

Scoped Environmental Impact Study

Richmond Properties, Block 41, Vaughan, ON

Submitted to: Richmond Properties (Block 41) Inc. 8305 Jane Street Unit 1-2 Concord, ON L4K 5Y

Submitted by: GEI Consultants, Inc. 100-75 Tiverton Court Markham, ON L3R 4M8

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1.	Introd	duction	1
	1.1	Project Overview	1
	1.2	Purpose of the Report	1
	1.3	Natural Heritage Legislation and Policy Context	1
		1.3.1 City of Vaughan Official Plan	2
		1.3.2 York Region Official Plan	3
		1.3.3 Greenbelt Plan	3
		1.3.4 Block 41 Master Environmental Servicing Plan	4
		1.3.5 East Purpleville Creek Subwatershed Study	4
		1.3.6 Toronto and Region Conservation Authority	4
		1.3.7 Provincial Policy Statement	5
		1.3.8 Endangered Species Act	6
		1.3.9 Migratory Birds Convention Act	6
		1.3.10 Federal Fisheries Act	7
2.	Sumr	nary of Data Collection Approaches and Methods	8
	2.1	Background Review	8
		2.1.1 NHIC Database Results	8
		2.1.2 Land Information Ontario Natural Features Results	9
		2.1.3 Ontario Breeding Bird Atlas	9
		2.1.4 Ontario Reptile and Amphibian Atlas Results	10
		2.1.5 Ontario Butterfly and Moth Atlas Results	10
		2.1.6 Aquatic SAR Distribution Mapping Results	10
		2.1.7 Citizen Science Databases (eBird and iNaturalist)	11
	2.2	Ecological Field Investigations	11
		2.2.1 Botanical Inventory and Ecological Land Classification Metho	dology 11
		2.2.2 Breeding Bird Survey Methodology	12
		2.2.3 Amphibian Survey Methodology	12
		2.2.4 Headwater Drainage Feature Assessment Methodology	13
3.	Envir	onmental Setting and Characteristics	14
	3.1	Physical Environment	14
	3.2	Biological Environment	14
	3.3	Terrestrial and Aquatic Ecology	14
		3.3.1 Vegetation Results	14
		3.3.2 Breeding Bird Results	15
		3.3.3 Amphibian Survey Results	17
		3.3.4 Headwater Drainage Feature Assessment Results	17
4.	Analy	vsis of Ecological and Natural Heritage Significance	19
	4.1	Significant Wetlands	19
	4.2	Significant Coastal Wetlands	19
	4.3	Significant Woodlands	20
	4.4	Significant Valleylands	20
	4.5	Significant Wildlife Habitat	20



	4.6 4.7 4.8 4.9 4.10	Fish Habitat Habitat for Endangered and Threatened Species Significant Areas of Natural and Scientific Interest Summary of Ecological and Natural Heritage Significance Existing Ecological Constraints Analysis	22 22 22 22 22 22
5.	Descr	iption of Development Proposal	24
6.	Impac	t Assessment	25
	6.1	Significant Woodlands	25
	6.2	Significant Wetland	25
	6.3	Candidate Significant Wildlife Habitat	25
	6.4	Candidate Habitat of Endangered or Threatened Species	26
7.	Concl	usions and Recommendations	27

Appendices A. Figures B. Table



1. Introduction

1.1 **Project Overview**

GEI Consultants (GEI) has been contracted by Richmond Properties (Block 41) Inc. to complete a Scoped Environmental Impact Study (EIS) for a property located within Block 41, Vaughan, Ontario (herein referred to as the Subject Lands) (**Figure 1**, **Appendix A**). The Subject Lands are located on Lot 26, Concession 6, north of Teston Road and west of Weston Road. The Subject Lands consist primarily of active agricultural land use.

GEI is very familiar with the Block 41 lands and worked in collaboration with the consultant team to prepare the Master Environmental Servicing Plan (MESP 2021) commissioned by the Block 41 Landowners Group.

1.2 Purpose of the Report

A Scoped EIS is required to assess the potential impacts of the proposed development on the Subject Lands on natural heritage features and their associated functions. This EIS considers applicable policies of the Province of Ontario's Provincial Policy Statement (PPS; Ministry of Municipal Affairs and Housing; MMAH 2020) and associated provincial implementation guidance contained in the Natural Heritage Reference Manual (NHRM; MNR 2010) as well as the City of Vaughan's Official Plan (OP; 2020 Consolidation), York Region's OP (2022 Consolidation) and the Toronto and Region Conservation Authority's (TRCA) regulation and policies. This Scoped EIS must be prepared to the satisfaction of all above noted reviewing agencies.

1.3 Natural Heritage Legislation and Policy Context

An assessment of the quality and extent of natural heritage features found on, and adjacent to the Subject Lands and the potential impacts to these features from the proposed development was undertaken to comply with requirements of the following regulatory agencies, local municipality, and/or legislation:

- City of Vaughan's Official Plan (2020 Consolidation);
- York Region's Official Plan (2019 Consolidation);
- Greenbelt Plan (2017);
- Block 41 Master Environmental Servicing Plan;
- East Purpleville Creek Subwatershed Study;
- TRCA policies and mapping;
- PPS (MMAH 2020);
- Endangered Species Act (ESA; 2021 Consolidation of S.O. 2007, c. 6);



- Migratory Birds Convention Act (1994); and
- Fisheries Act (R.S.C., 1985, c. F-14).

The Subject Lands are located outside of the Oak Ridges Moraine and Niagara Escarpment Planning Areas.

1.3.1 City of Vaughan Official Plan

The City of Vaughan Official Plan (OP) (2020 Office Consolidation) designates the southern portion of the Subject Lands as Community Areas as per Schedule 1 ("Urban Structure"). The Northern portion of the Subject Lands is identified as the Greenbelt Natural Heritage System containing two Provincially Significant Wetlands (Schedule 4; "Oak Ridges Moraine Conservation Plan & Greenbelt Plan Areas") (**Figure 2**, **Appendix A**).

Community Areas will provide Low-Rise Residential land use, with local retail and community facilities such as schools and parks.

Key natural heritage features in the Greenbelt Plan Area include:

- Significant habitat of endangered species, threatened species and special concern species
- Fish habitat
- Wetlands,
- Life Science Areas of Natural and Scientific Interest (Life Science ANSIs)
- Significant valleylands
- Significant woodlands
- Significant wildlife habitat
- Sandbarrens, savannahs and tallgrass prairies

Proposals for new development or site alteration within 120 metres of a key natural heritage feature within the Natural Heritage System requires a natural heritage evaluation, which identify a vegetation protection zone which:

- a) is of sufficient width to protect the key natural heritage feature or key hydrologic feature and its functions from the impacts of the proposed change and associated activities that may occur before, during, and after, construction, and where possible, restore or enhance the feature and/or its function; and
- b) is established to achieve, and be maintained as natural self-sustaining vegetation

New development or site alteration on lands identified as Greenbelt Natural Heritage System shall demonstrate that:

a) there will be no negative effects on key natural heritage features or key hydrologic features or their functions;



- b) connectivity between key natural heritage features and key hydrologic features is maintained, or where possible, enhanced for the movement of native plants and animals across the landscape;
- c) the removal of other natural features not identified as key natural heritage features and key hydrologic features shall be avoided. Such features shall be incorporated into the planning and design of the proposed use wherever possible; and
- d) the disturbed area of any site does not exceed 25 percent, and the impervious surface does not exceed 10 percent, of the total developable area.

Core Features identified on Schedule 2, are indicated in Section 3.2.3.4 to require a Minimum Vegetation Protection Zone (MVPZ) to protect ecological function. For wetlands and

b. wetlands, including those identified as provincially significant, with a minimum 30 metre vegetation protection zone;

c. woodlands including those identified as significant, with a minimum vegetation protection zone as measured from the woodlands dripline of 10 metres, or 30 metres for those woodlands within the Oak Ridges Moraine and Greenbelt Plan Areas;

1.3.2 York Region Official Plan

The Region of York's Official Plan, 2010 (2022 Consolidation) is intended to guide future planning activities within the region and provide direction to those initiatives that aim to improve the existing physical environment. This document also intends to provide direction and support to municipal governments in the development of their Official Plans and future planning activities.

The southern portion of the Subject Lands are designated as an Urban Area. Urban Areas are intended to be the focus of growth within the York Region and permit residential, commercial, industrial and institutional uses. The northern portion of the Subject Lands is designated as Protected Countryside of the Greenbelt Plan as per Map 1 ("Regional Structure") and part of the Regional Greenlands System as per Map 2 ("Regional Greenlands System"). In addition, Map 4 ("Key Hydrological Features") identifies Provincially Significant and Provincial Plan Area Wetlands within the Subject Lands and along its boundaries in the Greenbelt, while Map 5 ("Woodlands") identifies a woodland within the Greenbelt. As stated in the Vaughan OP, development and site alteration are generally prohibited in key natural heritage features and within the Natural Heritage System of the Protected Countryside of the Greenbelt Plan, the vegetation protection zone shall be a minimum of 30 metres for wetlands and significant woodlands.

1.3.3 Greenbelt Plan

The Greenbelt Plan (2017) works together with the Growth Plan to build on the PPS and establish a land use planning framework for the Greater Golden Horseshoe. Specifically, the



Greenbelt Plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and natural and hydrologic features.

The northern portion of the Subject Lands are within the Greenbelt Plan Area and identified as "Protected Countryside". The Protected Countryside Area is intended to enhance the spatial extent of agricultural and environmentally protected lands and improve linkages between these protected areas and surrounding major lake systems and watersheds.

The portion of the Subject Lands within the Greenbelt Plan Area also has a Natural Heritage System overlay, which includes core areas and linkage areas with the highest concentration of the most sensitive/significant natural features and functions. Within the Natural Heritage System, new development or site alteration shall have no negative impacts on key natural heritage or hydrologic features or their functions.

1.3.4 Block 41 Master Environmental Servicing Plan

Block 41 is one of two Community Areas identified in the City of Vaughan to accommodate population growth to 2031. The Block 41 Secondary Plan, Amendment 50 to the Vaughan Official Plan, was adopted by the City of Vaughan in October 2019, and was subsequently approved with modifications by the Region of York in January 2020. Subsequent to the approval of the Block 41 Secondary Plan, a Block Plan is required to establish detailed development concepts and standards for development within the Secondary Plan Area. The Block Plan is a comprehensive planning framework that describes how a wide range of elements of development will be addressed. Block Plan requirements include the preparation of a Master Environmental Servicing Plan (MESP) to address a range of environmental and servicing issues associated with proposed development areas including the protection and management of surface water, groundwater, fluvial geomorphology, terrestrial and aquatic resources and the identification of the Natural Heritage Network and municipal servicing needs, including stormwater management, sanitary and water servicing and site grading requirements.

1.3.5 East Purpleville Creek Subwatershed Study

The East Purpleville Creek Subwatershed Study (SWS) (2021) was prepared in support of the approved Block 41 Secondary Plan. The SWS included the characterization of aquatic and terrestrial resources and surface and groundwater systems, as well as an assessment of potential land use impacts on existing resources and the identification of management strategies to address a range of watershed management objectives.

1.3.6 Toronto and Region Conservation Authority

The TRCA conducts reviews of planning processes associated with future development of properties within its jurisdictional boundaries. TRCA provides planning and technical advice to planning authorities to assist them in fulfilling their responsibilities regarding natural hazards, natural heritage and other relevant policy areas pursuant to the Planning Act. In addition to their regulatory responsibilities, TRCA provides advice as both a watershed-based resource management agency and through planning advisory services.



TRCA administers the Development, Interference with Wetlands, Alterations to Shorelines and Watercourses Regulation, Ontario Regulation (O. Reg.) 166/06, which defines the areas of interest that allow TRCA to:

- Prohibit, regulate, or provide permission for straightening, changing, diverting or interfering in any way with the existing channel of a river, creek, stream, watercourse or changing or interfering with a wetland; and
- Prohibit, regulate, or provide permission for development if the control of flooding, erosion, dynamic beaches

A review of the TRCA's online Regulation Mapping (2020) was completed to determine the extent of the regulated areas within the Subject Lands. The TRCA regulates watercourses (including floodplains, meander belts), valleylands (crest of slope), wetlands and shorelines. The regulation mapping delineates hazardous lands, wetlands, shorelines and areas susceptible to flooding and associated allowances. The wetlands within the Subject Lands and those along the northern and eastern boundary off-site, are identified by the TRCA as Provincially Significant Wetlands and are regulated by the TRCA. In addition, a Wetland Area of Interference, which identifies lands where development could interfere with the hydrologic function of a wetland, encompasses majority of the Subject Lands. The tributary of the East Humber River offsite to the west is also a regulated watercourse with a meander belt.

Pursuant to the Development, Interference with Wetland and Alterations to Shorelines and Watercourse Regulation (TRCA; O. Reg. 166/06), any development in or on areas defined in the Regulation (e.g., river or stream valleys, hazardous land, wetlands) requires authorization from the Conservation Authority. The Conservation Authority may grant permission for development in or on these areas if, in its opinion, the control of flooding, erosion, dynamic beaches, pollution or the conservation of land will not be affected by the development. The Regulation also states that it is prohibited to straighten, change, divert or interfere in any way with the existing channel of a river, creek, stream or watercourse.

The TRCA's Living Cities Policies (2014) contain the principles, goals, objectives, and policies approved by the TRCA for their planning and development approvals process. This document outlines policies related to the determination of the Natural System and recommends buffer widths for natural heritage features such as woodlands, wetlands, and valley and stream corridors.

1.3.7 Provincial Policy Statement

The PPS (MMAH 2020) provides guidance on matters of provincial interest surrounding landuse planning and development. It "supports improved land use planning and management, which contributes to a more effective and efficient land use planning system". The PPS is to be read in its entirety and land-use planners and decision-makers need to consider all relevant policies and how they work together.

Eight types of significant natural heritage features are defined in the PPS, as follows:

• Significant wetlands;



- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat (SWH);
- Fish habitat;
- Habitat of endangered and threatened species; and
- ANSIs.

Development and site alteration shall not be permitted in significant wetlands within EcoRegions 5E, 6E and 7E, or in significant coastal wetlands. Development and site alteration shall not be permitted in significant woodlands, significant valleylands, SWH or significant ANSIs, unless it is demonstrated that there will be no negative impacts on the natural features or their ecological functions.

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

Development and site alteration may be permitted on lands adjacent to the above features provided it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions.

1.3.8 Endangered Species Act

The provincial ESA, 2007 (Consolidation 2021) was developed to:

- Identify species at risk (SAR), based upon best available science;
- Protect SAR and their habitats and to promote the recovery of the SAR; and
- Promote stewardship activities that would support those protection and recovery efforts.

The ESA protects all threatened, endangered and extirpated species listed on the Species at Risk in Ontario (SARO) list (Government of Ontario 2007b). These species are legally protected from harm or harassment, and their associated habitats are legally protected from damage or destruction, as defined under the ESA.

1.3.9 Migratory Birds Convention Act

Environment and Climate Change Canada (ECCC) administers the Migratory Birds Convention Act, 1994 (amended 2017), which protects the nests of migratory bird species from destruction, including incidental take (i.e., the unintentional destruction of a nest), as well as from disturbance. The Migratory Birds Convention Act does not provide a set date where activities, such as tree removal, can be completed without the risk of incidental harm to the nests of birds. The requirement to ensure that there are no bird nests present within the work area rests with the proponent of the activity.



1.3.10 Federal Fisheries Act

The Department of Fisheries and Oceans Canada (DFO) administers the federal *Fisheries Act*, 1985, which defines fish habitat as "water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas" (s. 2(1)). The *Fisheries Act* prohibits the death of fish by means other than fishing (s. 34.4(1)), and the harmful alteration, disruption or destruction of habitat (HADD; s. 35(1)). A HADD is defined as "any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat's capacity to support one or more life processes" (DFO 2019).



2. Summary of Data Collection Approaches and Methods

2.1 Background Review

GEI reviewed the following background material to determine existing natural heritage information for the site the proposed scope of work:

- Ministry of Natural Resources and Forestry's (MNRF) Natural Heritage Information Centre (NHIC) database (2022);
- MNRF's Land Information Ontario (LIO) database (2022);
- Bird Studies Canada's Atlas of the Breeding Birds of Ontario (BSC et al. 2008);
- Ontario Nature's Reptile and Amphibian Atlas (2019);
- Toronto Entomologists' Association's (TEA) Ontario Butterfly and Moth Atlases (2020, 2022);
- DFO's Aquatic SAR Map (2022); and
- Online citizen science databases (e.g., eBird and iNaturalist).

2.1.1 NHIC Database Results

The Natural Heritage Information Centre (NHIC) database (MNRF 2022) was searched for records of provincially significant plants, vegetation communities and wildlife on and in the vicinity of the Subject Lands. The database provides occurrence data by 1 km² area squares, with one square containing the Subject Lands (17PJ1457).

In total, six species were recorded in the atlas square that overlaps with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
 - Redside Dace (*Clinostomus elongatus*) Endangered;
 - Bobolink (*Dolichonyx oryzivorus*) Threatened;
 - Eastern Meadowlark (*Sturnella magna*) Threatened;
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species):
 - Eastern Wood-Pewee (*Contopus virens*) Special Concern;
 - Wood Thrush (*Hylocichla mustelina*) Special Concern



2.1.2 Land Information Ontario Natural Features Results

Based on the MNRF Land Information Ontario (LIO) geographic database, the following features were identified on or immediately adjacent (within 120 m) to the Subject Lands (**Figure 2**, **Appendix A**):

- The Greenbelt NHS and Protected Countryside on the northern portion of the Subject Lands;
- Two Provincially Significant Wetlands part of the East Humber River Wetland Complex, along the eastern and western boundary within the Greenbelt; and
- Several woodlands located within the Greenbelt.

2.1.3 Ontario Breeding Bird Atlas

The Ontario Breeding Bird Atlas (OBBA) contains detailed information on the population and distribution status of Ontario birds (Bird Studies Canada et al. 2006). The data are presented on 100 km² area squares with one square overlapping the Subject Lands (17PJ15). It should be noted that the Subject Lands are a small component of the overall bird atlas square, and that 17PJ15 also encompasses a provincially significant wetland: East Humber River Wetland Complex. Therefore, it is unlikely that all bird species noted within this atlas square are found within the Subject Lands. Habitat type, availability and size are all contributing factors in bird species presence and use.

In total, 114 species were recorded in the atlas square that overlaps with the Subject Lands, with the following species of interest noted:

- Species listed as Threatened or Endangered on the SARO list:
 - Bank Swallow (*Riparia riparia*) Threatened;
 - Barn Swallow (*Hirundo rustica*) Threatened;
 - Bobolink Threatened;
 - Chimney Swift (*Chaetura pelagica*) Threatened;
 - Eastern Meadowlark Threatened; and
 - Red-headed Woodpecker (*Melanerpes erythrocephalus*) Endangered.
- Species of Conservation Concern (i.e., listed as Special Concern on the SARO list, or identified as an S1-S3 species, B=breeding population, N= non-breeding population, M= migrant population):
 - Blue-winged Teal (*Anas discors*) S3B, S4M;
 - Chipping Sparrow (Spizella passerine) S5B, S3N;
 - Common Nighthawk (Chordeiles minor) Special Concern;
 - Eastern Wood-Pewee Special Concern;
 - Eastern Towhee (*Pipilo erythrophthalmus*) S4B, S3N;
 - Field Sparrow (Spizella pusilla) S4B, S3N;
 - Grasshopper Sparrow (Ammodramus savannarum) Special Concern;
 - Marsh Wren (Cistothorus palustris) S4B, S3N;
 - o Pied-billed Grebe (Podilymbus podiceps) S4B, S2N



- Pine Warbler (Setophaga pinus) S5B, S3N;
- Ruby-crowned Kinglet (*Regulus calendula*) S5B, S3N
- o Turkey Vulture (Cathartes aura) S5B, S3N;
- Wood Duck (Aix sponsa) S5B, S3N; and
- Wood Thrush Special Concern.

2.1.4 Ontario Reptile and Amphibian Atlas Results

The Ontario Reptile and Amphibian Atlas contains detailed information on the population and distribution status of Ontario herpetofauna (Ontario Nature 2019). The data are presented on 100 km² area squares with one square overlapping the Subject Lands (17PJ15). It should be noted that the Subject Lands are a small component of the overall atlas square, and therefore it is unlikely that all herpetofauna species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in herpetofauna species presence and use.

In total, 17 species were recorded in the atlas square that overlaps with the Subject Lands, of which three are salamander species, eight are frog and toad species, two are turtle species and four are snake species. Of these species, one species of interest was noted: Snapping Turtle (*Chelydra serpentina*), listed as Special Concern in Ontario.

2.1.5 Ontario Butterfly and Moth Atlas Results

The Ontario Butterfly and Moth Atlases (Toronto Entomologists' Association 2020, 2022) contain detailed information on the population and distribution status of Ontario butterflies and moths. The data are presented on 100 km² area squares with one square overlapping the Subject Lands (17PJ15). It should be noted that the Subject Lands is a small component of the overall atlas square, and therefore it is unlikely that all butterfly and moth species are found within the Subject Lands. Habitat type, availability and size are all contributing factors in butterfly and moth species presence and use.

A total of 94 species were recorded in the atlas square that overlaps with the Subject Lands. Of these species, 66 were butterflies and 28 were moths. Overall, one species of interest was noted: Monarch (*Danaus plexippus*), which is listed as Special Concern in Ontario.

2.1.6 Aquatic SAR Distribution Mapping Results

Aquatic species at risk distribution mapping (DFO 2022) was reviewed to identify any known occurrences of aquatic SAR, including fish and mussels, within the subwatershed where the Subject Lands is located.

No SAR were identified within the Subject Lands. However, one aquatic SAR was identified less than 0.5 km south of the Subject Lands in the East Humber River: Redside Dace. Since there is occupied Redside Dace reaches within the vicinity (downstream) of the Subject Lands, all drainage features contributing seasonal and permanent flows into the East Humber River and its associated tributaries could be identified as contributing Redside Dace habitat by the Ministry of Environment, Conservation and Parks (MECP).



2.1.7 Citizen Science Databases (eBird and iNaturalist)

The iNaturalist (2022) database is a large citizen science-based identification and data collection app. It allows any citizen to submit observations to be reviewed and identified by other naturalists and scientists to help provide accurate species observations. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and targeted survey efforts.

This online database was examined to identify observations made within the Subject Lands that were research grade. However, no significant species were found on the Subject Lands or within 120 m of its boundaries.

The eBird (2022) database is a large citizen science-based project with a goal to gather bird diversity information in the form of checklists of birds, archive it, and share it to power new data-driven approaches to science, conservation and education. As the observations can be submitted by anyone, and the records are not officially vetted, the data obtained from this tool should not be used as a clear indicator of species presence, and species may be filtered out based on habitat and target survey efforts.

This online database was examined to identify observations made within the Subject Lands. However, no significant bird species were found on the Subject Lands or within 120 m of its boundaries.

2.2 Ecological Field Investigations

The following ecological field investigations have been undertaken to understand potential ecological constraints to development:

The following ecological investigations were completed as part of the Block 41 Master Environmental Servicing Plan (MESP 2021):

- Botanical Inventory and Ecological Land Classification (ELC) in 2019;
- Breeding Bird Surveys in 2014-2017, 2019;
- Amphibian Call Count Surveys in 2014, 2016, 2020; and
- Headwater Drainage Feature Assessment in 2012, 2014, 2015, 2016, 2019, 2020.

2.2.1 Botanical Inventory and Ecological Land Classification Methodology

Vegetation communities were first identified on aerial imagery and then verified in the field. Vegetation community types were confirmed, sampled and revised, if necessary, using the sampling protocol of the ELC for Southern Ontario (Lee at al. 1998). Generally, vegetation communities of at least 0.5 ha in size were mapped; however, distinct communities smaller than this were also mapped where appropriate. Species names generally follow nomenclature from the Database of Vascular Plants of Canada (Brouillet et al. 2010+).



The provincial status of all plant species and vegetation communities is based on NHIC (2022). Identification of potentially sensitive native plant species is based on their assigned coefficient of conservatism (CC) value, as determined by Oldham et al. (1995). This CC value, ranging from 0 (low) to 10 (high), is based on a species tolerance of disturbance and fidelity to a specific natural habitat. Species with a low CC value tend to have little or no fidelity to pristine or unique natural ecosystems and can be found in a variety of natural or anthropogenic habitats. Species with a CC value of 9 or 10 are potentially sensitive as they tend to have a consistent fidelity to high-quality or unique ecosystems.

2.2.2 Breeding Bird Survey Methodology

Breeding bird surveys were conducted following protocols set forth by the Ontario Breeding Bird Atlas (Cadman et al. 2007) and the Ontario Forest Bird Monitoring Program (Cadman et al. 1998). These protocols generally follow the Bird and Bird Habitats: Guidelines for Wind Power Projects (OMNR 2010) recommended under the SWH Criteria Schedules for Ecoregion 6E (MNRF 2015) but have been adjusted, based on professional experience, to implement a more comprehensive approach that combines area search and point count techniques.

Surveys were conducted between dawn and five hours after dawn with suitable wind conditions, no thick fog or precipitation (Cadman et al. 2007). Point count stations were placed in various habitat types, where present, within the Subject Lands and combined with area searches to help determine the presence, variety, and abundance of bird species. Each point count station was surveyed for 10 minutes for birds within 100 m and outside 100 m. All species recorded on a point-count were mapped to provide specific spatial information and were observed for signs of breeding behavior. Surveys were conducted at least seven days apart.

No suitable grassland bird habitat was identified within the Subject Lands; therefore, no thirdround surveys is warranted.

2.2.3 Amphibian Survey Methodology

Survey protocols are based on the 'Marsh Monitoring Program' (Bird Studies Canada (BSC) 2014).

Survey station locations were determined through an assessment of orthophotography, existing vegetation communities and ground observations.

The call count surveys were conducted at night within the appropriate timing window from approximately 30 minutes after sunset until midnight. Each station was surveyed three times (once in April, once in May and once in June) during optimal weather conditions (low wind levels, no heavy rain). Minimum night air temperatures at time of survey of 5°C, 10°C and 17°C were applied to each of the respective survey periods. Surveys were conducted at least 15 days apart. All calls heard within a survey station were recorded, as well as any call observations outside of the survey station, including on adjacent lands. The provincial and



global statuses of species identified on the Subject Lands were obtained from the Natural Heritage Information Centre (NHIC 2022) and the Species at Risk of Ontario (SARO) list.

2.2.4 Headwater Drainage Feature Assessment Methodology

Per the requirements of the HDFA Guidelines, GEI completed site visits to assess headwater drainage features on the Subject Lands.

During the first site visit, all areas of Block 41 were walked to identify potential headwater drainage features. Each headwater drainage feature observed was separated into specific reaches, per the guidance on reach delineation in the HDFA Guidelines, and data collection was completed for each reach based on Ontario Stream Assessment Protocols for Unconstrained Headwater Sampling, Section 4: Module 11 (Stanfield, ed. 2017). Sampling of each reach was then completed in accordance with OSAP protocols. A photographic record of each headwater drainage feature was collected during each survey event.

Following completion of the survey rounds, the collected data was used to classify each headwater drainage feature, based on the HDFA Guideline hierarchy.



3.1 Physical Environment

The Subject Lands consist primarily of active agricultural land use. The northern portion of the Subject Lands is identified as Protected Countryside as defined by the Greenbelt Plan. The Eastern Humber River Wetland Complex is located northeast of the Subject Lands. The Subject Lands primarily consist of a wooded area with two provincially significant wetlands. Off-property to the south of the Subject Lands, the Humber River contains Aquatic Species at Risk habitat.

The physiography of the Block 41 lands consists of being located on the till plain south of the Oak Ridges Moraine (ORM) (Chapman and Putnam, 1984). The surficial geology of Block 41 lands is covered by clayey silt to silt till. The bedrock in the area consists of layered grey shale bedrock from of the Georgian Bay Formation. The Block 41 lands have a gently rolling to undulating topography with an overall slope towards the southwest.

3.2 Biological Environment

The Subject Lands are in the Lake Simcoe to Rideau Ecoregion (6E) and Deciduous Forest Region. Broadleaved species include Sugar Maple (*Acer saccharum*), Red Oak (*Quercus rubra*), Basswood (*Tilia americana*), and White Elm (*Ulmus americana*) (Rowe 1972). Other wide-ranging species are the Eastern White Cedar (*Thuja occidentalis*) and Largetooth Aspen (*Populus grandidentata*), and to a lesser extent American Beech (*Fagus grandifolia*), White Oak (*Quercus alba*), Butternut (*Julgans cinera*) and White Ash (*Fraxinus americana*). Boreal species, such as White Spruce (*Picea glauca*), Black Spruce (*Picea mariana*), Balsam Fir (*Abies balsamea*), Jack Pine (*Pinus banksiana*), Trembling Aspen (*Populus tremuloides*), Balsam Poplar (*Populus balsamifera*) are intermixed throughout the region.

3.3 Terrestrial and Aquatic Ecology

The terrestrial survey stations on the Subject Lands are shown in Figure 3, Appendix A.

3.3.1 Vegetation Results

GEI Consultants (formerly Savanta) in 2019 conducted a three-season botanical inventory survey and identified 110 species of vascular plants. 72 (or 65%) of the 110 species are native and 38 (or 35%) are exotic. The full species list is included in the Block 41 Master Environmental Servicing Plan (2021) in Table E5-2, Appendix E5.

Most of the native species (97%) are ranked S5 (secure in Ontario). Two species (3%) are ranked S4 (apparently secure in Ontario).

• Giant Blue Cohost (*Caulophyllum virginianum*) - S4/S5, rare in the deciduous forest unit of Richmond Properties; and



• Black Walnut (*Juglans nigra*) - S4? Species, planted along Teston Road.

One locally rare plant was observed on the Subject Lands, as per the York Region rarity rankings (Varga et al 2005):

• Black Walnut - planted along Teston Road.

None of the species recorded from the Subject Lands had a co-efficient of conservation value of 9 or 10.

3.3.2 Breeding Bird Results

Breeding Bird surveys were conducted in 2014-2017 and 2019 for the Block 41 MESP. Also, a grassland habitat assessment was conducted.

2014 Breeding Bird Survey Results

Ten breeding bird point count stations were surveyed within Block 41. A total of 73 bird species were observed. Seven of the bird species are considered non-breeders, flyovers or migrants. The observed breeding bird species are discussed in the sections below. The results of the 2014 bird surveys are presented in Block 41 MESP (2021) Table E5-3, Appendix E5.

A total of 62 (93%) of the confirmed, probable or possible breeders are provincially ranked S5 (commonnd secure) and S4 (apparently common and secure) or SNA (introduced species in Ontario). Four

Species at Risk were recorded within the Block 41 Study Area:

- Bobolink (Threatened);
- Barn Swallow (Threatened);
- Wood Thrush (Special Concern); and,
- Eastern Wood-Pewee (Special Concern).

There are no structures identified on the Subject Lands to support nesting Barn Swallow. Eastern Wood-Pewees were recorded as probable breeders in suitable breeding habitat at point count stations 1, 2, 5 and 7. Wood Thrush exhibited probable breeder evidence at point count stations 2, 6 and 7, all of which occur with the Greenbelt Plan Area.

Twelve locally rare (TRCA) bird species were observed in 2014, according to the Block 41 MESP (2021) Table E5-3, Appendix E5.

2015 Breeding Bird Survey Results

Sixteen point count stations were surveyed within Block 41 in 2015. A total of 61 bird species were observed. Of this total, 11 bird species are considered nonbreeders, flyovers or migrants. The results for the 2015 bird surveys are presented in Table E5-5, Appendix E5, and all wildlife



species recorded in 2015 are presented in Table E5-4, Appendix E5 of the Block 41 MESP (2021).

A total of 50 (100%) of the confirmed, probable or possible breeders are provincially ranked S5 (common and secure), S4 (apparently common and secure) or SNA (species not native to Ontario). Three Species at Risk (SAR) were recorded within the Subject Lands:

- Barn Swallow (Threatened) was observed within agricultural lands;
- Bobolink (Threatened) was observed within agricultural lands; and,
- Eastern Wood-pewee (Special Concern) was generally observed within wooded portions of the Greenbelt.

Barn Swallows were observed foraging over Block 41 and are listed as non-breeders. Suitable Barn Swallow nesting structures were identified within Block 41.

In 2015, three male Bobolinks were observed during round 1 in unsuitable habitat north of Point Count Station 6B. Bobolinks were absent from this area, and the remainder of Block 41, during rounds 2 and 3.

2016 and 2017 Breeding Bird Survey Results

A follow up grassland bird habitat assessment was conducted on April 12, 2016 and July 19, 2017.

Suitable habitat for Bobolink / Eastern Meadowlark is considered absent from Block 41. Possible breeding evidence was recorded for Eastern Wood-Pewee at point count stations 1, 5, 6B and 7; and probable breeding evidence was recorded at point count station 10.

2019 Breeding Bird Survey Results

Five-point count stations were surveyed within the Subject Lands in 2019 (**Figure 3**, **Appendix A**). A total of 41 bird species were observed within the Subject Lands. Of this total, 5 species are confirmed,16 are probable and 15 are possible breeders on the Subject Lands. The remaining 5 bird species are considered non-breeders, flyovers or migrants. The observed breeding bird species are discussed in the sections below. All bird species observed on the Subject Lands in 2019 are listed in Block 41 MESP (2021) Table E5-6, Appendix E5.

A total of 36 (100%) of the confirmed, probable or possible breeders are provincially ranked S5 (common and secure), S4 (apparently common and secure) or SNA (species not native to Ontario). No bird species are considered provincially rare (S1-S3).

The following Species at Risk were observed on the Subject Lands:

• Eastern Wood Pewee (Special Concern in Ontario) - Three singing males were recorded from suitable breeding habitat found on the Subject Lands during the surveys, from point count stations 16 and 18. No confirmed evidence of nesting was observed; however, a



probable level of evidence was determined due to the presence of birds in their preferred mature hardwood forest habitat at the same locations over seven days apart.

 Barn Swallow (Threatened in Ontario) - Several individuals were observed foraging over the Subject Lands during both surveys. There were no structures suitable for breeding sites used by this species on the Richmond Properties lands. These individuals were most likely attracted to wetland and open areas to forage on aerial insects.

3.3.3 Amphibian Survey Results

Three rounds of evening amphibian call-count surveys (AMC) were conducted during the spring of 2014, 2016, and 2020.

Amphibian call count and egg mass survey data, including survey personnel and weather conditions, are provided in Block 41 MESP (2021) Table E5-9, Appendix E5. A total of six amphibian species were observed during the call count and egg mass surveys. All of these species are provincially ranked S5 (common and secure). No Species at Risk amphibians were recorded within Block 41. Four of the amphibian species are considered locally rare. The results of the 2014, 2016, and 2020 AMC surveys are presented in the Block 41 MESP (2021) Table E5-9, Table E5-10, and Table E5-11, Appendix E5, respectively. The results of the amphibian egg mass surveys are presented in Block 41 MESP (2021) Table E5-12, Appendix E5.

Amphibian call-count survey (AMC) conducted in 2020 on the Subject Lands show both stations 31 and 32 had overlapping calls of Spring Peepers and Wood Frogs. The calls were too difficult to determine the number of individuals calling.

3.3.4 Headwater Drainage Feature Assessment Results

Headwater drainage features (HDF) within the Block 41 Lands were assessed by GEI Consultants (formerly Savanta) in 2012 using the Evaluation, Classification, and Management of Headwater Drainage Features – Revised 2011 Guidelines (CVC/TRCA). HDFs were reassessed in 2014, 2015, 2016, 2019 and 2020 for categorization using the Credit Valley Conservation (CVC)/Toronto Region and Conservation Authority (TRCA) Guidelines for the "Evaluation, Classification, and Management of Headwater Drainage Features" (2014). The guideline evaluation protocol divides HDFs into segments, with breaks between segments occurring where key attributes change. Each segment is assigned a rating of its functional significance of 'important', 'valued', 'contributing' or 'limited'. The functional significance of all attributes of each segment is then considered to determine the management option for each segment. These evaluations can lead to one of six possible management recommendations – Protection, Conservation, Mitigation, Recharge Protection, Maintain or Replicate Terrestrial Linkage and No Management. Additionally, in some cases, field investigations determined that there were no features present.

Since the SWS work was completed, the Richmond Properties lands became a participating owner. Field investigations were completed in 2019 to confirm whether HDFs existed on the property and whether any connection existed between W124 and W128 on this site. It was



confirmed in the field that no drainage feature connects these two wetlands and no HDFs are present on this property.



4. Analysis of Ecological and Natural Heritage Significance

Of the eight types of natural features identified in the PPS (MMAH 2020), the presence/absence of these natural features on the Subject Lands are discussed in the subsequent sections of this EIS.

Where natural features are present on the Subject Lands, their sensitivities are discussed.

4.1 Significant Wetlands

Within Ontario, significant wetlands are identified by the MNRF or by their designates. Other evaluated or unevaluated wetlands may be identified for conservation by the municipality or the conservation authority. Based on the Block 41 MESP (2021), wetlands 124 and 128 are provincially significant wetlands on the Subject Lands. There was no instrumentation installed in these features as these wetland catchment areas are located entirely outside the proposed development. Wetland 124 consists of a ponded shallow aquatic feature surrounded by cattail marsh, and is expected to rely on surface water runoff as well and direct precipitation and has a recharge function.

Wetland 128 appears to have been formed by hummocky deposits of surficial silty clay till. Wetland 128 is a cattail mineral shallow marsh dominated by cattail with other herbaceous species occurring as Reed-canary Grass (*Phalaris arundinacea*), Sensitive Fern (*Onoclea sensibilis*), and Purple Loosestrife (*Lythrum salicaria*). The low hydraulic conductivity till soils limit rapid infiltration of the impounded surface water that accumulates in these features (runoff and direct precipitation) resulting in the formation of wetlands. The wetland is interpreted to rely on surface water inputs (surface water runoff as well as direct precipitation) and will have a recharge function that contributes to seasonally high water table conditions.

4.2 Significant Coastal Wetlands

Similar to significant wetlands, the MNRF or their designates identify significant coastal wetlands present on the landscape. Coastal wetlands are defined in the NHRM (MNR 2010) as:

- a) "any wetland that is located on one of the Great Lakes or their connecting channels (Lake St. Clair, St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers); or
- b) Any other wetlands that is on a tributary to any of the above-specified water bodies and lies, either wholly or in part, downstream of a line located two km upstream of the 1:100year floodplain (plus wave run-up) of the large water body to which the tributary is connected."

No significant coastal wetlands are identified on the Subject Lands and would not be expected given the distance of the Subject Lands from the waterbodies noted above.



4.3 Significant Woodlands

Significant woodlands are identified by the planning authority in consideration of criteria established by the MNRF. Under the NHRM (2010), woodlands are defined as:

"...treed areas that provide environmental and economic benefits to both the private landowner and the general public, such as erosion prevention, hydrological and nutrient cycling, provision of clean air and the long-term storage of carbon, provision of wildlife habitat, outdoor recreational opportunities, and the sustainable harvest of a wide range of woodland products. Woodlands include treed areas, woodlots or forested areas and vary in their level of significance at the local, regional and provincial levels."

4.4 Significant Valleylands

Significant valleylands are defined and designated by the planning authority. General guidelines for determining significance of these features are presented in the NHRM (MNR 2010) for Policy 2.1 of the PPS. Recommended criteria for designating significant valleylands includes prominence as distinctive landform, degree of naturalness, and importance of its ecological functions, restoration potential and historical and cultural values.

It is recognized that the NHRM does not specify the number of criteria that are required to be met for a valleyland to be considered significant and recommends that the local planning authorities undertake a study that would determine which criteria should be applied for a valleyland to be considered significant. Significant Valleylands have not been identified on the Subject Lands.

4.5 Significant Wildlife Habitat

SWH is one of the more complex natural heritage features to identify and evaluate. There are several provincial documents that discuss identifying and evaluating SWH including the NHRM (MNR 2010), the Significant Wildlife Habitat Technical Guide (MNR 2000), and the SWH Eco-Region Criterion Schedule (MNRF 2015). The Subject Lands are located in Eco-Region 6E and were therefore assessed using the 6E Criterion Schedule (MNRF 2015).

There are four general types of SWH:

- Seasonal concentration areas;
- Rare or specialized habitats;
- Habitat for species of conservation concern; and
- Animal movement corridors.

General descriptions of these types of SWH are provided in the following sections.



Seasonal Concentration Areas

Seasonal concentration areas are those sites where large numbers of a species gather together at one time of the year, or where several species congregate. Seasonal concentration areas include: deer yards; wintering sites for snakes, bats, raptors and turtles; waterfowl staging and molting areas, bird nesting colonies, shorebird staging areas, and migratory stopover areas for passerines or butterflies. Only the best examples of these concentration areas are usually designated as SWH.

Rare or Specialized Habitats

Rare and specialized habitat are two separate components. Rare habitats are those with vegetation communities that are considered rare in the province. SRANKS are rarity rankings applied to species at the 'state', or in Canada at the provincial level, and are part of a system developed under the auspices of the Nature Conservancy (Arlington, VA). Generally, community types with SRANKS of S1 to S3 (extremely rare to rare-uncommon in Ontario), as defined by the NHIC (2021), could qualify. It is to be assumed that these habitats are at risk and that they are also likely to support additional wildlife species that are considered significant. Specialized habitats are microhabitats that are critical to some wildlife species. The NHRM (MNR 2010) defines specialized habitats as those that provide for species with highly specific habitat requirements, areas with exceptionally high species diversity or community diversity, and areas that provide habitat that greatly enhances species' survival.

Habitat for Species of Conservation Concern

Species of conservation concern include those that are provincially rare (S1 to S3), provincially historic records (SH) and Special Concern species. Several specialized wildlife habitats are also included in this SWH category, including Terrestrial Crayfish habitat, and significant breeding bird habitats for marsh, open country and early successional bird species.

Habitats of species of conservation concern do not include habitats of endangered or threatened species as identified by the ESA (2021 Consolidation). Endangered and threatened species are discussed in **Section 4.7** below.

Animal Movement Corridors

Animal movement corridors are areas that are traditionally used by wildlife to move from one habitat to another. This is usually in response to different seasonal habitat requirements, including areas used by amphibians between breeding and summer/over-wintering habitats, called amphibian movement corridors.

SWH Summary

A summary of SWH is provided in **Appendix B**, and evaluates whether any SWH was present within the Subject Lands and determined candidate SWH types present within the property relate to the natural features in the Greenbelt Protected Countryside area.



4.6 Fish Habitat

Fish habitat, as defined in the federal *Fisheries Act*, c. F-14, means "spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes." Fish, as defined in S.2 of the *Fisheries Act*, c. F-14, includes "parts of fish, shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals."

4.7 Habitat for Endangered and Threatened Species

Based on the field investigations collected to date, no endangered species were recorded within or immediately adjacent to the Subject Lands.

4.8 Significant Areas of Natural and Scientific Interest

No ANSIs were identified on or within 120 m of the Subject Lands (Figure 2, Appendix B).

4.9 Summary of Ecological and Natural Heritage Significance

The PPS (MMAH 2020) defines the important natural heritage features to consider in terms of impact assessment. The following components were considered for impact avoidance, mitigation and/or potential offsets:

- Significant Woodland Features occur within Greenbelt lands, and are protected from the proposed development. The MVPZ to the proposed development is consistent with the requirements of provincial and municipal requirements.
- Significant Wetland two PSWs have been identified within the Greenbelt Plan area, and would require a MVPZ of a minimum 30 m. These features are protected from the impacts of the proposed development, with a minor 3 m reduction to an MAS2-1 unit proposed at the most southern extent.
- Significant Wildlife Habitat as discussed in Section 4.5 and Tables summarized in Appendix B, SWH identified on the Subject Lands occurs within the Greenbelt Plan area, and will are protected from the proposed development.

4.10 Existing Ecological Constraints Analysis

The natural features were reviewed with the policy requirements set out in the Greenbelt Plan (2017), City of Vaughan Official Plan (2010) and the Region of York Official Plan (2010). Based on this review the following natural features and vegetation protection zones (VPZs) are given below:

- Permanent and Intermittent Streams 30 m from the stream;
- Valleylands inside the Greenbelt confined valleys, 30 m from the greater of the existing top of bank or long term stable slope;, unconfined valleys, 10 m from the greater of the floodplain or meander belt.



- Significant Wetland outside of Greenbelt 30 m from edge of feature;
- Significant Wetland inside of Greenbelt 30 m from edge of feature;
- Significant Woodland outside of Greenbelt 30 m from edge of feature;
- Significant Wildlife Habitat, Wood Thrush and Eastern Wood Pe-wee 30 m from dripline;
- Significant Wildlife Habitat, Amphibian Breeding Habitat (woodland) 30 m from dripline;
- Significant Wildlife Habitat, Marsh breeding bird habitat 30 m from edge of feature.

Section 3.3.5 of the Greenbelt Plan (2017) apply to all key natural heritage features within the Natural Heritage System of the Protected Countryside. It further clarifies that if a key natural heritage feature straddles the boundary of the Natural Heritage System, the portion outside of the boundary is subjected to the policies of the PPS and municipalities.

The PSWs are all within the boundary of the Greenbelt Plan except for Wetland 124 where a 27 m VPZ at the most southern point is provided to the Greenbelt boundary. In this case GEI Consultants' opinion is that the VPZs are appropriate to protect the wetlands, as this southern point does not contain any species of significance, the wetland tapers at this location, and there is substantial contribution of lands adjacent to the east of the wetland to offset the 295.97 m² encroachment into the buffer (refer to **Appendix A**, **Figure 7**).



5. Description of Development Proposal

According to the Block 41 MESP (2021) the Block 41 Block Plan includes minor road alignments, land use designations, schools, parks and stormwater management facility locations. The Block Plan creates a community that concentrates densities in a transit-supportive manner adjacent to the key intersections. Mid-Rise Mixed-Use lands are located at the northeast corner of the Block Plan, at the intersection of Weston Road and Kirby Road. Mid-Rise Residential uses in the form of lane-accessed townhouse units are proposed along arterial roads and most minor collector roads, providing a street-oriented façade and opportunities for live-work dwellings to provide access to shopping and services to meet the daily needs of residents. Low-Rise Mixed-Use lands are concentrated at the intersection of two minor collector roads to support the Community Core node, which is central to the Block Plan. Low-Rise Residential uses are located internal to the community, providing the balance of housing as ground-oriented forms such as single detached and townhouse units configured around a local street and block pattern that facilitates a reasonable balance of public and private land uses abutting the Greenway System.

Community uses are equally distributed throughout the Block 41, providing residents with easy access to schools and parks, while also integrating a Regional Storm control stormwater management strategy. Three elementary schools are distributed across the community to serve residents and a secondary school site is proposed at the intersection of Teston Road and the north-south segment of the minor collector road. Where feasible, school sites are campused with a Neighbourhood Park. In addition to four schools, the community is also served by a major community centre that is co-located with an active play area which provides for a District Park level of service. Additional highly accessible and visible Neighbourhood Parks are distributed throughout the community and strategically located to complement the Greenbelt Plan and Natural Heritage System and provide active play areas and passive open spaces to serve future residents.

The proposed development on the Subject Lands includes 143 proposed residential lots. This proposed community will be supported by a stormwater management facility that provides underground storage and/or above ground dry storage. In some locations in the Block Plan area, the stormwater management ponds are located within portions of the Greenbelt Plan Area, outside the limit of natural features and minimum vegetative protection zones in accordance with the Greenbelt Plan policies.



6. Impact Assessment

This Scoped EIS presents and discusses the natural heritage features and associated functions that occur on and/or adjacent to the Subject Lands. This section of the NHE assesses the potential effects on the previously identified natural heritage features that could occur over the short-term and long-term, following implementation of the proposed residential development discussed in Section 5.0.

Impacts for the proposed development can generally be considered in two broad categories: direct and indirect. Direct impacts are normally associated with the physical removal or alteration of natural features that could occur based upon land use application, and indirect impacts may be changes or impacts to less visible functions or pathways that could cause negative impacts to natural heritage features over time.

The potential direct and indirect effects of the proposed development, and a summary of general recommended mitigation and restoration strategies are provided below.

6.1 Significant Woodlands

Significant woodlands are located on and within 120 m of the Subject Lands. This feature is subject to existing edge effect and noise from the existing agricultural land use. The woodland occurs within the Greenbelt Plan area and will be protected from the proposed development.

No direct impacts on the woodlands are anticipated to occur as a result of the proposed development. Further, with exception to temporary disturbance from construction noise, no indirect impacts on the woodlands are anticipated, as the development occurs beyond the limits of the feature, and the development is proposed beyond the boundary of the Greenbelt Plan area.

The Greenbelt Plan and City of Vaughan Official Plan require that a 30 MVPZ be established along the outer limit of the woodland feature, which is fully respected by the proposed development. Should restoration of the MVPZ be proposed, native woody vegetation is recommended.

6.2 Significant Wetland

A reduced buffer to the most southern limit of the wetland is proposed to facilitate positioning of the subdivision lands relative to the overall Block Plan transportation design, with a reduced 27 m MVPZ at the most southern extent. As the MAS2-1 PSW unit occurs within the Greenbelt Plan area, it is otherwise subject to a MVPZ of 30 m (**Figure 7**, **Appendix A**).

6.3 Candidate Significant Wildlife Habitat

As discussed in **Section 4.5**, Candidate Significant Wildlife Habitat is present on and within 120 m of the Subject Lands. No direct impacts to any of the identified Candidate Significant Wildlife Habitat are anticipated to occur as a result of the proposed development. Further, no



indirect impacts on the candidate Significant Wildlife Habitat are anticipated, given no development or site alteration is proposed within the KNHF, and the feature is already subject to disturbance from the existing agricultural activity. The proposed development occurs outside of Greenbelt Plan area, which will provide less disturbance from adjacent lands.

6.4 Candidate Habitat of Endangered or Threatened Species

As discussed in **Section 4.7**, candidate Endangered or Threatened species is not present on and within 120 m of the Subject Lands.



7. Conclusions and Recommendations

The NHE has been developed as part of the planning process for the proposed development of a residential development for the Richmond Properties within the Block 41 Planning Area in the City of Vaughan, Ontario.

An assessment of impacts on natural features and their associated functions has been conducted and discussed in relation to provincial and municipal policy, related guidance documents and local and regional official plans. Based on the natural heritage feature screening and desktop analyses carried out, the following conclusions are provided.

The results of the natural heritage assessment identified the following significant natural heritage features on or within 120 m of the Subject Lands:

- Significant woodlands Located on and within the Greenbelt Plan area boundary of the Subject Lands;
- Significant wetlands Located on and within the Greenbelt Plan area boundary of the Subject Lands;
- Candidate Significant Wildlife Habitat Located within the significant woodland within the Subject Lands; and
- Candidate habitat of Endangered and Threatened species Located on and within 120 m of the woodland within the Subject Lands.
- No direct or indirect impacts are anticipated on the significant woodland, candidate significant wildlife habitat, or candidate habitat of Endangered and Threatened species; and
- With exception to minor encroachment of the outer limits of the MVPZ of the significant wetland at the most southern extent, a 30 m buffer from the significant wetland has been provided.

Considering the above, the development of the proposed subdivision can be completed without negative impacts on the natural heritage features and associated functions.

Prepared By: GEI Consultants

Mary Baladon

Mary Balsdon 647-381-3443 mbalsdon@geiconsultants.com

Julianna MacDonald 416-728-3199 jmacdonald@geiconsultants.com



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Figures





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NOTES:

1. Coordinate System: NAD 1983 UTM Zone 17N. L Coordinate System: NAU 1993 OTM 2006 [7]A. 2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2022. 3. Orthoimagery © First Base Solutions, 2022. Imagery taken in 2021.

Legend



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Subject Lands (approximate) - --- Block 41 Participating Owner Property Boundary Greenbelt Plan Area Non-participating ownerships. ELC mapping outside of Block 41 participating lands is an approximation through air photo interpretation, and has not been field-verified Breeding Bird Point Count Station (2019) Amphibian Point Count Station (2020) Winter Wildlife Transect (2014) Woodland Assessment Unit (2019) ELC Legend AG, Agricultural CUM, Cultural Meadow CUM1-1, Dry-Moist Mixed Old Field Meadow FOD, Deciduous Forest H, Hedgerow IND, Industrial MAM2-2, Reed-Canary Grass Mineral Meadow Marsh MAS2-1, Cattail Mineral Shallow Marsh P, Pond

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Richmond Properties, Block 41, Vaughan, Ontario Richmond Properties (Block 41) Inc.

Figure 3 Terrestrial Survey Stations

0

1:1,700

20 m





Subject Lands (approximate) Non-Participating Ownership Greenbelt Plan Area Ecological Land Classification

ELC Legend

AG, Agricultural CUM, Cultural Meadow

CUM1-1, Dry-Moist Mixed Old Field Meadow

FOD, Deciduous Forest

H, Hedgerow

IND, Industrial

MAM2-2, Reed-Canary Grass Mineral Meadow Marsh

MAS2-1, Cattail Mineral Shallow Marsh

P, Pond

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Figure 4 Ecological Land Classification







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- Subject Lands (approximate)
- Participating Ownership
- Non-Participating Ownership
- Ecological Land Classification
- MNRF East Humber River Wetland Complex (Significant Wetland)
- Greenbelt Plan Area
- Significant Woodland
- Locally Rare Plant Species (Bidens vulgata)

Significant Wildlife Habitat

- Amphibian Breeding Habitat (Woodland)
- Marsh Breeding Bird Habitat
- Habitat for Special Concern Species

ELC Legend

- AG, Agricultural CUM, Cultural Meadow CUM1-1, Dry-Moist Mixed Old Field Meadow FOD, Deciduous Forest H, Hedgerow IND, Industrial MAM2-2, Reed-Canary Grass Mineral Meadow Marsh MAS2-1, Cattail Mineral Shallow Marsh
- P, Pond

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Figure 5 Terrestrial Heritage Features







Sources: Aerial Photography, First Base Solutions, 2017. Contains information licensed under the Open Government Licence – Ontario.



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Legend
Subject Lands (approximate)
Participating Ownership
Non-Participating Ownership
Greenbelt Plan Area
Permanent or Intermittent Stream
HDF Management Recommendations
Protection
Conservation
Mitigation
Mitigation - Interpreted Managment Recommendation
No Management Required
Not field verified, no assessment completed (no access) (Source: ArcHydro [TRCA, 2014] & watercourse_vaughan [City of Vaughan, 2014])
— TC Energy and Other Drainage Not Field Assessed

Sources: Aerial Photography, First Base Solutions, 2017. Contains information licensed under the Open Government Licence – Ontario.

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Figure 6 HDF Assessment





	Subject Lands (approximate)				
	Draft Plan (July 21, 2022)				
\Box	Non-Participating Ownership				
	Greenbelt Plan Area				
—	Dripline				
—	Staked Wetland (TRCA Oct 2021)				
	Dripline +30m				
	Staked Wetland +30m				
	Buffer Encroachment (295.97 m ²)				
	Ecological Land Classification				
ELC Leg	gend (
AG, Agr	icultural				
CUM, C	CUM, Cultural Meadow				
CUM1-1, Dry-Moist Mixed Old Field Meadow					
FOD, Deciduous Forest					
H, Hedg	gerow				
IND, Inc	lustrial				

MAM2-2, Reed-Canary Grass Mineral Meadow Marsh

MAS2-1, Cattail Mineral Shallow Marsh

P, Pond

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Figure 7 Development Plan



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Appendix B

Tables





SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
1. SEASONAL CONCEN	ITRATION AREAS				
Waterfowl Stopover and Staging Areas (terrestrial)	Offsite – CUM1 vegetation communities are present on the Adjacent Lands.	No – Feature is not large enough to attract or support significant numbers. This area is not known to have historical waterfowl stopover use and is not an area known for sheet water presence.	No	N/A	Not Present
Waterfowl Stopover and Staging Areas (aquatic)	Yes – MAS vegetation communities are present within the Subject Lands and Adjacent Lands.	No – While MAS vegetation communities are present on the Subject Lands, they are not large enough to attract or support large congregations of waterfowl.	No	N/A	Not Present
Shorebird Migratory Stopover Areas	Offsite – MAM vegetation communities are present on the Adjacent Lands.	No - MAM vegetation communities on the Adjacent Lands are small and would not attract or support	No	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
		significant numbers of waterfowl.			
Raptor Wintering Areas	Yes - FOD and CUM vegetation communities are present on the Subject Lands and Adjacent Lands.	No – the upland and forested communities do not meet the minimum combined size criteria (>20 ha).	No	N/A	Not Present
Bat Hibernacula	No – Cave ecosites are absent from the Subject Lands.	No	No	N/A	Not Present
Bat Maternity Colonies	Yes – FOD, FOM, SWM and SWD vegetation communities are present on the Subject Lands.	Yes	Yes		
Turtle Wintering Areas	Yes – MA vegetation communities are present on the Subject Lands and Adjacent Lands.	Yes	Yes		
Colonial Bird Nesting Sites (bank/cliff)	Yes – CUM vegetation communities are present within the Adjacent Lands.	No – Eroding banks, hills, steep slopes and sand piles are not present within the Primary Study Area.	No	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Colonial Bird Nesting Sites (tree/shrubs)	Yes – SWD vegetation communities are present on the Adjacent Lands.	Yes	Yes		
Colonial Bird Nesting Sites (ground)	No – No rocky islands or peninsulas are present on the Subject Lands	No	No	N/A	Not Present
Reptile Hibernacula	Yes – Ecosites are present on the Subject Lands.	No - No natural/naturalized or anthropogenic features were identified within the Primary Study Area that provide any subsurface access below the frost line.	No	N/A	Not Present
Migratory Butterfly Stopover Areas	Yes – Forested vegetation communities are present on the Subject Lands and Adjacent Lands.	No – The Subject Lands and Adjacent Lands are greater than 5 km away from Lake Ontario.	No	N/A	Not Present
Migratory Landbird Stopover Areas	Yes – Forested vegetation communities are present on the Subject Lands and Adjacent Lands.	No – The Subject Lands and Adjacent Lands are greater than 5 km away from Lake Ontario.	No	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Deer Yarding Areas	Yes – FOM vegetation communities found on the Adjacent Lands.	No – Mapping did not depict any deer yarding areas on or adjacent to the Subject Lands.	No	N/A	Not Present
Deer Winter Congregation Areas	Yes – forested vegetation communities are found on the Subject Lands and Adjacent Lands.	No – Mapping from the MNRD LIO database did not depict any deer wintering areas on or adjacent to the Subject Lands.	No	N/A	Not Present
2. RARE VEGETATION	I COMMUNITIES OR SPECIA	LIZED HABITAT FOR	WILDLIFE		
2a. Rare Vegetation Com	munities				
Rare Vegetation Types (cliffs, talus slopes, sand barrens, alvars, old-growth forests, savannahs, and tallgrass prairies)	No – No rare vegetation communities are found on the Subject Lands.	No	No	N/A	Not Present
Other Rare Vegetation Types (S1 to S3 communities)	No – All vegetation communities identified on the Subject Lands are culturally influenced.	No	No	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
2b. Specialized Wildlife H	labitat				
Waterfowl Nesting Area	Yes – MAS and MAM vegetation communities are present within the Subject Lands and Adjacent Lands.	No – no suitable nesting area is available within 120 m of wetland communities as the landscape	No	N/A	Not Present
Bald Eagle and Osprey Habitats	Yes – FOD vegetation communities are present on the Subject Lands adjacent to a wetland.	No – No data indicated from NHIC and Ontario Breeding Bird Atlas.	No	N/A	Not Present
Woodland Raptor Nesting Habitat	Yes – FOD vegetation communities are present on the Subject Lands	No – The forested vegetation communities on the Subject Lands do not meet the minimum size criteria (>30 ha with > 10 ha interior habitat that is greater than 200m from the woodland edge).	No	N/A	Not Present
Turtle Nesting Areas	Yes – MAS vegetation communities are present within the Subject Lands and Adjacent Lands.	No – Suitable substrate type (sand and gravel) are not present within the Primary Study Area.	No	N/A	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT	
Seeps and Springs	Yes – Forested vegetation communities are present on the Subject Lands and Adjacent Lands.	Yes – headwater drainage features are documented within and adjacent to forested communities.	Yes – data will be collected incidentally during ecological surveys.	No seeps or springs were recorded during ecological investigations.	Not Present	
Woodland Amphibian Breeding Habitats (within or < 120m from woodland)	Yes – Forested vegetation communities are present on the Subject Lands.	Yes – presence of wetland communities adjacent to and within forested vegetation communities. Size criteria (>25 m diameter) is met.	Yes	Spring Peepers and Wood Frogs heard at a call code of 3.	Present	
Wetland Amphibian Breeding Habitats (wetland >120m from woodland)	Yes – MA vegetation communities are present on the Subject Lands.	Yes – Size criteria (>25 m diameter) is met.	Yes	Spring Peepers and Wood Frogs heard at a call code of 3.	Present	
Woodland Area- Sensitive Bird Breeding Habitat	Yes – FO and SW vegetation communities are present on the Subject Lands.	No – Vegetation communities do not meet the minimum size criteria (no interior habitat >200m from the woodland edge)	No	N/A	Not Present	
3. SPECIES OF CONSERVATION CONCERN						



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
Marsh Bird Breeding Habitat	Yes – MAS vegetation communities are present on the Subject Lands.	Yes – Wetland habitat has shallow water with emergent vegetation.	Yes	The marshes are considered significant, so it qualifies SWH. Breeding Bird Survey 2019 also the presence of green heron.	Present
Open Country Bird Breeding Habitat	Yes – CUM1 vegetation communities are present within the Adjacent Lands.	No – size criteria not met > 30 ha	No	N/A	Not Present
Shrub/Early Successional Bird Breeding Habitat	Yes – CUT vegetation communities are present within the Adjacent Lands.	No – size criteria not met > 10 ha	No	N/A	Not Present
Terrestrial Crayfish	Yes – MAS vegetation communities are present on the Subject Lands and Adjacent Lands.	Yes – no minimum size requirement.	Yes	No	Not Present
Special Concern and Rare Wildlife Species					
(i) Eastern Wood- Pewee (<i>Contopus</i> <i>virens</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2014, eastern wood- pewee were recorded at point count station 1, 2,5 and 7. Breeding Bird Surveys 2015, eastern wood pewee was generally observed within the wooded portions of	Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
				the Greenbelt. Breeding Bird Surveys 2019 there were three male eastern wood-pewees singing from point count stations 16 and 18.	
(ii) Wood Thrush (<i>Hylocichla mustelina</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2014 wood thrush were probable breeders at point count stations 2, 6 and 7 all in the Greenbelt Plan Area.	Present
(iii) Blue-winged Teal (<i>Anas discors</i>)	N/A	Yes – grasslands bordering wetlands are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(iv) Chipping Sparrow (<i>Spizella passerine</i>)	N/A	Yes – forests and meadows are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 present.	Present
(v) Common Nighthawk (<i>Chordeiles minor</i>)	N/A	Yes – forests and meadows are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
(vi) Eastern Towhee (<i>Pipilo</i> <i>erythrophthalmus</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(vii) Field Sparrow (<i>Spizella pusilla</i>)-	N/A	Yes – forests and meadows are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(viii) Grasshopper Sparrow (<i>Ammodramus</i> savannarum)	N/A	Yes – Grassland habitat is present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(ix) Marsh Wren (<i>Cistothorus</i> <i>palustris</i>)	N/A	Yes – MAM vegetation communities are present on the Subject Lands and Adjacent Lands	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(x) Pied-billed Grebe (<i>Podilymbus</i> <i>podiceps</i>)	N/A	Yes – MAM vegetation communities are present on the Subject Lands and Adjacent Lands	Yes	Breeding Bird Surveys 2019 absent.	Not Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT
(xi)Pine Warbler (<i>Setophaga pinus</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(xii) Ruby-crowned Kinglet (<i>Regulus calendula</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(xiii) Turkey Vulture (<i>Cathartes aura</i>)	N/A	Yes – forested vegetation communities are present on and adjacent to the Subject Lands.	Yes	Breeding Bird Surveys 2019 absent.	Not Present
(xiv) Wood Duck (<i>Aix sponsa</i>)	N/A	Yes –upland habitat adjacent to wetland vegetation communities are present on the Subject Lands and Adjacent Lands	Yes	Breeding Bird Surveys 2019 present.	Present



SIGNIFICANT WILDLIFE HABITAT (SWH) TYPE	ELC ECOSITE(S) PRESENT	HABITAT CRITERIA MET	TARGETED FIELD STUDIES REQUIRED	DEFINING CRITERIA MET (MINIMUM ABUNDANCES AND/OR DIVERSITY REQUIRED TO CONFIRM SWH)	SWH TYPE PRESENT	
(xv) Snapping Turtle (<i>Chelydra</i> <i>serpentina</i>)	N/A	Yes – MAM and MAS vegetation communities are present on the Subject Lands and Adjacent Lands	Yes	Turtle Surveys		
(xvi) Monarch (<i>Danaus plexippus</i>),	N/A	No – A CUM1 vegetation community is present on the land adjacent to the Subject Lands however no concentrations of Milkweed species were recorded.	No	N/A	Not Present	
4. ANIMAL MOVEMENT CORRIDORS						
Amphibian Movement Corridors	N/A					
Deer Movement Corridors	N/A					