habitat.

The floodplain ranged from 10-20m on either side of the river and was characterized by deciduous woodland or thicket and wetland habitats. The floodplain was heavily vegetated with shrubs and herbaceous plants, with some deciduous trees present in select locations. The extent of natural vegetation was dominated by a canopy of deciduous trees and shrubs and understory of herbaceous plants and grasses extending up to 30m from the banks of the river. Beyond this, the land use is characterized as industrial to the north, with disturbed cultural habitats and agricultural fields to the south and in various locations along the northern shoreline. Evidence of surficial run-off was observed in various locations along the Eramosa River; however, no tile drain outlets were observed, with the exception of one culvert observed on the eastern side of Victoria Road South. The culvert was observed to be flowing and likely received run-off associated with the roadway and adjacent lands.

Clythe Creek flows into the Eramosa River along the northwestern shoreline just upstream of the rail crossing. Clythe Creek has been channelized and lined with river rock along the banks to aid in stabilization. Substrates within Clythe Creek are dominated by a layer of silt as a result from deposition. Based on review of aerial imagery, Clythe Creek appears to originate to the northeast and receives overflow from ponds just north of the subject property. Clythe Creek is known to provide coldwater habitat in some reaches, although these areas are located upstream of the study area. The adjacent lands are predominantly characterized as Cultural Thicket (CUT1) along the east and west shoreline.

3.4.2 Headwater Drainage Features

The subject property is located within the Eramosa River Watershed. NRSI biologists noted evidence of tiling at the subject property, and the Ministry of Agriculture, Food and Rural Affairs Tile Drainage Record (2022) confirms that most of the southwest portion of the site are tile drained, and these appear to be the source for some of the HDFs on site. A total of 3 HDFs were identified on the subject property, generally beginning northeast of the access road, and flowing in the northeast direction towards the Eramosa River. A summary of the characteristics for all HDFs present on the subject property is provided below, and HDFs are shown on Map 4.

ER-H1

This feature begins east of the access road at the south side of the site, and is approximately 50m in length. The feature ends by diffusing into the meadow and cultural thickets adjacent to the Eramosa River within the north portion of the subject property. Generally, this feature is characterized by ephemeral flows following spring freshet, and minimal riparian habitat. There is evidence of historic tile drainage, as well as the upper reach of this feature being historically planted through.

ER-H1-02

ER-H1-02 is the upstream extent of ER-H1 that begins northeast of the access road and flows in the north east direction. This feature is a poorly defined and heavily vegetated swale that has been historically planted through. This reach was dry during both site visits. Riparian vegetation was comprised exclusively of meadow within the feature and on both banks. The gradient was moderate (contour analysis, desktop) upstream of the steep area, marking the reach break. The substrate consisted of sand and silt with no evidence of sediment transport or erosion throughout the reach. This reach ends where the channel form becomes defined.

ER-H1-01

The downstream reach of ER-H1 is a defined natural channel that begins at a tile drainage outlet and rockpile at the confluence of ER-H1-02 and several gullies. This reach was dry during both site visits and is approximately 10m in length. Riparian vegetation included thicket communities (CUT1) immediately adjacent to the feature, with some meadow areas. Forest communities are present greater than 10m from the feature. The average feature width was 2.4m, and the average bankfull depth was 0.35m. Sediment transport was observed within the feature, with 4mm of sediment deposition present throughout the reach. Substrate consisted predominantly of sand and silt. The entire feature ends approximately 10m east from tile outlet, where it diffuses into the cultural thickets and meadows.

ER-H2

The HDF ER-H2 begins east of the access road at the south side of the site and is approximately 20m in length. Similar to ER-H1, it diffuses into the meadow and cultural thickets adjacent to the Eramosa River. Generally, this feature is characterized by ephemeral flows following spring freshet, and minimal riparian habitat. There is evidence of this feature being historically planted through.

ER-H2-01

This HDF is an approximately 10m in length, and is a poorly defined swale that begins northeast of the access road (similar to ER-H1-01). The average feature width is approximately 8.7m. This feature was historically disturbed, as evidenced by airphoto interpretation and tractor tracks. During the first visit there was standing water in the tractor tracks, but the feature was dry during the second visit. The riparian vegetation on both sides of the feature and the feature vegetation was meadow. There was no evidence of sediment transport or deposition within or adjacent to the feature. The substrate within the feature consisted predominantly of sand and silt. The entire feature ends after about 10m where it diffuses into the cultural thickets and meadows.

ER-H3

The HDF ER-H3 begins east of the access road at the south side of the site and is approximately 50m in length, and diffuses into the meadow and cultural thickets adjacent to the Eramosa River. Generally, this feature is characterized by ephemeral flows following spring freshet, and minimal riparian habitat. There is evidence of tile drainage, as well as this feature being historically planted through.

ER-H3-02

The upstream-reach of ER-H3 is a heavily vegetated swale approximately 0.75m wide that has been historically planted through. This reach was dry during both site visits. Riparian vegetation was comprised exclusively of meadow within the feature and on each bank. Substrate consisted predominantly of silt and sand. The segment gradient was moderate (contour analysis, desktop), and there was no evidence of erosion from within or adjacent to the feature. This reach ends at a tile drain outlet where several gullies confluence and the HDF becomes defined.

ER-H3-01

This reach is a defined, natural channel that begins at a tile drainage outlet. Minor erosion is occurring on the right bank where flow from ER-H3-02 preferentially flows around the outlet pipe. The average bankfull width is approximately 1.5m, and the average bankfull depth is 38.3cm. Minimal flow was observed during the first visit, with the average wetted depth of 18mm and average wetted width of 0.5m. The feature was dry during the second visit. There

was no vegetation within the feature, and riparian vegetation on either side consists of scrubland. Evidence of instream bank erosion and substantial sediment deposition (average 55mm deep) was observed. The feature substrates consist of sand, silt, and pebbles. This reach and feature ends about 10m from the tile drain outlet, where it diffuses into the cultural thickets and meadows.

4.0 Significance and Sensitivity of Natural Features

The identification of significant and sensitive natural features is required to understand what areas need to be protected and what areas present opportunities for development. Natural features that are sensitive to disturbance are identified based on the rarity or significance of the feature in the context of the natural heritage policies governing their protection.

Many of the natural features in the study area are considered part of the City of Guelph NHS, including the wetlands, Significant Woodlands, Significant Valleyland, and Significant Wildlife Habitat. These features are considered Significant Natural Areas (SNAs) within the NHS (City of Guelph 2022). Additionally, Habitat of Locally Significant Species are considered Natural Areas (NAs), which have associated policies and considerations in terms of any proposed development. These features are described in more detail below and shown on Maps 4 through 7. Generally, development and site alteration are not permitted within SNAs and their established buffers, unless such works comply with the permitted uses and it can be demonstrated that there will be no negative impacts as a result of the proposed undertaking (City of Guelph 2022).

The City of Guelph provides minimum buffers for SNAs and NAs within the NHS that are established through an EIS. These buffers are considered minimum widths that may be expanded on depending on the sensitivity of the habitats and species within these features, as well as based on the details of proposed development and the site-specific characteristics. Necessary buffer widths for each natural heritage feature are described within their respective sections below.

In addition to these features, habitat of SAR is also present throughout the study area for a number of species which are governed by the policies of the ESA (2007) and the applicable regulations.

Natural heritage features are discussed below in terms of their presence within the study area as well as within the subject property and development area in order to assist in framing potential impacts and mitigation measures to be assessed through this EIS.

4.1 Significant Wetlands

Wetlands provide valuable ecological functions within the landscape because of their ability to collect and store surface water and groundwater, as well as for their provision of habitat for wildlife, plants, and fish.

Wetlands associated with the Eramosa River Blue Springs Creek PSW complex are located within the study area on lands to the south of the subject property on GID Block 3 (Map 4). These wetlands are well removed from the development area (ranging from approximately 250-500m away). Unevaluated wetlands are also present on either side of the Eramosa River (Maps 2, 4).

A small wetland feature (0.092ha in size) is located in close proximity to the development area and was surveyed and confirmed with GRCA and City of Guelph staff during a site visit on July 14, 2022 within the Significant Valleylands on the subject property. The Eramosa River Blue Springs Creek PSW and the Torrance Creek Swamp PSW are both located off-site less than 750m from this feature. However, these wetlands are not hydrologically connected to the surveyed feature on the subject property and are separated by Stone Road (Map 3). As such, this wetland is not considered to be part of the broader PSW complexes, although it is considered to be a Regulated Feature based on Ontario Regulation 41/24, and development within this feature or within 30m would require a Section 28.1 permit. As per the definition within the City of Guelph Official Plan (2022), this wetland also does not meet the size criteria of either Locally Significant (>2ha) or 'Other Wetlands' (0.2-0.5ha), and as such, would not be addressed through natural heritage policies.

In addition to these wetlands, Schedule 4A of the City of Guelph Official Plan identifies additional 'City of Guelph Defined – Locally Significant' wetlands on the west side of the Eramosa River within the subject property from Victoria Road to Stone Road. During site visits with City of Guelph and GRCA staff on July 14, 2022, this mapping was found to be inaccurate, with areas currently shown as wetland confirmed as upland forest. Map 4 shows the extent of the surveyed wetland, as well as wetlands identified through ELC mapping along the Eramosa River that are 'Un-evaluated Wetlands'.

4.2 Significant Woodlands

Woodlands can provide a variety of benefits including soil erosion prevention, nutrient and hydrological cycling, the long-term storage of carbon, and the provision of wildlife habitat

(OMNR 2010). The protection of woodlands, especially those deemed Significant, is important because the loss of habitat can pose a serious threat to biodiversity (OMNR 2010) and valuable ecological benefits may be lost within the landscape.

As per Section 4.1.3.6 of the City of Guelph Official Plan, woodlands are assessed for significance based on the following criteria:

1. *Woodlands (not identified as cultural woodlands or plantations) of 1 hectare or greater in size, and a 10 metre minimum buffer.*
2. *Woodlands 0.5 hectare in size or greater consisting of Dry-Fresh Sugar Maple Deciduous Forest and a 10 metre minimum buffer, or*
3. *Woodland types ranked as S1 (Critically Imperiled), S2 (Imperiled) or S3 (Vulnerable) by the MNR Natural Heritage Information Centre, and a 10 metre minimum buffer.*

In addition, the definition of Significant Woodlands applies to woodlands that 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 due to the amount of remaining forest cover in the city (City of Guelph 2022).

The woodlands within the subject property are largely associated with the valley slopes of the Eramosa River, and although they contain a high proportion of non-native species, they meet the criteria for significance as they contain and are located adjacent to, a variety of significant natural heritage features, including:

- Significant Valleyland;
- Wetlands;
- Candidate and confirmed SWH; and,
- Habitat of Locally Significant Species.

Significant Woodlands within the subject property are shown on Map 4 along with necessary buffers. A buffer of 10m has been deemed to be sufficient to protect the form and function of this feature including the habitats contained within. This is further discussed in the respective sections below.

A small lobe of woodland containing predominantly small White Ash (*Fraxinus americana*.) saplings was identified and surveyed during field surveys to confirm the woodland dripline boundary. During the survey on October 11, 2022, it was mentioned by Jason Elliott (City of

Guelph) that this area could be reviewed to see if it meets the requirements to be considered woodland. It is unlikely that this area will regenerate to woodland as these trees mature given that some of these trees were already found to show signs of infestation by Emerald Ash Borer (*Agrilus planipennis*). This area was reviewed in the field with City staff (Ryan Hamelin) on July 28, 2025, and it was confirmed that this area should not be included as part of the woodland boundary due to the low tree density present. As such, this area has been excluded from the woodland mapping.

Two Staghorn Sumac thickets were also found to be abutting the edge of the Significant Woodland boundary within the subject property (Map 2, Map 4). Although not considered to be woodland, these thickets were assessed in terms of supporting habitat that may provide important function to the woodlands. Neither of these features were found to contain any significant features or sensitive species, nor were they found to provide any important supporting feature to the woodlands that would warrant additional buffers. Nonetheless, approximately half of these small thickets will be protected within the proposed 10m buffer to the Significant Woodland (described in Section 4.9 below).

4.3 Significant Valleylands

Significant Valleylands have been delineated and identified as per the criteria in Section 4.1.3.7 of the City of Guelph Official Plan (City of Guelph 2022):

1. *Undeveloped areas within the regulatory floodplain areas, riverine flooding hazards, riverine erosion hazards, as identified by the GRCA.*
2. *The remnant portions of the Speed and Eramosa Rivers, identified by the City that are relatively undisturbed and represent the quality and diversity of the physical expression of the river system on the landscape and measured to the uppermost break in slope associated with the valley and including the terraces on the valley slopes.*

Significant Valleylands within the study area are associated with the Eramosa River that forms the northern and eastern boundaries of the subject property. The mapped boundary of this feature captures the relatively undisturbed portions of this valley system measured to the uppermost break in slope on the associated table lands (Map 4). As specified within Table 4.1 of the City of Guelph Official Plan (City of Guelph 2022), this feature does not require a buffer, although many of the other natural heritage features contained within this valley are afforded protection and suitable buffers (e.g., Significant Woodlands, wetlands, etc.). As per Section 4.1.3.7.4 of the City of Guelph Official Plan (2022), development of various types may be

permitted within this feature subject to the results of an EIS that demonstrates no negative impacts.

Large portions of the Significant Valleyland are dominated by invasive Common Buckthorn thickets (Map 2). These areas represent excellent opportunities for the restoration of natural vegetation communities within the valleylands. Such restoration may be implemented in order to support a range of wildlife species including pollinators such as the significant butterfly and bee species known to occur within the study area. Proposed enhancement measures are provided in Section 6 of this report.

4.4 Habitat of Endangered and Threatened Species

Based on the background information review and field survey observations, several SAR were identified as having potential habitat within the study area, including Bobolink, Eastern Meadowlark, and SAR bats (Appendix II). These species and provincial policy considerations are described in further detail below. The Endangered Species Act is currently being repealed through Bill 5 and is planned to be replaced by the Species Conservation Act (SCA) which will provide a revised definition of 'habitat' and new regulations for protection of SAR. The applicable and in-force legislation for protection of SAR will be adhered to and will be further assessed closer to the development time when clarity is provided on the SCA (EIR stage of the project).

Bobolink and Eastern Meadowlark

Bobolink and Eastern Meadowlark are considered 'Threatened' provincially (MECP 2024a). Eastern Meadowlark is considered to be 'Threatened' federally, while Bobolink was recently recommended to be down-listed from 'Threatened' to 'Special Concern', although both remain on Schedule 1 of the SARA, and thus continue to receive protection federally (Government of Canada 2024). Both of these species are considered to be breeding within the subject property and development area, with 'probable' breeding evidence based on the results of breeding bird surveys described in Section 3.3.1. A total of approximately 15ha of suitable habitat has been mapped for these species, mostly towards the rear of the subject property (Map 5). Smaller areas of meadow elsewhere on the property (e.g., at the corner of Victoria Road and Stone Road) were not included as part of this habitat due to the lack of high breeding evidence at these specific locations ('probable' or 'confirmed'). Due to the transient nature of this habitat on the site (recent clearing of research trees and the suckering of poplar species in areas of currently identified Bobolink and Eastern Meadowlark), it is recommended that these habitats be

assessed closer to the time of development to map the most current extent of habitat present in order to determine the necessity of addressing these features under the requisite regulations of the ESA (2007) or applicable legislation (SCA).

Bat Habitat

Bat habitat assessments identified a number of candidate maternity roost habitat trees for bat SAR within the subject property. The trees identified have cavities, crevices, exfoliating bark, or other features that may be attractive to roosting bats. In addition to these trees, other isolated Maples and Oaks are also present within the study area, but have not been identified as this is typically only completed in the same year as any acoustic monitoring that may be required.

Based on recent correspondence with MECP on similar files, isolated trees that are considered candidate habitat may be removed outside the bat active period without acoustic monitoring in the event that the impact of removal is negligible in comparison to nearby woodland habitat that will be retained. Based on the small number of candidate trees that would be removed, impacts to SAR bats are not anticipated providing the trees are removed outside of the bat active period that extends from April 1-September 30. The Significant Woodland will be retained and will be afforded a buffer of 10m, which is considered sufficient to protect this candidate habitat type within the feature. As such, extensive tree roosting habitat will remain protected within the broader NHS and high-quality foraging habitat will also be present within meadows and along the Eramosa River.

Based on the field surveys completed by NRSI, the buildings on the subject property, including the agriscience building and associated sheds and outbuildings, were not found to be suitable for bat roosting. As such, these structures can be removed without impacts to SAR bats.

4.5 Significant Wildlife Habitat and Linkages

Significant Wildlife Habitat is present with the study area and subject property (Appendix III). The locations of candidate and confirmed SWH are shown on Map 6, and are not generally located within the development area. 'Possible' SWH is described below but is not mapped, and pertains to habitats that have the potential to occur within the broader study area but do not yet meet the threshold for 'candidate' habitats due to a lack of information or targeted search effort.

4.5.1 Seasonal Concentration Areas

Turtle Wintering (Confirmed)

Snapping Turtle (*Chelydra serpentina*) and Midland Painted Turtle (*Chrysemys picta marginata*) are known from the Eramosa River immediately adjacent to the subject property (iNaturalist 2022a). The Turtle Wintering SWH would be the deep-water pools within the watercourse. None of the wetlands within the subject property contain sufficient standing water to support wintering turtles. Although Midland Painted Turtles were observed basking on the edge of the toxicology pond, SWM and ponds of this nature are not considered SWH.

Waterfowl Stopover and Staging Areas (Aquatic) (Candidate)

The Eramosa River provides candidate stopover and staging habitat for waterfowl. Surveys were not undertaken to confirm this habitat as it is well removed from any development limits and the important adjacent woodland cover within the valley corridor will be protected within the Significant Woodland and associated buffer. No suitable stopover or staging habitat is present within the wetlands on the subject property as they are too small in size and of insufficient composition to support waterfowl during migration.

Reptile Hibernaculum (Candidate)

Three candidate snake hibernacula were identified within the subject property on the edge of a thicket community (CUT1) as well as within a meadow (CUM1) and savannah community (CUS), all within the Significant Valleylands on the eastern portion of the subject property. Three snake species were identified within the subject property and development area including Eastern Gartersnake, Smooth Greensnake, and Dekay's Brownsnake.

Snakes were not identified in proximity to any of the candidate snake hibernacula, and upon closer review of these features it was found that they provided marginal or unsuitable wintering habitat for snakes as they did not appear to provide access below the frostline. As a result, it is unlikely that these features are functioning as a hibernation structure for snakes. It is likely that hibernation sites for snake species in the subject property are associated with areas of exposed bedrock such as near the cliff faces that are within the Significant Woodland area (Map 2).

Bat Maternity Colonies (Possible)

Known locations of bat maternity colonies are extremely rare in forested vegetation communities across Ontario. This SWH type is confirmed based on the presence of either a Big Brown Bat (*Eptesicus fuscus*) or Silver-haired Bat (*Lasionycteris noctivagans*) maternity colony.

Traditionally, Big Brown Bats formed maternity colonies beneath loose bark and in small cavities of various tree species. Today, common maternity roosts for this species are found in buildings, barns and bridges; however, these anthropogenic structures are not considered to be SWH. Silver-haired Bats prefer older mixed or deciduous forests and form maternity colonies in tree cavities and small hollows (OMNR 2000). The deciduous and mixed-deciduous forests within the study area may provide suitable bat maternity SWH, although snag counts have not been completed to determine whether these woodlands meet the criteria as a 'candidate' SWH. In lieu of these surveys, this habitat type has been considered in the determination of woodland buffers (described above). A 10m woodland buffer is sufficient to protect the maternity roosts of bat species that may be located within the NHS, and extensive foraging habitat is also found within these protected areas.

Colonially – Nesting Bird Breeding Habitat (Tree/Shrubs) (Possible)

Stick nests for herons were not identified within the subject property, although both Great Blue Heron (*Ardea herodias*) and Green Heron (*Butorides virescens*) were observed during field surveys on the subject property. These species have the potential to be breeding within other treed areas in the broader study area.

4.5.2 Rare Vegetation Communities

Cliff and Talus Slopes (Confirmed)

White Cedar Treed Carbonate Cliff Type (CLT1-1) has been confirmed within the woodlands on the subject property, and are broadly delineated as shown by the black lines within the Cultural Woodland (CUW1), Dry-Fresh White Cedar Mixed Forest (FOM4), and Fresh-Moist White Cedar-Hardwood Mixed Forest (FOM7-2) on Map 6. These features are not located within the development area and will remain protected within the Significant Woodland following development.

4.5.3 Specialized Wildlife Habitat

Waterfowl Nesting (Candidate)

Waterfowl Nesting habitat may be present within the subject property within the wetlands associated with the Eramosa River and adjacent upland habitats. Due to the extremely steep cliffs on the subject property side of the river, it is likely that any substantial nesting habitat is limited to areas immediately adjacent to the river or the opposite side where the slopes are gradual and there is a wider floodplain. In addition, the Guelph Correctional Facility Ponds on the north side of the river (Map 1) provide suitable foraging habitat for nesting waterfowl.

species, and indeed 4 indicator species have been observed at this location during the breeding season including American Black Duck (*Anas rubripes*), Mallard (*Anas platyrhynchos*), Hooded Merganser (*Lophodytes cucullatus*), and Wood Duck (*Aix sponsa*) (eBird Database 2022). As such, candidate SWH has been delineated to include the suitable portions of the Eramosa River and riparian wetlands and upland habitat up to 120m away (Map 6). This habitat type is not considered to be located within the development area.

Bald Eagle and Osprey Nesting, Foraging and Perching Habitat (Possible)

Bald Eagle (*Haliaeetus leucocephalus*) and Osprey (*Pandion haliaetus*) are known from the Eramosa River area, and it is possible that either of these species breeds in the general study area beyond the subject property boundaries (eBird Database 2022). These species were not observed during field surveys and no stick nests were identified within the subject property or development area.

Turtle Nesting Area (Possible)

Five basking Midland Painted Turtles were observed basking in the Toxicology Pond and a single Midland Painted Turtle hatchling was observed along the foot path in the north of the subject property at the edge of the Significant Woodland. However, turtle nesting was not confirmed within the subject property despite extensive nesting surveys. A probable turtle test pit was located near the existing agriscience building and parking areas, although this could not be definitively confirmed to a particular species. It is likely that turtle nesting occurs within the broader study area or even within the subject property outside of the development area.

Seeps and Springs (Possible)

No seeps and springs were identified within the subject property during field surveys, although it is possible these features are present elsewhere in the broader study area.

4.5.4 Habitat for Species of Conservation Concern

Species of Conservation Concern are those with a provincial S-rank of S1 to S3, those listed as species of Special Concern provincially, or species listed as Endangered or Threatened nationally with no provincial designation (i.e., not protected by the ESA). Confirmed habitat for SCC may be considered Significant Wildlife Habitat (OMNR 2000). Based on the results of wildlife-specific field surveys, four SCC were identified including; Yellow-banded Bumble Bee, Monarch, Eastern Wood-Pewee, and Grasshopper Sparrow. These species and their habitats are considered in terms of significance, below. Monarch and Grasshopper Sparrow have

identified candidate habitat within the development portion of the site, and as such, have been considered more closely in Table 7 in accordance with evaluation criteria from Appendix Q of the Significant Wildlife Habitat Technical Guide (OMNR 2000).

Shrub/Early Successional Bird Breeding Habitat

Breeding bird surveys detected the presence of a number of indicator species for Shrub/Early Successional Bird Breeding Habitat on the subject property, including those listed in Table 6 below:

Table 6. Shrub/Early Successional Bird Breeding Observations

Common Name	Scientific Name	Location	Breeding Evidence
Indicator Species			
Brown Thrasher	<i>Toxostoma rufum</i>	BMB-09/10	Possible
Common Species			
Eastern Towhee	<i>Pipilo erythrophthalmus</i>	BMB-06	Possible
Field Sparrow	<i>Spizella pusilla</i>	Widely across site	Probable
Willow Flycatcher	<i>Empidonax traillii</i>	BMB-04, 06-07	Probable

As per the Ecoregion Criterion Schedules (6E) (MNRF 2015a), habitat for this SWH category is considered to be confirmed if there is nesting/breeding confirmed for at least one of the 'indicator species' and at least two of the 'common species'. Breeding bird surveys identified the presence of 'possible' breeding for two of these species (Brown Thrasher, Eastern Towhee) and found that breeding for two others (Field Sparrow and Willow Flycatcher) was 'probable'.

The distribution of thicket and other suitable breeding habitat for this guild of bird species was located within the Significant Valleylands, along the edges of the NHS and across the broader development area where shrubs and trees were found to be regenerating following the previous tree cutting that occurred on the site. This recently regenerated shrub habitat was creating widespread habitat for shrub species, in particular Field Sparrow, that was found to be ubiquitous across the open areas of the subject property. As per the Ecoregion Criterion Schedules (6E) (MNRF 2015a), it is stated that 'Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.' Given the recent creation of much of this habitat due to recent tree clearing, it is not recommended that these areas be considered SWH.

The thicket habitat within the valleylands has a more established history, and has likely provided suitable breeding habitat for a variety of successional bird species; however, the contiguous

portions of suitable habitat in these areas is generally considered to <10ha in size, and nesting of the required number of species with sufficient breeding evidence was not observed in these areas. Based on this analysis, this is not considered to be SWH.

Yellow-banded Bumble Bee

Yellow-banded Bumble Bee is considered to be a species of ‘Special Concern’ both provincially and federally (MECP 2024a; Government of Canada 2024). Yellow-banded Bumble Bee will utilize a variety of habitats including deciduous and mixed-deciduous woodland with nearby open areas (Miller 2010; MECP 2021). A single observation of Yellow-banded Bumble Bee (*Bombus terricola*) was recorded during field surveys on the subject property within the outer fringe of the Dry-Fresh White Cedar Mixed Forest (FOM4), outside of the development area. Interestingly, no other observations of this species were observed at other nectar sources that attracted large numbers of more common *Bombus* species. Given that bumble bees may typically forage as far as 1.5km from the nest, it is possible that this individual may be foraging at the outer extent of its local range, and defining the habitat range for this species on this site is difficult (Osborne et al. 2007; Miller 2010). As such, SWH for this species has not been delineated, although nesting habitat would be protected within the woodlands. Consideration for this species will need to be integrated into the mitigation and enhancement plans and should include creation of meadow habitat and nectar sources within buffers and/or other suitable NHS areas (e.g. those areas dominated with Common Buckthorn).

Monarch

Monarch is designated as a species of ‘Special Concern’ provincially (MECP 2024a), and was up-listed to ‘Endangered’ federally in 2016, although it has not yet been added to Schedule 1 of the SARA (Government of Canada 2024). Milkweed is present throughout the subject property, and has recently become more prevalent on this site following removal of the former tree plots cultivated by University of Guelph for research purposes. Two substantial clusters of Milkweed require consideration in terms of SWH, including a larger concentration in the north end of the site (Milkweed Cluster #1) and a smaller area further south and east (Milkweed Cluster #2), both within the development area (Map 7). Both of these milkweed clusters were found to have nectaring Monarch, although no eggs or caterpillars were found during searches of these patches during June and July.

In order to determine what constitutes SWH for a given species, it is important to consider the factors that have led to this species being designated as rare or of concern (COSEWIC 2016).

Much of the conservation efforts for this species have been targeted at the wintering grounds and stopover locations where loss of habitat is thought to drive the declines in this species (Brower et al. 2002; Brower et al. 2004). However, recent research has shown that this species is also sensitive to loss of breeding habitat, consisting of Milkweed and associated open areas containing nectar sources (Flockhart et al. 2014). Hence, the need to protect breeding habitat for this species remains important. Since breeding habitat for this species can be found in nearly any open area (e.g. roadside, backyards, developed areas), delineation of SWH should focus on the highest quality habitat. Higher quality habitat is generally considered to be areas with larger concentrations of milkweed, since patches containing only single or a few Milkweed tend to be overloaded with eggs which increases competition and may decrease survivorship to maturation (Zalucki and Suzuki 1987). In addition, areas immediately adjacent to agricultural fields, disturbed areas and roadsides are likely to experience decreased survival due to corn pollen, pesticide usage and dust (Tschenn et al. 2001). Monarchs also generally prefer more sheltered areas in which to lay eggs (Oberhauser and Solensky 2004).

Given the recent establishment of this habitat, and the lack of characteristics that would establish these patches of Milkweed as significant, these areas are not considered SWH. Milkweed Cluster #2 is generally too small to be considered significant. Milkweed Cluster #1, although considerably larger is located on top of a large rise without sheltered areas immediately adjacent, and was found to contain very few supporting native species that would provide additional nectar sources more widely throughout the breeding season. Common Milkweed has a relatively protracted period of flowering, and as such, other nectar sources are important at breeding sites. Milkweed Cluster #1 was found to have been mown and seeded with winter wheat during site visits in the fall of 2022. Further details are provided in Appendix III. Nonetheless, opportunities for maintaining and improving Monarch habitat on this site are available, and include Milkweed plantings of similar size in available buffer areas, and other areas of the NHS (e.g. Common Buckthorn clusters within Significant Valleyland).

Swamp Darner

Swamp Darner has a sub-national ranking of 'S3S4' meaning that it may be 'Vulnerable' or 'Apparently Secure' in Ontario (MNR 2022). This species breeds in swamps, forested streams, and similar habitat where eggs are deposited and larvae subsequently develop in shallow pools (Paulson 2011). Standing water of this sort is not present in subject property or development area, except possibly adjacent to the Eramosa River where standing water may be found in riparian wetlands, and as such, SWH for this species has not been considered further.

This species is highly mobile and is known to breed within the University of Guelph Arboretum to the west of Victoria Road (iNaturalist 2022a). The observation of this species away from suitable breeding habitat within the subject property is indicative of a foraging individual.

Barn Swallow

Barn Swallow were identified as foraging throughout the subject property during breeding bird surveys and other site visits. This species is considered to be 'Special Concern' provincially (MECP 2024a), and was recently recommended to be down-listed by COSEWIC from 'Threatened' to 'Special Concern', although it remains on Schedule 1 of the SARA, and thus continues to receive protection federally (Government of Canada 2024). No nests were located during any surveys, including on or within any of the structures on the subject property, and as such, it is unlikely that this species is breeding at this location and the observations of this species represent foraging individuals.

Grasshopper Sparrow

Grasshopper Sparrow is considered to be a species of 'Special Concern' both provincially and federally (MECP 2024a; Government of Canada 2024). This species is considered rare within the City of Guelph, due to its requirement for large meadows or fallow fields for breeding habitat (>10ha in size) (OMNR 2000). Within the subject property and development area, this habitat was very recently created by the cutting/removal of trees. The window of suitable habitat for this species is likely to be very limited given that trees that had been previously cut are now suckering back and rapidly creating habitat that is unsuitable for this species, which prefers open grasslands. Given these habitat conditions, and the low numbers of birds likely to be utilizing this habitat, it is not considered SWH. A more detailed analysis of this habitat type is provided in Table 7. Although this species is not addressed under the Ontario Regulations that pertain to Bobolink and Eastern Meadowlark, any compensation applied to these species would also benefit Grasshopper Sparrow due to their similar habitat requirements.

Eastern Wood-Pewee

Eastern Wood-Pewee is considered to be a species of 'Special Concern' both provincially and federally (MECP 2024a; Government of Canada 2024). This species was observed only once on June 16, 2022 during breeding bird surveys and was identified as 'possibly' breeding within the subject property, but not within the development area. The species observation was located within a small clump of trees immediately to the south of existing sheds near the agriscience building, which is not considered suitable breeding habitat for this species (Map 7). It is

possible that Eastern Wood-Pewee breed within the Significant Woodland, although no observations of this species were made within that habitat during breeding bird surveys. Nonetheless, suitable nesting habitat for Eastern Wood-Pewee will be protected within the Significant Woodland and buffer.

Table 7: Candidate Habitat of SCC - Significant Wildlife Habitat Evaluation (Monarch and Grasshopper Sparrow)

Important Evaluation Criteria ¹	Suggested Guidelines ¹	Evaluation Comments
Degree of rarity of species found at site	- Habitats of the rarest species are more significant than those of less rare species. For example, habitats for species ranked S1 and S2 should be considered more significant than habitats for species ranked S3. Species ranked as vulnerable by the OMNR should also be considered significant. - Less rare species and their habitats in the planning area may be deemed SCC by the municipality based on such factors as the number of known occurrences, total extent of remaining habitat, degree of threat or risk to habitat, and/or local interest in a particular species. - If a species' habitat is to be protected, sufficient area (based on the species' known requirements) should be retained to ensure a viable and sustainable population.	Monarch is ranked S2N, S4B meaning that the stopover habitat is Imperiled while the breeding population is Apparently Secure. Stopover habitat does not occur on the subject property. Breeding habitat for Monarch is abundant and widespread throughout Ontario and the City of Guelph. There are 140 observations of Monarch logged on iNaturalist (2022a) within the City of Guelph. Grasshopper Sparrow is rare within built-up portions of the City of Guelph but occurs commonly on the fringes of the City and more widely in Wellington County. There are approximately 25 observations of Grasshopper Sparrow (eBird 2022).
Documented significant decline in a species and/or its critical habitat	- The habitat for species experiencing the greatest declines is most significant. - The habitat for declining species that has the lowest representation in the planning area is more significant. - Those habitats that provide the best opportunity for the long-term sustainability of the declining species are most significant (e.g., large well-protected sites; sites that best meet the species' habitat requirements; sites with good connections to other similar habitats).	Monarch have experienced significant declines in the past decades largely due to alterations to wintering habitat, changing agricultural practices, and loss of Milkweed plants throughout their breeding range. Breeding habitat for Monarch is limited on the subject property but opportunities to enhance habitat for the species are possible. Grassland birds such as Grasshopper Sparrow have documented significant declines in Ontario and throughout North America.
Species whose range is solely in Ontario	- Habitat for those species with the poorest representation within the planning area is more significant. - These species and their habitats are significant even if well represented in the planning area, due to high provincial responsibility for their protection.	Both Monarch and Grasshopper Sparrow are widespread throughout Ontario, southern Canada, and the U.S (iNaturalist 2022a; eBird 2022). Jurisdictional responsibility for either of these species is considered to be low, based on this.

Important Evaluation Criteria ¹	Suggested Guidelines ¹	Evaluation Comments
Condition of existing habitat on site	• Sites that provide habitat that best meets the survival requirements of the target species and that also include a natural buffer zone are most significant (i.e. most likely to sustain species/population over the long-term). • Sites that contain the fewest non-native species of potential threat to the target species are significant. • Undisturbed or least-disturbed habitats (e.g., no/few deleterious impacts from roads, human activities) are significant. • Sites capable of producing a large number of individuals of a single species of conservation concern are significant. • Highly diverse sites that support one or more species of conservation concern are most significant.	The habitat at both milkweed clusters is considered sub-optimal for Monarch. Habitat does not have adjacent cover which is considered important for this species, is located on an area of contaminated soil. The site is highly (and recently) disturbed, and can easily be replicated and improved upon elsewhere on the site. Cut over planted with winter wheat The habitat is suitable for Grasshopper Sparrow based on the size of the meadow habitat (>10ha), although it is not generally considered to be of the highest quality as it is fragmented with agricultural (soy fields), access roads, existing structures, and is partially within an area of contaminated soil.
Size of species population at site	• Habitats supporting large populations of a several species of conservation concern are most significant. • Habitat supporting large populations of a single species is significant.	Monarch were observed during insect surveys during the summer, in low numbers including at the two milkweed clusters. However, eggs and/or larvae were not found during searches indicating that although the species undoubtedly breeds on the site, it is likely to be in low numbers. Grasshopper Sparrow were observed in low numbers during the breeding bird surveys. Surveys indicate that there may be between 2-4 pairs present on the site, based on the number of singing males observed on breeding bird surveys.
Size and location of habitat	• Large sites supporting large populations of several species of conservation concern are most significant. • Large sites are generally more significant than most comparable but smaller sites. • Sites large enough to ensure long-term support and viability of species of conservation concern are significant.	The subject property is large and is part of a large naturalized habitat associated with the Eramosa River valley.

Important Evaluation Criteria ¹	Suggested Guidelines ¹	Evaluation Comments
	Sites with large areas of suitable habitat that are also connected to other potentially suitable habitat and/or natural areas are most significant.	
Potential for long term protection of the habitat	- Habitats that provide the best opportunity for long-term protection are usually more significant than similar habitats with little opportunity for protection or facing an uncertain future due to potential threats (e.g., habitat found in a large natural area vs. an isolated site close to an expanding residential development). - Habitats threatened with degradation or loss are more significant than similar, but currently unthreatened habitats, if they can be protected. - Habitats of species currently experiencing severe population declines in Ontario (e.g., grassland bird species) due to habitat loss are most significant. - Habitats of species currently experiencing significant population declines in the municipality are significant.	The Monarch habitat has since been mown and tilled for agricultural practices. The long-term viability of Grasshopper Sparrow on the site is unlikely, since even if left fallow, the previously removed poplar trees that were part of the University of Guelph test plots are suckering from stumps and growing rapidly across all areas of the site.
Representation of species/habitat within the municipality	- Poorly represented habitats for species of conservation concern are significant. - Habitats that could be lost or severely degraded and cannot be replaced by similar habitats in the planning area, are highly significant.	Habitats for Monarch are well represented in the municipality. This habitat is very easy to replace through creation of meadow habitat with Milkweed and other native nectaring plants. Habitat for Grasshopper Sparrow is poorly represented within the City core since this species requires large open areas to thrive, although it is more common on the fringes of the City and throughout Wellington County where such habitat is more abundant.
Evidence of use of the habitat	Sites with documented traditional use by species are most significant.	Monarch and Grasshopper Sparrow would have been significantly less common prior to the removal of tree cover on this site since suitable open country habitat for these species would not be present. These habitats were created indirectly through the removal of University of Guelph tree plots.

Important Evaluation Criteria ¹	Suggested Guidelines ¹	Evaluation Comments
Species of particular interest to the planning authority	Sites providing the best examples of habitat that will ensure the long-term sustainability of the species are significant.	Monarch occur widely throughout the planning authority, while Grasshopper Sparrow is more common in areas with large open fields and grasslands. As mentioned above, this habitat was recently created by the tree cutting on the site. Long-term viability of grassland habitat suitable for Grasshopper Sparrow would require extensive and ongoing intervention to maintain existing conditions, which is not generally considered feasible on this site.

1. OMNR 2000

4.5.5 Ecological Linkages

Ecological Linkages are considered by the City of Guelph as part of Significant Wildlife Habitat (City of Guelph 2022). They are intended to facilitate movement of flora and fauna within the NHS, between SNAs and/or other protected habitats (City of Guelph 2022). Ecological Linkages are not shown on the City of Guelph NHS mapping for this subject property, although the Eramosa River corridor and associated natural heritage features (Significant Valleyland, Significant Woodland, wetlands) are considered Significant Natural Areas and likely provide a wildlife movement corridor along the river. This was confirmed through the completion of winter wildlife surveys in 2022 and 2023 that showed that the most substantial areas of wildlife movement within the subject property were within the Eramosa River valleylands. Movement across other areas of the site, including the large agricultural fields, was found to be comparatively light, although some of the larger more mobile species (e.g. Coyote) were found to cross these open areas towards the arboretum and other off-site areas.

The NHS within the subject property is bisected from other SNAs including Significant Woodlands and PSWs across Victoria Road South on the arboretum lands and Guelph Cutten Fields, as well as across Stone Road East towards the Block Plan 3 lands. Schedule 4 of the City of Guelph OP (2022) identifies 'Other Wildlife Crossing Opportunities' at approximately the locations where the Eramosa River runs beneath the bridges for Victoria Road South and Stone Road East. These bridge locations were found to be utilized by wildlife to navigate on and off the subject property to these other NHS features. The Eramosa River also typically freezes partially during the winter, and wildlife were recorded walking on the ice in these locations (e.g. coyote, mink, etc.).

White-tailed Deer were found to be scarce on the subject property, with only a single individual recorded during winter wildlife surveys. This could be a result of the very high number of Coyotes present on the subject property and/or the presence of higher quality wintering habitat in nearby areas such as GID Block 3 where cedar swamp woodlands are present near Torrance Creek.

Amphibian and reptile movement between GID Blocks 1 and 2 and the broader NHS is anticipated to be minimal with the exception of within the Eramosa River given that there are no ponded wetlands away from the Eramosa River on the subject property.

Based on this information, it is unlikely that an additional wildlife crossing structure would be necessary on this subject property, beyond what is already provided by the bridges at Victoria Road South and Stone Road East.

4.6 Surface Water and Fish Habitat

The Eramosa River is mapped as cool-water fish habitat on Schedule 4B of the City of Guelph Official Plan (2022). The river is also confirmed to provide direct, year-round fish habitat, with observations of small bodied fish made during the aquatic habitat assessment, including Darters (*Percidae*), Minnows (*Leuciscidae*), and Juvenile Smallmouth Bass (*Micropterus dolomieu*).

This feature is well removed and buffered from any potential development, although the EIS report will need to consider potential impacts of the Stormwater Management and hydrological strategy, among other items. The remainder of the subject property does not contain water courses or fish habitat, as it is table land that drains well through sheet flow into the Eramosa River valley. Headwater drainage features and their significance are detailed below.

4.7 Headwater Drainage Features

The classification results of the HDFs are summarized below Table 8, and the management recommendations for each reach are shown on Map 4. The management recommendations categories are as follows:

- Protection;
- Conservation;
- Mitigation;
- Recharge protection;
- Maintain or replicate terrestrial linkage; and
- No management required.

Table 8: Headwater Drainage Features Classification

HDF Reach	Step 1		Step 2	Step 3	Step 4	Management Recommendation from Assessment	Adjusted Management Recommendation	Comments/Rationale
	Hydrology	Modifier	Riparian Conditions	Fish and Fish Habitat	Terrestrial Function			
Eramosa River								
ER-H1-01	Limited	None	Valued	Contributing	Limited	No Management Required	No Management Required	--
ER-H1-02	Limited	Tiled	Valued	Contributing	Limited	No Management Required	No Management Required	--
ER-H2-01	Limited	None	Valued	Contributing	Limited	No Management Required	No Management Required	--
ER-H3-01	Contributing	None	Important	Contributing	Limited	Conservation	Mitigation	Scrubland (Important) was included as part of the riparian vegetation community, but it is only a small shrubbed area dominated by meadow. For this reason, we recommend amending the management guidelines to Mitigation.
ER-H3-02	Limited	Tiled	Valued	Contributing	Limited	No Management Required	No Management Required	--

4.8 Locally Significant Species

Habitat for (Locally) Significant Species (HSS) has been identified within the subject property including within the development area

Table 9). As per Section 4.1.4.4 of the City of Guelph Official Plan (2022), development may occur within HSS providing that all reasonable steps have been taken to maintain the habitat in site and have been deemed unfeasible. Where possible, these habitats will be protected along with other overlapping natural heritage features. Table 9 below provides further detail on HSS within the study area, and suitable habitat is identified by ELC community on Map 7.

Table 9: Habitat for Locally Significant Species and Respective Habitat Guilds within the Subject Property

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
Meadow/Open Country	American Kestrel (<i>Falco sparverius</i>)	Open country, farmland, cities, wood edges. Inhabits any kind of open or semi-open situation, from forest clearings to farmland to desert, wherever it can find adequate prey and some raised perches (NAS 2022a).	No. Although this species was found to be foraging throughout the site, no large cavity trees or nest boxes were identified that could provide suitable breeding sites. It is likely that nesting locations are present in the broader study area or on lands beyond.	No. With the exception of foraging habitat.	Foraging habitat will be partially protected within the open areas of the NHS, although portions of this habitat will be removed for development.
	Common Sootywing (<i>Pholisora catullus</i>)	Larval foodplants included Lambsquarters (<i>Chenopodium album</i>), Amaranaths, (<i>Amaranthus</i>) and Cockscomb (<i>Celosia</i>) (NSE 2022).	No. Larval foodplant and nectar sources not present within the subject property.	No.	N/A
	Dekay's Brownsnake (<i>Storeria dekayi</i>)	Occurs in forested regions and can be found in diverse habitats, including forests, wetlands, forest clearings, edge habitats and urban areas. (Ontario Nature 2022).	Yes. Suitable habitat is present within the subject property in terms of foraging habitat and has	Yes. Foraging habitat is present in the development area, but potential hibernacula are	Yes. Suitable foraging habitat is present within the woodlands, meadows, and

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
			the potential to include wintering habitat at several candidate Reptile Hibernacula.	likely associated with exposed bedrock that is within the NHS.	thickets of the NHS. In addition, likely hibernation sites within the NHS will be protected.
	Delaware Skipper (<i>Anatrytone logan</i>)	Larval Foodplant: Various grasses including big bluestem (<i>Andropogon gerardi</i>), switchgrass (<i>Panicum virgatum</i>), and wooly beard grass (<i>Erianthus divaricatus</i>). Adult Food: Nectar from pink and white flowers including swamp and common milkweeds, shrub houstonia, mountain mint, marsh fleabane, sweet pepperbush, buttonbush, thistles, and pickerelweed. Habitat: Moist areas including marshes, prairies, fields, roadsides and suburban yards. (BMNA 2022).	Yes. Where larval foodplant and nectar sources occur.	Yes. Suitable habitat for this species overlaps with the proposed SWM pond 2, located in the valleylands.	Yes. Some suitable habitat occurs in meadow habitat within the Significant Valleylands, where nectar sources are present.
	Eastern Kingbird (<i>Tyrannus tyrannus</i>)	Open environments such as fields with scattered shrubs and trees, orchards, along woodland edges in forested regions, savannahs, among others (Hespenheide 1971; Johnston 1971; Graber et al. 1974).	Yes. Suitable habitat is widely present within the open habitat of the study area.	Yes. Much of the suitable habitat for this species is currently within the table lands where development is proposed.	Yes. A portion of this habitat will be protected within the meadow and savannah of the NHS.
	Field Sparrow (<i>Spizella pusilla</i>)	Old fields, woodland openings and edges, roadsides and	Yes.	Yes.	Yes.

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		railroads near open fields. Does not breed close to human habitation; occasionally found in Christmas tree farms, orchards, and nurseries (Peterjohn and Rice 1991).	Suitable habitat is widely present within the open habitat of the study area.	Much of the suitable habitat for this species is currently within the table lands where the development is proposed.	A portion of this habitat will be protected within the meadow and savannah of the NHS.
	Hoary Vervain (<i>Verbena stricta</i>)	Fields and open areas. (iNaturalist 2022b).	Yes. Suitable habitat is widely present within the open habitat of the study area.	Yes.	Yes. A portion of this habitat will be protected within the meadow and savannah of the NHS.
	Savannah Sparrow (<i>Passerculus sandwichensis</i>)	Open country such as grassy meadows, cultivated fields (especially alfalfa), lightly grazed pastures, roadsides, coastal grasslands, sedge bogs, edge of salt marshes, and tundra. Dense ground vegetation, especially grasses, and moist microhabitats favored (Wiens 1969).	Yes. Suitable habitat is widely present within the open habitat of the study area.	Yes.	No. Meadow habitat of suitable size to support this species is not present in the study area.
	Smooth Greensnake (<i>Opheodrys vernalis</i>)	Habitat includes prairies, meadows, fields, wetland edges, forest clearings and open woodlands. Typically found under cover, such as logs, rocks and boards and most often found in habitats with grass and other dense vegetation. Hibernates	Yes. Suitable habitat is present within the subject property in terms of foraging habitat and has the potential to include wintering habitat at several	Yes. Foraging habitat is present for this species in the table lands where the development is proposed.	Yes. Suitable foraging habitat is present within the woodlands, meadows, and thickets of the NHS. In addition, the likely location

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		communally underground. (Ontario Nature 2022).	candidate Reptile Hibernacula.		of hibernacula is within the NHS to be preserved.
	Old Field Panicgrass (<i>Panicum virgatum</i>)	Fields and Open Areas (Ontario Grasses 2022).	Yes. Suitable habitat is widely present within the open habitat of the study area.	Yes. Within table lands where meadow is present.	Yes. A portion of this habitat will be protected within the meadow and savannah of the NHS.
Pond/Wetland	Great Blue Heron (<i>Ardea herodias</i>)	A colonial nester, using isolated woodlots. Prefers deciduous trees in southern Ontario and coniferous trees in the north. Nests are generally built 10 to 15m high in dead trees although live tree are often used as well. (Cadman et al. 1987).	No. Nests were not identified within the study area.	No.	N/A
	Halloween Pennant (<i>Celithemis eponina</i>)	Wet habitats such as ponds, marshes and lakes, where it perches on vegetation. (iNaturalist 2022c).	No. Suitable open water habitats are not present in the study area. Suitable foraging habitat is present within the meadows.	No.	N/A
	Round-leaved Goldenrod (<i>Solidago patula</i>)	Wet meadow/prairie/fields, swamps and marshes and bog/fens. (University of Texas 2022)	Yes. Suitable habitat is found within Eramosa River	No.	Yes. The entire Eramosa River and wetland habitats in the

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
			and wetlands habitats.		subject property is contained within the NHS.
Woodland	American Redstart (<i>Setophaga ruticilla</i>)	Breeds in moist, deciduous, second-growth woodlands with abundant shrubs. (Peck and James 1987, Sallabanks 1993).	Yes. Suitable habitat is present within the deciduous portions of the Significant Woodland.	No. Habitat for this species is largely restricted to the woodlands that are located outside of the development area.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
	Baltimore Oriole (<i>Icterus galbula</i>)	Deciduous forests or small clumps of deciduous trees, often along woodland edges or riparian areas (Brewer et al. 1991).	Yes. Suitable habitat is present within the deciduous portions of the Significant Woodland.	No. Habitat for this species is largely restricted to the woodlands that are located outside of the development area.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
	Canada Waterleaf (<i>Hydrophyllum canadense</i>)	Forest/Woodland Habitat (Ontario Wildflowers 2022).	Yes. Suitable habitat is present within the woodlands.	No.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
	Heart-leaved Aster (<i>Symphyotrichum cordifolium</i>)	Forests, fields and open areas (Ontario Wildflowers 2022).	Yes. Suitable habitat is present within the woodlands.	No.	Yes. The entire woodland habitat in the subject property is

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
					contained within the NHS.
	Northern Flicker (<i>Colaptes auratus</i>)	Open forests, woodlots, groves, towns, semi-open country, can be found in almost any habitat with trees. Tends to avoid dense unbroken forest, requiring some open ground for foraging. (NAS 2022b).	Yes. Suitable habitat is present within the deciduous portions of the Significant Woodland.	No.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
	Pine Warbler (<i>Setophaga pinus</i>)	Chiefly open pine woods, pine barrens. Usually breeds in open pine woods, especially southern longleaf pine forest, sandy barrens of pitch pine with scrub oak undergrowth, jack-pine barrens, and similar habitats, can occasionally be found in cedar or cypress. (NAS 2022c).	Yes. Suitable habitat is present within the coniferous portions of the woodlands and plantations.	No. Pine plantations are not generally present within the development area.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
	Rose-breasted Grosbeak (<i>Pheucticus ludovicianus</i>)	Deciduous woods, orchards, groves. Breeds mostly in open deciduous woods, sometimes in mixed woods, favoring edges or openings with combination of shrubs and tall trees rather than unbroken forest (NAS 2022d).	Yes. Suitable habitat is present within the deciduous portions of the Significant Woodland.	No.	Yes. The entire woodland habitat in the subject property is contained within the NHS.
Thicket	Brown Thrasher (<i>Toxostoma rufum</i>)	Thickets, brush, shrubbery, thorn scrub. Breeds in areas of dense low growth, especially thickets around edges of deciduous or mixed woods, shrubby edges of swamps, or undergrowth in open pine woods. Can also be found in	Yes. Suitable habitat is present within the thickets within the subject property.	Yes. Some thicket habitat is present within the edges of the development area.	Yes. A portion of the suitable habitat for this species is found in the thicket

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		in suburban neighborhoods with many shrubs and hedges (NAS 2022e).			communities within the NHS.
	Eastern Towhee (<i>Pipilo erythrophthalmus</i>)	Prefers forest edges or thickets with some tree cover and dense leaf litter and ground cover (Rush et al. 2012).	Yes. Suitable habitat is present within the thickets within the subject property.	Yes. Some thicket habitat is present within the edges of the development area.	Yes. A portion of the suitable habitat for this species is found in the thicket communities within the NHS.
	Giant Swallowtail (<i>Papilio cresphontes</i>)	<u>Larval Footplant</u> : Trees and herbs of the citrus family (Rutaceae) including Citrus species, Prickly-ash (<i>Zanthoxylum americanum</i>), Hop Tree (<i>Ptelea trifoliata</i>), and Common Rue (<i>Ruta graveolens</i>). <u>Adult Food</u> : Nectar from Lantana, Azalea, Bougainvillea, Bouncing Bet, Dame's Rocket, goldenrod, Japanese Honeysuckle, and Swamp Milkweed. <u>Habitat</u> : Many locales including rocky and sandy hillsides near streams or gullies in the north; pine flats, towns, and citrus groves in the south. (BMNA 2022)	Yes. Where larval foodplant and adult nectar plants are found.	Yes. Where larval foodplant and adult nectar plants are found. Prickly-ash was noted within the table lands within the development area and adjacent lands .	Yes. larval foodplant and adult nectar plants are found. Prickly-ash was noted within the woodland understorey along the edge of the valleyland slopes.
	Orchard Oriole (<i>Icterus spurius</i>)	Wood edges, orchards, shade trees. Breeds in semi-open	Yes.	Yes.	Yes.

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		habitats with deciduous trees and open space, including riverside trees, orchards, suburbs, forest edges and clearings, prairie groves. Usually avoids unbroken forest. Winters in brushy areas and woodland edges in lowlands of the tropics. (NAS 2022f).	Suitable habitat is present within the thickets and cultural woodland within the subject property.	The primary location where this species was identified was within the scrubby areas of the CUT1 community near the former turfgrass facility.	A portion of the suitable habitat for this species is found in the thicket and cultural woodland communities within the NHS.
	Willow Flycatcher (<i>Emphidonax traillii</i>)	Prefers moist, shrubby areas, often with standing or running water (Grinnell and Miller 1944).	Yes. Suitable habitat is present within the thickets within the subject property.	Yes. Some thicket habitat is present within the edges of the development area.	Yes. A portion of the suitable habitat for this species is found in the thicket communities within the NHS.
Other	Belted Kingfisher (<i>Megaceryle alcyon</i>)	Nests in the eroded banks of streams, rivers and lakeshore bluffs. Good habitat is always closely associated with aquatic habitat. Also uses artificial sites such as gravel pits and road cuts. (Cadman et al. 1987).	No. Steep, unvegetated banks were not located along the Eramosa River within the study area, although they may be present more widely throughout the study area.	No.	N/A
	Common Merganser (<i>Mergus merganser</i>)	Wooded lakes, rivers; in winter, rarely coastal bays. Mainly around fresh water at all seasons. Summer: on	Yes. Some suitable habitat is present	No.	Yes.

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		shallow but clear rivers and lakes in forested country; avoids dense marshes and muddy waters. Winter: on lakes, large rivers; occasionally on bays along coast. (NAS 2022g)	along the Eramosa River and shoreline areas.		Suitable habitat is entirely contained within the NHS.
	Cliff Swallow (<i>Petrochelidon pyrrhonota</i>)	Open to semi-open land, farms, cliffs, river bluffs, lakes. Widespread in all kinds of semi-open country, especially near water, from prairies to desert rivers to clearings in northern forest. Breeds where it can find sheltered vertical cliffs or other surfaces for nesting and a supply of mud for nest building. (NAS 2022h).	No. Nests for this species were not found to be present on any structures within the subject property.	No.	N/A
	Ring-billed Gull (<i>Larus delawarensis</i>)	Lakes, bays, coasts, piers, dumps, plowed fields. Associated with water at all seasons, although it does much of it's feeding on land. Favours fresh water as much as salt water, but often common along coast, especially at harbours and estuaries; rarely any distance offshore. Common around cities, docks, farm fields, landfills and other human-altered habitats. (NAS 2022i)	No. Nesting colonies are not present in the subject property.	No.	N/A
	Yellow-bellied Flycatcher (<i>Empidonax flaviventris</i>)	Moist to wet coniferous forests and wooded peatlands on the Precambrian Shield and in the	No. Species does not breed in southern	No.	N/A

Guild	Species	Habitat Requirements	HSS Confirmed Within Subject Property?	HSS Confirmed Within Development Area?	Habitat Protected Within the NHS?
		Hudson Bay Lowlands. (BSC 2006)	Ontario. This record represents a late migrant.		

4.9 Buffers

Buffers to natural heritage features are recommended in Table 10 below that reflect the sensitivity of these features and are in accordance with City of Guelph Official Plan (2022) policies that prescribe minimum buffer widths. These buffer widths have been identified as both a mitigation measure to reduce potential indirect impacts (described in Section 5.5) as well as to provide enhancement opportunities, where applicable. All natural heritage buffers are recommended to be naturalized with native vegetation plantings that will provide additional wildlife habitat, as described in Section 6 below. The recommended natural heritage buffers described in Table 10 below are also delineated on Map 3.

As described below, 10m Significant Woodland buffer has been recommended. The rationale for this buffer width has been carefully considered in relation to the adjacent land use. An important aspect of this rationale was that along much of the length of the woodland edge, more compatible land uses have been proposed including open space/parks, and SWM facilities. Furthermore, a substantial portion of the Significant Woodland has been afforded a buffer width considerably larger than 10m in areas where Significant Valleyland or other constraints represent the maximum development limit (e.g. in the southeast corner of the GID lands near Victoria Road). A wide range of mitigation measures and monitoring has been proposed as detailed within Sections 6 and 8 of this report, which will be further detailed within the future Environmental Implementation Report (EIR). With this consideration, the Significant Woodland buffers are considered to be sufficient to protect this feature as well as associated wildlife and plant habitats (including for locally significant species).

Table 10. Buffer Recommendations

Natural Heritage Feature	Minimum Buffer (City of Guelph 2022)	Recommended Buffer	Rationale
Provincially Significant Wetlands	30m	30m	The Eramosa River Blue Springs Creek PSW is located along the floodplain of the Eramosa River and Torrance Creek, with the nearest location to the south within GID Block 3. These features are well buffered from any potential development on the remainder of the subject property.
Wetlands	N/A	15m	The small swamp thicket community (SWT2) located within the Significant Valleylands is located in close proximity to the proposed SWM 2 pond. Although this feature is too small to be considered by City NHS policies, a 15m buffer is recommended, in order to ensure the protection of the wetland vegetation present. Encroachment within this buffer may be necessary for the storm sewer and trail location in this area.
Significant Woodlands	10m from the dripline	10m	A 10m woodland buffer has been applied to the entire Significant Woodland. Only permitted uses (as per Section 4.1.2 and 4.1.3.6 of the Official Plan) are planned to encroach within this buffer. Encroachment includes trails and associated grading in the outer 5m of the woodland buffer. In many areas the actual Significant Woodland buffer greatly exceeds 10m, in locations where the valleylands or top of slope are the maximum constraint. In addition, a wide range of compatible land uses have been located at the edge of this feature (e.g. parks, open space, SWM).

Natural Heritage Feature	Minimum Buffer (City of Guelph 2022)	Recommended Buffer	Rationale
			Significant Woodlands across Victoria Road South (Arboretum lands) as well as across Stone Road East (GID Block 3) are separated from the proposed development by these roads as well as the associated road right of way (ROW). A widening of 15m is proposed to the east of Victoria Road and will include a multi-use path, stormwater swale, and a buffer strip. No additional buffer from these features was deemed to be necessary to reduce impacts.
Significant Valleylands	No buffer	No buffer	Significant Valleylands are not afforded buffers, although no development will occur within the valleylands with the exception of trails and associated grading as well as stormwater management for SWMF2.
Significant Habitat for Provincially Endangered and Threatened Species	No minimum buffer	No additional buffers beyond what has been applied for other NHS features.	Habitat of SAR is present both within the development area as well as the NHS that is planned to be protected. Where development overlaps with habitat of SAR or has the potential to impact it, the client will follow the appropriate regulations and provisions under the ESA, as described in Section 4.4 of this report.
Significant Wildlife Habitat	No minimum buffer	No additional buffers beyond what has been applied for other NHS features.	A number of candidate and confirmed SWH are present within the study area, although none of these habitats have been found to be present within the development area, as described in Section 4.5 of this report. A number of candidate SWH types overlap with the woodlands and broader NHS associated with the Significant Valleylands. Given that these habitats are generally well removed from development, no additional buffers are recommended. Candidate bat maternity colonies have the potential to occur within the

Natural Heritage Feature	Minimum Buffer (City of Guelph 2022)	Recommended Buffer	Rationale
			study area, although this habitat will be protected via the 10m woodland buffer.
Habitat for Significant Species	No minimum buffer	No additional buffers beyond what has been applied for other NHS features.	A number of Locally Significant Species were found to be present within both the NHS and proposed development area. Some of these habitats will be removed, although similar habitats will be retained within the valleylands. No additional buffers are prescribed beyond what is provided for other NHS features.
Stable Slope	N/A	6m	A geotechnical study was completed that identified an Erosion Hazard Setback Limit for the Stable Top of Slope, which was determined to be 6m. Additional details on this topographical feature setback is provided within the Engineering Master Servicing Plan (MTE 2025a).

5.0 Impact Analysis

5.1 Development Plan

A Draft Plan has been prepared by MHBC (December 2025) that details the proposed development blocks within GID 1 & 2. The proposed development is comprised of blocks for residential, mixed use, school, employment, parks, stormwater management, open space, and roads. Based on this Draft Plan, MTE has prepared detailed engineering plans which have been integrated into the impact analysis provided within this EIS report. This includes the *Stormwater Management Report* (MTE 2025a), *Engineering Master Servicing Plan* (MSP) (MTE 2025b) as well as the *Hydrogeological Characterization Report* (MTE 2025c).

In addition to development plans for GID Blocks 1 & 2, Victoria Road South is planned to undergo road widenings in accordance with previous Environmental Assessments (EAs). Victoria Road South is proposed to have bike lanes on either side as well as a 15m widening entirely on the east side of the road, away from the Arboretum lands that will include a multi-use path and stormwater swale.

The approach to SWM for the subject property includes the proposed construction of 3 Stormwater Management Facilities (SWMF). SWMF1 and SWMF2 will both ultimately outlet to the Eramosa River while SWMF3 will be a retrofit of the existing SWM No.104. This will include an infiltration cell at the corner of Victoria Road South and Stone Road East that will infiltrate up to and including 100-year storm events. SWMF2 is to be located partially within the Significant Valleylands, but will be external to other significant natural heritage features and their respective buffers, as per Official Plan policies (City of Guelph 2024). The proposed SWM approach for the development is to largely mimic the existing surface flow patterns, with similar catchments proposed following construction. Outlets to the Eramosa River and associated culverts beneath the rail line will be maintained and further investigated to ensure that they will function as anticipated. Water quality will be maintained through an enhanced level of stormwater treatment, and a winter bypass is also planned for SWMF3 in order to reduce chloride impacts on groundwater. A water balance analysis has been provided for the site as well as for wetlands within the subject property. The majority of the wetlands are located along the edge of the Eramosa River and are not expected to be impacted by the proposed development as they are sustained by surface and groundwater catchments beyond the development footprint; however, Wetlands 3 and 6 have the potential to be impacted due to proposed alterations to the surface water and groundwater catchments and are discussed further in Section 5.4.3 (Map 9).

The limits of development detailed within the plans prepared by MTE have been informed by the natural heritage features described within this report and associated buffers. Proposed grading for the development will be located outside of the SNAs with the exception of trails and SWMF2 which is located partially within the Significant Valleylands. Works within the 30m Regulation Limit to Wetland 6 adjacent to SWMF2 will require a GRCA permit under Ontario Regulation 41/24.

5.2 Approach to Impact Analysis

Potential impacts arising from the proposed undertaking were determined by comparing the details of the proposed development for Blocks 1 & 2, including the grading details, SWM and servicing plans, with the characteristics of the existing natural features and their functions.

Where the development proposal overlaps with or is in close proximity to the natural features, impacts may arise. The boundaries of significant natural features and their associated recommended buffers were provided to the study team to guide the development proposal.

This information was combined with other physical and planning constraints to come up with a suitable development plan for the property which respects the natural environment.

A trail plan for the development area is shown on Map 9, along with recommended grading. In addition to these trails, there are a number of existing trails (both formal and ad hoc) that are shown on Map 8. Additional connections beyond what are shown on Maps 8 and 9 will be considered through development of the detailed design, and may include an Active Transportation connection between GID Blocks 1 and 4, across the Eramosa River, as identified on Schedule A of the *GID District Secondary Plan* (City of Guelph 2014). The feasibility of this connection, in addition to potential connections between the trails skirting the development area and existing trails are examined within this impact analysis, although more detailed impact analysis (including a tree inventory) will be required upon completion of associated engineering plans and the selection of the preferred trail alignments.

The following is a description of the types of impacts which will be discussed:

- **Direct** impacts to the natural features on the subject property associated with disruption or displacement caused by the actual proposed 'footprint' of the undertaking.
- **Indirect** impacts associated with changes in site conditions such as drainage and water quantity/quality.

- **Induced** impacts associated with impacts after the development is constructed such as subsequent demand on the resources created by increased habitation/use of the area and vicinity.
- **Cumulative** impacts associated with continued development within the subwatershed and broader study area.

5.3 Direct Impacts

5.3.1 Tree and Vegetation Removal

The majority of the development area is located within the table lands and are outside of Significant Natural Areas and their buffers (with the exception of SWMF2 which partially extends into the Significant Valleylands). The table lands were previously heavily treed as part of the University of Guelph research program. The University subsequently cleared these trees before conveyance of these lands to the existing land owner. As such, much of the proposed development area consists of regenerating meadow, agricultural lands, as well as various clusters of treed and thicket areas. A Tree Inventory and Preservation Plan (TIPP) has been undertaken by NRSI which identifies that a total of 472 trees requiring compensation are planned to be removed in order to facilitate the development plan (NRSI 2025a). As per the *City of Guelph Tree Technical Manual*, compensation will be required for an equivalent of 802, 60mm caliper trees (City of Guelph 2025). It is expected that given the ample opportunities for restoration on this site (see Section 6), that most or all plantings can occur within the subject property. All tree removal will be located outside the boundaries of the surveyed Significant Woodland, with the exception of potential future tree removal associated with a desired trail connection for the Active Transportation connection between GID Blocks 1 and 4 across the Eramosa River, which is yet to be assessed (Map 8). Tree removal would likely be required to facilitate this connection, although it is anticipated that direct impacts to trees would be minimal given that much of the areas where clearing would be required is currently dense buckthorn thicket.

A total of approximately 37ha of regenerating meadow vegetation (CUM1) will be removed from the subject property, in addition to approximately 4.5ha of thicket vegetation (CUT1) and 0.5ha of savannah (CUS1). Although these communities were found to have a high proportion of non-native species, they were found to be providing habitat for a number of significant species, as described below in Section 5.4.5.

Vegetation removal will also be required within the Significant Valleylands for the construction of the proposed SWMF2. Removal of vegetation will be located outside of the Significant Woodlands, wetlands, or their respective buffers. SWMF2 has been located at the outer edge of the Significant Valleylands in an area that is dominated by invasive Common Buckthorn with very little tree cover (NRSI 2025a; NRSI 2025b). The tree inventory will need to be updated at detailed design along the proposed slope areas to the west and east of SWMF2 which were not captured based on the most recent grading plans.

In addition to the aforementioned vegetation removal necessary for the proposed development plans, invasive species removals of Buckthorn are also proposed within the Enhancement Plan, as detailed in Section 6 of this report.

Mitigations

- *A Tree Inventory and Preservation Plan has been prepared by NRSI (2025) and includes a number of mitigation measures. This plan will need to ultimately include all proposed trail connections as this information becomes available at the EIR stage.*
- *The tree inventory will need to be updated at detailed design to capture areas of potential tree removal in portions of the site that have not been inventoried to date (e.g. slopes adjacent to SWMF2 and any trail connection to GID Block 4).*
- *Trees removed as a result of the proposed development shall be compensated according to the City of Guelph tree technical manual (to be detailed within the future Tree Inventory and Preservation Plan).*
- *Suitable, regionally native species are to be selected for planting and will be monitored following construction. Planting species and stock are recommended to be selected through discussions with the Arboretum staff to ensure species of known provenance/genetic origin are considered, wherever possible.*
- *The limit of development and associated grading should be clearly delineated in the field with Heavy-Duty Erosion and Sediment Control (ESC) fencing prior to any on-site works, including vegetation clearing and grubbing.*
- *Tree protection fencing should be installed at retained woodland buffers and at the limit of construction in the vicinity of trees to be retained.*
- *Fencing must be installed and inspected by a Certified Arborist/Registered Professional Forester or qualified other prior to construction and maintained during construction.*

- *A Certified Arborist/Registered Professional Forester is recommended to be on-site during tree removal within the buffers to any woodland or wetlands.*
- *Any limbs or roots of trees to be retained which are damaged during construction should be pruned using appropriate arboricultural techniques. Hazard trees should be identified by a Certified Arborist/Registered Professional Forester or tree professional and removed as warranted.*
- *The limit of construction should be inspected by a qualified biologist on a regular basis to document any potential negative impacts to the woodland (e.g., construction garbage, ineffective boundary markings, erosion, etc.) (See recommended monitoring in Section 7).*
- *A Section 28.1 permit under the Conservation Authorities Act is required for any works within the 30m Regulation Limit for Wetland 6.*

5.3.2 Site Grading

The proposed grading plan for the site has been prepared by MTE (2025a) and is shown on Map 9 relative to the existing natural heritage features. In general, the proposed site grading is located outside of the NHS including the Significant Valleylands, with the exception of grading necessary for the construction of trails and SWMF2 in these areas. The grading in these areas associated with trail construction is located either at the edge of the 10m woodland buffer or within the outer 5m of this buffer, and as such, impacts to trees at the edge of woodlands are not expected. Disturbance from grading to these areas will be temporary, after which the 3:1 slopes will be re-seeded and vegetated (as described within Section 6 – Enhancement Plan). Grading for trail connections between GID Block 1 and Block 4 across the Eramosa River has not been assessed as part of this report.

Grading within the Significant Valleylands for SWMF2 has been reduced where possible in order to attempt to mimic existing topography, as described within the stormwater management report (MTE 2025a). As described in Section 4.9 above, grading will not encroach within the 15m wetland buffer for Wetland 6. Current engineering plans identify that grading is located 30m from this wetland feature although it is understood that this distance to the wetland may be reduced in order to minimize the size of retaining walls. This will be further explored in subsequent submissions.

Note that a portion of Block 61 (park) and associated grading is shown intruding within the NHS mapping (Map 9), however, this will be revised in subsequent revisions to the Draft Plan and engineering plans. As such, this is not discussed further within this report.

Mitigations

- *A Certified Arborist/Registered Professional Forester should be present for the removal of fill adjacent to trees within woodland buffers to ensure minimal impacts. Roots and branches are to be pruned following proper arboricultural techniques where needed.*
- *The limit of grading should be protected by heavy-duty ESC fencing in areas around isolated features or isolated trees to be retained.*
- *A double layer of Heavy-duty ESC fencing is to be installed in areas adjacent to wetland buffers and any additional areas where sediment and erosion concerns are more likely to occur (i.e., slopes, top of bank features, etc.)*
- *Grading areas are to be revegetated as soon as possible, or within 30 days of the site work being inactive, to minimize erosion and should comprise an herbaceous seed mix that is complementary to the surrounding vegetation communities and an annual cover crop. Native seed mixes and a non-invasive annual cover crop are to be used in areas adjacent to any natural features.*
- *Impact analysis is to be revised following completion of detailed grading plans associated with trails.*

5.3.3 Impacts to Wildlife and Their Habitats

As shown on Maps 4-6, wildlife habitats are present throughout the subject property and have the potential to be directly impacted where there is overlap with development activities. These wildlife habitats are further described below pertaining to SAR, SWH/SCC, and Locally Significant Species.

Species at Risk

Wildlife SAR were identified within the proposed development area and have the potential to be directly impacted by the undertaking. These species include Bobolink, Eastern Meadowlark, and SAR bats and are further discussed below along with necessary mitigation measures and provisions under the appropriate regulations of the ESA.

Bobolink & Eastern Meadowlark

As mentioned in Section 4.4, a total of approximately 15ha of suitable habitat for Bobolink and Eastern Meadowlark has been currently mapped for these species within the development area, and should be confirmed closer to the time of development due to the nature of these areas and regenerating poplars and shrubbery (Map 5). Removal of this habitat is permitted through an exemption and associated habitat compensation/monitoring, as detailed within Ontario Regulation 242/08 (understanding that the ESA is planned to be repealed imminently and replaced with the SCA). As such, this habitat is not considered a firm constraint on development within the subject property, providing the aforementioned regulations are adhered to. NRSI will work with the client to address these species and habitats with the MECP, as needed and will provide documentation at the detailed design stage of how this is planned to be addressed.

SAR Bats

Candidate bat SAR habitat was identified within the development area in the form of 4 potential roosting trees that will require removal. Based on NRSI's assessment of these trees relative to the broader woodlands and trees to be retained, impacts to SAR bats are not expected providing that trees are removed between December 1-March 14, which is outside of the bat active period that generally extends from March 15-November 30. The existing buildings were not found to be utilized by bats, and as such, these structures can be removed at any time without impacts to bats.

This analysis would need to be revisited following completion of the TIPP in relation to detailed trail plans.

Mitigations:

- *Vegetation removal should occur between October 1-March 31 in order to be outside of the bat (April 1-September 30) and the bird (April 1-August 31) active nesting periods;*
- *Tree Protection Fencing and Erosion & Sediment Control Fencing is to be installed at the limit of construction to protect retained habitats that may protect bat species.*
- *The limit of construction activities should be clearly delineated to avoid unnecessary encroachment into natural features and habitats.*

- *Any habitats of SAR are to be addressed through the applicable regulations under the ESA.*

Significant Wildlife Habitat/Species of Conservation Concern

As described in Section 4.5 of this report, SWH was not found to be present within the development area, although a number of SCC were identified as utilizing these areas. The possible, candidate, and confirmed SWH are located within the NHS that is planned to be protected following development, and as such, direct impacts are not expected (Map 6). This analysis would need to be revisited following the completion of detailed trail plans, particularly for the proposed connection between Blocks 1 and 4, which currently overlaps with candidate SWH for Waterfowl Nesting.

Mitigation measures listed below are recommended to provide habitat for pollinator SCC such as Monarch and Yellow-banded Bumble Bee that were recorded within or adjacent to the development areas. Further enhancement measures that will benefit these and other pollinators are described in Section 6 of this report.

Mitigations:

- *Following isolation of the construction area with ESC fencing, a wildlife salvage should be undertaken by qualified biologists to remove any reptiles or amphibians that are found within these areas. If reptiles are identified by construction staff, work should cease until biologists are able to complete relocations.*
- *Meadow habitat should be maintained and enhanced where possible through application of native seed mixes in buffer areas where soil has been disturbed by grading. Seed mixes should include Milkweed seeds and other native pollinator plants to create habitat for Monarchs and pollinator species in general.*
- *Additional surveys and impact analysis will be required to assess the feasibility of the proposed trail connection between GID Blocks 1 and 4 related to SWH.*

Locally Significant Species

As described in Section 4.8 and delineated on Map 7, HSS is present within the subject property. Species that have the most potential to be impacted by the proposed development are those that have habitat requirements for open country or thicket areas. This includes the following species:

Birds

- American Kestrel (Open Country) (Foraging habitat only)
- Brown Thrasher (Thicket)
- Eastern Kingbird (Open Country)
- Eastern Towhee (Thicket)
- Field Sparrow (Open Country/Thicket)
- Orchard Oriole (Thicket)
- Savannah Sparrow (Open Country)
- Willow Flycatcher (Thicket)

Snakes

- Dekay's Brownsnake (Woodland/Open Country)
- Smooth Greensnake (Woodland/Open Country)

Insects

- Delaware Skipper (Meadow)
- Giant Swallowtail (Woodland/Thicket)

Plants

- Hoary Vervain (Meadow)
- Old Field Panicgrass (Meadow)

The species listed above as 'Open Country' species are those that are most likely to be directly impacted by the proposed development as they generally require substantial area for nesting and are unlikely to be present (or present in the same abundance) following development. As per Section 4.1.4.4 of the Official Plan (City of Guelph 2022), development may be permitted in HSS if options to retain these habitats are not deemed to be feasible. Given that these species are only likely to persist on the developable portion of the site if the habitat is maintained in its entirety, retention of these habitats outside of the NHS is not deemed to be feasible.

The other species listed as 'Thicket' or 'Meadow' are likely to persist on the site as they are less area dependent, and substantial thicket and smaller meadow habitat will remain on the site following development.

Further enhancement measures that will benefit these species are described in Section 6 of this report.

Other Wildlife Species

Vegetation clearing has the potential to directly impact bird breeding activity through damage and destruction of nests, eggs, and young, or avoidance of the area by breeding adults.

According to the Canadian Wildlife Service (CWS), the peak breeding period for migratory birds that nest in treed habitat in southern Ontario is between April 1 and August 31 (Government of Canada 2017). During this period the CWS recommends that no clearing of vegetation within simple and/or complex habitats occur. The *Migratory Birds Convention Act* (MBCA, Government of Canada 2017) protects migratory birds, their eggs and nests from being harmed or destroyed at any time of the year. However, nest searches, as a means of mitigation during the core breeding period, may be undertaken in “simple” habitats such as hedgerows, isolated trees, or constructed features (e.g., bridges, barns, etc.) where the potential to observe all active nests is relatively high. It is therefore recommended that tree and vegetation removal occur outside the peak breeding bird period, where possible.

The following mitigations are proposed to avoid negative impacts to wildlife:

Mitigations:

- *Vegetation removal should occur between December 1-March 14 in order to be outside of the bat (March 15-November 30) and the bird (April 1-August 31) active periods.*
- *Should vegetation removal be required during the breeding and nesting season for migratory birds, surveys for nesting birds in “simple habitats” may be undertaken by a qualified biologist to permit vegetation removal should breeding bird absence be confirmed.*
- *A clearance letter is to be prepared by the qualified biologist that undertook the nest searches and submitted to the Developer for their files in the event a record of due diligence is requested by CWS. Areas identified as having no bird nesting activity can be cleared; however, clearing must occur within 48 hours of nest searching.*
- *ESC fencing is to be erected along the limit of development prior to any on-site works to ensure that construction activities and equipment are maintained outside of the protected areas and their buffers.*

5.4 Indirect Impacts

Indirect impacts may include sedimentation/erosion, impacts to water flow patterns/quantity and water quality, and impacts to wildlife. These potential impacts are described below along with recommended mitigation measures. Buffers are necessary to mitigate the indirect impacts, as described in Section 4.9.

5.4.1 Sedimentation and Erosion

During construction, areas of bare soil will be exposed which have the potential to erode during precipitation and melt events and impact adjacent natural features. In the event of a heavy rain or seasonal thaws, sediment-laden runoff can enter adjacent natural areas by way of overland flow. In order to protect on-site and off-site natural features from potential impacts due to sediment, an Erosion and Sediment Control Plan must be implemented prior to any construction activities on the site. Areas that require particular consideration in terms of sedimentation and erosion are the slopes of the Significant Valleylands, particularly where any earthworks are proposed for trails or SWM facilities. It is recommended that the removal of fill in these areas and subsequent application of topsoil be undertaken during a dry period, including for works associated with trail construction and SWMF2..

During the site grading work, suitable sedimentation controls will also be required to help control and reduce the turbidity of run-off water which may flow towards the surface water features. As construction work progresses at the site, regular maintenance and additional sedimentation measures may be required to limit the effect of siltation of run-off water in localized areas.

MTE has prepared a preliminary ESC plan within the SWM report (MTE 2025a), which will be further detailed at the EIR stage of development. This will include the specific location of ESC fencing. It is anticipated that this will follow the limit of grading shown on Map 9 and the location of the tree protection fencing identified in the TIPP (NRSI 2025a).

Mitigations:

- *Implement an Erosion and Sediment Control Plan prior to construction.*
- *Clearing, grubbing, and grading activities should be timed to avoid seasonally wet periods (i.e. spring), whenever possible. Construction should avoid high volume rain events ($\geq 15\text{mm}$ in 24 hours or $\geq 5\text{mm/hr}$ with at least 10mm received) and significant*

snow melts/thaws, resuming once soils have stabilized as to not increase risk of erosion, soil compaction, or the potential for sediment release into nearby natural features.

- *Disturbed soils that are in finished areas should be kept to a minimum and re-vegetated in a reasonable timeframe in order to minimize dust. Any areas adjacent to natural features with disturbed soils are to be stabilized with an approved native seed mix and non-invasive annual cover crop.*
- *Inspection and maintenance of the installed Erosion and Sediment measures throughout the duration of construction, to ensure they are functioning as originally intended.*
- *An environmental monitoring program is recommended to ensure that the sediment and erosion control measures are installed, maintained and functioning as intended as identified in the monitoring Section 7.*

5.4.2 Management of Stormwater Quantity

The proposed approach to SWM is detailed within the *Stormwater Management Report* (MTE 2025a) and the *Engineering Master Servicing Plan* (MTE 2025a). The approach to SWM on this site has been designed to mimic existing conditions which currently entails overland drainage off the table lands to the Eramosa River as well as infiltration of onsite runoff to SWMF No. 4 at the corner of Victoria Road South and Stone Road East. Three SWMFs are planned for the site. SWMF1 is located on the table lands in the northwest corner of the site adjacent to the Significant Woodland buffer and will divert minor storm events to an infiltration gallery with overflows being directed to Victoria Road via a 675mm outlet pipe and ultimately the Eramosa River. This facility will receive surface flows from catchments 201-1, 201-2, and 201-5 which comprise the majority of the table lands, with the exception of some areas further south towards Stone Road.

SWMF2 is planned to be located partially within the Significant Valleylands and will receive flows from catchment 202-1 comprising the southeast corner of the table lands. Flows from this catchment will be directed to the facility via a storm sewer that will follow the proposed 3m wide maintenance access route and trail (MTE 2025a). The 600mm outlet pipe from SWMF2 will direct minor flows east to a discharge header that will convey flows beneath the proposed trail and through existing depressions towards the 1.8m wide box culvert beneath the railway (Outlet 2), and ultimately to the Eramosa River. Further investigations are necessary to ensure that the culverts will function as planned. An energy dispersion system such as a spreader swale should be considered to minimize erosion for SWMF2. SWMF2 will also include an end-of-pipe

infiltration gallery sized to retain the entire required volume as a worst-case scenario (MTE 2025a).

SWMF3 is to be located at the southwest corner of the subject property near the Victoria Road and Stone Road intersection and will be a retrofit to the existing SWMF No.4. SWMF3 will include a wet cell and infiltration cell that will infiltrate the 100-year storm event. Emergency overflow and winter bypass will be directed to the planned roadside SWM swale on the east side of Victoria Road and northwards to the Eramosa River (MTE 2025a).

As described within Section 4.7, several HDFs are present within the subject property that require consideration in order to allow for the persistence of important surface flow patterns across the site. In general, the features shown on Map 4 that require mitigation all direct water through the wetlands and down the slope towards the Eramosa River. These same patterns will be emulated through the aforementioned approach to SWM.

5.4.3 Water Balance

A water balance has been prepared for both the subject property as well as for specific wetland features that have the potential to be impacted by the proposed alterations to runoff and infiltration. Runoff patterns are planned to be largely maintained on a site-wide basis, and infiltration targets aim to capture 75% of the 27mm target, if full capture is determined to be unfeasible (MTE 2025a). Infiltration will be achieved by both lot-level and end of pipe infiltration galleries.

A total of 6 wetland units have been identified and assessed in relation to water balance for this development, as shown on Map 9. Of these, the majority are unevaluated wetlands located within the Eramosa River floodplain and are not expected to be impacted by the proposed development as they are sustained by surface and groundwater catchments beyond the development footprint (Wetlands 1, 2, 4, and 5). Wetlands 3 and 6 have the potential to be impacted due to proposed alterations to the surface water and groundwater catchments and are further discussed below (Map 9).

Wetland 3 is a meadow marsh (MAM3-9) dominated by subcanopy of Glossy and Common Buckthorn with an understorey of native species including Pale Dogwood and willow species (*Salix sp.*). This community is considered to have 'medium' sensitivity, meaning that it is

tolerant to slight hydrological changes (TRCA 2017). During existing conditions this feature receives flows from catchment 102, comprising both the upslope Significant Valleylands and associated habitats as well as the southeastern corner of the table lands. 'Culvert #2' directs flows from these areas beneath the rail line and into an ill-defined channel through Wetland 3 and onward to the Eramosa River. Following development this same pattern will continue with discharge rates from SWMF2 controlling flows to pre-development levels, but with significantly more volume anticipated. Since this is a flow through feature, it is unlikely that impacts to this wetland community will be substantial, however, this has not been quantified and as such a comprehensive assessment of ecological impacts is not possible at this time. Infiltration targets within catchment 202 are expected to be largely met, however, the differences between pre and post infiltration directed to this feature have also not been quantified (MTE 2025a). The water balance to this feature is to be quantified in order to complete a comprehensive assessment of impacts.

Wetland 6 is a small meadow marsh (MAM2-2)/Swamp Thicket (SWT2) located within the Significant Valleylands east of the proposed SWMF2 (Map 9). This wetland is dominated by Reed Canary Grass and Glossy Buckthorn and is generally considered to have 'low' sensitivity to hydrologic changes (TRCA 2017). A monthly water balance analysis was completed for this feature. Annual runoff is projected to be the same during both the pre and post-construction conditions (2,735 m³) and is being balanced by planned outflow from a portion of the Mixed-Use Block 50 which will be directed towards this wetland. During the growing season months (April-August) when wetland vegetation is most sensitive to hydrologic changes, monthly volumetric changes range from a deficit of -22% (-97 m³) in April to a surplus of 132.5% (+139m³) in August. Infiltration is projected to decrease from 2,620m³ to 1,517m³ (-42%) on an annual basis (MTE 2025a). Changes in infiltration during the growing season range from a deficit of 54% (-230m³) in April to a surplus of 35% (+35m³). This wetland feature is too small to be considered a SNA or a Natural Area based on the City of Guelph policies, however, it is considered a Regulated feature by the GRCA, and impacts to this feature or works within the Regulation Limit would require a Section 28.1 permit under Ontario Regulation 41/24.

A water balance was not provided for the Eramosa River given the large catchment that contributes to this feature. Nonetheless, the water balance to the river is not expected to change given that nearly all water ultimately outlets to this feature during both the pre and post-construction scenarios.

5.4.4 Management of Stormwater Quality

Water quality will be maintained to an enhanced level of 80% Total Suspended Solid (TSS) removal of stormwater runoff. In addition, a winter bypass will be installed at SWMF3 where infiltration is to occur in order to prevent chloride impacts to groundwater (MTE 2025a). This bypass will route runoff during the winter months into the planned SWM swale on the east side of Victoria Road which will convey flows northward to the Eramosa River.

As described above, water quality during construction will also be maintained by ensuring that ESC measures are functioning well to prevent silt laden water from leaving the construction areas.

Thermal impacts have also been considered in order to maintain water quality of the Eramosa River which is considered to be cool-water fish habitat. This will be achieved in a number of ways including a number of at source measures that will aid in maximizing infiltration through LIDs as well as end-of-pipe strategies such as cooling trenches and bottom draw outlets from SWM facilities. In addition, thermal impacts should be further reduced through the installation of vegetation plantings along the edges of SWMFs, where possible.

Mitigations

- *A Salt Management Plan is recommended to be developed at the detailed design stage (EIR). This plan should contain specific measures to ensure that salt use on site during or post-development is not excessive and will not result in salination of the adjacent wetlands or other retained features.*
- *Snow storage should be located well away from natural features or areas that will drain into natural features, particularly the Significant Valleylands and associated natural features.*
- *Silt fencing should be installed along the construction limits. ESC measures are to be regularly inspected and repaired or replaced in a timely manner. Accumulated sediment must be removed as needed.*
- *Thermal impacts should be reduced by incorporating tree plantings along SWM edges into future landscape plantings, where feasible.*

5.4.5 Wildlife Habitat

Indirect disturbances can stress natural features and weaken their ecological integrity. In these states, natural features are more prone to the establishment and proliferation of invasive, non-native species such as Common Buckthorn, which is present on this site. Proliferation of invasive, non-native species within natural communities decreases their ecological value by suppressing native species, decreasing biodiversity, and reducing habitat suitability. Potential indirect impacts to wildlife in the retained natural areas may arise from noise and dust associated with construction activities and unnatural lighting resulting from the development. Indirect impacts associated with construction is anticipated to be minimized, localized, and temporary, and it is expected that displaced wildlife species will return to the vicinity of the subject property following construction. Therefore, significant impacts to wildlife from noise and dust are not expected.

Indirect impacts to wildlife movement patterns also have the potential to occur as a result of intensification of the land use within GID 1 & 2. As a result, wildlife will largely be restricted to navigating within the NHS along the Eramosa River corridor as well as in a north-south direction through the arboretum lands. The Eramosa River corridor provides underpasses beneath both Victoria and Stone Roads, and wildlife culverts are present on Stone Road between arboretum lands. A wildlife culvert/crossing structure is also likely necessary on College Avenue between arboretum lands, but is beyond the scope of this project to implement. As part of the strategy to mitigate the impacts to wildlife movement, the green corridors and linear parks described in Section 6.3 will help facilitate movement for some species (e.g. insects, birds, seed dispersal).

Indirect impacts to bird populations within the adjacent NHS, including the Arboretum, are likely to occur unless Bird Friendly Design (BFD) is effectively implemented into the construction of buildings and structures adjacent to the NHS. Of particular note are the proposed construction of towers near the junction of College Avenue and Victoria Road South. Strategies that prevent bird collisions with buildings both during the nocturnal migration period of songbirds as well as during daytime foraging are required in order to reduce potential impacts to avian populations. These strategies should be fully described within the EIR at the detailed design stage of development, and may include (but not be limited to):

- Maximizing masonry and non-reflective surfaces (such as glass).
- Glass treatment through tinting, fenestrations, dot marking etc.
- Placement/orientation of landscape plantings to reduce attracting birds to these areas or causing reflections of vegetation in glass.

- Exterior lighting should be directional (away from the sky and natural features).
- Minimize light pollution from windows through tinting, masonry, and shutters.
- Monitoring to determine effectiveness of implemented mitigation measures and proposed adaptive management.

The following mitigation measures are recommended to avoid unintended indirect impacts to wildlife:

Mitigations:

- *In order to suppress dust, areas of bare soil should be moistened with water during construction activities to ensure that the amount of dust within the subject property is reduced. Topsoil stockpile locations should be in areas of lesser wind exposure and away from natural features and their buffers. ESC measures are to be installed around temporary topsoil stockpiles.*
- *All machinery, storage and refueling is to be maintained outside of the natural features and their buffers.*
- *Daily timing of construction activities should be limited to between 0700hrs and 1900hrs to avoid noise-related impacts during construction.*
- *Any lighting equipment associated with construction activities should be turned off following cessation of daily construction activities, or at least turned away from the adjacent natural features so as to prevent 'light wash' of these areas.*
- *Implementation of Bird Friendly Design for all buildings that abut and face natural features and associated monitoring of effectiveness.*

5.5 Induced Impacts

Induced impacts are described as those that are not directly related to the construction or operation of the facilities in question, but rather arise from the use of the natural areas as a result of the development. The simplest example is increased use of a natural area by users of the property, feral domestic wildlife, and unauthorized trail/pathway construction.

The proposed development of GID Blocks 1 & 2 (as well as other GID lands) will bring a significant increase in population to this part of Guelph which has the potential to put considerable stress on the adjacent natural heritage features including the valleylands near the Eramosa River as well as the University of Guelph Arboretum to the southwest of the subject

property across Victoria Road South. Appropriate mitigation measures should be coordinated with the Arboretum to ensure controlled access to these lands. It is generally anticipated that the nearest access points to these lands will continue to be via the Arboretum Road off of College Avenue as well as Victoria Road South. A low fence exists along the edge of the Arboretum property at Victoria Road South, although it is recommended that fencing be considered to be up-graded to a taller structure to prevent intrusion into the associated natural heritage features in these locations (subject to consultation with Arboretum staff).

Signage and educational brochures will also be a key tool to instruct residents and users to respect wildlife and natural features. Locations of signage and content suggestions should be provided within the EIR and associated mapping.

In addition, the formalization of the trail network, to be confirmed through the detailed design, is to be completed with the goal of preventing the creation and use of ad hoc trails within the NHS. As such, formalization of trails will be a critical mitigation measure to reduce intrusion into the more sensitive areas of the NHS.

If the mitigations listed below are followed, induced impacts are anticipated to be minimized:

Mitigations:

- *Control of access to the NHS on the subject property and adjacent lands through the use of fencing and appropriate formalization of trails.*
- *Signage should be developed at the detailed design stage and will direct community members or other recreational users not to trespass into sensitive natural areas or restoration areas.*
- *Educational brochures should be developed and distributed to residents living adjacent to the NHS/Guelph Arboretum that describe the significance of adjacent natural features and that also provide recommendations for reducing impacts (e.g. keeping pets indoors/on leashes, not dumping yard clippings into NHS areas, avoiding creation of ad hoc trails or otherwise encroaching into the NHS, etc.).*

5.6 Cumulative Impacts

The subject property is part of the anticipated Guelph Innovation District lands that include other large blocks that are anticipated to be built out in the coming years. This includes GID Block Plan Areas 3 that is currently undergoing a development application, as well Block Plan Area 4,

which is the site of the former Guelph Correctional Facility. Collectively, these developments will bring thousands of more residents to this part of Guelph, all of which has the potential to create cumulative effects on the NHS. The *GID Guidance for Preparation of Block Plans* (City of Guelph 2019b) has provided guidelines for the various necessary studies to be completed in the preparation of development plans which are necessary to assess potential impacts and recommend necessary mitigation measures. These recommendations have been implemented through the completed TOR, which has guided this EIS. Implementation of city-wide guidelines for the protection of NHS features and necessary minimum buffers is anticipated to reduce cumulative impacts. The implementation of an effective active transportation and trail network will also be important for reducing cumulative impacts as a result of the increased population utilizing green spaces and NHS.

A system of monitoring that implements adaptive management is also recommended in order to allow for opportunities to assess the effectiveness of the implemented mitigation measures and adjust recommendations if needed. The recommended monitoring program is provided in Section 7 below.

6.0 Enhancement Plan

In addition to the mitigation measures identified above, there are opportunities for improving the ecological health of the NHS within the subject property through the completion of a range of enhancement measures, including invasive species removal and planting of native species (trees, shrubs, meadow seed mixes). The primary goal of the enhancement plan is to provide improved habitat for meadow and thicket species that have the potential to have habitat impacted by the proposed development and enhance the existing natural features to ensure their longevity, as described in Section 5 of this report.

6.1 Invasive Species Management

Common Buckthorn is a non-native shrub that has naturalized in southern Ontario. It prefers neutral to alkaline soils and can become established in forests, woodlands, plantations and meadows with varying soil moisture and sunlight availability (OIPC 2012). Common Buckthorn outcompetes native vegetation, alters the structure of vegetation communities, depletes soil mycorrhiza and degrades the quality of habitat for wildlife. The species is listed as a noxious weed under the Ontario Weed Control Act.

Common Buckthorn as well as Glossy Buckthorn are located pervasively throughout the subject property and adjacent lands, and although eradication is not considered to be feasible, management is recommended in order to facilitate the effectiveness of the overall enhancement plan. Buckthorn fruits are borne on mature female plants and there can be thousands of fruits on a single plant, each containing 4-5 seeds. Some seed is dispersed locally around fruit-producing shrubs and can remain viable in the seed bank for up to 5 years. Seed can also be transported larger distances by birds and mammals that consume and excrete the seeds, often along forest edges and hedgerows.

Successful management of buckthorn requires a multi-year strategy be developed and implemented. Due to its ability to resprout from severed stems and the density of seedlings that may be present at a site, the application of herbicide by a licensed contractor is the only effective approach to management, as described below.

Prior to the application of herbicides, female plants should be flagged by a biologist to identify shrubs that require treatment. Herbicide application will then be applied by a licensed contractor and will utilize a systemic herbicide containing triclopyr (typically Garlon) which targets the root system causing the plant to succumb to lack of water and soil nutrients. Triclopyr can be

applied at any time of year with the late spring or early fall periods being ideal due to the increased translocation of nutrients occurring at that time. Application can include basal bark spray, cut stump treatment, drill-and-frill, or girdling/frilling stems and coating the cut with triclopyr. The active ingredient, triclopyr, is mixed in a carrier and a dye may also be used to indicate which stems have been treated. The second type of herbicide, glyphosate (typically RoundUp), will be applied to the foliage of live plants during the growing season (May to September). Foliar treatment is most effective for sites that contain thousands of seedlings where stem treatment is impractical and where non-target native species are not a concern. This situation is usually encountered where long-established Buckthorn thickets have created monocultures. Herbicide treatment is effective in removing most plants with a single application, but follow-up treatment may be necessary where seed bank germination occurs, especially following the removal of mature shrubs and the increase in sunlight that occurs as a result. Options for mechanical control include mowing or cutting (without herbicide) or extraction of small stems including the root system. These methods can offer a temporary benefit, but the surviving shrub root system and seed bank will allow plants to persist in the long-term.

As such, application of Garlon (triclopyr) Ready To Use (RTU) is recommended to occur in the fall of Year 1, whereby shrubs >1m in height will be girdled and treated and left in place. During Year 1, seedlings will also be treated with Roundup. Any large shrubs that remain will be treated again in Year 2. Follow-up monitoring in Year 5 will determine whether additional management is required.

It is anticipated that the areas of proposed application of herbicides will correspond with the desired enhancement plantings areas proposed below (generally buffers as well as the CUT1, CUM1, and CUS1 communities in the valleylands) (See Figures 1 & 2 below). The exact locations of treatment and the detailed treatment plan will be provided within the EIR at detailed design, given that the extent of the species can change rapidly from year to year. Should additional area for enhancement planting installation be required, the dead buckthorn shrubs that have been treated and left in place can be removed to a suitable disposal facility (although it is likely that trees and shrubs can be planted around dead buckthorn since the canopy will no longer be a competitive barrier to growth).



Figure 1: Buckthorn thicket in Significant Valleylands (from bottom of slope near proposed SWMF2 location).



Figure 2: Buckthorn thicket in Significant Valleylands (from top of slope looking down on general area of proposed SWMF2).

6.2 Enhancement Plantings and Trail Decommissioning

Enhancement plantings are recommended for buffer areas (woodlands, wetlands), at locations of ad hoc trails to be decommissioned, slopes of SWM facilities, as well as within the broader valleylands abutting the development area in order to provide habitat for the wildlife species identified as being present (Section 4). The enhancement plans for the valleylands will focus on providing improved habitat for species that are the most likely to be impacted by the proposed development (predominantly meadow and thicket obligate species), as identified in Section 5. Topsoil application may be required in areas of proposed plantings, particularly in areas where meadow seed mix application is to be provided. Topsoil is to be clean to ensure that no new invasive species or contaminants are introduced to the site.

The placement of SWMF2 provides an excellent opportunity for restoration of an area that is heavily dominated by invasive common buckthorn. Tree and shrub enhancement plantings are planned to be located along embankments of the pond as well as the trail edges in this area.

Following the application of the aforementioned buckthorn management plan, enhancement plantings are to be installed in these areas and should include a range of tree and shrub plantings as well as a meadow seed mix that will be selected based on the topography, soil, and moisture conditions in these areas. Within the thicket and meadow areas of the valleylands, plantings will focus on establishment of thicket and meadow communities through plantings of suitable native shrubs and application of a meadow seed mix. It is recommended that the seed mix provide abundant flowering species to provide pollinator habitat, given the number of bumble bee species and butterflies observed, and should also include Milkweed (*Asclepias* spp.) to provide breeding habitat for Monarch.

A native pollinator mix is also recommended to be installed within the mown strip of any formal trails in order to provide additional pollinator habitat.

Detailed enhancement planting plans should be provided at the EIR stage that identify species, numbers, densities, and locations, although it is anticipated that these plantings will be field fitted to ensure that the appropriate locations are selected.

6.3 Linear Parks & Green Walkways

Ecological connectivity of the NHS is primarily to be provided by the conservation lands within the Significant Valleylands that will rim the site, providing broadscale movement corridors for wildlife and seed dispersal along the Eramosa River. However, the design of GID Blocks 1 & 2

has also included a series of linear parks that provide further opportunity for increased connections between NHS and other open space both within the site and on adjacent lands. These connections are located in Blocks 62 and 64 and are between 19-25m wide (Map 9). Although these linear parks are not designed as direct wildlife corridors, they will include native trees, shrubs, and herbaceous plants where feasible. These plantings will support seed dispersal, provide foraging habitat, and create linkages for pollinators, birds, and other highly mobile wildlife. Periodic strips of native plantings are envisioned within these areas. Details of specific locations, planting densities, and species selections are to be provided at the EIR stage.

In addition to the aforementioned areas, planting opportunities should also be explored within the anticipated buffer strip within the proposed 15m expansion on the east side of Victoria Road, where feasible.

6.4 Educational Signage and Brochures

Educational signage is to be developed and placed along trails that abut the NHS to educate residents about the significance and sensitivity of these natural features and what measures they can take to avoid impacting these areas.

Signage that brings awareness to wildlife use of the arboretum and adjacent lands near Victoria Road was also a recommended mitigation measure proposed by the P-GEMS study (2024). This signage may take the form of educational signage or wildlife crossing signage along Victoria Road to warn drivers of potential hazards of wildlife that may be present.

Educational brochures should be developed and distributed to residents living adjacent to the NHS and Arboretum with recommendations for reducing impacts (e.g. keeping pets indoors/on leashes, not dumping yard clippings into NHS areas, avoiding creation of ad hoc trails or otherwise encroaching into the NHS, etc.).

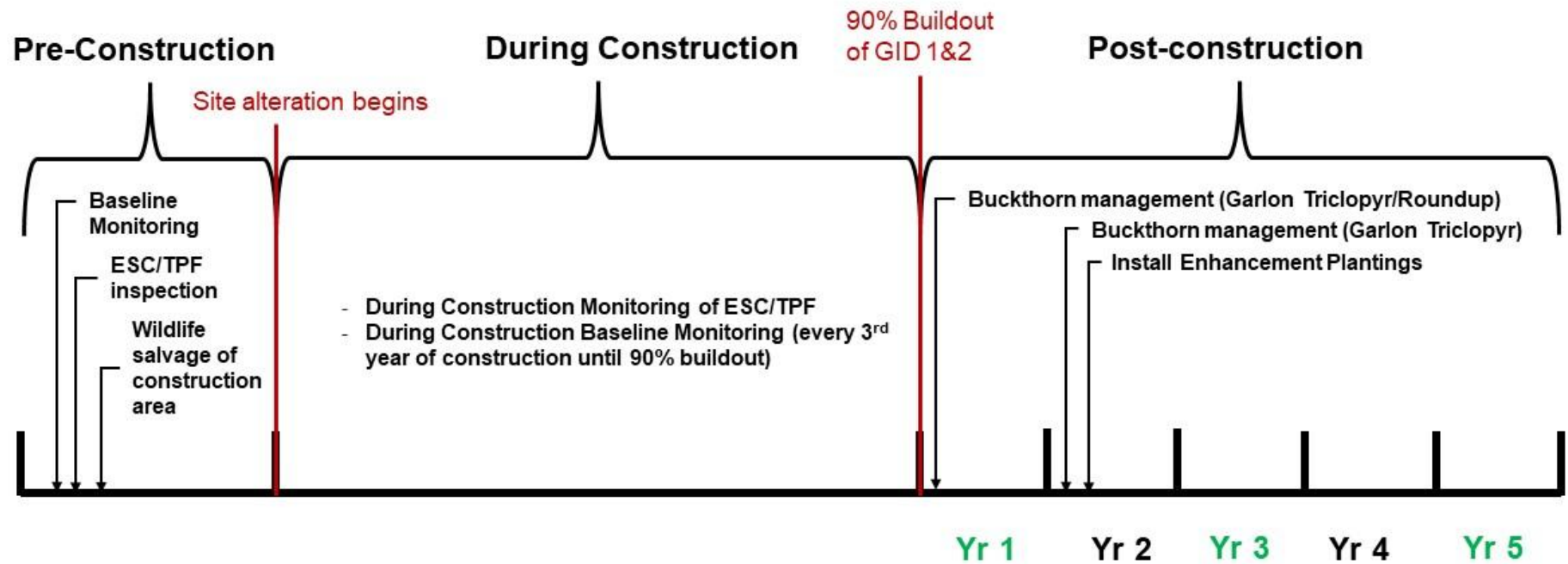
6.5 Fencing

Temporary fencing is recommended to separate restoration areas from foot traffic to prevent trampling of plantings/seeded areas by trail users unless ESC fencing/TPF is already present as a barrier. Following establishment of plantings (as identified through the monitoring program), the temporary fencing can be removed. Permanent fencing is recommended throughout the site to prevent intrusion into natural features and the creation of ad hoc trails. Locations of fencing is to be provided within the EIR following finalization of the detailed trail plans.

Wildlife exclusion fencing is recommended on the arboretum side of Victoria Road and would require integration with planned multi-use paths and access points. The final details of wildlife exclusion fencing and associated mitigation measures (such as one-way re-entry gates recommended by Arboretum staff) is to be explored at the EIR stage, and may require consultation with the arboretum and City staff given that it would be located on the west side of Victoria Road, and not on GID lands.

6.6 Sequencing of Enhancement Measures

The proposed sequencing of the aforementioned enhancement measures is anticipated to proceed as detailed below on Figure 3 below. This will be further detailed and refined, as need, at the EIR stage.



Yr 1, 3, 5 – Mitigation Effectiveness monitoring years (vegetation plots, breeding birds, insects, buffer, invasive species, and enhancement planting monitoring (after installation). Annual monitoring reports submitted to agency staff in these years.

Figure 3. Sequencing plan of monitoring and enhancement measures.

7.0 Policy Conformity

The proposed undertaking described within Sections 5 and 6 of this report are required to adhere to the relevant policy framework that is currently in place, including those policies identified within the City's Official Plan that apply on a City-wide basis as well as those specific to the GID lands (City of Guelph 2024). The City has established a NHS and associated policies that provide permanent protection to SNAs and their established buffers as well as for Natural Areas, and Wildlife Crossings, as identified in Section 4.1 of the Official Plan. Development within or adjacent to these features is only permitted in accordance with the policies of Section 4.1.3 to 4.1.5 of the Official Plan.

In general, the proposed development limits are located outside of the limits of SNAs which were established through the EIS and in consultation with City of Guelph and GRCA staff (e.g. Significant Woodlands, wetlands). The exception to this are trails and associated grading as well as SWMF2, which are described further below in relation to relevant Official Plan policies. Buffers have been recommended for these features that are in accordance with the minimum/established buffers identified in Table 4.1 of the Official Plan (City of Guelph 2024).

Trails, including both formal and ad hoc, are located throughout the GID 1 & 2 blocks, within the proposed development area on the table lands as well as within the Significant Woodlands/Significant Valleylands (Map 8). The formal trail that runs from Victoria Road to Stone Road is proposed to remain while other ad hoc trails are planned to be naturalized or formalized. The proposed formal trails to be added to the site at this time and associated grading are shown on Map 9. These trails are proposed to extend into the outer portions of the Significant Woodland 10m buffers. As per policy 4.3.6.7 of the Official Plan, formalization of ad hoc trails within Significant Woodlands or their buffers may be permitted where:

- i) *they are considered essential to the City's trail system or integral to the scientific, educational or passive recreational activities of the property;*
- ii) *the environmental impacts of the proposed trails have been assessed and mitigated through design that minimizes impacts to the natural heritage features and areas, and ecological functions; and*
- iii) *they are accompanied with educational signs.*

The trails within the GID lands are heavily used by members of the public and are an integral part of the Guelph Radial Line Trail that is maintained by the Guelph Hiking Club. Following

development, thousands of residents will be located in close proximity to the existing trails, and formalization of a trails will assist in preventing ad hoc trail use/creation and erosion along the Significant Valleyland edge. In accordance with policies 4.1.2.8-9, the trails and associated grading have been located as far from the Significant Woodland feature boundaries as possible (generally in the outer 5m of the Significant Woodland buffer), and as such, disturbance will be minimized. Any disturbed areas will be revegetated as described within Section 6 of this report. The proposed trails in these areas are also in accordance with GID specific Official Plan policy 11.2.2.1.3 which identifies that trails are to be located along the edge of the Eramosa River Valley to provide public access while maintaining protection of the NHS. The feasibility of a trail connection/active transportation link across the Eramosa River to Block 4, as identified on Schedule A of the Official Plan (2024) and by GID policy 11.2.2.1.4 is currently being explored. This will be further reviewed at the EIR stage of development. All trails will be required to have appropriate signage denoting proper access and use, as per policy 11.2.2.1.5.

The trail which is located along the top of the table lands adjacent to Significant Woodlands has connection points to Street G where it will continue as a sidewalk before exiting the site at the rear of Block 50 to Stone Road East.

SWMF2 is proposed to be located partially within Significant Valleylands. SWM facilities and structures and their normal maintenance are permitted within Significant Valleylands, as per policy 4.1.3.7.4.v), in accordance with policies related to the *Water Resource System*, *Fish Habitat*, and *Permanent and Intermittent Streams* and providing that an EIS can demonstrate no negative impacts to the form and function of the valleylands and associated NHS. The approach to SWM detailed by MTE (2025a) has carefully considered impacts to water resources, and has proposed mitigation measures related to water quality, quantity, and thermal mitigations to ensure no negative impacts to these features (Section 5.4.2-5.4.4). SWMF2 has been situated in a portion of the Significant Valleylands that are dominated by invasive buckthorn with very little tree cover or native vegetation present. The placement of SWMF2 is considered to be a substantial improvement in comparison with the previous location in the March 2025 EIS, as detailed within the letter prepared by NRSI in response to City comments (NRSI 2025b). Future landscape planting plans will provide an excellent opportunity for restoration of these areas including through a range of native tree, shrub, and herbaceous plantings as required by Section 4.1.3.7.5 in order to stabilize and enhance the area for wildlife habitat. These, and other mitigation and enhancement measures will be further detailed within the EIR. SWMF2 and associated embankments will be located entirely external to other SNAs

including Significant Woodlands, wetlands and their associated buffers. Notwithstanding that all portions of SWMF2, including temporary grading will be located outside of the wetland and associated 15m buffer, any works within the 30m Regulation Limit will require a GRCA permit pursuant to Ontario Regulation 41/24.

Habitat for (locally) Significant Species has also been identified throughout the subject property, and partially overlaps with the proposed limits of development. As per policy 4.1.4.4.3, development may be permitted within all or portions of the Habitat for Significant Species subject to the requirements of 4.1.2.8-9, as mentioned above. NRSI has recommended that where retention is not feasible, that restoration and enhancement be implemented to improve ecological conditions for the species that are expected to be most impacted (e.g. open country and thicket species). This has been further detailed within Section 6 of this report where restoration of native meadow habitat is proposed in order to provide habitat for a range of meadow-obligate LSS.

Tree removal and necessary compensation that is proposed within the subject property is in accordance with the Tree Technical Manual (City of Guelph 2025) as well as the City of Guelph Tree Bylaw (2025) – 21059, as detailed within NRSI's TIPP (2025). The proposed approach to compensation is also in line with the objectives of the Official Plan pertaining to the protection of tree canopy, as per Section 4.1g) as well as protection of the Urban Forest within GID lands identified in policy 11.2.2.4. It is expected that in the long-term, tree removals (and associated reductions in canopy cover) identified in the TIPP will be offset through the proposed compensation planting requirements. As identified in Section 6 of this report, enhancement plantings are also planned for areas within the Significant Valleylands that are currently occupied by buckthorn or do not otherwise contain tree cover, which will further assist in addressing City of Guelph canopy targets. Section 4.1.6 c) the City has identified a canopy target of 41% by 2031; this target appears achievable on GID 1 & 2 given the extent of NHS on the property and the opportunity for street tree plantings on boulevards and parks throughout the site. This should be further explored through the EIR stage of this project when areas of tree planting can be accurately quantified.

As per policy 11.2.4.9.3, single-loaded roads are planned along the western edge of the Eramosa River valley in order to provide public edge opportunities, the ability to access the adjacent natural areas, and greater protection of the NHS.

The proposed works proposed as part of this Draft Plan of Subdivision for GID Blocks 1 & 2 has been carefully considered within this EIS in order to ensure that there will be no significant negative impacts to the NHS within the Eramosa River corridor, as required by Section 4.1 of the Official Plan. The monitoring plan described in Section 8 below provides a detailed plan for ensuring that the proposed mitigation and enhancement plans are implemented properly during the pre, during, and post-construction periods of this project.

The Planning Justification Report (PJR) prepared by MHBC provides further rationale related to the proposed undertaking within the context of the existing policy framework for GID.

8.0 Monitoring

A monitoring program is recommended through the pre-, during, and post-construction periods of the project. The following monitoring requirements are recommended. Figure 1 below provides an overview of the anticipated sequencing of monitoring relative to proposed enhancement measures and project timelines:

1. **Pre-construction Monitoring:** A pre-construction monitoring program will be initiated during the EIR stage of this project, prior to the start of development to gather further information on baseline conditions as well as to confirm that tree protection, ESC, and exclusion fencing is in place prior to the start of construction.
2. **Construction Monitoring:** Monitoring of construction activities and associated mitigation measures to ensure compliance with recommendations set out in the EIS/EIR (including ESC/TPF, hazard trees marking and removal, etc.). Additional baseline monitoring will be completed every third year during the period in which construction takes place (i.e. years 3, 6, 9, etc.). This recommendation will ensure that baseline data is current when post-construction monitoring commences, and will reduce the chance of attributing changes in various established metrics to the development rather than the stochasticity that is intrinsic to these systems.
3. **Success of Vegetation Restoration Plantings and Invasive Species Management:** Restoration plantings will be monitored over the short-medium term in Years 1, 3, and 5 following installations to ensure the objectives of the plantings are met in terms of establishing self-sustaining natural communities that are not being substantially impacted by invasive species.
4. **Mitigation Effectiveness Monitoring (Post-Construction):** This includes essentially the same monitoring program completed to establish ecological baseline conditions. Ecological post-construction monitoring of vegetation transects, breeding bird stations, insect/pollinators, buffer/enhancement areas, and invasive species will take place in years 1, 3 and 5 over a 5-year period following 90% build-out of the entire development block.

8.1 Pre-construction Monitoring

Prior to the initiation of any construction activities, baseline monitoring of current ecological conditions is to be undertaken in order to allow for an accurate comparison to post-construction conditions (mitigation effectiveness monitoring). Baseline monitoring is to include the following:

- Vegetation monitoring transects;
- Breeding bird surveys;
- Insect/pollinator species diversity and abundance;
- Buffer monitoring;
- Surface and groundwater monitoring;

The proposed monitoring programs for these items are described further, below:

8.1.1 Vegetation Monitoring Transects

Eight permanently-marked, 10m-long transects will be established in vegetation communities within the subject property west of the rail line including within the Significant Woodlands, on-site wetland (SWT2), meadow and thicket communities, as well as within wetland communities east of the rail line (exact transect locations will be established through the EIR). Quadrats (1m²) will be placed at intervals along each transect on centre at 1, 3, 4, and 8m. Each quadrat will be divided into 9 equal subplots. Within subplots, plant species will be inventoried for presence and abundance (stem count, percent cover, and frequency of presence within subplot). The start and end of each transect, along with each quadrat location will be staked for the duration of the monitoring period to ensure accuracy in subsequent monitoring events. Monitoring will occur once annually during July, at each of the transect locations.

Dominant vegetation along the entire 10m transect (within 5m on either side of the transect) will be recorded (including all trees, shrubs, and herbaceous vegetation). The overall health and condition of the vegetation community, evidence of disturbance, and the presence of standing water will be noted. Photographs will be taken at each end of the transect.

Inventoried species will be characterized by their Coefficient of Conservatism (CC) and Coefficient of Wetness (CW), and a Floristic Quality Index (FQI) for each transect will be calculated to allow comparisons with baseline data.

8.1.2 Breeding Bird Monitoring

Breeding bird stations within the valleylands and broader NHS will be surveyed during the pre-construction period (EIR stage) to gather additional data on species utilizing these habitats as well as to provide baseline data on avian populations that can then be compared to post-construction conditions. This will include surveying a portion of the same stations as were completed during the EIS in areas (BB-01, 02, 06, 07, 09, 010). Other survey stations within the

proposed development areas will not be surveyed as these areas will have no comparable reference point during/post-construction. In addition to the aforementioned survey stations, additional stations will be established east of the rail line to provide data from locations further removed from development. The goal of this monitoring is to assess the potential impacts of the development on the adjacent bird species utilizing the NHS within the subject property and the effectiveness of the buffers and enhancement plan to mitigate these impacts.

8.1.3 Insect/Pollinator Monitoring

A pre-construction monitoring program will be undertaken to assess baseline conditions of insect and pollinator use of the valleylands which can then be compared to the data collected following enhancement measures in these areas. The monitoring plan will include area searches twice during July and August within the meadow and thicket communities where remediation is planned, and all butterfly, bumble bee, and odonate species will be recorded in terms of species diversity and abundance.

8.1.4 Buffer/Enhancement Area Monitoring

A visual inspection of the buffers will be completed to determine baseline conditions of the buffers prior to construction. Surveys will be conducted in conjunction with summer vegetation monitoring transects. These surveys will entail walking through all buffers of wetlands and woodlands and noting the following, where applicable:

- *Soil Compaction*: Identifies any area that exhibits soil compaction (e.g. ad hoc trails, areas of disturbed soil, etc.). A visual inspection will identify areas of concern;
- *Soil Erosion*: Identifies areas that are eroding or may be prone to erosion such as slopes;
- *Damage to Trees and Vegetation*: Identifies damage caused by natural sources and human impacts;
- *Presence of Unauthorized Structures and Activities*: Identifies non-permitted uses;
- *Unauthorized dumping*: Identifies any landscape refuse, fill, household garbage, casual littering and building materials;
- *Non-native Invasive Species*: Identifies non-native/invasive species present within the buffers, and their relative abundance within these features (e.g., abundant, occasional, rare) and their mapped locations; and
- *Hazardous Tree Conditions*: Identifies trees that pose a hazard to people or property.

A photo inventory of all buffer areas will also be completed to allow for a visual comparison of the overall condition of the buffers.

In addition to the aforementioned continuation of baseline monitoring during the construction period, pre-construction monitoring is necessary to ensure the protection of adjacent natural heritage features prior to the start of constructions activities and is to include the following:

- Confirmation of the installation of ESC and tree protection fencing at the established limits of the construction areas;
- Wildlife salvage of the isolated construction areas following the installation of the ESC/exclusion fencing. Any wildlife located within the construction area will be relocated to an appropriate area within the NHS, on the other side of the exclusion fencing.

8.2 Construction Monitoring

Construction monitoring is the responsibility of the proponent and is tied to the specific undertaking. Generally, construction monitoring must occur to ensure compliance with the conditions of various permits, including any permit(s) from under the Conservation Authorities Act (Ontario Regulation 41/24). This monitoring is to be conducted to ensure that natural features are being adequately protected and mitigation measures are functioning effectively and will begin at the initiation of site alteration and continue until 90% buildout of the development. It is recommended that construction monitoring include inspection/consideration for the following items during the construction phase of the project:

- Compliance with the ESC Plan through completion of monitoring consistent with *the Erosion & Sediment Control Guideline for Urban Construction* (Greater Golden Horseshoe Area Conservation Authorities 2006). Monitor after significant rainfall events of ≥ 13 mm and thaw events, and accumulated sediment will be removed when it amounts to 1/3 of the silt fence height. Monitor sediment and erosion control measures a minimum of once per month to ensure that silt fencing remains properly keyed-in. Any necessary repairs should be completed within 48 hours;
- Tree removal within the core bird nesting period (April 1-August 31), should be avoided where possible, with the understanding that nesting of avian species can occur throughout the calendar year and construction workers should be vigilant when

carrying out work for nesting bird species. If removal of vegetation is unavoidable, a nest search of simple habitats such as small hedgerows or individual trees or shrubs, may be carried out by a qualified biologist. Each nest search will remain valid for a period of 48 hours after which an additional nest search will be required;

- Monitor for areas of bare soil that present a risk of erosion and sedimentation hazards to natural features, and recommend that they be re-vegetated with a suitable seed mix within 30 days of being cleared and/or inactive to prevent erosion of soils;
- Note any damage to limbs or roots of trees to be retained so that they can be pruned using proper arboricultural techniques;
- Ensure storage and maintenance of machinery during construction occurs at a designated location away from the natural area and associated buffer;
- Additional Pre-construction Monitoring, is to be completed every third year during the period in which construction takes place, if construction occurs over a protracted period (i.e. years 3, 6, 9, etc.).

8.3 Success of Restoration Plantings

Since the enhancement plantings are to be installed in a natural area where herbivory and other factors will be difficult to control, no warranty period is proposed. Instead, monitoring is recommended to be undertaken in Years 1, 3, and 5 following installation of plantings to evaluate whether the overall objectives of the restoration plan (establishment of a self-sustaining natural community comprised predominantly of native species) are being met. Metrics of success will be determined to have been met if the % cover for these communities (woodland, thicket, meadow) reflect the appropriate ELC community. In the event that metrics are not being met due to herbivory, or other factors, additional planting recommendations for native tree and shrub species will be provided, as needed.

As mentioned above, the enhancement planting areas will also be assessed through the ongoing buffer monitoring to ensure establishment of the desired vegetation communities and to identify any potential threats to these areas such as invasive species.

8.4 Mitigation Effectiveness Monitoring (Post-construction)

Post-construction mitigation effectiveness monitoring is necessary to gather information on the ecological health of the NHS, which can be compared to the baseline conditions in order to assess potential impacts and the need for additional mitigation measures.

Mitigation effectiveness monitoring will begin at 90% buildout of the entire GID Block Plan Areas 1 & 2, and will continue for a 5-year period in Years 1, 3, and 5. The monitoring program will include the same survey protocols as identified for the pre and during-construction periods. The only addition to the buffer monitoring during the post-construction period is that during these monitoring events, the established enhancement plantings will be evaluated to determine if the desired function is being fulfilled (i.e. establishment of woodland, meadow habitat).

Through the detailed design process of the EIR, further details on the monitoring program will be provided that will identify/map planned monitoring locations, specific parameters or data to be collected, thresholds that will be used to assess the need for implementation of adaptive management, and specific actions that will be taken if established thresholds are exceeded.

8.4.1 Monitoring Reporting

The results of mitigation effectiveness monitoring will be summarized in annual reporting, that will be distributed to City Environmental Staff, for the comprehensive monitoring program and recommendations made which could improve/mitigate any observed impacts. A statistically significant change based on a pair-wise analysis of pre- to post-construction data will be considered sufficient to warrant a detailed analysis of other factors that may be contributing to this trend. Due to potentially small sample sizes that may preclude significance tests, a 25% change in any of the factors will also be considered significant.

The annual reports will generally include the following components:

1. A **Summary of Findings** of each monitoring discipline provides the reader with a synopsis of all the information and highlights any substantial changes in the methodologies.
2. **Reporting on Effects** from the past year stemming from observations of concern (if any) is appended and summarized.
3. **Trends and Effects** are identified and addressed in detail. All known causes related to each trend or effect are included in the discussion. The discussion is based on all

applicable monitoring data, and can also make use of construction inspection reports and/or effects reporting.

4. **Recommended Actions** are provided to deal with trends or effects. They should also indicate a review of the issue and provide a timeframe for action.
5. **Corrective Measures** that have taken place in the previous year are documented. The associated discussion clearly indicates whether the recommendation has been implemented and improvements made.
6. **A review of future monitoring needs** will summarize recommendations from the individual reports, and provide any clarification required to ensure continued coordination of the monitoring disciplines.

9.0 Environmental Implementation Report Recommendations

As a condition of a site alteration permit, the City requires that an Environmental Implementation Report (EIR) be prepared and submitted to agency staff for approval. This typically coincides with the detailed design phase. The EIR serves as a summary document to describe how all the conditions of the application decision have been met and any other special requirements that are required to protect the overall natural environment of the area. It is recommended that the EIR include the following components at minimum:

- A description of how infrastructure servicing and the protection of NHS functions have been addressed;
- Specific direction for any other special requirements to support the protection and/or management of a significant natural feature or area (e.g., management prescriptions, etc.);
- Site-specific details for mitigation measures (as detailed in the EIS);
- Guidance for all monitoring plans including specific locations, sampling methods, dates/timing, and adaptive management for the pre, during, and post-construction periods;
- Tree Inventory and Preservation Plans that incorporate more detailed grading and trail plans (where applicable);
- Specific requirements which need to be addressed for a Tree Cutting Permit (e.g., landowner permission letters for boundary trees);
- Detailed landscaping/enhancement plans that incorporates native species is required to be a part of the detailed design ('vegetation compensation plan'). The enhancement plans will include details for the protection and enhancement of the NHS including for locally significant species;
- Detailed trail location and design elements;
- Invasive species management plan;
- Detailed educational signage and environmental outreach;
- Details related to permanent fencing including for wildlife exclusion;
- A review of the final development details (e.g., final stormwater management report, detailed water balance, detailed grading plans, salt management plans, sediment and erosion control details, etc.) and an updated impact assessment, where necessary; and

- Species at Risk considerations and necessary permitting, registration and/or compensation as required under the in-force legislation (i.e. ESA or SCA).

A Terms of Reference for the EIR will be prepared and distributed to the City and GRCA for review and comment in order to confirm the scope of this report.

10.0 Summary

Natural Resource Solutions Inc. was retained by Fusion Homes to complete an Environmental Impact Study in support of a proposed development of the Guelph Innovation Block Plan Areas 1 & 2 within Guelph, Ontario. The intent of this report is to characterize important natural features and identify their sensitivity, recommend appropriate buffers, and identify potential impacts of development along with necessary mitigation, enhancement, and monitoring.

Through completion of this EIS, the Subject Property was found to contain Significant Woodland, wetlands, Significant Valleyland associated with the Eramosa River, candidate/confirmed Significant Wildlife Habitat, and candidate/confirmed habitats for Species at Risk, which are considered Significant Natural Areas in the Natural Heritage System. Habitat for (locally) Significant Species is also present, which is considered a Natural Area in the Natural Heritage System. These natural features were assessed and the layout of the proposed development considered with respect to these features. The vast majority of these natural heritage features are located within the woodlands, wetlands and valleylands that will be retained and buffered from development.

A TIPP has been prepared by NRSI that identifies tree removal proposed as part of this undertaking and necessary compensation and tree protection measures.

A number of habitats have the potential to be impacted by the proposed development footprint (e.g. habitat of SAR, HSS, etc.) and where possible, mitigation, enhancement and monitoring has been recommended to ensure impacts are minimized. In addition, indirect and induced impacts have the potential to occur to natural areas through increased human use as well as a result of the presence of buildings that pose a hazard to migratory birds. The mitigation measures outlined within this report are to be further evaluated at the detailed design stage in order to ensure that potential impacts are mitigated.

NRSI has worked closely with Fusion Homes, MHBC, and MTE to guide the layout of the development plan, as is reflected on the mapping of the NHS and development plans. As described within this report, the proposed undertaking has been designed to conform with the requisite policies of the City of Guelph Official Plan.

The EIR will provide a comprehensive plan that will detail the implementation of the recommendations provided within this report in addition to an updated impact analysis where applicable. The revised impact analysis should include additional details related to water

balance for Wetlands 3 and 6 related to runoff and infiltration in order to more comprehensively assess impacts, although based on the analysis provided to date. This will include a more detailed impact analysis that will assess the feasibility of trail connections throughout the subject property to adjacent lands such as GID Block 4.

Providing that the recommendations provided within this report are adhered to, significant negative impacts are unlikely to occur based on the proposed development plan.

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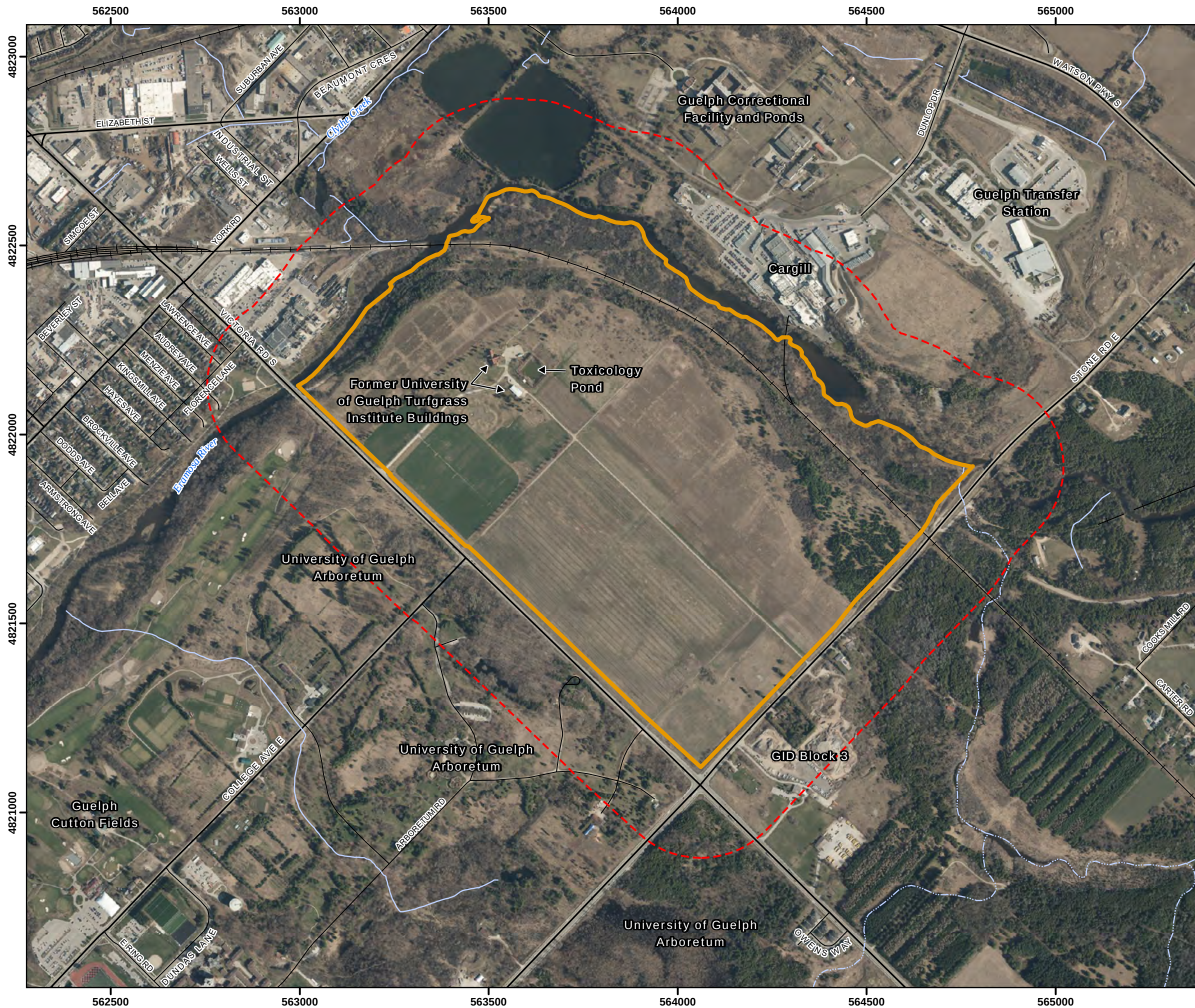
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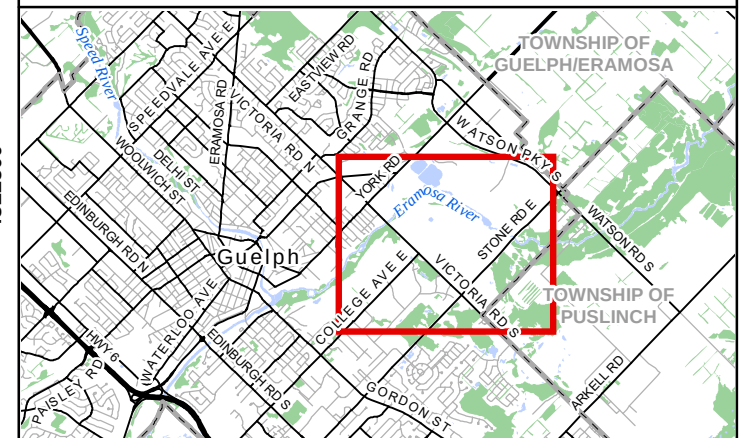
MAPS



Map 1

**Guelph Innovation District
(Blocks 1 and 2)**

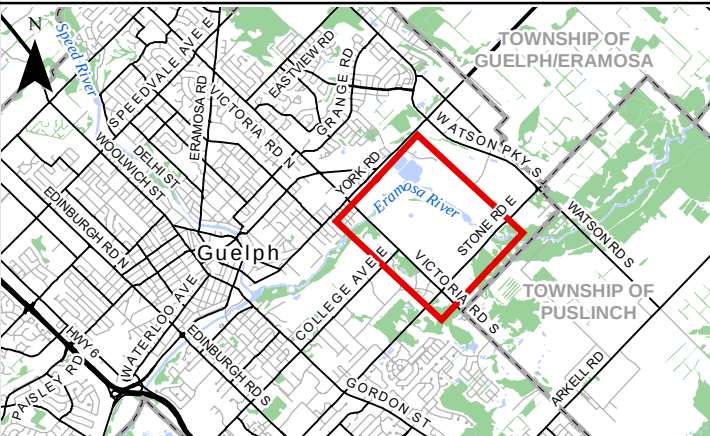
Study Area



- ### Legend
-  Study Area (120m)
 -  Subject Property (GID Blocks 1 and 2)
 -  Railway
 -  Primary Road
 -  Secondary Road
 -  Permanent Watercourse
 -  Intermittent Watercourse

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Guelph Innovation District (Blocks 1 and 2) Vegetation Communities



Legend

- Study Area (240m)
- Subject Property (GID Blocks 1 and 2)
- Wetland (GRCA Confirmed July 14, 2022)
- Grouping of Dead/Dying Ash
- Significant Woodland Dripline (NRSI 2022)
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Cliff and Talus Slopes - White Cedar Carbonate Cliff Type (CLT1-1) (Confirmed)
- Ecological Land Classification (ELC)
- Inclusion
- (Ag) Agriculture
- (CUM1) Mineral Cultural Meadow Ecosite
- (CUP3) Coniferous Plantations
- (CUP3-2) White Pine Coniferous Plantation Type
- (CUS1) Mineral Cultural Savannah Ecosite
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-1) Sumac Cultural Thicket Type
- (CUW) Cultural Woodland
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOC2-2) Dry - Fresh White Cedar Coniferous Forest Type
- (FOC4-1) Fresh - Moist White Cedar Coniferous Forest Type
- (FOD3-1) Dry - Fresh Poplar Deciduous Forest Type
- (FOD5-1) Dry - Fresh Sugar Maple Deciduous Forest Type
- (FOM4) Dry - Fresh White Cedar Mixed Forest Ecosite
- (FOM4-2) Dry - Fresh White Cedar - Poplar Mixed Forest Type
- (FOM7-1) Fresh - Moist White Cedar - Sugar Maple Mixed Forest Type
- (FOM7-2) Fresh - Moist White Cedar - Hardwood Mixed Forest Type
- (MAM) Meadow Marsh
- (MAM2-2) Reed-canary Grass Mineral Meadow Marsh Type
- (MAM3-9) Forb Organic Meadow Marsh Type
- (OA) Open Aquatic
- (SWD) Deciduous Swamp
- (SWD4-1) Willow Mineral Deciduous Swamp Type
- (SWT) Thicket Swamp
- (SWT1) Bedrock Thicket Swamp Ecosite
- (SWT2) Mineral Thicket Swamp Ecosite
- (SWT3-5) Red-osier Organic Thicket Swamp Type



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Project: 2851
Date: September 17, 2024

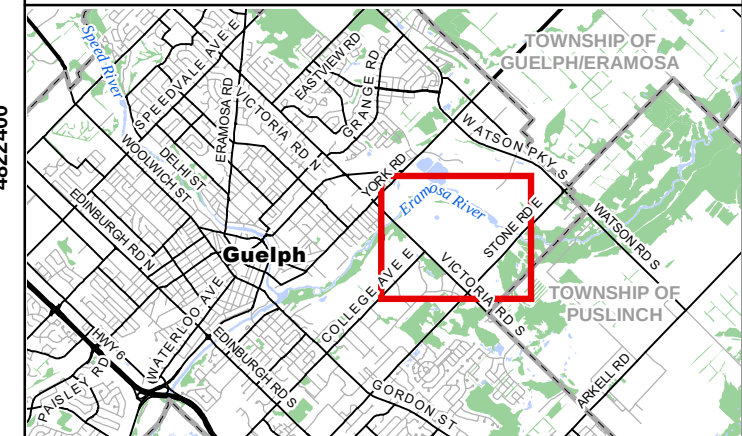
NAD83 - UTM Zone 17
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0 100 200 300 400 Metres



Guelph Innovation District (Blocks 1 and 2)

Monitoring Stations



Legend

- Study Area (240m)
- Subject Property (GID Blocks 1 and 2)
- Anuran Call Station (ANR)
- Breeding Bird Survey (BB)
- Nocturnal Bird Monitoring Station (CONI)
- Turtle Basking
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Headwater Feature
- Ecological Land Classification (ELC)
- Inclusion

NOTE: In addition to the point count locations shown here, general area searches for wildlife and plants was undertaken widely throughout the subject property up to the rail line, and additional field surveys for aquatic habitat were also completed along the edge of the Eramosa River.

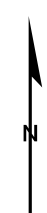


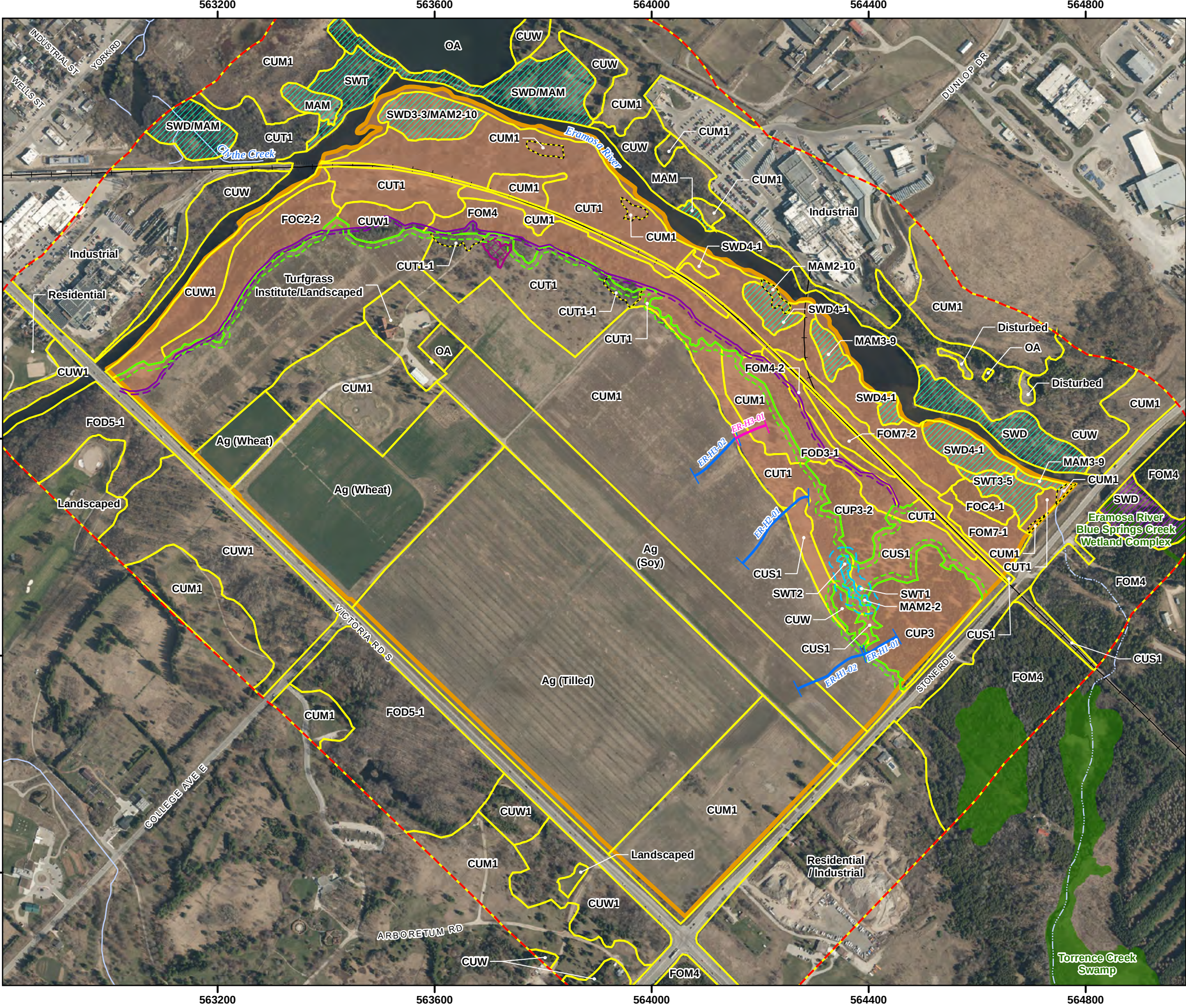
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Project: 2851
Date: September 17, 2024

NAD83 - UTM Zone 17
Size: 11x17"
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0 100 200 300 400 Metres

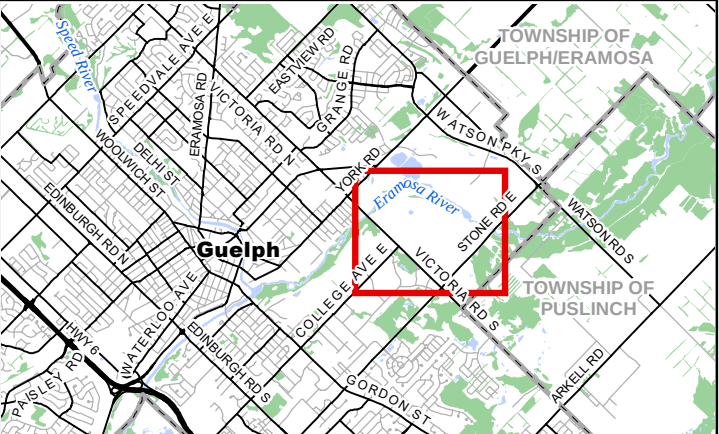




Map 4

Guelph Innovation District (Blocks 1 and 2)

Natural Heritage System



- Legend**
- Study Area
 - Subject Property (GID Blocks 1 and 2)
 - Railway
 - Permanent Watercourse
 - Intermittent Watercourse
 - Headwater Feature (No Management)
 - Headwater Feature (Mitigation)
 - Top of Slope
 - Top of Slope 6m Offset
 - Significant Woodland Dripline (NRSI 2022)
 - Significant Woodland Buffer (10m)
 - Grouping of Dead/Dying Ash
 - Wetland (GRCA Confirmed July 14, 2022)
 - Wetland Buffer (15m)
 - Provincially Significant Wetland (PSW)
 - Significant Valleylands
 - Eramosa River Blue Springs Creek Provincially Significant Wetland Complex
 - Unevaluated Wetland
 - Ecological Land Classification (ELC)
 - Inclusion

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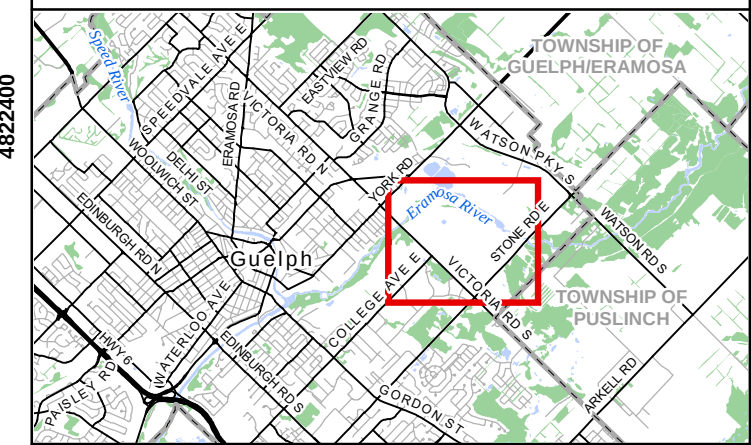
Project: 2851 Date: March 10, 2025	NAD83 - UTM Zone 17 Size: 11x17" 1:7,000
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0 100 200 300 400 Metres

N

Guelph Innovation District (Blocks 1 and 2)

Species at Risk Observations and Habitat



Legend

- Study Area (240m)
- Subject Property (GID Blocks 1 and 2)
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Confirmed Habitat for Bobolink and Eastern Meadowlark
- Candidate Bat Roost Tree

Species at Risk Observations

- Barn Swallow (*Hirundo rustica*)
- Bobolink (*Dolichonyx oryzivorus*)
- Eastern Meadowlark (*Sturnella magna*)
- Kentucky Coffee-tree (*Gymnocladus dioica*)

Ecological Land Classification (ELC)

- Inclusion

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Project: 2851 Date: September 17, 2024	NAD83 - UTM Zone 17 Size: 11x17" 1:7,000
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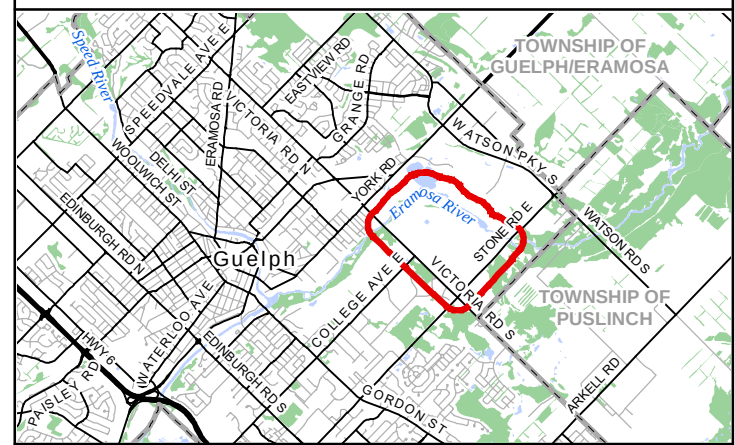
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Guelph Innovation District (Blocks 1 and 2)

Significant Wildlife Habitat and Species of Conservation Concern



Legend

Study Area

Subject Property (GID Blocks 1 and 2)

Reptile Hibernaculum (Candidate)

Railway

Permanent Watercourse

Intermittent Watercourse

Turtle Wintering Areas (Confirmed)

Waterfowl Stopover and Staging Areas (Candidate)

Waterfowl Nesting Area (Candidate)

Cliff and Talus Slopes - White Cedar Carbonate Cliff Type (CLT1-1) (Confirmed)

Ecological Land Classification (ELC)

Inclusion

Habitat of Species of Conservation Concern

Eastern Wood-Pewee (*Contopus virens*)

Grasshopper Sparrow (*Ammodramus savannarum*)

Monarch (*Danuas plexippus*)

Swamp Darner (*Epieaschna heros*)

Yellow-banded Bumble Bee (*Bombus terricola*)

Milkweed Cluster

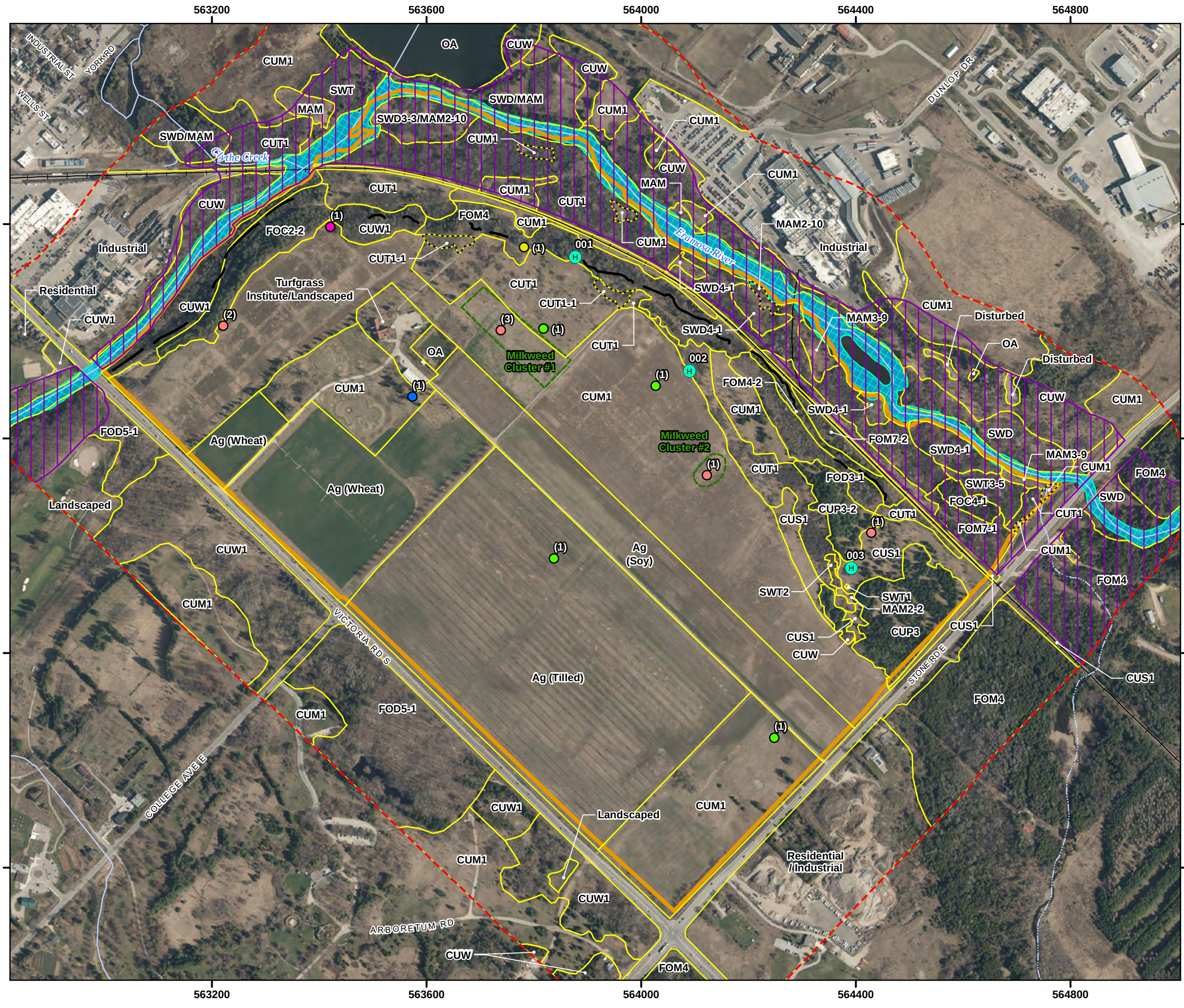
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Project: 2851
Date: September 17, 2024

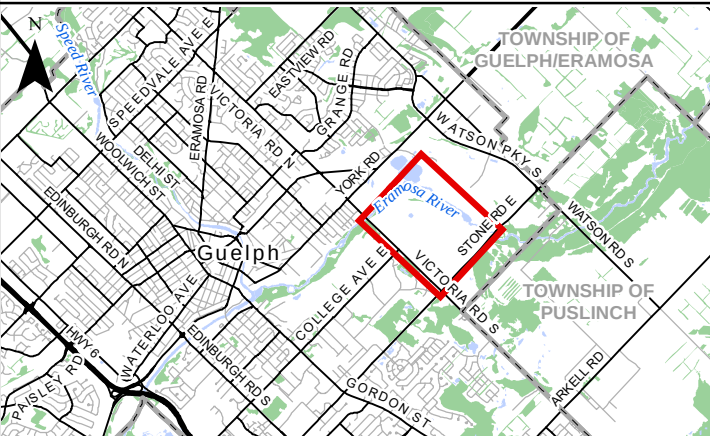
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Guelph Innovation District (Blocks 1 and 2)

Existing Trail Locations



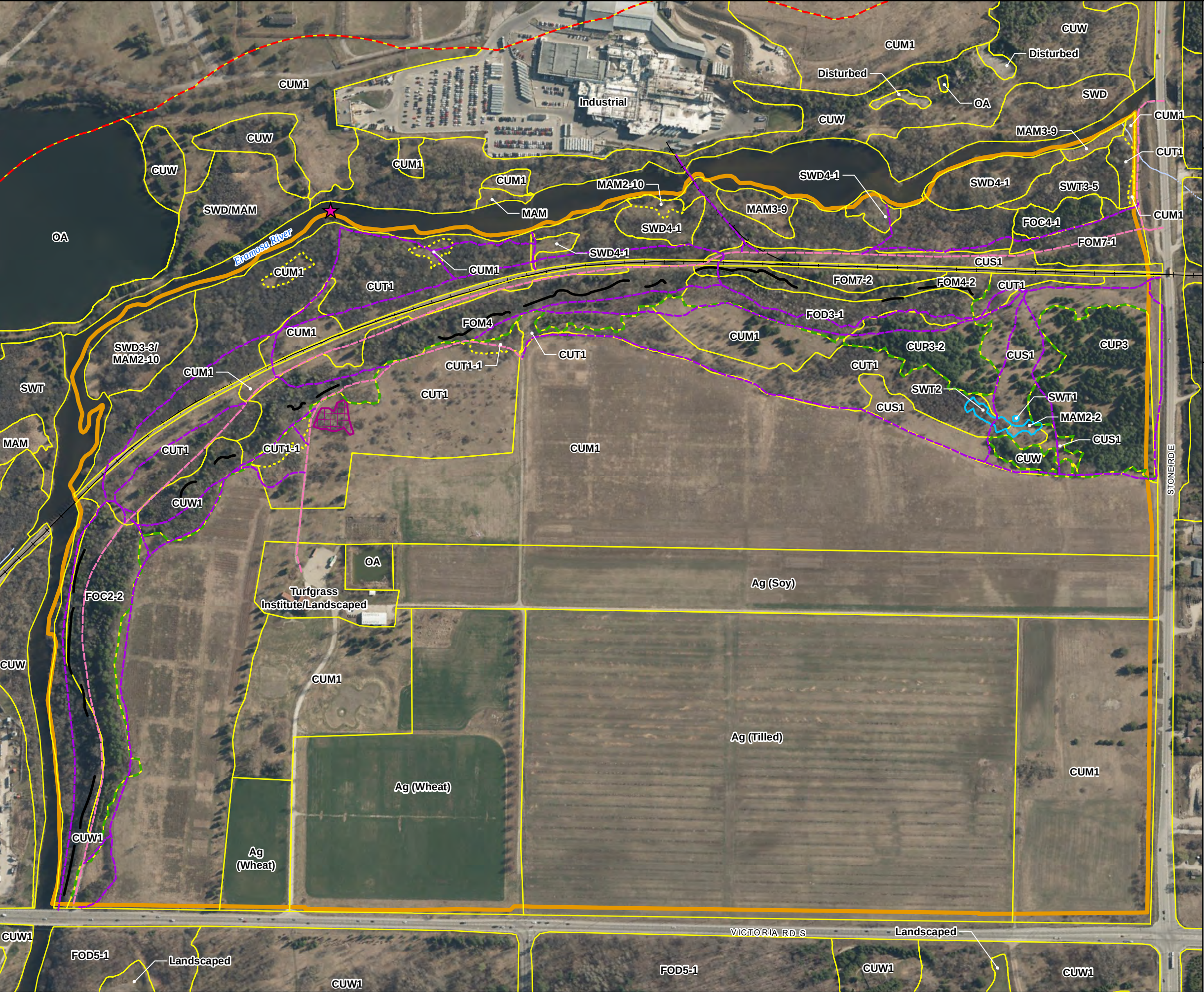
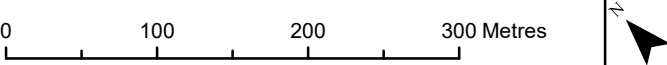
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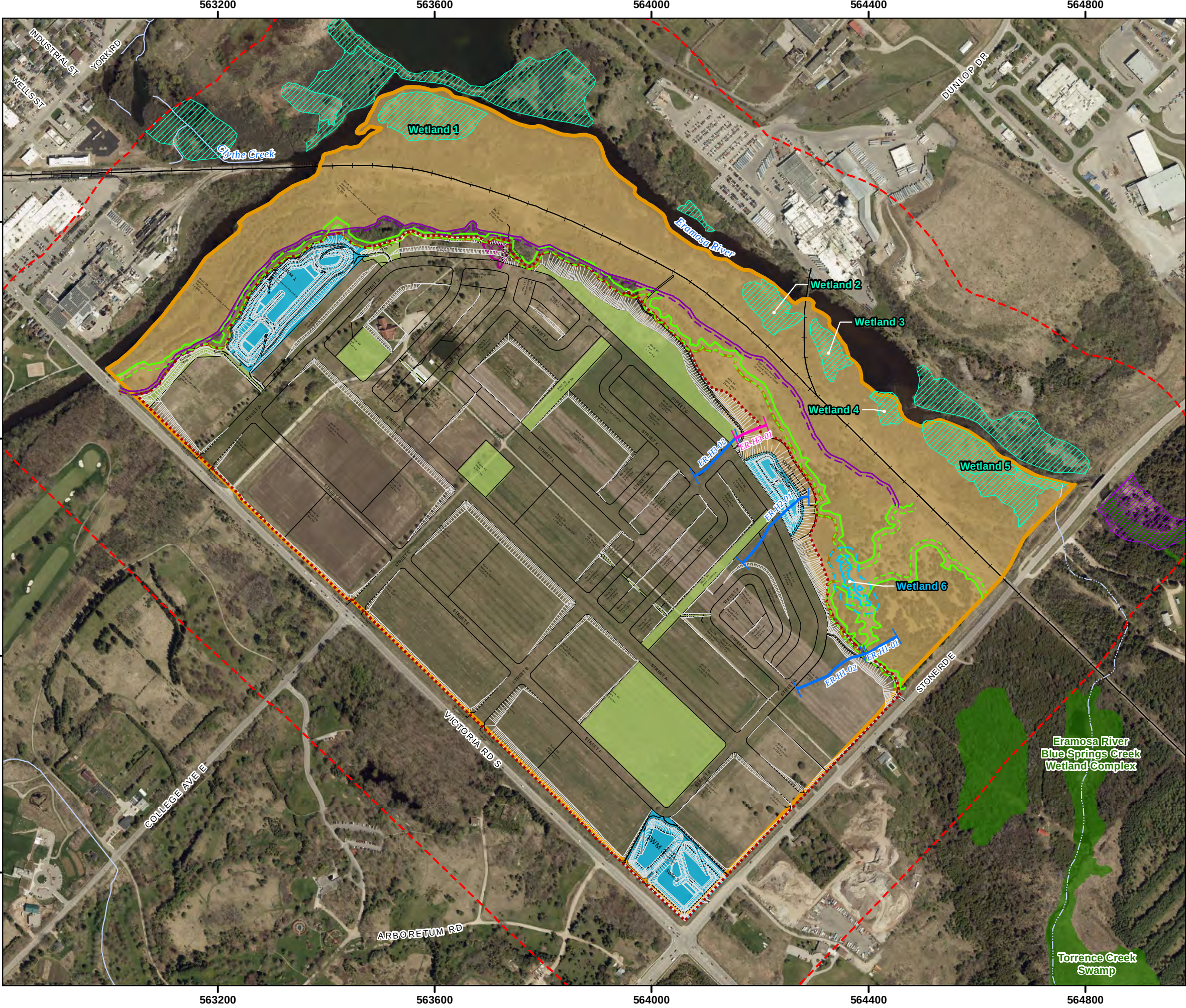
- Study Area (240m)
- Subject Property (GID Blocks 1 and 2)
- ★ Desired Active Transportation Connection (Blocks 1 and 4)
- Grouping of Dead/Dying Ash
- Wetland (GRCA Confirmed July 14, 2022)
- Significant Woodland Dripline (NRSI 2022)
- Railway
- Permanent Watercourse
- Intermittent Watercourse
- Cliff and Talus Slopes - White Cedar Carbonate Cliff Type (CLT1-1) (Confirmed)
- Formal Trail Location
- Ad Hoc Trail Location
- Ecological Land Classification (ELC)
- Inclusion
- (Ag) Agriculture
- (CUM1) Mineral Cultural Meadow Ecosite
- (CUP3) Coniferous Plantations
- (CUP3-2) White Pine Coniferous Plantation Type
- (CUS1) Mineral Cultural Savannah Ecosite
- (CUT1) Mineral Cultural Thicket Ecosite
- (CUT1-1) Sumac Cultural Thicket Type
- (CUW) Cultural Woodland
- (CUW1) Mineral Cultural Woodland Ecosite
- (FOC2-2) Dry - Fresh White Cedar Coniferous Forest Type
- (FOC4-1) Fresh - Moist White Cedar Coniferous Forest Type
- (FOD3-1) Dry - Fresh Poplar Deciduous Forest Type
- (FOD5-1) Dry - Fresh Sugar Maple Deciduous Forest Type
- (FOM4) Dry - Fresh White Cedar Mixed Forest Ecosite
- (FOM4-2) Dry - Fresh White Cedar - Poplar Mixed Forest Type
- (FOM7-1) Fresh - Moist White Cedar - Sugar Maple Mixed Forest Type
- (FOM7-2) Fresh - Moist White Cedar - Hardwood Mixed Forest Type
- (MAM) Meadow Marsh
- (MAM2-2) Reed-canary Grass Mineral Meadow Marsh Type
- (MAM3-9) Forb Organic Meadow Marsh Type
- (OA) Open
- (SWD) Deciduous Swamp
- (SWD4-1) Willow Mineral Deciduous Swamp Type
- (SWT) Thicket Swamp
- (SWT1) Bedrock Thicket Swamp Ecosite
- (SWT2) Mineral Thicket Swamp Ecosite
- (SWT3-5) Red-osier Organic Thicket Swamp Type



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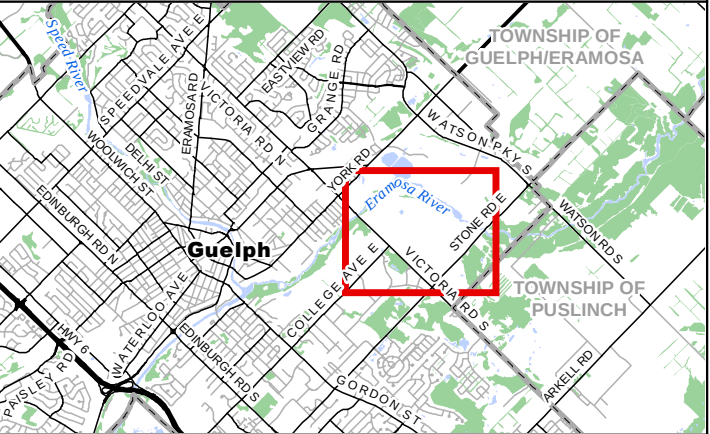




Map 9

Guelph Innovation District (Blocks 1 and 2)

Development Plan



- Legend**
- | | |
|---|---|
| Study Area | Wetland (GRCA Confirmed July 14, 2022) |
| Subject Property (GID Blocks 1 and 2) | Wetland Buffer (15m) |
| Railway | Provincially Significant Wetland (PSW) |
| Proposed Grading Limit | Unevaluated Wetland |
| Development Limit | Eramosa River Blue Springs Creek Provincially Significant Wetland Complex |
| Proposed Site Plan | Significant Valleylands |
| Proposed Grading | |
| Proposed Trail | |
| Open Space / Park | |
| Stormwater Management | |
| Permanent Watercourse | |
| Intermittent Watercourse | |
| Headwater Feature (No Management) | |
| Headwater Feature (Mitigation) | |
| Top of Slope | |
| Top of Slope 6m Offset | |
| Significant Woodland Dripline (NRSI 2022) | |
| Significant Woodland Buffer (10m) | |
| Grouping of Dead/Dying Ash | |

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Appendix I
EIS Terms of Reference

December 13, 2023

Jason Elliott, Environmental Planner
Planning and Building Services
City of Guelph

Attention Jason Elliott:

**Re: Guelph Innovation District Lands (Blocks 1 & 2)
Environmental Impact Study - Terms of Reference (Revised)**

Natural Resource Solutions Inc. (NRSI) has been retained by Fusion Homes to prepare a Terms of Reference (TOR) for the completion of an Environmental Impact Study (EIS) for the Guelph Innovation District (GID) lands, in the City of Guelph (see Map 1). The proposed undertaking is for GID Blocks 1 and 2, although it is anticipated that these Blocks will be assessed and presented as a single unit within the EIS and supporting reports. After completion of detailed engineering and planning studies, the complete EIS report will be provided in support of the Block Plan/Draft Plan process(es).

The subject property contains Natural Heritage System (NHS) as per the Guelph Official Plan (2022) including Significant Valleyland, Cultural and Significant Woodland, wetlands, and Fish Habitat (associated with the Eramosa River). The Eramosa River forms the eastern boundary to the subject property, the floodplain of which is regulated by the Grand River Conservation Authority (GRCA).

The field surveys for 2022/2023 detailed within this TOR (most of which have already been completed) have been completed with the goal of characterizing existing natural features in order to determine significance and necessary buffers.

This TOR has been prepared in accordance with the *Guidelines for the Preparation of Environmental Impact Studies* (City of Guelph 2020) as well as the *Guelph Innovation District Guidance for Preparation of Block Plans* (2019). This TOR has also been updated based on comments on previous versions, by City of Guelph and GRCA staff, as well as following the Technical Review Committee (TRC) meeting with City staff on December 13, 2023.

Sincerely,
Natural Resource Solutions Inc.



Nathan Miller, M.Sc., P.Biol.
Senior Biologist

**Guelph Innovation District Lands (Blocks 1 & 2), City of Guelph
Environmental Impact Study - Terms of Reference
December 2023**

Introduction

The proposed Block Plan areas are approximately 115ha in size and are situated north of the intersection of Victoria Road South and Stone Road East, constituting Lots 10, 11, and 12, Division G, City of Guelph (henceforth referred to as 'the subject property').

The majority of the subject property is comprised of former agroforestry and turfgrass test plots utilized by the University of Guelph. Preliminary field surveys conducted by NRSI biologists identified cultural thickets, cultural meadows, small meadow marshes, cultural woodlands, and mixed forests on the subject property. Previous plantations and test plots of trees as part of the University of Guelph studies have since been removed. These trees (mostly hybrid poplars) have since begun to regenerate across the site, requiring ongoing maintenance and mowing to prevent re-establishment of these treed areas.

Surrounding lands include a naturalized area surrounding a stretch of the Eramosa River, found along the north and eastern edge of the subject property, associated with the City NHS. Unevaluated wetlands are found within the subject property. Southeast of Stone Road East, the Eramosa River Blue Spring Creek Wetland Complex and Torrence Creek Swamp occur. These aquatic features and floodplains are regulated by the Grand River Conservation Authority (GRCA). Other Valleylands, Cultural and Significant Woodland, and Fish Habitat (associated with the Eramosa River) are also present in these areas. An Environmental Impact Study (EIS) is required to ensure that no negative impacts will occur to the form and function of NHS components.

Characterization

Collection and Review of Background Information

Background information has been collected for the study area that includes the subject property as well as nearby contiguous natural features that may be influenced by the proposed development.

The following background information sources have already been reviewed in the preparation of the EIS:

- Grand River Conservation Authority (GRCA) mapping;
- Natural Heritage Information Centre (NHIC) database (Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF), 2022);
- Government of Canada SARA Registry (Government of Canada 2021);
- Ontario Breeding Bird Atlas (OBBA) (BSC et al. 2006);
- eBird database (2022);
- Ontario Reptile and Amphibian Atlas (ORAA) (Ontario Nature 2019);
- Ontario Odonata Atlas Database (OOAD; 2022);
- Atlas of the Mammals of Ontario (Dobbyn, 1994);
- iNaturalist database (2022); and
- Ontario Butterfly Atlas (Macnaughton et al., 2022).

Screening for Species at Risk/Significant Wildlife Habitat

A screening for potential Species at Risk (SAR) and Species of Conservation (SCC) that may be present on-site has been undertaken using available background information, in addition to field surveys already carried out on this property in 2019 and 2020. SAR with occurrence records in the vicinity were screened based on comparing their habitat preferences against habitat conditions reported from the subject property. Results of this preliminary screening are provided in Appendix I. In addition, a preliminary screening for potential Significant Wildlife Habitat (SWH) that may be present within the study area was also completed, and is provided in Appendix II.

The results of these screenings have been utilized to inform the proposed field program described below.

Field Surveys

Field surveys were undertaken within the subject property, predominantly within the area south and west of the active rail line although where needed, surveys were also carried out beyond this area to the edge of the Eramosa River (e.g. aquatic habitat assessments, ELC, winter wildlife, etc.). A study area of 240m surrounding the subject was established to assess potential impacts as a result of the proposed undertaking. In these areas, roadside or aerial imagery was used to assess ELC and potentially significant natural heritage features (Map 1).

A map showing specific survey locations has been attached to this report (Map 2). The majority of survey effort was focused on lands to the west of the existing rail line, and as such, a conservative approach to assessing habitats was undertaken to ensure that where targeted surveys were not undertaken, habitats are assumed to be present and addressed accordingly throughout the EIS. The following is a description of the surveys that have been conducted by NRSI in 2022/2023 based on identified background information:

Initial Site Visit and SAR/SWH Assessment

A site visit to the Block Plan areas was completed at the initiation of the project to assess baseline conditions within Blocks 1 and 2. Potential SAR and SCC habitats as well as candidate SWH were assessed to determine if additional surveys are required. Based on these field surveys, no additional surveys are deemed to be necessary to characterize the natural features within the study area, beyond what is proposed within this TOR. Where field surveys to confirm significance were not undertaken, a conservative approach to protection was taken and the habitat assumed to be present.

Bat Habitat Assessment

An inspection of trees and buildings within the subject property has been completed to determine the likelihood of suitable roosting habitat for bats. Cavity tree assessments and searching for leaf roosts have followed guidelines provided by the Ministry of Northern Development, Mines, Natural Resources and Forestry (NDMNRF) in the Survey Protocol for Species at Risk Bats in Treed Habitats (NDMNRF 2017). The bat habitat assessments were focused within the development portions of the Block Plan Areas where potential impacts to these species could occur. However, candidate bat habitat within the woodlands of the NHS will be considered in necessary buffer widths (i.e. Significant Woodlands). All suitable buildings were also assessed for bat habitat in order to determine the potential for use and necessary mitigation measures.

Ecological Land Classification and Three-season Vegetation Inventories

Vegetation communities have been delineated and mapped in accordance with the ELC system for southern Ontario (Lee et al. 1998). Vegetation communities were mapped within the 240m study area around the subject property, although in areas where access was not feasible, roadside or aerial imagery was used to provide coarse level ELC. Vegetation inventories were conducted in conjunction with the delineation of ELC communities, during the spring, summer and fall to ensure a comprehensive list of vascular plant species for the subject property is collected. The subject property was systematically searched for plant species and any rare species will be documented and georeferenced, as access allows. Any rare species or vegetation communities identified and their location(s) were recorded with a handheld GPS unit.

Woodland Dripline Delineation

The driplines of woodlands within the subject property were delineated and recorded using a sub-metre accuracy GPS unit. Site visits were undertaken with City of Guelph staff to confirm the woodland boundaries. The confirmed woodland boundary will be shown on future maps and will assist in informing development constraints.

Wetland Boundary Delineation

Wetland boundaries were delineated in accordance with the Ontario Wetland Evaluation System (OWES) for southern Ontario by OWES-certified NRSI biologists. The boundaries of wetlands within the subject property were flagged and confirmed in the field with the GRCA and City of Guelph staff. The confirmed wetland boundary will be shown on future maps and will assist in informing development constraints. All wetlands within the subject property will be evaluated as per the 4th edition of the OWES manual (2022). In the event that a wetland evaluation is deemed unnecessary, rationale will be provided within the EIS, and a conservative approach to protection provided.

Breeding Bird Surveys

NRSI biologists carried out two early morning breeding bird surveys at various locations within the Block Plan areas. Surveys included the entire subject property, with a focus on the areas south and west of the existing rail line, although point counts were stationed in areas where auditory and visual data could be collected for areas between the rail line and the Eramosa River. The survey methods primarily follow the Ontario Breeding Bird Atlas protocol (OBBA 2001), with modifications from the Forest Birds Monitoring Program (Cadman et al., 1998), to document all bird species and breeding evidence. The breeding bird surveys were completed a minimum of 10 days apart between May 24th and July 10th.

Anuran Call Surveys

Three anuran call surveys were completed at suitable wetland and pond locations within the study area. These surveys were completed in accordance with the Marsh Monitoring Program for Amphibians survey protocol (Bird Studies Canada (BSC), 2009) once in each of April, May and June.

Turtle Basking Surveys

Basking turtle surveys were completed on five separate visits between April and May. These surveys focused on suitable habitats for turtles within the subject property. Surveys were not completed on the Eramosa River as this is known to be turtle habitat.

Surveys were conducted in accordance with the MNRF Survey Protocol for Blanding's Turtle (MNRF 2015).

Turtle Nesting Surveys

Turtle nesting surveys were completed on five evenings between late-May and early-July (contingent on nesting phenology in a given year). Potentially suitable nesting locations were identified within the subject property based on a preliminary review of aerial imagery. These surveys were conducted in accordance with the Blanding's Turtle Nest and Nesting Survey Guidelines developed by the MNRF Guelph District (2016).

Snake Surveys

Visual encounter surveys for snakes were undertaken during all other field surveys when weather conditions permitted. Visual encounter surveys were conducted in high quality microhabitats or microhabitat features. Where high quality microhabitats are clustered, surveys were focused on wooded edges, within vegetation patches, near rock piles, dead stumps, or other notable microhabitat features.

A number of potential snake hibernaculae were identified during field surveys in 2022 and these features were surveyed for significance in the spring of 2023.

Insect Surveys

Three area searches were completed for insect species within the Block Plan areas during June, July and August. A particular focus will be placed on surveying for SCC species such as Monarch (*Danaus plexippus*), Yellow-banded Bumble Bee (*Bombus terricola*) and American Bumble Bee (*Bombus pensylvanicus*) that have been reported from the vicinity of the site.

Winter Wildlife and Raptors

Three targeted area searches have been conducted between December 2022 and March 2023 to identify the presence of wintering raptors and mammal movement within the Block Plan areas.

Headwater Drainage Feature Assessments

Headwater drainage features (HDFs) are known from the subject property based on NRSI's previous project experience in this area. Two HDF assessments were completed, one each in April and June. Based on the results of these surveys, it was deemed that an additional survey in August was unnecessary. Surveys were completed in accordance with the Evaluation, Classification and Management of Headwater Drainage Features Guidelines (Toronto and Region Conservation Authority (TRCA) & Credit Valley Conservation (CVC), 2014) and the Ontario Stream Assessment Protocol (OSAP) Headwater Sampling Protocol (Gorenc & Stanfield, 2017). Each HDF will be assessed to evaluate and classify its functional importance and to identify management recommendations. Fish habitat is not present in the HDFs on the subject property, and as such, electrofishing was not undertaken.

Aquatic Habitat Assessment

An aquatic habitat assessment was completed for the Eramosa River as well as any tributaries that occur within the subject property. The aquatic habitat assessment was completed during the summer and will be conducted in accordance with the Ontario Stream Assessment Protocol (Module S4.M11, Gorenc and Stanfield 2017).

Incidental Wildlife

In addition to the targeted surveys noted above, NRSI biologists will make note of all incidental wildlife observations during all site visits. Observations of lepidoptera, odonata, herpetofauna, bumblebees, mammals, and all other wildlife will be recorded while on-site. This includes direct observations, as well as signs such as dens, tracks, scats, etc.

Tree Inventory

All trees ≥10 cm Diameter at Breast Height (DBH) within and immediately adjacent to the conceptual development area will be tagged and assessed by a Certified Arborist/Registered Professional Forester. Information on DBH, crown radius, health, and potential for structural failure will be collected. Tree locations will be recorded with a GPS unit to sub-metre accuracy and plotted on a map and incorporated into a Tree Inventory and Preservation Plan (TIPP) report.

Reporting

Following the completion of detailed engineering plans in 2023, a formal EIS report will be prepared that will assess potential impacts and necessary mitigation measures in light of this information. This will include the integration of reports pertaining to slope stability, stormwater management, servicing, hydrogeology, grading, among others.

The EIS report will be prepared in support of the Block Plan and Draft Plan for this project, and depending on the level of detail provided for the EIS in support of the Block Plan, an additional EIS for the Draft Plan may not be required – this will be determined by the City following their review of Block Plan materials. In general, the materials included within the EIS will follow Section 4 of the *Guidelines for the Preparation of Environmental Impact Studies* (City of Guelph 2020):

1. **Introduction** – details on the subject property and surrounding lands (study area) will be provided in addition to information on the proposed undertaking including proposed trail layouts;
2. **Background Information and Project Scoping** – information collected during the background review process will be provided including all pertinent details related to significant species, habitats and features. Screening exercises for Significant Wildlife Habitat (SWH) and Species at Risk (SAR) will also be included as part of this report component.
3. **Characterization of Natural Features** - using data collected during the completion of field studies and the background information review, sensitive biological features within the Block Plan areas will be identified along with appropriate buffers. This characterization will include a description of natural features associated with the Significant Natural Areas and Natural Areas located along the Eramosa River within each of the Block Plan areas in addition to any other features that require consideration (e.g. surface or groundwater hydrological features, natural hazards, etc.). As part of the characterization process, NRSI will also assess wildlife habitat connectivity across the study area including for any linkages between significant habitats.
4. **Significance and Sensitivity Analysis** – an evaluation of significance for the natural heritage features identified on the subject property and broader study

area will be undertaken in the context of relevant natural heritage policies (municipal, provincial, federal). Mapping will be prepared that identifies these sensitive features and necessary buffers and/or enhancements.

5. **Impact Analysis and Mitigation/Enhancement Measures** - an assessment of impacts associated with the development of the Block Plan areas will be provided that describes recommendations for development as well as mitigation, enhancement and restoration measures to ensure no negative impacts occur to natural features and areas adjacent to the proposed development areas. The details of the proposed development, and construction/disturbance limits will be reviewed and compared to the existing natural features and identified habitats in the study area.

Management goals and recommendations provided in the Eramosa River Blue Springs Creek Watershed Study (Beak et al. 1999) will be integrated in the EIS where possible. NRSI will incorporate the findings of the project team reports including hydrogeological studies, geotechnical studies, stormwater management reports, and carbon sequestration assessments to ensure that all potential impacts are appropriately assessed and mitigated.

Anticipated impacts and associated mitigation measures will be discussed where there are any areas of conflict between significant features or ecological functions and the proposed development. The analysis of impacts will be divided into:

- a. **Direct impacts** associated with disruption or displacement caused by the actual proposed 'footprint' of the proposed development, direct impacts to vegetation, wildlife and/or their habitats. A TIPP report will be prepared as a stand-alone report that will also address direct impacts of tree removal. A summary of this report will be included in the EIS report.
- b. **Indirect impacts** associated with changes in site conditions such as alterations to groundwater in terms of quantity and quality. This will include an analysis of potential impacts of salt use; a salt management plan will be prepared as part of the EIS. In addition, a monthly water balance analysis will be provided for each feature (e.g. discreet wetlands or watercourses) in order to ensure no negative impacts as a result of changes to hydrology. Infiltration targets are to be provided as part of this analysis. An erosion and sediment control plan will be provided across the site that will ensure the prevention of sediment laden runoff to receivers. This section will also include potential disturbances to vegetation and wildlife arising from the proposed development such as noise, vibration, and dust. Recommendations for restoration and enhancement will include areas of surfacewater and fish habitat within riparian areas.
- c. **Induced impacts** associated with increased use of, or pressure on the natural heritage features will be assessed as well as necessary mitigation measures (education, signage, fencing, etc.).
- d. **Cumulative impacts** will also be assessed in terms of the overall pressure on the natural heritage features from incremental development within adjacent lands;

6. **Policy Analysis** – an analysis will be undertaken within the EIS to review the proposed proposal and how it conforms with GRCA, City, provincial, and federal policies.
7. **Trail and Active Transportation** – the EIS will provide a detailed analysis of proposed refinements to the trail network and any active transportation within the subject property. This will include an analysis and demonstration of the feasibility of accommodating an active transportation link across the Eramosa River between GID Blocks 1 and 4, as per Schedule A of the GID Secondary Plan. The assessment of the trail network will require an assessment of how this can be accomplished in accordance with City policies pertaining to the NHS. Where refinements require engineering input in terms of grading, tree removal, etc., this will be incorporated into the impact analysis of the EIS. A map will be provided that will detail the locations of trails and ad hoc trails on the subject property.
8. **Evaluation of Alternative Options** – where necessary, alternative options for certain aspects of the development will be explored in order to determine the best options for development and protection of natural heritage features.
9. **Recommendations & Monitoring** – recommendations will be made to avoid, minimize or mitigate any potential impacts on the significant natural features. A summary table will be provided at the end of the EIS report listing all recommendations that are to be integrated at future project stages. Measures for avoidance and mitigation of construction, and all identified impacts will be provided along with details of timing, duration, and location. Management objectives for the NHS and urban forest will be provided within the EIS and will include items such as plantable spaces, meadow habitat, pollinator habitat, invasive species removal and management, etc.

A detailed monitoring plan will be provided as part of the EIS depending on the types of natural heritage features identified during the characterization of the subject property. This will include information related to during and post-construction (mitigation effectiveness) monitoring. Details on objectives, methodology/timing, locations, monitoring parameters, analysis, thresholds, and contingency measures will be provided as part of this plan. The details provided in the EIS will form the basis for the monitoring program recommendations to be implemented at the Environmental Implementation Report (EIR) stage of development.

Groundwater monitoring will be conducted at the subject property to assess hydrogeological conditions; including, shallow groundwater flow direction, seasonal high groundwater levels, and groundwater and surface water interactions. A groundwater monitoring program has been initiated at the subject property by MTE and includes the following tasks:

- One-time development and single-well response testing of approx. 13 monitoring wells;
- Collection of one groundwater sample from select monitoring wells to obtain background general groundwater chemistry;
- Installation of dedicated pressure transducers (data loggers) to collect groundwater levels on a continuous basis in select monitoring; and,
- Collection of stabilized groundwater levels from the monitoring wells on a quarterly basis.

Additional monitoring stations installed at the subject property to address data gaps and support engineering decisions would be included in the on-going monitoring program. Monitoring is expected to occur for a minimum of 2 years. The following will be included in the hydrogeological investigation report:

- Two local scale geological cross-sections of the subject property;
- Hydrographs illustrating groundwater elevations for both manually collected groundwater elevations and groundwater elevations as collected by the pressure transducers;
- A groundwater table flow map to assess groundwater separation distances;
- Assessment of groundwater levels, flow direction, and chemistry;
- Assessment of potential impacts of the development on groundwater resources; and,
- Assessment of construction and permanent dewatering volumes (if required).

Additional monitoring may be required if any dewatering occurs during the development/construction phase of the project.

10. Conclusions – a brief summary will be provided that will include a list of all steps to completed as part of the mitigation, enhancement, and monitoring plan, including materials to be provided in the EIR.

References

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Appendix II
Species at Risk and Species of Conservation Concern Screening Table

Species at Risk/Species of Conservation Concern Screening

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Record Source	Habitat Requirements	Suitable Habitats within Subject Property	Rationale
Birds										
<i>Ammodramus savannarum</i>	Grasshopper Sparrow	S4B	SC	SC	SC	Schedule 1	OBBA (BSC et al. 2006)	Well-drained grassland or prairie with low cover of grasses, taller weeds or sandy soil; hayfields or weedy fallow fields; uplands with ground vegetation of various densities. Requires perches for singing and tracts of grassland generally >5ha. ^{3,4}	Yes	The open upland cultural meadow provide suitable habitat for this species and it was observed in these areas during breeding bird surveys.
<i>Chaetura pelagica</i>	Chimney Swift	S3B	THR	T	T	Schedule 1	OBBA (BSC et al. 2006)	Commonly found in urban areas near buildings; nests in chimneys, hollow trees, and crevices of rock cliffs. Feeds over open water. ^{3,4}	No	Suitable nesting habitat is not present within the subject property for this species.
<i>Contopus virens</i>	Eastern Wood-pewee	S4B	SC	SC	SC	Schedule 1	OBBA (BSC et al. 2006)	Mid-canopy layer of forest clearings and edges of deciduous and mixed forest. Abundant in intermediate-age mature forest stands with little understory vegetation. ^{3,4}	Yes	Suitable edge habitat is present within the deciduous woodlands on the subject property. This species was observed during breeding bird surveys.
<i>Dolichonyx oryzivorus</i>	Bobolink	S4B	THR	T	T	Schedule 1	OBBA (BSC et al. 2006; eBird 2022)	Large (>10 ha), open expansive grasslands, pastures, hayfields, meadows or fallow fields with dense ground cover. Occasionally nest in large (>50 ha) fields of winter wheat and rye in southwestern Ontario. ^{3,4}	Yes	Suitable large open cultural meadow areas are present within the subject property and this species was observed during field surveys.
<i>Hirundo rustica</i>	Barn Swallow	S4B	THR	SC	T	Schedule 1	OBBA (BSC et al. 2006; eBird 2022)	Farmlands, rural areas and other open or semi-open areas near body of water. Nests almost exclusively on human-made structures such as open barns, buildings, bridges and culverts. ^{3,4}	Candidate	The subject property contains open areas adjacent to the Eramosa River, which may provide suitable foraging habitat for this species. No nesting was observed, although this species was observed to be widely foraging through the subject property during surveys.
<i>Hylocichla mustelina</i>	Wood Thrush	S4B	SC	T	T	Schedule 1	OBBA (BSC et al. 2006)	Carolinian and Great Lakes-St. Lawrence forest zones. Undisturbed moist mature deciduous or mixed forest with deciduous sapling growth. Near pond or swamp. Must have some trees higher than 12 m. ^{3,4}	No	Deciduous woodlands are of insufficient size and composition to support this species.
<i>Ixobrychus exilis</i>	Least Bittern	S4B	THR	T	T	Schedule 1	OBBA (BSC et al. 2006)	Strongly prefers cattail marshes with a mix of open pools and channels. Also found in swamps and bogs and marshy borders of lakes, ponds, streams and ditches with dense emergent vegetation of cattail, bulrush and sedge. Nests in cattails. Intolerant of loss of habitat and human disturbance. ^{3,4}	No	Suitable wetland and aquatic habitat is not present on the subject property.

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Record Source	Habitat Requirements	Suitable Habitats within Subject Property	Rationale
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	S3	END	E	E	Schedule 1	OBBA (BSC et al. 2006)	Open, deciduous forest with little understory; fields, parks or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees. Requires cavity trees with at least 40 cm dbh. ^{3,4}	Candidate	Open cultural fields, suitable cavity trees, and forest edge habitat are present in the subject property. This species was not observed during breeding bird surveys.
<i>Riparia riparia</i>	Bank Swallow	S4B	THR	T	T	Schedule 1	OBBA (BSC et al. 2006; eBird 2022)	Nests in burrows in natural and human-made settings with vertical faces in silt and sand deposits. Usually on banks of river and lakes, but also found in sand and gravel pits. ^{3,4}	No	Cliffs found around the subject property may support this species.
<i>Sturnella magna</i>	Eastern Meadowlark	S4B, S3N	THR	T	T	Schedule 1	OBBA (BSC et al. 2006); eBird 2022	Open pastures, hayfields, grasslands or grassy meadows with elevated singing perches (small trees, shrubs or fence posts). Also weedy borders of croplands, roadsides, orchards, airports, shrubby overgrown fields or other open areas. Generally prefers larger tracts of habitat >10 ha, but will sometimes use smaller tracts. ^{3,4}	Yes	Suitable large open cultural meadow areas are present within the subject property and this species was observed during field surveys.
Herpetofauna										
Turtles										
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1	Ontario Nature 2019; iNaturalist 2022; NDMNRF 2022)	Slow-flowing rivers and streams, lakes, and permanent or semi-permanent wetlands with soft substrates and vegetation. Key habitat requirements: open areas with structures for basking, open sand or gravel areas for nesting, shallow areas with soft substrates to bury in, soft banks or substrates for hibernation. ³	Confirmed	The Eramosa River provides suitable wintering habitat for this species. No nesting or wintering of this species was observed within the small wetlands or ponds internal to the subject property.
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1	Ontario Nature 2019; iNaturalist 2022; NDMNRF 2022)	Ponds, marshes, slow-moving streams and creeks with soft substrates, abundant basking opportunities (logs, stumps, hammocks, shorelines, rocks). Sandy or gravelly soils required for nesting.	Confirmed	The pond on the subject property provides marginal habitat for this species. The Eramosa River has suitable emergent vegetation, substrates suitable for overwintering and nesting, and basking opportunities. This species was observed during turtle surveys but was not found to be nesting.
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence population)	S3	THR	E	T	Schedule 1	Ontario Nature 2019	Eutrophic, shallow wetlands such as marshes, ponds, swamps, bogs, fens, or coastal wetlands, with soft, muddy substrates, abundant aquatic vegetation, and basking structures (logs, stumps, hummocks). Large overland movements occur between aquatic habitats and to open sandy or gravelly areas for nesting. Forest habitat is important for upland movements. Overwintering typically occurs in permanent wetlands. ⁵	No	Wetlands and watercourses are of insufficient composition to support this species.

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Record Source	Habitat Requirements	Suitable Habitats within Subject Property	Rationale
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1	Ontario Nature 2019; iNaturalist 2022; NDMNRF 2022)	Large bodies of water such as rivers and lakes with soft bottoms, aquatic vegetation, abundant mollusc prey, and basking structures such as logs or rocks. Nesting occurs in open areas with soft substrates such as sand or gravel. Hibernate on the bottom of deep areas of lakes or deep, slow-moving sections of rivers. ³	No	Suitable aquatic habitat is not present on the subject property. This species is not known from the Eramosa River or nearby areas.
Snakes										
<i>Lampropeltis triangulum</i>	Milksnake	S4	NAR	SC	SC	Schedule 1	Ontario Nature 2019; NDMNRF 2022)	Farmlands, meadows, hardwood or aspen stands; pine forest with brushy or woody cover; river bottoms or bog woods; hides under logs, stones, or boards or in outbuildings; often uses communal nest sites.	Candidate	The subject property contains suitable open upland and forest edge habitat favoured by this species.
<i>Thamnophis sauritus septentrionalis</i>	Northern Ribbonsnake	S4	SC	SC	SC	Schedule 1	Ontario Nature 2019	Sunny grassy areas with low dense vegetation near bodies of sha ³ llow permanent quiet water; wet meadows, marshes, borders of ponds, lakes or streams. ³	Candidate	Suitable habitat is present within the subject property at grassy areas near wetlands.
Frogs and Toads										
<i>Pseudacris triseriata</i> pop.1	Western Chorus Frog (Great Lakes - St. Lawrence - Canadian Shield population)	S4	NAR	T	T	Schedule 1	Ontario Nature 2019; NDMNRF 2022)	Moist forest, prairie, meadows, cultural meadows, or marshes. Breeds in shallow, temporary, fishless wetlands, including flooded ditches, marshes, flooded fields, pastures, temporary ponds, pools, and swamps. Hibernates in terrestrial habitats under rocks, logs, leaf litter, loose soil, or in animal burrows. ⁹	No	This speices was not observed during anuran call surveys and suitable habitat is not generally present for this species.
Mammals										
<i>Lasionycteris noctivagans</i>	Silver-haired Bat	S4	END	E	NS		Ontario Species at Risk Evaluation Report for Silver-haired bat Bat (COSSARO 2024).	Roosting by Silver-haired Bats occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Silver-haired Bats roost in a variety of large diameter coniferous and deciduous trees. Unlike lasiurines, where use of anthropogenic structures is rare, Silver-haired Bats may occasionally roost in or on buildings, especially during migration when natural roosting sites may be scarce	Yes	The treed features within the subject property may act as suitable foraging habitat for this species.
<i>Lasiurus borealis</i>	Eastern Red Bat	S4	END	E	NS		Ontario Species at Risk Evaluation Report for Eastern Red Bat (COSSARO 2024).	Summer habitat is characterized as foraging, drinking and roost sites which are primarily deciduous and coniferous forests of any age class. Roosting occurs among the foliage of trees and occasionally shrubs but tend to be on large diameter and tall trees reaching or exceeding the height of the surrounding canopy. Roost behaviour and well-camouflaged fur results in roosts being highly cryptic. Roost sites are selected based on overhead foliage for cover with open flight space below.	Yes	The treed features within the subject property may act as suitable foraging habitat for this species.
<i>Lasiurus cinereus</i>	Hoary Bat	S4	END	E	NS		COSEWIC Assessment and Status Report on the Hoary Bat, Eastern Red Bat and Silver-haired Bat in Canada (COSEWIC 2023).	Habitat requirements for this species include foraging, drinking, and roosting habitats, with the latter considered the most limiting. The species roost in trees and by hanging from branches.	Yes	The treed features within the subject property may act as suitable foraging habitat for this species.
<i>Microtus pinetorum</i>	Woodland Vole	S3?	SC	SC	SC	Schedule 1	Dobbyn 1994	Mature deciduous forest in the Carolinian region where there is a deep litter layer that allows it to burrow. ^{3,4}	No	Suitable mature forest habitat is not present within the study area.

Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Record Source	Habitat Requirements	Suitable Habitats within Subject Property	Rationale
<i>Myotis leibii</i>	Eastern Small-footed Myotis	S2S3	END				Dobbyn 1994	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland. Hibernates in cold dry caves or mines. Maternity colonies in caves or buildings. Hunts in forests. ^{3,4}	Yes	The treed features within the subject property may act as suitable foraging habitat for this species.
<i>Myotis lucifungus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994	Uses caves, quarries, tunnels, hollow trees or buildings for roosting. Winters in humid caves. Maternity sites in dark warm areas such as attics and barns. Feeds primarily in wetlands and forest edges. ^{3,4}	Yes	Suitable treed habitat for foraging is present within the subject property, and potential bat cavity trees have been identified.
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1	Dobbyn 1994	Roosts in houses and man-made structures but prefers hollow trees or under loose bark. Hibernates in mines or caves. Hunts within forest, below the canopy. ^{3,4}	Yes	Suitable treed habitat for foraging is present within the subject property, and potential bat cavity trees have been identified.
<i>Perimyotis subflavus</i>	Tri-colored Bat	S3?	END	E	E	Schedule 1	Dobbyn 1994	Roosts and maternity colonies in older forests and occasionally in barns or other sturctures. Forage over water and along streams in the forest. Hibernate in caves. ^{3,4}	Yes	Suitable treed and aquatic habitat for foraging is present within the subject property, and potential bat cavity trees have been identified.
<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario population)	S2	END	E	E	Schedule 1	Dobbyn 1994	Open grasslands, oak savannahs, sand barrens and farmland. ^{3,4}	No	Dens or other evidence of badger nesting were not observed during field surveys. This species would be considered very rare in this part of Ontario.
Butterflies										
<i>Asterocampa clyton</i>	Tawny Emperor	S2S3					Macnaughton et al. 2022	Forests and hedgerows with abundant Common Hackberry (<i>Celtis occidentalis</i>). ¹¹	No	Hackberry was not observed within the subject property.
<i>Danaus plexippus</i>	Monarch	S2N, S4B	SC	END	SC	Schedule 1	Macnaughton et al. 2022; inaturalist 2022)	Adults found in a diversity of habitats with a variety of wildflowers. Caterpillars are confined to meadows and open areas where milkweeds grow (larval food plants). ³	Yes	Milkweed is present throughout the subject property and this species was observed during field surveys.
<i>Pieris virginiensis</i>	West Virginia White	S3	SC				Macnaughton et al. 2022	Rich, moist, deciduous woods with populations of Two-leaved Toothwort (<i>Cardimine diphylla</i> ; larval food plant). ³	No	Suitable mature deciduous forest is not present on the subject property. Toothwort was not observed during field surveys.
Odonates										
<i>Libellula semifasciata</i>	Painted Skimmer	S3					NDMNRF 2022	Shallow, vegetated ponds and pools. ²⁹	No	This species is a migrant in this part of Ontario and is not known to breed.
<i>Epiaeschna heros</i>	Swamp Darner	S3S4					NDMNRF2022	Swamps, wooded ponds. ²⁹	Yes	This species was observed during field surveys foraging within upland habitats. Suitable habitat for this species may occur within the wetlands near the Eramosa River.

									Suitable Habitats within Subject Property	Rationale
Scientific Name	Common Name	S-RANK ¹	SARO ¹	COSEWIC ²	SARA ²	SARA Schedule ²	Record Source	Habitat Requirements		
Plants and Lichens										
<i>Gymnocladus dioicus</i>	Kentucky Coffee-tree	S2	THR	T	T	Schedule 1	NRSI 2022	Rich mesic and floodplain forests. ²³	No	A planted tree is present on the subject property but is not considered to be native.
<i>Juglans cinerea</i>	Butternut	S2?	END	E	E	Schedule 1	NRSI 2022	Stream banks and swamps, as well as upland beech-maple, oak-hickory, and mixed hardwood stands. ¹⁰	Yes	A few hybrid Butternut were observed within the subject property, but are not protected under the ESA regulations.
<i>Ptelea trifoliata ssp. trifoliata</i>	Common Hop-tree	S3	SC	SC	SC	Schedule 1	NDMNRF 2022	Forested to open dunes, sandy fields and knolls, fencerows and dry bluffs or banks. Rarely in moister sites along rivers and edges of floodplain forests. ²³	Yes	Suitable habitat is present, however, this species has not been observed despite extensive vegetation inventories on the subject property.
<i>Psora dicipians</i>	Blushing Scale Lichen	S3					NDMNRF 2022	Dry upland areas, fully exposed to the sun.	Yes	Suitable habitat may be present for this species within the study area, although it was not observed during field surveys.

¹ Ministry of Natural Resources and Forestry (MNRF). 2021. Natural Heritage Information Centre (NHIC): Species List for Ontario. Published: 2014-06-23. All Species List Updated: 2021-03-18. Available: <https://www.ontario.ca/page/get-natural-heritage-information>

² Government of Canada. 2021. Species at Risk Public Registry: Species Search. Updated: 2021-02-02. Available: <https://species-registry.canada.ca/index-en.html#/species?sortBy=commonNameSort&sortDirection=asc&pageSize=10>

³ Ministry of the Environment, Conservation, and Parks (MECP). 2020. Species at Risk in Ontario. Published: 12-07-2018. Updated: 09-11-2020. Available: <https://www.ontario.ca/page/species-risk-ontario>

⁴ Ontario Ministry of Natural Resources (OMNR). 2000. Significant Wildlife Habitat Technical Guide. Appendix G: Wildlife Habitat Matrices and Habitat Descriptions for Rare Vascular Plants. October 2000.

⁵ Ministry of the Environment, Conservation and Parks. 2019. Recovery Strategy for the Blanding’s Turtle (*Emydoidea blandingii*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. Ad 8 Ontario Wood Turtle Recovery Team. 2010. Recovery strategy for the Wood Turtle (*Glyptemys insculpta*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources. vi + 25 pp. <https://www.ontario.ca/page/wood-turtle-recovery-strategy> 9 Seburn, D.C. 2010. Recovery strategy for the Common Five-lined Skink (*Plestiodon fasciatus*) – Carolinian and Southern Shield populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 22 pp. <https://www.ont> 10 Willson, R.J. and G.M. Cunnington. 2015. Recovery Strategy for the Blue Racer (*Coluber constrictor foxii*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vi + 35 pp. <https://www.ontario.ca/page/blue-r> 11 Kraus, T. 2011. Recovery Strategy for the Eastern Hog–nosed Snake (*Heterodon platirhinos*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. i + 6 pp + Appendix vi + 24 pp. Adoption of the Recovery Strategy for the 12 Eastern Foxsnake Recovery Team. 2010. Recovery strategy for the Eastern Foxsnake (*Pantherophis gloydi*) – Carolinian and Georgian Bay populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 39 pp. <http>: 13 Kraus, T., B. Hutchinson, S. Thompson and K. Prior. 2010. Recovery Strategy for the Gray Ratsnake (*Pantherophis spiloides*) – Carolinian and Frontenac Axis populations in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontari

⁶ Gillingwater, Scott. D. 2011. Recovery Strategy for the Queensnake (*Regina septemvittata*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 34 pp. <https://www.ontario.ca/page/queensnake-recovery-strategy#se> 15 Ministry of the Environment, Conservation and Parks (MECP). 2018. Massasauga Rattlesnake General Habitat Description. Updated: July 9, 2021 Published: December 19, 2018. <https://www.ontario.ca/page/massasauga-rattlesnake-general-habitat-description>

⁷ Ministry of the Environment, Conservation and Parks. 2019. Recovery Strategy for the Butler’s Gartersnake (*Thamnophis butleri*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 6 pp. + Appendix. A

⁸ Linton, J, J. McCarter and H. Fotherby 2018. Recovery Strategy for the Jefferson Salamander (*Ambystoma jeffersonianum*) and Unisexual *Ambystoma* (Jefferson Salamander dependent population) (*Ambystoma laterale* - (2) jeffersonianum) in Ontario. Ontario Recovery Strategy Series. Prepare 18 Hossie, Thomas, J. 2018. Recovery Strategy for Small-mouthed Salamander (*Ambystoma texanum*) and Unisexual *Ambystoma* Small-mouthed Salamander dependent population (*Ambystoma laterale* - texanum) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry 19 Markle, T.M., A.R. Yagi and D.M. Green. 2013. Recovery Strategy for the Allegheny Mountain Dusky Salamander (*Desmognathus ochrophaeus*) and the Northern Dusky Salamander (*Desmognathus fuscus*) in Ontario. Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Reso 20 Green, David M., Anne R. Yagi, and Stewart E. Hamill. 2011. Recovery Strategy for the Fowler’s Toad (*Anaxyrus fowleri*) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources, Peterborough, Ontario. vi + 21 pp. <https://www.ontario.ca/page/fowl>

⁹ COSEWIC. 2008. COSEWIC Assessment and Update Status Report on the Western Chorus Frog *Pseudacris triseriata* Carolinian population and Great Lakes/St. Lawrence - Canadian Shield Population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp. (ww 22 Environment and Climate Change Canada. 2018. Recovery Strategy for the Skillet Clubtail (*Gomphus ventricosus*) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. vi + 25 pp.

¹⁰ A. A. Reznicek, E. G. Voss, & B. S. Walters. Michigan Flora Online. University of Michigan. Published: February 2011. Available: <https://michiganflora.net/genus.aspx?id=Sium>.

¹¹ Flora of North America Editorial Committee, eds. 1993+. Flora of North America North of Mexico [Online]. 22+ vols. New York and Oxford. Available: <http://beta.floranorthamerica.org>.

25 DFO. 2016. Management Plan for the Deepwater Sculpin (*Myoxocephalus thompsonii*) in Canada (Great Lakes-Western St. Lawrence populations). Species at Risk Act Management Plan Series. Fisheries and Oceans Canada, Ottawa. vi + 30 pp.

¹² Canadian Biodiversity Information Facility. 2002. Updated: 2014-07-09. Available: <https://www.cbif.gc.ca/eng/species-bank/butterflies-of-canada/>

27 Ministry of Natural Resources and Forestry. 2018a. Waterloo SAR List.

28 Ministry of Natural Resources and Forestry. 2018b. Waterloo Region SAR List.

29 Paulson. 2011. Dragonflies and Damselflies of the East . Princeton Field Guides, New Jersey. 535pp.

Appendix III
Significant Wildlife Habitat Screening Tables

Significant Wildlife Habitat Type	Presence Within Study Area	Presence Within Subject Property	Assessment Details
Seasonal Concentration Areas			
Waterfowl Stopover and Staging Areas (Terrestrial)	Not Present	Not Present	Spring sheet flooding is not known to occur within the subject property. Within the study area, meltwater and run-off are expected to drain into the Eramosa River.
Waterfowl Stopover and Staging Areas (Aquatic)	Candidate	Not Present	The subject property does not contain suitable aquatic features to support migrating waterfowl. The Eramosa River immediately adjacent to the subject property provides candidate SWH as it is a large body of water.
Shorebird Migratory Stopover Area	Not Present	Not Present	Shorebird stopover habitat is largely associated with large wetlands or the shoreline areas of the Great Lakes. The Eramosa River and associated wetlands are heavily vegetated and do not provide suitable mudflats, bars, or banks to support such concentrations of shorebirds.
Raptor Wintering Area	Not Present	Not Present	The woodlands in the study area are generally of insufficient size to be considered candidate SWH for wintering raptors. Winter wildlife surveys in 2022/2023 did not document congregations of wintering raptors.
Bat Hibernacula	Not Present	Not Present	Caves, mine shafts, underground foundations, and karsts are not present in the subject property or study area.
Bat Maternity Colonies	Candidate	Candidate	The woodlands in the subject property may provide suitable bat maternity colony habitat. Snag counts are not to be undertaken in woodlands that are part of the NHS, and as such the woodlands will be assumed to be candidate SWH.
Turtle Wintering Area	Confirmed	Not Present	The Eramosa River provides confirmed Turtle Wintering Habitat, although none of the wetlands on the subject property were found to provide suitable habitat as they do not provide open water. The human constructed pond near the existing Agriscience building was a found to have basking painted turtles, although such features are not considered SWH.
Reptile Hibernaculum	Possible	Possible	Candidate snake hibernacula have been identified within the subject property. Snake emergence surveys at these locations did not identify the presence of snakes. It is anticipated that the areas of exposed bedrock near cliffs within the NHS provide suitable hibernation sites for snakes, although specific locations were not identified through this study.
Colonially - Nesting Bird Breeding Habitat (Bank and Cliff)	Not Present	Not Present	No suitable banks are present that would provide suitable breeding habitat for these species, including along the Eramosa River. The cliffs on the subject property within the woodlands are heavily treed and are also not suitable nesting locations.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs)	Possible	Not Present	No large stick nests were identified within the subject property, although it is possible that some colonies are present within the study area along the Eramosa River.
Colonially - Nesting Bird Breeding Habitat (Ground)	Not Present	Not Present	Rocky islands and peninsulas are not present within the subject property or study area.
Migratory Butterfly Stopover Areas	Not Present	Not Present	The study area does not occur within 5km of Lake Ontario.
Landbird Migratory Stopover Areas	Not Present	Not Present	The study area does not occur within 5km of Lake Ontario.
Deer Yarding Areas	Not Present	Not Present	This habitat has not been identified to occur within the subject property or study area by the MNRF.
Deer Winter Congregation Areas	Not Present	Not Present	This habitat has not been identified to occur within the subject property or study area by the MNRF. Treed features within the study area are not greater than 100ha.
Rare Vegetation Communities			
Cliff and Talus Slopes	Confirmed	Confirmed	(CLT1-1) White Cedar Treed Carbonate Cliff Type has been documented to occur along the north and northeastern perimeters of the subject property.
Sand Barrens	Not Present	Not Present	The identified ELC communities do not occur within the study area.
Alvar	Not Present	Not Present	The identified ELC communities do not occur within the study area.
Old Growth Forest	Not Present	Not Present	The treed features within the subject property and study area are not of suitable maturity to be considered old growth forest.
Savannah	Not Present	Not Present	The identified ELC communities do not occur within the study area.
Tallgrass Prairie	Not Present	Not Present	The identified ELC communities do not occur within the study area.
Other Rare Vegetation Communities	Not Present	Not Present	No other provincially rare vegetation communities occur within the subject property or study area.
Specialized Wildlife Habitat			
Waterfowl Nesting Area	Candidate	Candidate	The Eramosa River, nearby ponds of the Correctional Facility and adjacent upland areas may provide suitable habitat for these species including within the subject property east of the rail line. The isolated wetlands away from the river do not provide suitable breeding habitat for these species (no open water).
Bald Eagle and Osprey Nesting, Foraging and Perching Habitat	Possible	Not Present	Treed areas adjacent to the Eramosa River shoreline may provide nesting habitat for these species in the study area. No large stick nests or nesting platforms are present in the subject property based on field surveys.
Woodland Raptor Nesting Habitat	Not Present	Not Present	Woodlands of suitable size with sufficient interior habitat are not present in the subject property or study area.
Turtle Nesting Areas	Possible	Possible	Nesting surveys were undertaken within the subject property, focusing on the anticipated development area, and did not document turtle nesting. It is likely that turtle nesting occurs elsewhere in the study area near the Eramosa River (or even within the broader subject property) and associated wetlands, but no specific candidate areas have been identified.
Seeps and Springs	Possible	Not Present	No seeps were identified during field surveys, although it is possible some are present more widely throughout the study area.
Amphibian Breeding Habitat (Woodland)	Not Present	Not Present	No SWH for amphibian breeding was found in the subject property based on anuran call surveys. The Eramosa River generally has significant flow and would not be considered suitable amphibian breeding.
Amphibian Breeding Habitat (Wetland)	Not Present	Not Present	Isolated wetlands are not present in the study area.
Woodland Area-Sensitive Bird Breeding Habitat	Not Present	Not Present	Woodlands of suitable size with sufficient interior habitat are not present in the subject property or study area.
Habitat for Species of Conservation Concern			
Marsh Bird Breeding Habitat	Not Present	Not Present	Suitable marsh breeding habitat of sufficient size and composition to support the indicator species is not present. Wetlands do not generally have open water and emergent vegetation that would support these species.
Open Country Bird Breeding Habitat	Not Present	Not Present	Open grassland habitat does not reach the 30ha size requirement for significance.
Shrub/Early Successional Bird Breeding Habitat	Not Present	Not Present	Brown Thrasher (PO), Field Sparrow (PR), Eastern Towhee (PO), and Willow Flycatcher (PR) were observed across the subject property, however, the functional breeding habitat for thicket nesting birds is <10ha in size. Given the presence of indicator species, should breeding be found to be 'Probable' or 'Confirmed' for the indicator species, this habitat would be considered to be confirmed.
Terrestrial Crayfish	Possible	Not Present	No crayfish chimneys were identified despite extensive field surveys on the subject property. It is possible suitable habitat is present more widely throughout the study area.
Special Concern and Rare Wildlife Species	Possible	Possible	A number of SCC were identified within the subject property, although the characteristics of these habitat types are not considered to be SWH.
Animal Movement Corridors			
Amphibian Movement Corridors	Not Present	Not Present	Only considered when SWH is confirmed for Amphibian Breeding (Wetland).
Deer Movement Corridors	Not Present	Not Present	Deer Wintering Habitat has not been identified to occur in the study area by the NDMNRF.
Exceptions			
EcoDistrict 6E-14 Mast Producing Areas	Not Present	Not Present	The subject property and study area are not in Ecodistrict 6E-14.
EcoDistrict 6E-17 Lek	Not Present	Not Present	The subject property and study area are not in Ecodistrict 6E-17.

Appendix IV
Vascular Flora Species Reported from the Study Area

*NHIC Atlas Squares: 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421

[illegible]

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Appendix V
Bird Species Reported from the Study Area

Scientific Name	Common Name	SRANK	SARO	COSEWC	SARA	SARA Schedule	City of Guelph Status	eBird 2022	iNaturalist 2022	University of Guelph Arboretum	OBBA*	NHIC Data**	NRSI Observed: Highest Level of Breeding Evidence	BMB-001	BMB-002	BMB-003	BMB-004	BMB-005	BMB-006	BMB-007	BMB-008	BMB-009	BMB-010	BMB-011	Other Observations
		NMNRFP 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	eBird 2022	iNaturalist 2022	University of Guelph 2021	OBBA* BSC et al. 2006	NHIC Data** NMNRFP 2022	NRSI Results from 2022												
Anatidae	Ducks, Geese & Swans																								
<i>Aix sponsa</i>	Wood Duck	S5B, S3N						OB		X	CO														
<i>Anas crecca</i>	Green-winged Teal	S4B, S4N, S5M					X	OB		X															
<i>Anas platyrhynchos</i>	Mallard	S5					OB	OB		X	CO		PR	OB		PR	PR			PO				OB	
<i>Anas rubripes</i>	American Black Duck	S4						OB		X															
<i>Anser caerulescens</i>	Snow Goose	S5B								X															
<i>Ardeya collaris</i>	Ring-necked Duck	S5B, S4N					X		OB																
<i>Branta canadensis</i>	Canada Goose	S5						OB		S5	CO		PO	OB	OB	OB	PO	OB	OB	OB				OB	
<i>Branta hutchinsii</i>	Cackling Goose	S1B, S4M								X															
<i>Bucephala albeola</i>	Bufflehead	S5						OB		X															
<i>Bucephala clangula</i>	Common Goldeneye	S5						OB		X															
<i>Cygnus columbianus</i>	Tundra Swan	S2B, S4N, S3M								X															
<i>Lophodytes cucullatus</i>	Hooded Merganser	S5						OB	OB	X			OB											OB	
<i>Mergus merganser</i>	Common Merganser	S5					X	OB	OB	X	CO		PO				PO								
<i>Mergus serrator</i>	Red-breasted Merganser	S5					X			X															
<i>Oxyura jamaicensis</i>	Ruddy Duck	S3B, S4N, S5M					X	OB																	
<i>Statula discors</i>	Blue-winged Teal	S3B, S4M								X															
Odontophoridae	New World Quails																								
<i>Colinus virginianus</i>	Northern Bobwhite	S1TB	END	E	E	Schedule 1	X			X															
Phasianidae	Partridges, Grouse & Turkeys																								
<i>Bonasa umbellus</i>	Ruffed Grouse	S5								X	PR		OB											OB	
<i>Meleagris gallopavo</i>	Wild Turkey							OB		X	PO		OB											OB	
Podicipediformes	Grebes																								
<i>Podilymbus podiceps</i>	Pied-billed Grebe	S4B, S2N						OB		X	CO														
Columbidae	Pigeons & Doves																								
<i>Columba livia</i>	Rock Pigeon	SNA						OB		X	CO		OB	OB			OB								
<i>Ectopistes migratorius</i>	Passenger Pigeon	SX	EXT	X	NS	No schedule				X															
<i>Zenaidura macroura</i>	Mourning Dove	S5						OB	</																

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*OBBA Atlas Square: 17NJ62
 **NHIC Atlas Squares: 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421

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Appendix VI
Herpetofauna Species Reported from the Study Area

Reptile and Amphibian Species Reported from the Study Area - GID Lands EIS (Project #2851)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	iNaturalist	University of Guelph Aboretum	ORAA*	NHIC Data**	NRSI Observed	NRSI Observed	Anuran Call Survey	Turtle Basking Survey	Snake Visual Encounter Survey
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	iNaturalist 2022	University of Guelph 2023	Ontario Nature 2019	NDMNRF 2022	NRSI Results from 2022	Incidentals			
Turtles																
<i>Chelydra serpentina</i>	Snapping Turtle	S4	SC	SC	SC	Schedule 1			X	X	X					
<i>Chrysemys picta bellii</i>	Western Painted Turtle	S4		NAR	NS	No schedule					X					
<i>Chrysemys picta marginata</i>	Midland Painted Turtle	S4		SC	SC	Schedule 1		X	X	X		X	X		X	
<i>Emydoidea blandingii</i>	Blanding's Turtle (Great Lakes / St. Lawrence)	S3	THR	E	E	Schedule 1				X						
<i>Graptemys geographica</i>	Northern Map Turtle	S3	SC	SC	SC	Schedule 1				X	X					
<i>Trachemys scripta</i>	Pond Slider	SNA							X	X						
Snakes																
<i>Diadophis punctatus</i>	Northern Ring-necked Snake	S4					X		X							
<i>Lampropeltis triangulum</i>	Milksnake	S4	NAR	SC	SC	Schedule 1		X	X	X	X					
<i>Opheodrys vernalis</i>	Smooth Greensnake	S4					X	X	X	X		X				X
<i>Nerodia sipedon sipedon</i>	Northern Watersnake	S5	NAR	NAR	NS	No schedule	X		X	X						
<i>Storeria dekayi</i>	Dekay's Brownsnake	S5	NAR	NAR	NS	No schedule	X	X	X	X		X	X			
<i>Storeria occipitomaculata</i>	Red-bellied Snake	S5					X	X	X	X						
<i>Thamnophis sauritus septentrionalis</i>	Northern Ribbonsnake	S4	SC	SC	SC	Schedule 1				X						
<i>Thamnophis sirtalis sirtalis</i>	Eastern Gartersnake	S5						X	X	X		X	X			X
Salamanders																
<i>Ambystoma laterale</i>	Blue-spotted Salamander	S4					X		X	X						
<i>Ambystoma maculatum</i>	Spotted Salamander	S4					X			X						
<i>Necturus maculosus</i>	Mudpuppy	S4	NAR	NAR	NS	No schedule	X			X						
<i>Notophthalmus viridescens viridescens</i>	Red-spotted Newt	S5					X		X	X						
<i>Plethodon cinereus</i>	Eastern Red-backed Salamander	S5						X	X	X						
Frogs and Toads																
<i>Anaxyrus americanus</i>	American Toad	S5						X	X	X		X	X			
<i>Hyla versicolor</i>	Gray Treefrog	S5							X	X		X	X	X		
<i>Pseudacris triseriata pop. 2</i>	Western Chorus Frog (Great Lakes / St. Lawrence)	S4	NAR	T	T	Schedule 1			X	X	X					
<i>Pseudacris crucifer</i>	Spring Peeper	S5							X	X						
<i>Lithobates catesbeianus</i>	American Bullfrog	S4					X		X	X						
<i>Lithobates clamitans</i>	Green Frog	S5						X	X	X		X	X	X		
<i>Lithobates palustris</i>	Pickerel Frog	S4	NAR	NAR	NS	No schedule	X			X						
<i>Lithobates pipiens</i>	Northern Leopard Frog	S5	NAR	NAR	NS	No schedule			X	X		X	X			
<i>Lithobates septentrionalis</i>	Mink Frog	S5					X			X						
<i>Lithobates sylvaticus</i>	Wood Frog	S5							X	X		X	X			
Total								9	21	27	5	8	8	2	1	2

*ORAA Atlas Square: 17NJ62
**NHIC Atlas Squares: 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421

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Appendix VII
Butterfly Species Reported from the Study Area

Butterfly Species Reported from the Study Area - GID Lands EIS (Project #2851)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	Wellington County Status	iNaturalist	University of Guelph Arboretum	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed	Insect Survey 1	Insect Survey 2	Insect Survey 3
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	Dougan & Associates 2009	iNaturalist 2022	University of Guelph 2023	Macnaughton et al. 2022	NDMNRF 2022	NRSI Results from 2022	02-Jun-22	15-Jul-22	10-Aug-22
Hesperiidae	Skippers															
<i>Anatrytone logan</i>	Delaware Skipper	S4					X	X		X	X		X		X	
<i>Ancyloxypha numitor</i>	Least Skipper	S5									X		X	X		
<i>Carterocephalus palaemon</i>	Arctic Skipper	S5								X	X					
<i>Epargyreus clarus</i>	Silver-spotted Skipper	S4								X	X		X		X	
<i>Erynnis baptisiae</i>	Wild Indigo Duskywing	S4					X	X		X	X					
<i>Erynnis icelus</i>	Dreamy Duskywing	S5									X					
<i>Erynnis juvenalis</i>	Juvenal's Duskywing	S5								X	X					
<i>Euphyes vestris</i>	Dun Skipper	S5								X	X		X		X	
<i>Hesperia sassacus</i>	Indian Skipper	S4								X						
<i>Hylephila phyleus</i>	Fiery Skipper	SNA									X					
<i>Pholisora catullus</i>	Common Sootywing	S4					X	X					X			X
<i>Poanes hobomok</i>	Hobomok Skipper	S5								X	X					
<i>Poanes viator</i>	Broad-winged Skipper	S4									X					
<i>Polites mystic</i>	Long Dash Skipper	S5								X	X					
<i>Polites origenes</i>	Crossline Skipper	S4									X					
<i>Polites peckius</i>	Peck's Skipper	S5									X					
<i>Polites themistocles</i>	Tawny-edged Skipper	S5								X	X					
<i>Pompeius verna</i>	Little Glassywing	S4					X	X			X					
<i>Pyrgus communis</i>	Common Checkered Skipper	SNA														
<i>Thymelicus lineola</i>	European Skipper	SNA								X	X		X		X	
<i>Wallengrenia egeremet</i>	Northern Broken Dash	S5									X					
Papilionidae	Swallowtails															
<i>Papilio canadensis</i>	Canadian Tiger Swallowtail	S5								X						
<i>Papilio cresphontes</i>	Giant Swallowtail	S4					X	X	X	X	X		X			X
<i>Papilio glaucus</i>	Eastern Tiger Swallowtail	S5								X	X		X		X	
<i>Papilio polyxenes</i>	Black Swallowtail	S5							X	X	X		X		X	X
<i>Papilio troilus</i>	Spicebush Swallowtail	S4								X						
Pieridae	Whites and Sulphurs															
<i>Colias eurytheme</i>	Orange Sulphur	S5								X	X		X		X	X
<i>Colias interior</i>	Pink-edged Sulphur	S5									X					
<i>Colias philodice</i>	Clouded Sulphur	S5								X	X		X	X	X	X
<i>Pieris oleracea</i>	Mustard White	S4									X		X		X	X
<i>Pieris rapae</i>	Cabbage White	SNA								X	X		X		X	X
<i>Pieris virginiensis</i>	West Virginia White	S3	SC				X	X			X					
<i>Pontia protodice</i>	Checkered White	SNA						R								
Lycaenidae	Harvesters, Coppers, Hairstreaks, Blues															
<i>Callophrys niphon</i>	Eastern Pine Elfin	S5								X	X					
<i>Celastrina ladon</i>	Spring Azure	SU								X			X	X		
<i>Celastrina lucia</i>	Northern Spring Azure	S5							X		X					
<i>Celastrina neglecta</i>	Summer Azure	S5								X	X		X			
<i>Celastrina sp.</i>	Azure species	SNA									X					
<i>Cupido comyntas</i>	Eastern Tailed Blue	S5								X	X		X		X	X
<i>Feniseca tarquinius</i>	Harvester	S4								X	X					
<i>Glaucopsyche lygdamus</i>	Silvery Blue	S5								X	X		X	X		
<i>Lycaena hyllus</i>	Bronze Copper	S5									X					
<i>Satyrium calanus</i>	Banded Hairstreak	S4								X	X					
<i>Satyrium edwardsii</i>	Edwards' Hairstreak	S4								X						
<i>Satyrium liparops</i>	Striped Hairstreak	S5								X	X					
<i>Satyrium titus</i>	Coral Hairstreak	S5								X	X					
Nymphalidae	Brush-footed Butterflies															
<i>Aglais milberti</i>	Milbert's Tortoiseshell	S5								X	X					
<i>Asterocampa celtis</i>	Hackberry Emperor	S3					X	X		X	X					
<i>Asterocampa clyton</i>	Tawny Emperor	S3					X	X		X	X	X				
<i>Boloria bellona</i>	Meadow Fritillary	S5								X	X					
<i>Boloria selene</i>	Silver-bordered Fritillary	S5								X	X					
<i>Cercyonis pegala</i>	Common Wood-Nymph	S5								X	X		X		X	X
<i>Coenonympha tullia</i>	Common Ringlet	S5								X	X		X	X		X
<i>Danaus plexippus</i>	Monarch	S2N,S4B	SC	E	SC	Schedule 1	X	X*		X	X		X		X	X
<i>Euphydryas phaeton</i>	Baltimore Checkerspot	S4									X					
<i>Euptoieta claudia</i>	Variegated Fritillary	SNA						R								

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	Wellington County Status	iNaturalist	University of Guelph Arboretum	Ontario Butterfly Atlas*	NHIC Data**	NRSI Observed	Insect Survey 1	Insect Survey 2	Insect Survey 3
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	Dougan & Associates 2009	iNaturalist 2022	University of Guelph 2023	Macnaughton et al. 2022	NDMNRF 2022	NRSI Results from 2022	02-Jun-22	15-Jul-22	10-Aug-22
<i>Junonia coenia</i>	Common Buckeye	SNA								X	X					
<i>Lethe anthedon</i>	Northern Pearly-Eye	S5								X	X					
<i>Lethe eurydice</i>	Eyed Brown	S5								X	X					
<i>Libytheana carinenta</i>	American Snout	SNA								X	X					
<i>Limenitis archippus</i>	Viceroy	S5								X	X		X	X	X	X
<i>Limenitis arthemis arthemis</i>	White Admiral	S5								X	X					
<i>Limenitis arthemis astyanax</i>	Red-spotted Purple	S5								X	X		X			X
<i>Megisto cymela</i>	Little Wood-Satyr	S5								X	X					
<i>Nymphalis antiopa</i>	Mourning Cloak	S5								X	X					
<i>Nymphalis l-album</i>	Compton Tortoiseshell	S5									X					
<i>Phyciodes cocyta</i>	Northern Crescent	S5								X	X		X		X	
<i>Phyciodes tharos</i>	Pearl Crescent	S4							X		X		X	X		X
<i>Polygonia comma</i>	Eastern Comma	S5								X	X					
<i>Polygonia interrogationis</i>	Question Mark	S5								X	X					
<i>Polygonia progne</i>	Gray Comma	S5									X					
<i>Speyeria aphrodite</i>	Aphrodite Fritillary	S5									X					
<i>Speyeria cybele</i>	Great Spangled Fritillary	S5								X	X		X		X	
<i>Vanessa atalanta</i>	Red Admiral	S5B								X	X					
<i>Vanessa cardui</i>	Painted Lady	S5B								X	X					
<i>Vanessa virginiensis</i>	American Lady	S5								X	X		X			X
									4	54	70	1	26	7	16	15

**NHIC Atlas Squares: 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421

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Appendix VIII
Odonate Species Reported from the Study Area

Odonate Species Reported from the Study Area - GID Lands EIS (Project #2851)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	Wellington County Status	City of Guelph Pers. Communicatio n with Jason Elliott Sept 2022	iNaturalist	University of Guelph Arboretum	Odonate Atlas*	NHIC Data**	NRSI Observed	Insect Survey 1	Insect Survey 2	Insect Survey 3
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	Dougan and Associates 2009			University of Guelph 2023	OOAD 2022	NDMNRF 2022		02-Jun-22	15-Jul-22	10-Aug-22
Calopterygidae	Broadwinged Damselflies																
<i>Calopteryx aequabilis</i>	River Jewelwing	S5									X	X		X	X		
<i>Calopteryx maculata</i>	Ebony Jewelwing	S5									X	X					
<i>Hetaerina americana</i>	American Rubyspot	S4										X					
Lestidae	Spreadwings																
<i>Lestes congener</i>	Spotted Spreadwing	S5									X	X					
<i>Lestes disjunctus</i>	Northern Spreadwing	S5									X	X					
<i>Lestes dryas</i>	Emerald Spreadwing	S5									X	X					
<i>Lestes forcipatus</i>	Sweetflag Spreadwing	S4						X			X	X					
<i>Lestes rectangularis</i>	Slender Spreadwing	S5									X	X					
<i>Lestes unguiculatus</i>	Lyre-tipped Spreadwing	S5									X	X					
Coenagrionidae	Narrow-winged Damselflies																
<i>Amphiagrion saucium</i>	Eastern Red Damsel	S4						X				X					
<i>Argia apicalis</i>	Blue-fronted Dancer	S4						PR			X						
<i>Argia fumipennis violacea</i>	Violet Dancer	S5									X	X					
<i>Argia moesta</i>	Powdered Dancer	S5										X					
<i>Coenagrion resolutum</i>	Taiga Bluet	S5						X			X	X					
<i>Enallagma annexum</i>	Northern Bluet	S4						X			X						
<i>Enallagma antennatum</i>	Rainbow Bluet	S4									X	X					
<i>Enallagma boreale</i>	Boreal Bluet	S5									X	X					
<i>Enallagma carunculatum</i>	Tule Bluet	S5									X	X					
<i>Enallagma civile</i>	Familiar Bluet	S5									X			X			X
<i>Enallagma ebrium</i>	Marsh Bluet	S5									X	X					
<i>Enallagma exsulans</i>	Stream Bluet	S5										X		X		X	
<i>Enallagma geminatum</i>	Skimming Bluet	S4						PR			X						
<i>Enallagma signatum</i>	Orange Bluet	S4									X	X					
<i>Enallagma vernale</i>	Vernal Bluet	S4									X	X					
<i>Ischnura posita</i>	Fragile Forktail	S4									X						
<i>Ischnura verticalis</i>	Eastern Forktail	S5									X	X		X		X	
<i>Nehalennia irene</i>	Sedge Sprite	S5									X	X		X	X		
Aeshnidae	Darners																
<i>Aeshna canadensis</i>	Canada Darner	S5									X	X					
<i>Aeshna clepsydra</i>	Mottled Darner	S4						X				X					
<i>Aeshna constricta</i>	Lance-tipped Darner	S5									X	X					
<i>Aeshna interrupta interrupta</i>	Variable (Interrupted) Darner	S5						X			X	X					
<i>Aeshna tuberculifera</i>	Black-tipped Darner	S4									X						
<i>Aeshna umbrosa</i>	Shadow Darner	S5									X	X		X			X
<i>Aeshna verticalis</i>	Green-striped Darner	S4						P			X		X				
<i>Anax junius</i>	Common Green Darner	S5							X		X	X		X			X
<i>Basiaeschna janata</i>	Springtime Darner	S5						X			X	X					
<i>Boyeria vinosa</i>	Fawn Darner	S5									X	X					
<i>Epiaeschna heros</i>	Swamp Darner	S3S4						PR	X		X		X	X	X		
<i>Rhionaeschna mutata</i>	Spatterdock Darner	S3						P			X						
Gomphidae	Clubtails																
<i>Argemophus villosipes</i>	Unicorn Clubtail	S3						PR			X						
<i>Dromogomphus spinosus</i>	Black-shouldered Spinyleg	S5						X				X					
<i>Hagenius brevistylus</i>	Dragonhunter	S5						X				X					
<i>Ophiogomphus rufinsulensis</i>	Rusty Snaketail	S4						X			X	X					
<i>Phanogomphus descriptus</i>	Harpoon Clubtail	S3						X				X					
<i>Phanogomphus lividus</i>	Ashy Clubtail	S4						X			X	X					
<i>Phanogomphus spicatus</i>	Dusky Clubtail	S5						X			X						
<i>Stylgomphus albistylus</i>	Eastern Least Clubtail	S4						P				X					
Cordulegasteridae	Spiketails																
<i>Cordulegaster obliqua</i>	Arrowhead Spiketail	S3						P			X						
Cordulidae	Emeralds																
<i>Cordulia shurtleiffi</i>	American Emerald	S5						?			X						
<i>Dorocordulia libera</i>	Racket-tailed Emerald	S5						?			X						
<i>Epitheca canis</i>	Beaverpond Baskettail	S5									X	X					
<i>Epitheca cyrosura</i>	Common Baskettail	S5									X			X	X		
<i>Epitheca princeps</i>	Prince Baskettail	S5									X						
<i>Epitheca spinigera</i>	Spiny Baskettail	S5						?			X						
<i>Helocordulia uhleri</i>	Uhler's Sundragon	S3										X					
<i>Somatochlora tenebrosa</i>	Clamp-tipped Emerald	S3						X			X	X					
<i>Somatochlora walshii</i>	Brush-tipped Emerald	S4					X	X			X	X					
<i>Somatochlora williamsoni</i>	Williamson's Emerald	S4					X	X			X	X					
Libellulidae	Skimmers																
<i>Ceilithemis elisa</i>	Calico Pennant	S5									X	X					
<i>Ceilithemis eponina</i>	Halloween Pennant	S4					X	X			X	X		X		X	X
<i>Erythemis simplicicollis</i>	Eastern Pondhawk	S5									X						
<i>Ladona julia</i>	Chalk-fronted Corporal	S5					X	X			X	X					
<i>Leucorrhinia intacta</i>	Dot-tailed Whiteface	S5									X	X		X	X		
<i>Leucorrhinia proxima</i>	Belted Whiteface	S5					X	X			X						
<i>Libellula luctuosa</i>	Widow Skimmer	S5									X	X					
<i>Libellula pulchella</i>	Twelve-spotted Skimmer	S5								X	X	X		X		X	X
<i>Libellula quadrimaculata</i>	Four-spotted Skimmer	S5									X	X					
<i>Libellula semifasciata</i>	Painted Skimmer	S3						X	X		X	X	X				
<i>Pachydiplax longipennis</i>	Blue Dasher	S5							X		X	X					
<i>Pantala flavescens</i>	Wandering Glider	S4									X	X					
<i>Pantala hymenaea</i>	Spot-winged Glider	S4									X						
<i>Perithemis tenera</i>	Eastern Amberwing	S4					X	X			X	X					
<i>Plathemis lydia</i>	Common Whitetail	S5								X	X	X		X	X	X	X
<i>Sympetrum costiferum</i>	Saffron-winged Meadowhawk	S4					X	X			X						
<i>Sympetrum internum</i>	Cherry-faced Meadowhawk	S5									X	X					

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	Wellington County Status	City of Guelph Pers. Communicatio n with Jason Elliott Sept 2022	iNaturalist	University of Guelph Arboretum	Odonate Atlas*	NHIC Data**	NRSI Observed	Insect Survey 1	Insect Survey 2	Insect Survey 3
		NDMNRF 2021	MECP 2022	Government of Canada 2021	Government of Canada 2021	Government of Canada 2021	City of Guelph 2012	Dougan and Associates 2009				OOAD 2022	NDMNRF 2022		02-Jun-22	15-Jul-22	10-Aug-22
<i>Sympetrum obtrusum</i>	White-faced Meadowhawk	S5									X	X					
<i>Sympetrum rubicundulum</i>	Ruby Meadowhawk	S5									X	X					
<i>Sympetrum semicinctum</i>	Band-winged Meadowhawk	S4									X	X					
<i>Sympetrum vicinum</i>	Autumn Meadowhawk	S5									X	X					
<i>Tramea carolina</i>	Carolina Saddlebags	SNA									X						
<i>Tramea lacerata</i>	Black Saddlebags	S4									X	X		X		X	X
Total									3	2	69	68	3	14	6	6	7

*Odonate Atlas Square Numbers: 17NJ62

**NHIC Atlas Squares: 17NJ6322, 17NJ6321, 17NJ6422, 17NJ6421

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Appendix IX
Mammal Species Reported from the Study Area

Mammal Species Reported from the Study Area - GD Lands EIS (Project #2851)

Scientific Name	Common Name	SRANK	SARO	COSEWIC	SARA	SARA Schedule	City of Guelph Status	Wellington County Status	Naturalist	University of Guelph Arboretum	Ontario Mammal Atlas	NHIC Data**	NRSI Observed	CUM1	CUT1	CUT1-1	FOM4	FOM4-2	CUW1	CUS1	CUP3-2	FOM7-1	CUP3	FOC4-1	SWT3-5	MAM3-9	MAM2-2	SWD4-1	FOC2-2	Agricultural Field	
Didelphimorphia	Opossums																														
<i>Didelphis virginiana</i>	Virginia Opossum	S4						X		X	X																				
Eulipotyphla	Shrews, Moles, Hedgehogs, and Allies																														
<i>Blarina brevicauda</i>	Northern Short-tailed Shrew	S5						X		X	X																				
<i>Condylyura cristata</i>	Star-nosed Mole	S5						X		X	X																				
<i>Parascalops borealis</i>	Heavy-sided Mole	S4					X	R		X	X																				
<i>Sorex cinereus</i>	Muskeg Shrew	S6								X	X																				
<i>Sorex fumeus</i>	Smoky Shrew	S6								X	X																				
<i>Sorex rubripes</i>	Winter Shrew	S5					X	R		X	X																				
Chiroptera	Bats																														
<i>Antrozous fuscus</i>	Big Brown Bat	S4						X		X	X																				
<i>Lasiurus noctivagans</i>	Silver-haired Bat	S4	END	E	N5			X		X	X																				
<i>Lasiurus borealis</i>	Eastern Free Bat	S4	END	E	N5			X		X	X																				
<i>Lasiurus cinereus</i>	Hoary Bat	S4	END	E	N5			X		X	X																				
<i>Myotis borealis</i>	Eastern Small-footed Myotis	S4/S5	END	E	N5			X		X	X																				
<i>Myotis lucifugus</i>	Little Brown Myotis	S3	END	E	E	Schedule 1				X	X																				
<i>Myotis septentrionalis</i>	Northern Myotis	S3	END	E	E	Schedule 1		R			X																				
<i>Peromyscus subflavus</i>	Tricolored Bat	S3/7	END	E	E	Schedule 1		R			X																				
Lagomorpha	Rabbits and Hares																														
<i>Lepus americanus</i>	Snowshoe Hare	S5					X	R		X	X																				
<i>Lepus europaeus</i>	European Hare	S5/6						X		X	X																				
<i>Sylvilagus floridanus</i>	Eastern Cottontail	S5						X		X	X		X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rodentia	Rodents																														
<i>Castor canadensis</i>	Beaver	S5						X		X	X		X																		
<i>Peromyscus leucopus</i>	Peromyscus	S5						X		X	X					X															
<i>Glaucomys sabrinus</i>	Northern Plains Squirrel	S5					X	R		X	X																				
<i>Glaucomys volvens</i>	Southern Plains Squirrel (Great Lakes Pop.)	S4	NAR	NAR	N5	No schedule	X	R		X	X																				
<i>Reithrodontomys</i>	Woodchuck	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X		X		X	X		X				X	X	X	X	X	X	X	X	X	X
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S3/7	END	E	E	Schedule 1		R			X																				
<i>Reithrodontomys</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X																				
<i>Microtus pennsylvanicus</i>	Woodchuck Vole	S5						X		X	X	</																			

Appendix X
Butternut Health Expert's Report & Documentation

Instructions to Butternut Health Experts (BHEs):

Please enter the 6-character BHE Report number: [HAM-231](#) _____

BHE Report numbering format:

BHE Report numbers are to be assigned by the BHE using the first 3 letters of BHE's last name, followed by BHE's own 3-digit report numbering system. If the BHE's last name has fewer than 3 letters, use the full last name and numbers for the remaining characters.

Cover letter to client:

Insert your cover letter to your client here and include the below list of enclosures.

March 5, 2024

Attention: Daniel Doherty
Fusion Homes
500 Hanlon Creek Blvd
Guelph, ON
N1C 0A1

RE: GID Lands EIS - Butternut Health Assessment

Dear Daniel Doherty,

This letter is regarding the assessment of two Butternut (*Juglans cinerea*) trees identified on the Guelph Innovation District (GID) (Blocks 1 and 2) property on July 25, 2023 and August 22, 2023.

Please read the enclosed documents carefully as they contain important information about the Endangered Species Act, 2007 (ESA). The following documents are also enclosed as part of this BHE report:

- Photo Appendix
- Field Hybridity Test Results

Four Butternut trees (001, 002, 003, 004) were identified and flagged with white flagging tape and numbered, consistent with the identification included in this report. Two of the Butternut trees (002, 003) were dead with no live crown at the time of the assessment, and therefore were not assessed (see photo appendix). As dead trees are not provided protection under the ESA, Butternut trees 002 and 003 are not discussed further in this report.

Should you have any questions or comments about this assessment, please do not hesitate to contact the undersigned.

Pamela Hammer
Senior Biologist, Certified Arborist

Enclosures:

1. Information from the Ministry of the Environment, Conservation and Parks about Butternut and the *Endangered Species Act, 2007*
2. Butternut Health Expert's Report, including the completed Butternut Data Collection Form

Species at Risk Branch
40 St. Clair Avenue West
14th Floor
Toronto ON M4V 1M2

Direction des espèces en péril
40, avenue St. Clair Ouest
14^e étage
Toronto ON M4V 1M2

Information for the Property Owner (or person(s) who requested the enclosed Butternut Health Expert's Report):

The enclosed Butternut Health Expert's Report (BHE Report) documents the results of the Butternut health assessment that was conducted by the Butternut Health Expert (BHE) identified in the top section of the report. If there are other Butternut trees (of any size or age) at the site that may be impacted by a proposed activity that are not identified in the enclosed BHE Report, they too must be assessed by a BHE before commencing any actions that may impact those Butternut trees or their habitat.

Butternut (*Juglans cinerea*) is listed as an endangered species in Schedule 2 of Ontario Regulation (O. Reg.) 230/08 "the Species at Risk in Ontario List". As an endangered species, the *Endangered Species Act, 2007* (ESA) prohibits adversely impacting Butternut and its habitat. A permit or agreement under the ESA is required before engaging in an activity that is otherwise prohibited under the ESA. The activity may be eligible for the Butternut conditional exemption in Part V of O. Reg. 830/21, provided the requirements of the regulation are met.

If the proposed activity is eligible for the conditional exemption in Part V of O. Reg. 830/21, the next step is to submit the BHE Report and the Butternut Data Collection Form enclosed in this package to the Ministry of the Environment, Conservation and Parks (MECP).

If the enclosed BHE Report does not identify which Butternut tree(s) are proposed to be killed, harmed or taken and the reasons for doing so (e.g., if "unknown" is indicated in Table 1) or if the information in the last two columns of Table 1 has changed since the date this BHE Report was produced, **do not edit the BHE Report to update this information**. Instead, the report must be submitted together with a cover letter that identifies which Butternut tree(s) are proposed to be killed, harmed or taken (by referencing the tree identification numbers) when you submit the BHE Report to MECP.

The BHE Report must be submitted to MECP at least 30 days before registering an activity in respect of the Butternut conditional exemption. MECP may need to examine the Butternut trees subject to the report during this 30-day period. **Adversely impacting Butternut trees during this 30-day period or before registration is completed is prohibited by the ESA**. Further, the conditional exemption for Butternut does not apply unless the requirements of Part V of O. Reg. 830/21 are being followed.

If the proposed activity is eligible for the Butternut conditional exemption, you may register the proposed activity using the “**Notice of Butternut Impact**” form after the 30-day period has elapsed.

If the proposed activity is not eligible for a regulatory exemption, please contact MECP to determine whether the proposed activity would require a permit or agreement under the ESA in order to proceed.

Please retain this information and a copy of the BHE Report for your records, along with any other documentation you may receive from MECP should an examination of the trees occur.

This information should not be relied upon to determine legal obligations. To determine your legal obligations, consult the *Endangered Species Act, 2007* and the relevant regulations made thereunder. These may be found at www.ontario.ca/laws. If legal advice is required, consult a legal professional. In the event of an error on this template or a conflict between this template and any applicable law, the law prevails.

If you have any questions, please contact MECP at SAROntario@ontario.ca.

Butternut Health Expert's Report (BHE Report)

BHE Report Number: [HAM-231](#)

Butternut Health Expert Contact Information

Name of Butternut Health Expert

Last Name

[Hammer](#)

First Name

[Pamela](#)

Mailing Address

Unit Number

[C](#)

Street Number

[415](#)

Street Name

[Phillip Street](#)

PO Box

City/Town

[Waterloo](#)

Province

[Ontario](#)

Postal Code

[N2L 3X2](#)

Telephone Number

[519-725-2227](#)

Email Address

phammer@nrsi.on.ca

Summary of qualifications as a Butternut Health Expert

a) expertise in relation to butternut

[Fully designated Butternut Health Assessor by the Forest Gene Conservation Association on behalf of the Ministry of Natural Resources and Forestry \(MNR\) via the course taken on July 15, 2014 in Roblin, ON. Successfully completed the requirements to be re-designated as a Butternut Health Assessor \(BHA\) by the Ministry of the Environment, Conservation and Parks \(MECP\) during the refresher course on June 18, 2019 in Ancaster, ON.](#)

b) expertise, education, training and experience necessary to assess the health of butternut trees

[See section a\) above](#)

Property Owner Contact Information

Name of Property Owner (or representative)

Last Name

[Homes](#)

First Name

[Fusion](#)

Mailing Address

Unit Number

Street Number

[500](#)

Street Name

[Hanlon Creek Blvd.](#)

PO Box

Lot Number

Concession

Township

Rural Route

City/Town

[Guelph](#)

Province

[Ontario](#)

Postal Code

[N1C 0A1](#)

Telephone Number

[519-826-6700](#)

Email Address

ddoherty@fusionhomes.com

Site Location

Unit Number

Street Number

[328](#)

Street Name

[Victoria Road South](#)

PO Box

Lot Number

Concession

Township

Rural Route

City/Town

[Guelph](#)

Province

[Ontario](#)

Postal Code

Additional Site Location Information

[The Guelph Innovation District \(GID\) \(Blocks 1 and 2\) property is located north of the Victoria Road South and Stone Road East intersection, and south of the Eramosa River.](#)

Date(s) of Butternut health assessment

Start Date (yyyy/mm/dd) 2023/07/25

End Date (yyyy/mm/dd) 2023/08/22

Date BHE Report prepared (yyyy/mm/dd) 2024/03/05

Map datum used: ☒ NAD83 ☐ WGS84

Total number of trees assessed in this BHE Report 2

The assessed trees were numbered on site using white flagging tape

The numbers at the site correspond to the tree identification numbers referenced in this report.

This BHE Report includes the following tables:

- Table 1: Butternut trees assessed by the BHE
- Table 2: Trees determined by the BHE to be Butternut hybrids
- Table 3: Summary of Butternut health assessment results

Table 1: Butternut trees assessed by the BHE

Tree ID #	UTM coordinates	Accuracy (+/-)	Category (1, 2 or 3)	Tree stem diameter ² (cm)	Is tree stem shorter than 1.37 m? (Yes/No)	Cultivated? (Yes/No)	Proposed to be: (killed, harmed, taken, or unknown ³)	If tree is proposed to be killed, harmed or taken, indicate reason tree is to be killed, harmed or taken, if known
001	4822389, 563593	5m	1	58	No	No	harmed	Development within 50m, but more than 10m, from tree
004	4822405, 563587	5m	1	61	No	No	harmed	Development within 50m, but more than 10m, from tree
		m						
		m						

¹ Details regarding the extent to which the tree is affected by Butternut Canker is presented in the Butternut Data Collection Form that accompanies this BHE Report.

² Diameter of the tree stem rounded to nearest cm, measured in accordance with the Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*

³ In this column, “unknown” indicates that at the time of assessment and reporting, there are no proposals to kill, harm or take this tree that are known to the BHE.

Table 2: Trees determined by the BHE to be Butternut hybrids

Tree ID #	UTM coordinates	Method used (genetic testing or field identification)	Additional Comments on Method Used
001	4822389, 563593	field identification	

Tree ID #	UTM coordinates	Method used (genetic testing or field identification)	Additional Comments on Method Used
004	4822405, 563587	field identification	Completed on epicormic sample, as unable to reach higher into the canopy

Table 3: Summary of Butternut health assessment results

Result	Total number of trees in this category	Information for persons planning activities that may impact Butternut
Category 1	2	- Category 1 Butternut tree — the Butternut tree is affected by Butternut Canker to such an advanced degree that retaining the tree would not support the protection or recovery of Butternut trees in the area in which the tree is located. - If the proposed activity will kill, harm or take one or more Butternut trees of any category (including Category 1), the BHE Report must be submitted to MECP at SARontario@ontario.ca.
Category 2	0	- Category 2 Butternut tree — the Butternut tree is not affected by Butternut Canker or the Butternut tree is affected by Butternut Canker but the degree to which it is affected is not as advanced as a Category 1 Butternut tree and retaining the tree could support the protection or recovery of Butternut trees in the area in which the tree is located. - Activities that may kill, harm or take up to a maximum of fifteen (15) Category 2 trees may be eligible for the conditional exemption in Part V of Ontario Regulation 830/21. Refer to the regulation for eligibility conditions and requirements that must be fulfilled. - If the proposed activity will kill, harm or take more than fifteen (15) Category 2 trees, contact MECP for information on how to seek an ESA authorization (e.g., a permit).
Category 3	0	- Category 3 Butternut tree — the Butternut tree may be useful in determining sources of resistance to Butternut Canker. - Activities that may kill, harm or take up to a maximum of five (5) Category 3 trees may be eligible for the conditional exemption in Part V of Ontario Regulation 830/21. Refer to the regulation for eligibility conditions and requirements that must be fulfilled. - If the proposed activity will kill, harm or take more than five (5) Category 3 trees, contact MECP for information on how to seek an ESA authorization (e.g., a permit).

Result	Total number of trees in this category	Information for persons planning activities that may impact Butternut
Cultivated	0	An activity that will kill, harm or take a cultivated Butternut tree that was required to be planted to fulfil a condition of an ESA permit or agreement, or a conditional exemption, is not eligible for the exemption for cultivated trees that is provided by subsection 25 (5) of O. Reg. 830/21. Refer to the regulation for eligibility conditions.
Hybrid	2	Hybrid Butternut trees are not protected under the ESA but impacts to these trees may be subject to local municipal by-laws and other legislation.

Additional Information on Cultivated Tree Determination

N/A

Please note:

- A BHE Report that is submitted to MECP must include the completed Butternut Data Collection Form. As appropriate, please also ensure additional relevant documentation to support the assessment (e.g., completed Data Sheets for Field Identification of Butternut Hybrids, evidence that the Butternut was cultivated) and all relevant maps and photographs are provided.
- During the 30-day period that follows the submission of this BHE Report to MECP, no Butternut trees (of any category) may be killed, harmed or taken. MECP may need to examine the Butternut trees subject to the report during this 30-day period.

Butternut Health Expert's Comments

Butternut trees 001 and 002 were assessed as Category 1. As these trees were also identified as hybrid, they are not protected under the ESA.

At the time of the assessments, Butternut trees 002 and 003 were dead with no live crown and were not assessed further.

The following documents are also enclosed as part of this BHE report:

- Photo Appendix
- Field Hybridity Test Results

Butternut (*Juglans cinerea*) is listed as an endangered species in Schedule 2 of Ontario Regulation 230/08 “the Species at Risk in Ontario List”. As an endangered species, the *Endangered Species Act, 2007* (ESA) prohibits adversely impacting Butternut and its habitat. A permit or agreement under the ESA is required before engaging in an activity that is otherwise prohibited under the ESA. The activity may be eligible for the Butternut conditional exemption in Part V of Ontario Regulation 830/21, provided the requirements of the regulation are met. For more information please refer to the following links:

[Endangered Species Act, 2007](#)

[Ontario Regulation 830/21 \(Exemptions – Barn Swallow, Bobolink, Eastern Meadowlark and Butternut\)](#)

[Ontario Regulation 230/08 \(Species at Risk in Ontario List\)](#)

[Ontario Regulation 242/08 \(General Regulation\)](#)

[Information about ESA permits and authorizations](#)

[Butternut Assessment Guidelines: Assessment of Butternut Tree Health for the Purposes of the *Endangered Species Act, 2007*](#)

A Butternut Health Expert’s Report (BHE Report) completed by a “Butternut Health Expert” (BHE) as defined in section 21 of Ontario Regulation 830/21 is typically required as part of an application to the Ministry of the Environment, Conservation and Parks (MECP) for a permit or agreement under the ESA and is required in respect of the conditions of the Butternut conditional exemption in Part V of O. Reg. 830/21. **This Butternut Data Collection Form must be completed by the BHE and included in their BHE Report.**

This form should not be relied upon to determine your legal obligations. To determine your legal obligations, consult the *Endangered Species Act, 2007* and the relevant regulations made thereunder. These may be found at www.ontario.ca/laws. If legal advice is required, consult a legal professional. In the event of an error on this form or a conflict between this form and any applicable law, the law prevails.

Notice of Collection and Use

Personal information on this form is collected under the authority of Section 53 of the ESA and section 38 of the *Freedom of Information and Protection of Privacy Act*. Forms that have been submitted to MECP may be used by MECP staff to contact the property owner (or person acting on their behalf) to request permission to access the assessed trees for the purpose of examining the trees or to contact the BHE who prepared the BHE Report. Questions about the use of your personal information should be directed to the Administrative Assistant in the Species at Risk Branch, Ministry of the Environment, Conservation and Parks, 300 Water Street, Peterborough Ontario, K9J 3C7 at SARregistry@ontario.ca or 705-313-0942.

Fields marked with an asterisk (*) are mandatory.

Butternut Health Expert’s Report Number*	Start Date of Butternut Health Assessment (yyyy/mm/dd)*	End Date of Butternut Health Assessment (yyyy/mm/dd)*
HAM-231	2023/07/25	2023/08/22

Butternut Health Expert (BHE) Contact Information

Last Name*	First Name*	
Hammer	Pamela	
Telephone Number*	Alternate Telephone Number	Email Address*
519-725-2227	519-591-5431	phammer@nrsi.on.ca

Summary of Qualifications as a Butternut Health Expert*

Fully designated Butternut Health Assessor by the Forest Gene Conservation Association on behalf of the Ministry of Natural Resources and Forestry (MNR) via the course taken on July 15, 2014 in Roblin, ON. Successfully completed the requirements to be re-designated as a Butternut Health Assessor (BHA) by the Ministry of the Environment, Conservation and Parks (MECP) during the refresher course on June 18, 2019 in Ancaster, ON.

Property Owner Contact Information

Last Name*	Homes			First Name*	Fusion		
Company Name							
Fusion Homes							

Mailing Address*

Unit Number	Street Number	Street Name		PO Box	
	500	Hanlon Creek Blvd.			
Lot Number		Concession		Township	Rural Route
City/Town				Province	Postal Code
Guelph				Ontario	N1C 0A1
Telephone Number *		Alternate Telephone Number		Email Address	
519-826-6700				ddoherty@fusionhomes.com	

Butternut Tree(s) Location Information

Address*		☐ Select if location of Butternut is the same as the property owner's mailing address			
Unit Number	Street Number	Street Name		PO Box	
	328	Victoria Road South			
Lot Number		Concession		Township	Rural Route
City/Town				Province	Postal Code
Guelph				Ontario	

General description of area containing Butternut (select one)

☒ Natural ☐ Rural ☐ Urban - Suburban ☐ Industry / Resource Extraction Area

Soil drainage (select one)

☒ Well Drained ☐ Moderately Drained ☐ Poorly Drained ☐ Unknown

Have any of the Butternut at this site produced seeds?

☒ Yes ☐ No ☐ Unknown

General Comments

The Guelph Innovation District (GID) (Blocks 1 and 2) property is located north of the Victoria Road South and Stone Road East intersection, and south of the Eramosa River.

Four Butternut trees (001, 002, 003, 004) were identified on the property and flagged with white flagging tape and numbered, consistent with the identification included on this collection form. Two of the Butternut trees (002, 003) were dead with no live crown at the time of the assessment, and therefore were not assessed.

Butternut Tree Data 1

Tree Identification Number* 001 Date of Assessment (yyyy/mm/dd)* 2023/07/25

UTM Zone* 17

Northing* 4822389

Easting* 563593

Is this tree a Butternut tree or a putative hybrid? * ☐ Butternut ☒ Putative Hybrid

Is the stem of this tree shorter than 1.37 m? * ☐ Yes ☒ No

Is this a single or multi-stemmed tree? * ☐ Single Stem ☒ Multiple Stems

Live Crown %* 70

Tree Stem Diameter (cm)* 58

Number of sooty cankers* At or below 2m (the lower stem) 9 Above 2m 5 At the root (root flares) 1

Number of open cankers* At or below 2m (the lower stem) 11 Above 2m 9 At the root (root flares) 8

Metres from badly cankered tree* ☒ 40 metres or less ☐ Greater than 40 metres ☐ None found

Crown Class

☐ Dominant, full sun

☒ Co-dominant, two sides in the sun

☐ Intermediate, sun only from above

☐ Suppressed, shaded crown

Signs of Stress

☒ Twig dieback

☒ Branch dieback

☒ Defoliation

☒ Discolouration

Seed Signs

☐ Mature stamens or pollen

☐ Receptive pistils

☐ Seed set

☒ None ☐ Unknown

Below Crown

Number of stems 3

Main stem length (m) below crown 5

Number of epic-live 0

Number of epic-dead 0

Number of callused wounds 16

Bark type: ☒ Deep furrows/Narrow ridges

☐ Shallow furrows/Wide ridges

Tree Origin

☒ Naturally-occurring

☐ Planted (cultivated)

☐ Unknown

Is this tree located in an area that is upland, wetland, or riparian?

☒ Upland

☐ Wetland

☐ Riparian

Vegetation Community

☐ Open

☐ Shrub thicket

☒ Savannah - Woodland

☐ Forest

If Savannah-Woodland or Forest selected, select one option from both groups:

☐ Deciduous ☐ Coniferous ☐ Mixed

☐ Climax ☒ Regenerating

Does this tree occupy edge habitat?

☒ Yes ☐ No

If "Yes", select which edge habitat:

☐ Road

☐ Trail

☐ Utility corridor

☐ Fencerow

☒ Forest/woodlot edge

☐ Watercourse/waterbody

Competing Species

1. ULMAMER

2. THUOCCI

3. RHACATH

Comments about this tree

Growing on slope.

Multi-stemmed tree with one smaller stem dead and not counted in DBH. Three stems counted in DBH (41.7cm, 27.8cm, and 28.6cm DBH) and calculated as the square root of the sum of squared diameters

Butternut Tree Data 2

Tree Identification Number* 004 Date of Assessment (yyyy/mm/dd)* 2023/08/22 ☒ Select if Date is same as tree above

UTM Zone* 17T

Northing* 4822405

Easting* 563587

Is this tree a Butternut tree or a putative hybrid? * ☐ Butternut ☒ Putative Hybrid

Is the stem of this tree shorter than 1.37 m? * ☐ Yes ☒ No

Is this a single or multi-stemmed tree? * ☐ Single Stem ☒ Multiple Stems

Live Crown %* 80

Tree Stem Diameter (cm)* 61

Number of sooty cankers* At or below 2m (the lower stem) 14 Above 2m 6 At the root (root flares) 1

Number of open cankers* At or below 2m (the lower stem) 8 Above 2m 13 At the root (root flares) 7

Metres from badly cankered tree* ☒ 40 metres or less ☐ Greater than 40 metres ☐ None found

Crown Class ☐ Dominant, full sun ☒ Co-dominant, two sides in the sun
☐ Intermediate, sun only from above ☐ Suppressed, shaded crown

Signs of Stress ☒ Twig dieback ☒ Branch dieback ☒ Defoliation ☒ Discolouration

Seed Signs ☐ Mature stamens or pollen ☐ Receptive pistils ☒ Seed set ☐ None ☐ Unknown

Below Crown Number of stems 3 Main stem length (m) below crown 7
Number of epic-live 7 Number of epic-dead 1 Number of callused wounds 8

Bark type: ☐ Deep furrows/Narrow ridges ☒ Shallow furrows/Wide ridges

Tree Origin ☒ Naturally-occurring ☐ Planted (cultivated) ☐ Unknown

Is this tree located in an area that is upland, wetland, or riparian? ☒ Upland ☐ Wetland ☐ Riparian

Vegetation Community ☐ Open ☐ Shrub thicket ☒ Savannah - Woodland ☐ Forest

If Savannah-Woodland or Forest selected, select one option from both groups:

☒ Deciduous ☐ Coniferous ☐ Mixed

☐ Climax ☒ Regenerating

Does this tree occupy edge habitat? ☐ Yes ☒ No

If "Yes", select which edge habitat:

☐ Road ☐ Trail ☐ Utility corridor

☐ Fencerow ☐ Forest/woodlot edge ☐ Watercourse/waterbody

Competing Species 1. ACENEG 2. THUOCCI 3. _____

Comments about this tree

Old seed/nut found below canopy. On slope, hard to see canopy fully to do an accurate assessment. Hybrid test done on epicormic sample (unable to reach higher canopy). The tree has 3 stems counted in DBH (28.2cm, 39.3cm, and 36.3cm) and calculated as the square root of the sum of squared diameters.

BHE Report Number HAM-231									Start Date of Butternut Health Assessment (yyyy/mm/dd) 2023/07/25					End Date of Butternut Health Assessment (yyyy/mm/dd) 2023/08/22						
Total Number Butternut Trees in BHE Report 2									Butternut Health Expert's Name Hammer, Pamela											
Property Owner/Client Name Homes, Fusion									Property Address 328 Victoria Road South Guelph Ontario											
A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
Tree#	Live Crown %	Tree stem diameter (cm)	# bole cankers (BC)				# root flare cankers (RF)		40 m or less from cankered tree? (Y or N)	Circ. (cm) = Pi * tree stem diameter	Total BC Width (cm) = (D * 2.5) + (E * 2.5) + (F * 5) + (G * 5)	Total RF Width (cm) = (H * 2.5) + (I * 5)	Total BC Width % of Circ. = L / K * 100	Total RF Width % of Circ. = M / K * 100	Total BC + RF Width % of 2 * Circ. = (N + O) / 2	Tree Categories: 1, 2, or 3				
			Sooty (S) (will be assigned 2.5 cm per canker) Open (O) (will be assigned 5 cm per canker)													= Cat 2 if B >= 50 and N=0 else = Cat 1	= Cat 2 if B > 70 and P < 20 else = Cat 1	= Cat 2 if B > 70 and N < 20 else = Cat 1	Preliminary tree call = Cat 2 if Q= Cat 2 or R= Cat 2 else = Cat 1	Final tree call = Cat 3 if T= Cat 2 and C > 19 and J='Y' else T
			S <= 2m	S > 2m	O <= 2m	O > 2m	S	O												
1	70	58	9	5	11	9	1	8	Y	182.12	135.0	42.5	74.13	23.34	48.74	1	1	1	1	1
4	80	61	14	6	8	13	1	7	Y	191.54	155.0	37.5	80.92	19.58	50.25	1	1	1	1	1



Butternut Health Assessment Photo Log



Photo 1: JUG-001 – Terminal bud



Photo 2: JUG-001 – Leaf scar



Photo 3: JUG-001 – Pith



Photo 4: JUG-001 – Leaf length



Photo 5: JUG-001 – Bark

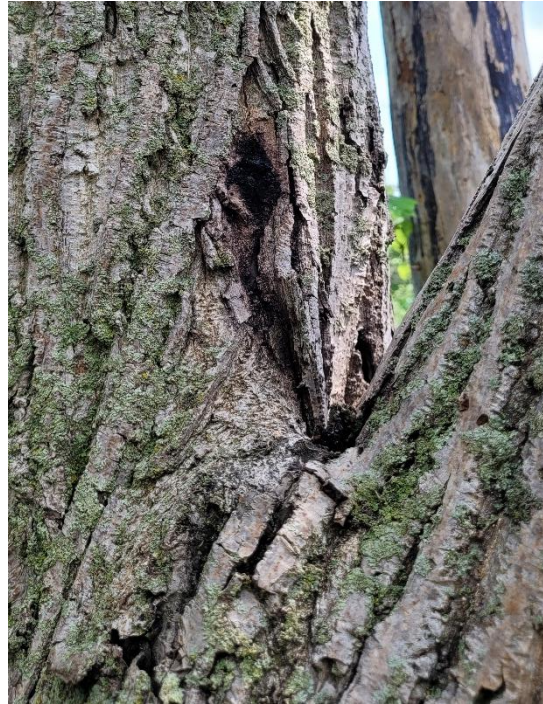


Photo 6: JUG-001 – Cankers



Photo 7: JUG-001 – Cankers



Photo 8: JUG-001 – Stem



Photo 9: JUG-001 – Crown



Photo 10: JUG-004 – Terminal bud



Photo 11: JUG-004 – Bark



Photo 12: JUG-004 – Nut



Photo 13: JUG-004 – Stem

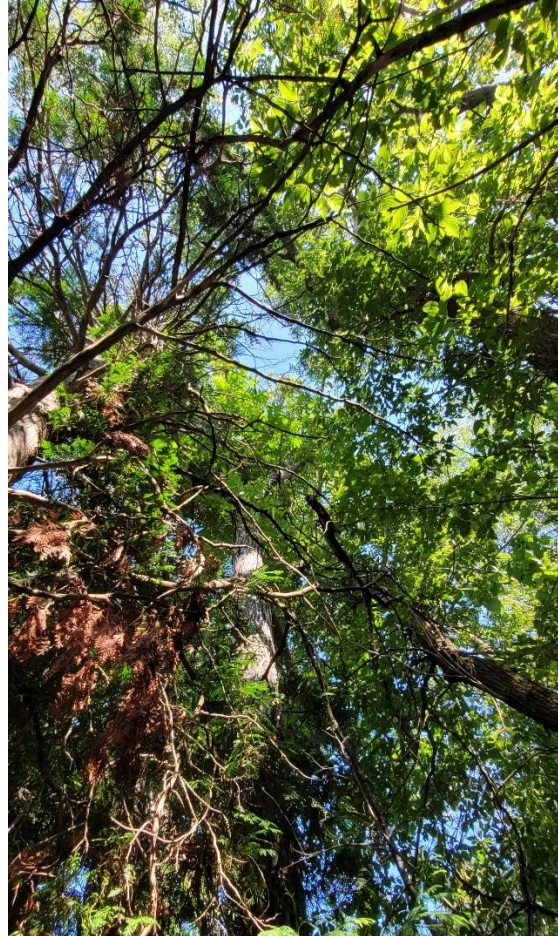


Photo 14: JUG-004 – Crown



Field Hybridity Results:

JUG-001 Hybridity Test Results

Trait	Score	Trait	Score
Leaf Retention	-	Leaf Length	0
Term. Bud (dormant)	1	Bark Fissure Colour	2
Twig Colour (dormant)	0	Hull Characteristics	-
Lenticel Shape	0	Nut Shape	-
Pith Colour	0	Catkin Length	-
Leaf Scar	1	TOTAL	4

JUG-004 Hybridity Test Results

Trait	Score	Trait	Score
Leaf Retention	-	Leaf Length	1
Term. Bud (dormant)	1	Bark Fissure Colour	1
Twig Colour (dormant)	1	Hull Characteristics	-
Lenticel Shape	1	Nut Shape	1
Pith Colour	-	Catkin Length	-
Leaf Scar	-	TOTAL	6

Subject: RE: GID Lands EIS, Guelph; Butternut Health Expert's Report Submission (proj2851)
From: "Species at Risk (MECP)" <SAROntario@ontario.ca>
Date: 4/9/2024, 1:17 PM
To: Pam Hammer <phammer@nrsi.on.ca>, "Species at Risk (MECP)" <SAROntario@ontario.ca>
CC: Nathan Miller <nmliller@nrsi.on.ca>, "ddoherty@fusionhomes.com" <ddoherty@fusionhomes.com>

Hello Pam,

Thank you for submitting your Butternut Health Assessment (BHA) to the Species at Risk Branch (SARB).

Please use this email as receipt of your submission, dated April 3, 2023.

If you are proposing to rely on [Part 5 of the Ontario Regulation 830/21](#) for the tree identified in the BHA, then you are eligible to do so 30-days following the date that the BHA was submitted to the SARB.

Thank you,
SAR Ontario

From: Pam Hammer <phammer@nrsi.on.ca>
Sent: Wednesday, April 3, 2024 12:51 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Nathan Miller <nmliller@nrsi.on.ca>; ddoherty@fusionhomes.com
Subject: GID Lands EIS, Guelph; Butternut Health Expert's Report Submission (proj2851)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please see the attached Butternut Health Expert's (BHE) Report that has been prepared following the assessment of two Butternut trees identified on the Guelph Innovation District (GID) (Blocks 1 and 2) property on July 25, 2023 and August 22, 2023.

Both Butternut trees were assessed as Category 1 and identified as Hybrid, and development is proposed within 50m of, but more than 10m, from each tree.

Please note that the following documents are also enclosed as part of this BHE Report:

- Completed Butternut Data Collection Form
- Photo Appendix
- Field Hybridity Test Results

Should you have any questions regarding the BHE Report or require further information, please don't hesitate to let me know.

Thank you,

Pam