DILLON CONSULTING

HIGHFAIR INVESTMENTS INC.

Environmental Impact Study

Archerhill Court, Town of Aurora, Ontario

August 2021 – 20-3925

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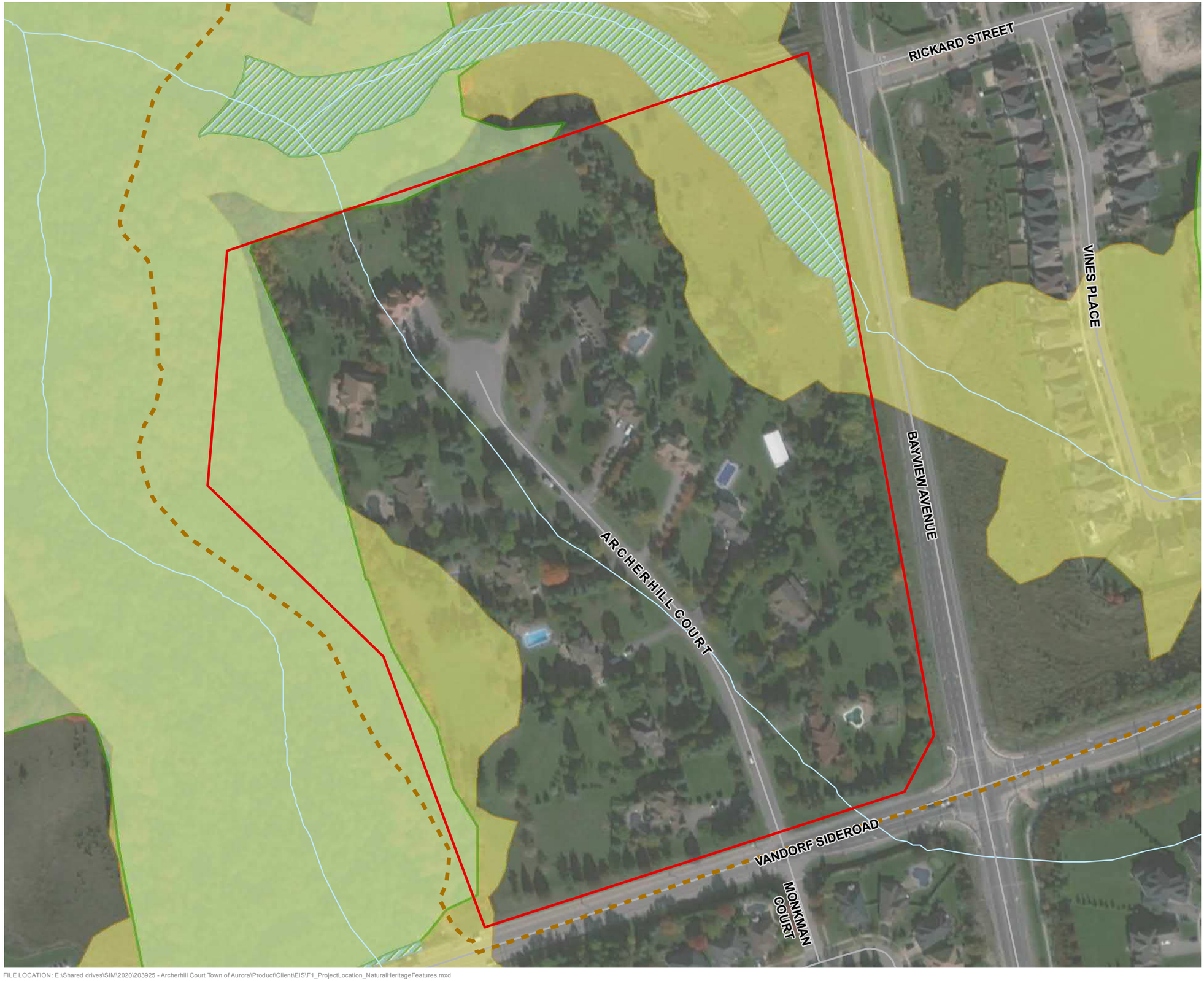
1.0 Introduction

Dillon Consulting Limited (Dillon) was retained by Highfair Investments Inc. to complete an Environmental Impact Study (EIS) for a proposed development at the northwest corner of Vandorf Sideroad and Bayview Avenue known as Archerhill Court (the 'Study Area', **Figure 1**), in the Town of Aurora (the 'Town'), Ontario. The Study Area is currently developed (single detached family homes) and is surrounded by woodlands and a wetlands containing a mapped watercourse. In order to re-develop the Study Area, an EIS has been requested by the City in order to address potential impacts to natural features within and adjacent to the Study Area.

This EIS serves to do the following:

- Document existing conditions of the natural environment;
- Determine the potential limits of development;
- Evaluate the potential for environmental impacts associated with the proposed development; and,
- Recommend mitigation, restoration, enhancement measures, and/or compensation measures, where necessary, to avoid impacts to the natural environment.

This EIS has been prepared in general accordance with the guidelines outlined in the EIS section of the Town of Aurora's Official Plan (OP) (2010), and in accordance with the Terms of Reference (TOR) established in consultation with the Lake Simcoe Region Conservation Authority (LSRCA) in April, 2021 (**Appendix A**).



TOWN OF AURORA

ARCHERHILL COURT

PROJECT LOCATION & NATURAL HERITAGE FEATURES

FIGURE 1

- Study Area
- Road
- Trail
- Watercourse
- Unevaluated Wetlands
- Wooded Areas
- Regulated Areas (LSRCA)

0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF, LSRCA

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-04-27

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\EIS\F1_ProjectLocation_NaturalHeritageFeatures.mxd

2.0 Planning Context

The following sections have been prepared to identify the applicable land use planning policies related to the natural environment. Various regulatory agencies and legislative authorities have established a number of policies with the purpose of protecting ecological features and functions. **Table 1** lists the policies and legislation that apply to the protection of natural heritage features within the York Region Area; as well as supporting guidance documents and resources respective to each policy. This table also includes additional background information sources used to help identify and define natural heritage features within the province of Ontario, and Eco-region 6E specifically. This section is not intended to constitute a complete land use planning assessment as it focuses on the relevant environmental policies and regulations. The documents referenced below can be read in their entirety for a more detailed understanding of the land use policy framework applicable to the Study Area.

Table 1: Policies, Legislation and Background Resources Searched

POLICY	GUIDELINES AND SUPPORTING DOCUMENTS
PROVINCE OF ONTARIO	
Planning Act, 1990: Provincial Policy Statement (2020)	Policies within Section 2.1 and Section 2.2 related to natural heritage features
	MNRF Natural Heritage Information Centre (NHIC) Square #'s: 17PJ2571 • Species of Conservation Concern; • Species at Risk; and • Natural heritage features.
	MNRF Significant Wildlife Habitat Technical Guide (2000) • Significant Wildlife Habitat Eco-region 6E Criterion Schedules, 2015.
	Natural Heritage Reference Manual, Second Edition, March 2010
	Ecological Land Classification for Southern Ontario, Second Approximation, 2008
	Ontario Wetland Evaluation System, Southern Manual, Third Edition, 2014
	MNRF Species at Risk in Ontario (SARO) List (O. Reg. 230/08), December 2019
Endangered Species Act (2007)	MNRF Natural Heritage Information Centre (NHIC) Square #'s: 17PJ2571: *Species at Risk occurrence records*
	Fisheries and Oceans Canada (DFO) Aquatic Species at Risk Map, 2021
	Ontario Breeding Birds Atlas (OBBA)- online data accessed December 2019
	Ontario Reptile and Amphibian Atlas- online data accessed December 2019
	Ontario Butterfly Atlas- online data accessed December 2019
	Mammals of the Western Hemisphere v3.0, released in 2007 and compiled in 2010
Lake Simcoe Protection Plan	• Schedule 1

POLICY	GUIDELINES AND SUPPORTING DOCUMENTS
(2009) Greenbelt Plan (2017)	• Section 4, Schedule 1, Schedule 2
Places to Grow Act, 2005: A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020)	• Section 4, Schedule 1, Schedule 2
Oak Ridges Moraine Conservation Act, 2001: Oak Ridges Moraine Conservation Plan (2017)	Section 18 and Land Use Designation Mapping • Technical Paper #4 Landform Conservation
REGIONAL MUNICIPALITY OF YORK	
York Region Official Plan (2010)	• Chapter 2, Maps 1, 2, 3, 4, & 5, Figures 1, 2, 3
TOWN OF AURORA	
Town of Aurora Official Plan (2010)	• Schedule A, Schedule E1
CONSERVATION AUTHORITY	
Conservation Authorities Act, 1990: Ontario Regulation 155/06	Lake Simcoe Region Conservation Authority • LSRCA Regulated Area mapping • East Holland River Subwatershed Plan (2010)

Policies within each document that relate to the natural environment and apply to the Study Area are outlined in subsequent sections.

2.1 Provincial Policy Statement, 2020

The Provincial Policy Statement, 2020 (PPS) provides overall policy direction on matters of provincial interest related to land use planning and development in Ontario. The PPS sets forth a vision for Ontario's land use planning system by managing and directing land use to achieve efficient development and land use patterns, wise use and management of resources, and protecting public health and safety. This report deals specifically with Policy 2.1, Natural Heritage, and Policy 2.2, Water, which provides for the protection and management of natural heritage and water resources, which include the following:

- Significant wetlands;
- Significant coastal wetlands;
- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant areas of natural and scientific interest (ANSIs);
- Fish habitat;

- Sensitive surface water features; and,
- Sensitive ground water features.

The PPS defines "significant" to mean:

- In regard to wetlands, coastal wetlands and areas of natural and scientific interest, an area identified as provincially significant by the Ontario Ministry of Natural Resources using evaluation procedures established by the Province, as amended from time to time;
- In regard to woodlands, an area which is ecologically important in terms of features such as species composition, age of trees and stand history; functionally important due to its contribution to the broader landscape because of its location, size or due to the amount of forest cover in the planning area; or economically important due to site quality, species composition, or past management history. These are to be identified using criteria established by the Ontario Ministry of Natural Resources; and,
- In regard to other features and areas in policy in 2.1, ecologically important in terms of features, functions, representation or amount, and contributing to the quality and diversity of an identifiable geographic area or natural heritage system".

The PPS defines "sensitive" to mean:

- In regard to surface water features and ground water features, means areas that are particularly susceptible to impacts from activities or events, including, but not limited to, water withdrawals, and additions of pollutants.

Potential significance of natural heritage features may be evaluated based on size, age, presence of rare or sensitive species, species diversity, and linkage functions, taking into consideration factors such as adjacent land use and degree of disturbance. Criteria for determining significance follow guidance outlined in the Natural Heritage Reference Manual (MNRF, 2010) and the Significant Wildlife Habitat Technical Guide Eco-Region 6E Criterion Schedules (MNRF, 2015), where applicable.

2.2 Endangered Species Act, 2007

In June 2008, the *Endangered Species Act*, 2007 (ESA) came into effect in Ontario. The purpose of the ESA is to identify Species at Risk (SAR) based on the best available scientific information; to protect SAR and their habitats, to promote the recovery of SAR; and to promote stewardship activities to assist in the protection and recovery of SAR in Ontario. There are two applicable regulations under the ESA; *Ontario Regulation 230/08* (the SARO List); and, *Ontario Regulation 242/08* (General). These regulations serve to identify which species and habitat receive protection and provide direction on the current implementation of the ESA by the Ministry of Environment, Conservation and Parks (MECP).

The potential for SAR and SAR habitat to be found within the Study Area is discussed further in **Section 3.2.7** of this report.

2.3 Lake Simcoe Protection Plan, 2009

The Lake Simcoe Protection Plan (LSPP) was established under the *Lake Simcoe Protection Act*, 2008, with the purpose of protecting and restoring the ecological health of the Lake Simcoe Watershed (LSPP, 2009). The LSPP includes key natural heritage feature and key hydrologic feature policies pertaining to development and site alteration. Under the LSPP, key natural heritage features are *wetlands*, *significant woodlands*, *significant valleylands* and natural areas abutting Lake Simcoe. Key hydrologic features are *wetlands*, *permanent* and *intermittent streams*, and *lakes* other than Lake Simcoe.

Designation of lands as outside of existing settlement areas or within settlement areas, determines which LSPP key natural heritage/hydrologic feature policies apply. The Study Area falls within an Urban Residential Area in Schedule A (see **Appendix A**) of the Town Official Plan ("OP"), and therefore policies 6.33 – 6.34 of the LSPP apply; that state the following:

"6.33- An application for development or site alteration shall, where applicable:

a. increase or improve fish habitat in streams, lakes and wetlands, and any adjacent riparian areas;
b. include landscaping and habitat restoration that increase the ability of native plants and animals to use valleylands or riparian areas as wildlife habitat and movement corridors;
c. seek to avoid, minimize and/or mitigate impacts associated with the quality and quantity of urban run-off into receiving streams, lakes and wetlands; and
d. establish or increase the extent and width of a vegetation protection zone adjacent to Lake Simcoe to a minimum of 30 metres where feasible.

6.34- Where, through an application for development or site alteration, a buffer is required to be established as a result of the application of the PPS, the buffer shall be composed of and maintained as natural self-sustaining vegetation."

2.4 Greenbelt Plan, 2017

The Greenbelt Plan, 2017, prepared and approved under the Greenbelt Act, 2005, builds upon the policy framework established in the PPS to protect a broad area of land and provide direction regarding where and how future growth should be accommodated. While providing permanent agricultural and environmental protection, the Greenbelt also contains important natural resources and supports a wide range of recreational and tourism uses, areas and opportunities together with a vibrant and evolving agricultural and rural economy (MMAH, 2005).

The Greenbelt Plan identifies areas where urbanization is prohibited in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring throughout the landscape. The Protected Countryside lands identified by the Greenbelt Plan are intended to enhance the spatial extent of agriculturally and environmentally protected lands while improving linkages between these areas and the surrounding major lake systems and watersheds.

The Study Area falls within the Towns and Villages designation outside the Greenbelt, and therefore the policies of the Greenbelt do not apply. The Greenbelt Plan defers to municipal official plans for detailed delineation of settlement boundaries and to govern land use within these areas.

2.5 Growth Plan for the Greater Golden Horseshoe, 2020

Pursuant to the Places to Grow Act, 2005, the Growth Plan for the Greater Golden Horseshoe, 2020 (Growth Plan) came into effect on August 28, 2020. The Growth Plan replaces the Growth Plan for the Greater Golden Horseshoe, 2017.

The Growth Plan requires the identification of water resource systems and the protection of key hydrologic features and key hydrologic areas, similar to the level of protection provided in the Greenbelt (MMAH, 2020). This provides a consistent framework for water protection across the Greater Golden Horseshoe (GGH), and builds on existing plans and policies. The Growth Plan also provides for the identification and protection of natural heritage systems in the GGH outside of the Greenbelt Area and settlement areas in order to provide consistent and long-term protection for natural heritage systems across the GGH (MMAH, 2020).

The Greater Golden Horseshoe Growth Plan Section 4.2.2 states "*The Natural Heritage System mapping will exclude lands within settlement area boundaries that were approved and in effect as of July 1, 2017*". As per Section 4.2.2 (Section 6), "*Beyond the Natural Heritage System, including within settlement areas, the municipality:*

a. *will continue to protect any other natural heritage features in a manner that is consistent with the PPS; and*
b. *may continue to protect any other natural heritage system or identify new systems in a manner that is consistent with the PPS*."

2.6 Oak Ridges Moraine Conservation Plan, 2017

The ORMCP, 2017, was developed as part of a comprehensive strategy for the ORM, which included passing of the Oak Ridges Moraine Conservation Act, 2001 on December 13, 2001. As stated in the Plan, the purpose of the ORMCP is to provide land use and resource management planning direction to provincial ministers, ministries, and agencies, municipalities, municipal planning authorities, landowners and other stakeholders on how to protect the Moraine's ecological and hydrological features and functions (MMAH, 2017b).

The ORMCP divides the Moraine into four land use designations;

- *Natural Core Areas*- protect those lands with the greatest concentrations of key natural heritage features which are critical to maintaining the integrity of the Moraine as a whole;
- *Natural Linkage Areas*- protect critical natural and open space linkages between the Natural Core Areas and along rivers and streams;

- *Countryside Areas*- provide an agricultural and rural transition and buffer between the Natural Core Areas and Natural Linkage Areas and the urbanized Settlement Areas; and
- *Settlement Areas*- reflect a range of existing communities planned by municipalities to reflect community needs and values (MMAH, 2017b).

Under the ORMCP, the Study Area falls within Settlement Area (**Figure 1**)**.** Within Settlement Areas urban uses and development as set out in municipal official plans are allowed, subject to the provisions of the ORMCP (MMAH, 2017b).

In addition, the Study Area falls within lands designated as Landform Conservation Area – Category 2, and therefore, is subject to the policies set out in Section 30(6) of the ORMCP. Section 30(6) requires applications for development to identify planning, design and construction practices that will keep disturbance to landform character to a minimum, including:

a) *Maintaining significant landform features such as steep slopes, kames, kettles, ravines and ridges in their natural undisturbed form;*
b) *Limiting the portion of the net developable area of the site that is disturbed to not more than 50 % of the total area of the site; and*
c) *Limiting the portion of the net developable area of the site that has impervious surfaces to not more than 20 % of the total area of the site.*

Landform conservation within the Study Area is discussed further in **Section 3.2.1**.

2.7 York Region Official Plan, 2010

The Region of York Official Plan (ROP) was approved by the Minster of Municipal Affairs and Housing on September 7, 2010 and subsequently appealed to the Ontario Municipal Board (OMB). Since then the ROP has been partially approved by the OMB and specific policies of the previous ROP, 1994 have been repealed effective the following dates: July 11, 2012; September 21, 2012; November 19, 2012; January 10, 2013 and January 14, 2013.

Based on the most recent consolidation of the ROP (April, 2016), the Study Area is designated in Regional Structure Map 1 as occurring within an Urban Area. In addition the western and northern perimeter of the Study Area contain woodlands which are identified as part of the Regional Greenlands System per Map 3 of the ROP. As per Section 2.1.9 of the ROP, development and site alteration are prohibited within the Regional Greenlands System and any site alterations with 120 m of the Regional Greenlands System shall be accompanied by an Environmental Impact Study.

Additional designated areas related to natural heritage are depicted in Maps 4 (Key Hydrologic Features, **Appendix B**) and 5 (Woodlands; **Appendix B**) of the ROP (2010). No wetlands (PSW or other evaluated) are depicted as Key Hydrologic Features within the Study Area as indicated by Map 4.

Policies regarding the identification and protection of Key Natural Features and Key Hydrologic Features of the Regional Greenland System are provided in Section 2.2 of the ROP (2010). Section 2.2.1 of the ROP (2010) identifies Key Natural features and Key Hydrologic features within York Region.

2.8 Town of Aurora Official Plan, 2010

The Town of Aurora Official Plan (OP) was approved by the Ministry of Municipal Affairs in September 2010. The OP is the Town's primary tool to direct actions of the local government, shape development decisions and manage growth in the short term and long-term.

The majority of lands within the Study Area have been designated as either Urban Residential or Environmental Protection with natural features such as woodlands and wetlands identified (Schedule A, **Appendix B**). Section 12.0 of the OP discusses the establishment of an interconnected Greenlands System that includes policies and mapping to protect key natural heritage features and key hydrologic features. More specifically, Schedule E1 identifies the watercourse located in the northeast portion of the Study Area, and the woodlands located to the west of the Study Area. Each of these key natural heritage features are designated as Environmental Protection Areas and are subject to protection by a minimum 30 m vegetation protection zones as stated in Section 12.6.1 of the OP.

Section 8.6.1 of the OP state that it is the goal of Council to *"ensure that land use decisions in support of urban development and infrastructure contribute to the protection and enhancement of the Greenway System while having a minimum impact on the natural environment."*

2.9 Lake Simcoe Region Conservation Authority (Ontario Regulation 179/06)

In accordance with Section 28 of the Conservation Authorities Act, 1990, the LSRCA is authorized to implement and enforce the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulations (Ontario Regulation 179/06). Section 2(1) of this Regulation lists areas within LSRCA's jurisdiction where development is prohibited without proper permissions from the LSRCA. Such areas include, but are not limited to, river or stream valleys, hazardous lands, and wetlands, including areas within 120 m of all provincially significant wetlands ("PSW").

In participating in the review of applications under the Planning Act, LSRCA ensures that applicants and approval authorities are aware of any Section 28 Regulation requirements under the Conservation Authorities Act, where applicable. Further, LSRCA provides input to the County with respect to natural heritage features, such as significant woodlands and wetlands (LSRCA, 2016).

A review of available mapping from the LSRCA indicates that the Study Area falls within the LSRCA's Regulated Area (see **Figure 1**).

3.0 Natural Heritage Background Review

A desktop review of aerial imagery indicates that the Study Area is primarily comprised of single family residential homes bordered with a wooded area to the west and a wetland and watercourse to the north east. The Study Area is bounded to north by an existing residential development and woodlands, to the east by Bayview Avenue, to the south by Vandorf Sideroad, and to the west by woodlands. LSRCA compiled available data and conducted Ecological Land Classification (ELC) within its jurisdiction in 2005 (**Appendix C**). A review of ELC codes assigned to the Study Area confirms previous land use assumptions above; specifically that the majority of the Study Area is characterized by urban development.

3.1 Aquatic Environment

3.1.1 Watershed Summary

The Lake Simcoe Watershed includes the municipal communities of York Region, Durham Region, Simcoe County, Barrie, Orillia and Kawartha Lakes. It is comprised of multiple sub-watersheds which contain 18 major river systems that flow into Lake Simcoe (LRSCA, n.d.). The majority of land use within the Lake Simcoe Watershed is agricultural (36%) with 8% being urban; natural heritage resources within the watershed comprise of an equal amount of wetland (13%) and forests (13%) (LRSCA, n.d.).

The Study Area is located within the East Holland River Subwatershed. The East Holland River Subwatershed Plan (LSRCA, 2010) describes the subwatershed as one of the most urbanized subwatersheds in the Lake Simcoe basin with over 17% of the land use being urban area (LSRCA, 2010). The largest land use is designated as natural heritage features at approximately 33%; the second largest land use designation is intensive and non-intensive agriculture at 31% (LSRCA, 2010). The East Holland River subwatershed is drained by the East Holland River, which flows generally in a northerly direction and drains into Cook's Bay. It is also one of five major tributaries that account for 60% of the total drainage to Lake Simcoe. The headwaters originate from discharge springs and seepages along the northern flanks of the Oak Ridges Moraine.

As detailed in the Hydrogeological Assessment Report (RJ Burnside, 2021), a tributary to the Holland River East Branch located west of the Study Area flows south to north to the west of the Study Area. A smaller watercourse is also present flowing east to west and intercepts the northeast corner of the Study Area. This tributary flows into the main tributary just north of the Study Area. Wetlands have been mapped along this smaller watercourse, and an unevaluated wetland is found in the northeast corner of the Study Area (**Figure 1**). Because the watercourse is protected within the woodlands and wetlands, specific studies related to the watercourse were not completed by Dillon as part of this EIS.

In order to characterize the surface water flow conditions of the watercourses in the vicinity of the Study Area, RJ Burnside established several flow monitoring locations. The results of the flow monitoring can be found within the Hydrogeological Assessment Report (RJ Burnside, 2021).

3.2 Terrestrial Environment

3.2.1 Landforms

The Study Area is located at the border of the Oak Ridges Moraine (ORM) physiographic region and the Schomberg Clay Plains and is characterized by hummocky, kettle and kame topography. A review of the Soil Survey of York County (Hoffman and Richards, 1955) indicates that the general area consists of rolling hills to steeply sloping hills, comprised of stonefree clay and poorly sorted sand. The topography within the Study Area consists of gentle rolling slopes; the highest elevation associated with the residential properties at the south-central portion of the Study Area; the lands generally sloping to the north east and northwest from that point. The natural topography of the Study Area has been altered to accommodate the existing residential neighborhood currently located here.

As stated in ORM Technical Paper# 4, Landform Conservation, the ORM contains a diversity of landform types that directly affect the complex ecological and hydrological character of the moraine. Within the ORMCP Area, significant landform features are defined as areas of steeply sloping lands with slopes of 15% or greater; a vertical height of 5 meters (m) or greater; and a continuous distance of 50 m or greater. A portion of the Study Area is located within the ORM Landform Conservation Area- Category 2 (Moderately Complex Landform). In accordance with Section 30(6) of the ORMCP, Landform Conservation Areas- Category 2 are areas identified within the ORM that have significant portions of their land surface dominated by complex landform patterns. They have been identified by the province as areas having 20% to 50% of the land surface comprised of:

- lands with slopes in excess of 10%;
- land with distinctive landform features such as ravines, kames and kettles, and /or;
- land with a diversity of land slope classes.

Other land areas within the ORM not dominated by complex or distinctive landform features are not subject to the Landform Conservation requirements of the ORMCP. Such features constitute less than 20% of the land surface.

A Landform Conservation Plan has been prepared for the Study Area in order to determine whether significant landform features are present within the Study Area and potential impacts of development related to significant landform features identified. The Landform Conservation Plan was prepared in accordance with Section 30(6) of the ORMCP and associated ORM Technical Paper #4: Landform Conservation. The Landform Conservation Plan is further discussed in **Section 6.1** of this report.

3.2.2 Soils and Geology

The Study Area lies at the border of the Oak Ridges Moraine (ORM) physiographic region and the Schomberg Clay Plains and is characterized by hummocky, kettle and kame topography (Chapman and Putnam, 1984). The resulting soil is silt and clay with minor sand and gravel in the northern half of the area, with the southern have consisting more of sandy silt to silt sand textured till (Ontario Geologic Survey, 1991).

This Study Area is just within the Oak Ridges Moraine and is located within the Lake Simcoe Ecoregion. It is also located within the Mixedwood plains ecozone. The topography of the land is relatively flat with a gentle slope down towards the wetlands in the northwest corner, as well as a gentle slope towards the woodlands to the west and north of the Study Area. Surface geology mapping by the Ontario Geological Survey (2003) shows that the entire property is covered by low permeability clay and silt glaciolacustrine deposits (R.J. Burnside, 2021)

A desktop review of aerial imagery indicates that the area is primarily comprised of low-density residential development with single family dwellings, treerows, and landscape plantings. Natural features such as woodlands, wetlands and watercourses surround the Study Area to the west, north, and north east.

3.2.3 Wetlands

Wetlands within the Study Area are designated as unevaluated on the MNRF's background mapping (LIO, 2019); however they are not present on either the Region or the City's OP schedules. The wetlands are located along a tributary to the East Holland River which runs southwest to northwest across the northeast corner of the Study Area.

Wetlands are discussed further in **Section 5.3**.

3.2.4 Woodlands

Significant Woodlands were identified adjacent to the Study Area, bordering the western and north-western perimeters of the Study Area, which correspond with the Woodland designation in Schedule E1 of the Aurora OP. This area has also been classified using ELC by the LSRCA in 2005 and labeled as mixed forest by York Region (**Appendix C**).

Woodlands are discussed further in **Section 5.4**.

3.2.5 Valleylands

No significant valleylands were identified within or adjacent to the Study Area through background review. As noted in **Section 3.2.1**, the Study Area is relatively flat with a slight slope down towards the wetlands in the northwest corner, as well as a gentle slope towards the woodlands to the west and north of the Study Area.

3.2.6 Significant Wildlife Habitat

The Significant Wildlife Habitat Technical Guide (MNRF, 2000) defines Species of Conservation Concern as globally, nationally, provincially, regionally, or locally rare (S-Rank of S2 or S3); as well as species listed as endangered or threatened federally; but do not include SAR (listed as endangered or threatened under the ESA, 2007). The Species of Conservation Concern listed in **Table 2** were identified with the potential to occur within or adjacent to the Study Area based on a background review. These species have been considered in determining the potential for SWH within the Study Area, as defined by the Eco-region 6E Criterion Schedules (MNRF, 2015).

Table 2: Species of Conservation Concern with potential to occur within the Study Area

SCIENTIFIC NAME	COMMON NAME	SARA[1]	ESA[2]	S-RANK[3]	INFO SOURCE[4]
BIRDS					
Haliaeetus leucocephalus	Bald Eagle	---	SC	S2N,S4B	CBC
Ammodramus savannarum	Grasshopper Sparrow	SC	SC	S4B	OBBA
Coccothraustes vespertinus	Evening Grosbeak	---	SC	S4B	CBC, OBBA
Melanerpes erythrocephalus	Red-headed Woodpecker	THR	SC	S4B	OBBA
Hylocichla mustelina	Wood Thrush	THR	SC	S4B	OBBA
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	OBBA
LEPIDOPTERA					
Danaus plexippus	Monarch	SC	SC	S2N,S4B	OBA
HERPTILES					
Chelydra serpentina	Snapping Turtle	SC	SC	S3	OHA
Thamnophis sauritus	Eastern Ribbonsnake (Great Lakes population)	SC	SC	S3	OHA
Graptemys geographica	Northern Map Turtle	SC	SC	S3	OHA

[1]Federal Species at Risk Act (THR= threatened, SC= special concern); [2]Ontario Endangered Species Act (SC= Special Concern); [3]Ontario SRank; S4= apparently secure; S3 = vulnerable; S2 = imperilled; [4]Information sources include: OHA = Ontario Herpetofaunal Atlas, OBA = Ontario Butterfly Atlas; --- denotes no information or not applicable.

Based on this, there is potential for the following SWH to be present within and adjacent to the Study Area:

- Bat Maternity Colonies;
- Amphibian breeding habitat (woodlands/wetlands);
- Turtle Nesting Areas; and
- Special Concern and Rare Wildlife Species.

The potential for SWH within the Study Area is further discussed in **Section 5.5**.

3.2.7 Species at Risk

Based on the background review, a number of SAR listed as endangered and threatened under the ESA were identified as having the potential to occur within the vicinity of the Project Area (see **Table 3**).

Table 3: Species at Risk with potential to occur within the Study Area

SCIENTIFIC NAME	COMMON NAME	SARA[1]	ESA[2]	S-RANK[3]	INFORMATION SOURCE[4]
BIRDS					
Chaetura pelagica	Chimney Swift	THR	THR	S4B,S4N	OBBA
Hirundo rustica	Barn Swallow	THR	THR	S4B	OBBA, NHIC
Riparia riparia	Bank Swallow	THR	THR	S4B	OBBA
Dolichonyx oryzivorus	Bobolink	THR	THR	S4B	OBBA
Sturnella magna	Eastern Meadowlark	THR	THR	S4B	OBBA
ODONATA					
Gomphus quadricolor	Rapids Clubtail	END	END	S1	MNRF Reg. Habitat
HERPTILES					
Ambystoma jeffersonianum	Jefferson Salamander	END	END	S2	OHA, MNRF Reg. Habitat
Emydoidea blandingii	Blanding's Turtle	THR	THR	S3	OHA
MAMMALS					
Myotis leibii	Eastern Small-footed Myotis	---	END	S2S3	MWH
Myotis lucifugus	Little Brown Myotis	END	END	S4	MWH
Myotis septentrionalis	Northern Myotis	END	END	S3	MWH
Pipistrellus subflavus	Tri-colored Bat	END	END	S3?	MWH
VASCULAR PLANTS					
Platanthera leucophaea	Eastern Prairie Fringed-orchid	END	END	S2	MNRF Reg. Habitat

[1]Federal Species at Risk Act (END= endangered, THR= threatened); [2]Ontario Endangered Species Act (END= endangered, THR= threatened); [3]Ontario SRank; S4= apparently secure; S3 = vulnerable; S2 = imperilled; [4]Information sources include: NHIC= Provincially Tracked Species; OBBA = Ontario Breeding Bird Atlas.

Based on the habitat present within the Study Area (woodlands, wetlands), there is potential for SAR to be present; however, it should be noted that, due to the existing residential development, the potential for certain SAR is limited within the proposed development area (i.e., Blanding's Turtle, Jefferson Salamander, Eastern Prairie-fringed Orchid, etc.). In addition, based on the age/ condition of the houses and structures (good condition), there is little potential for Chimney Swift or Barn Swallow to be present. Lastly, there is limited potential for grassland breeding birds (i.e., Bobolink and Eastern Meadowlark). The potential for SAR and SAR habitat to be present within the Study Area is discussed further in **Section 5.6**.

4.0 Methodology of Biophysical Investigation

The following sub-sections outline the methodologies that were implemented in preparation of this EIS. The results of the background review were also used to assist in scoping the field program that was implemented in 2021 and is outlined below. Preliminary fieldwork conducted for the EIS included a site reconnaissance visit, woodland/wetland dripline staking, and tree inventory which occurred between December 2020 and March 2021 when weather conditions and timing were deemed suitable based on the survey protocols being implemented (**Table 4**). Additional fieldwork completed in 2021 included confirmatory ELC, a single-season (summer) vegetation survey, breeding bird surveys, and amphibian breeding surveys, based on the TOR established with the LSRCA. The following sub-sections outline the survey methodologies used in the EIS.

Table 4: Timing and Weather Conditions of Field Surveys

DATE	WEATHER CONDITIONS	AIR TEMP (°C)	PURPOSE OF VISIT
December 14, 2020	Overcast, intermittent light snow	2	Site Reconnaissance, Preliminary ELC, Incidental Wildlife
December 17, 2020	Overcast, no precipitation	-6	Agency site walk, staking
March 5, 2021	Clear, no precipitation	-8	Tree Inventory
March 9, 2021	Clear, no precipitation	10	Tree Inventory
March 15, 2021	Clear, no precipitation	-4	Tree Inventory
March 17, 2021	Overcast, no precipitation	5	Tree Inventory
April 23, 2021	Clear, no precipitation	13	Amphibian Survey #1
May 26, 2021	Overcast, no precipitation	17	Amphibian Survey #2
June 1, 2021	Clear, no precipitation	15	Breeding Bird Survey #1
June 24, 2021	Overcast, no precipitation	23	Amphibian Survey #3
July 7, 2021	Overcast, no precipitation	20	Breeding Bird Survey #2
July 14, 2021	Clear, no precipitation	25	ELC, Summer vegetation

4.1 Site Reconnaissance and Species at Risk Habitat Assessment

During the first site visit in late fall 2020, the Study Area was walked to conduct high-level ELC and to identify the potential for natural heritage feature including woodlands, wetlands, SWH and SAR habitat.

The habitat assessment involved noting specific indicators of habitat which may include, but are not limited to, potential for amphibian breeding habitat (woodland or wetland) in the form of vernal pools, wetland pockets, etc., high level confirmation of ELC communities present on site, and other incidental wildlife observations.

The results of these preliminary findings helped in confirming the scope of our field studies for 2021, as well as identifying additional surveys or other potential requirements for future development plans.

Results are discussed in **Section 5.0**.

4.2 Woodland and Wetland Feature Staking

A feature staking exercise was conducted on December 17, 2020 by members of the project team and representatives from LSRCA, during which the woodlands and wetlands in the Study Area were staked.

4.3 Tree Inventory

A Tree Inventory was conducted in the Study Area by a Dillon ISA-certified arborist. Trees subject to the inventory were those with a Diameter at Breast Height (DBH) of 8 cm or greater, consistent with the Town of Aurora Planning and Development Services Site Application Guide. Detailed methods can be found in the Arborist Report provided under separate cover.

The basic qualitative visual health assessment completed for trees within the Study Area includes a detailed visual inspection of the tree and surrounding area to obtain a professional opinion of the health condition of each tree. It includes a non-invasive inspection of each tree – looking at the site conditions as well as the root taper, trunk, and scaffold branch arrangement at the union as well as the condition of the secondary branches and leaves.

This basic qualitative visual health assessment is the standard assessment that is performed by arborists, but only includes conditions that are detected from the ground. The results from a basic qualitative visual health assessment should not be relied on for internal, below-ground, and/or upper-crown condition or defects as these areas may be impossible to see or difficult to assess from ground-level.

The hazard potential of the tree was assessed using the method outlined in the International Society of Arboriculture publication A Photographic Guide to the Evaluation of Hazard Trees in Urban Area - 2nd Edition (Matheny and Clark, 1994). Using this guide, an overall condition rating (i.e., dead, poor, fair, good or excellent) was given to each tree with a trunk diameter of 20 cm or greater.

Results are summarized in **Section 5.4.1.**

4.4 Confirmatory Ecological Land Classification

Confirmatory ELC studies were completed in conjunction with summer vegetation surveys on July 14, 2021. During the field investigations, vegetation and soils on site were characterized in order to classify and map ecological communities to the vegetation level. The ecological community boundaries were determined through the review of aerial photography and initial assessment and then further refined through on site vegetation surveys including soil sampling in each of the communities.

Results are summarized in **Section 5.1.**

4.5 Vegetation Inventory

The summer vegetation survey consisted of wandering transects and/or area searches to determine the presence, richness and abundance of floral species within the Study Area as well as presence/absence of botanical SAR and provincially rare vegetation species. Species nomenclature recorded is based on the Ontario Plant List (Newmaster et al,. 1998).

Results are summarized in **Section 5.2.**

4.6 Breeding Bird Survey

Diurnal breeding bird surveys were conducted within the Study Area and followed the methods outlined in the Ontario Breeding Bird Atlas Guide for Participants (Ontario Breeding Bird Atlas, 2001). Specifically, survey will consisted of point counts generally conducted between dawn and five hours after sunrise to establish quantitative estimates of bird abundance in suitable habitat types within the Study Area. During the surveys evidence of breeding behaviour were recorded which generally includes, but is not limited to, males singing, nest building, egg incubation, territorial defence, carrying food, and feeding their young.

To supplement the surveys, area searches of the habitat were completed using binoculars to observe species presence and breeding activity between point counts. Area searches involved noting all individual bird species and their corresponding breeding evidence while traversing the habitat on foot.

Results are summarized in **Section 5.5.1.**

4.7 Amphibian Breeding Survey

Amphibian monitoring followed the Marsh Monitoring Program protocol (Bird Studies Canada, 2009). In accordance with the protocol, three different surveys were conducted between April 1 and June 30, with at least two-weeks between each survey. Surveys were completed between one half hour after sunset and midnight during evenings with a minimum night temperature of 5 ^{o}C, 10 ^{o}C, and 17 ^{o}C for each of the three respective surveys. Survey points will align with the wetland and woodland areas. The calling activity of individuals estimated to be within 100 m of the observation point was documented. All individuals beyond 100 m were recorded as outside the count circle and calling activity was not recorded. Calling activity was then be ranked using one of the three abundance code categories:

Code 1: Calls not simultaneous, number of individual can be accurately counted;
Code 2: Some calls simultaneous, number of individuals can be reliably estimated; and,
Code 3: Calls continuous and overlapping, number of individuals cannot be estimated.

If observed, vernal pools will also be visually examined for egg masses and amphibian larvae in conjunction with other field surveys.

Results are summarized in **Section 5.5.2.**

4.8 Incidental Wildlife

Incidental observations of wildlife will be noted, as well as other wildlife evidence such as dens, tracks, and scat throughout the 2021 field season. For each observation, notes, and when possible, photos will be taken.

Results are summarized in **Section 5.7.**

5.0 Results of Biophysical Investigation

A biophysical inventory of natural features within the Study Area was conducted in the 2021 field season in accordance with the methods detailed in **Section 4.0**. The analysis of data collected from secondary source information and during field studies in 2020 and 2021, has been used to evaluate the significance of natural heritage features within the Study Area.

5.1.1 Ecological Land Classification

A total of six ecological communities were observed within the Study Area during high level ELC surveys carried out during site reconnaissance, three of which are considered natural vegetation communities. The location, type, and boundaries of these communities are delineated on **Figure 2**. All vegetation communities surveyed within the Study Area are considered common in Ontario. **Table 5** outlines the communities documented during ELC surveys and summarizes the dominant vegetation cover. Reference photos for each of the plant communities observed can be found in **Appendix D**.

Within the Study Area, the natural vegetation communities showed a moderate level of disturbance and contained invasive species and noxious species including, but not limited to, Common Buckthorn (*Rhamnus cathartica*), Common Reed (*Phragmites australis*), Manitoba Maple (*Acer negundo*), and Garlic Mustard (*Allaria petiolata*).

TOWN OF AURORA

ARCHERHILL COURT

ECOLOGICAL LAND CLASSIFICATION

FIGURE 2

- Study Area
- Road
- Staked Wetland Limit (Dillon, July 2021)
- Staked Dripline (Dillon, December 2020)
- CVR-1: Low Density Residential
- CVI-1: Transportation
- FOMM3: Dry-Fresh Hardwood - Hemlock Mixed Forest
- MAMM1-2: Gramminoid Mineral Meadow Marsh
- MEMM4: Dry-Fresh Mixed Meadow
- TAGM1: Coniferous Plantation

0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, ORN

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-04-27

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\EIS\F2_EcologicalLandClassification.mxd

Table 5: Ecological Land Classification

POLYGON CODE	ELC CODE	CLASSIFICATION	VEGETATION	PHOTO APPENDIX D
1	MAMM1-2	Grammioid Mineral Meadow Marsh	A small wetland community in the northeast corner of the Study Area, this community was dominated by Broad-leaved Cattail (*Typha latifolia),* along occasional occurrences of Common Reed (*Phragmites australis),* Reed Canary Grass (*Phalaris arundinacea*), and Tall Goldenrod (*Solidago altissima*).	1
2	FOMM3	Dry-Fresh Hardwood - Hemlock Mixed Forest	This forest community was located along the western and northern perimeter of the Study Area and consisted of a canopy mix of deciduous and coniferous tree species. This community is part is part of a larger forest which continues off site. Deciduous species included Sugar Maple (*Acer saccharum*), White Ash (*Fraxinus americana*), Large-toothed Aspen (*Populus grandidentata*), Manitoba Maple (*Acer negundo*), and Trembling Aspen (*Populus tremuloides).* Coniferous species present included Eastern White Cedar(*Thuja occidentalis*), White Spruce (*Picea glauca*), Eastern Hemlock (*Tsuga canadensis*), and Balsam Fir (*Abies balsamea*)	2
3	MEMM4	Dry-Fresh Mixed Meadow	This open community was located adjacent to the wetland community in the northeast corner of the Study Area. This community was a mix of species common to meadow communities. Limited tree species also present included trees such as Staghorn Sumac (*Rhus hirta*), White Willow (Salix alba), White Spruce, Scotch Pine (*Pinus sylvestris*), Common Buckthorn (*Rhamnus cathartica*), and Hawthorn species (*Crataegus sp*.). Meadow species included Tall Goldenrod, Wild Carrot (*Daucus carota*), Common Mullein (*Verbascum thapsus*), Reed Canary Grass, and Aster species (*Symphyotrichum sp.)*	3
4	TAGM1	Coniferous Plantation	This community consists of a mix of planted coniferous tree species including White Spruce, Blue Spruce (*Picea pungens*), Eastern White Cedar, Black Pine (*Pinus nigra*) and Eastern White Pine (*Pinus strobus*)	4
5	CVR_1	Low Density Residential	Low density residential housing.	5
6	CVI_1	Transportation	Residential street Archerhill Court.	6

5.2 Vegetation

A total of 113 plant species were documented during 2020 and 2021 field studies. Of the 113 species 57% are listed as native species considered to be common (S4) to very common (S5) in the province of Ontario; and approximately 43% are listed as introduced species, therefore a status ranking is not applicable as the species is not a suitable target for conservation activities (SE or SNA rank).

The Co-efficient of Conservatism (CC) provides additional information on the nature of the vegetation communities within the Study Area. The CC values range from 0 to 10 and represent an estimated probability that a plant is likely to occur in a landscape that is relatively unaltered or is in a pre-settlement condition. For example, a CC of 0 is given to plants such as Manitoba Maple that demonstrate little fidelity to any remnant natural community, i.e. may be found almost anywhere. Similarly, a CC of 10 is applied to plants like Shrubby Cinquefoil (*Potentilla fructicosa*) that are almost always restricted to a pre-settlement remnant, i.e. a high quality natural area. Introduced plants were not part of the pre-settlement flora, so no CC values have been applied to these species.

Of the 113 species identified within the Study Area, the average CC value recorded is 4.1 which is typical of an altered landscape (i.e. residential development); although several species were recorded with CC values of 7 or greater, including Blue Bead-Lily (*Clintonia borealis*), Michigan Lily (*Lilium michiganese*), Canada Yew (*Taxus canadensis*), Eastern Hemlock *(Tsuga Canadensis),* and Marsh Horsetail *(Equisetum palustre).* No SAR vegetation were identified within the Study Area. A full list of the vegetation species observed within the Study Area has been included in **Appendix E**.

5.3 Wetlands

A wetland containing a mapped watercourse tributary to the East Holland River was identified through ELC investigations. The community was comprised of a Graminoid Mineral Mixed Meadow marsh (**Figure 2**) and was dominated largely by Broad-leaved Cattail (*Typha latifolia*). Although a formal wetland evaluation was not required or completed as part of this EIS, we have assumed based on the size of the wetland pockets, lack of connection to adjacent PSW's within the watershed, and overall function of the wetland, that it would not be considered a PSW.

Potential impacts and mitigation measures related to the wetland are discussed in **Section 8.1.1**.

5.4 Woodlands

In accordance with the policies of the ORMCP, in order for woodland to be significant it must have either:

a) *A tree crown cover of over 60% of the ground, determinable from aerial photography; or*
b) *A tree crown cover of over 10% of the ground, determinable from aerial photography, together with on-ground stem estimates of:*

- 1,000 trees of any size per hectare. Or
- 750 trees measuring over five centimetres in diameter, per hectare, or
- 500 trees measuring over 12 centimetres in diameter, per hectare, or
- 250 trees measuring over 20 centimetres in diameter, per hectare.

If these minimum standards are met, the woodland is then evaluated based on size criterion. Significant woodlands must have a minimum average width of 40 m or more measured to crown edges; and must meet one or more of the following criteria:

c) *4 hectares or larger in size located in the Countryside or Settlement Areas of the ORMCP; or*
d) *0.5 hectare or larger in size located in the Natural Core or Natural Linkages Areas of the ORMCP; or*
e) *0.5 hectare or larger located within or intersecting with a key natural heritage feature or hydrologically sensitive feature or their vegetation protection zone.*

Woodlands were investigated as part of site reconnaissance and preliminary high-level ELC surveys in 2020. The woodlands found adjacent to the Study Area are considered "significant" in accordance with the criteria in the Oak Ridges Moraine Conservation Plan and they form part of the York Region Greenlands System as identified Regional Greenlands System Map 2. The staked dripline of the Significant Woodland is shown on **Figure 3**. The woodlands are also designated as Environmental Protection in the Aurora Official Plan Schedule A. Only a small portion of this larger Significant Woodland is found within the Study Area, with the majority falling along the western perimeter and northwest corner of the Study Area. Woodlands within the Study Area are comprised of Mixed Forest as described in **Table 5**.

Potential impacts related to Significant Woodlands and other vegetation communities within the Study Area are included in **Section 8.1.2** and **8.1.3**.

5.4.1 Tree Inventory

A tree inventory and condition assessment was conducted over four days in late winter of 2021 (March) to document all trees found within the Study Area. The majority of trees documented occur within the proposed development area and will require removal.

The majority of the trees consisted of planted landscape trees as part of residential properties. While composition and densities were variable between locations, common observations consisted White Spruce, Little-leaf Linden, Norway Maple, and Black Pine.

Detailed tree inventory results, including species, diameter at breast height, condition, estimated total number of removals, and other relevant information recorded during the assessment has been provided under separate cover.

TOWN OF AURORA

ARCHERHILL COURT

SIGNIFICANT NATURAL FEATURES

FIGURE 3

- Study Area
- Staked Wetland Limit (Dillon, July 2021)
- Staked Dripline (Dillon, December 2020)
- Unevaluated Wetland
- Significant Woodland
- Significant Wildlife Habitat (Special Concern and Rare Wildlife Species - Eastern Wood-pewee)
- Candidate Significant Wildlife Habitat (Bat Maternity Colonies)
- Potential SAR Bat Habitat

0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-08-17

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\EIS\F3_SignificantNaturalFeatures.mxd

5.5 Significant Wildlife Habitat

As the Significant Woodland will be protected as part of the proposed development, specific surveys for bat maternity colonies were not conducted as part of this EIS. As a result we have identified candidate SWH for Bat Maternity Colonies within the woodlands (**Figure 3**). The wetlands found in the northeast portion will also be protected as part of the proposed development. As a result, surveys for turtle nesting habitat were not conducted as part of this EIS. However, no turtles were observed during field investigations and the wetland did not contain sandy or gravelly soils with sunny slopes, suitable for turtle nesting, and therefore is not considered potential for Turtle Nesting Area habitat.

The potential for SWH for woodland species such as Eastern Wood-pewee (*Contopus virens*) and Wood Thrush (*Hylocichla mustelina*) and amphibians are discussed in sections below.

5.5.1 Breeding Bird Surveys

A total of 25 bird species were observed during breeding bird surveys in 2021 (**Table 6**). Of the 25 species observed, all are considered secure (S4) to very common (S5) in the province of Ontario. Of these species, one species of Special Concern, Eastern-Wood Pewee was observed singing within the Significant Woodland portion of the Study Area.

Table 6: Breeding Bird Survey Results

Scientific Name	Common Name	SARA[2]	ESA[3]	SRank[1]	Breeding Evidence[4]
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4	D
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B	S
Cardinalis cardinalis	Northern Cardinal	---	---	S5	S
Carduelis tristis	American Goldfinch	---	---	S5B	S
Carpodacus mexicanus	House Finch	---	---	SNA	S
Colaptes auratus	Northern Flicker	---	---	S4B	X
Contopus virens	Eastern Wood-pewee	SC	SC	S4B	S, H
Corvus brachyrhynchos	American Crow	---	---	S5B	S
Cyanocitta cristata	Blue Jay	---	---	S5	S
Melanerpes carolinus	Red-bellied Woodpecker	---	---	S4	S
Melospiza georgiana	Swamp Sparrow	---	---	S5B	S
Molothrus ater	Brown-headed Cowbird	---	---	S4B	FY
Myiarchus crinitus	Great Crested Flycatcher	---	---	S4B	S
Picoides pubescens	Downy Woodpecker	---	---	S5	X
Poecile atricapillus	Black-capped Chickadee	---	---	S5	S
Quiscalus quiscula	Common Grackle	---	---	S5B	S

Scientific Name	Common Name	SARA[2]	ESA[3]	SRank[1]	Breeding Evidence[4]
Spizella passerina	Chipping Sparrow	---	---	S5B	S
Sturnus vulgaris	European Starling	---	---	SNA	CF
Tachycineta bicolor	Tree Swallow	---	---	S4B	S
Troglodytes troglodytes	Winter Wren	---	---	S5B	S
Turdus migratorius	American Robin	---	---	S5B	FY
Tyrannus tyrannus	Eastern Kingbird	---	---	S4B	S
Vireo olivaceus	Red-eyed Vireo	---	---	S5B	S
Setophaga petechia	Yellow Warbler	---	---	S5B	S
Zenaida macroura	Mourning Dove	---	---	S5	S

[1]Ontario SRank; S5 = secure; S4= apparently secure; S3 = vulnerable; S2 = imperilled; SX = Extirpated; SH = Possibly Extirpated; SNA = non-native or exotic species to Ontario; [2]Federal Species at Risk Act (END= endangered, THR= threatened); [3]Ontario Endangered Species Act (END= endangered, THR= threatened).

[4]**Observed**

X Species observed in its breeding season (no breeding evidence)

Possible

H Species observed in its breeding season in suitable nesting habitat
S Singing male(s) present, or breeding calls heard, in suitable nesting habitat in breeding season

Probable

P Pair observed in suitable nesting habitat in nesting season
T Permanent territory presumed through registration of territorial song, or the occurrence of an adult bird, at the same place, in breeding habitat, on at least two days a week or more apart, during its breeding season.
D Courtship or display, including interaction between a male and a female or two males, including courtship feeding or copulation
V Visiting probable nest site
A Agitated behaviour or anxiety calls of an adult
B Brood Patch on adult female or cloacal protuberance on adult male
N Nest-building or excavation of nest hole, except by a wren or a woodpecker

Confirmed

NB Nest-building or excavation of nest hole by a species other than a wren or a woodpecker
DD Distraction display or injury feigning
NU Used nest or egg shells found (occupied or laid within the period of the survey)
FY Recently fledged young (nidicolous species) or downy young (nidifugous species), including incapable of sustained flight
AE Adult leaving or entering nest sites in circumstances indicating occupied nest
FS Adult carrying fecal sac
CF Adult carrying food for young
NE Nest containing eggs
NY Nest with young seen or heard

The Significant Woodland within the north-western portion of the Study Area contains Sugar Maple and Oak trees, which is preferred habitat for Eastern Wood-pewee. This species was observed singing within the woodland area during breeding bird surveys, and therefore this woodland is considered SWH for Habitat of Special Concern and Rare Wildlife Species (**Figure 3**).

Potential impacts to wildlife are discussed in **Section 8.1.4**.

5.5.2 Amphibian Surveys

Potential amphibian breeding habitat was identified within the Significant Woodland and the unevaluated wetlands within the Study Area. In accordance with the Ecoregion 6E Criterion Schedule (MNRF 2015), the Study Area was considered under amphibian breeding woodland habitat based on the

presence of vernal pools within the Significant Woodland. In order for amphibian breeding habitats to be significant, they must contain one or more of the listed newt/salamander species; at least two or more of the listed frog/toad species with at least 20 individuals (adults or egg masses) of each species; or at least two of the listed frog/toad species with Call Code 3.

No amphibian species were observed or heard calling during amphibian breeding surveys throughout the three amphibian breeding surveys conducted in 2021. Therefore, no significant amphibian breeding habitat is present within the Study Area.

5.6 Species at Risk

The Significant Woodland provides potential habitat for SAR Bat species. However, specific surveys for bat maternity colonies were not conducted as part of this EIS as the habitat is being protected as part of the development. No other SAR or SAR habitat was identified within the Study Area during 2021 surveys.

Potential impacts to wildlife are discussed in **Section 8.1.4**.

5.7 Incidental Wildlife

Incidental wildlife species observed within the Study Area are listed in **Table 7** below. All species observed are common in the Town of Aurora and have an S-Rank of S4 or S5.

Table 7: Incidental Wildlife Observations

SCIENTIFIC NAME	COMMON NAME	SARA[1]	ESA[2]	SRANK[3]
Corvus brachyrhynchos	American Crow	---	---	S5B
Carduelis tristis	American Goldfinch	---	---	S5B
Turdus migratorius	American Robin	---	---	S5B
Spizelloides arborea	American Tree Sparrow	---	---	S4B
Poecile atricapillus	Black-capped Chickadee	---	---	S5
Cyanocitta cristata	Blue Jay	---	---	S5
Bombycilla cedrorum	Cedar Waxwing	---	---	S5B
Quiscalus quiscula	Common Grackle	---	---	S5B
Corvus corax	Common Raven	---	---	S5
Accipiter cooperii	Cooper's Hawk	---	---	S4
Junco hyemalis	Dark-eyed Junco	---	---	S5B
Picoides pubescens	Downy Woodpecker	---	---	S5
Picoides villosus	Hairy Woodpecker	---	---	S5
Zenaida macroura	Mourning Dove	---	---	S5
Cardinalis cardinalis	Northern Cardinal	---	---	S5

SCIENTIFIC NAME	COMMON NAME	SARA[1]	ESA[2]	SRANK[3]
Carduelis pinus	Pine Siskin	---	---	S4B
Sitta canadensis	Red-breasted Nuthatch	---	---	S5
Agelaius phoeniceus	Red-winged Blackbird	---	---	S4
Cygnus buccinator	Trumpeter Swan	---	---	S4
Sitta carolinensis	White-breasted Nuthatch	---	---	S5
MAMMALS				
Sylvilagus floridanus	Eastern Cottontail	---	---	S5
Sciurus carolinensis	Eastern Gray Squirrel	---	---	S5
Tamiasciurus hudsonicus	Red Squirrel	---	---	S5
HERPTILES				
Storeria occipitomaculata	Red-bellied Snake	---	---	S5

[1]Federal Species at Risk Act; [2]Ontario Endangered Species Act; [3]Ontario SRank; S5= secure; S4= apparently secure; B = breeding population; --- denotes no information

6.0 Ecological Function

Natural features within the Study Area were analyzed to determine their ecological function. At the larger landscape scale, the Study Area lies within the East Holland River subwatershed which is part of the larger Lake Simcoe watershed within the region known as the Simcoe Lowlands. Wetlands within the Study Area provide ecological and hydrological function, providing habitat and acting as a Core Area and Linkage Area of the County's Natural Heritage System; connecting to adjacent woodlands and habitats through a vegetated corridor and surface water conveyance along a tributary of the East Holland River. The Study Area is surrounded by urban land use to the north, woodlands to the west and north, Vandorf Sideroad to the south, and Bayview Avenue to the east. General ecological functions within the Study Area include prevention of erosion and runoff, facilitating hydrological and nutrient cycling, and improving localized soil, water and air quality. Within the Study Area, the woodland may provide cover, foraging, refuge, and nesting habitat for urban terrestrial wildlife.

The Study Area is primarily composed of single family residential homes, with woodland to the west and north of the Study Area. The woodland provides ecological and hydrological function by intercepting precipitation and providing habitat to a number of native plant and wildlife species and including potential SWH. There is also a small unevaluated wetland and mapped watercourse in the north east of the Study Area which may provide general habitat for amphibians and other terrestrial wildlife. However, the potential for important connectivity and linkage functions between significant natural features within the subwatershed landscapes are limited due to interruption by roadways, agricultural fields, commercial properties and residential properties (e.g. Bayview Avenue).

6.1 Landform Features

As stated in **Section 3.2.1**, the Study Area is located within ORM Landform Conservation Area - Category 2. Through analysis of slope and elevation within the Study Area to identify areas with greater than 15% slope, 5 metre vertical height, and greater than 50 metres in length in accordance with the ORM Technical Paper #4, significant landform features have been identified within the Study Area (**Appendix F**).

In accordance, Section 5.5 of the ORMCP Technical Paper #4 states that applications for major developments will be required to:

- identify the policies of Section 30 of the ORMCP that apply to the application;
- identify the areas of the subject lands that are subject to the design standards specified in Section 30(5) and (6) of the ORMCP;
- the area of the subject lands that will not be developed or altered due to:
    (a) presence of key natural heritage features and hydrologically sensitive features including minimum vegetation protection zones;

(b) presence of significant landform features including kames, kettles, ravines, and steeping sloping lands; and
(c) limitations passed by the connectivity requirements in Section 20 of the ORMCP;

- areas of the subject land that may be developed subject to landform conservation techniques,
- Identify open space corridors that need to be set aside as areas free of buildings and structures to maintain connectivity in accordance with ORMCP Technical Paper 3.
- Identify areas of the ORMCP where there is little or no landform constraints; and
- Identify areas of the subject land within an earth science ANSI where an earth science heritage evaluation must be prepared.

Aside from their aesthetic appeal, landform features have several ecological functions. Within the Study Area, landform features contain Significant Woodland, and hydrologically sensitive features (unevaluated wetland, watercourses, etc.), SWH and SAR.

As presented in Figure 4, **Appendix F**, the slope and elevation analysis determined that no areas within the Study Area meet the criteria for a significant landform feature as per the ORMCP Technical Paper #4 guidance (i.e, there are no areas that are greater than 15% slope with a vertical height of 5 m and a distance of 50 m).

Therefore, the landform feature within the property is not considered a significant landform feature. Although the landform feature identified within the property is not considered significant, requirements for a Major Development within a Landform Conservation 2 area still apply, and are discussed further under Summary and Recommendations.

7.0 Description of Proposed Development

The proposed Archerhill Court project consists of a high density residential development with 149 residential lots, roads, and walkways (**Figure 4**).

Access into the development is proposed via residential street north of Vandorf Sideroad. Construction of the proposed development would include the removal of trees and vegetation from the development area, construction of dwellings, placement of hardscape (driveways, sidewalks) and underground servicing for stormwater and sanitary water. Landscaping would include, but is not limited to, installation of patios, fencing, sod, and tree plantings.

The potential impacts of the development and the mitigation measures will be discussed in **Sections 8.0** and **9.0.**

TOWN OF AURORA

ARCHERHILL COURT

PROPOSED DEVELOPMENT PLAN

FIGURE 4

- Study Area
- Property Plan
- Future Road
- Road

0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-04-27

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\EIS\F4_ProposedDevelopmentPlans.mxd

8.0 Impact Assessment

8.1 Potential Direct Impacts

Potential direct impacts are those that are immediately evident as a result of a development. Typically, the adverse effects of potential direct impacts are most evident during the site preparation and construction phase of a development. Potential direct impacts of the proposed operations yard development include the following:

- Diversion of surface water flows;
- Erosion and sedimentation into natural features (woodland, wetlands and watercourse);
- Tree and vegetation removal (including areas of Significant Woodland);
- Loss of/ disturbance to wildlife and wildlife habitat.

8.1.1 Diversion of Surface Water Flows

As described in **Section 3.1**, the Study Area lies within the East Holland River subwatershed and during periods of heavy precipitation the east portion of the Study Area generally drains in a north easterly direction into the unevaluated wetland and watercourse. The western and northern portions of the Study Area generally drain west and north into a second wetland and watercourse located to the west of the Study Area within the adjacent woodlands. The East Holland River tributaries flow in a northerly direction and ultimately discharge into Lake Simcoe.

The potential impacts of changes to land use and land cover on the health of a watershed have been well documented and can include changes to groundwater infiltration, run off, stream flow regime, water quality, stream channel erosion, and wildlife habitat (TRCA, 2008a). More specifically, changes may include:

- Direct “footprint” effects such as the loss of natural land cover or destruction of built heritage features; and,
- Indirect “flow related” effects such as increased frequency of high stream flows, accelerated stream channel erosion and deterioration of water quality

The most notable difference is the addition of impervious surfaces (i.e., roads, parking lots, driveways, rooftops, etc.). Impervious surfaces prevent infiltration of water into the soils and the removal of the vegetation removed the evapotranspiration component of the natural water balance. These changes affect the watersheds capacity to infiltrate precipitation and detain run off and, therefore, to attenuate stream flow (TRCA, 2008a). This water also has the potential to pick up contaminants through overland flow across roads and driveways and decrease the overall water quality of the watercourse.

Refer to **Section 9.1** and **9.2** for mitigation relating to surface flows.

8.1.2 Erosion and Sedimentation of Natural Features

Construction activity, especially operations involving the handling of earthen material, increases the availability of sediment for erosion and transport via surface drainage. In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff into drainage ditches and Tributary A, measures for erosion and sediment control (ESC) are recommended for the construction site and an ESC plan will be provided at the Detailed Design stage (**Section 8.2**).

Potential impacts to these features may include, but are not limited to:

- Reduced water quality and degradation of downstream aquatic habitat (e.g. surface water flow into the watercourse); and,
- Disturbance to or loss of additional vegetation due to the deposition of dust and/or overland mobilization of soil.

The Hydrological Assessment prepared for the proposed development (Burnside, 2021) determined that topographic relief within the Study Area is a maximum of 12 m, ranging from 279 masl at the south and southwest portions of the Study Area boundary, to 267 masl within the wetlands in the north-eastern portion of the Study Area.

Development of an area also affects the natural water balance. The most significant difference is the addition of impervious surfaces (roads, parking lots, driveways). Impervious surfaces prevent infiltration of water into the soils and the removal of the vegetation removes the evapotranspiration component of natural water balance.

These potential impacts are preventable with the use of best construction practices, an erosion and sediment control plan and monitoring. Additionally, Low Impact Development (LID) measures have been recommended in **Section 9.2**.

8.1.3 Tree and Vegetation Removal

The proposed development plan indicates tree and ground vegetation removal limited to the development area as shown on **Figure 5** to facilitate grading and construction of the development.

Tree removal will result in a minor reduction of tree cover, marginal wildlife habitat loss, and alteration of soil conditions. On a site level, the impacts of tree and vegetation removal may include:

- Direct loss of trees;
- Decreased floral species richness and abundance;
- Altered soil conditions and water availability;
- Alteration of microclimate;
- Loss of native seed banks; and,
- Physical injury, root damage, and compaction of trees not intended for removal that may result from construction operations.

TOWN OF AURORA

ARCHERHILL COURT

POTENTIAL IMPACTS

FIGURE 5

- Study Area
- Tree to be Retained
- Tree to be Removed
- Staked Wetland Limit (Dillon, July 2021)
- Staked Dripline (Dillon, December 2020)
- Future Road
- Road
- Property Plan
- Hedgerow Area Retained (0.03 ha)
- Hedgerow Area Removed (0.13 ha)
- Unevaluated Wetland 30 m Buffer
- Significant Woodland 10 m Buffer
- Unevaluated Wetland
- Significant Woodland
- Significant Wildlife Habitat (Special Concern and Rare Wildlife Species - Eastern Wood-pewee)
- Candidate Significant Wildlife Habitat (Bat Maternity Colonies)
- Potential SAR Bat Habitat

0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
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DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-04-27

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\EIS\F5_PotentialImpacts.mxd

The small portion of the adjacent Significant Woodlands which fall within the Study Area will be protected from development with a 10 m buffer. The remainder of the proposed development area provides limited ecological function and thus, the removal of select trees and other vegetation will result in little overall habitat loss, reduction of natural cover in the area, and reduction in ecological function within the Study Area.

Refer to **Section 9.0** for mitigation and enhancement opportunities.

8.1.4 Loss of and/or Disturbance to Wildlife and Wildlife Habitat

Flora and fauna may be impacted due to vegetation clearing during construction within the Study Area, including potential SWH and SAR habitat. Habitat for flora and fauna may be impacted by construction in the following ways:

- Displacement, injury, or death resulting from contact with heavy equipment during clearing and grading activities;
- Disturbance to wildlife as a result of noise associated with construction activities, particularly during breeding periods; and,
- Loss of wildlife and wildlife habitat.

As potential wildlife habitat is located outside of the proposed development area and will be protected through a 10 m buffer, residual negative impacts to wildlife are not anticipated, however, mitigation measures have been recommended for the development area and are included in **Section 9.5**.

8.2 Potential Indirect Impacts

Potential indirect impacts are those that do not always manifest in the core development area, but in lands adjacent to the development. Indirect impacts can begin in the construction phase; however, they can continue post-construction. Potential indirect impacts of the proposed development include anthropogenic disturbance and colonization of non-native and/or invasive species.

8.2.1 Anthropogenic Disturbance

Disturbance to local wildlife communities due to indirect impacts on the lands adjacent to the proposed development could result if left unmitigated. Noise, light, vibration and human presence are indirect impacts that can adversely influence the population size and breeding success of local wildlife. Although lands within the Study Area are already disturbed with residential development, mitigation measures that further address anthropogenic disturbance have been included in **Section 9.3** and **9.4**.

8.2.2 Colonization of Non-native and/or Invasive Species

Physical site disturbance may increase the likelihood that non-native and/or invasive flora species will be introduced to the surrounding vegetation communities. Invasive flora can establish in disturbed sites more efficiently than native flora and can then encroach into adjacent undisturbed areas.

This is already occurring as several invasive and non-native species were recorded within the Study Area which is typical of altered landscapes. The majority of the property is currently residential development and so the colonization of invasive species is possible if left in its current state. In order to prevent the colonization of invasive species and maximize ecological function within the buffer area, planting of native species is recommended.

Mitigation measures relating to invasive species have been included in **Section 9.3** and **9.4**.

9.0 Mitigation and Enhancement Opportunities

Mitigation involves the avoidance or minimization of developmental impacts through good design, construction practices and/or restoration and enhancement activities. The feasibility of mitigation options has been evaluated based on the natural features within and adjacent to the Study Area. The impact assessment highlighted four potential direct impacts: diversion of surface water flows, erosion and sedimentation of natural features, tree and vegetation removal, and loss of and/or disturbance to wildlife and wildlife habitat.

A variety of mitigation techniques can be used to minimize or eliminate the above-mentioned impacts. These measures include implementation of Stormwater Management Plan, Erosion and Sediment Control Plan, Natural Heritage Buffers, Landscaping and Planting Plan, Wildlife Management and an Environmental Monitoring Plan. Mitigation measures recommended for the proposed development are introduced below. Detailed mitigation measures will be finalized in consultation with the TRCA and Town through Detailed Design of the development.

9.1 Stormwater Management Plan

In order to mitigate loss of/ and or impacts to surface water and hydrological functions within the Study Area, a combination of standard SWM measures and LID design techniques are recommended to replicate the existing hydrological functions within the Study Area. LID techniques can (and should) also be integrated into developments to ensure that post-development flows match pre-development flows and that no negative impact would result from a proposed development.

A Functional Servicing and Stormwater Management Report Plan (SWM Plan) was prepared by SCS Consulting ltd. in July 2021 for the proposed development. The SWM Plan provides a combination of water quality, water balance, erosion, and quantity control. Proposed SWM components include:

- Superpipe system to control proposed flows from the site to existing flow rates for the 2 to 100 year storm events.
- Volume control criteria to capture and treat or retain the runoff volume from the 25 mm rainfall event from new and/or fully reconstructed impervious areas. Proposed LIDs and BMPs have been sized to provide this storage volume where feasible.
- Quality control to provide TSS and phosphorus removal will be provided by a treatment train of LID techniques which will include additional topsoil depth on all grassed areas, reduced lot grading where possible, rear yard infiltration trenches, bioswales, a street filtration system, and an end-of-pipe underground storage system.
- The erosion control criteria is to provide a minimum of 24 hour extended detention of the runoff from a 25 mm rainfall event.

Additional Best Management Practices are outlined in the SCS report, which include:

- Increased Topsoil Depth
- Roof Overflow to Grassed Areas
- Bioswale/ Rain Garden
- Roof Runoff to Rear Yard Infiltration Trenches
- Street Catchbasin Infiltration/ Filtration System
- Superpipes

Please refer to the SWM Plan (SCS, 2021) for further details.

9.1.1 Water Balance

Water balance calculations were completed for the Study Area using a soil-moisture balance approach, which assumes that soils do not release water as potential recharge while a soil moisture deficit exists (RJ Burnside, 2021). During wet periods, excess precipitation first goes to restore soil moisture and once that deficit is overcome, excess water can then pass through the soil as infiltration. The MECP SWM Planning and Design Manual (2003) methodology for calculating total infiltration based on topography, soil type and land cover was used and a corresponding runoff component was calculated for the soil moisture storage conditions. The calculated water balance components were then used to estimate the pre-development infiltration and run off volumes for the Study Area. These values were considered in conjunction with pre-development runoff rates; and compared to the post-development values (no mitigation) (RJ Burnside, 2021). With no mitigation implemented, the estimated % change in runoff volumes ranged from -2% to 190%, a significant increase.

Based on the LID strategy provided by SCS, 2021, in comparing the post-development infiltration volumes with LID measures in place, the pre-development infiltration volumes within the Study Area may be maintained or exceeded by implementing the proposed LID strategy. Comparing the pre-development runoff volumes to the post-development runoff volumes with LID measures in place, there will be a decrease in runoff to the tributary to the west and northeast wetland, and an increase in runoff to the tributary to the north (RJ Burnside, 2021).

9.1.2 Phospohurs Budget

Under the Lake Simcoe Protection Plan, a stormwater management plan must demonstrate how phosphorus loadings are minimized between existing and proposed conditions. Furthermore, LSRCA's Lake Simcoe Phosphorus Offsetting Policy (September 2017) states that:
"The phosphorous load from the proposed development on the property will be zero. In situations where the phosphorous load cannot be met or demonstrated in a post-development scenario to achieve the Zero Phosphorous, the developer or proponent shall be required to provide phosphorous off setting to the LSRCA."

The existing phosphorus loading is based on the land uses as outlined in the MECP Phosphorus

Tool guidance document, prepared by Hutchinson Environmental Sciences Ltd. Using the aforementioned spreadsheet, the existing annual phosphorus loadings were calculated to be 1.54 kg/year. The proposed residential development is considered high intensity development according to the MECP Phosphorus Tool. The proposed phosphorus loading with no best management practices (BMPs) was calculated to be 12.43 kg/yr (SCS, 2021).

As a result, the proposed phosphorus loading with BMPs was calculated to be 3.68 kg/yr. As per LSRCA's Phosphorus Offsetting Policy, the increase in phosphorus loading will be offset at a rate of $35,000/kg/year, at a 2.5:1 ratio. Further details on this can be found in the Functional Servicing and Stormwater Management Report (SCS, 2021).

9.2 Erosion and Sediment Control Plan

In order to mitigate the adverse environmental impacts caused by the release of sediment-laden runoff into receiving watercourses, measures for erosion and sediment control are required for construction sites. This is an important component of land development that plays a large role in the protection of downstream watercourses and aquatic habitat. Control measures must be selected that are appropriate for the erosion potential of the site and it is important that they be implemented and modified on a staged basis to reflect the site activities. Furthermore, their effectiveness decreases with sediment loading and therefore, inspection and maintenance is required.

An Erosion and Sediment Control Plan will be developed as part of detailed design for the proposed development. The plan may include, but is not limited to measure such as installation of geotextile silt fences, rock check dams, ditch checks, temporary sediment ponds, designated topsoil stockpile areas, and cut-off swales and ditches to divert surface flows to the appropriate sediment control area. More specifically, the plan may include the following measures:

- Standard duty silt fencing (OPSD 219.110) and/ or other equivalent erosion and sediment controls should be installed around the perimeter of the work area to clearly demarcate the development area and prevent erosion and sedimentation into adjacent habitats. Erosion and sediment control measures should be monitored regularly to ensure they are functioning properly and if issues are identified should be dealt with promptly;
- Stockpiling of excavated material should not occur outside the delineated work area. If stockpiling is to occur outside of this area, silt fencing should be used to contain any spoil piles to prevent sedimentation into adjacent areas. Further, stockpiling of excavated materials will not occur within 30 m of watercourses or wetlands; and,
- A spill response plan should be developed and implemented as required;
- The use of silt socks, dewatering ponds, etc. should be implemented to avoid sedimentation and erosion in adjacent areas as required. If dewatering requires more than 50,000 L of water to be pumped per day, appropriate permits must be obtained from the Ministry of Environment and Climate Change prior to the dewatering; and,
- Regular inspection and monitoring of erosion and sedimentation control measures

9.3 Natural Heritage Feature Buffers

The proposed development area will be limited to the boundaries shown on **Figure 5**, with a buffer of approximately 10 m from the edge of tree staked dripline of the woodland identified adjacent to the Study Area; and 30 m from the staked unevaluated wetlands. The buffer area currently consists of active low density residential lands, and meadow adjacent to the wetlands. As described in **Section 8.2.2**, to prevent the colonization of invasive species and maximize ecological function within the buffer area, planting of native species is recommended. Plantings will also increase the quality of habitat within the buffer, and provide better protection to wildlife and the adjacent natural features. As a result, a Landscaping and Planting Plan is recommended as detailed in **Section 9.4** below.

9.4 Landscaping and Planting Plan

The proposed development plan will require the removal of select trees, shrubs, wildflowers and wild grasses within the Study Area. As a result, a Landscaping and Planting Plan should be prepared for the proposed development to off-set any vegetation removal using native tree and shrub species. Compensation plantings of trees are generally based on the number of removals required to facilitate construction of the development. The exact number of compensation plantings and locations is to be determined through Detailed Design. The planting plan may include, but is not limited to:

- A mix of native deciduous and coniferous trees and shrubs throughout the development and buffer area;
- Sodding within the residential portions of the development; and
- A native seed mix recommended by suppliers for enhancement within buffer areas.

The following monitoring and maintenance measures may also be recommended:

- Removal of invasive tree and shrubs, where applicable.
- Watering and weeding of newly planted areas as required for proper establishment of plantings.
- Replacement of dead material from previous year's planting.

9.5 Wildlife Impact Mitigation Plan

The establishment of the approximately 30 m buffer from the majority of the Significant Woodland, wetlands and watercourse is expected to minimize potential impacts to wildlife, including potential candidate SWH and SAR within the Study Area.

Strategies to mitigate potential impacts to general wildlife prior to and during construction are proposed. These may include (but are not limited to):

- Clearing trees and vegetation outside the breeding bird season (April 1st to August 31st). Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, work within

10 m of the tree should cease until the nest has fledged. If no nests are present, clearing may occur. This is in accordance with the federal *Migratory Birds Convention Act*;

- Clearing trees and vegetation outside the active bat season (May through October).
- Schedule vegetation clearing and grading activities to avoid disturbance to breeding amphibians and other sensitive wildlife species where possible;
- Where possible, maximize the distance of construction equipment used from the woodland/wetland edge to avoid disturbing wildlife;
- Limit the use of lighting where possible. Avoid light effects entering the woodland/wetland (eliminate light trespass) where possible;
- Installation of wildlife exclusion fencing and escape routes, which direct wildlife away from the construction area and to more suitable habitat (e.g. woodland/wetland);
- Visual monitoring for wildlife species and avoidance where encountered if possible;
- If necessary, have a qualified biologist monitor construction in the areas of potential wildlife habitat. If wildlife are found within the construction area they will be re-located to an area outside of the development into an area of appropriate habitat, as necessary;
- Construction crews working on site should be educated on local wildlife and take appropriate measures for avoiding wildlife; and,
- Should an animal be injured or found injured during construction they should be transported to an appropriate wildlife rehabilitation center.

9.6 Environmental Monitoring Plan

The Environmental Monitoring Plan (EMP) may be carried out through the duration of construction activities on-site to ensure that the erosion and sediment control measures operate effectively and to monitor the potential impact, if any, upon the natural environment. The duration of construction is defined as the period of time from the beginning of earthworks until the site is stabilized. Site stabilization is defined as the point in time when the roads have been paved, buildings have been built, lawns have been sodded and restoration plantings have been completed.

The EMP should consist of monitoring the erosion and sediment measures and the restoration/compensation plantings. Erosion and sediment control measures would be regularly monitored and they will require periodic cleaning (e.g. removal of accumulated silt), maintenance and/or re-construction. Inspections of all of the erosion and sediment controls on the construction site should be undertaken by a certified sediment and erosion control monitor. If damaged control measures are found they should be repaired and/or replaced promptly. Site inspection staff and construction managers should refer to the *Erosion and Sediment Control Inspection Guide* (TRCA, 2008b) prepared for the Greater Golden Horseshoe Area Conservation Authorities. This guide provides information related to the inspection reporting, problem response and proper installation techniques. The EMP should be implemented during active construction periods in the development area with the following frequency:

- On a bi-weekly basis; and/or,
- After every 10 mm or greater rainfall event.

Restoration planting and protected vegetation areas may require periodic monitoring to ensure that they are not impacted by adjacent development. Should any impacts be observed, necessary steps will be taken to ensure that the impacted vegetation is either restored or replaced.

10.0 Summary and Next Steps

This EIS was prepared in support of a proposed multi-use development within the property located at the northwest corner of Vandorf Sideroad and Bayview Avenue, in the Town of Aurora, Ontario. The EIS was required due to the presence of woodlands, wetlands and watercourses adjacent to the Study Area which have the potential to be impacted by development activities. At the client's request, this EIS has been completed through the use of desktop background review along with site visits conducted in fall and winter of 2020, and spring and summer of 2021, in order to identify and address potential impacts of the proposed development. The findings of the background review, 2020 preliminary site reconnaissance visit, tree inventory, and 2021 field surveys are included in this EIS.

The majority of lands within the Study Area are currently developed with single detached family homes and are surrounded by Significant Woodlands to the north and west and an unevaluated wetland containing a mapped watercourse to the north east. These natural features may be used as cover, foraging, refuge and nesting habitat for wildlife; prevention of erosion and runoff; facilitating hydrological and nutrient cycling; improving localized soil, water and air quality. Due to the ecological importance of these features both the woodland and wetland features will be protected from development, with establishment of buffers along with enhancement measures through planting of native species within the buffer area. In addition, a Landform Conservation Plan has been included as part of this EIS in order to determine if significant landform features are present within the Study Area, and to identify potential impacts and recommend mitigation measures to avoid potential negative impacts, in accordance with the ORM Technical Paper #4. No significant landform features were identified. Therefore, anticipated potential impacts of development are minimal.

Potential ecological impacts of development are anticipated to be minimal, but may include tree and vegetation removal, diversion of surface water flows, sedimentation of wetland and forest areas, contamination of natural features, and loss of potential wildlife habitat. These impacts will be avoided or minimized by implementing the mitigation, restoration, and management measures described in this report.

Appendix A

Terms of Reference

MEMO

TO:	Dave Ruggle, Lake Simcoe Region Conservation Authority Planning Department, Town of Aurora
FROM:	Whitney Moore, Dillon Consulting Limited
cc:	Farah Ibrahim, Highfair Investments Inc. Jessica Chan, Lake Simcoe Region Conservation Authority
DATE:	March 9, 2021
SUBJECT:	Environmental Impact Study Terms of Reference for the property located at the northwest corner of Vandorf Sideroad and Bayview Avenue in the Town of Aurora
OUR FILE:	20-3925

Introduction

Dillon Consulting Limited (Dillon) has been retained by Highfair Investments Inc. to undertake environmental studies for a proposed multi-use development within the property located at the northwest corner of Vandorf Sideroad and Bayview Avenue, in the Town of Aurora, Ontario (the 'property'; see **Figure 1,** attached). The property is bounded to the east by Bayview Avenue; to the north by an existing residential development; including areas of woodland; to the west by a wooded creek valley and recreational trail system; and to the south by Vandorf Sideroad.

The property is located in the Town of Aurora and is currently developed with single detached family homes and is surrounded by woodlands and a watercourse. Per Schedule A of the Town's Official Plan (OP) (2010) the property is designated as Urban Residential, and the woodlands and watercourse are identified as Environmental Protection. In addition, Schedule E1 of the OP also shows a 30 m Minimum Vegetation Protection Zone around both the woodland and watercourse features. Further, due to the proximity of the property in relation to the watercourse, some areas fall with the Lake Simcoe Region Conservation Authority (LSRCA) Regulation Limit.

Highfair Investments Inc. and Dillon are taking a pro-active approach to environmental-first planning and undertaking the appropriate environmental studies that are required to complete an Environmental Impact Statement (EIS) and utilizing the results in the planning of this property. A Tree Inventory and Preservation Plan (TIPP) also be completed as part of the submission as an appendix to the EIS. The EIS will be completed in accordance with both the Town OP, as well as the general policies of the LSRCA. The purpose of the EIS is to document the existing conditions of the natural environment, and specifically, the presence of significant natural features as outlined in Section 2 of the Provincial Policy Statement, which include:

- Significant wetlands;
- Fish habitat;

- Significant woodlands;
- Significant valleylands;
- Significant wildlife habitat;
- Significant areas of natural and scientific interest (ANSIs);
- Habitat of Endangered or Threatened species;
- Sensitive surface water features; and
- Sensitive ground water features.

The EIS will identify the potential impacts that the proposed development may have on these features, and develop recommendations that will appropriately minimize or eliminate impacts to natural features.

Based on our initial review of aerial photography and secondary sources of the property, a watercourse is located along the north eastern extent and based on the presence of woodland to the west there is potential for Species at Risk (SAR), listed as Endangered or Threatened under the Endangered Species Act, 2007, and SAR habitat to be present within the vicinity of the property; including, but not limited to, Barn Swallow (*Hirundo rustica*) and Butternut (*Juglans cinerea*). The potential for SAR and SAR habitat within the property, including the presence of Butternut, will be examined through field studies proposed for 2021. Please note however, that no species-specific surveys for SAR have been included in this scope of work.

In keeping with the general policies of the LSRCA we have prepared the following Terms of Reference (TOR). Below, we present the TOR in a check-list format to ensure that the required work and/or studies are known and agreed to prior to the commencement of work, to facilitate a stream-lined and timely review process.

We thank you in advance for establishing these TOR with the project team. Please don't hesitate to contact me with any questions.

Yours sincerely,

DILLON CONSULTING LIMITED

Whitney Moore, B.Sc.
Project Manager, Associate

Encl: Terms of Reference

Terms of Reference

General Policies

☒ The EIS must be undertaken by a qualified professional in environmental or related sciences to the satisfaction of the LSRCA.

☒ A visit to the site may be required by the LSRCA prior to, during, or upon receipt of the EIS.

☒ The staking of significant natural features (i.e., woodlands, wetlands etc.) by the LSRCA may be required. Staking will generally occur between the end of May and the end of October. Any staking that occurs outside of this time may require a confirmatory visit between May and October.

Existing Conditions

☒ The existing conditions of the property will be clearly described and clearly mapped on aerial photographs.

☒ The description will include the zoning and all designations of all Official Plan(s) (OP) on the property. This includes any land use designations from other municipal planning documents, such as Secondary Plans.

☒ Land use designations from any other applicable planning documents (i.e., Oak Ridges Moraine Conservation Plan, Greenbelt Plan) will be clearly described and the limits identified in the mapping.

☒ The EIS shall identify the components of the Natural Heritage System (NHS) (should it be located within the property). The boundaries of the NHS shall be confirmed in the field by the proponent, mapped on a figure in the report and approved by the LSRCA and the Town.

☒ All designated environmental features (i.e., NHS or natural features identified in the OPs) will be identified in the mapping and described in the report. These features include provincial or regional Areas of Natural and Scientific Interest (ANSIs), Provincially and Locally Significant Wetlands (PSWs and LSWs), Environmentally Significant Areas (ESAs), Significant Wildlife Habitat, Significant Valleylands, unevaluated wetlands, etc.

☒ A description of the soils, landforms and surficial geology based on a review of available mapping and literature will be described in the report. Any staking done to date as well as the calculated hazard limits will be provided on constraints mapping. If available, topographical information will be provided on constraints mapping.

☒ Hydrological and hydrogeological resources and issues, including surface water features, recharge/discharge zones, groundwater quality and quantity, groundwater elevations and flow directions, and connections between groundwater and surface water features will be identified based on the information available from the consulting team.

☒ The vegetation communities will be identified using the Ecological Land Classification (ELC) system to vegetation type, where possible. The communities will be identified in the mapping, using the appropriate ELC codes, as well as described in the text. As a component of the ELC, a plant list will be included in the report. The list will include an analysis for the presence of federal and provincial threatened or endangered species.

☒ A single-season (summer) plant survey is required and must be included in the report. The list must include an analysis for the presence of federal and provincial threatened or endangered species.

☒ A Tree Inventory will be conducted within the property to inventory trees within the existing residential lots and along the woodland edge.

Note: The Tree Inventory will be completed this week (March 8-12, 2021)

☒ The EIS requires breeding bird surveys. The surveys will be conducted during the breeding bird season at an appropriate time of day in appropriate weather conditions and by a qualified professional. A minimum of two surveys are required and they must follow generally accepted scientific protocols, not necessarily atlasing methods. A list of the breeding birds must be included in the report. The list will include an analysis for the presence of federal or provincial threatened or endangered species.

☒ The EIS requires amphibian breeding surveys. The surveys will be conducted during the breeding amphibian season and by a qualified professional. For calling amphibians a minimum of three surveys are required. These surveys must span the full amphibian breeding season to ensure that the peak periods of activity for early and late breeding species are accounted for. For non-calling amphibians, appropriate methodology will be used. A list of the breeding amphibians will be included in the report. The list will include an analysis for the presence of federal and provincial threatened or endangered species.

☒ A fisheries habitat assessment will be provided due to the presence of suitable fish habitat. Existing data regarding fish species will be obtained from LSCRA and/or the MNRF and used for the fisheries assessment. The assessment will include a description of watercourses or other fish habitat on and/or adjacent to the property.

Note: A high-level fisheries habitat assessment is proposed based on the presence of the watercourse within the norther portion of the property.

☐ The fisheries assessment will include community sampling through electrofishing and/or netting during the appropriate season, under a collection permit issued by the MNRF.

☒ All incidental wildlife observed will be reported on and listed in the report. The list will include an analysis for the presence of federal or provincial threatened or endangered species.

☒ A functional assessment of the property describing the ecology of the natural heritage features and functions (including components of the NHS) within and adjacent to the property will be

provided. The functional assessment will include ecological function, wetland functions, natural heritage features and landscapes, benefits of importance to humans, and corridors and linkages, as required.

☐ Where the NHS has identified a stream linkage or potential proximity linkage on or adjacent to the property, the EIS must identify the location, width and proposed vegetation composition of the linkage.

☒ Mapping (at a minimum) will consist of the following:

a) All mapping will have a title, figure number, north arrow, legend and scale or scale bar.
b) A site location map that provides the regional or watershed context of the property.
c) The extent of the NHS and its components will be clearly demarcated on an air photo base, if applicable.
d) The locations of all watercourses and waterbodies.
e) Vegetation communities will be delineated and identified using ELC.
f) The location of any rare, threatened or endangered species and/or populations will be identified, if appropriate.
g) The location of important wildlife features (i.e., hibernacula, den, stick nest, etc.) will be identified.
h) A site plan showing impacts (i.e. encroachment) and mitigation measures (i.e. buffers).

Evaluation of the Ecological Impacts

☒ An assessment of the potential impacts to the features and functions of natural areas and natural heritage features (including the NHS and Linkages areas etc.) will be identified and discussed.

☒ An assessment of the potential impact on wildlife at a local, watershed and provincial (if applicable) level will be provided using the Ecoregion 6E criterion schedules (MNRF, 2015).

☒ In the case of significant natural features (as confirmed through field studies), the EIS must demonstrate that there is no development or site alteration within the feature with the exception of uses as specified in the OP and/or prior approvals. The EIS must determine appropriate buffers from significant natural features.

☒ If applicable, where natural features or natural vegetation communities are proposed for removal, the quantity of removal will also be included.

Recommendations and Mitigation Measures

☒ Avoidance of any NHS feature is the preferred approach to mitigation unless otherwise specified in the OP and/or prior approvals.

☒ Determine adequate buffers through the identification of the critical function and protection zones of any identified natural areas or natural heritage features.

☒ Where avoidance of a feature is not feasible or possible, mitigation approaches/techniques must be provided. These may include edge management plans, buffer plantings, fencing, low impact designs (LID), etc.

☐ In cases where a Linkage area has been identified on a property, the EIS must demonstrate how it will be integrated into the proposed development plan.

☒ Recommendations for Best Management Practices during construction should be provided. This may include silt fencing, tree protection, fencing, identification of timing or seasonal constraints to construction or restoration, etc.

☒ Mitigation for negative impacts on the natural features or their ecological functions (or to achieve no net negative impact) may include, at the discretion of the Town in conjunction with the LSRCA, approaches to replace lost areas or functions. If acceptable, replacement shall, to the extent possible, occur within the same subwatershed as the proposed development or site alteration. The appropriate amount of replacement will be determined through discussions with the LSRCA and the Town and will be agreed to by all parties in writing.

☒ If monitoring is required, the details of a monitoring program must be agreed to in writing by the LSRCA, Town and other parties, as required.

Conclusions

The EIS will address the following:

☒ Conformity with the policies and requirements of the Town of Aurora and the Regional Municipality of York Official Plans.

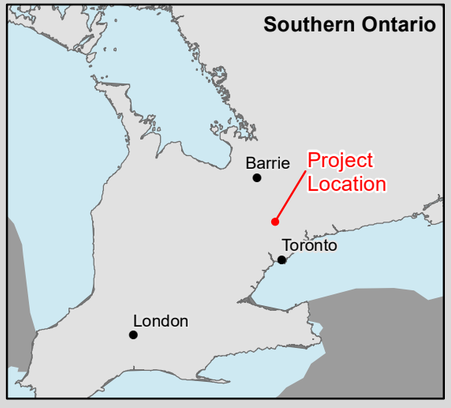
☒ Conformity with the policies and requirements of other applicable planning documents (i.e., Lake Simcoe Protection Plan, Greenbelt Plan, Oak Ridges Moraine Conservation Plan etc.).

☒ Conformity with the requirements of the LSRCA.

TOWN OF AURORA
ARCHERHILL COURT

SITE LOCATION
FIGURE 1

- Property Boundary
- Road
- Trail
- Watercourse
- Unevaluated Wetlands
- Wooded Areas



0 12.5 25 50 m

SCALE 1:2,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925
STATUS: DRAFT
DATE: 2021-03-08

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\F1_ProjectLocation.mxd

Moore, Whitney <wmoore@dillon.ca>

RE: TORs for Archerhill [redacted]

1 message

Jessica Chan <J.Chan@lsrca.on.ca> Fri, Apr 9, 2021 at 3:14 PM
To: "Moore, Whitney" <wmoore@dillon.ca>
Cc: Dave Ruggle <D.Ruggle@lsrca.on.ca>

Good afternoon Whitney,

Thank you for your patience while I reviewed the provided Terms of References for the Archerhill property in Aurora (Vandorf Sdrd and Bayview Ave).

The provided ToR for the Archerhill property is acceptable with the following edits/clarifications:

- The woodland feature on the property was staked with the LSRCA in December 2020. The wetland feature on the property was also 'prestaked' with the LSRCA during the same visit, but was outside the appropriate wetland staking window. Confirm the boundaries of the wetland features on the property through a staking exercise with the LSRCA during the appropriate wetland staking window (between June 15 and September 30). Boundary points must be surveyed with a high-accuracy GPS device (accurate to within 10 cm). A professional Ontario Land Surveyor (OLS) may be required to attend. Note that a site visit fee may apply.
- Evaluate existing vegetation communities using the first approximation of Ecological Land Classification (ELC) for Southern Ontario (Lee et al. 1998. Ecological Land Classification for Southern Ontario: first approximation and its applications. SCSS Field Guide FG-02).
- Conduct three (3) breeding amphibian surveys as per the Marsh Monitoring Program protocol (Bird Studies Canada). Observational salamander surveys may be required if potential habitat exists in the study area.
- Assess for Significant Wildlife Habitat (e.g. turtle nesting or wintering area, reptile hibernaculum, woodland raptor nesting habitat, seeps, springs, etc.) as per the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E

(MNRF, January 2015).

- Complete a catchment-based water balance for the study area to assess how existing drainage conditions and moisture regimes that support sensitive hydrologic features (e.g. wetland, woodlands, watercourse) may be impacted by the proposed development. Demonstrate how current hydrologic inputs will be maintained post-development. Please note, the water balance assessment may also be a requirement under other provincial policies, therefore the NHE/EIS should coordinate with/summarize the water balance work undertaken by others.

I also wanted to share with you LSRCA's Terms of Reference checklist (see attached). This checklist should be used for all future Terms of References submitted to the LSRCA to ensure efficiency and consistency during review.

Please let me know if you have any questions about the comments above.

Best,

Jessica Chan, B.Sc.(Env.)

Natural Heritage Ecologist

Lake Simcoe Region Conservation Authority
120 Bayview Parkway

Newmarket, Ontario L3Y 3W3

905-895-1281, ext. 132| 1-800-465-0437

j.chan@LSRCA.on.ca | www.LSRCA.on.ca

Twitter: @LSRCA

Facebook: LakeSimcoeConservation

Please note: the LSRCA Board of Directors approved a change to our Fee Policy. The new fees will take effect on January 1, 2021. Please click here for the new fee schedule.

From: Moore, Whitney <wmoore@dillon.ca>
Sent: April 6, 2021 12:43 PM
To: Jessica Chan <J.Chan@lsrca.on.ca>
Subject: TORs for Archerhill and [redacted]

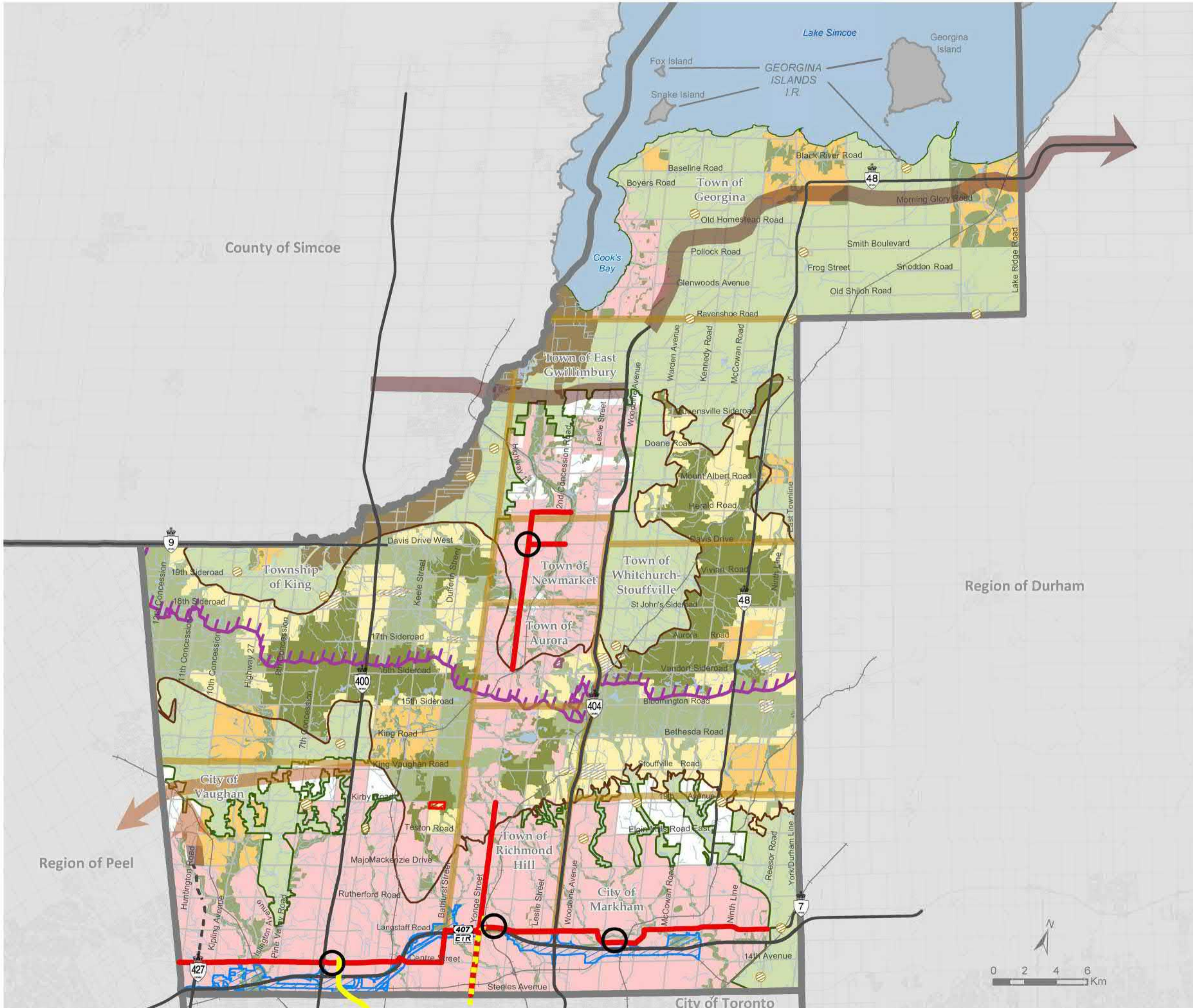
Hey Jessica!

Appendix B

Official Plan Mapping

MAP 1

REGIONAL STRUCTURE



○ Regional Centre

Regional Corridor

Subway/ Subway Extension

Urban Area

Towns and Villages

Holland Marsh Specialty Crop Area

Regional Greenlands System (Schematic, See Map 2 for details)

"Whitebelt"

NOTE: For detailed land use designations outside of the Urban Area, Towns & Villages and Natural Core and Natural Linkage Areas of the Oak Ridges Moraine Conservation Plan see Map 8 - Agricultural and Rural Area and Policy 5.1.12.

Area Subject to the Lake Simcoe Protection Plan

Parkway Belt West Plan*

Greenbelt Plan

Greenbelt Plan Boundary

Protected Countryside/ Hamlet

Oak Ridges Moraine Conservation Plan (ORMCP)

ORMCP Boundary

Natural Core Area

Natural Linkage Area

Countryside Area/ Hamlets

Subject to Minister's Order (Deferred)

Subject to Minister's Order February 3, 2015 and special provision policies 6.2.19 and 6.4.14

Provincial Highways

Existing

Controlled Access Highways (Under Construction)

Planned Corridors - Transportation

Proposed - EA Approved

Conceptual - Alignment Not Defined

Municipal Boundaries

Regional Municipal Boundary

Local Municipal Boundary

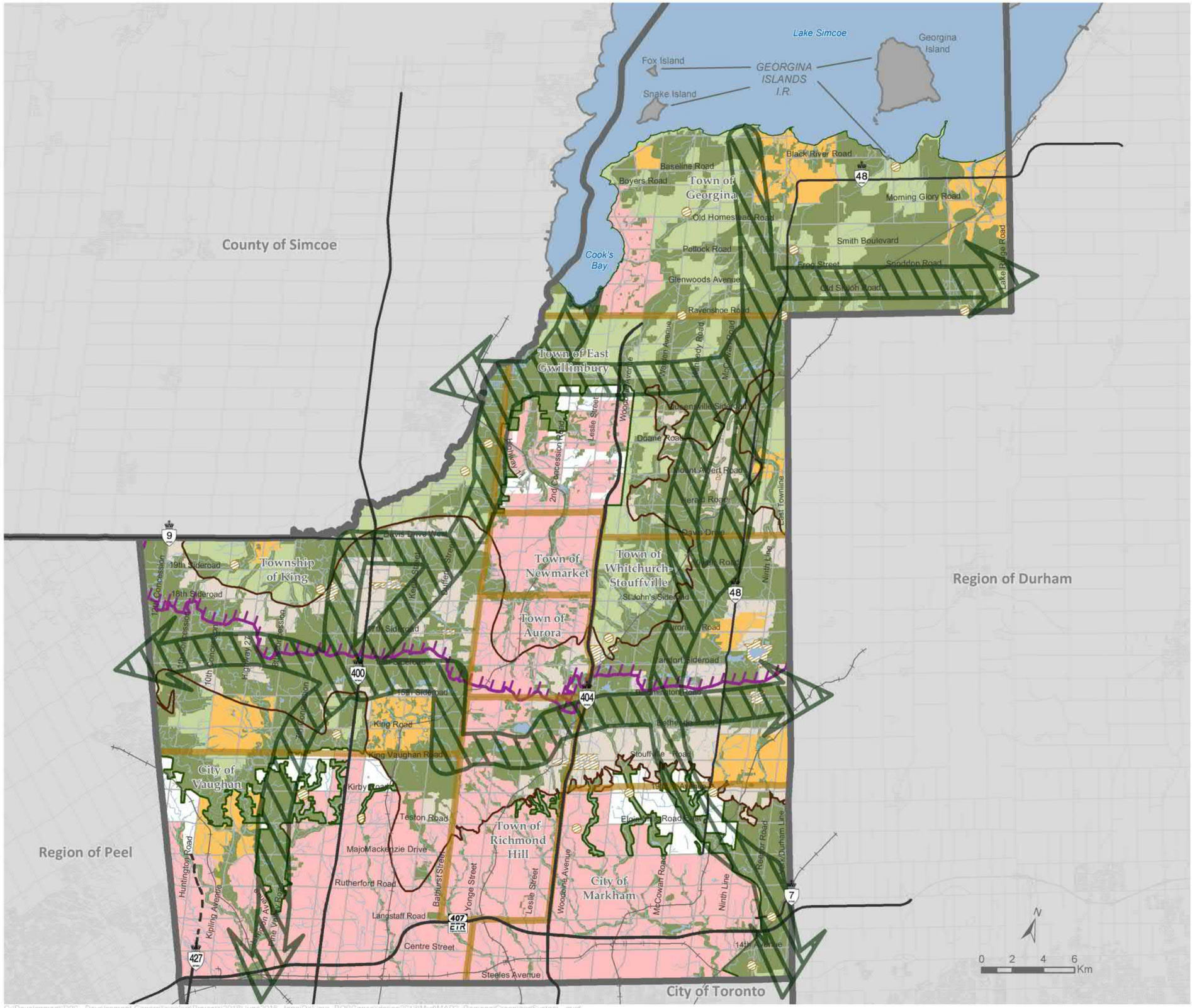
* Boundary based on best available Provincial data. Boundaries are subject to change. Please contact the Ontario Ministry of Municipal Affairs and Housing for precise and current boundaries.

York Region

Produced by: The Regional Municipality of York
Corporate Services Department, Planning and Economic Development Branch

MAP 2

REGIONAL GREENLANDS SYSTEM



Greenlands System

- Regional Greenlands System
- Greenlands System Vision*
- Urban Area
- Towns and Villages
- Holland Marsh Specialty Crop Area
- Area Subject to the Lake Simcoe Protection Plan

Greenbelt Plan

- Greenbelt Plan Boundary
- Protected Countryside/ Hamlet

Oak Ridges Moraine Conservation Plan (ORMCP)

- ORMCP Boundary
- ORCMP Area
- Hamlet

Provincial Highways

- Controlled Access Highways
- Controlled Access Highways (Under Construction)
- Other Provincial Highways

Municipal Boundaries

- Regional Municipal Boundary
- Local Municipal Boundary

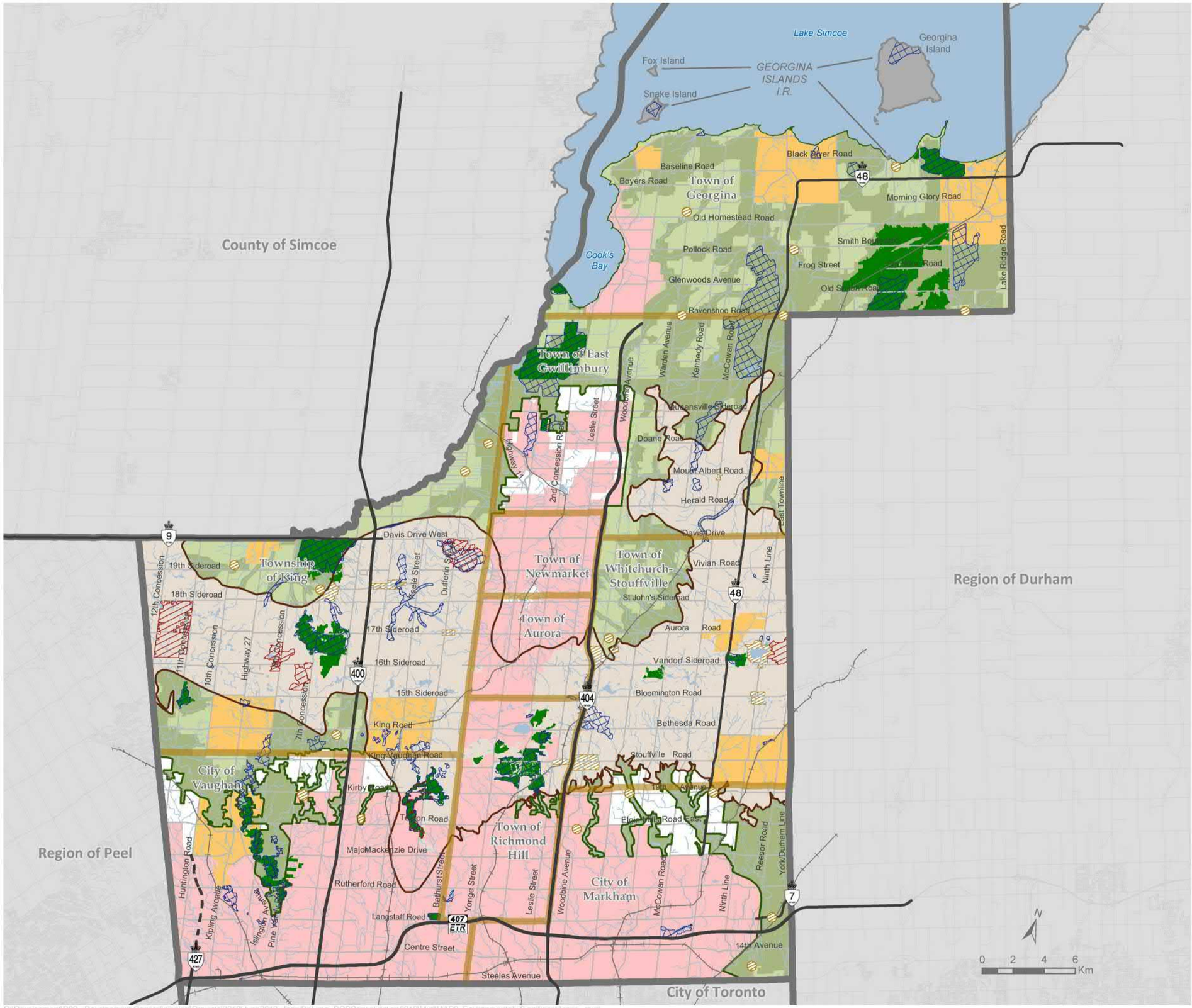
* The Greenlands System Vision identified on Map 2 of this Plan is intended to conceptually identify, with broad arrows, the general location of corridors within and beyond the Region that will perform major linkage functions on a Regional scale and will be further assessed as part of ongoing planning initiatives.

York Region

Produced by: The Regional Municipality of York
Corporate Services Department, Planning and Economic Development Branch

MAP 3

ENVIRONMENTALLY SIGNIFICANT AREAS and AREAS OF NATURAL and SCIENTIFIC INTEREST



Environmentally Significant Area

Earth Science Areas of Natural and Scientific Interest
- Provincial and Regional* Approved

Life Science Areas of Natural and Scientific Interest
- Provincial and Regional* Approved

Urban Areas

Towns and Villages

Greenbelt Plan

Greenbelt Plan Boundary

Protected Countryside/ Hamlet

Natural Heritage System

Oak Ridges Moraine Conservation Plan (ORMCP)

ORMCP Boundary

ORMCP Area

Hamlet

Provincial Highways

Controlled Access Highways

Controlled Access Highways (Under Construction)

Other Provincial Highways

Municipal Boundaries

Regional Municipal Boundary

Local Municipal Boundary

* Excludes Regionally Significant Earth Science ANSI's that are not on the Oak Ridges Moraine

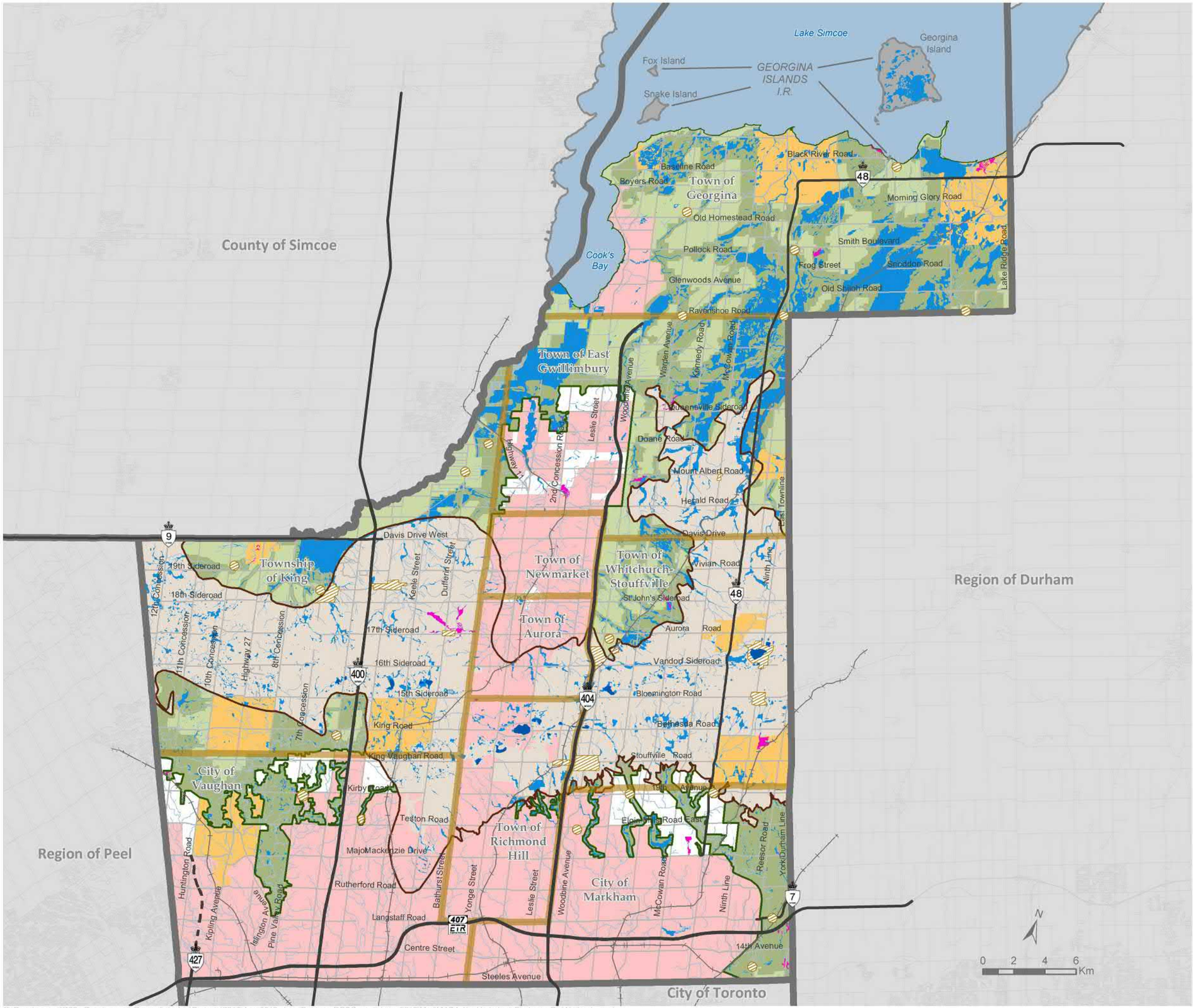
York Region

Produced by: The Regional Municipality of York
Corporate Services Department, Planning and Economic Development Branch

G:\Development\D00 - Development Generalized\Projects\2018\June2018_JanaiDeLima_ROPConsolidation2018\Mxd\MAP3_EnvironmentallySignificantAreas_.mxd

MAP 4

KEY HYDROLOGIC FEATURES



Provincially Significant and Provincial Plan Area Wetlands
Other Evaluated Wetlands
Kettle Lake
Lakes
Permanent or Intermittent Stream*
Urban Areas
Towns and Villages

Greenbelt Plan
- Greenbelt Plan Boundary
- Protected Countryside/ Hamlet
- Natural Heritage System

Oak Ridges Moraine Conservation Plan (ORMCP)
- ORMCP Boundary
- ORMCP Area
- Hamlet

Provincial Highways
- Controlled Access Highways
- Controlled Access Highways (Under Construction)
- Other Provincial Highways

Municipal Boundaries
- Regional Municipal Boundary
- Local Municipal Boundary

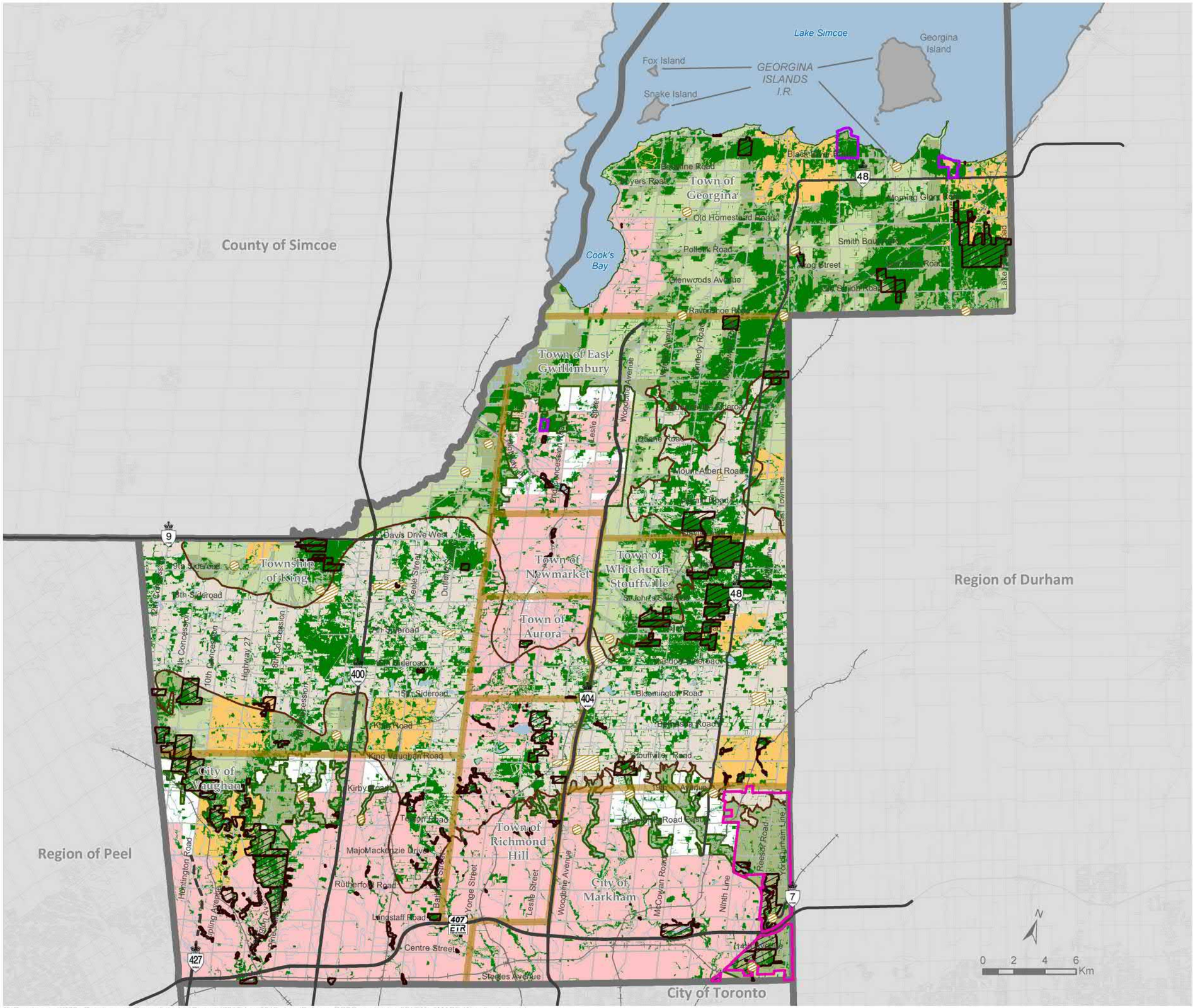
* To be confirmed through application of the policies of this plan

York Region

Produced by: The Regional Municipality of York
Corporate Services Department, Planning and Economic Development Branch

MAP 5

WOODLANDS



- Woodlands
- Conservation Area/ Regional Forest
- Provincial Park/ Natural Reserve
- Rouge National Urban Park
- Urban Area
- Towns and Villages

Greenbelt Plan

- Greenbelt Plan Boundary
- Protected Countryside/ Hamlet
- Natural Heritage System

Oak Ridges Moraine Conservation Plan (ORMCP)

- ORMCP Boundary
- ORMCP Area
- Hamlet

Provincial Highways

- Controlled Access Highways
- Controlled Access Highways (Under Construction)
- Other Provincial Highways

Municipal Boundaries

- Regional Municipal Boundary
- Local Municipal Boundary

N

0 2 4 6 Km

York Region

Produced by: The Regional Municipality of York
Corporate Services Department, Planning and Economic Development Branch

G:\Development\000 - Development General\Vzieglam\Projects\2018\June2018_JanaliDeLima_ROPConsolidation2018\Mxd\MAP5_Woodlands_.mxd

AURORA OFFICIAL PLAN - SCHEDULE 'A' STRUCTURE PLAN

THIS SCHEDULE IS A CONSOLIDATION AND IS PREPARED FOR CONVENIENCE ONLY. FOR ACCURATE REFERENCES, THE ORIGINAL OPA SCHEDULES SHOULD BE CONSULTED. COPIES OF THE ORIGINALS ARE AVAILABLE IN THE CORPORATE & FINANCIAL SERVICES OR PLANNING & DEVELOPMENT SERVICES DEPTS

N

OPA 37

ST. JOHN'S SIDEROAD

BATHURST STREET

YONGE STREET

Railway/GO Transit Line

Hydro Corridor

BAYVIEW AVENUE

WELLINGTON STREET WEST

WELLINGTON STREET EAST

ST. JOHN'S SIDEROAD

Proposed 404 On/Off Ramp

OPA 73

LESLIE STREET

404

OPA 30

TOWN OF WHITCHURCH-STOUFFVILLE

OPA 20

TOWNSHIP OF KING

HENDERSON DRIVE

VANDORF SIDEROAD

LESLIE STREET

404

BATHURST STREET

Railway/GO Transit Line

YONGE STREET S

OPA 34

BAYVIEW AVENUE

Hydro Corridor

Canadian National Railway

404

BLOOMINGTON ROAD

TOWN OF RICHMOND HILL

LAND USE AND FEATURES ARE IDENTIFIED THROUGH OPA NO. 48

REFER TO OPA NO. 74

0 0.75 1.5 Kilometres

AURORA	DRAWN BY:	UPDATED BY:	APPROVED BY:	CREATED:	UPDATED:	FILE NAME: Schedule_A_Structure_Plan.mxd LARGE SIZE: ARCH C (18x24 in.) SMALL SIZE: TABLOID (11x17 in.)
	CF & JS	ML	MR	09/28/2011	11/26/2014	

LEGEND

- Municipal Boundary
- Road
- Proposed Road
- Built Boundary
- CP Community Park
- NP Neighbourhood Park
- Refer to Minister's Decision
- Oak Ridges Moraine Boundary
- Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
- Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02
- Transitional - Subject to the prescribed provisions of the Oak Ridges Moraine Conservation Plan

NOTE: ALL LANDS WITHIN THE OAK RIDGES MORAINE CONSERVATION PLAN BOUNDARY ARE SUBJECT TO OPA 48.

Land Use Designations

Greenlands System
- Environmental Protection
- Private Parkland
- Public Parkland
- The Aurora Promenade
- Stable Neighbourhoods
- Estate Residential
- Suburban Residential
- Existing Commercial
- Existing Major Institutional
- Existing Employment - General Industrial
- Existing Employment - Light Industrial/Service
- Existing Employment - Brownfield Industrial

OPA 73

The Greenlands System
- Environmental Protection Area
- CP Community Park
- NP Neighbourhood Park
- WP Wildlife Park
- P Park
- SWM Stormwater Managment Facility
- Wildlife Park Trail Head
- Development Limit

The Residential Neighbourhood
- Urban Residential 1
- Urban Residential 2
- Mixed-Use Residential/ Commercial Residential Interface Overlay
- ES Elementary School
- POW Place of Worship

The Business Park
- Business Park 1

Lands subject to a request for review, s. 43 Ontario Municipal Board Act.

OPA 20
- Collector Road Connections
- Private Pedestrian Connections
- Conceptual Trail System And Pedestrian Linkages
- Urban Residential
- Suburban Residential
- Public Open Space
- Golf Course

OPA 30
- Stormwater Management Facility
- Recommended Environmental Protection Line
- Trail System
- SS Secondary School
- SES Separate Elementary School
- PES Public Elementary School
- NP Neighbourhood Park
- WP Wildlife Park
- Linear and Other Open Space
- Business Park
- Business Park-Regional Commercial Centre
- Community Commercial
- Convenience Commercial
- Low- Medium Density Residential
- Medium- High Density Residential
- Mixed Use
- Institutional

OPA 34
- Building Setback
- Cluster Residential
- Ecological Buffer
- S Elementary School Park
- Environmental Function Area
- Environmental Protection Area
- Environmental Restoration Area
- Estate Residential
- Low Density Suburban Res.
- Major Institution
- Minor Institution
- Private Open Space
- P Public Open Space
- Suburban Residential
- Transitional Residential

OPA 37
- 1 Possible Intersection
- C Proposed Location of Creek Crossing
- Stormwater Management Facility (Conceptual)
- OPA37 Concept Road
- Core Area Open Space
- Suburban Residential
- Suburban Residential (SR-1)
- Supporting Area Open Space

AURORA OFFICIAL PLAN

SCHEDULE 'E1' ENVIRONMENTAL DESIGNATIONS ON ORM (SEE OPA 48)

TOWN OF NEWMARKET

ST. JOHN'S SIDEROAD

BATHURST STREET

YONGE STREET

Railway/GO Transit Line

Hydro Corridor

BAYVIEW AVENUE

LESLIE STREET

404

TOWN OF WHITCHURCH-STOUFFVILLE

WELLINGTON STREET WEST

WELLINGTON STREET EAST

TOWNSHIP OF KING

HENDERSON DRIVE

VANDORF SIDEROAD

Canadian National Railway

BLOOMINGTON ROAD

TOWN OF RICHMOND HILL

LEGEND

- Municipal Boundary
- Road
- Proposed Road
- Oak Ridges Moraine Boundary
  - Boundary of Oak Ridges Moraine Conservation Plan Area Ontario Regulation 140/02
  - Boundary of Oak Ridges Moraine Area Ontario Regulation 01/02

Environmental Features

- ORM - Endangered, Rare and Threatened Species
- Waterbodies
- Watercourse
- Watercourse - Minimum Vegetation Protection Zone (30m)
- Wetlands
- Wetlands - Minimum Vegetation Protection Zone (30m)
- Woodlands
- Woodlands - Minimum Vegetation Protection Zone (30m)
- Areas of Natural and Scientific Interest
- Former Waste Site
- Former York Sanitation Site No. 1

N

0 0.75 1.5

Kilometres

THIS SCHEDULE IS A CONSOLIDATION AND IS PREPARED FOR CONVENIENCE ONLY. FOR ACCURATE REFERENCES, THE ORIGINAL OPA SCHEDULES SHOULD BE CONSULTED. COPIES OF THE ORIGINALS ARE AVAILABLE IN THE CORPORATE & FINANCIAL SERVICES OR PLANNING & DEVELOPMENT SERVICES DEPARTMENTS.

AURORA You're in Good Company

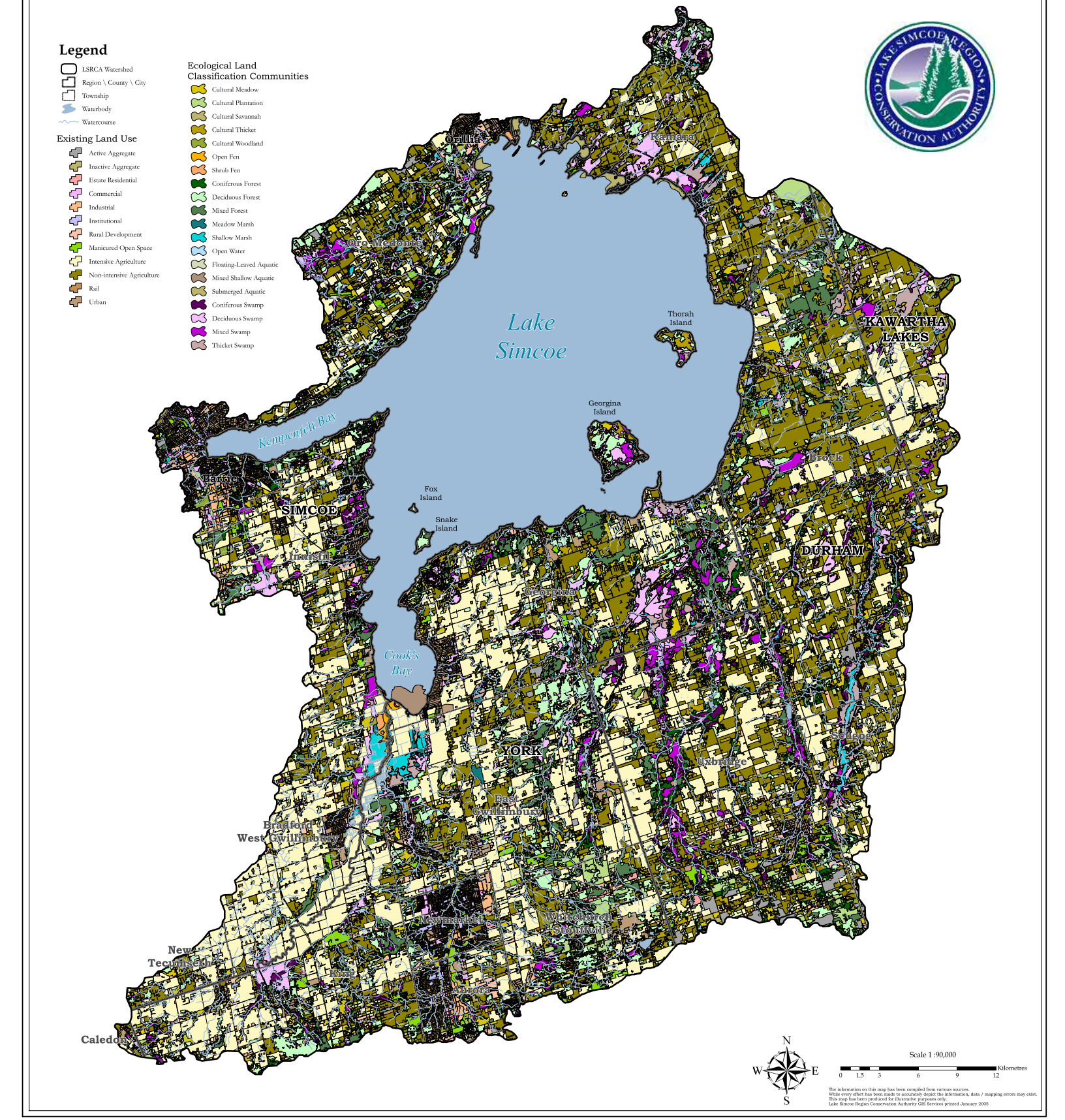
DRAWN BY:	UPDATED BY:	APPROVED BY:	CREATED:
CF	ML	JK	01/03/2012
UPDATED: 11/26/2014	FILE NAME: Schedule_E1_Environmental_Designations.mxd		

Appendix C

LSRCA Mapping

Lake Simcoe Region Conservation Authority

Ecological Land Classification and Existing Land Use



Appendix D

Site Photos

Photo 1: Dec 14, 2020 – Graminoid Mineral Meadow Marsh (MAMM)

Photo 2: Dec 14, 2020 – Mixed Forest (FOM).

Photo 3: Dec 14, 2020 – Mixed Woodland / Mixed Meadow (WOM/MEM).

Photo 4: Dec 14, 2020 – Coniferous Plantation (TAGM1).

Photo 5: December 14, 2020 – Low Density Residential (CVR_1).

Photo 6: December 14, 2020 – Transportation (CVI_1).

Appendix E

Vegetation Inventory

Scientific Name	**Common Name**	**SARA[1]**	**ESA[2]**	**S-RANK[3]**	**CC[4]**
Abies balsamea	Balsam Fir	---	---	S5	5
Acer campestre	Hedge Maple	---	---	SNA	---
Acer negundo	Manitoba Maple	---	---	S5	0
Acer platanoides	Norway Maple	---	---	SNA	---
Acer rubrum	Red Maple	---	---	S5	4
Acer saccharinum	Silver Maple	---	---	S5	5
Acer saccharum	Sugar Maple	---	---	S5	4
Acer x freemanii	Freeman's Maple	---	---	SNA	---
Actaea pachypoda	White Baneberry	---	---	S5	6
Alliaria petiolata	Garlic Mustard	---	---	SNA	---
Alnus glutinosa	European Alder	---	---	SNA	---
Arisaema triphyllum	Jack-in-the-pulpit	---	---	S5	5
Asclepias syriaca	Common Milkweed	---	---	S5	0
Betula papyrifera	Paper Birch	---	---	S5	2
Betula pendula	Weeping Birch	---	---	SNA	---
Betula populifolia	Gray Birch	---	---	S5	5
Bromus inermis	Awnless Brome	---	---	SNA	---
Carya cordiformis	Bitternut Hickory	---	---	S5	6
Caulophyllum thalictroides	Blue Cohosh	---	---	S5	6
Cichorium intybus	Chicory	---	---	SNA	---
Circaea canadensis	Broad-leaved Enchanter's Nightshade	---	---	S5	3
Cirsium arvense	Canada Thistle	---	---	SNA	---
Clintonia borealis	Blue Bead-lily	---	---	S5	7
Chamaecyparis nootkatensis 'Pendula'	Weeping Alaskan Cedar	---	---	---	---
Cornus alternifolia	Alternate-leaved Dogwood	---	---	S5	6
Cornus sericea ssp sericea	Red-osier Dogwood	---	---	S5	2
Daucus carota	Wild Carrot	---	---	SNA	---
Dipsacus fullonum	Fuller's Teasel	---	---	SE5	---
Dryopteris marginalis	Marginal Wood Fern	---	---	S5	5
Elaeagnus angustifolia	Russian Olive	---	---	SNA	---

Equisetum palustre	Marsh Horsetail	---	---	S5	10
Erigeron philadelphicus	Philadelphia Fleabane	---	---	S5	1
Eutrochium maculatum var. maculatum	Spotted Joe Pye Weed	---	---	S5	3
Fagus grandifolia	American Beech	---	---	S4	6
Fagus sylvatica	European Beech	---	---	---	---
Fragaria virginiana	Wild Strawberry	---	---	S5	2
Fraxinus americana	White Ash	---	---	S4	4
Fraxinus excelsior	European Ash	---	---	SNA	---
Fraxinus pennsylvanica	Green Ash	---	---	S4	3
Galium palustre	Marsh Bedstraw	---	---	S5	5
Geranium robertianum	Herb-Robert	---	---	S5	---
Gleditsia triacanthos inermis	Thornless Honey-locust	---	---	SNA	3
Hypericum perforatum	Common St. John's-wort	---	---	SNA	---
Impatiens capensis	Spotted Jewelweed	---	---	S5	4
Inula helenium	Elecampane	---	---	SNA	---
Juglans nigra	Black Walnut	---	---	S4	5
Juniperus virginiana	Eastern Red Cedar	---	---	S5	4
Larix decidua	European Larch	---	---	SNA	---
Leucanthemum vulgare	Oxeye Daisy	---	---	SNA	---
Lilium michiganense	Michigan Lily	---	---	S5	7
Lotus corniculatus	Garden Bird's-foot Trefoil	---	---	SNA	---
Lycopus americanus	American Water-horehound	---	---	S5	4
Maianthemum racemosum	False Solomon's-seal	---	---	S5	4
Malus baccata	Siberian Crabapple	---	---	SNA	---
Malus pumila	Common Apple	---	---	SNA	---
Malus sargentii	Sargeant’s Crabapple				
Monarda fistulosa var. fistulosa	Wild Bergamot	---	---	S5	6
Morus alba	White Mulberry	---	---	SNA	---
Origanum vulgare	Wild Marjoram	---	---	SNA	---

Ostrya virginiana	Eastern Hop-hornbeam	---	---	S5	4
Phalaris arundinacea	Reed Canary Grass	---	---	S5	0
Phragmites australis ssp. americanus	Common Reed	---	---	S4?	---
Picea abies	Norway Spruce	---	---	SNA	---
Picea glauca	White Spruce	---	---	S5	6
Picea pungens	Blue Spruce	---	---	SNA	---
Pinus nigra	Black Pine	---	---	SNA	---
Pinus strobus	Eastern White Pine	---	---	S5	4
Pinus sylvestris	Scotch Pine	---	---	SNA	---
Podophyllum peltatum	May-apple	---	---	S5	5
Populus deltoides ssp. deltoides	Eastern Cottonwood	---	---	S5	4
Populus grandidentata	Large-tooth Aspen	---	---	S5	5
Populus tremuloides	Trembling Aspen	---	---	S5	2
Populus x canadensis	(Populus deltoides X Populus nigra)	---	---	SNA	---
Prunus avium	Sweet Cherry	---	---	SNA	---
Prunus serotina	Wild Black Cherry	---	---	S5	3
Pseudotsuga menziesii var. glauca	Rocky Mountain Douglas Fir	---	---	---	---
Pyrus calleryana	Callery Pear	---	---	SNA	---
Pyrus communis	Common Pear	---	---	SNA	---
Quercus robur	English Oak	---	---	SNA	---
Quercus rubra	Northern Red Oak	---	---	S5	6
Rhamnus cathartica	Common Buckthorn	---	---	SNA	---
Rhus hirta	Staghorn Sumac	---	---	S5	1
Rubus sachalinensis var. sachalinensis	Wild Red Raspberry	---	---	S5	0
Salix alba	White Willow	---	---	SNA	---
Salix fragilis	Crack Willow	---	---	S4?	---
Salix x pendulina	(Salix babylonica X Salix euxina)	---	---	SNA	---
Scirpus atrovirens	Dark-green Bulrush	---	---	S5	3
Scirpus microcarpus	Red-tinge Bulrush	---	---	S5	4

Securigera varia	Common Crown-vetch	---	---	SNA	---
Solanum dulcamara	Climbing Nightshade or Bittersweet Nightshade	---	---	SNA	---
Solidago altissima ssp. altissima	Eastern Late Goldenrod	---	---	S5	1
Solidago canadensis var. canadensis	Canada Goldenrod	---	---	S5	1
Solidago flexicaulis	Zigzag Goldenrod	---	---	S5	6
Sonchus arvensis ssp. arvensis	Field Sow-thistle	---	---	SNA	---
Sorbus aucuparia	European Mountain-ash	---	---	SNA	---
Symphyotrichum puniceum var. puniceum	Swamp Aster	---	---	S5	6
Syringa reticulata ssp. pekinensis	Peking Tree Lilac	---	---	SNA	---
Syringa reticulata ssp. reticulata	Japanese Tree Lilac	---	---	SNA	---
Syringa vulgaris	Common Lilac	---	---	SNA	---
Taxus canadensis	Canadian Yew	---	---	S4	7
Thalictrum dioicum	Early Meadow-rue	---	---	S5	5
Thuja occidentalis	Eastern White Cedar	---	---	S5	4
Tilia americana	American Basswood	---	---	S5	4
Tilia cordata	Little-leaf Linden	---	---	SNA	---
Tsuga canadensis	Eastern Hemlock	---	---	S5	7
Tussilago farfara	Colt's-foot	---	---	SNA	---
Typha latifolia	Broad-leaved Cattail	---	---	S5	3
Ulmus americana	American Elm	---	---	S5	3
Ulmus pumila	Siberian Elm	---	---	SNA	---
Ulmus rubra	Slippery Elm	---	---	S5	6
Verbascum thapsus	Common Mullein	---	---	SNA	---
Verbena hastata	Blue Vervain	---	---	S5	4
Vicia cracca	Tufted Vetch	---	---	SNA	---

Appendix F

Landform Conservation Analysis

TOWN OF AURORA

ARCHERHILL COURT

LANDFORM CONSERVATION FEATURE ANALYSIS: NATURAL FEATURES

FIGURE 1

- Property Boundary
- Road
- Watercourse
- Wooded Areas
- Provincially Significant Wetland
- Unevaluated Wetlands

Landform Conservation Area

- Complex Landform (ORM Category 1)
- Moderately Complex Landform (ORM Category 2)

0 25 50 100 m

SCALE 1:6,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-03-26

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\LandformAnalysis\F1_LandformConservationFeatures.mxd

TOWN OF AURORA

ARCHERHILL COURT

LANDFORM CONSERVATION FEATURE ANALYSIS: SLOPE ANALYSIS

FIGURE 2

- Property Boundary
- Road
- Contours (m)

Slope (%)

- 0 - 2.0
- 2.1 - 5.0
- 5.1 - 15.0
- 15.1 - 25.0
- 25.1 - 47.97

0 25 50 100 m

SCALE 1:6,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
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MAP PROJECTION: NAD 1983 UTM ZONE 17N

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PROJECT: 20-3925
STATUS: DRAFT
DATE: 2021-03-26

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\LandformAnalysis\F2_Slope.mxd

TOWN OF AURORA

ARCHERHILL COURT

LANDFORM CONSERVATION FEATURE ANALYSIS: ELEVATION

FIGURE 3

- Property Boundary
- Road
- Contours (m)
- Areas of Slope > 15%

Elevation (m)

High : 330.989

Low : 248.023

0 25 50 100 m

SCALE 1:6,000

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

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PROJECT: 20-3925

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DATE: 2021-03-26

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TOWN OF AURORA

ARCHERHILL COURT

LANDFORM CONSERVATION FEATURE ANALYSIS: SLOPE AND ELEVATION

FIGURE 4

- Property Boundary
- Road
- Contours (m)
- Vertical Height (m)
- Horizontal Distance (m) - where verticle height exceeds 5 m
- Areas of Slope > 15%

0 5 10 20 m

SCALE 1:1,100

N W E S

MAP DRAWING INFORMATION: ESRI, DIGITIALGLOBE, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRID, IGN, AND THE GIS USER COMMUNITY
DATA PROVIDED BY: DILLON CONSULTING, MNRF

MAP CREATED BY: GAM
MAP CHECKED BY: SG
MAP PROJECTION: NAD 1983 UTM ZONE 17N

DILLON CONSULTING

PROJECT: 20-3925

STATUS: DRAFT

DATE: 2021-03-26

FILE LOCATION: E:\Shared drives\SIM\2020\203925 - Archerhill Court Town of Aurora\Product\Client\LandformAnalysis\F4_SlopeandElevation.mxd

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