

Memo

To: Corporation of the City of Windsor
From: Taylor Hamel, Dillon Consulting Limited
cc: Mackenzie Urban, Dillon Consulting Limited
Brad McLeod, Dillon Consulting Limited
Date: September 7, 2023
Subject: Species at Risk Considerations for the Surplus Airport Lands – City of Windsor, County of Essex
Our File: 23-5796

Introduction

Dillon Consulting Limited ('Dillon') has been retained by the City of Windsor (the 'Proponent') for natural environment consulting services in support of the proposed Official Plan and Zoning By-law Amendments (the 'Project') relating to the surplus airport lands at the Windsor International Airport (the 'Project Location') in the City of Windsor, County of Essex, Ontario. For the purposes of documenting the natural environment existing conditions, the Study Area includes the Project Location, as well as the area 120 metres (m) outside of the Project Location (the 'Study Area'), as shown in Attachment A: Figure 1.

The purpose of this memo is to summarize the natural environment existing conditions and the potential for Species at Risk (SAR) to occur within the Project Location, and to detail possible, future work that may be required if development is proposed beyond the Project Location (i.e. removal of any natural heritage features).

Methodology

Background Information

The background information reviewed included a combination of existing published data, information made available through various public agencies, and web-based mapping programs. The information collected as part of the background review process was used to inform the scoping of the confirmatory site visit as a mechanism to document the existing natural environment conditions, identify potential constraints, and support future potential permits and approvals for the Project. Information sources reviewed as part of the background data collection process are listed below in Table 1.

TABLE 1: LIST OF BACKGROUND INFORMATION, LITERATURE, AND SECONDARY SOURCES

Record Source	Records Requested and/or Reviewed
Government of Canada	
Environment Canada	<ul style="list-style-type: none"> Species at Risk Registry: Accessed to determine the at-risk status of wildlife species under Schedule 1 of the Species at Risk Act (SARA; 2002)
Fisheries and Oceans Canada (DFO)	<ul style="list-style-type: none"> Aquatic Species at Risk Map: Accessed to determine aquatic at-risk occurrences
Government of Ontario	
Ministry of the Environment, Conservation and Parks (MECP)	<ul style="list-style-type: none"> Endangered Species Act (ESA; 2007) Species at Risk in Ontario (SARO) List (O. Reg. 230/08) Client’s Guide to Preliminary Screening for Species at Risk (2019)
Ministry of Natural Resources and Forestry (MNRF)	<ul style="list-style-type: none"> Natural Heritage Information Centre (NHIC) database (Squares: 17LG3880, 17LG3881, 17LG3882, 17LG3981, 17LG3982, 17LG3983, 17LG4081, 17LG4082, 17LG4083, 17LG4181, 17LG4182, 17LG4183, and 17LG4282; MNRF, 2023) MNRF Make a Map: Natural Heritage Areas (MNRF, 2023) Technical Memo: Aylmer District MNRF Guidance on Identifying Activities/Areas not Likely to Contravene the Endangered Species Act, 2007 in the County of Essex & City of Windsor (2016)
Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)	<ul style="list-style-type: none"> Agricultural Information Atlas (OMAFRA, 2023)
Municipal Government	
City of Windsor	<ul style="list-style-type: none"> City of Windsor Update to the CNHS Inventory (2008) Official Plan (2013) City of Windsor Interactive Mapping (2023)
Conservation Authority	
Essex Region Conservation Authority	<ul style="list-style-type: none"> Essex Region Natural Heritage System Strategy (2013) Public Interactive Mapping (2023) Watershed Report Card (2023)
Additional Sources	
Wildlife Atlases & Distribution Data	<ul style="list-style-type: none"> Ontario Breeding Bird Atlas (OBBA; Cadman <i>et al.</i>, 2008). Second Atlas (2001-2005) – data for squares 17LG38 and 17LG48 – grid based on 10 km² system.
	<ul style="list-style-type: none"> Christmas Bird Count (CBC; Birds Canada, 2023). Count circle Lakeshore (ONNS) – Historical Records from 2000 – 2022.

Record Source	Records Requested and/or Reviewed
	<ul style="list-style-type: none"> • Rare Vascular Plants of Ontario (Fourth Edition; Oldham and Brinker, 2009). Distribution data for rare vascular plants.
	<ul style="list-style-type: none"> • Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2023). List of reptile and amphibian species occurrences for squares 17LG38 and 17LG48.
	<ul style="list-style-type: none"> • Ontario Butterfly Atlas (OBA; Toronto Entomologists Association, 2023). List of butterfly species occurrences for squares 17LG38 and 17LG48.
	<ul style="list-style-type: none"> • Atlas of the Mammals of Ontario (Dobbyn, 1994). Distribution data for mammals.
	<ul style="list-style-type: none"> • Bumble Bees of North America (Williams <i>et al.</i>, 2014). Distribution data for bumble bees.

Field Investigation

A confirmatory site visit was conducted on March 23, 2023 by a Dillon biologist from within the extents of the Project Location to document existing natural heritage features, if present, and assess the Project Location and Study Area (where access was permitted) for potential SAR occurrences and/or SAR habitat. Given the time of the year of the investigation (i.e. not fully within the growing season) and knowing that previous Ecological Land Classification (ELC) was completed in 2006, ELC baseline conditions within the woodland areas were taken from the Update to the CNHS Inventory (City of Windsor, 2008) using the ELC System for Southern Ontario (Lee *et al.*, 1998). An aquatic assessment was conducted at two locations along the McGill Drain and three locations along the Rivard Drain within the Study Area (**Attachment A**: Figure 2). Information collected during the assessment included the following (where applicable): channel form, presence/absence of flow, substrate type, channel dimensions (e.g. width and depth), and riparian vegetation. Incidental wildlife observations and indicators of wildlife use (e.g. scat, burrows, tracks, etc.) were also recorded during the site reconnaissance.

Targeted vegetation and wildlife surveys, including confirmation of the presence or absence of wildlife, SAR, and/or their habitats were not completed as part of the confirmatory site visit.

Results

Background Information

Designated Natural Features

A search and analysis of the records outlined in **Table 1** did not identify any provincial parks or conservation reserves/areas, or Area of Natural and Scientific Interest (ANSI), Life Science, or Earth Science within the Study Area (**Attachment B**). Designated MNRF Significant Woodlands based on size and

evaluated Provincially Significant Wetlands (PSW) were identified within the Project Location (**Attachment B**). The PSWs are associated with the Windsor Airport Swamps (ER 23).

City of Windsor Official Plan Designations

Within the City of Windsor Official Plan, the Project Location is primarily designated as “Future Employment Area”, “Airport”, “Industrial”, and “Open Space” (**Attachment B**: Schedule D), with other areas within the Project Location designated as “Natural Heritage” (Schedules B, C, and D) and “Community and Regional Parks” (**Attachment B**: Schedule B). Finally, the “Natural Heritage” designations also includes lands designated as Candidate Natural Heritage Sites (Airport Woodlands; **Attachment C**).

Field Investigation

Ecological Land Classification

Vegetation communities within the woodlands of the Study Area are detailed in **Table 2** and mapped in **Attachment C**.

During the field investigation, vegetation communities observed outside of the woodlands were comprised of open agricultural areas, solar panels for power generation, and drains.

Refer to **Attachment D** for representative site photographs.

TABLE 2: DOCUMENTED ECOLOGICAL LAND CLASSIFICATION WITHIN THE STUDY AREA

ELC Community	Location
SWD3-2 – Silver Maple Mineral Deciduous Swamp	This community is located in the southern portion of the western woodland for the Airport Woodlands.
SWD2-2 – Green Ash Mineral Deciduous Swamp	This community is located in the northern portion of the western woodland, the central portion of the central woodland, and the eastern woodland for the Airport Woodlands.
CUT 1 – Mineral Cultural Thicket	This community exists in the northern and southern portions of the central woodland for the Airport Woodlands.
OAGM1 – Annual Row Crop	This community is found throughout the majority of the Study Area.
CVI_4 – Power Generation	This community consists of solar panel fields and is located in the northern portion of the Study Area.

Species at Risk Habitat Screening

Species at Risk are defined as those species that are listed as Threatened or Endangered under the ESA and aquatic species listed under Schedule 1 federally, as well as migratory birds listed under both Schedule 1 federally and the Migratory Birds Convention Act. A review of the information outlined in **Table 1**, as well as within the Update to the CNHS Inventory identified fifteen (15) SAR with the potential to occur within and/or in proximity (i.e. within 1 km) to the Project Location. The full list of SAR identified during the background review is listed in **Attachment E**.

Based on Dillon’s experience in the general area, a review of aerial imagery, and information collected during the March confirmatory site visit, SAR identified during background review with potential to occur was refined to the species included in **Table 3**. The species included in **Table 3** have the potential to occur within the Study Area, but not necessarily within the Project Location.

TABLE 3: SAR WITH THE POTENTIAL TO OCCUR WITHIN THE STUDY AREA

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³
Birds				
<i>Asio flammeus</i>	Short-eared Owl	SC	SC	S2N, S4B
<i>Cardellina canadensis</i>	Canada Warbler	THR	SC	S4B
<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	S4B
<i>Hylocichla mustelina</i>	Wood Thrush	THR	SC	S4B
<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	THR	END	S4B
Reptiles				
<i>Pantherophis gloydi</i>	Eastern Foxsnake	END	END	S2
<i>Thamnophis butlerii</i>	Butler’s Gartersnake	END	END	S2
Mammals				
<i>Myotis leibii</i>	Eastern Small-footed Myotis	---	END	S2S3
<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4
<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3
<i>Pipistrellus subflavus</i>	Tri-colored Myotis	END	END	S3?
Vegetation				
<i>Cornus florida</i>	Eastern Flowering Dogwood	END	END	S2?
<i>Juglans cinerea</i>	Butternut	END	END	S3?
<i>Castanea dentata</i>	American Chestnut	END	END	S2
<i>Symphotrichum praealtum</i>	Willowleaf Aster	THR	THR	S2

¹Federal Species at Risk Act (SARA) Registry Status (END = Endangered, THR = Threatened, SC = Special Concern); ²Ontario ESA SAR List Status (END = Endangered, THR = Threatened, SC = Special Concern); ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S4 = common and apparently secure; S3 = rare to uncommon and vulnerable; S2 = very rare and imperiled; SU or ? = uncertain due to insufficient information; B = breeding; N = non-breeding; --- denotes no information or not applicable.

Birds – Short-eared Owl favors grasslands, tundra, and wetlands (COSEWIC, 2021). Habitat for this species may be present within the Project Location/Study Area and individuals have been documented to be present in prior studies (**Attachment C**).

Canada Warbler is associated with forested swamps, shrub thicket swamps, riparian woodlands, moist forests, bushy ravines, northern hardwood forests, and mature forests with gaps in the canopy (ECCC, 2016). Habitat for this species is present within the woodland community in the Project Location/Study Area and individuals of the species have been documented to be present in prior studies (**Attachment C**).

Bobolink is associated with large, open, and expansive grasslands, and therefore current site conditions in the Project Location/Study Area are not likely to support this species (ECCC, 2022). However, the species

does have a history of breeding in the area, and have been documented to be present within the Project Location/Study Area in prior studies (**Attachment C**).

Red-headed Woodpecker is associated with open, deciduous forests, wooded swamps, small woodlots, and forest edges, and requires cavity trees with at least 40 cm DBH (ECCC, 2021). Suitable habitat for this species is present within the woodland community in the Project Location/Study Area based on forest size and characteristics, and individuals of the species have been documented to be present within the Project Location/Study Area in prior studies (**Attachment C**).

Wood Thrush is commonly associated with Carolinian forest zones, undisturbed moist mature deciduous or mixed forest with deciduous sapling growth, near ponds or swamps, and hardwood forest edges (COSEWIC, 2012). Suitable habitat for this species is present within the woodland communities within the Project Location/Study Area, and individuals of the species have been documented to be present within the Project Location/Study Area in prior studies (**Attachment C**).

No adverse impacts to SAR birds are anticipated, provided the proposed development is not removing suitable habitat. Tree/vegetation removal (if required) should be conducted outside of the breeding bird season (no removal between April 1 to August 31). Should removals be required during this season, appropriate nest searches should be conducted by a qualified biologist. Bird nest searches are recommended to be completed 48 hours prior to clearing activities. If active nests are found, work within a species-specific setback from the nest should be established by a qualified biologist, until the nest fate is either successful (i.e. young have fledged and can leave the area on their own accord) or unsuccessful (i.e. the nest is no longer active). Nest inactivity should be confirmed by a qualified biologist prior to encroachment into the buffer. If no nests are present, clearing may occur. This is in accordance with the federal Migratory Birds Convention Act (1994).

Reptiles – Eastern Foxsnake is associated with old fields, marshes, along hedgerows, drainage canals, forests, and shorelines within the Carolinian population (MECP, 2021). Suitable habitat for this species is present within the woodland community within the Project Location/Study Area.

Butler’s Gartersnake is associated with early-successional areas, including old fields, disturbed sites, urban and industrial sites, rural/agricultural sites, parks, and dense grasslands or tallgrass prairie (MECP, 2019). Preferred habitat also includes areas of wet depressions surrounded by higher and drier lands, and can include small bodies of water, including seasonally dry marshes and drainage swales. Suitable habitat for this species is present within the Project Location.

No adverse impacts to SAR reptiles are anticipated, provided the implementation of best management practices and standard mitigation measures. We recommend the following:

- Any species listed as Endangered or Threatened on the Species at Risk in Ontario (SARO) List that is encountered at the Project Location must be protected from all harm and harassment.
- All on-site personnel must be made aware of the potential presence of SAR (particularly Eastern Foxsnake) and/or SAR habitat in the area and the protection afforded under the Endangered Species Act, 2007.

- Any Species at Risk incidentally encountered must be protected from harm and harassment. If a SAR is encountered, it should be given adequate time to leave the area before starting work. Activities within 30 m must cease until the individual disperses. If a SAR must be moved, a qualified biologist should be contacted for advice/help before it is moved.
- Any SAR individual that is present at the project site should be reported to MECP as soon as reasonably possible.
- If an injured or deceased SAR is found, the individual must be placed in a non-airtight container that is maintained at an appropriate temperature and an Authorized Wildlife Custodian (authorized under the Fish and Wildlife Conservation Act) in the area should be contacted and the MECP notified as soon as reasonably possible.
- Any digging/excavation activities and tree/vegetation clearing associated with the project should be conducted before March 15.
- If vegetation removal is to be completed during the active snake season (i.e. March to November), the area to be excavated/cleared of vegetation should be walked and visually surveyed for the presence of SAR snakes and breeding birds each day, prior to initiating these activities. Vegetation should be trimmed initially using handheld devices while visually surveying for SAR snakes, prior to removal with heavy machinery and excavation/grading activities. Vegetation removal should occur on sunny days when air temperatures are between 15 and 30 °C, when SAR snakes are most active and can flee the disturbance area.
- Prior to development commencement, heavy-duty, wildlife exclusion fencing should be installed around the perimeter of the work areas. The use of mesh or netting type stabilization material must not be used for erosion control measures due to the risk of entanglement of SAR snakes.
- Construction and vegetation clearing equipment that is left idle for over one hour or is parked overnight on the property should be surveyed for the presence of SAR snakes before (re)ignition. This visual examination should include all lower components of the machinery, including operational extensions and running gear.
- During the active season for snake species (March 15 to November 30), individuals may find and occupy materials and equipment stored on site. Care should be taken to maintain a clean, debris-free work site and avoid the creation of debris stockpiles (e.g. storage of plywood, rubber mats, topsoil, lumber, bricks, and other construction materials should be avoided).

Mammals – Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, and Tri-colored Bat roost in a variety of habitats including in or under rocks, in rock outcrops, in buildings, under bridges, in caves, mines, or hollow trees, or under loose bark (Humphrey, 2017; Humphrey *et al.*, 2019). Habitat for these species occurs within the Study Area (i.e. within the woodland communities).

No adverse impacts to SAR bats are anticipated, provided the proposed development is not removing suitable habitat. Tree removal (if required) should be conducted outside of the active bat active season (no removal between April 1 to September 30). Should removals be required during this season, appropriate bat exit surveys should be conducted by a qualified biologist. Ideally, bat exit surveys should be conducted during June. Each candidate roost should be monitored on two separate evenings under

appropriate weather conditions (i.e. temperature above 10 degrees Celsius, no rain, and low wind). Monitoring should take place from 30 minutes before sunset until 60 minutes after sunset.

Vegetation – Potential habitat for the above species was identified within the Study Area (i.e. closer to or within the woodland communities). If vegetation removal is proposed, appropriate field studies are recommended.

Aquatic Assessments

The Study Area lies within the Little River Watershed and overlays two Drains: the McGill Drain and the Rivard Drain (**Attachment A**: Figure 1). According to the watershed report card, the water quality within the watershed is Fair (Essex Region Watershed Report Card, 2023). Both drains run west to east and discharge into the Little River east of the Project Location.

The Rivard Drain provides ecological linkage to each of the woodlands and to the Little River, contributing to ecological function.

DFO classified both the McGill Drain and the Rivard Drain as Class F drains (OMAFRA, 2023). Class F drains indicate an intermittent flow. Based on the results of the aquatic assessments, field observations confirmed that the McGill Drain and the Rivard Drain were identified as having an intermittent flow (**Table 4**). As such, it is possible that fish have access to this drain during periods of higher flow, however, the low water levels and lack of habitat within the drains make fish presence unlikely. The drains are predominately surrounded by active agriculture and woodlands. It was noted during field reconnaissance that the western portion of the Rivard Drain, (west of the westernmost woodland) in the Project Location is not accessible from the surface and transitions to an underground drain (**Attachment D**).

TABLE 4: DRAIN MEASUREMENTS

Drain	Date	Mean Wetted Width (m)	Mean Wetted Depth (m)	Mean Bankfull Width (m)	Mean Bankfull Depth (m)
McGill Drain	March 23, 2023	1.63	0.15	4.25	0.88
Rivard Drain	March 23, 2023	2.17	0.85	4.67	0.75

Incidental Wildlife

Incidental wildlife species visually observed within the Study Area are listed in **Table 5**. Each of the observed species is considered common and apparently secure (S4) or secure (S5) in the province of Ontario, except for Bald Eagle, which is listed as Special Concern under Schedule 4 of the ESA (2007).

TABLE 5: INCIDENTAL WILDLIFE OBSERVATIONS

Scientific Name	Common Name	SARA ¹	ESA ²	SRank ³	Evidence
Birds					
<i>Agelaius phoeniceus</i>	Red-winged Blackbird	---	---	S4	Observed
<i>Ardea herodias</i>	Great Blue Heron	---	---	S4	Observed
<i>Buteo jamaicensis</i>	Red-tailed Hawk	---		S5	Observed
<i>Cyanocitta cristata</i>	Blue Jay	---	---	S5	Observed
<i>Haliaeetus leucocephalus</i>	Bald Eagle	---	SC	S2N, S4B	Observed
<i>Melanerpes carolinus</i>	Red-bellied Woodpecker	---	---	S4	Observed
<i>Meleagris gallopavo</i>	Wild Turkey	---	---	S5	Observed
<i>Picoides pubescens</i>	Downy Woodpecker	---	---	S5	Observed
<i>Poecile atricapillus</i>	Black-capped Chickadee	---	---	S5	Observed
<i>Sitta carolinensis</i>	White-breasted Nuthatch	---	---	S5	Observed
<i>Turdus migratorius</i>	American Robin	---	---	S5B	Observed
Mammals					
<i>Canis latrans</i>	Coyote	---	---	S5	Footprints and Scat Observed
<i>Odocoileus virginianus</i>	White-tailed Deer	---	---	S5	Footprints Observed

¹Federal Species at Risk Act (SARA) Registry Status; ²Ontario ESA SAR List Status (SC = Special Concern); ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S5 = widespread and secure; S4 = common and apparently secure; S2 = very rare and imperiled; B = breeding; N = non-breeding; --- denotes no information or not applicable.

Summary

The Study Area does not contain any provincial parks or conservation reserves/areas, or Area of Natural and Scientific Interest (ANSI), Life Science, or Earth Science. However, there are mapped MNR Woodlands within and adjacent to the Project Location, as well as evaluated Provincially Significant Wetlands. Fifteen SAR have the potential to occur within the Project Location. If the proposed development or future development outside of the Project Location includes potential SAR habitat removal, PSW encroachment, or work below the high-water mark (e.g. culvert/bridge work), appropriate, detailed field surveys are recommended (e.g. formal wetland evaluations, breeding amphibian surveys, breeding bird surveys, snake surveys, etc.), a permit under the ESA may be required, and correspondence with DFO is recommended.

SAR habitat concerns are subject to change based on updated concept plans. Currently, SAR impacts should be minimal if appropriate best management practices, mitigation measures, and appropriate setbacks (i.e. 30 m from PSW's) are observed.

Attachments:

Attachment A: Figures

Attachment B: Background Mapping

Attachment C: Windsor CNHS Inventory Update

Attachment D: Site Photographs

Attachment E: SAR Habitat Screening Assessment

References

- Bird Studies Canada, Environment Canada's Canadian Wildlife Service, Ontario Nature, Ontario Field Ornithologists and Ontario Ministry of Natural Resources. 2006. Ontario Breeding Bird Atlas Database, 31 January 2008. <http://www.birdsontario.org/atlas/aboutdata.jsp?lang=en>
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- septentrionalis*), and the Tri-colored Bat (*Perimyotis subflavus*) in Canada (Environment and Climate Change Canada 2018).
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Attachment A

Figures

Windsor Airport

Lappan Drain

196.38 ha

Rivard Drain

McGill Drain

COUNTY ROAD 42

North Townline Drain

9th Concession Road Drain
9TH CONCESSION ROAD

Little River

Baseline Road Drain

6th Concession Drain









BASELINE ROAD

6th Concession Road Drain

WINDSOR AIRPORT SAR CONSIDERATIONS MEMO

PROJECT LOCATION

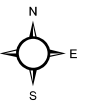
FIGURE 1

-  Project Location
-  Study Area (120m setback)
-  Arterial
-  Collector
-  Local Street
-  Watercourse
-  Constructed Drain
-  Waterbody



SCALE 1:9,000

0 100 200 400 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, DILLON CONSULTING, ESRI BASEMAP IMAGERY

MAP CREATED BY: JFC
MAP CHECKED BY: TH/BM
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 235796
STATUS: DRAFT
DATE: 2023-09-07

Windsor Airport

Lappan Drain

McGill Drain

196.38 ha

Rivard Drain

North Townline Drain
COUNTY ROAD 42

9th Concession Road Drain
9TH CONCESSION ROAD

Baseline Road Drain

6th Concession Drain












BASELINE ROAD

6th Concession Road Drain

Little River

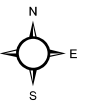
WINDSOR AIRPORT SAR CONSIDERATIONS MEMO AQUATIC SURVEY LOCATIONS

FIGURE 2

-  Project Location
 -  Constructed Drain
 -  Study Area (120m setback)
 -  Arterial
 -  Collector
 -  Local Street
 -  Watercourse
 -  Constructed Drain
 -  Waterbody
- Aquatic Survey Locations**
-  McGill Drain
 -  Rivard Drain

SCALE 1:9,000

0 100 200 400 m



MAP DRAWING INFORMATION:
DATA PROVIDED BY MNRF, DILLON CONSULTING, ESRI BASEMAP IMAGERY

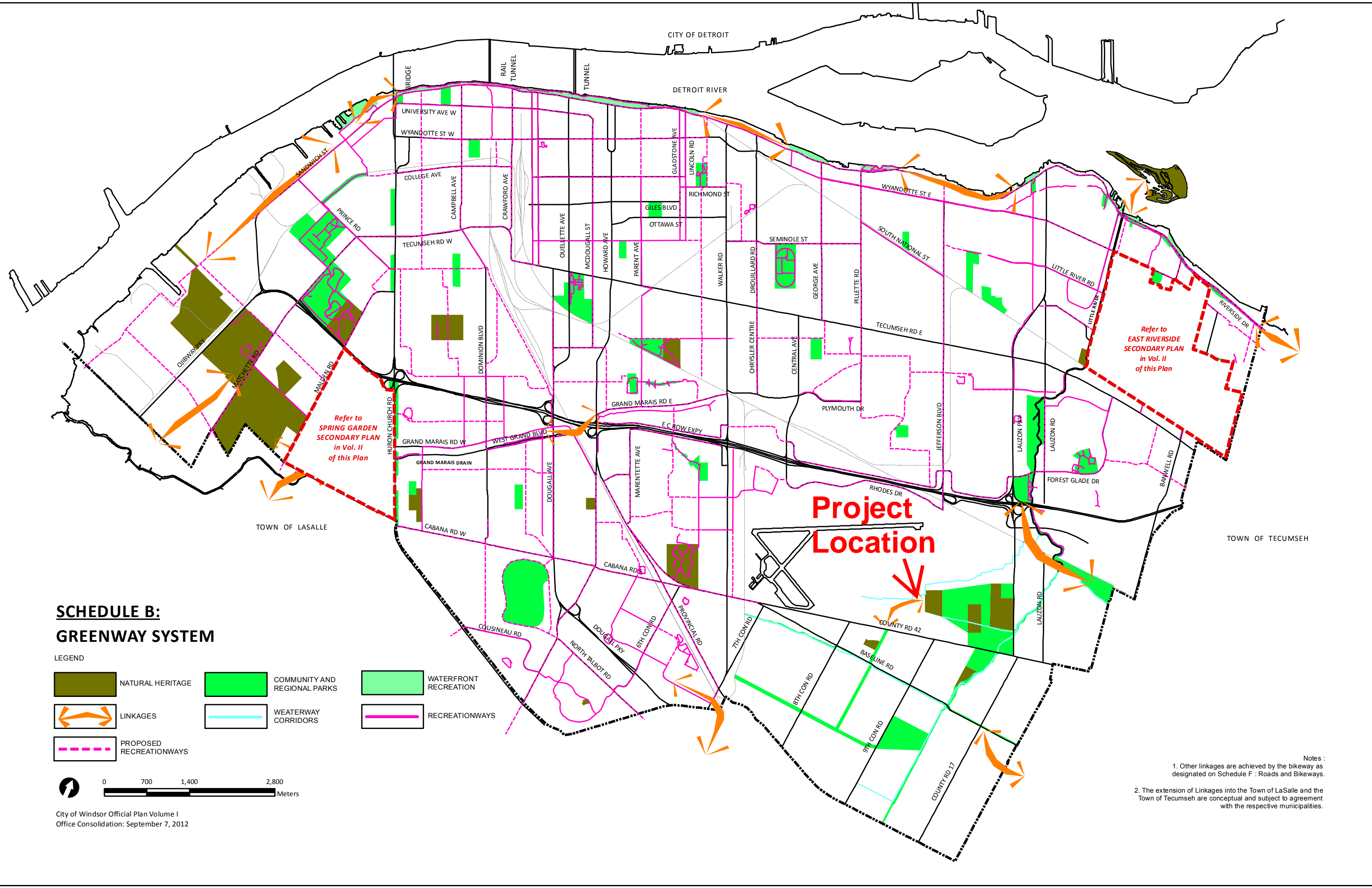
MAP CREATED BY: JFC
MAP CHECKED BY: TH/BM
MAP PROJECTION: NAD 1983 UTM Zone 17N



PROJECT: 235796
STATUS: DRAFT
DATE: 2023-09-07





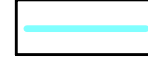
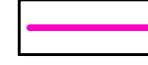

Attachment B

Background Mapping



**SCHEDULE B:
GREENWAY SYSTEM**

LEGEND

	NATURAL HERITAGE		COMMUNITY AND REGIONAL PARKS		WATERFRONT RECREATION
	LINKAGES		WATERWAY CORRIDORS		RECREATIONWAYS
	PROPOSED RECREATIONWAYS				

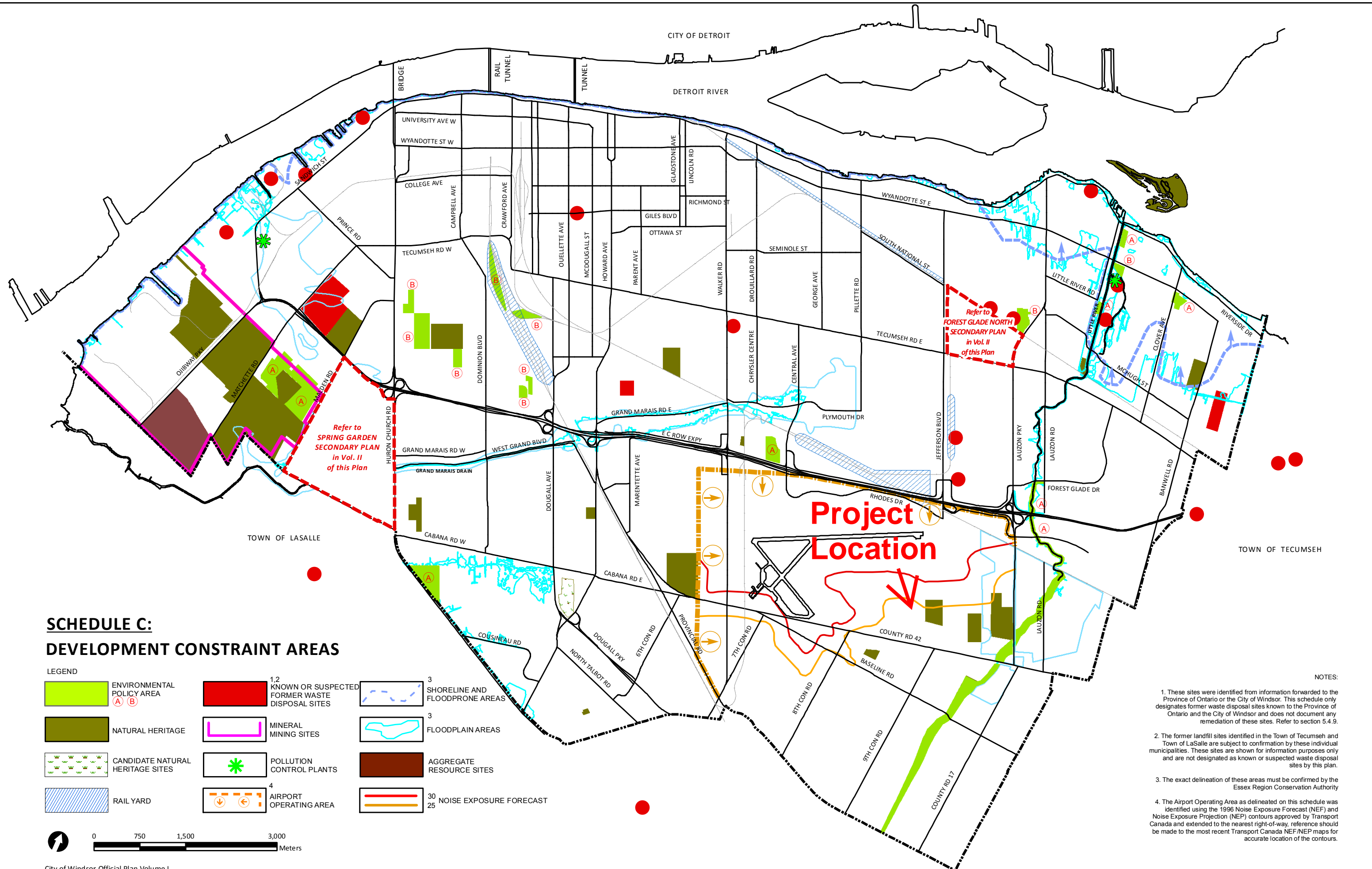


Project Location

Refer to
**SPRING GARDEN
SECONDARY PLAN**
in Vol. II
of this Plan

Refer to
**EAST RIVERSIDE
SECONDARY PLAN**
in Vol. II
of this Plan

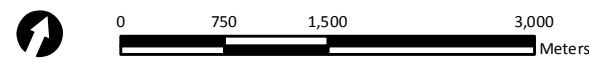
- Notes :
1. Other linkages are achieved by the bikeway as designated on Schedule F : Roads and Bikeways.
 2. The extension of Linkages into the Town of LaSalle and the Town of Tecumseh are conceptual and subject to agreement with the respective municipalities.

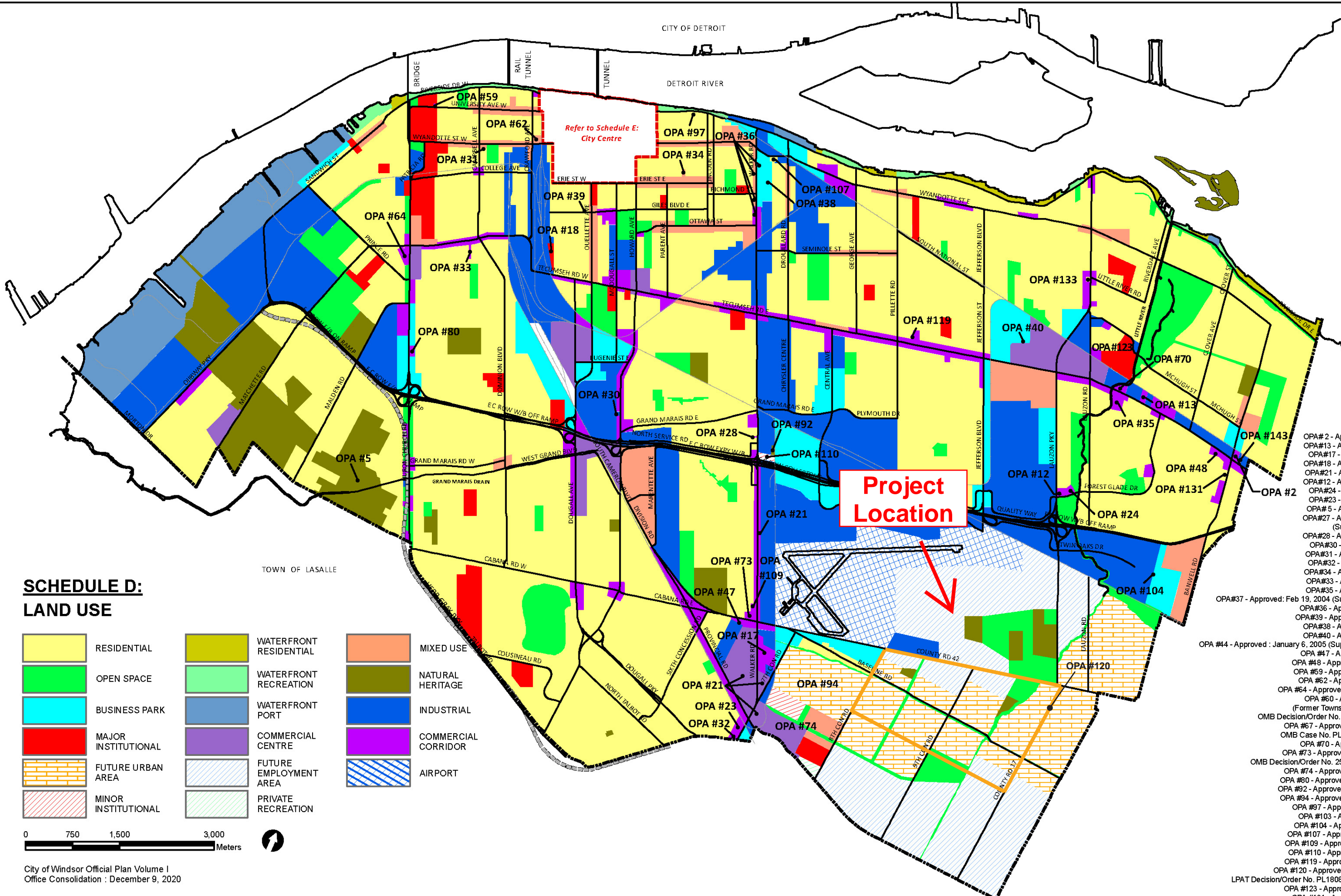


**SCHEDULE C:
DEVELOPMENT CONSTRAINT AREAS**

LEGEND	
	ENVIRONMENTAL POLICY AREA (A) (B)
	1,2 KNOWN OR SUSPECTED FORMER WASTE DISPOSAL SITES
	NATURAL HERITAGE
	MINERAL MINING SITES
	CANDIDATE NATURAL HERITAGE SITES
	POLLUTION CONTROL PLANTS
	RAIL YARD
	4 AIRPORT OPERATING AREA
	3 SHORELINE AND FLOODPRONE AREAS
	3 FLOODPLAIN AREAS
	AGGREGATE RESOURCE SITES
	30/25 NOISE EXPOSURE FORECAST

- NOTES:**
1. These sites were identified from information forwarded to the Province of Ontario or the City of Windsor. This schedule only designates former waste disposal sites known to the Province of Ontario and the City of Windsor and does not document any remediation of these sites. Refer to section 5.4.9.
 2. The former landfill sites identified in the Town of Tecumseh and Town of LaSalle are subject to confirmation by these individual municipalities. These sites are shown for information purposes only and are not designated as known or suspected waste disposal sites by this plan.
 3. The exact delineation of these areas must be confirmed by the Essex Region Conservation Authority
 4. The Airport Operating Area as delineated on this schedule was identified using the 1996 Noise Exposure Forecast (NEF) and Noise Exposure Projection (NEP) contours approved by Transport Canada and extended to the nearest right-of-way, reference should be made to the most recent Transport Canada NEF/NEP maps for accurate location of the contours.





**SCHEDULE D:
LAND USE**

	RESIDENTIAL		WATERFRONT RESIDENTIAL		MIXED USE
	OPEN SPACE		WATERFRONT RECREATION		NATURAL HERITAGE
	BUSINESS PARK		WATERFRONT PORT		INDUSTRIAL
	MAJOR INSTITUTIONAL		COMMERCIAL CENTRE		COMMERCIAL CORRIDOR
	FUTURE URBAN AREA		FUTURE EMPLOYMENT AREA		AIRPORT
	MINOR INSTITUTIONAL		PRIVATE RECREATION		

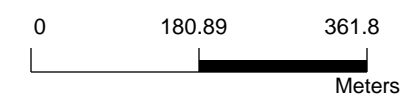
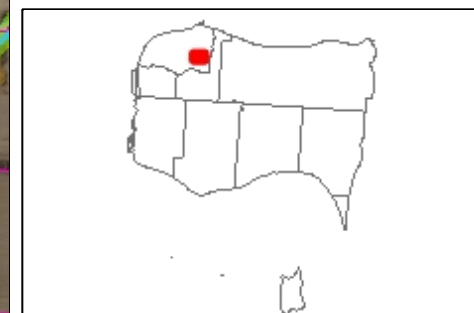


- AS AMENDED BY:
- OPA# 2 - Approved: Dec. 11, 2000
 - OPA#13 - Approved: Nov. 22, 2001
 - OPA#17 - Approved: Jan. 3, 2002
 - OPA#18 - Approved: Mar. 15, 2002
 - OPA#21 - Approved: July 16, 2002
 - OPA#12 - Approved: Aug. 21, 2002
 - OPA#24 - Approved: Oct. 7, 2002
 - OPA#23 - Approved: Oct. 9, 2002
 - OPA# 5 - Approved: Oct. 29, 2002
 - OPA#27 - Approved: Dec. 16, 2002 (Superseded by OPA #40)
 - OPA#28 - Approved: Dec. 16, 2002
 - OPA#30 - Approved: Apr. 7, 2003
 - OPA#31 - Approved: Apr. 14, 2003
 - OPA#32 - Approved: May 5, 2003
 - OPA#34 - Approved: May 20, 2003
 - OPA#33 - Approved: June 2, 2003
 - OPA#35 - Approved: Aug. 11, 2003
 - OPA#37 - Approved: Feb 19, 2004 (Superseded by OPA #40)
 - OPA#36 - Approved: March 3, 2004
 - OPA#39 - Approved: March 26, 2004
 - OPA#38 - Approved: July 21, 2004
 - OPA#40 - Approved: July 21, 2004
 - OPA#44 - Approved: January 6, 2005 (Superseded by OPA #131)
 - OPA #47 - Approved: May 10, 2005
 - OPA #48 - Approved: August 18, 2005
 - OPA #59 - Approved: March 27, 2007
 - OPA #62 - Approved: June 15, 2007
 - OPA #64 - Approved: September 20, 2007
 - OPA #60 - Approved: May 7, 2007 (Former Township of Sandwich South)
 - OMB Decision/Order No. 2667 - October 5, 2007
 - OPA #67 - Approved: December 4, 2015
 - OMB Case No. PL080049 - April 26, 2016
 - OPA #70 - Approved: April 20, 2009
 - OPA #73 - Approved: September 7, 2006
 - OMB Decision/Order No. 2513 - February 12, 2009
 - OPA #74 - Approved: December 4, 2009
 - OPA #80 - Approved: November 22, 2010
 - OPA #92 - Approved: September 19, 2016
 - OPA #94 - Approved: December 21, 2016
 - OPA #97 - Approved: October 6, 2014
 - OPA #103 - Approved: June 1, 2015
 - OPA #104 - Approved: June 24, 2015
 - OPA #107 - Approved: August 15, 2016
 - OPA #109 - Approved: February 6, 2017
 - OPA #110 - Approved: August 22, 2016
 - OPA #119 - Approved: October 15, 2018
 - OPA #120 - Approved: September 17, 2018
 - LPAT Decision/Order No. PL180842 - December 3, 2019
 - OPA #123 - Approved: January 21, 2020
 - OPA #131 - Approved: August 4, 2020
 - OPA #133 - Approved: November 9, 2020
 - OPA #143 - Approved: June 13, 2022

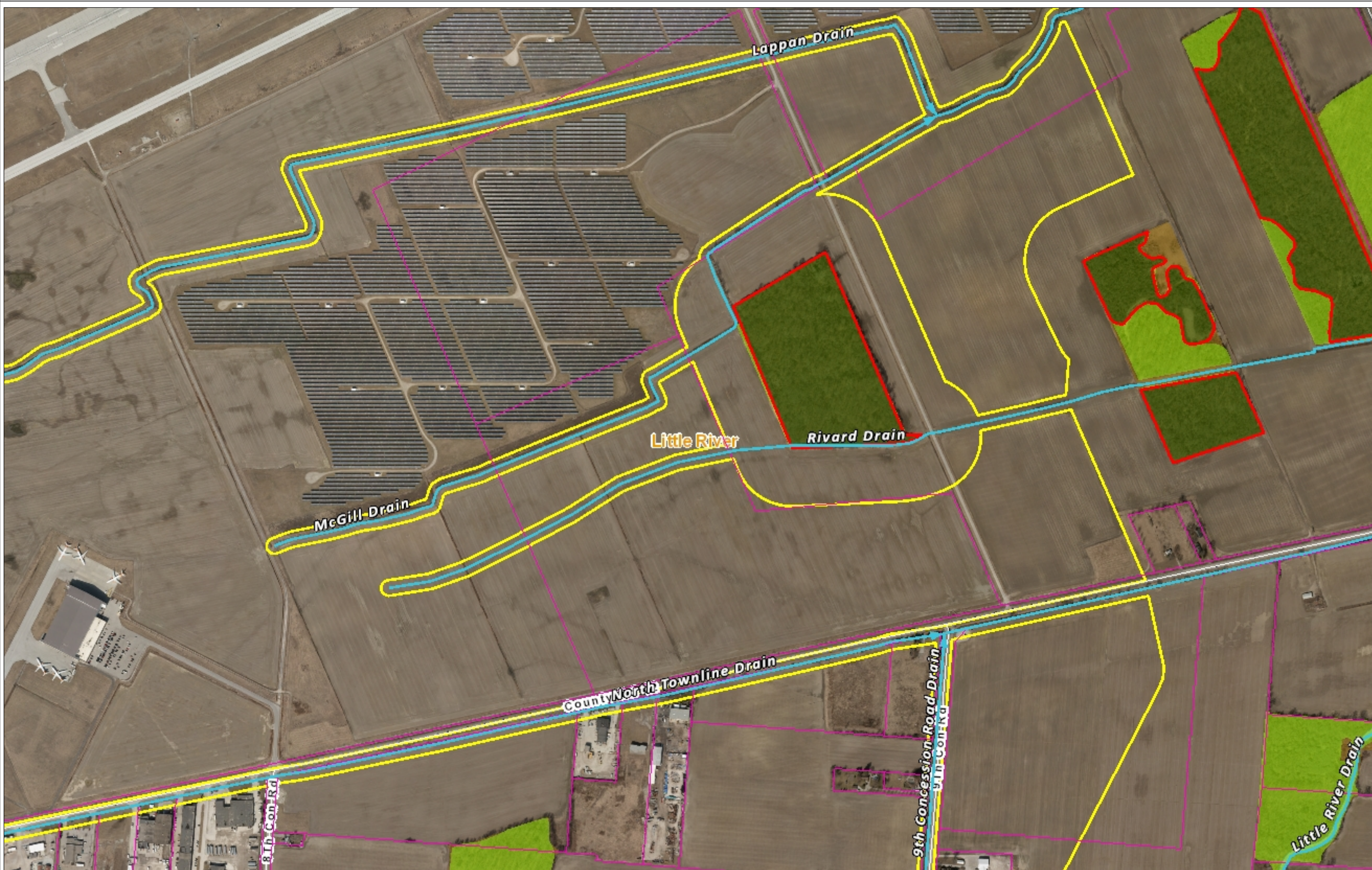
Legend

- Municipal Drains (ERCA)
 - Natural
 - Municipal Drain (Open)
 - Municipal Drain (Closed)
 - Unknown/Other Status (Open)
 - Unknown/Other Status (Closed)
 - Private/Roadside (Open)
 - Private/Roadside (Closed)
- Parcel Fabric - City
- Parcel Fabric - County
- Provincially Significant Wetland (PSW)
- Existing Natural Feature (ERNHSS Report, 201)
 - Open Water
 - Marsh
 - Swamp
 - Forest
 - Other Terrestrial Natural Feature
- 1:100 yr Flood Line
- Limit of Regulated Area
- Subwatershed (Line)

Location



1: 8,139 3/27/2023



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Notes



Legend

- Assessment Parcel
- ANSI
- Earth Science Provincially Significant/sciences de la terre d'importance provinciale
- Earth Science Regionally Significant/sciences de la terre d'importance régionale
- Life Science Provincially Significant/sciences de la vie d'importance provinciale
- Life Science Regionally Significant/sciences de la vie d'importance régionale
- Evaluated Wetland
- Provincially Significant/considérée d'importance provinciale
- Non-Provincially Significant/non considérée d'importance provinciale
- Unevaluated Wetland
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System

0 0.3 Kilometres

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Projection: Web Mercator



Search for Address



Find Aquatic Species at Risk

Select Area

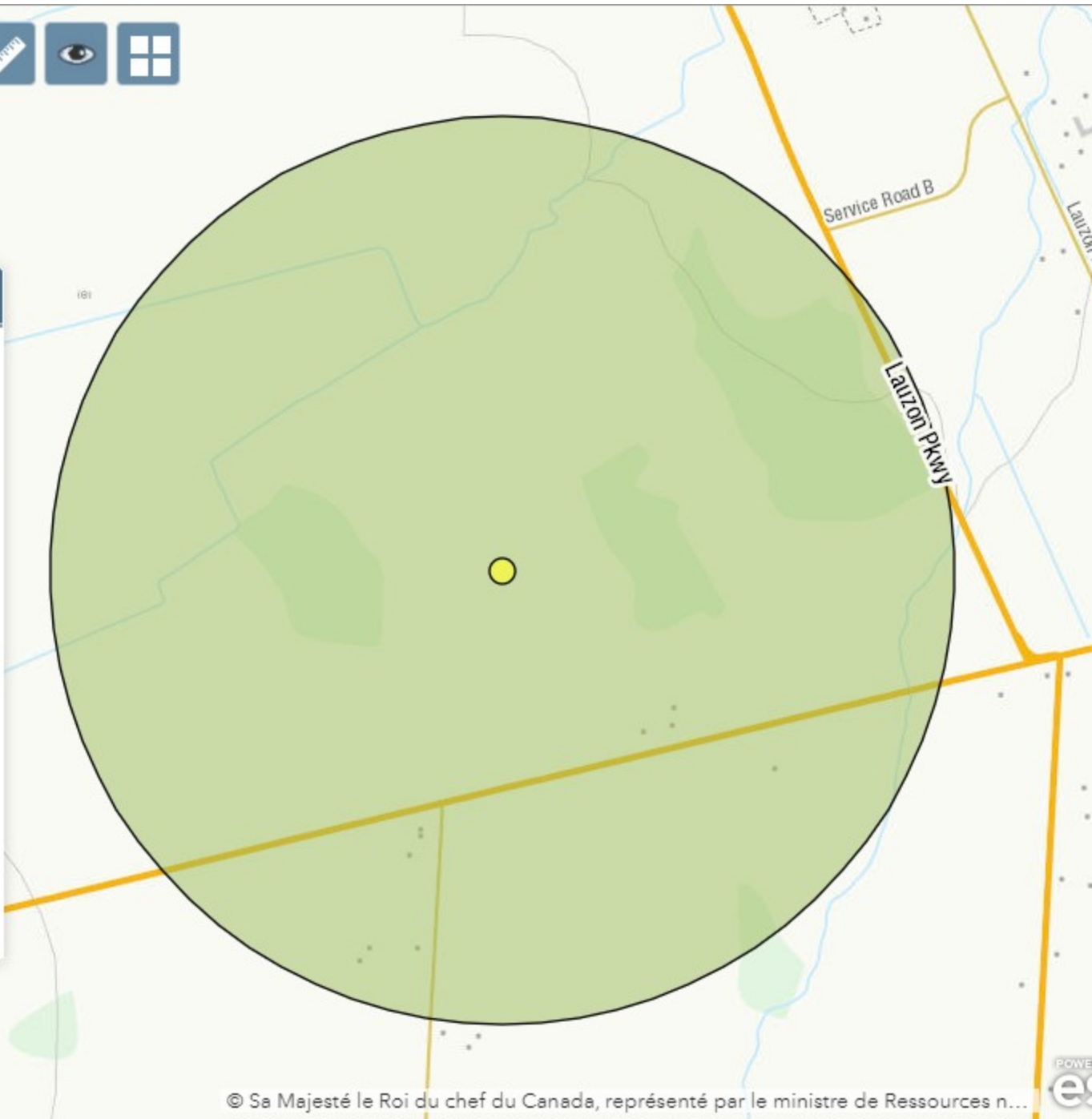
Results

Save

Clear

Critical habitat for these species is found within the outlined area:
0 critical habitat

Species at risk found (or potentially found) within the outlined area:
0 species found



0.4km

8th Conc Rd

42.277 -82.910 Degrees



Attachment C

Windsor CNHS Inventory Update

Windsor Candidate Natural Heritage Site #39
'Airport Woodlands'

1. Site Location

Municipality: City of Windsor

Each of the Woodlands, described from west to east

Site A

Legal Description: Part of Farm Lot 116, Concession 3, formerly Sandwich South

ARN: 373909005000100

PIN: 014081310

UTM Centroid Zone 17N 340713, 4682133

Site B

Legal Description: Part of Farm Lot 122, Concession 3, formerly Sandwich South

ARN: 373909005000100

PIN: 014081310

UTM Centroid Zone 17N 341436, 4682156

Site C

Legal Description: Part of Farm Lots 123 and 124, Concession 3, formerly Sandwich South

ARN: 373909005000100

PIN: 014081239, 014081310

UTM Centroid Zone 17N 341809, 4682442

2. Size

40 hectares (98.84 acres)

3. Ownership

Private

4. General Description

CNHS #39 consists of three separate wooded areas. The easternmost of the three is bisected by an airport security fenceline. The Little River flows just south of the easternmost woods and is linked to it by dogwood and hawthorn thickets with meadow inclusions. About half the tree canopy was formerly ash-dominated but this component has been lost due to Emerald Ash Borer. These woods were formerly used as summer pasture with relict trees to provide shade for the stock. Some stock ponds remain from this period. Additionally some peripheral areas were formerly in cropland but then abandoned from cultivation. Acquisition by the airport has restricted access and disturbance. As a result there has been a regeneration of the tree species for several decades resulting in a continuous canopy only recently opened by tree mortality due to Dutch Elm Disease and Emerald Ash Borer. The Hawthorn component of these woods was in decline until the loss of much of the overtopping canopy; now the hawthorns and other

sun-loving understorey species are being invigorated. The site's soil is classified as Brookston Clay.

5. Evaluation Criteria Fulfilled

The natural heritage feature fulfills the following four out of ten evaluation criteria.

Evaluation Criteria Fulfilled	
	1. Significant Wetland
	2. Habitat of Threatened and Endangered Species
✓	3. Significant Woodland
	4. Significant Wildlife Habitat
	5. Significant Valleyland
✓	6. Ecological Function
✓	7. Diversity
✓	8. Significant Species
	9. Significant Communities
	10. Condition

Criterion No. 3 – Significant Woodland

The wooded area exceeds two hectares although those portions of the tree canopy that were dominated by ash species are now reverting to hawthorn and dogwood thickets or open areas of herbaceous vegetation with vigorous tree saplings. The woodlands function as hydrological linkage as they are immediately adjacent to a tributary of the Little River. Each of the woodlands contain some 100 m interior forest. In addition, these woodlands fall within an area identified in the BCS and therefore contribute to landscape connectivity.

Criterion No. 6 – Ecological Function

The site augments the linkage provided by the Little River corridor and contributes to the hydrological flow of that watercourse. An agricultural drain links the three woodlots to each other and to the Little River.

Criterion No. 7 – Diversity

Diversity on the site is provided by four plant communities, ephemeral ponds and stock ponds (probably enhanced natural ponds), aquatic communities in the linking agricultural drain and the adjacent channelized course of the Little River. This area is notable for glacial 'iceberg signatures' and there are a few ponds that may have originated from stranded or imbedded ice blocks. Some of the wetter areas within these woods may relate to these features. There are scattered large trees present and a great deal of standing and fallen deadwood. Ten trees exceed 80 cm dbh and five of these, including one Silver Maple at 155 cm dbh, exceed 100 cm dbh. The locations of these trees are mapped on the site aerial.

Criterion No. 8 – Significant Species

The following eleven significant plant species were observed:

Swamp Agrimony, <i>Agrimonia parviflora</i>	S3 S4
Shellbark Hickory, <i>Carya laciniosa</i>	S3
Bush's Thorn, <i>Crataegus persimilis</i>	S1 R1
Long-spined Thorn, <i>Crataegus succulenta</i>	R4
Pumpkin Ash, <i>Fraxinus profunda</i>	S2
Pin Oak, <i>Quercus palustris</i>	S3
Shumard Oak, <i>Quercus shumardii</i>	S3 SC
Prairie Rose, <i>Rosa setigera</i>	S3 SC
Great Water Dock, <i>Rumex orbiculatus</i>	R4
Tall Ironweed, <i>Vernonia gigantea</i>	S3
Le Conte's Violet, <i>Viola affinis</i>	R1

The above species are widespread within the CNHS.

No significant faunal species were observed.

6. Comments

The three woodlands could be easily linked together by a wooded corridor along the shared drain even if one side was left in a cleared state for ease of maintenance. This would also enhance the linkage to the Little River. Naturalizing areas along Little River south of the eastern woodlot should be considered for inclusion within the CNHS because they add diversity, riparian habitat and enhanced linkage. The site's diversity and size are reflected in the 167 plant species found here. There is some cutting of dead trees for firewood and the open areas of the centre woods were, until recently, used as a shooting range. Because of the danger of collision with aircraft, large-bodied wildlife is discouraged from inhabiting these woods with the exception of Red-tailed Hawk and Great Horned Owl which are allowed to remain and control other animals and which have been observed nesting within CNHS #40. The vegetation fell into four Ecological Land Classification Types: SWD3-2 Silver Maple Mineral Deciduous Swamp Type, SWD2-2 Green Ash Mineral Deciduous Swamp Type, CUT1 Mineral Cultural Thicket Ecosite and CUM1-1 Dry-Moist Old Field Meadow Type. The first two types are ranked S5 the last two have no assigned rank. The Meadow Type exists along woodland edges and as small sedge and forb-dominated inclusions - these are rapidly succeeding to thickets. It should be noted that the removal of ash from type SWD2-2 will result in a new ELC Deciduous Swamp Type which may have a higher conservation ranking. The approximate positions of the two ELC swamp types are mapped on the site aerial.

7. Faunal Inventory

CNHS # 39	No. of VISITS: 8 Approx Total Effort: 13 hours	SPECIES DIVERSITY RANKING: 2
<p>Summary Account: Three woodlots in close proximity making a relatively large habitat area. Fragmentation, proximity to Little River and variety of habitat and forest structure (ie. swamp forest characteristics) makes this one of the most diverse avifaunal areas of Windsor. These woodlots are closely monitored for potential bird impacts on airport operations and several species which attempt to nest and are discouraged as part of the Airports wildlife control program are identified as confirmed breeding.</p> <p>Total Species: 73 Confirmed Breeding: 27 Possible / Probable: 7 Total Bird Count: approx 1400</p>		

SPECIES ACCOUNT

SPECIES	STATUS	OBSERVATION
Canada Goose	A CV CB	Airport nuisance species
Mallard	A CV CB	Airport nuisance species
Wood Duck	A CV CB	Nest found
Great Blue Heron	MS CV NB	Day roosting / occupying drainage features
Green Heron	SI M NB	
Killdeer	A C CB	Nest found
American Woodcock	MS C CB	Nest found
Common Snipe	SI C PB	
Wild Turkey	SI	reintroduced
Ring-necked Pheasant	MS C CB	naturalized
Copper's Hawk	MS C PrB	
Red-tailed Hawk	MS C CB	Several breeding records – none for 2006
Red-shoulder Hawk	SI M NB	
Bald Eagle	MS S NB	common visitor – Peche Island pair
Turkey Vulture	MS CV NB	Day roosting, no evidence of breeding
American Kestrel	A C CB	Woodlot edge - “agricultural” trees
Peregrine Falcon	MS S NB	Foraging / migration movements – (CV)
Short-eared Owl	SI M NB	Airport has one recent nest record - agricultural
Screech Owl	MS C CB	Nest found
Great Horned Owl	MS C CB	Several breeding records – none for 2006
Saw-whet Owl	SI M NB	
Morning Dove	A C CB	
Ruby-throated Hummingbird	SI C CB	Carrying food
Red-headed Woodpecker	MS S PB	Species of interest – locally rare

SPECIES	STATUS	OBSERVATION
Common Flicker	MS C CB	
Red-bellied Woodpecker	MS R CB	Carrying food to cavity
Yellow-bellied Sapsucker	SI M NB	
Downy Woodpecker	MS C CB	
Hairy Woodpecker	MS C PrB	Excavating cavity – cavity not occupied
Great Crested Flycatcher	MS C CB	Cavity found
Eastern Phoebe	MS C PB	Courtship behaviour
Least Flycatcher	MS M	
Horned Lark	A C CB	Edge habitat use
Tree Swallow	A C CB	
American Crow	A CV NB	Airport Nuisance bird
Blue Jay	A C CB	
Black-capped Chickadee	A CV	No breeding evidence was found
Tuffed Titmouse	SI S NB	Locally rare – single male observed
White-breasted Nuthatch	MS C PB	
Red-breasted Nuthatch	SI CV NB	
Brown Creeper	MS M NB	Early migrant
House Wren	MS C CB	
Carolina Wren	MS C PB	
Ruby-crowned Kinglet	A M NB	Early migrant
Golden-crowned Kinglet	MS M NB	Early migrant
Brown Thrasher	SI M NB	
Grey Catbird	MS C CB	
American Robin	MS C CB	
Gray-cheeked Thrush	MS M NB	
Swainson's Thrush	MS M NB	
Hermit Thrush	MS M NB	
Veery	SI M NB	
Wood Thrush	MS M NB	
Cedar Waxwing	MS C	Breeding evidence not observed
Red-eyed Vireo	MS M	
Black-throated Green Warbler	MS M	
Black-and-white Warbler	MS M	
Black-throated Blue Warbler	MS M	
Magnolia Warbler	MS M	
Yellow-rumped Warbler	MS M	
Canada Warbler	SI M	
Chestnut-sided Warbler	MS M	
American Redstart	MS M	
Yellow Warbler	MS M PB	Nests from former seasons found
Northern Waterthrush	MS M NB	Foraging in “swamp” ponds

SPECIES	STATUS	OBSERVATION
Common Grackle	MS C CB	
Bobolink	A C	Known breeding history – grass edges
Baltimore Oriole	MS C CB	
Slate-coloured Junco	MS M NB	
Northern Cardinal	MS C CB	
Rose-breasted Grosbeak	SI CV NB	Single male observed
Chipping Sparrow	MS C CB	
Song Sparrow	MS C CB	

8. Floral Inventory

STATUS		SCIENTIFIC NAME	COMMON NAME
ONT	ESSX		
		<i>Acalypha rhomboidea</i> (A. virginica)	Three-seeded Mercury
		<i>Acer negundo</i>	Box Elder
		<i>Acer x freemanii</i>	Freeman's Maple
		<i>Acer saccharinum</i>	Silver Maple
S3S4		<i>Agrimonia parviflora</i>	Swamp Agrimony
		AGROSTIS GIGANTEA	Redtop
		<i>Agrostis stolonifera</i>	Creeping Bent
		ALLIARIA PETIOLATA (A. OFFICINALIS)	Garlic Mustard
		<i>Ambrosia artemisiifolia</i>	Common Ragweed
		<i>Ambrosia trifida</i>	Giant Ragweed
		<i>Apocynum cannabinum</i> (A. sibiricum)	Hemp Dogbane
		ARCTIUM MINUS	Common Burdock
		<i>Arisaema triphyllum</i>	Jack-in-the-pulpit
		<i>Aster ericoides</i> (Virgulus e.)	Heath Aster
		<i>Aster lanceolatus</i>	Eastern Lined Aster
		<i>Aster lateriflorus</i>	Side-flowering Aster
		<i>Aster novae-angliae</i> (Virgulus n.)	New England Aster
		<i>Aster pilosus</i> var. pilosus	Hairy Aster
		BERBERIS THUNBERGII	Japanese Barberry
		<i>Bidens frondosa</i>	Common Beggar-Ticks
		<i>Bidens vulgata</i>	Tall Beggar-Ticks
		BRASSICA NAPUS	Rape;Rutabaga
		<i>Cardamine pensylvanica</i>	Pennsylvania Bitter Cress
		<i>Carex blanda</i>	Sedge
		<i>Carex cristatella</i>	Sedge
		<i>Carex granularis</i>	Sedge
		<i>Carex grisea</i> (C. amphibola var. turgida)	Sedge

STATUS			
ONT	ESSX	SCIENTIFIC NAME	COMMON NAME
		<i>Carex hyalinolepis</i>	Sedge
		<i>Carex rosea</i> (<i>C. convoluta</i>)	Wood Sedge
		<i>Carex tenera</i>	Sedge
		<i>Carex vulpinoidea</i>	Sedge
		<i>Carya cordiformis</i>	Bitternut Hickory
		<i>Carya laciniata</i>	Shellbark Hickory
		<i>Carya ovata</i>	Shagbark Hickory
		<i>Chelone glabra</i>	Turtlehead
		<i>Cinna arundinacea</i>	Wood Reedgrass
		<i>Circaea lutetiana</i> (<i>C. quadrisulcata</i>)	Enchanter's Nightshade
		CIRSIUM ARVENSE	Canadian Thistle
		CIRSIUM VULGARE	Bull Thistle
		<i>Claytonia virginica</i>	Spring Beauty
		<i>Conyza canadensis</i> (<i>Erigeron c.</i>)	Horseweed
		<i>Cornus amomum</i> (<i>C. obliqua</i>)	Silky Dogwood
		<i>Cornus drummondii</i>	Rough-leaved Dogwood
		<i>Crataegus crus-galli</i>	Cockspur Thorn
		<i>Crataegus mollis</i>	Downy Hawthorn
S1	R1	<i>Crataegus persimilis</i>	Hawthorn
		<i>Crataegus pruinosa</i>	Hawthorn
		<i>Crataegus punctata</i>	Dotted Hawthorn
	R4	<i>Crataegus succulenta</i>	Hawthorn
		DAUCUS CAROTA	Wild Carrot
		<i>Dryopteris carthusiana</i> (<i>D. spinulosa</i>)	Spinulose Woodfern
		ECHINOCHLOA CRUSGALLI	Barnyard Grass
		<i>Elymus hystrix</i>	Bottlebrush
		ELYMUS REPENS (<i>AGROPYRON R.</i>)	Quack Grass
		<i>Elymus virginicus</i>	Virginia Wild Rye
		<i>Epilobium coloratum</i>	Cinnamon Willow-herb
		<i>Equisetum arvense</i>	Field Horsetail
		<i>Erigeron annuus</i>	Annual Fleabane
		<i>Erigeron philadelphicus</i>	Marsh Fleabane
		<i>Erythronium americanum</i>	Yellow Trout Lily
		<i>Euonymus obovata</i>	Running Strawberry Bush
		<i>Eupatorium perfoliatum</i>	Common Boneset
		<i>Euthamia graminifolia</i> (<i>Solidago g.</i>)	Grass-leaved Goldenrod
		<i>Fagus grandifolia</i>	American Beech
		<i>Fragaria virginiana</i>	Wild Strawberry
		<i>Fraxinus pennsylvanica</i>	Red Ash
S2	VU	<i>Fraxinus profunda</i> (<i>F. tomentosa</i>)	Pumpkin Ash
		<i>Galium aparine</i>	Annual Bedstraw
		<i>Galium obtusum</i>	Wild Madder
		<i>Geranium maculatum</i>	Wild Geranium
		<i>Geum canadense</i>	White Avens

STATUS			
ONT	ESSX	SCIENTIFIC NAME	COMMON NAME
		<i>Geum laciniatum</i>	Rough Avens
		<i>Glyceria striata</i>	Fowl Manna Grass
		<i>Impatiens capensis</i>	Spotted Touch-me-not
		<i>Juglans nigra</i>	Black Walnut
		<i>Juncus tenuis</i>	Path rush
		<i>Juniperus virginiana</i>	Red Cedar
		LACTUCA SERRIOLA	Prickly Lettuce
		<i>Leersia virginica</i>	White Grass
		LIGUSTRUM OVALIFOLIUM	Privet
		<i>Lilium michiganense</i>	Michigan Lily
		<i>Lindera benzoin</i>	Spicebush
		<i>Lobelia inflata</i>	Indian Tobacco
		<i>Lobelia siphilitica</i>	Great Blue Lobelia
		LONICERA MAACKII	Amur Honeysuckle
		LONICERA TATARICA	Smooth Tartarian Honeysuckle
		<i>Lycopus americanus</i>	Common Water Horehound
		<i>Lysimachia ciliata</i>	Fringed Loosestrife
		LYSIMACHIA NUMMULARIA	Moneywort
		LYTHRUM SALICARIA	Purple Loosestrife
		MALUS PUMILA	Apple
		<i>Menispermum canadense</i>	Moonseed
		MORUS ALBA	White Mulberry
		<i>Oenothera biennis</i>	Common Evening Primrose
		<i>Onoclea sensibilis</i>	Sensitive Fern
		<i>Oxalis stricta</i> (O. fontana in part, O. europaea)	Yellow Wood-sorrel
		<i>Parthenocissus inserta</i> (P. vitacea)	Thicket Creeper
		PASTINACA SATIVA	Wild Parsnip
		<i>Penthorum sedoides</i>	Ditch Stonecrop
		<i>Phragmites australis</i> (P. communis)	Reed;Giant Bulrush
		<i>Plantago rugelii</i>	Red-stalked Plantain
		<i>Podophyllum peltatum</i>	May Apple
		<i>Polygonatum pubescens</i>	Downy Solomon Seal
		<i>Polygonum hydropiper</i>	Water-pepper
		POLYGONUM PERSICARIA	Lady's Thumb
		<i>Polygonum virginianum</i> (Tovara v.)	Jumpseed
		<i>Populus deltoides</i>	Cottonwood
		<i>Potentilla norvegica</i>	Rough Cinquefoil
		POTENTILLA RECTA	Rough-fruited Cinquefoil
		<i>Potentilla simplex</i>	Old-field Cinquefoil
		PRUNELLA VULGARIS SSP. VULGARIS	Heal-all
		<i>Prunus virginiana</i>	Choke Cherry
		<i>Quercus bicolor</i>	Swamp White Oak

STATUS			
ONT	ESSX	SCIENTIFIC NAME	COMMON NAME
		<i>Quercus macrocarpa</i>	Burr Oak
S3		<i>Quercus palustris</i>	Pin Oak
S3SC		<i>Quercus shumardii</i>	Shumard Oak
		<i>Ranunculus abortivus</i>	Small-flowered Buttercup
		RHAMNUS CATHARTICA	Common Buckthorn
		<i>Rhus glabra</i>	Smooth Sumac
		<i>Rhus radicans</i> ssp. <i>negundo</i> (<i>Toxicodendron</i> r. ssp. n.)	Poison Ivy
		<i>Rhus typhina</i>	Staghorn Sumac
		<i>Ribes americanum</i>	Wild Black Currant
		ROSA CANINA	Dog Rose
		ROSA MULTIFLORA	Multiflora Rose
		<i>Rosa palustris</i>	Swamp Rose
S3SC		<i>Rosa setigera</i>	Prairie Rose
		<i>Rubus allegheniensis</i>	Common Blackberry
		<i>Rubus idaeus</i> (<i>R. strigosus</i>)	Wild Red Raspberry
		<i>Rubus occidentalis</i>	Black Raspberry
	R4	<i>Rumex orbiculatus</i>	Great Water Dock
		SALIX ALBA	White Willow
		<i>Salix amygdaloides</i>	Peach-leaved Willow
		<i>Salix eriocephala</i>	Missouri Willow
		<i>Salix exigua</i> (<i>S. interior</i>)	Sandbar Willow
		SALIX FRAGILIS	Crack Willow
		<i>Sambucus canadensis</i>	Black Elderberry
		<i>Sanicula odorata</i> (<i>S. gregaria</i>)	Black Snakeroot
		<i>Scirpus atrovirens</i>	Bulrush
		<i>Scirpus pendulus</i>	Bulrush
		<i>Scutellaria lateriflora</i>	Mad-dog Skullcap
		SENECIO VULGARIS	Common Groundsel
		<i>Sium suave</i>	Water Parsnip
		<i>Smilax hispida</i> (<i>S. tamnoides</i>)	Bristly Greenbrier
		SOLANUM DULCAMARA	Bittersweet Nightshade
		<i>Solidago canadensis</i>	Canada Goldenrod
		TARAXACUM OFFICINALE	Common Dandelion
		<i>Thalictrum dasycarpum</i>	Purple Meadow-rue
		<i>Thelypteris palustris</i>	Marsh Fern
		<i>Tilia americana</i>	Basswood
		<i>Ulmus americana</i>	White Elm
		ULMUS PUMILA	Siberian Elm
		VERBASCUM BLATTARIA	Moth Mullein
		<i>Verbena urticifolia</i>	White Vervain
S3		<i>Vernonia gigantea</i> (<i>V. altissima</i>)	Tall Ironweed
		<i>Veronica serpyllifolia</i>	Thyme-leaved Speedwell
		<i>Viburnum lentago</i>	Nannyberry





















STATUS			
ONT	ESSX	SCIENTIFIC NAME	COMMON NAME
		VIBURNUM OPULUS	European Highbush Cranberry
	R1	Viola affinis	LeConte's Violet
		Viola sororia	Common Blue Violet
		Vitis riparia	Riverbank Grape
		Zanthoxylum americanum	Prickly-ash

CNHS # 39

Noteworthy Species ( Tree  Plant)

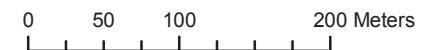
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|---|---|
|  BURR OAK |  HONEY LOCUST |
|  SHUMARD OAK |  COTTONWOOD |
|  WHITE OAK |  SILVER MAPLE |
|  SWAMP WHITE OAK |  CAREX TYPHINA |
|  BLACK OAK |  ST JOHNS WART |
|  PIN OAK |  GREAT PLAINS LADIES TRESSES |
|  RED OAK |  SUNDROPS |
|  BIG SHELLBARK HICKORY |  PURPLE MILKWEED |
|  SHAGBARK HICKORY | |
|  RED ELM | |

ELC Community Types

Meadow	 CUM1-1 Dry Moist Old Field Meadow
Plantation	 CUP1 Deciduous Plantation
Savannah	 CUS1-1 Hawthorn Cultural Savannah
Thicket	 CUT1 Mineral Cultural Thicket
	 CUT1-4 Gray Dogwood Cultural Thicket
Woodland	 CUW1 Mineral Cultural Woodland
	 FOD1-3 Dry Fresh Black Oak Deciduous Forest
	 FOD7-2 Fresh Moist Ash Lowland Deciduous Forest
Deciduous Forest	 FOD8-1 Fresh Moist Poplar Deciduous Forest
	 FOD9-2 Fresh Moist Oak Maple Deciduous Forest
	 FOD9-4 Fresh Moist Shagbark Hickory Deciduous Forest
Water/Marsh	 SA Shallow Water
	 MAM6 Tallgrass Meadow Marsh
	 SWD1-1 Swamp White Oak Mineral Deciduous Swamp
Deciduous Swamp	 SWD1-3 Pin Oak Mineral Deciduous Swamp
	 SWD2-2 Green Ash Mineral Deciduous Swamp
	 SWD3-2 Silver Maple Mineral Deciduous Swamp
Tallgrass Prairie	 TPO2-1 Fresh Moist Tallgrass Prairie
Tallgrass Woodland	 TPW2-1 Fresh Moist Black Oak White Oak Tallgrass Woodland
	 TPW2-2 Fresh Moist Pin Oak Tallgrass Woodland



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Four Region
Conservation Authority
**Geographic
Information
Systems**
























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TD 1/16/2007

CNHS # 39

Noteworthy Species ( Tree  Plant)

- | | |
|--|--|
|  BURR OAK |  HONEY LOCUST |
|  SHUMARD OAK |  COTTONWOOD |
|  WHITE OAK |  SILVER MAPLE |
|  SWAMP WHITE OAK |  CAREX TYPHINA |
|  BLACK OAK |  ST JOHN'S WART |
|  PIN OAK |  GREAT PLAINS LADIES TRESSES |
|  RED OAK |  SUNDROPS |
|  BIG SHELLBARK HICKORY |  PURPLE MILKWEED |
|  SHAGBARK HICKORY | |
|  RED ELM | |

ELC Community Types

Meadow	 CUM1-1 Dry Moist Old Field Meadow
Plantation	 CUP1 Deciduous Plantation
Savannah	 CUS1-1 Hawthorn Cultural Savannah
Thicket	 CUT1 Mineral Cultural Thicket
	 CUT1-4 Gray Dogwood Cultural Thicket
Woodland	 CUW1 Mineral Cultural Woodland
	 FOD1-3 Dry Fresh Black Oak Deciduous Forest
	 FOD7-2 Fresh Moist Ash Lowland Deciduous Forest
	 FOD8-1 Fresh Moist Poplar Deciduous Forest
Deciduous Forest	 FOD9-2 Fresh Moist Oak Maple Deciduous Forest
	 FOD9-4 Fresh Moist Shagbark Hickory Deciduous Forest
	 FOD9-4 Fresh Moist Shagbark Hickory Deciduous Forest
Water/Marsh	 SA Shallow Water
	 MAM6 Tallgrass Meadow Marsh
Deciduous Swamp	 SWD1-1 Swamp White Oak Mineral Deciduous Swamp
	 SWD1-3 Pin Oak Mineral Deciduous Swamp
	 SWD2-2 Green Ash Mineral Deciduous Swamp
	 SWD3-2 Silver Maple Mineral Deciduous Swamp
Tallgrass Prairie	 TPO2-1 Fresh Moist Tallgrass Prairie
Tallgrass Woodland	 TPW2-1 Fresh Moist Black Oak White Oak Tallgrass Woodland
	 TPW2-2 Fresh Moist Pin Oak Tallgrass Woodland



1:5,000



Four Region
Conservation Authority
**Geographic
Information
Systems**



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Attachment D

Site Photographs

Photograph 1

March 23, 2023

Facing north
along the
western edge of
western
woodland within the
Project
Location, where
the Rivard Drain
transitions
underground.



Photograph 2

March 23, 2023

Facing west
along the
western edge of
the western
woodland within the
Project
Location, where
the Rivard Drain
transitions
underground.

Note:
Agricultural land
use.



Photograph 3

March 23, 2023

Facing west,
upstream at an
aquatic survey
point on the
McGill Drain.

Note: Right bank
with dominant
European
Common Reed.



Photograph 4

March 23, 2023

Facing East
toward the
eastern
woodland along
the Rivard Drain
aquatic
assessment
point.

Note:
Agricultural land
use in
foreground,
woodland in
background.



Photograph 5

March 23, 2023

Standing water/vernal pool in the eastern woodland within the Study Area.



Photograph 6

March 23, 2023

Facing north at the east Rivard Drain aquatic survey point.

Note:
Woodland.



Photograph 7

March 23, 2023

Facing east at
the eastern
Rivard Drain
aquatic survey
point.

Note: Drain
corridor through
the woodland.



Attachment E

SAR Habitat Screening Assessment

Table 1: Species at Risk with the potential to occur within the study area.

Family	Group	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	Information Source ⁴	Regulated Habitat	Habitat Requirements ^{2,5}	Potential Habitat in the Study Area
Birds										
<i>Strigidae</i>	Typical Owls	<i>Asio flammeus</i>	Short-eared Owl	SC	SC	S2N,S4B	CNHS	FALSE	Grasslands, open areas or meadows that are grassy or bushy; marshes, bogs or tundra; both diurnal and nocturnal habits; ground nester; destruction of wetlands by drainage for agriculture is an important factor in the decline of this species; home range 25 -125 ha; requires 75-100 ha of contiguous open habitat.	Yes
<i>Parulidae</i>	Wood-Warblers	<i>Cardellina canadensis</i>	Canada Warbler	THR	SC	S4B	CNHS	FALSE	Deciduous and coniferous, usually wet forest types, all with a well-developed, dense shrub layer.	Yes
<i>Icteridae</i>	Blackbirds	<i>Dolichonyx oryzivorus</i>	Bobolink	THR	THR	S4B	OBBA, CNHS	FALSE	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	Yes
<i>Picidae</i>	Woodpeckers and Allies	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	THR	END	S4B	CBC, OBBA, CNHS	FALSE	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40cm dbh; require about 4 ha for a territory.	Yes
<i>Turdidae</i>	Thrushes	<i>Hylocichla mustelina</i>	Wood Thrush	THR	SC	S4B	OBBA, CNHS	FALSE	Carolinian and Great Lakes-St. Lawrence forest zones; undisturbed moist mature deciduous or mixed forest with deciduous sapling growth; near pond or swamp; hardwood forest edges; must have some trees higher than 12m.	Yes
<i>Caprimulgidae</i>	Goatsuckers	<i>Chordeiles minor</i>	Common Nighthawk	THR	SC	S4B	OBBA	FALSE	Open ground; clearings in dense forests; ploughed fields; gravel beaches or barren areas with rocky soils; open woodlands; flat gravel roofs.	No
<i>Apodidae</i>	Swifts	<i>Chaetura pelagica</i>	Chimney Swift	THR	THR	S4B,S4N	OBBA	FALSE	Commonly found in urban areas near buildings and man-made structures with vertical faces, of which are used as surfaces for nest-building. Nests and roosts are most common in chimneys with preference for larger chimneys with open tops. This species will also nest and roost in hollow trees and crevices of rock cliffs. Nesting and roosting sites are situated near areas of water with an abundance of insects for feeding.	No
<i>Hirundinidae</i>	Swallows	<i>Riparia riparia</i>	Bank Swallow	THR	THR	S4B	OBBA	FALSE	Sand, clay or gravel river banks or steep riverbank cliffs; lakeshore bluffs of easily crumbled sand or gravel; gravel pits, road-cuts, grassland or cultivated fields that are close to water; nesting sites are limiting factor for species presence.	No

Family	Group	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	Information Source ⁴	Regulated Habitat	Habitat Requirements ^{2,5}	Potential Habitat in the Study Area
Butterflies										
<i>Hesperiidae</i>	Butterflies and Moths	<i>Erynnis martialis</i>	Mottled Duskywing	---	END	S2	OBA	FALSE	The mottled duskywing tends to live in dry habitats with sparse vegetation. These include open barrens, sandy patches among woodlands, and alvars. In Ontario, the mottled duskywing will only deposit their eggs on two closely-related plants: New Jersey Tea and Prairie Redroot.	No
Reptiles										
<i>Emydidae</i>	Turtle	<i>Emydoidea blandingii</i>	Blanding's Turtle	THR	THR	S3	ORAA	FALSE	Shallow water marshes, bogs, ponds or swamps, or coves in larger lakes with soft muddy bottoms and aquatic vegetation; basks on logs, stumps, or banks; surrounding natural habitat is important in summer as they frequently move from aquatic habitat to terrestrial habitats; hibernates in bogs; not readily observed.	No
<i>Colubridae</i>	Snakes	<i>Pantherophis gloydi pop. 2</i>	Eastern Foxsnake (Carolinian population)	END	END	S2	ORAA	TRUE	Individuals of the Carolinian population are typically found in old fields, marshes, along hedgerows, drainage canals and shorelines. Females lay their eggs in rotting logs, manure or compost piles, which naturally incubate the eggs until they hatch. During the winter, Eastern Foxsnake hibernate in groups, deep in the cracks of bedrock, as well as in some man-made structures. Distribution of the Carolinian population is limited to the regions of Essex-Kent and Halidimond-Norfolk, where occurrences range from the shores of Lake Huron, Lake St. Clair, to Lake Erie.	Yes
<i>Colubridae</i>	Snakes	<i>Coluber constrictor foxii</i>	Blue Racer	END	END	S1	ORAA	FALSE	Open habitat with abundant cover such as prairie, savanna, alvar, and open woodlands.	No
<i>Colubridae</i>	Snakes	<i>Heterodon platirhinos</i>	Eastern Hog-nosed Snake	THR	THR	S3	ORAA	FALSE	Sandy upland fields, pastures, savannahs, sandy beaches; dry open oak-pine-maple forest with sandy soils; prefer forest areas > 5ha.	No
<i>Colubridae</i>	Snakes	<i>Regina septemvittata</i>	Queensnake	END	END	S2	ORAA	TRUE	Queensnake inhabit streams or rivers with rock or gravel in the channel and along the banks, typically with bank and channel substrates of limestone or slate, and are less commonly found in marshes, lakeshores, and quarries. This species stays close to water, rarely venturing more than 15 metres from shore. Supporting habitat requirements include substantial supplies of crayfish for food, and hanging woody riparian vegetation for basking. This species hibernates communally in subterranean areas accessed by natural features such as animal burrows and cracks in rock outcrops, or in anthropogenic structures such as bridge abutments.	No

Family	Group	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	Information Source ⁴	Regulated Habitat	Habitat Requirements ^{2,5}	Potential Habitat in the Study Area
<i>Scincidae</i>	Skink	<i>Plestiodon fasciatus pop. 1</i>	Common Five-lined Skink (Carolinian population)	END	END	S2	ORAA	TRUE	The Carolinian population can be found under woody debris in clearings with sand dunes, open forested areas, and wetlands. They bask on sunny rocks and logs to maintain a preferred body temperature (28-36°C). During the winter, they hibernate in crevices among rocks or buried in the soil.	No
<i>Viperidae</i>	Snakes	<i>Sistrurus catenatus pop. 2</i>	Massasauga (Carolinian population)	END	END	S1	ORAA	FALSE	Use upland, old field in summer; marsh, shrub swamp or bog; rivers and streams that provide sedge or low vegetative growth; in fall and winter; hibernate underground in mammal burrows, under rotting stumps, in rock crevices.	No
<i>Colubridae</i>	Snakes	<i>Thamnophis butleri</i>	Butler's Gartersnake	END	END	S2	ORAA, NHIC	FALSE	This species prefers habitats of open to early-successional areas, including old fields, disturbed sites, urban and industrial sites, rural/agricultural sites, parks, and dense grasslands or tallgrass prairie. Preferred habitat also includes areas of wet depressions surrounded by higher and drier lands, and can include small bodies of water, including seasonally dry marshes and drainage swales. Habitats require dense cover of grasses or forbs with a heavy thatch layer, and abundance of earthworms and/or leeches as prey. This species hibernates in small mammal burrows, ant mounds, loose fill or crayfish burrows, and is often be found in rock piles or old stone walls. In Canada, it occurs only in southwestern Ontario in western Essex and Lambton Counties, typically within 10 km of the Detroit River, Lake St. Clair, the St. Clair River and Lake Huron from Amherst to Point Errol, with occurrences in Skunk's Misery (Lambton and Middlesex Counties), Parkhill (Middlesex County) and Luther Marsh (Dufferin and Wellington Counties).	Yes
Amphibians										
<i>Caudata</i>	Newts and Salamanders	<i>Ambystoma texanum</i>	Small-mouthed Salamander	END	END	S1	ORAA	FALSE	Moist habitats such as tallgrass prairies, dense deciduous forests, and agricultural lands that provide suitable breeding ponds.	No
Mammals										
<i>Vespertilionidae</i>	Plain-nosed Bats	<i>Myotis leibii</i>	Eastern Small-footed Myotis	---	END	S2S3	MWH	FALSE	Roosts in caves, mine shafts, crevices or buildings that are in or near woodland; hibernates in cold dry caves or mines; maternity colonies in caves or buildings; hunts in forests.	Yes
<i>Vespertilionidae</i>	Plain-nosed Bats	<i>Myotis lucifugus</i>	Little Brown Myotis	END	END	S4	MWH	FALSE	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	Yes

Family	Group	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	Information Source ⁴	Regulated Habitat	Habitat Requirements ^{2,5}	Potential Habitat in the Study Area
<i>Vespertilionidae</i>	Plain-nosed Bats	<i>Myotis septentrionalis</i>	Northern Myotis	END	END	S3	MWH	FALSE	Hibernates during winter in mines or caves; during summer males roost alone and females form maternity colonies of up to 60 adults; roosts in houses, manmade structures but prefers hollow trees or under loose bark; hunts within forests, below canopy.	Yes
<i>Vespertilionidae</i>	Plain-nosed Bats	<i>Pipistrellus subflavus</i>	Tri-colored Bat	END	END	S3?	MWH	FALSE	Can be found in a variety of forested habitats. They form day roosts and maternity colonies in older forest and occasionally in barns or other structures, and overwinter in caves. They forage over water and along streams in the forest.	Yes
<i>Canidae</i>	Dogs, Foxes and Wolves	<i>Urocyon cinereoargenteus</i>	Gray Fox	THR	THR	S1	MWH	FALSE	Hardwood forests with a mix of fields and woods; swamps; wooded, brushy or rocky habitats; woodland farmland edge; old fields with thickets; dens in hollow log or tree; individual has numerous winter dens throughout its range which is > 40 ha.	No
<i>Mustelidae</i>	Weasels and Allies	<i>Taxidea taxus jacksoni</i>	American Badger (Southwestern Ontario population)	END	END	---	MWH	TRUE	This species resides in open fields and forest openings, including grasslands, golf courses and the uncultivated portions of agricultural fields. Dens are often in close proximity to linear corridors, including roads, fencerows, field edges and hedgerows. The American Badger can travel long distances and occupy large home ranges of many square kilometers. A key habitat requirement for this species is friable soil, of which is required for burrowing and supporting small mammals used as prey. For the southwestern Ontario population, such soils are typically sands and loams, particularly those of the Norfolk Sand Plain. This population is located close to Lake Erie in Norfolk and Middlesex Counties.	No
Plants										
<i>Cornaceae</i>	Dogwoods	<i>Cornus florida</i>	Eastern Flowering Dogwood	END	END	S2?	NHIC, MECP Reg. Habitat	TRUE	Grows on soils varying from deep and moist along minor streams to light-textured and well-drained in the uplands. Grows well on flats and on lower or middle slopes, but not very well on upper slopes and ridges.	Yes
<i>Juglandaceae</i>	Walnuts	<i>Juglans cinerea</i>	Butternut	END	END	S3?	NHIC	FALSE	Usually grows alone or in small groups in deciduous forests. Prefers moist, well-drained soil and is often found along streams.	Yes
<i>Fagaceae</i>	Chestnuts	<i>Castanea dentata</i>	American Chestnut	END	END	S2	NHIC	FALSE	Dryer, upland, deciduous forests with sandy, acidic to neutral soils. Associates include Red Oak, Black Cherry, Sugar Maple, American Beech, and other deciduous tree species.	Yes

Family	Group	Scientific Name	Common Name	SARA Status ¹	ESA Status ²	SRank ³	Information Source ⁴	Regulated Habitat	Habitat Requirements ^{2,5}	Potential Habitat in the Study Area
<i>Asteraceae</i>	Asters	<i>Symphyotrichum praealtum</i>	Willowleaf Aster	THR	THR	S2	NHIC	FALSE	Openings of oak savannahs, prairie and savannah remnants, and old fields.	Yes

¹Status identified under the federal Species at Risk Act: END = Endangered, THR = Threatened, SC = Special Concern; ²Status identified under the provincial Endangered Species Act: END = Endangered, THR = Threatened, SC = Special Concern; ³SRank is an indicator of commonness in the Province of Ontario. A scale between 1 and 5: S4 = common and apparently secure, S3 = rare to uncommon and vulnerable, S2 = very rare and imperiled, S1 = extremely rare and critically imperiled, SU or ? = uncertain due to insufficient information, B = breeding, N = non-breeding; ⁴Information sources include: CBC = Christmas Bird Count, CNHS = Candidate Natural Heritage Site, MECP Reg. Habitat = MECP Regulated Habitat (O. Reg. 242/08), MWH = Digital Distribution Maps of the Mammals of the Western Hemisphere, version 3.0, NHIC = MNRF Natural Heritage Information Centre, OBA = Ontario Butterfly Atlas, OBBA = Ontario Breeding Bird Atlas, ORAA = Ontario Reptile and Amphibian Atlas; ⁵MNRF Significant Wildlife Technical Guide – Appendix G (2000); --- denotes no information or not applicable.