Section 7:
Natural Heritage

7.0 Natural Heritage – Species at Risk Impact Assessment

Insight Environmental Solutions Inc. (hereafter IES) was retained to complete a Species at Risk Impact assessment for the area of Sandpoint Beach. A copy of the completed report was submitted to Ministry of the Environment, Conservation and Parks (MECP) on December 5, 2022 via email for review and approval.

The assessment was conducted through a desktop review and field surveys. The objective of the assessment was to determine potential impacts to natural heritage features and Species at Risk (SAR) individuals and/or habitat. When assessing the site and preparing the report, IES referenced the following applicable environmental policies – Species at Risk Act (2002), Fisheries Act (1985), Endangered Species Act (2007), the Provincial Policy Statement (2020), Conservation Authorities Act (1990), and the Migratory Birds Convention Act (1994).

IES evaluated the study area through the following methodology:

- Floristic Quality Assessment – a method to assess the floristic integrity of vegetation communities. It is used to determine the significance and amount of restoration required for individual vegetative communities.
- Tree Inventory – a tree inventory was provided by the City of Windsor.
- Wildlife and Wildlife Habitat – assessed through an incidental wildlife survey and a species at risk survey. These methods were carried out to determine the potential population and distribution of SAR individuals and to delineate the habitat and habitat features within the property.

For evaluation, the site was classified into three areas - the Beach and Anthropogenic area, the Mown Lawn with scattered trees, and the Mineral Treed Shoreline Ecosite. IES noted that all the vegetation communities within the study area are considered widespread and common in Ontario and are secure globally.

Within the assessment area IES identified:

- one provincially significant tree – an Ohio Buckeye (Aesculus glabra);
- 13 bird species were observed, eight of these species were identified as protected under the Migratory Birds Convention Act; and,
- A natural corridor containing trees and shrubs that could act as a rest and refuge area for reptiles. This area also contains logs and cover objects that could be used by snakes.

In their Species at Risk Impact Assessment, IES recommended mitigation measures to be implemented during construction to protect the identified species at risk and their habitats. Timing windows were provided in which tree removal and in-water work can not be performed. All recommendations made in the report will be implemented during construction of the works.

A copy of the report can be found in this section of the Project Files.

Liz Michaud

From: Nicole Wajmer <nicole.wajmer@insightenvironmental.ca>
Sent: December 5, 2022 2:45 PM
To: Species at Risk (MECP)
Cc: Liz Michaud; Jennifer Neill
Subject: SAR Impact Assessment for Sand Point Beach, Windsor
Attachments: SAR Impact Assessment_Sandpoint Beach_Windsor_December 5 2022_Final.pdf

Dear MECP:

Please find the attached Species at Risk Assessment for proposed improvements to Sand Point Beach, Windsor.

We are seeking the Ministry of the Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB)'s review of the project documentation and mitigation measures that have been provided, to ensure that the project will likely not contravene section 9 (species protection) or section 10 (habitat protection) of the ESA 2007.

Please let me know if you have any questions or require additional information.

Kind regards,

Nicole

--
Nicole Wajmer
Principal Wildlife Biologist
Insight Environmental Solutions Inc.
www.insightenvironmental.ca
nicole.wajmer@insightenvironmental.ca
519-829-9463

INSIGHT ENVIRONMENTAL SOLUTIONS INC.

Species at Risk Impact Assessment

Sandpoint Beach, Windsor

Prepared For:

Landmark Engineers

Prepared By:

Nicole Wajmer, B.Sc., M.Sc., Principal Wildlife Biologist

Jennifer Neill, BFA, Dip. Env. Technician, Principal Ecologist

Date:

December 12, 2022

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1.0 INTRODUCTION

Insight Environmental Solutions Inc., (IES) was retained by Landmark Engineers to complete a background review and Species at Risk (SAR) Impact Assessment for the proposed project located at Sandpoint Beach, Windsor, Ontario (hereafter referred to as the 'Subject Property').

IES has conducted a background review and field investigations to determine potential impacts to natural heritage features and SAR individuals and/or habitat. This report provides an overview of the existing site conditions and applicable *Endangered Species Act* (ESA 2007) and *Species at Risk Act* (SARA 2002) policies, identifies any environmental constraints and opportunities, and provides recommendations with respect to the proposed project. The goal of this report is to attain the Ministry of the Environment, Conservation and Parks (MECP) Species at Risk Branch (SARB)'s review of the project documentation to ensure that the project is not likely to contravene Section 9 (species protection) or Section 10 (habitat protection) of the ESA 2007.

1.1 SUBJECT PROPERTY

The proposed project is located at Sandpoint Beach, City of Windsor, County of Essex, Ontario (17T 341903 4689156). Sandpoint Beach can be accessed at 10300 Riverside Drive East, Windsor. The Subject Property is approximately 45m long (north - south) and 465m wide (east - west) with an area of approximately 2.6 hectares. **Figure 1** shows the property in a regional context. Current site conditions can be seen in **Appendix B**.

1.2 DEVELOPMENT PROPOSAL

The proposed development will re-configure Sandpoint Beach to accommodate for safe access to a new beach location, the creation of greenspace, walking trails, a pavilion area, and the retention of an existing naturalized wildlife corridor. The Concept Plan for the proposed development can be seen in **Figure 2**.

2.0 BACKGROUND REVIEW

The following sections discuss all applicable information and resources used to support a discussion with Regulatory Authorities at the preliminary screening stage for the proposed development. Background documents and supporting technical documents containing information relevant to potential Species at Risk (SAR) and SAR habitat features on or within the vicinity of the Subject Property were reviewed as well regulatory policies at the federal and provincial levels. These resources include:

1. Species at Risk Act (SARA, 2002)
2. Fisheries Act (1985)
3. Endangered Species Act (2007)
4. Provincial Policy Statement (2020)

5. Conservation Authorities Act (1990)
6. Ontario Regulation 158/06
7. Migratory Birds Convention Act (MBCA 1994)
8. Ministry of Natural Resources and Forestry. Make A Map: Natural Heritage Areas. Interactive Map
9. Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) on-line interactive 'Ag Maps'
10. Essex Region Conservation Authority Public Interactive Mapping
11. DFO Aquatic Species at Risk Interactive Mapping
12. Ontario Breeding Bird Atlas (OBBA)
13. E-Bird
14. I-Naturalist
15. Ontario Reptile and Amphibian Atlas
16. Atlas of Mammals of Ontario (Dobbyn 1994)
17. Ontario Butterfly Atlas
18. Google Earth Imagery
19. Client's Guide to Preliminary Screening for Species at Risk (MECP, 2019)

Key Plan

Sand Point Beach, Windsor

N
W E
S

0 0.15 0.3 0.45 0.6
Kms

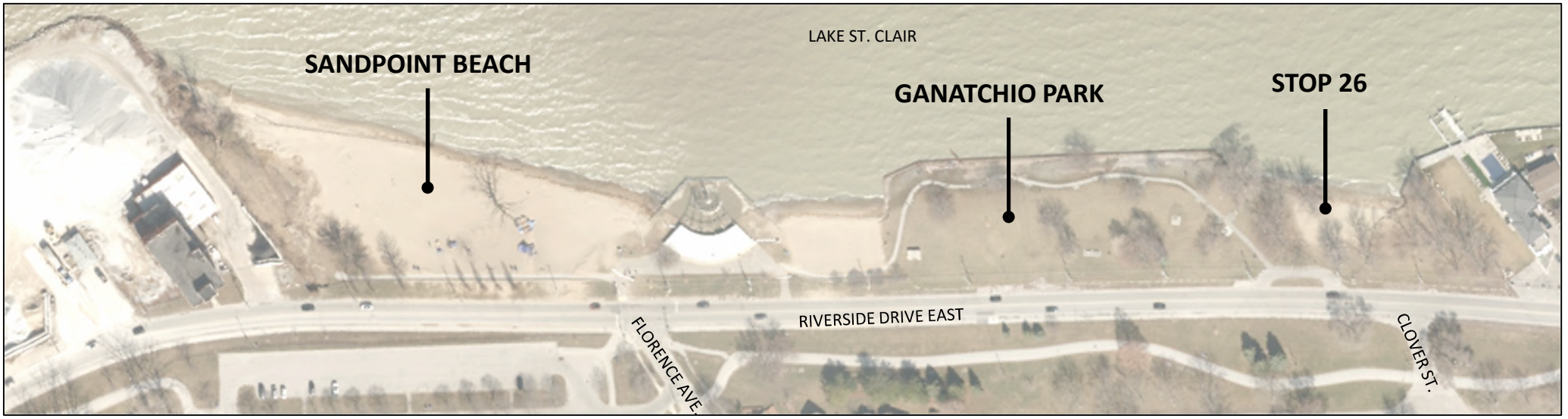
Legend

Legal Parcel

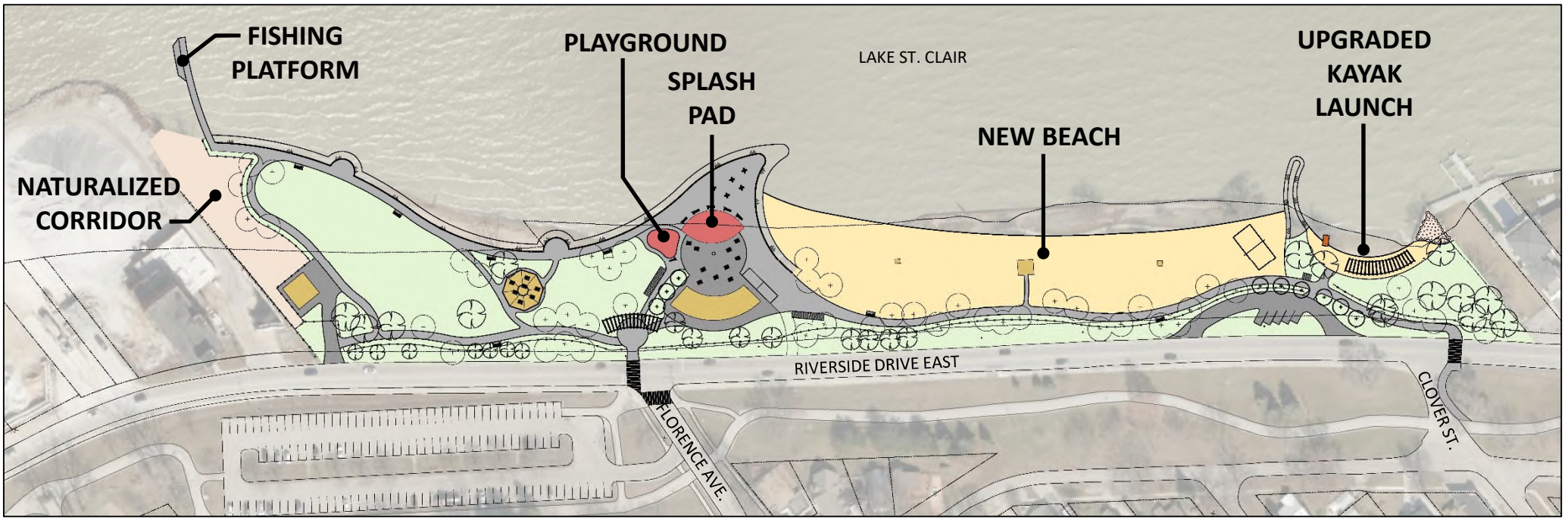
Figure No.: 1
Project No.: IES22-64
Scale: 1:10,000
Date: November 17, 2022
Creator: Nicole Wajmer

INSIGHT ENVIRONMENTAL SOLUTIONS INC.

East Riverside



EXISTING



PROPOSED

BP
Bezaire Partners
Planners, Landscape Architects

Landmark Engineers Inc.

3.0 SPECIES AT RISK SCREENING

3.1 DFO AQUATIC SPECIES AT RISK

A search of the Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping was completed, and the following SAR and critical SAR habitat has been recorded within 1km of the Subject Property can be seen in **Table 1**.

TABLE 1: DFO AQUATIC SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARA Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Northern Madtom (Critical Habitat Present)	*Noturus stigmosus*	S1	END	END	Yes	Prefers clean, unpolluted water, but can tolerate slightly muddy water. Found in large creeks and rivers with a moderate to swift current, and a sand, gravel, or mud bottom. However, in Ontario, this fish has also been captured in the deeper waters of Lake St. Clair and the Detroit River. SARA Protection: Species and general habitat protection. Critical Habitat present at project location.
Channel Darter	*Percina copelandi*	S2	END	END	Unknown	Prefers clean streams and lakes with sandy or gravel bottoms. Will use riffle areas with fairly fast-moving water during the breeding season and spends the winter in deeper, calmer water (MNRF, 2014). SARA Protection: Species and general habitat protection.
Spotted Sucker	*Minytrema melanops*	S2	SC	SC	Unknown	Inhabits clear creeks and small to moderate sized rivers with sand, gravel or hard-clay bottoms, usually free of silt. In Ontario it has frequently been found in turbid habitats. In late spring and early summer, Spotted Suckers move to rocky riffle areas of streams to breed (MNRF, 2014). SARA Protection: N/A.

TABLE 1: DFO AQUATIC SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARA Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Eastern Sand Darter	*Ammocrypta pellucida*	S2	THR	THR	Unknown	The Eastern Sand Darter prefers shallow habitats in lakes, streams, and rivers with clean, sandy bottoms. It often buries itself completely in the sand. It feeds on aquatic insects, but due to its small mouth is limited in the size of prey it can eat (MNRF, 2014). SARA Protection: Species and general habitat protection.
Pugnose Shiner	*Notropis anogenus*	S2	THR	THR	Unknown	The Pugnose Shiner is found in lakes and calm areas of rivers and creeks having clear water and bottoms of sand, mud or organic matter. It prefers water bodies with plenty of aquatic vegetation, particularly stonewort (Chara sp.). Aquatic plants provide hiding places, food, and breeding habitat. The Pugnose Shiner eats aquatic plants, green algae, plankton and some aquatic insects. SARA Protection: Species and general habitat protection.
Grass Pickerel	*Esox americanus*	S3		SC	No	Grass Pickerel are found in wetlands, ponds, slow-moving streams and shallow bays of larger lakes with warm, shallow, clear water and an abundance of aquatic plants. SARA Protection: NA.
Kidneyshell	*Ptychobranchus fasciolaris*	S1	END	END	Unknown	Typically found in small to medium sized rivers. It prefers shallow, clear, swift-moving water with gravel and sand. The Kidneyshell requires Blackside Darter, Fantail Darter and Johnny Darter as fish hosts to support its parasitic larvae stage (MNRF 2014). SARA Protection: Species and general habitat protection.

3.2 LAND INFORMATION ONTARIO (LIO)

A preliminary search of the Natural Heritage Information Centre (NHIC) database was completed, and the following SAR are recorded within 1 km^2 of the Subject Property:

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Northern Madtom	*Noturus stigmosus*	S1	END	END	Yes	See **Table 1.**
Brindled Madtom	*Noturus miurus*	S2	NAR	NAR	No	Lives on bottoms of sand, gravel, and woody debris in the warm shallows of slow-moving streams. ESA Protection: N/A.
Prairie Straw Sedge	*Carex suberecta*	S2			No	Prairie Straw Sedge is found in fens and moist to wet calcareous meadows and prairies. ESA Protection: N/A.
Early-branching Panicgrass	*Dichanthelium praecocius*	S3			Yes	Early-branching Panicgrass is found in both open wooded areas and sunny areas that are relatively dry and sterile. ESA Protection: N/A.
Channel Darter	*Percina copelandi*	S2	THR	Look up	Unknown	See **Table 1.**
Spiny Softshell	*Apalone spinifera*	S2	END	END	Yes	Spiny Softshells are highly aquatic turtles that rarely travel far from water. They are found primarily in rivers and lakes but also in creeks and even ditches and ponds near rivers. Key habitat requirements are open sand or gravel nesting areas, shallow muddy or sandy areas to bury in, deep pools for hibernation, areas for basking, and suitable habitat for crayfish and other food species. These habitat features may be distributed over an extensive area, as long as the intervening habitat doesn't prevent the turtles from traveling between them (MNRF 2014). ESA Protection: Species and general habitat protection.

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Climbing Prairie Rose	*Rosa setigera*	S2S3	SC	SC	No	Grows in early successional habitats around Lake Erie. It colonizes open and disturbed habitats open habitats with moist heavy clay to clay-loam soils such as old fields, abandoned agricultural land, as well as prairie remnants and shrub thickets (MNRF, 2014). ESA Protection: N/A.
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	No	Tall grasslands such as pastures and hayfields. Utilize small trees, shrubs, or fence posts for elevated song perches (MNRF, 2014). ESA Protection: Species and general habitat protection.
Snapping Turtle	*Chelydra serpentina*	S3	SC	SC	Incidental	Slow-moving water with a soft mud or sand bottom and abundant vegetation (MNRF, 2014). ESA Protection: N/A.
Chestnut Lamprey - Great Lakes - Upper St. Lawrence populations	*Ichthyomyzon castaneus pop. 1*	SU	DD	DD	Unknown	The Chestnut Lamprey spends its entire life in fresh waters. It is found in lakes and rivers of various sizes (COSEWIC, 2011). ESA Protection: N/A.
Northern Riffleshell	*Epioblasma rangiana*	S1	END	END	Unknown	The Northern Riffleshell is found in riffle areas within rivers or streams with rocky, sand, or gravel bottoms. Like all freshwater mussels, this species feeds on algae and bacteria that it filters out of the water (MNRF, 2014). ESA Protection: Species and general habitat protection.
Kidneyshell	*Ptychobranchus fasciolaris*	S1	END	END	Unknown	See **Table 1.**

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Fawnsfoot	*Truncilla donaciformis*	S2	END	END	Unknown	The Fawnsfoot inhabits medium and large rivers with moderate to slow flowing water. It usually inhabits shallow waters (one to five metres deep) with gravel, sand or muddy bottoms (MNRF, 2014). ESA Protection: Species and general habitat protection.
Eastern Pondmussel	*Ligumia nasuta*	S1	END	SC	Unknown	The Eastern Pondmussel is typically found in sheltered areas of lakes and in slow-moving areas of rivers and canals with sand or mud bottoms. It is not known which species of fish act as hosts for the Eastern Pondmussel (MNRF, 2014). ESA Protection: Species and general habitat Protection.
Lake Sturgeon (Great Lakes - Upper St. Lawrence River population)	*Acipenser fulvescens pop. 3*	S2	THR	THR	Unknown	Freshwater lakes and rivers with soft bottoms of mud, sand or gravel at depths of five to 20 metres. Prefers to spawn in relatively shallow, fast-flowing water with gravel and boulders at the bottom but will spawn in deeper habitat or open shoals of large rivers with current (MNRF, 2014). ESA Protection: Species and general habitat protection.
Purple Wartyback	*Cyclonaias tuberculata*	S3	No Status	No Status	Unknown	The Purple Wartyback is found in large rivers with moderate current and stable gravel, sand and mud bottoms. It burrows in the riverbed to filter-feed. ESA Protections: N/A.
Pugnose Shiner	*Notropis anogenus*	S2	THR	THR	Unknown	See **Table 1.**

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Kentucky Coffee-tree	*Gymnocladus dioicus*	S2	THR	THR	No	Kentucky Coffee-tree is found in a variety of habitats, but grows best on moist, rich soil. Consequently, it is often found in floodplains, though it will tolerate shallow rocky or sandy soils. It is shade-intolerant, and therefore grows along the edges of woodlots or relies on canopy openings in forests and woodlots (MNRF 2014). ESA Protection: Species and general habitat protection.
Mapleleaf Mussel	*Quadrula quadrula*	S2	THR	SC	Unknown	The Mapleleaf is usually found in medium to large rivers with slow to moderate currents and firmly packed sand, gravel, or clay and mud bottoms. It also lives in lakes and reservoirs. Mussels filter water to find food, such as bacteria and algae. Mussel larvae must attach to a fish, called a host, where they consume nutrients from the fish body until they transform into juvenile mussels and then drop off. In Canada, the fish host of the Mapleleaf is the Channel catfish. Presence of the fish host is one of the key features determining whether the body of water can support a healthy mussel population. ESA Protection: Species and general habitat protection.
Midland Painted Turtle	*Chrysemys picta marginata*	S4		SC	Incidental	Fresh shallow waters, with slow moving currents, with soft bottoms, basking sites, and aquatic vegetation. Suitable habitat consists of creeks, marshes, ponds, and the shores of lakes (MNRF, 2014). ESA Protection: N/A.
Silver Lamprey (Great Lakes - Upper St. Lawrence populations)	*Ichthyomyzon unicuspis pop. 1*	S3	SC	SC	Unknown	Silver lampreys require clear water so they can find fish hosts, relatively clean stream beds of sand and organic debris for larvae to live in, and unrestricted migration routes for spawning (MNRF, 2014). ESA Protection: N/A.

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	Yes	Build nests almost exclusively on human-made structures such as open barns, under bridges or in culverts (MNRF, 2014). Will use a variety of habitats for foraging. ESA Protection: Species and general habitat protection.
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	Yes	Before European settlement Chimney Swifts mainly nested on cave walls and in hollow trees or tree cavities in old growth forests. Today, they are more likely to be found in and around urban settlements where they nest and roost (rest or sleep) in chimneys and other manmade structures. They also tend to stay close to water as this is where the flying insects they eat congregate (MNRF 2014). ESA Protection: species and general habitat protection.
Butternut	*Juglans cinerea*	S3	END	END	No	Forests and hedgerows. ESA Protection: Species and general habitat protection.
Butler's Gartersnake	*Thamnophis butleri*	S2	END	END	No	Prefers open, moist habitats, such as dense grasslands and old fields, with small wetlands where it can feed on leeches and earthworms. Often found in rock piles and old stonewall. Burrows made by small mammals and even crayfish are sometimes used as hibernation sites (MNRF, 2014). ESA Protection: Species and general habitat protection.
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	Incidental	Inhabits rivers and lakes where it basks on emergent rocks, banks, logs and fallen trees. Prefer shallow, soft-bottomed aquatic habitats with exposed objects for basking (COSEWIC, 2012). ESA Protection: N/A.

TABLE 2: NHIC SAR RECORDS

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Possible Habitat on Property?	Key Habitats Used by Species
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	END	Incidental	Prefer shallow water, usually in large wetlands and shallow lakes with lots of water plants. May travel hundreds of metres from water, especially while they are searching for a mate or traveling to a nesting site. Hibernate in the mud at the bottom of permanent water bodies from late October until the end of April (MNRF, 2014). ESA Protection: Species and general habitat protection.
Cobra Clubtail	*Gomphurus vastus*	S2			Unknown	Cobra Clubtails inhabit large, sandy bottomed rivers and large, wind-swept lakes ESA Protection: NA.
Restricted Species	Restricted Species		END	END	Unknown	NA

3.3 BREEDING BIRD ATLAS

Table 3 lists possible SAR birds based on the square (17LG48) encompassing the property in the 2005 Breeding Bird Atlas.

TABLE 3: BREEDING BIRD ATLAS SPECIES AT RISK (2005)

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Breeding Status	Possible Habitat on Property?	Key Habitats Used by Species
Bald Eagle	*Haliaeetus leucocephalus*	S2N, S4B	SC	NAR	Possible	Yes	Bald Eagles nest in a variety of habitats and forest types, almost always near a major lake or river where they do most of their hunting. While fish are their main source of food, Bald Eagles can easily catch prey up to the size of ducks, and frequently feed on dead animals, including White-tailed Deer. They usually nest in large trees such as pine and poplar. During the winter, Bald Eagles sometimes congregate near open water such as the St. Lawrence River, or in places with a high deer population where carcasses might be found (MNRF, 2014). ESA Protection: NA.
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	Confirmed	Yes	Refer to **Table 2.**
Red-headed Woodpecker	*Melanerpes erythrocephalus*	S4B	END	END	Confirmed	No	Prefers open woodland and woodland edges. Requires dead trees for nesting and will often be found in parks, golf courses and cemeteries (MNRF, 2014). ESA Protection: Species and general habitat protection
Eastern Wood-pewee	*Contopus virens*	S4B	SC	SC	Probable	No	Deciduous and mixed forests with little understory vegetation; often found in clearings or on edges of deciduous and mixed forests (MNRF, 2015). ESA Protection: N/A.

TABLE 3: BREEDING BIRD ATLAS SPECIES AT RISK (2005)

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Breeding Status	Possible Habitat on Property?	Key Habitats Used by Species
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	Confirmed	Yes	Refer to **Table 2.**
Bank Swallow	*Riparia riparia*	S4B	THR	THR	Confirmed	No	Bank Swallows nest in burrows in natural and human-made settings where there are vertical faces in silt and sand deposits. Many nests are on banks of rivers and lakes, but they are also found in active sand and gravel pits or former ones where the banks remain suitable. The birds breed in colonies ranging from several to a few thousand pairs (MRNF, 2014). ESA Protection: Species and general habitat protection.
Wood Thrush	*Hylocichla mustelina*	S4B	SC	THR	Confirmed	No	See **Table 1.**
Bobolink	*Dolichonyx oryzivorus*	S4B	THR	THR	Confirmed	No	Historically found in tallgrass prairies or open meadows but will now use hayfields for habitat (MNRF, 2014). ESA Protection: Species and general habitat protection.
Eastern Meadowlark	*Sturnella magna*	S4B	THR	THR	Confirmed	No	Tall grasslands such as pastures and hayfields. Utilize small trees, shrubs, or fence posts for elevated song perches (MNRF, 2014). ESA Protection: Species and general habitat protection.

3.4 E-BIRD

Ebird was used to review the list of observed species at the closest birding hotspot at the Subject Property, known as Sandpoint Beach. The list contained a total of 123 species including a variety of ducks, hawks, owls, woodpeckers, nuthatches, warblers, sparrows, terns, swallows and common species tolerant of anthropogenic disturbances. SAR identified at the Sandpoint Beach Hotspot are shown in **Table 4**.

TABLE 4: E-BIRD SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Bald Eagle	*Haliaeetus leucocephalus*	S2N, S4B	SC	NAR	Jan 2022	Yes	Refer to **Table 3**
Chimney Swift	*Chaetura pelagica*	S4B, S4N	THR	THR	Sept. 2021	Yes	Refer to **Table 2**
Barn Swallow	*Hirundo rustica*	S4B	THR	THR	Aug. 2021	Yes	Refer to **Table 2**
Peregrine Falcon	*Falco peregrinus*	S4	SC	NAR	Aug. 2018	No	Peregrine Falcons usually nest on tall, steep cliff ledges close to large bodies of water. Although most people associate Peregrine Falcons with rugged wilderness, some of these birds have adapted well to city life. Urban peregrines raise their young on ledges of tall buildings, even in busy downtown areas. Cities offer peregrines a good year-round supply of pigeons and starlings to feed on (MNRF 2014). ESA Protection: NA.
American White Pelican	*Pelecanus erythrorhynchos*	S3B, S4M	THR	NAR	June 2017	No	American White Pelicans nest in groups on remote islands that are barren or sparsely treed located in lakes, reservoirs, or on large rivers. Remote islands offer eggs and chicks some protection from predators. Pelicans nest in slight depressions in the ground with sticks and vegetation piled up around them. Their diet is mainly fish

TABLE 4: E-BIRD SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
							(MNRF 2014). ESA Protection: Species and general habitat protection.
Common Nighthawk	*Chordeiles minor*	S4B	SC	SC	May 2017	No	Open areas with little to no ground vegetation, such as logged or burned-over areas, forest clearings, rock barrens, peat bogs, lakeshores, and mine tailings. Also nests in cultivated fields, orchards, urban parks, mine tailings and along gravel roads and railways (MNRF, 2014). ESA Protection: N/A.

3.5 I – NATURALIST

A total of 146 species have been identified on i–Naturalist within 1 km of the proposed development. Three SAR species or species of special conservation concern have been observed and are shown in **Table 5**.

TABLE 5: I - NATURALIST SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Bald Eagle	*Haliaeetus leucocephalus*	S2N, S4B	SC	NAR	Jan 2022	Yes	Refer to **Table 2**

TABLE 5: I - NATURALIST SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Spiny Softshell Turtle	*Apalone spinifera*	S2	END	END	July 2020 (Research Grade)	Yes	Refer to **Table 2**
Monarch	*Danaus plexippus*	S2N, S4B	SC	END	September 2019 (Research Grade)	No	The caterpillar life cycle requires milkweed plants found in meadows and open habitats. Adult butterflies use a variety of habitats where wildflowers are present (MNRF, 2014). ESA Protection: N/A.

3.6 ONTARIO REPTILE AND AMPHIBIAN ATLAS

The proposed development encompasses square 17LG48 on the Ontario reptile and amphibian atlas (ORAA). A total of ten common and seven SAR herpetofauna have been observed between the years of 1976 and 2019. The following SAR reptiles and amphibians have been recorded in square 17LG38 (**Table 6**).

TABLE 6: ORAA SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Blanding's Turtle	*Emydoidea blandingii*	S3	THR	END	2017	Incidental	Refer to **Table 2**
Midland Painted Turtle	*Chrysemys picta marginata*	S4		SC	2018	Incidental	Refer to **Table 2**

TABLE 6: ORAA SPECIES AT RISK

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Northern Map Turtle	*Graptemys geographica*	S3	SC	SC	2019	Incidental	Refer to **Table 2**
Snapping Turtle	*Chelydra serpentina*	S4	SC	SC	2018	Incidental	Refer to **Table 2**
Butler's Gartersnake	*Thamnophis butleri*	S2	END	END	2019	No	Refer to **Table 2**
Eastern Foxsnake	*Pantherophis gloydi pop. 2*	S2	END	END	2018	Incidental	Eastern Foxsnakes in the Carolinian population are usually 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 Foxsnakes hibernate in groups in deep cracks in the bedrock and in some man-made structures (MNRF, 2014). ESA Protection: Species and general habitat protection.
Eastern Ribbonsnake	*Plestiodon fasciatus pop. 1*	S4	SC	SC	1994	No	Usually found close to water. Prefers marsh habitat with frogs or small fish. During winter, snakes will congregate in rock crevices or underground burrows for hibernation. ESA Protection: N/A.

3.7 Atlas of Mammals of Ontario

Table 7 outlines potential SAR mammals found within the vicinity of the Subject Property. A total of seven trees were found to have suitable maternity bat roosting features during the tree survey.

Table 7: Atlas of Mammals of Ontario

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Little Brown Myotis	*Myotis lucifugus*	S3	END	END	NA	Yes	Forests and regularly aging human structures as maternity roost sites. Overwintering sites are characteristically mines or caves, but can often include buildings (COSEWIC,2013). ESA Protection: Species and general habitat protection.

3.8 Ontario Butterfly Atlas

The proposed development encompasses square 17LG48 on the Ontario Butterfly Atlas (ORAA). A total of 28 common butterflies and one SAR butterfly have been observed between the years of 1987 and 2021. The following SAR butterflies have been recorded in square 17LG48 on the ORAA (**Table 8**)

Table 8: Ontario Butterfly Atlas

Common Name	Scientific Name	S - Rank	SARO Status	COSEWIC Status	Observation Date	Possible Habitat on Property?	Key Habitats Used by Species
Monarch	*Danaus plexippus*	S2N, S4B	SC	END	2021	No	Refer to **Table 4.**

3.9 Conservation Authorities

As the proposed project is within the Regulated Area and 1:100-year Flood Line of Essex Region Conservation Authority (ERCA). As such, a permit under Ontario Regulation 158/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses will be required for development. Additional information regarding ERCA permits can be found in **Section 6.5**.

3.10 Local Naturalist Groups

No local naturalist groups were contacted with regards to the proposed project.

3.11 Local Indigenous Communities

Indigenous First Nations within the vicinity of the project area were contacted to provide comments relating to the proposed project. The following First Nation Communities were identified by the Crown's preliminary assessment that the proponent is required to consult with:

1. Aamjiwnaang First Nation
2. Bkejwanong (Walpole Island)
3. Caldwell First Nation
4. Chippewas of Kettle and Stony Point
5. Chippewas of the Thames First Nation
6. Oneida Nation of the Thames

Caldwell First Nation (CFN) responded online with the with the below recommendation:

"*Based on the results of the proponent's responses, we recommend that CFN negotiate with the proponent for the funding to retain a traditional ecological knowledge expert and an expert in a relevant field of western science to determine whether the project impacts construction, operation and / or implementation overlap with the habitat or flight paths of the following species, which are important to CFV's traditional harvesting:*

- *White-tailed Deer*
- *Wild Turkey*
- *Perch*
- *Pickerel*
- *Blue Gill*
- *Dogfish*
- *Mudpuppies*
- *Rainbow Trout*
- *Ducks*
- *Geese*
- *Cotton Tail Rabbits*
- *Jack Rabbits*
- *Birch*
- *Muskrat*
- *Frogs*
- *Turtles*
- *Beavers*
- *Min*
- *Smelt*
- *Sweetgrass*
- *Tobacco*
- *Sage*
- *Cedar*
- *Black Willow*
- *Red Willow"*

The Subject Property does not contain individuals, the habitat of, or support the range of Jack Rabbits, Birch, Sweetgrass, Tobacco, Sage, Cedar, Black Willow or Red Willow. The proposed development will respect all in water timing windows for the fish found within the Detroit River to ensure that the species,

habitat, and reproductive viability will not be impacted. In addition, the proposed development will maintain the only natural area found within the Subject Property located along the western property border. This area can be used as a wildlife corridor and an area of rest and refuse for the remaining aforementioned species.

4.0 METHODOLOGY

4.1 FLORISTIC QUALITY ASSESSMENT

According to Swink and Wilhelm (1994) Floristic Quality Assessment (FQA) is a method to assess the floristic integrity of vegetation communities. FQA is used to determine the significance and amount of restoration required for individual vegetation communities. This assessment provides a dependable and repeatable method for evaluating the relative significance of vegetation communities in terms of their native floristic composition. This assessment is not intended for use as a stand-alone method, but instead can be applied to complement and support other methods of evaluating the natural quality of a site.

4.1.1 Floristic Quality Index

FQA is applied by calculating a mean Coefficient of Conservatism (CC) value and a Floristic Quality Index (FQI) value from a comprehensive list of plant species obtained from a particular site (Swink and Wilhelm 1994; Wilhelm and Masters 1995). FQI determines the quality of a vegetation community based on its plant species composition and relative abundance.

Coefficients of conservatism range from 0 - 10 and embody an estimated probability that a plant is likely to occur in a landscape relatively unaltered from what is believed to be pre-European settlement condition. Therefore, a coefficient of zero is given to plants that have demonstrated little fidelity to any remnant natural community, while a coefficient of ten is applied to those plants that are almost always restricted to a pre-settlement remnant.

FQI is calculated by summing the CC of an inventory of plants and dividing by the total number of plant taxa (n), yielding the mean coefficient of conservatism (Mean CC = Sum of CC /n). The Mean CC is then multiplied by the square root of the total number of plants (n) to yield the FQI (FQI = Mean CC √n). The square root of n is used as a multiplier to transform the Mean CC and allow for better comparison of the FQI between large sites with a high number of species and small sites with fewer species. Other methods used to determine the significance of each vegetation community include relative abundance, size and level of anthropogenic disturbance.

Based upon the above criteria, vegetation communities were classified as follows:

- Rare and Extremely Significant if community FQI value was greater than 50;
- High Significance if community FQI value was between 37 and 49;
- Moderate to High Significance if community FQI value was between 25 and 36;

- Moderate Significance if community FQI value was between 13 and 24;
- Low Significance if community FQI value was between 12 and 6; or
- Very Low Significance if community value is less than 5.

4.1.2 Wetness Index

The Floristic Quality Assessment System for Southern Ontario (1995) identifies several components to assess the floristic integrity of vegetation communities. One of the components is the Wetland Index (W). The wetness index allows a mean wetness value to be calculated which is used for evaluating the predominance of upland or wetland species for a natural area or vegetation community.

The National Wetland Indicator Categories define the estimated probability for which a species occurs in wetlands (Reed 1988, Wilhelm 1989, 1992). Positive signs (+) indicating a dry tendency and negative signs (-) indicating a wet tendency are attached to the three "facultative" categories to express the tendencies for those species (Reed 1988). Coefficients of wetness (CW) values have been assigned by Wilhelm (1989, 1992) to the eleven wetland indicator categories. Plants are designated as Obligate Wetland, Facultative Wetland, Facultative, Facultative Upland, and Obligate Upland.

CW of taxa recorded from a site inventory (n) can be averaged and the mean regarded as a wetness index ($W = \sum CW / n$). If the wetness index is zero or below, then the site has a predominance of wetland species (Wilhelm 1989).

Wetland Category		Definition	Wetness Index	
OBL	Obligate Wetland	Occurs almost always in wetlands under natural conditions (estimated >99% probability)	OBL	-5
FACW	Facultative Wetland	Usually occurs in wetlands, but occasionally found in non-wetlands (estimated 67 -99% probability)	FACW+	-4
			FACW	-3
			FACW-	-2
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated 34-66% probability)	FAC+	-1
			FAC	0
			FAC-	1
FACU	Facultative Upland	Occasionally occurs in wetlands, but usually occurs in non-wetlands (estimated 1-33% probability)	FACU+	2
			FACU	3
			FACU-	4
UPL	Upland	Occurs almost never in wetlands under natural conditions (estimated <1% probability)	UPL	5

4.2 TREE INVENTORY

A tree inventory of the Subject Property and parcel of land along the south side of Riverside Drive was provided by the City of Windsor.

4.3 WILDLIFE AND WILDLIFE HABITAT

Wildlife surveys and habitat quality assessments were completed throughout the Subject Property. These surveys were chosen based on consultation with regulatory agencies, a thorough background review of available data and a visual assessment of potential ecological communities from photo interpretation.

4.3.1 Incidental Wildlife Surveys

A wildlife assessment within the Subject Property was completed through incidental observations while on site. Any incidental observations of wildlife were noted, as well as other wildlife evidence such as direct observation, vocalizations, dens, tracks, browse and scat. Random searches of natural objects that provide cover (large branches, logs, rocks) were conducted to search for reptiles and amphibians. Aquatic features were scanned using binoculars to identify any basking turtle species. Special focus was placed upon searching for Species at Risk individuals (SAR), habitat and habitat features such as vernal pools, dens, burrows (small and large), snake thermoregulation areas, tree cavities and basking sites.

4.3.2 Species At Risk Survey (SAR) Methods

Field surveys were carried out to determine the potential population and distribution of SAR individuals and to delineate the habitat and habitat features within the Subject Property. The survey was carried out to provide detailed and reliable information on SAR presence or absence, suitable habitat, habitat features, location, distance from the proposed development, population size, management concerns and to ensure that the proposed development does not contravene the Endangered Species Act, 2007.

The search efforts were focused on inspecting sites and features with a high probability of supporting SAR. When documenting each SAR specimen/population, habitat or habitat feature the following data was recorded on paper and on a Global Positioning System (GPS):

1. Species (Scientific name)
2. Habitat or habitat feature
3. Location (Universal Transverse Mercator (UTM) co-ordinates)
4. Relative abundance

Points were used to delineate the location. UTM coordinates were recorded on hand-held GPS units, downloaded to a computer and mapped on an ortho-rectified digital air photo using a Geographic Information System (GIS).

5.0 EXISTING CONDITIONS

5.1 FIELD SURVEY DATES AND WEATHER CONDITIONS

Jennifer Neill conducted flora and ELC surveys and Nicole Wajmer conducted incidental wildlife surveys and SAR surveys of the Subject Property on June 7, 2022. The temperature was 15^{0}C with 75% cloud cover with no rain and a gentle to moderate breeze.

5.2 NATURAL HERITAGE FEATURES

According to the Ministry of Natural Resources and Forestry Make-A-Map: Natural Heritage Areas online tool the Subject Property does not contain any natural heritage features (**Figure 3**). A woodland feature is located approximately 65m to the south of the Subject Property.

5.3 PHYSIOGRAPHY AND SOILS

The Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) on-line interactive 'Ag Maps' application states that Subject Property is located within a "Built-up Area" and does not provide soil or drainage data.

5.4 HYDROLOGY

The Subject Property abuts the Detroit River along the northern property border. It is within the Essex Region Conservation Authority (ERCA) Regulated Area and within the 1:100-year flood line. More information on ERCA policies can be seen in **Section 6.5**.

5.5 TOPOGRAPHY

The topography associated with the legal parcel is Tableland. According to Lee et al. (1998): Tableland is a "*site on a more or less level plain, not associated with an active shoreline or river valley*."

Ontario

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Natural Heritage Features

Map created:2/18/2022

Notes:

Enter map 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

0.3 0 0.16 0.3 Kilometres

Absence of a feature in the map does not mean they do not exist in this area.

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

ERCA Regulated Area

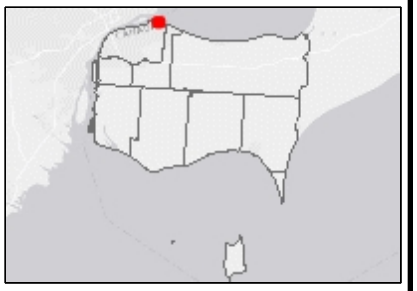
Essex Region Conservation Authority

Public Interactive Mapping

Legend

- Parcel Fabric - City
- Parcel Fabric - County
- Provincially Significant Wetland (PSW
- Area of Natural & Scientific Interest (
- Environmentally Significant Area (ESA
- Significant Valley Land (SVL)
- 1:100 yr Flood Line
- Limit of Regulated Area

Location



ERCA Geomatics

THIS MAP HAS BEEN PRODUCED BY THE GENERAL PUBLIC AND NOT BY QUALIFIED ERCA STAFF.

Notes

0 155.78 311.6

Meters

1: 7,009

2/22/2022

5.6 FLORA AND VEGETATION COMMUNITIES

5.6.1 Ecological Land Classification Vegetation Communities

The Subject Property contains two anthropogenic areas and one natural vegetation community (**Figure 5**). These areas are described briefly below.

The Beach and Anthropogenic Area occupies the western half of the Subject Property. It contains a coarse sand beach, manicured lawn patches, scattered planted trees, recreational areas, and washroom facilities. Several areas of the beach have small pockets of European Reed (*Phragmites australis ssp. Australis*) establishing as well as Eastern Cottonwood (*Populus deltoides*) and Corkscrew Willow (*Salix matsudana*) saplings. **Photo 1** shows an example of this anthropogenic area.

The Mown Lawn with Scattered Trees occupies the eastern half of the Subject Property. It contains mown lawn, planted trees and a walking path with park benches and picnic tables. **Photo 2** shows an example of this anthropogenic area.

The Mineral Treed Shoreline Ecosite (SHTM1) is located on the northwestern tip pf the Subject Property. A total of 30 species were observed in this community, 17 (56%) native species exist, while 13 (43%) are classified as non-native. The mean Coefficient of Wetness (CW) for this community is 0.77. This number indicates that there is a slight predominance of upland species present. The mean Coefficient of Conservatism (CC) for this community is 1.23. This number indicates the floristic quality is not sufficient to identify a community of remnant natural quality. The FQI for this community is 6.76 indicating low significance from a natural quality perspective. This community will be retained to support wildlife usage. Disturbance history includes dominance of non-native species, canopy gaps, and light dumping. As such, restoration opportunities exist. Photo **3** shows an example of site conditions as they were during field investigations.

All vegetation communities within the Subject Property are considered widespread and common in Ontario and are secure globally. **Table 9** describes the structure and dominance within each vegetation community.

Photo 1: Beach and anthropogenic area, looking east.

Photo 2: Mown lawn and scattered trees, looking south.

Photo 3: Mineral Treed Shoreline Ecosite (SHTM1), looking north.

TABLE 9: SUMMARY OF ECOLOGICAL LAND CLASSIFICATION

Abbreviation	Vegetation Type	Species Association	Comments
TERRESTRIAL SYSTEM			
SHTM1	Mineral Treed Shoreline Ecosite	**Canopy:** The canopy is dominated by Weeping Willow (*Salix alba X Salix babylonica*) with occasional Eastern Cottonwood (*Populus deltoides*). **Subcanopy:** No subcanopy was observed. **Understory:** The understorey is dominated by Staghorn Sumac (Rhus typhina) with abundant White Mulberry (Morus alba), Manitoba Maple (Acer negundo), Corkscrew Willow (*Salix matsudana*), Weeping Willow and Cottonwood. **Groundcover:** The groundcover is dominated by Riverbank Grape (*Vitis riparia*) and Canada goldenrod (*Solidago canadensis*). Abundant species include Common Burdock (*Arctium minus),* Thicket Creeper (*Parthenocissus vitacea*), European Reed (*Phragmites australis ssp. Australis*), Orchard Grass (*Dactylis glomerata*), Smooth Brome (*Bromus inermis*), Common	• Shoreline sites are associated with and adjacent to permanent or ephemeral water. • Subject to active shoreline processes. • Above high-water mark; extremes in disturbance (energy), moisture and temperature. • Tend to be narrow and linear following the active margins along water bodies.

TABLE 9: SUMMARY OF ECOLOGICAL LAND CLASSIFICATION

Abbreviation	Vegetation Type	Species Association	Comments
		Bedstraw (*Galium aparine*) and Common Evening-primrose (*Oenothera biennis*).	• Patchy to semi-open treed communitiy; understorey plant cover patchy to continuous.

5.6.2 Flora

A total of 40 vascular plant taxa were recorded within the Subject Property (**Table 10**). Of the 40 species identified to a species level, 20 species (50%) are considered native to Ontario while 20 species (50%) are classified as non-native. No SAR plants were encountered during field investigations.

TABLE 10: OBSERVED VASCULAR PLANT LIST

Scientific Name	Common Name	Status		
		SARA (SCH. 1) STATUS[1]	SARO STATUS[2]	SRANK[3]
Acer negundo	Manitoba Maple			S5
Acer saccharinum	Silver Maple			S5
Agrimonia gryposepala	Hooked Agrimony			S5
Agrostis gigantea	Redtop			SE5
Arctium minus	Common Burdock			SE5
Asclepias syriaca	Common Milkweed			S5
Bromus inermis	Smooth Brome			SE5
Bromus japonicus	Japanese Brome			SE4
Calystegia sepium	Hedge False Bindweed			S5
Carex stipata	Awl-fruited Sedge			S5
Cirsium vulgare	Bull Thistle			SE5
Convolvulus arvensis	Field Bindweed			SE5
Dactylis glomerata	Orchard Grass			SE5
Daucus carota	Wild Carrot			SE5
Erigeron annuus	Annual Fleabane			S5
Erigeron canadensis	Canada Horseweed			S5
Galium aparine	Common Bedstraw			S5

TABLE 10: OBSERVED VASCULAR PLANT LIST

Scientific Name	Common Name	Status		
		SARA (SCH. 1) STATUS[1]	SARO STATUS[2]	SRANK[3]
Galium mollugo	Smooth Bedstraw			SE5
Geum urbanum	Wood Avens			SE3
Hemerocallis fulva	Orange Daylily			SE5
Impatiens capensis	Spotted Jewelweed			S5
Morus alba	White Mulberry			SE5
Nepeta cataria	Catnip			SE5
Oenothera biennis	Common Evening-primrose			S5
Parthenocissus vitacea	Thicket Creeper			S5
Phragmites australis ssp. australis	European Reed			SE5
Plantago lanceolata	English Plantain			SE5
Plantago major	Common Plantain			SE5
Populus deltoides	Eastern Cottonwood			S5
Potentilla anserina ssp. anserina	Common Silverweed			S5
Rhus typhina	Staghorn Sumac			S5
Salix eriocephala	Cottony Willow			S5
Salix matsudana	Corkscrew Willow			SE1
Salix x sepulcralis	(Salix alba X Salix babylonica)			SNA
Solidago canadensis	Canada Goldenrod			S5
Trifolium repens	White Clover			SE5
Typha latifolia	Broad-leaved Cattail			S5
Verbascum thapsus	Common Mullein			SE5
Vitis riparia	Riverbank Grape			S5
Xanthium strumarium	Rough Cockleburr			S5

[1] Species at Risk Act (SARA) Schedule 1 Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[2] Species at Risk in Ontario (SARO) Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[3] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), S#B (Breeding), SNA (Species Not Suitable Target for Conservation Activities)

5.6.3 Tree Inventory

A tree inventory was provided by the City of Windsor, which identified the tree species on the Subject Property and south of Riverside Drive. **Table 11** below presents the tree species and their status.

A total of 21 tree species were observed on the Subject Property. Of the 21 species, eight (38%) native species exist, while 13 (61%) are classified as non-native. The mean Coefficient of Wetness (CW) for the species recorded is 1.56. This number indicates that there is a predominance of upland species present. The mean Coefficient of Conservatism (CC) for this community is 2.83. This number indicates the floristic quality is not sufficient to identify a community of remnant natural quality. The Floristic Quality Index (FQI) for this community is 12.02 indicating low significance from a natural quality perspective.

One provincially significant tree species Ohio Buckeye (*Aesculus glabra*) was noted during the tree inventory. Honey Locust was also identified on the tree inventory, however IES field investigations determined they are thornless cultivars and not the provincially significant native Honey Locust (*Gleditsia triacanthos*). Further discussion of the provincially significant species can be found in **Section 6.4.2**. Several of the tree species identified in the tree inventory do not have provincial rankings or CW values as they are cultivars and/or were missing species information (i.e., scientific names).

TABLE 11: TREE INVENTORY SPECIES OBSERVED BY BEZAIRE LANDSCAPE ARCHITECTS

Scientific Name	Common Name	Status			
		CW[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	SRANK[4]
Acer platanoides	Norway Maple	5			SE5
Acer rubrum	Red Maple	0			S5
Acer saccharinum	Silver Maple	-3			S5
Acer x freemanii	(Acer rubrum X Acer saccharinum)	0			SNA
Aesculus glabra	Ohio Buckeye	0			S1
Aesculus hippocastanum	Horse Chestnut	5			SE2
Ailanthus altissima	Tree-of-heaven	5			SE5
Corylus colurna	Turkish Hazelnut	N/A			N/A
N/A	Flowering Cherry	N/A			N/A
N/A	Honey Locust (cultivar)	0			N/A
Malus baccata	Siberian Crabapple	5			SE1
Morus alba	White Mulberry	0			SE5
Picea pungens	Blue Spruce	3			SE1
Platanus occidentalis	Sycamore	-3			S4
Populus deltoides	Eastern Cottonwood	0			S5
Pyrus calleryana	Bradford Pear	N/A			N/A
Quercus robur	English Oak	5			SE1
Quercus rubra	Northern Red Oak	3			S5

TABLE 11: TREE INVENTORY SPECIES OBSERVED BY BEZAIRE LANDSCAPE ARCHITECTS

Scientific Name	Common Name	Status			
		CW[1]	SARA (SCH. 1) STATUS[2]	SARO STATUS[3]	SRANK[4]
Salix matsudana	Corkscrew Willow	0			SE1
Syringa reticulata	Japanese Tree Lilac	0			SE1
Ulmus pumila	Siberian Elm	3			SE3

[1] Coefficient of Wetness (CW)

[2] Species at Risk Act (SARA) Schedule 1 Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[3] Species at Risk in Ontario (SARO) Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[4] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), SNA (Species Not Suitable Target for Conservation Activities).

5.7 FAUNA AND WILDLIFE HABITAT

A total of 15 wildlife species were identified within the Subject Property or in the adjacent lands field investigations (**Table 12**). These species were identified either through auditory and visual observations or through evidence of occurrence. Of the 15 species identified, there were 13 bird species and two mammal species.

5.7.1 Birds

A total of 13 bird species were visually observed or identified through breeding calls during field investigations (**Table 12**). Of the 13 species of birds that were observed on or adjacent to the Subject Property, eight species are protected under the *Migratory Birds Convention Act* (MBCA), which protects and conserves migratory birds and their nests during the breeding bird season.

Several Chimney Swift, listed as Threatened under the *Endangered Species Act*, were observed flying to the west of the Subject Property. It is likely that these species were nesting in the large building that is part of the Southwestern Sales Corporation LTD. The Subject Property does not contain any suitable breeding habitat (chimneys or other suitable manmade structures) for Chimney Swift.

Additionally, all structures found within the Subject Property were examined for the presence of Barn Swallow nests due to the multiple records of them within the vicinity of the Subject Property. No Barn Swallow individuals or nests were detected during field investigations.

5.7.2 Herpetofauna

5.7.2.1 Amphibians

The Ontario Reptile and Amphibian Atlas (ORAA) provides records of the following amphibian species within the 10 Km X 10 Km survey square that encompasses the proposed Subject Property (square 17LG48):

- American Bullfrog (*Lithobates catesbeianus*)
- Green Frog (*Lithobates Clamitans*)
- Northern Leopard Frog (*Lithobates Pipiens*)
- Western Chorus Frog (*Pseudacris maculata*)
- American Toad (*Anaxyrus Americanus*)
- Mudpuppy (*Necturus maculosus*)

The Subject Property does not contain suitable breeding habitat for the frogs listed by the ORAA. Mudpuppies inhabit lakes, rivers, streams and other large bodies of water.

5.7.2.2 Reptiles

The Ontario Reptile and Amphibian Atlas (ORAA) provides records of the following amphibian species within the 10 Km X 10 Km survey square that encompasses the proposed Subject Property (square 17LG48):

- Blanding's Turtle (*Emydoidea blandingii*)
- Midland Painted Turtle (*Chrysemys picta marginate*)
- Northern Map Turtle (*Graptemys geographica*)
- Red-eared Slider (*Trachemys scripta*)
- Snapping Turtle (*Chelydra serpentina*)
- Butler's Gartersnake (*Thamnophis butleri*)
- Eastern Gartersnake (*Thamnophis sirtalis sirtalis*)
- Dekay's Brownsnake (*Storeria dekayi*)
- Eastern Foxsnake (*Pantherophis vulpinus*)
- Eastern Ribbonsnake (*Thamnophis sauritus*)
- Northern Ring-necked Snake (*Diadophis punctatus*)

The western edge of the Subject Property contains a natural corridor containing trees and shrubs that could act as a rest and refuge area for reptiles traveling from Peche Island while looking for mates or egg laying sites. This area contained logs and other cover objects that could be used by snakes. This area will not be impacted by the proposed development and will be retained as a wildlife refuge area.

5.7.3 Mammals

A total of two mammal species were detected during field investigations (**Table 12**). Eastern Gray Squirrels are tolerant of anthropogenically disturbed habitats and are considered Secure (S5) in the province of Ontario while Virginia Opossum is considered Apparently Secure (S4).

TABLE 12: OBSERVED WILDLIFE SPECIES

Scientific Name	Common Name	Status	Protection				Location
		S-RANK[1]	COSEWIC STATUS[2]	SARA SCHEDULE[3] STATUS	SARO STATUS[4]	MBCA[5]	Outside of Subject Property
BIRDS							
Phalacrocorax auritus	Double-crested Cormorant	S5B	NAR		NAR		Yes
Sturnus vulgaris	European Starling	SNA					
Branta canadensis	Canada Goose	S5				^	
Anas platyrhynchos	Mallard	S5				^	
Pandion haliaetus	Osprey	S5B					Yes
Larus delawarensis	Ring-billed Gull	S5B, S4N				^	
Chaetura pelagica	Chimney Swift	S4B, S4N	THR	THR	THR	^	Yes
Tachycineta bicolor	Tree Swallow	S4B				^	Yes
Turdus migratorius	American Robin	S5B				^	
Setophaga petechia	Yellow Warbler	S5B				^	
Quiscalus quiscula	Common Grackle	S5B					
Agelaius phoeniceus	Red-winged Blackbird	S4					
Passer domesticus	House Sparrow	SNA				^	
MAMMALS							
Didelphis virginiana	Virginia Opossum	S4					
Sciurus carolinensis	Eastern Gray Squirrel	S5					

[1] S-Rank (Provincial): S1 (Critically Imperiled), S2 (Imperiled), S3 (Vulnerable), S4 (Apparently Secure), S5 (Secure), S#B (Breeding), SNA (Species Not Suitable Target for Conservation Activities)

[2] Committee on the Status of Endangered Wildlife in Canada (COSEWIC): EXP (Extirpated), END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk); NA (Not Active); DD (Data Deficient)

[3] Species at Risk Act (SARA) Schedule 1 Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[4] Species at Risk in Ontario (SARO) Status: END (Endangered); THR (Threatened); SC (Special Concern); NAR (Not at Risk)

[5] Migratory Birds Convention Act

Existing Conditions

Sand Point Beach, Windsor

N
W E
S

0 0.03 0.05 0.08 0.1
Kms

Legend

Legal Parcel

Chimney Swift

ELC

Beach and Antropogenic Area

Mown Lawn and Scattered Trees

SHTM1: Mineral Treed Shoreline Ecosite

Figure No.: 5
Project No.: IES22-64
Scale: 1:650
Date: November 25, 2022
Creator: Nicole Wajmer

INSIGHT ENVIRONMENTAL SOLUTIONS INC.

6.0 SUMMARY OF APPLICABLE ENVIRONMENTAL POLICIES

6.1 SPECIES AT RISK ACT (2002)

The federal *Species at Risk Act* (SARA, 2002) is designed to prevent wildlife species from becoming extinct or extirpated; help in the recovery of Extirpated, Endangered or Threatened species; and to ensure that species of Special Concern do not become Endangered or Threatened. Section 32(1) of SARA states:

"*No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species*."

On private lands prohibitions of SARA only apply to listed aquatic species and listed migratory birds that are also listed in the Migratory Birds Convention Act (1994). For non-aquatic species found on private land, SARA sets out a variety of ways critical habitat is to be protected. In most situations, provincial laws will provide protection for critical habitat.

6.2 FISHERIES ACT (1985)

The federal *Fisheries Act* (1985) provides a framework for the proper management and control of fisheries and the conservation and protection of fish and fish habitat, including by preventing pollution. Section 35 of the *Fisheries Act* outlines the regulations for the completion of in-water projects. Section 35.1 (2) and Section 35.1 (3) state:

"*The Minister shall designate any work, undertaking or activity that is part of a designated project and that the Minister considers likely to result in the death of fish or the harmful alteration, disruption or destruction of fish habitat"* and "*The Minister may issue a permit to carry on any work, undertaking or activity designated under subsection (2) and attach any conditions to it."*

6.3 ENDANGERED SPECIES ACT (2007)

The provincial *Endangered Species Act*, (ESA, 2007) came into effect on June 30, 2008 and replaced the former 1971 Act. Under the ESA, species in Ontario are identified as Extirpated, Endangered, Threatened, or of Special Concern and each species is afforded different levels of protection. The ESA protects species listed as Threatened or Endangered by the Committee on the Status of Species at Risk in Ontario (COSSARO).

Section 9 of the ESA generally prohibits the killing or harming of a Threatened or Endangered species, as well as the destruction of its habitat. Section 10 of the ESA prohibits the damage or destruction of the habitat of all Endangered and Threatened species. A permit from the Ministry of the Environmental Conservation and Parks (MECP) is required under Section 17(2) (c) of the ESA for any works proposed within habitat of a Threatened or Endangered species.

6.4 PROVINCIAL POLICY STATEMENT (2020)

The Provincial Policy Statement (PPS, 2020) is issued under the authority of section 3 of the Planning Act and came into effect on May 1, 2020. In respect of the exercise of any authority that affects a planning matter, section 3 of the Planning Act requires that decisions affecting planning matters "*shall be consistent with*" policy statements issued under the Act. The provincial policy-led planning system recognizes and addresses the complex inter-relationships among environmental, economic and social factors in land use planning. The Provincial Policy Statement supports a comprehensive, integrated and long-term approach to planning, and recognizes linkages among policy areas.

Section 2.1 in the PPS (2020) deals with natural heritage resources. These policies are further expanded and described in the Natural Heritage Reference Manual (Sections 5-11) (Ontario Ministry of Natural Resources, 2010).

Section 2.1.1 (Natural Heritage) of the PPS states that natural features and areas be protected for the long term. To achieve this goal Sections 2.1.4, 2.1.5, 2.1.6 and 2.1.7 indicate where development and site alteration shall not be permitted. Specifically, these include Significant Wetlands/Coastal Wetlands, Significant Woodlands, Significant Valleylands, Significant Wildlife Habitat, Significant Areas of Natural and Scientific Interest (ANSI), Fish Habitat, Habitats of Endangered and Threatened Species; except in accordance with provincial and federal requirements. Section 2.1.8 goes onto state: "*Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*"

6.4.1 Fish Habitat

Supporting healthy fish communities positively contributes to the social and economic interests of the province and local communities. Fish Habitat, as per PPS policy 2.1.5, is defined by the Fisheries Act (2013) and means "spawning grounds and nursery, rearing, food supply, and migration areas on which fish depend directly or indirectly in order to carry out their life processes". These habitats are afforded protection, via the policies in sections 2.1.5 and 2.1.6 of the PPS, from development and site alteration except in accordance with other applicable legislations. Adjacent lands are protected from development and site alteration unless they are evaluated to avoid disruption to ecological functions.

6.4.2 Significant Wildlife Habitat

Wildlife habitat is defined by the PPS as areas where plants, animals and other organisms live, and find adequate amounts of food, water, shelter, and space needed to sustain their populations. Significant Wildlife Habitat is identified and evaluated by four categories. These include *'habitats of seasonal concentrations of animals'*, *'rare vegetation communities or specialized habitat for wildlife'*, *'habitat of species of conservation concern'* and *'animal movement corridors.'*

Specific wildlife habitats of concern may include areas where species concentrate at a vulnerable point in their annual or life cycle; and areas which are important to migratory or non-migratory species. They also include areas with species that are ranked S1, S2 or S3 and are considered provincially rare, special concern species identified under the ESA on the SARO List, and species identified as nationally endangered or threatened by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), which are not protected in regulation under Ontario's ESA. The PPS does not permit development or site alteration in "*Significant Wildlife Habitat; unless it has been demonstrated that there will be no negative impacts on the natural features or their ecological functions*."

One Ohio Buckeye (*Aesculus glabra*) was observed on the mown lawn with scattered trees. While the Ohio Buckeye is ranked S1, it is not naturally occurring and is part of a park landscape plan. As such, the mown lawn with scattered trees should not be considered significant wildlife habitat.

Additionally, one provincially significant grass species, Early-branching Panicgrass (*Dichanthelium praecocius*) was recorded within 1km of the Subject Property (**Table 3**) during the SAR background review. No individuals were observed during IES field investigations.

6.4.3 Significant Habitat of Endangered and Threatened Species

An Endangered or Threatened species is defined by the PPS as a species that is listed or categorized as an "Endangered or Threatened species" on the Ontario Ministry of Natural Resources' Official Species at Risk List, as updated and amended from time to time. The PPS does not permit development and site alteration in "significant habitat of Endangered species and Threatened species."

The shoreline surrounding the Subject Property has been defined by DFO as Critical Habitat for Northern Madtom. Northern Madtom is federally and provincially listed as Endangered under the *Species at Risk Act* and *Endangered Species Act*, respectively. A Request for Review (RFR) Form should be submitted to DFO to determine if the impacts of the proposed project will require authorization under the *Fisheries Act* and/or the *Species at Risk Act.*

6.5 CONSERVATION AUTHORITIES ACT (1990)

The Conservation Authorities Act provides the framework to prevent, eliminate and minimize risk to life and property from flood and erosion hazards and encourage the conservation and restoration of natural resources. It empowers Conservation Authorities (CA) to regulate development activities in or adjacent to watercourses and wetlands, which may interfere with their functions.

6.5.1 Ontario Regulation 158/06: Regulation of Development, Interference with Wetlands and Alterations to Shorelines and Watercourses

Section 2(1)(d) and (e) of o. Reg. 160/06 states that:

"subject to section 3, no person shall undertake development or permit another person to undertake development in or on the areas within the jurisdiction of the authority that are:

(a) adjacent or close to the shoreline of the Great Lakes-St. Lawrence River system or to inland lakes that may be affected by flooding, erosion or dynamic beaches, including the area from the furthest offshore extent of the authority's boundary to the furthest landward extent of the aggregate of the following distances:

(i) the 100 year flood level, plus an allowance for wave uprush and other water related hazards,

(ii) the predicted long term stable slope projected from the existing stable toe of the slope or from the predicted location of the toe of the slope as that location may have shifted as a result of shoreline erosion over a 100-year period,

(iii) where a dynamic beach is associated with the waterfront lands, an allowance of 30 metres inland to accommodate dynamic beach movement, and

(iv) an allowance of 15 metres inland;

(b) river or stream valleys that have depressional features associated with a river or stream, whether or not they contain a watercourse, the limits of which are determined in accordance with the following rules:

(i) where the river or stream valley is apparent and has stable slopes, the valley extends from the stable top of bank, plus 15 metres, to a similar point on the opposite side,

(ii) where the river or stream valley is apparent and has unstable slopes, the valley extends from the predicted long term stable slope projected from the existing stable slope or, if the toe of the slope is unstable, from the predicted location of the toe of the slope as a result of stream erosion over a projected 100 year period, plus 15 metres, to a similar point on the opposite side,

(iii) where the river or stream valley is not apparent, the valley extends the greater of,

(a) the distance from a point outside the edge of the maximum extent of the flood plain under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side, and

(b) the distance from the predicted meander belt of a watercourse, expanded as required to convey the flood flows under the applicable flood event standard, plus 15 metres, to a similar point on the opposite side;

(c) hazardous lands;

(d) wetlands; or

(e) other areas,

(i) where development could interfere with the hydrologic function of a wetland, including areas within 120 metres of all provincially significant wetlands and wetlands greater than 2 hectares in size, and areas within 30 metres of wetlands less than 2 hectares in size, or

(ii) in river or stream valleys that are not apparent and in shoreline flood hazard lands where development could be impacted by flood levels aggravated by vehicle-generated waves, ice-jamming or other factors, in which cases the horizontal extent of the regulated area is increased by adding an allowance of 0.3 metres to the applicable flood event standard. O. Reg. 158/06, s. 2 (1); o. Reg. 55/13, s. 1 (1, 2)."

The proposed project is within ERCA's regulated area and a permit under Ontario Regulation 158/06 will likely be required for development.

6.6 Migratory Birds Convention Act (1994)

According to the Minister of Justice (2017) the Migratory Birds Convention Act (MBCA, 1994) is intended to "*implement a convention for the protection and conservation of migratory birds in Canada and the United States*" … "*The purpose of this act is to implement the convention by protecting and conserving migratory birds — as populations and individual birds — and their nests*" a "*migratory bird means a migratory bird referred to in the convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird."* According to the regulations in subsection 12 (1)(h): 12(1) *"the governor in council may make any regulations that the governor in council considers necessary to carry out the purposes and provisions of this act and the convention, including regulations"* … *"(h) for prohibiting the killing, capturing, injuring, taking, or disturbing of migratory birds or the damaging, destroying, removing or disturbing of nests"* (Minister of Justice 1994, 2017). Environment and Climate Change Canada administers the requirements under the MBCA.

7.0 MITIGATION TO REDUCE IMPACTS TO SPECIES AT RISK AND THEIR HABITAT

7.1 Potential SAR Habitat on and Adjacent to Subject Property

The SAR that were identified as having potential habitat on the Subject Property during the background review of available sources are discussed in **Table 13**. Results of IES's field investigations have been used to justify the suggested mitigation measures (**Section 7.2 – 7.5**).

TABLE 13: DISCUSSION OF POTENTIAL SAR OR SAR HABITAT

Common Name	Scientific Name	Discussion of Potential Habitat for SAR or Species of Conservation Concern
Potential SAR utilizing Subject Property		
Northern Madtom	*Noturus stigmosus*	The Department of Fisheries and Oceans (DFO) Aquatic Species at Risk Mapping has classified the aquatic habitat found on the Detroit River along the Subject Property as critical habitat for Northern Madtom. If work below the high-water mark is anticipated, a Request for Review (RFR) should be submitted to DFO to determine if a permit under the *Fisheries Act* or *Species at Risk Act* are required. Mitigation measures for Northern Madtom can be seen in **Section 7.2.**
Chimney Swift	*Chaetura pelagica*	Field investigations confirmed that the Subject Property does not contain any suitable nesting habitat for Chimney Swift in terms of mad-made structures or chimneys. No Chimney Swift were observed utilizing the Subject Property during field investigations. Several Chimney Swift were observed flying over and into the large building that is part of the Southwestern Sales Corporation LTD, found immediately to the west of Sandpoint Beach. It is likely that Chimney Swift are utilizing this adjacent property for nesting purposes. As such, Chimney swift may incidentally fly over or forage for insects above Sandpoint Beach.
Barn Swallow	*Hirundo rustica*	Field investigations confirmed that the Subject Property does not contain suitable breeding habitat for Barn Swallow. No Barn Swallow individuals were observed during field investigations. Additionally, all structures were visually inspected for Barn Swallow nests, but none were found. Buildings found on Sandpoint Beach were made from brick and located in anthropogenically disturbed area.
Spiny Softshell	*Apalone spinifera*	A Research Grade record of Spiny Softshell Turtle has been recorded on i-Naturalist in the Detroit River in front of the Subject Property. This species prefers gravelly or sandy areas for nesting. While the existing beach is highly trafficked by humans and anthropogenically disturbed, potential nesting habitat may exist on the property. See **Section 7.3** for mitigation measures for Spiny Softshell.

TABLE 13: DISCUSSION OF POTENTIAL SAR OR SAR HABITAT

Common Name	Scientific Name	Discussion of Potential Habitat for SAR or Species of Conservation Concern
Bald Eagle	*Haliaeetus leucocephalus*	Bald Eagles have been observed from the Subject Property on e-Bird, i-Naturalist and have been noted as a "Possible" breeder within the square that encompasses the Subject Property in the Breeding Bird Atlas. The Tree Inventory has confirmed that several White Pines, the preferred species of tree to nest in for this species, are present on the south side of Riverside Drive East. These trees will not be impacted by the proposed development. No Bald Eagles or Bald Eagle nests were observed in Sandpoint Beach during field investigations. As Bald Eagles maintain large territories, it is possible that a Bald Eagle could incidentally be observed flying past Sandpoint Beach while hunting over the Detroit River. IES recommends that all tree and shrub removals be taken outside of the breeding bird window to protect birds utilizing the Subject Property during their breeding season (**Section 7.4**).
Little Brown Myotis	*Myotis lucifugus*	While the Subject Property does not contain any suitable woodland, forest or swamp communities that are preferred for maternity roosting by SAR bats, the Tree Inventory confirmed that several trees contain maternity roost habitat features such as cracks, cavities, and dead crowns. Many of these features are found in maples, which a preferred maternity roost tree species for Little Brown Myotis. Mitigation measures for SAR Bats can be seen in **Section 7.5.**
Potential SAR Utilizing Adjacent Habitats		
SAR Turtles		It is possible that SAR Turtles may incidentally enter the project area due to the proximity of natural areas including Peche Island, Little River Drain or Old River Drain while searching for mates or nesting habitat. While the existing beach is heavily trafficked by humans and other anthropogenic disturbances, turtles may incidentally be present within the vicinity of the project area and potential impacts to these species should be mitigated for during the construction phase. See **Section 7.3** for mitigation measures for this SAR Turtles.
SAR Snakes		It is possible that SAR snakes including Eastern Foxsnake may incidentally enter the project area due to the proximity natural areas including agricultural drains or the woodland feature located approximately 65m to the south of Subject Property and potential impacts to these species should be mitigated for during the construction phase. **Section 7.3** for mitigation measures for this Snakes Turtles.

TABLE 13: DISCUSSION OF POTENTIAL SAR OR SAR HABITAT

Common Name	Scientific Name	Discussion of Potential Habitat for SAR or Species of Conservation Concern
SAR Fish and Mussels		Several species of SAR fish and mussels were recorded during the background screening. An Aquatic Habitat Assessment should be completed to determine if habitat exists for aquatic SAR if work below the high-water mark is anticipated. Additionally, a RFR Form should be sent to DFO for review.

7.2 NORTHERN MADTOM MITIGATION

7.2.1 Protection of Fish

To mitigate impacts to fish and fish habitat it is recommended that no works shall occur within the restricted activity window for spring spawning fish (March 15 to July 15) to protect the local fish community during their spawning and other critical life history stages. In addition, a fish salvage program could be developed to remove and relocate any fish within the project area prior to any in water activity. All in-water works, and activities shall be conducted during dry and calm weather conditions to minimize the risk of sediment transport that may impact fish or fish habitat.

7.2.2 Protection of Fish Habitat from Sedimentation

An erosion and sediment control plan should be developed to avoid the introduction of sediment into the Detroit River during any phase of the proposed development. Effective erosion and sedimental control measures should be implemented prior to the beginning of works and activities to stabilize all erodible and exposed areas. All materials used for sedimentation control should be in clean and working condition and biodegradable, if possible. Work should be scheduled to avoid wet, windy and rainy periods and heed weather advisories. The sediment and erosion control measures and structures should be regularly inspected throughout all phases of development to ensure that they are maintaining their integrity. Erosion and sedimentation measures should be kept in place until all of the disturbed ground has been permanently stabilized. All excavated material from the watercourse placed above the high-water mark or top of bank should be stabilized and then disposed of to ensure re-entry into the Detroit River.

7.2.3 Contaminant and Spill Management

Plan activities such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals do not leach into the ground or enter the watercourse. A “Spill Response Plan” should be developed and implemented immediately in the event of a sediment release or spill of a deleterious substance. An emergency spill kit should be kept onsite as well as the appropriate

contingency materials to absorb or contain any petroleum products, major/minor spills, and landscaping chemicals and fertilizers that may be accidentally discharged, should be always on the site. Any spills (e.g. sewage, oil, fuel or other deleterious material) should be immediately reported, whether near or directly into a waterbody.

7.2.4 Operation of Machinery

Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks and invasive species. Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from leaching into the ground or entering the watercourse. All construction materials should be removed from site upon project completion. Clean up-measures should be suitably applied so as not to result in further alteration of the bed and/or banks of the watercourse.

7.3 Mitigation for SAR Reptiles

1) All on-site personnel must be made aware of the potential presence of SAR snakes and SAR turtles, including Eastern Foxsnake, Spiny Softshell, Blanding's Turtle, Northern Map Turtle, Snapping Turtle and Midland Painted Turtle.
2) Temporary reptile exclusion fencing can used to exclude reptiles from the worksite. It is recommended that netting type erosion control measures not be used for this project. An alternative product such as Curlex Netfree® blanket or the use of riprap over geotextile fabric should be used for erosion control to prevent entanglement of SAR snakes.
3) Snake exclusion fencing should be installed following the recommendations of the Species at Risk Branch Best Technical Note: Reptile and Amphibian Exclusion Fencing (2013) document.
4) Construction machinery and equipment that is left idle for over 1 hour or is parked overnight on the property between April 1st to November 30th must 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.
5) Any SAR individual that is present on the property should be reported to the Ministry of Environment, Conservation and Parks (MECP) within 48 hours of the observation or the next working day, whichever comes first.
6) If a SAR reptile is incidentally encountered, the snake must be allowed to disperse from the project site under its own ability, and project machinery and equipment must maintain a minimum operating distance of 30 meters from the individual. MECP must be contacted if this cannot be done.
7) If an injured or deceased SAR is found, the specimen must be placed in a non-airtight container maintained at an appropriate temperature and MECP staff must be contacted immediately.

7.4 MITIGATION TO PROTECT BREEDING BIRDS

No tree or shrub clearing should be allowed during the breeding bird window (April 1st – August 30th) to avoid destruction of active bird nests protected by the *Migratory Birds Convention Act* (1994) or species listed as Special Concern under the *Endangered Species Act* (2007). Alternatively, a nest search can be conducted by a qualified ornithologist in the area designated for clearing. Any active nests found cannot be disturbed by work activity until the young have fledged. If no active nests are observed, vegetation clearing must take place with three days of the nest search, otherwise the nest search must be repeated.

7.5 MITIGATION MEASURES FOR SAR BATS

SAR Bat species – 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. The Subject Property contains limited habitat for SAR bats as it does not contain any woodlands, forests, or swamps. In addition, the property does not contain suitable structures to support a SAR bat maternity roost.

While unlikely, potential maternity roosting sites may occur in individual standing trees within the mown lawn/scattered trees on the Subject Property. Potential impacts to SAR bat species are not anticipated if the following mitigation measure is adhered to:

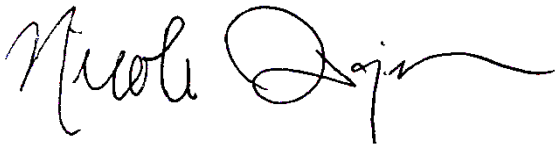
- Clearing of trees within the Project Location should occur outside of the active period for bats (i.e. April 1 – September 30).

8.0 CONCLUSION

Based on Species at Risk information gathering efforts and review of aerial photography by Insight Environmental Solutions Inc., it is argued that the project is not likely to contravene the ESA 2007. The proposed development will have no impact on any Endangered or Threatened species or their habitat if the mitigation measures stated in this report are implemented during construction activities.

Insight Environmental Solutions Inc. trusts that the material presented in this report will satisfy the requirements to move forward with the proposed activities. The data and conclusions contained in this letter are based upon work performed by qualified professionals in accordance with accepted scientific methods and protocols. The information should be interpreted and implemented only in relation to the specific project as identified. This report was prepared on behalf of Landmark Engineers and the undersigned accepts no responsibility for future use by other parties.

Yours sincerely,



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9.0 REFERENCES

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APPENDICES

APPENDIX A: NAME AND QUALIFICATIONS OF RETAINED CONSULTANT

Wildlife Biologist – Nicole Wajmer, Hon. B.Sc., M.Sc.

Nicole is a wildlife biologist, GIS technician and managing partner of Insight Environmental Solutions Inc. She completed the Wildlife Biology undergraduate and Integrative Biology graduate program at the University of Guelph. Nicole has a wide range of aquatic and terrestrial experiences from her time working in various sectors of biology including industry, government, and academia. She has strong interests in conservation biology and has been involved in recovery programs for the Endangered Northern Spotted Owl and Eastern Loggerhead Shrike. She has successfully completed certifications for First Aid and CPR, ACUC Dive Master, Ontario Benthos Biomonitoring, Backpack 2 Electrofishing, Ontario Stream Assessment Protocol, Ontario Fish Identification, the Department of Fisheries and Oceans Freshwater Mussel Identification Course, and the Ontario Reptile and Amphibian Survey Course. Nicole has contributed to a wide range of environmental and restoration projects throughout Ontario including Species at Risk (SAR) Assessments, Environmental Impact Studies (EIS), Natural Heritage Evaluations (NHE), as well as Land Management and Restoration Plans.

Ecologist – Jennifer Neill, BFA, Dip. Env. Technician

Jennifer is a senior ecologist and managing partner of Insight Environmental Solutions Inc. She holds an honors graduate from the Environmental Technician - Sampling and Monitoring program at Seneca College, a Bachelor of Fine Arts from the Ontario College of Art and Design (OCAD U). Jennifer has managed numerous large and small-scale environmental projects throughout Ontario. Her contributions include, detailed terrestrial and aquatic botanical inventories (native, cultivated, and exotic species), ecological land classification, invasive species management plans, incidental wildlife surveys, benthic macro-invertebrate identification, Ontario Species at Risk (SAR) individual identification, SAR habitat evaluation, Tree Inventory and Preservation Plans, Arborist Reports and Ecological Restoration Plans. Jen is a certified Arborist under the International Society of Arboriculture (ISA) and is certified under the Ontario Stream Assessment Protocol, Ontario Fish Identification, the Ontario Benthos Biomonitoring Network, RX100 Low Complexity Prescribed Burn Worker, Firesmart 101, the Ontario Wetland Evaluation System and Ecological Land Classification. Jennifer has a strong interest in Botany and the native flora of Ontario and holds a position on the Board of Directors for Tallgrass Ontario (TgO).

APPENDIX B: CURENT SITE CONDITIONS

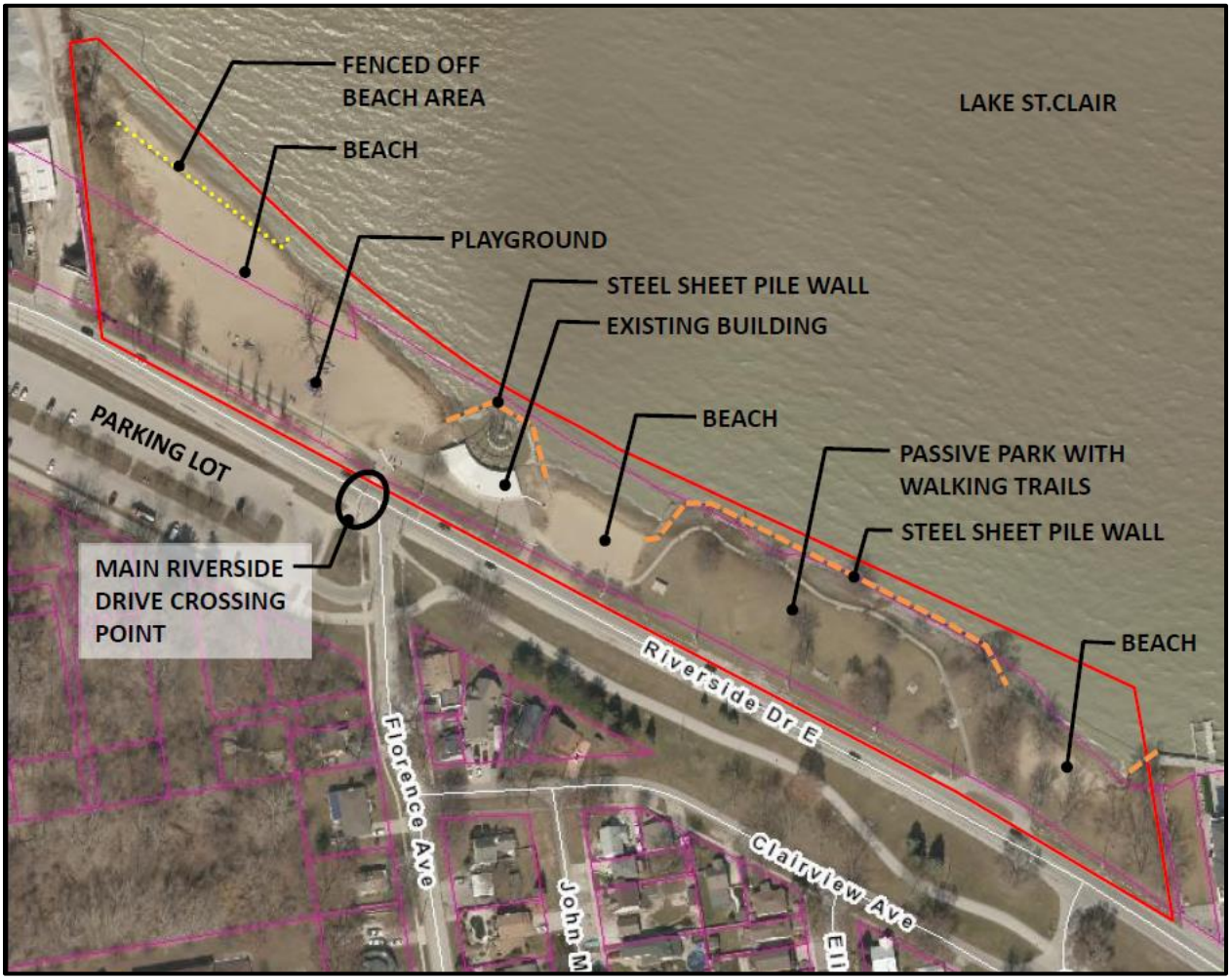

Image 1: 2021 Air photo of the Subject Property.

Image 2: Series of pictures of Subject Property in its current form.

Image 3: Series of pictures of Subject Property in its current form.