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Technical Memorandum – Species

Date: October 28, 2025 **Project No.:** 300058964.0000

Project Name: OCWMF SFA - Screening for Species at Risk (SAR)

Client Name: Oxford County

Submitted By: Sarah Yoshida, B.Sc. (Env.), Eco. Rest. Cert.

Reviewed By: Kevin Butt, B.Sc. (Env.), Eco. Rest. Cert, TRAQ

1.0 Introduction and Overview

R.J. Burnside & Associates Limited (Burnside) has been retained by Oxford County to provide professional engineering consulting services for the completion of regulatory approval applications to support the submission of an amended Design and Operations (D&O) Plan. Oxford County (County) is preparing to utilize the South Fill Area (SFA) at the Oxford County Waste Management Facility (OCWMF) given the North Fill Area (NFA) is nearing capacity. Per condition 2.1 c) of the Amended Environmental Compliance Approval (ECA[1]) number A070808 (ECA-Waste), an amended D&O Plan must be submitted to the Ministry of the Environment, Conservation and Parks (MECP) two years before the SFA being utilized.

A screening for potential Species at Risk (SAR) and their habitat as well as Significant Wildlife Habitat (SWH) within the SFA and its immediate vicinity has been completed to ensure compliance with the Provincial Policy Statement, and the provincial *Endangered Species Act* (ESA). The ESA serves to protect SAR and support residences for species listed as Extirpated, Endangered or Threatened under the Act. The Subject Property is divided into the NFA and SFA.

Following Burnside's first submission in November 2024, a site visit was completed in late May 2025 to assess the on-site conditions to determine the potential for SAR and SWH to be supported on-site.

Figure 1 (attached) illustrates the Subject Property and Study Area limits.

2.0 Screening Data Sources

Multiple sources were first reviewed for species records and historical sightings of SAR within the Subject Property and Study Area. Sources reviewed include:

- Aerial photographic imaging and 1:10,000 Ontario Base Mapping (OBM)
- Ontario Hydrology Network (OHN) mapping
- Ministry of Natural Resources (MNR) Make a Map: Natural Heritage Areas
- Ministry of Agricultural, Food, and Rural Affairs (OMAFRA) AgMaps mapping
- Natural Heritage Information Centre (NHIC) database (Squares 17NH1460, 17NH1459) - provided in Attachment C
- Fisheries and Oceans Canada (DFO) Aquatic Species at Risk mapping (2019)
- Ontario Breeding Bird Atlas (OBBA) (Square 17NH16 and 17NH15) – provided in Attachment C
- Ontario Reptile and Amphibian Atlas (Square 17NH16 and 17NH15) – provided in Attachment C
- eBird
- iNaturalist

2.1 Screening Results

2.1.1 SAR Screening

According to the data sources noted above, a total of 25 Endangered (END), Threatened (THR), or Species of Special Concern (SC) have previously been recorded within a 10 x 10 km square around the Subject Property. These species, as well as their habitat preferences and probability to be found on the Study Area are summarized on SAR Screening Table within Attachment A.

Based on the SAR Screening Table, suitable habitat to support key life functions may be present on the Study Area for the following END, THR, and SC species:

- Monarch Butterfly (*Danaus plexippus, SC*)
- Bank Swallow (*Riparia riparia, THR*)
- Barn Swallow (*Hirundo rustica, SC*)
- Bobolink (*Dolichonyx oryzivorus, THR*)
- Canada Warbler (*Cardellina canadensis, SC*)
- Eastern Meadowlark (*Sturnella magna, THR*)
- Eastern Wood-pewee (*Contopus virens, SC*)
- Red-headed Woodpecker (*Melanerpes erythrocephalus, END*)
- Wood Thrush (*Hylocichla mustelina, SC*)
- Eastern Small-footed Myotis (*Myotis leibii, END*)
- Little Brown Myotis (*Myotis lucifugus, END*)
- Northern Myotis (*Myotis septentrionalis, END*)
- Tri-colored Bat (*Perimyotis subflavus, END*)
- Snapping Turtle (*Chelydra serpentina, SC*)
- Black Ash (*Fraxinus nigra, END*)
- Butternut (*Juglans cinerea, END*)
- Green Dragon (*Arisaema dracontium, SC*)

Habitat for the remaining SAR identified in Attachment C are not present within the Study Area.

2.1.2 Aquatic Habitats

Open portions of a municipal drain, the Warren Drain, are located approximately 150 m from the Subject Lands. Tiled portions of the Warren Drain are also present within the SFA.

The Warren Drain is classified by the DFO as a Class F Drain, indicating the drain is intermittent and does not contain fish when the drain is dry. The Warren Drain is not mapped on the MNR Aquatic Resources Area (ARA) mapping but is a mapped watercourse on the Ontario Hydrologic Network. According to DFO SARA mapping, no SAR species are supported within this drain. As this feature is intermittent, it provides indirect fish habitat by contributing flows and allochthonous materials to the downstream reaches of the drain. The tiled portions of the Warren Drain do not constitute fish habitat.

2.1.3 Soils

Per the Hydrogeological and Geotechnical Investigations Report Study (1984) prepared by Gartner-Lee Associates Ltd., the borehole investigations within the south fill area determined that on-site soils consist of clayey silt tills underlain by unfractured clayey silt tills. Specifically, the geology of the south fill area consists of the following soil types, starting from the upper strata:

1. Port Stanley Drift Unit – clayey silt till to laminated water-lain clayey silt till. There are thin sand lenses throughout this unit which have been observed onsite. Thin bedding usually means 0.5 to 3 cm thick. The Port Stanley Drift Unit was indicated to be at least 9m thick on the site and divided into two sections:
    a. Fractured Till Unit – the upper portion is weathered with individual fractures extending to depths of approx. 3 to 4.6m.
    b. Upper Till Unit – unweathered clayey silt till.
2. Inter-Till Sands Unit – discontinuous silty fine sands to coarse sands with some gravel underlying portions of the Upper Till Unit (at least 9 m bgs).
3. Catfish Creek Drift Unit – pebbly to stony sandy silt till with occasional sand layers throughout

3.0 Field Investigations

Field investigations were completed on May 30, 2025. The purpose of field investigations was to verify whether the features identified in the background data review are present and, if so, to confirm their boundaries.

Table 1: Summary of the single site visit survey weather conditions

Survey Date	Observers	Time of Day (Start/End) (24 hours)	Weather Conditions (Air Temp °C / Beaufort Sky Code[1] / Wind Scale[2])
May 30, 2025	Sarah Yoshida, Ecologist	7:36 – 13:11	Start: 13°C; End: 21°C Sky: 0 Wind: 2

[1]NAAMP/ Beaufort Sky Codes	[2]Beaufort Wind Scale
0 = clear (no cloud cover)	0 = calm, smoke rises vertically (0-2 km/hr)
1 = partly cloudy (scattered or broken) or variable	1 = Light air movement, smoke drifts (3-5)
2 = cloudy or overcast	2 = Slight breeze, wind felt on face; leaves rustle (6-11)
3 = sandstorm, dust storm or blowing snow	3 = Gentle breeze, leaves & twigs in constant motion (12-19)
4 = fog, smoke, thick dust, or haze	4 = Moderate breeze, small branches moving, raises dust & loose paper (20-30)
5 = drizzle or light rain	5 = Fresh breeze, small trees begin to sway (31-39)
6 = rain	6 = Strong breeze, large branches in motion (40-50)
7 = snow or snow/rain mix	
8 = showers	
9 = thunderstorms	

3.1 Vegetation Communities

Seven ecological communities were identified within the Study Area through air photo interpretation. Their locations and extents are illustrated on Figure 2 attached. The purpose of field investigations was to verify whether the features identified in the background data review are present and, if so, to confirm their boundaries.

3.2 Breeding Bird Surveys

A single breeding bird survey was completed by a Burnside ecologist according to the Ontario Breeding Bird Atlas (OBBA) Guide for Participants (Bird Studies Canada, March 2001), tailored to the needs of the project.

- A single site visit was completed on May 30, 2025.
- The singular survey was conducted under the following weather condition requirements: counts were not completed if it was raining, there was thick fog, or if winds were greater than 19 km per hour (i.e., >3 on the Beaufort scale). Generally, weather conditions were conducive for auditory and visual surveys, with winds less than 19 km per hour, and no precipitation.
- The breeding bird survey were conducted at the designated point count locations within all vegetation communities present on the subject and adjacent lands that may be indirectly impacted by the proposed development.

- All birds observed and heard were recorded at each habitat unit location, including level of breeding evidence.
- Field data was collected using a mobile data collection application (Fulcrum) on an iOS device.

Point counts were restricted to the SFA as construction activities will largely be restricted to this area in addition to areas within the active landfill.

4.0 Existing Conditions

4.1 Ecological Land Classification

Gray Dogwood Deciduous Thicket Type (THDM5-1)

This community dominates the SFA. A distinct canopy and subcanopy are absent, only young Trembling Aspen (*Populus tremuloides*) and Eastern Cottonwood (*Populus deltoides*) are present along the margins of the north end of the SFA. The understory of the THDM5-1 consists of a moderately dense stand of Gray Dogwood (*Cornus racemosa*) with lesser associates of European Buckthorn (*Rhamnus cathartica*) and regenerating Green Ash (*Fraxinus pennsylvanica*) and Trembling Aspen. The groundcover layer is dominated by common meadow species including various Goldenrod species (*Solidago spp.*), New England Aster (*Symphyotrichum novae-angliae*), cool season grasses, Spotted Knapweed (*Centaurea stoebe*), Bull Thistle (*Cirsium vulgare*), and Queen Anne's Lace (*Daucus carota*).

One complex, a Dogwood Mineral Deciduous Thicket Swamp Ecosite (SWTM2), and one inclusion, a Common Reed Graminoid Mineral Meadow Marsh Type (MAMM1-12), are present within the Study Area. The SWTM2 complex is present along northern margin of the SFA in low lying areas as well as low-lying areas in the centre of the SFA. This complex is dominated by Silky Dogwood (*Cornus amomum*) with lesser associates of Red Osier Dogwood (*Cornus sericea*), Gray Dogwood, and European Buckthorn. The groundcover within the SWTM2 inclusion largely consists of common meadow species as the THDM5-1. The MAMM1-12 inclusion is present along the toe of the slope immediately adjacent to the NFA and is dominated by invasive Common Reed (*Phragmites australis ssp. australis*).

Photo 1: Representative photo of the THDM5-1 community.

Photo 2: Representative photo of the SWTM2 complex.

Photo 3: Representative photo of the MAMM1-12 inclusion

Dry – Fresh Sugar Maple – Basswood Deciduous Forest Type (FODM5-6)

This community is located adjacent to the NFA and extends offsite towards the privately owned lands to the west of the subject lands. This community has been present since at least 1950 based on historical photos available through the Western Libraries Air Photo Collection App. Based on Burnside's assessment, this community is considered to be a mid-aged forest. Disturbance within this community consists of windblown waste from the adjacent landfill, minor edge effects, and impacts from Emerald Ash borer. Standing Ash snags and deadfall logs are occasionally present.

The canopy is dominated by Sugar Maple (*Acer saccharum*) with lesser associates of Basswood (*Tilia americana*), Eastern Cottonwood, and Black Cherry (*Prunus serotina*). The subcanopy is poorly developed, providing <20% cover and consists of Sugar Maple, Black Cherry, American Beech (*Fagus grandifolia*), and Ironwood (*Ostrya virginiana*). The understory is moderately dense, providing >50% cover and is dominated by regenerating Green Ash, Chokecherry, American Beech, and Ironwood. The groundcover is dense and consists of a variety of woodland species such as Trout Lily (*Erythronium americanum*), Jack-in-the-pulpit (*Arisaema triphyllum*), Mayapple (*Podophyllum peltatum*), Common Woodland Sedge (*Carex blanda cf*), Virginia Waterleaf (*Hydrophyllum virginianum*), and Green Ash regeneration.

Silver Maple Organic Deciduous Swamp Type (SWDO2-2)

This community occurs in association with the FODM5-6 community. Standing water is visible within spring and fall air photos. This community has been present since at least 1950 based on historical photos available through the Western Libraries Air Photo Collection App.

Standing Ash and Silver Maple snags are present in association with this community. Deadfall logs are common along the margins of this community, providing excellent habitat structure for amphibians and reptiles.

This community is dominated by mature Silver Maple (*Acer saccharinum*) trees. Standing water was present within this community during the investigation. Understory species include European Buckthorn, Currants (*Ribes spp.*), Green Ash, and Silver Maple regeneration. Herbaceous species include Reed Canary Grass, Fringed Sedge (*Carex crinita*), Graceful Sedge (*Carex gracillima*), and Canada Clearweed (*Pilea pumila*). Common Duckweed (*Lemna minor*) was abundant within the areas of standing water.

Anthropogenic Communities

The majority of the property is an active landfill (CVI_2), and agriculture (OAG) at the west limit of the site that contains row crops. Several stormwater management facilities (OAO) are also present within the Subject Property.

Surrounding lands within and immediately adjacent to the Study Area are dominated by row crops agricultural properties, within a limited representation of residential, open water (manmade features) and natural forest and swamp communities.

4.2 Breeding Birds

There are 22 resident bird species, exhibiting some level of breeding evidence (possible, probable, or confirmed), and were observed on the subject lands during the single targeted breeding bird survey.

Six species were observed on the subject lands during the breeding bird window, but no breeding evidence (i.e., suitable breeding habitat or breeding behavior) was recorded:

- Red-tailed Hawk (*Buteo jamaicensis*)
- Turkey Vulture (*Cathartes aura*)
- American Crow (*Corvus brachyrhynchos*)
- Ring-billed Gull (*Larus delawarensis*)
- Common Grackle (*Quiscalus quiscula*)
- Tennessee Warbler (*Leiothlypis peregrina*)

According to MNR's Significant Wildlife Habitat Technical Guide (MNR, 2000), "area sensitive" species are defined as species that require large areas of suitable habitat for long term population survival. Fragmentation of essential habitats can result in overall declines in populations. No "area sensitive" bird species, as defined by MNR, were observed exhibiting breeding evidence on the subject lands during the breeding bird survey.

4.3 Incidental Wildlife

Incidental wildlife sightings were limited to the Study Area and were documented during field investigations to provide a general characterization of the habitat functions of the Study Area. Incidental observations were those recorded during targeted surveys for other aquatic or terrestrial investigations. Examples include tracks, carcasses, live sightings, etc.

A summary of incidental wildlife observations can be found in Table 4.1 below:

Common Name	Scientific Name	SRank	Notes
Barn Swallow	*Hirundo rustica*	S4B	Confirmed present. Observed foraging over the westernmost naturalized stormwater management facility.
White-tailed Deer	*Odocoileus virginianus*	S5	Numerous observed within the THDM5-1 community.
Green Frog	*Lithobates clamitans*	S5	Overheard calling within the SWDO2-2 community.
Midland Painted Turtle	*Chrysemys picta marginata*	S4	Three Midland Painted Turtles observed within the SWDO2-2 community. Nine individuals observed within the westernmost stormwater management facility.
Snapping Turtle	Chelydra serpentina	S4	One individual observed basking within the westernmost naturalized stormwater management facility.
Eastern Coyote	*Canis latrans*	S5	Tracks, scat
Racoon	*Procyon lotor*	S5	Tracks, scat

5.0 Endangered and Threatened Species

5.1.1 Red-headed Woodpecker

Red-headed Woodpecker is typically found in open places with many dead trees such as parks, golf courses, and cemeteries as they like to nest in the cavities of large dead or dying trees. Habitats also include open woodlands, woodland edges, oak savannahs, and riparian forest as well as mature lowland and upland deciduous forests. This species roosts within decadent

trees, larger diameter deciduous trees (typically 50 cm dbh or greater). Typical breeding territory sizes range from 3.0 to 11.4 ha[1].

Candidate habitat to support Red-headed Woodpecker within the Study Area is restricted to the FOD and SWD communities. Recent records for this species are present 600 m west of the site from 2018. The FODM5 community did not appear to contain suitably large trees to support this species. Sufficiently large trees were documented within the SWDO2-2 community. Impacts to suitable Red-headed Woodpecker nesting habitat are not anticipated as the retained SWDO2-2 community is located well away from the proposed SFA. Further consideration for this species will not be provided within this report.

5.1.2 SAR Bats – Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis, Tri-colored Bat

In Ontario, there are seven species of bats now listed as Endangered under the *Endangered Species Act*, including:

- Eastern Red Bat
- Eastern Small-footed Myotis
- Hoary Bat
- Little Brown Myotis
- Northern Long-eared Myotis
- Silver-haired Bat
- Tri-colored Bat

The three myotis species prefer to roost in large trees within mature forest, using tree cavities or loose peeling bark as roosting sites. Tri-colored bat prefers to roost in live or dead leaf foliage, preferably within oak trees. Eastern Small-footed Myotis are known to roost within open rock piles, cliff faces, as well as anthropogenic structures.

All forest and swamp communities at the periphery of the Subject Property have the potential to support Little Brown Myotis, Northern Long-eared Myotis, and Tri-colored Bat as well as Hoary Bat, Silver-haired Bat, and Eastern Red Bats. Suitable habitat to support Eastern Small-footed Myotis is absent from the Subject Property. Impacts to SAR bats maternal roosting habitat / generally roosting habitat are not anticipated as the retained FODM5 and SWDO2-2 communities are located well away from the proposed SFA. Further consideration for this species will not be provided within this report.

[1] Environment and Climate Change Canada. 2021. Recovery Strategy for the Red-headed Woodpecker (Melanerpes erythrocephalus) in Canada. Species at Risk Act Recovery Strategy Series. Environment and Climate Change Canada, Ottawa. viii + 118 pp.

6.0 Significant Wildlife Habitat

According to the Natural Heritage Reference Manual (MNR, 2010) and Significant Wildlife Habitat Technical Guide (MNR, 2000), there are four types of Significant Wildlife Habitat ("SWH"), as follows:

- Habitats of Seasonal Concentrations of Animals
- Rare Vegetation Communities / Specialized Habitats
- Habitats of Species of Conservation Concern
- Animal Movement Corridors

Significant Wildlife Habitats (SWH) are designated at the local planning level (i.e., municipality). Local designations occur because conditions and features vary widely between municipalities, and what is important and unique in one area may be common and secure in another.

SWH has not been identified on schedule mapping, though the County OP does identify that SWH has the potential to be found in Natural Heritage Systems. The assessment completed as a part of the study will use broad habitat descriptions from the Significant Wildlife Habitat Technical Guide (SWHTG) and the SWHTG Ecoregion 7E Criterion Schedule (MNRF, 2015).

Based on the existing conditions and background information collections, there are 13 candidate SWH feature are present on the Site. The Candidate SWH feature potentially present within the subject site include:

- Waterfowl Stopover & Staging Areas (Terrestrial)
- Bat Maternity Colonies
- Turtle Wintering Areas
- Amphibian Breeding Habitat (Woodland)
- Special Concern and Rare Wildlife Species
  - Monarch (SC)
  - Barn Swallow (SC)
  - Canada Warbler (SC)
  - Eastern Wood-pewee (SC)
  - Wood Thrush (SC)
  - Snapping Turtle (SC)

Confirmed SWH features present within the Subject Site include:

- Terrestrial Crayfish
- Shrub/Early Successional Bird Breeding Habitat

6.1 Waterfowl Stopover & Staging Areas (Terrestrial)

Flooded CUT1 and CUM1 communities during the spring can provide important invertebrate foraging habitat for migrating waterfowl. The THDM5-1 community (equivalent to CUT1) of the Study Area, if seasonal flooding is documented, is sufficiently large to support large

aggregations of waterfowl. Standing water was not observed during Burnside's late May 2025 site visit.

6.2 Bat Maternity Colonies

Bat Maternity Colonies occur in tree cavities and vegetation in forested and swamp communities. Candidate Bat Maternity Habitat may occur within the FOD and SWD communities within the Study Area. Acoustic monitoring is not proposed at this time to confirm the presence / absence of this habitat.

The SWDO2-2 and FODM5-6 communities are located beyond the limits of SFA and will not be impacted by the proposed development. Further consideration for this feature will not be provided within this report.

6.3 Turtle Wintering Areas

As per the *Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)*, Turtle Wintering Areas (TWA) are located in the same general area as their core habitat. Overwintering areas can be identified by searching for basking areas on warm sunny days during the fall prior to overwintering (September – October) or following spring emergence (March – May).

Standing water within the SWD community may support turtle overwintering. Three Midland Painted Turtles were incidentally observed during Burnside's site visit. Candidate turtle overwintering habitat is located well beyond the proposed development limits, adjacent to the active landfill and will not be impacted by construction activities within the SFA. Further consideration for this feature will not be provided within this report.

6.4 Reptile Hibernaculum

Reptile hibernacula are utilized by snakes for hibernation. Hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. Candidate hibernacula features go beyond the frost line and include features such as rock piles or slopes, old stone fences, and abandoned crumbling foundations.

Several rock piles consisting of boulders are present along the slopes of the FODM5-6 community. These features are located well beyond the proposed development limits, adjacent to the active landfill and will not be impacted by construction activities within the SFA. Further consideration for this feature will not be provided within this report.

Photo 4. Rock piles within the FODM5-6 community.

6.5 Amphibian Breeding Habitat (Woodland)

The Amphibian Breeding Habitat (Woodland) type of habitat is described as a wetland, pond, or woodland pool (including vernal pools) >500 within or adjacent (within 120 m) to a woodland (no minimum size). Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians. Woodlands with permanent water or those with hydroperiods extending into mid-July are most likely to be used by breeding amphibians. Amphibian breeindg habitat (woodland) is located within the Subjects Lands but is located well beyond the SFA. Direct impacts are not anticipated.

6.6 Shrub/Early Successional Bird Breeding Habitat

Shrub/early successional bird breeding habitat consists of large field areas succeeding to shrub and thicket habitats >10 ha in size. Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.

Evidence of breeding activity for one indicator species, Brown Thrasher, and two common species, Field Sparrow and Willow Flycatcher, were documented by Burnside to be breeding within the THDM5-1 community. As the minimum number of indicator and common species were found to have evidence of breeding, this SWH feature is confirmed present in association with the entirety of the THDM5-1 community.

6.7 Terrestrial Crayfish

Suitable habitats for terrestrial crayfish include meadow marsh, shallow marsh, or swamp communities. Three suspected Chimney Crayfish burrows observed adjacent to the MAMM1-12 inclusion north of the SFA. Terrestrial crayfish habitat is located beyond the footprint of the SFA area.

Photo 5. Digger Crayfish chimneys.

Photo 6. Digger Crayfish Chimneys.

6.8 Special Concern and Rare Wildlife Species

Monarch

Throughout their life cycle, Monarchs use three different types of habitats. Only the caterpillars (larvae) feed on milkweed plants and are confined to meadows and open areas where milkweed

grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers[2]. Common Milkweed, a host plan of Monarch larvae, occurs occasionally within the THDM5-1 community. The THDM5-1 community is unlikely to constitute significant habitat for Monarch.

Barn Swallow

Barn Swallows are well documented to nest on the outside of buildings adjacent to open areas including wetlands, river shorelines, and meadows. These open areas are used as foraging habitat[3]. Buildings present within the north fill area may provide suitable nesting habitat to support Barn Swallow. Structures are not proposed to be altered as a part of the proposed SFA. As such, impacts to this species are not anticipated and further consideration for this species will not be provided.

Canada Warbler

Canada Warbler generally prefers wet coniferous, deciduous, and mixed forest types, with a dense shrub layer. Canada Warbler nests on the ground, on logs or hummocks, and uses dense shrub layer and herbaceous cover to conceal the nest[4].

Suitable habitat may be present in association with the SWDO2-2 community to support Canada Warbler breeding. This species was not incidentally encountered during Burnside's site visit.

The SWDO2-2 community is located well beyond the proposed construction limits. As such, impacts to this species are not anticipated and further consideration for this species will not be provided.

Eastern Wood-pewee and Wood Thrush

Eastern Wood-Pewee often nests near forest edges, clearings roadways, and water, but does not require large swaths of continuous forest. Wood Thrush is also known to nest in woodlands of varying size, from woodlots as small as 3 ha to large, contiguous swaths of forests. Typical

[2] MNR SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)

[3] Heagy, A., D. Badzinski, D. Bradley, M. Falconer, J. McCracken, R.A. Reid and K. Richardson. 2014. Recovery Strategy for the Barn Swallow (Hirundo rustica) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 64 pp.

[4] Cadman, M.D., et al. (eds). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp

habitat requirements for Wood Thrush include the presence of tall trees and a thick understory layer[5].

Overall, there is moderate potential for Eastern Wood-pewee and Wood Thrush breeding habitat to be supported The FOD and SWH communities span >3.0 ha in size and are located well beyond developed areas. The physical characteristics of the remnant woodlot and swamp should be assessed to determine the potential for the presence of these species.

The FODM5-6 and SWDO2-2 community is located well beyond the proposed construction limits. As such, impacts to these species are not anticipated and further consideration for this species will not be provided.

Snapping Turtle

Snapping Turtles are most often found in slow-moving waters with soft, muddy substrate and abundant aquatic vegetation[6]. The SWDO2-2 community contains standing water and basking structures to support Snapping Turtle. Snapping Turtles were also encountered within the nearby SWM facility. Suitable nesting habitat is absent within the THDM5-1 community. Gravel roads and soil stockpiles within the active landfill and may attract nesting turtles but should not be considered suitable nesting habitat.

7.0 Impacts and Mitigation

The proposed SFA has the potential to impact the natural heritage features documented in Section 6.0 of this report.

Potential impacts to these features can be categorized as:

- Direct (within the footprint of the development)
- Indirect (adjacent to the development but affected by spin-off effects)

The most significant direct impact may be the partial loss of the THDM5-1 community which is confirmed to support shrub / early successional bird breeding habitat and candidate waterfowl stopover & staging areas. The SFA and associated infrastructure will span 18.61 ha and will be located entirely within the THDM5-1 and CVI_2 communities.

Effects on natural features that may occur that are further discussed:

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[5]Cadman, M.D., Sutherland, D.A., Beck, G.G., Lepage, D., and Courier, A.R (eds). 2007. Atlas of the Breeding Birds of Ontario, 2001-2005. Bird Studies Canada Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp.

[6] COSEWIC. 2008. COSEWIC assessment and status report on the Snapping Turtle Chelydra serpentina in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.(www.sararegistry.gc.ca/status/status_e.cfm).

- Disturbance to migratory birds or their nests, wildlife habitat as a result of adjacent development activities
- Construction impacts, including erosion / sedimentation, dust, and unintentional encroachment into the retained natural features
- Effects on wildlife from noise.
- Windthrown waste into adjacent natural area
- Indirect impacts to potential SWH and confirmed SWH including bat maternity colonies, turtle wintering areas, reptile hibernacula, amphibian breeding habitat (woodlands), terrestrial crayfish, special concern and rare wildlife species.
- Indirect impacts to potential SAR habitat

7.1 Significant Wildlife Habitat

Confirmed shrub / early successional bird breeding habitat will be permanently removed. Impacts association with the proposed SFA and proposed mitigation measures to offset the loss of confirmed SWH are discussed further in Table 2 below. All other SWH features are located beyond the SFA and will not be directly impacted by the proposed project.

7.2 Summary of Potential Impacts to Natural Heritage Features & Proposed Mitigation Measures and Monitoring Activities

Potential impacts, proposed mitigation and monitoring activities are presented and summarized below in Table 2 below.

Table 2: Summary of Potential Negative Impacts and Recommended Mitigation

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
Land Clearing within the Development Envelope	Loss of or disturbance to migratory birds or their nests.	D: Short-term, occurring only once. GE: Limited to THDM5-1 community. M: Moderate, bird habitat is abundant within the THDM5-1 community but is not considered to be rare; disturbance would not affect birds at the population level. However, disturbance of bird nests is in contravention of the MBCA.	Land clearing shall be completed outside of the breeding bird season (Nesting Zone C2 core breeding window, or when 41-100% are predicted to be nesting for all habitat types, is approximately April 1 to August 31). All tree pruning and removals for any trees located beyond the proposed SFA (i.e. for the construction of access road or stormwater facility) shall be carried out by a qualified tree service under the direction of a certified arborist.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
	Loss of significant wildlife habitat including confirmed shrub / early successional bird breeding habitat	D: Short-term, occurring only once. GE: Limited to the development envelope. M: Moderate. This habitat type is not rare within the province and will constitute a partial loss of the THDM5-1 community. This area was historically cleared but has undergone succession in recent years. It is anticipated that restoration of the NFA will ensure no net loss of shrub/early successional bird breeding habitat.	Habitat compensation measures and restoration plantings will be required to offset the loss of SWH features within the NFA. Shrub plantings will be required within the NFA following its closure to offset the loss of the impacted portions of the THDM5-1 community spanning 18.61 ha. As the NFA spans 28.5 ha, a minimum of 19 ha of shrub plantings should occur within this area following its closure to ensure no net loss of shrub/early successional bird breeding habitat. A portion of the NFA can be planted in advance of the construction of the SFA. Furthermore, the construction of the SFA will also occur over the course of two phases, ensuring that confirmed SWH will not occur in once instance prior to plantings being instated. Only plantings that will not interfere with the clay cap (i.e. with roost system that will only span ½ to ¾ of the clay cap depth) should be selected for restoration efforts. Alternatively, plantings can also be considered on the lands immediately south of the SFA that are owned by the County. Restoration measures will be discussed at the detailed design phase.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
			All clearing activities must take place outside of the core breeding bird window (April 1 – August 31).
	Loss of candidate Monarch (SC) habitat	D: Short-term, occurring only once. GE: Limited to the development envelope. M: Low. Common Milkweed is present but is not a significant component of the groundcover layer. The THDM5-1 community is unlikely to be considered significant habitat for Monarch breeding but may be used as foraging habitat. It is anticipated that restoration of the NFA will allow for Common Milkweed and other common meadow species to become established through self-seeding.	See the section above regarding restoration measures within the NFA. Seeding is not recommended as the existing seed bank within the topsoil will allow for the establishment of common meadow species, including Common Milkweed.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
Clearing and Construction Activities	Potential erosion / sedimentation and encroachment beyond the development envelope due to grading and works within areas of exposed soil.	D: Short-term during construction phase only. GE: Impacts could extend beyond the development envelope. M: Low. The slope of the development area is low. Furthermore, the installation of sediment control measure will present sediment from moving off-site.	Erosion and sediment control (ESC) fencing will be instated prior to construction to prevent siltation of protected areas. Additional details regarding ESC will be discussed during the detailed design phase of the project.
Spills	Impacts to natural heritage features associated with fuel or other contaminants	D: Short-term. GE: Limited to construction envelope. M: Low to High, dependant on extent and location of spill.	The contractor must develop and immediately implement a spill response plan. No construction activity or machinery will be permitted beyond the silt fence limits of construction. Equipment refuelling and maintenance will be conducted a minimum of 30 meters from any wetlands or woodlands. Work shall be scheduled to avoid wet, windy, and rainy period. A copy of the spill management plan and a spill kit must be always kept on-site.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
			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 entering the watercourse.
Dust	Dust impacts to wildlife	D: Short-term. GE: Impacts could extend beyond the development envelope. M: Moderate as construction activities are anticipated to be extensive.	Dust levels shall be regularly monitored for the duration of construction by a Construction Monitor. As required, dust from the work area will be controlled using water.
Impacts to unevaluated wetlands	Alterations of stormwater flows towards wetland inclusions and terrestrial crayfish habitat	D: Long-term. GE: large-scale site alteration adjacent to terrestrial crayfish habitat has the potential to adversely impact terrestrial crayfish burrows by altering stormwater flows and introductions of sediments into terrestrial crayfish habitat. M: Low. A perimeter swale will be installed along the proposed north waste fill boundary, to drain clean runoff from the SFA to a proposed stormwater pond.	The vegetated perimeter is proposed over a 345 m length at the north side of the SFA. It will collect clean surface runoff from the waste footprint before discharging to the existing conveyance drain and proposed stormwater management pond. The swale is proposed within the 30 m wetland setback. These clean surface water flows will be directed around the site. Generally, rainwater which falls on site will be isolated from waste and directed to the perimeter swale. Any surface water which contacts waste or is impacted will be treated as leachate.

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
		Any surface water which contacts waste or is impacted will be treated as leachate.	It is anticipated that the perimeter swale may function as terrestrial crayfish. It is anticipated that terrestrial crayfish may move opportunistically into the perimeter area post construction.
	Impacts to wetland hydrology and water balance	D: Long-term. GE: Impacts could extend beyond the SFA. M: Moderate if wetland function is disrupted.	Under proposed conditions, we do not anticipate a significant increase in impervious cover on the landfill site. Increases in flows between pre- and post-development conditions will be mitigated and quantity control will be instated. Specifically, two extended detention wet ponds are proposed on the landfill site property, to provide quantity control, enhanced quality control, erosion control as well as providing runoff testing locations. The pond sizes and locations are generally based on the previous 2007 design for ponds C and D. The proposed condition catchment parameters are summarized in Table 4 of the Stormwater Management Technical Memo.
Invasive Species	Natural heritage features could be impacted through the introduction of invasive species during the	D: Long-term. GE: Impacts could extend beyond the development envelope.	An Environmental Inspector shall ensure that all equipment entering the construction limits shall be clean and washed free of dirt / mud, plant material. Contractors shall

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
	construction process or encroachment	M: Low provided appropriate mitigation measures are implemented.	follow the *Clean Equipment Protocol for Industry* (Halloran et al. 2013).
Noise	Impacts of construction noise on wildlife	D: Long-term. GE: Impacts confined to areas within direct vicinity of site. M: Low, noise anticipated to occur during daylight hours. Wildlife is likely accustomed to loud noise due to the existing landfill operations.	Environmental noise will be reduced through the standard operating practices and conformity with noise by-law requirements. The Environmental Inspector will ensure that all operational plans and construction timing associated with noise reduction are being followed. Noise associated with the operations within the SFA are not anticipated to significantly impact wildlife.
Encroachment of windthrown debris	Disturbance to natural heritage features.	D: Long-term throughout the life of the development. GE: Typically affects edge areas in close proximity to development. M: Low as the proposed development is an industrial complex but dumping may occur.	Blowing litter will be controlled through housekeeping and controls as specified within the D & O Plan.
Impacts to Wildlife	Wildlife mortalities associated with earth-	D: Short-term, limited to construction period.	It is anticipated that any proposed ESC fencing surrounding construction areas within the SFA will double as wildlife

Activity	Potential Impact	Duration (D), Geographic Extent (GE) and Magnitude (M) of the Impact	Proposed Mitigation
	moving and construction activities	GE: Impacts limited to construction limits. M: Low to moderate. Reptiles (snakes and turtles) may be drawn to cleared areas to bask, increasing the risk of mortality from collisions with construction equipment and vehicles. Due to the proximity of development activities to potential turtle habitat in the adjacent wetland, there is also potential for turtles to nest in exposed soils within the construction limits.	exclusion fencing. An ESC plan will be developed during the detailed design phase. Fencing should be designed appropriately to exclude Snapping Turtles and Midland Painted Turtles. Fencing shall be designed per the recommendations listed within the *Reptile and Amphibian Exclusion Fencing: Best Practices* (MNRF, 2020). Fencing in combination with inspections by an environmental inspector will mitigate the potential for turtles to nest within the development envelope. Inspections shall be carried out daily during the active season for turtles (April to October) while there is adjacent construction.

8.0 Future Commitments

A restoration planting plan should be created at the detailed design phase to offset the loss of confirmed shrub / early successional bird breeding habitat within the SFA. The restoration area must be located within the immediate vicinity of the SFA. The planting plan should be designed by a qualified Landscape Architect in consultation with an avian ecologist.

This report and its commitments should be reevaluated prior to the implementation of the SFA to ensure the proposed mitigation measures are sufficient to ensure compliance with all applicable municipal, provincial, and federal policies. At this moment, the SFA is anticipated to be constructed in 2032. During this time, changes to the existing *Endangered Species Act* as well as other provincial policies may have occurred.

9.0 Closing

In total, eight Species at Risk including one avian species and seven mammal species have been identified to be potentially present within the Study Area. No SAR are supported within the SFA but may be supported within natural heritage features well beyond the limits of disturbance. As impacts to SAR and SAR habitat are not anticipated, further action under the ESA is not required. A number of SWH features may be supported within the Study Area, with one confirmed SWH feature and one candidate feature occurring within the SFA. Additional mitigation measures including habitat compensation measures and restoration plantings will be required to offset the loss of the confirmed SWH feature.

R.J. Burnside & Associates Limited

Sarah Yoshida, B.Sc. (Env.), Eco. Rest. Cert.
Ecologist
SY:af/js

Enclosure(s)
Figure 1 Study Area
Figure 2 Ecological Land Classification (ELC)
Figure 3 Species at Risk (SAR)
Figure 4 Significant Wildlife Habitat (SWH)
Attachment A – SAR Screening Table
Attachment B – SWH Screening Table for Ecoregion 7E
Attachment C – Background Data
Attachment D – Breeding Bird Table

Abbreviations

Department of Fisheries and Oceans Canada (DFO)
Design and Operations (D&O)
Environmental Compliance Approval (ECA)
Endangered (END)
Erosion and Sediment Control (ESC)
Ontario Breeding Bird Atlas (OBBA)
Ontario Reptile and Amphibian Atlas (ORAA)
Oxford County Waste Management Facility (OCWMF)
Ministry of the Environment, Conservation and Parks (MECP)
North Fill Area (NFA)
Significant Wildlife Habitat (SWH)
Significant Wildlife Habitat Technical Guide (SWHTG)
South Fill Area (SFA)
Special Concern (SC)
Species at Risk (SAR)
Threatened (THR)

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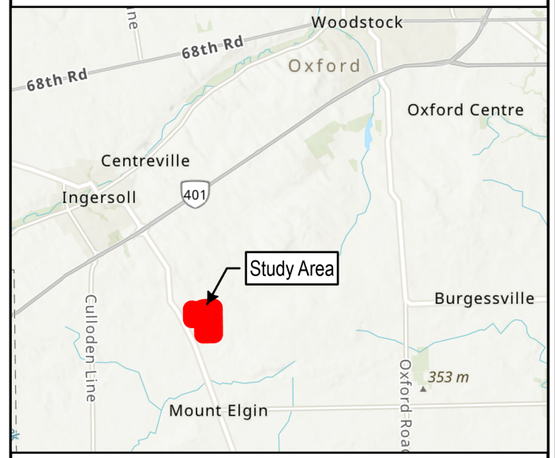
Figure 1

Study Area

Study Area

Fill Areas

Subject Property



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COUNTY OF OXFORD

Figure Title

OXFORD LF SOUTH FILL AREA EXPANSION

STUDY AREA

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Figure 2

Ecological Land Classification (ELC)

Breeding Bird Survey Station

Ecological Land Classification

Ecological Land Classification - Inclusion

UTRCA Regulation Limit

Ecological Land Classification Complex

Subject Property

Study Area

ELC Descriptions

AG: Agriculture
CVI_2: Disposal and Recycle
CVR: Residential
FODM5-6: Dry - Fresh Sugar Maple - Basswood Deciduous Forest
MAMM1-12: Common Reed Graminoid Mineral Meadow Marsh
OAO: Open Aquatic
SWD: Deciduous Swamp
SWDO2-2: Silver Maple Organic Deciduous Swamp
SWTM2: Dogwood Mineral Deciduous Thicket Swamp
THDM5-1: Gray Dogwood Deciduous Thicket

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Figure Title

OXFORD LF SOUTH FILL AREA EXPANSION

ECOLOGICAL LAND CLASSIFICATION

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Figure 3

Species at Risk (SAR)

Study Area

Subject Property

Ecological Land Classification - Inclusion

Ecological Land Classification

Ecological Land Classification Complex

Candidate Species at Risk Habitat:

Butternut

SAR Bats

Red-headed Woodpecker

Black Ash

Sources:

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Figure Title

OXFORD LF SOUTH FILL AREA EXPANSION

SPECIES AT RISK

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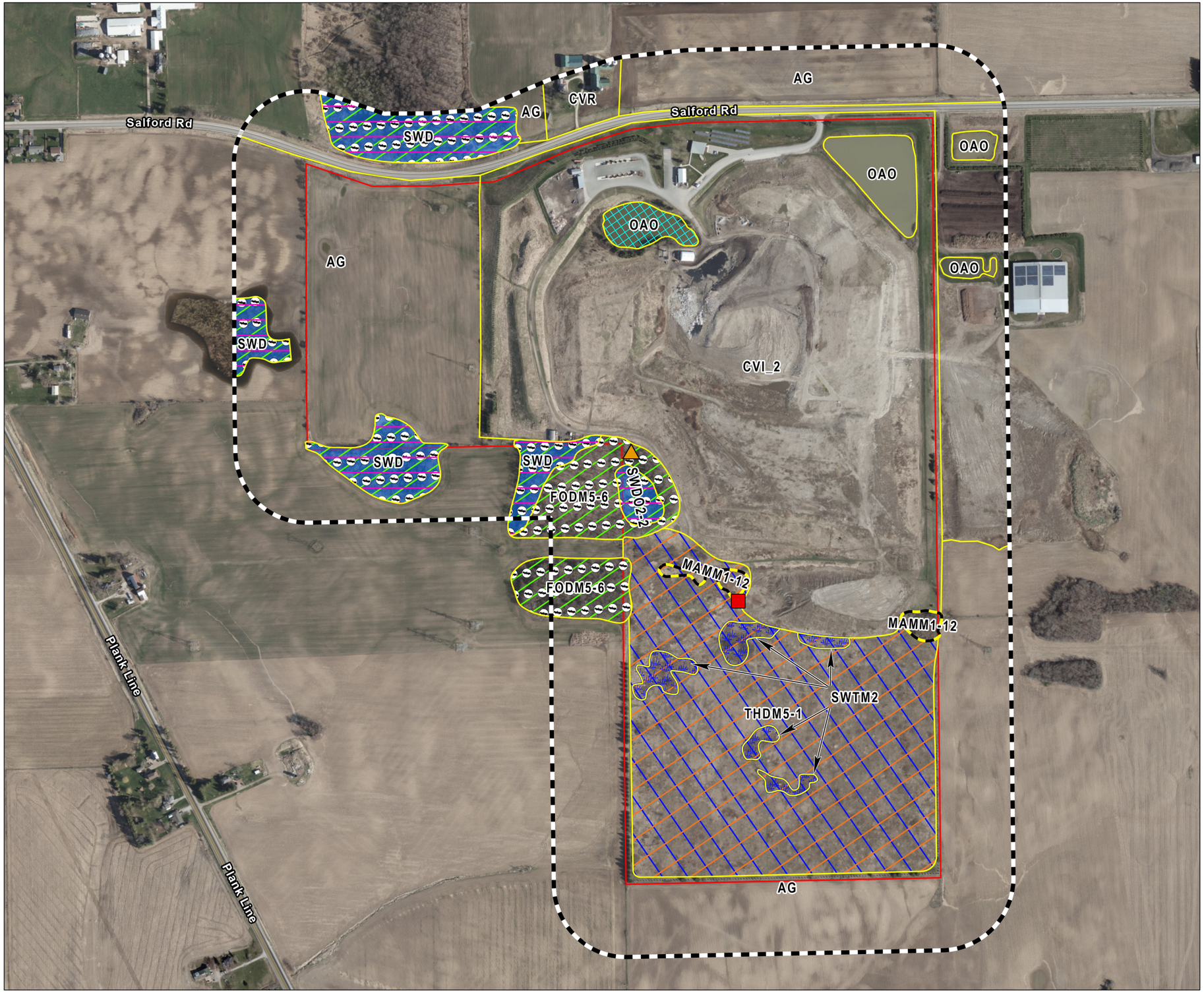
Figure 4

Significant Wildlife Habitat (SWH)



Study Area

Subject Property

Ecological Land Classification - Inclusion

Ecological Land Classification

Ecological Land Classification Complex

Candidate Significant Wildlife Habitat:

Reptile Hibernacula

Waterfowl Stopover and Staging Areas and Waterfowl Nesting Area

Bat Maternity Colonies

Amphibian Breeding Habitat (Woodland) and Turtle Wintering Areas and Terrestrial Crayfish

Candidate Special Concern and Rare Wildlife Species Habitat:

Eastern Wood-pewee and Wood Thrush and Canada Warbler

Snapping Turtle

Confirmed Significant Wildlife Habitat:

Terrestrial Crayfish

Shrub/Early Successional Bird Breeding Habitat

Snapping Turtle

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COUNTY OF OXFORD

Figure Title

OXFORD LF SOUTH FILL AREA EXPANSION

SIGNIFICANT WILDLIFE HABITAT

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Attachment A
SAR Screening Table

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present on Site?	Species Observed?
Anthropods									
Monarch Butterfly	Danaus plexippus	S2N,S4B	SC	END	SC	Schedule 1	Throughout their life cycle, Monarchs use three different types of habitat. Only the caterpillars (larvae) feed on milkweed plants and are confined to meadows and open areas where milkweed grows. Adult butterflies can be found in more diverse habitats where they feed on nectar from a variety of wildflowers. Monarchs spend the winter in Oyamel Fir forests found in central Mexico. The largest threat to Ontario Monarchs is habitat loss and fragmentation at overwintering sites in central Mexico where forests are being logged and converted into agricultural fields and pastures. Widespread pesticide and herbicide use throughout the Monarch's range may also limit recovery.10	Moderate potential. May be present within the CUM1 community.	Not observed.
Birds									
Acadian Flycatcher	Empidonax virescens	S1B	END	END	END	Schedule 1	Generally requires large areas of mature, undisturbed forest; avoids the forest edge; often found in well wooded swamps and ravines.7	No potential to be supported. Acadian Flycatcher is an area sensitive species typically occuring within forests spanning a minimum of 25 ha.	N/A
Bank Swallow	Riparia riparia	S4B	THR	THR	THR	Schedule 1	Prefers open habitats including, farmland, lake/river shorelines, grasslands, and wetlands. Nests in exposed earthen banks along shorelines and in artificial sites such as gravel pits.7	Confirmed absent. Suitalbe banks to support Bank Swallow are not supported within the Study Area.	N/A
Barn Swallow	Hirundo rustica	S4B	THR	SC	THR	Schedule 1	Prefers farmland, lake/river shorelines, wooded clearings, urban populated areas, rocky cliffs, and wetlands. Nests inside or on exterior of buildings; under bridges and in road culverts; on rock faces, and in caves, etc.8	Moderate potential. May be supported on structures present within the south fill area. These structures will not be altered as a part of the proposed expansion.	Confirmed present. Confirmed present. Observed foraging over the westernmost naturalized stormwater management facility.
Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	THR	Schedule 1	Generally prefers open grasslands and hay fields for nesting, typically featuring relatively tall vegetation. Sometimes uses large fields of winter wheat and rye in southwestern Ontario. Sensitive to vegetation structure and composition. Positively associated with high grass-to-forb ratios; moderate litter depth; tolerate wetter portions of fields compared to Eastern Meadowlark (EAME) and more likely to nest closer to field centres rather than field margins. Lower tolerance to presence of patches of bare ground. Appear to prefer larger fields than EAME.9	No potential. Suitable habitat to support this species is absent from the Study Area.	N/A
Canada Warbler	Cardellina canadensis	S5B	SC	SC	THR	Schedule 1	Generally prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer. Nests on the ground, on logs or hummocks, and uses dense shrub layer to conceal the nest.7	Low potential. May be supported within remnant SWD and FOD communities.	Not observed.
Chimney Swift	Chaetura pelagica	S3B	THR	THR	THR	Schedule 1	Historically nested in large hollow trees, other tree cavities and cracks in cliffs. Currently, most are found in developed areas in large, uncapped chimneys. Proximity to lakes is also a preferred habitat feature as they will forage for flying insects close to water.7	Unlikely to occur. On-site structures lack chimneys capable of supporting Chimney Swift. Suitably large trees may be supported within FOD communities.	Not observed.
Eastern Meadowlark	Sturnella magna	S4B, S3N	THR	THR	THR	Schedule 1	Generally prefers grassy pastures, meadows and hay fields. Prefers moderately tall grass with abundant litter cover, a high proportion of grass cover, moderate forb density, low proportions of shrub and woody vegetation cover, and low percent of bare ground. Prefers to nest in drier sites and frequently nests around field margins.9	No potential. Suitable habitat to support this species is absent from the Study Area.	Not observed.

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present on Site?	Species Observed?
Eastern Wood-pewee	Contopus virens	S4B	SC	SC	SC	Schedule 1	Prefers open space near the nest in the form of forest edges, clearings, roadways, and water. Does not require large areas of woods but occurs less frequently in woodlots surrounded by development than in those without.7	Moderate potential. Suitable habitat to support Eastern Wood-pewee within the FOD and SWD communities.	Not observed.
Grasshopper Sparrow	Ammodramus savannarum pratensis	S4B	SC	SC	SC	Schedule 1	Prefers drier, sparsely vegetated grasslands, particularly rough or unimproved pastures with scattered forb and shrub growth, at least 30 ha in size. It will occasionally also use cultivated hayfields and cereal crops.7	No potential. Suitable habitat to support this species is absent from the Study Area.	N/A
Red-headed Woodpecker	Melanerpes erythrocephalus	S3	SC	END	END	Schedule 1	Breeds in open woodland and woodland edges, especially oak savannah and riparian forest. These habitats can occur in parks, golf courses, cemeteries and private woodlands. Existence of large, dead, weathered trees or live trees with large dead branches are an important characteristic of habitat.7	High potential. Suitable habitat to support Red-headed Woodpecker may occur in association with the FOD and SWD communities. Recent records for this species occur approximately 600m west of the site.	Not observed.
Wood Thrush	Hylocichla mustelina	S4B	SC	THR	THR	Schedule 1	Inhabits and breeds in woodlands ranging from small (3 ha) and isolated to large and contiguous. The presence of tall trees and a thick understorey are usually prerequisites for site occupancy.7	Moderate potential. FOD and SWD communities span >3.0h and may provide suitable characteristics to support Wood Thrush.	Not observed.
Mammals									
American Badger	Taxidea taxus	S2				0	Generally prefers open habitats, whether natural (grasslands) or manmade (agricultural fields, road rights-of-ways, golf courses).10	No potential. Suitable soils are not present within the Study Area to support this species.	N/A
Eastern Small-footed Myotis	Myotis leibii	S2	END	END	END	Schedule 1	Overwintering habitat: Caves and abandoned mines. According to the Recovery Strategy for the Eastern Small-footed Myotis in Ontario, summer / roosting habitats used by the species in Ontario are poorly understood, but elsewhere in its range it primarily roosts in open, sunny rocky habitats, and, occasionally, in buildings. Summer roosts for this species are believed to be located in close proximity to their hibernacula (i.e., less than 100 m). The species' preference for rocky habitats in summer may limit an individual's home range to those rocky areas which also contain hibernacula (i.e., karst areas and Canadian Shield areas containing abandoned mines with adits).16	No potential. Suitable structures (i.e. rockpiles) not present within the SFA.	N/A
Little Brown Myotis	Myotis lucifugus	S3	END	END	END	Schedule 1	Overwintering habitat: Caves and mines that remain above 0 degrees Celsius. Maternal Roosts: Often associated with buildings (attics, barns etc.). Occasionally found in trees (25-44 cm dbh).15	Moderate potential. May be supported within the FOD and SWD communities.	Not observed.
Northern Myotis	Myotis septentrionalis	S3	END	END	END	Schedule 1	Overwintering habitat: Caves and mines that remain above 0 Maternal Roosts: Often associated with cavities of large diameter trees (25-44 cm dbh). Occasionally found in structures (attics, barns etc.)15	Moderate potential. May be supported within the FOD and SWD communities.	Not observed.
Tri-colored Bat	Perimyotis subflavus	S3?	END	END	END	Schedule 1	Overwintering habitat: Deepest parts of caves and mines where temperature is the least variable. Maternal Roosts: Less is known about roosts of Tri-colored Bats. Most roost sites found within forested habitats. May roost in clumps of dead foliage and lichens. In more anthropogenically modified landscapes, maternity roosts may be barns or similar human-made structures.15	Moderate potential. May be supported within the FOD and SWD communities.	Not observed.
Reptiles									
Eastern Hog-nosed Snake	Heterodon platirhinos	S3	THR	THR	THR	Schedule 1	The Eastern Hog-nosed Snake specializes in hunting and eating toads, and usually only occurs where toads can be found. Eastern Hog-nosed Snakes prefer sandy, well-drained habitats such as beaches and dry forests where they can lay their eggs and hibernate. They use their up-turned snout to dig burrows below the frost line in the sand where eggs are deposited.	No potential. Suitable soils are not present within the Study Area to support this species.	N/A

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present on Site?	Species Observed?
Snapping Turtle	Chelydra serpentina	S4	SC	SC	SC	Schedule 1	Generally inhabit shallow waters where they can hide under the soft mud and leaf litter. Nesting sites usually occur on gravely or sandy areas along streams. Snapping Turtles often take advantage of man-made structures for nest sites, including roads (especially gravel shoulders), dams and aggregate pits.10	Low potential. May be supported within pools of the SWD community.	Confirmed present within the OAO (westermost naturalized stormwater management facility). Suitable habitat will not be altered.
Vegetation									
American Chestnut	Castanea dentata	S1S2	END	END	END	Schedule 1	Found in deciduous forest communities; this tree prefers arid forests with acid and sandy soils.20	No potential. Suitable soils to support this species are absent.	N/A
American Ginseng	Panax quinquefolius	S2	END	END	END	Schedule 1	Grows in rich, moist, undisturbed and relatively mature deciduous woods in areas of neutral soil (such as over limestone or marble bedrock).20	Unlikely to be supported. Typically associated with mature old-growth forest. Remnant FOD patches are unlikely to be suitable to support this species.	Not observed.
Butternut	Juglans cinerea	S2?	END	END	END	Schedule 1	Butternut grows best in rich, moist and well-drained soils or limestone gravel sites. They are less commonly found in dry, rocky and sterile soils. They generally grow alone or in small groups in deciduous forests that are commonly comprised of Basswood, Black Cherry, Beed, Black Walnut, Elm, Hemlock, Hickory, Oak, Red Maple, Sugar Maple, Poplar, White Ash and Yellow Birch.6 In Ontario, they can be found throughout the southern Ontario, south of the Canadian Shield.10	Moderate potential. May be supported within the FOD commmunity.	Confirmed absent from the Subject Lands. Butternut may be supported on the adjacent lands
Black Ash	Fraxinus nigra	S4	END	THR		0	Occurs in wetlands including swamps, floodplains, fens up to 51° latitude.10	Moderate potential. Suitable habitat to support this species occurs in association with the SWD communities.	Confirmed absent from the Subject Lands.
Crooked-stem aster	Symphyotrichum prenanthoides	S2?	SC	SC	SC	Schedule 1	Occurs in rich, sandy soils along the margins of forests and forest openings. Also known to occur along the banks of watercourses draining into Lake Erie. 10	No potential. Suitable soils to support this species are absent.	N/A
Green Dragon	Arisaema dracontium	S3	SC	SC	SC	0	Occurs within wet deciduous forests, swamps, and along watercourses as well as floodplains.10	Low potential. May be supported within the SWD communities.	Not observed.

[1]S-Ranks (provincial)

Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario.

(Provinical Status from MNR Biodiversity Explorer September 2012)

S1 Critically Imperiled - Critically imperiled in the nation or state/province because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the state/province.

S2 Imperiled - Imperiled in the nation or state/province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the nation or state/province.

S3 Vulnerable - Vulnerable in the nation or state/province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.

[2]SARO *Endangered Species Act, 2007*

(provincial status from MNR December 2014)

The provincial review process is implemented by the MNR's Committee on the Status of Species at Risk in Ontario (COSSARO).

EXT Extinct - A species that no longer exists anywhere.

EXP Extirpated - A species that no longer exists in the wild in Ontario but still occurs elsewhere.

END Endangered - A species facing imminent extinction or extirpation in Ontario which is a candidate for regulation under Ontario's Endangered Species Act (ESA) (END-R designations are no longer relevant as species are covered under new ESA April 2009)

THR Threatened - A species that is at risk of becoming endangered in Ontario if limiting factors are not reversed.

SC Special Concern (formerly Vulnerable) - A species with characteristics that make it sensitive to human activities or natural events.

NAR Not at Risk - A species that has been evaluated and found to be not at risk.

DD Data Deficient (formerly Indeterminate) - A species for which there is insufficient information for a provincial status recommendation.

Project Name: Waste Management Facility\Design and Operations Plan - South Fill Area Expansion
Project Number: 300058964.0000

COMMON NAME	SCIENTIFIC NAME	Provincial S-RANK[1]	Provincial SARO Status[2]	COSEWIC[3]	Federal SARA Status[3]	Federal SARA Schedule[4]	Habitat Description	Habitat Present on Site?	Species Observed?

[3]SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)

The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or a Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

EXT Extinct - A wildlife species that no longer exists.

EXP Extirpated - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere in the wild.

END Endangered - A wildlife species that is facing imminent extirpation or extinction.

THR Threatened - A wildlife species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction.

SC Special Concern - A wildlife species that may become a threatened or an endangered species because of a combination of biological characteristics and identified threats.

[4]SARA Schedule

Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.

Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

[5]Habitat Present on Site

Determination of suitability of the site to be support each species based on 'Key Habitats Used By Species'.

Yes - Specific habitat present and species and / or evidence observed;

Likely – The whole study area or portions of it contain conditions that could support the species;

Unlikely – Few similarities between study area conditions and preferred habitat exist;

No - Specific habitat not present and species and / or evidence not observed

[6]Species Observed

Reported sighting of species during fall field investigations by RJB biologists

Additional Sources:

Sources:

[7] Cadman, M.D., et al. (eds). 2007. *Atlas of the Breeding Birds of Ontario, 2001-2005*. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto, xxii + 706 pp

[8] Species at Risk Public Registry http://www.sararegistry.gc.ca

[9] McCracken, J.D. et al. 2013. Recovery Strategy for the Bobolink (Dolichonyx oryzivorus) and Eastern Meadowlark (Sturnella magna) in Ontario .Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario, viii + 88 pp.

[10] MNR SARO List Species Descriptions (http://www.mnr.gov.on.ca/en/Business/Species/2ColumnSubPage/MNR_SAR_CSSR_SARO_LST_EN.html)

[11] COSEWIC Species Assessment Report

[12] Naughton, Donna. 2012. *The Natural History of Canadian Mammals*. Canadian Museum of Nature and University of Toronto Press, Toronto, + 784 pp

[13]Farrar, John Laird, 2017, *Trees in Canada*, Natural Resources Canada | Canada Forest Services, and, Fitchenry &Whiteside Limited, pp.238 - 239

[14]Ontario Nature Reptile and Amphibian Atlas (https://ontarionature.org/programs/citizen-science/reptile-amphibian-atlas/species/)

[15]Environment Canada. 2015. Recovery Strategy for Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) in Canada [Proposed]. Species at Risk Act Recovery Strategy Series. Environment Canada, Ottawa. Ix + 110 pp.

16Humphrey, C. 2017. Recovery Strategy for the Eastern Small-footed Myotis (Myotis leibii) in Ontario. Ontario Recovery Strategy Series. Prepared for the Ontario Ministry of Natural Resources and Forestry, Peterborough, Ontario. vii + 76 pp.

[17]Department of Fisheries and Oceans (DFO) Aquatic Species at Risk found online at: http://www.dfo-mpo.gc.ca/species-especes/sara-lep/identify-eng.html.

[18]Paulson, D. 2011. Dragonflies and Damselflies of the East. Princeton University Press, Princeton, NJ.

[19]Harding, J.H., 1997. Amphibians and Reptiles of the Great Lakes Region. The University of Michigan Press. Ann Arbor, Michigan

[20]MNRF. 2018. City of Niagara Falls Species at Risk Table. Guelph District.

[21]Michigan Flora found online at https://michiganflora.net/search.aspx

[22]Natural Heritage Information Centre (https://www.ontario.ca/page/get-natural-heritage-information)

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Attachment B

SWH Screening Table for Ecoregion 7E

Project Name: Waste Management Facility\Design and Operations Plan - South Fill Area Expansion

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Project Number: 300058964.0000

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Table 1.1: Seasonal Concentration Areas of Animals						
Waterfowl Stopover & Staging Areas (Terrestrial) **<u>Rationale</u>**: Habitat important to migrating waterfowl.	CUM1 CUT1 - Plus evidence of annual spring flooding from melt water or run-off within these ecosites. Fields with seasonal flooding and waste grains in the Long Point, Rondeau, Lake St. Clair, Grand Bend and Point Pelee areas may be important to Tundra Swans.	Fields with sheet water during Spring (mid-March to May). • Fields flooding during spring melt and run-off provide important invertebrate foraging habitat for migrating waterfowl. • Agricultural fields with waste grains are commonly used by waterfowl, these are not considered SWH unless they have spring sheet water available.	Low potential within the project limits and Study Area. • The CUT1 community is sufficiently large to support large aggregations of waterfowl. • It is unknown if seasonal flooding is present within this area. Dark areas that may indicate areas of seasonal flooding are not visible on recent airphotos.	American Black Duck Northern Pintail Gadwall Blue-winged Teal Green-winged Teal American Wigeon Northern Shoveler Tundra Swan	Studies carried out and verified presence of an annual concentration of any listed species, evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects. • Any mixed species aggregations of 100 or more individuals required. • The flooded field ecosite habitat plus a 100-300 m radius area, dependent on local site conditions and adjacent land use is the SWH. • Annual use of habitat is documented from information sources or field studies (annual use can be based on studies or determined by past surveys with species numbers and dates). • **SWHMiST Index #7** provides development effects and mitigation measures.	Candidate SWH
Waterfowl Stopover & Staging Areas (Aquatic) **<u>Rationale:</u>**	MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7	• Ponds, marshes, lakes, bays, coastal inlets, and watercourses used during migration. Sewage treatment ponds and SWM ponds do not qualify as a SWH, however a reservoir managed as a large wetland or pond/lake does qualify. • These habitats have an abundant food supply (mostly aquatic invertebrates and	No potential within the project limits and Study Area. • The SWD community ois not sufficiently large to support large aggregations of waterfowl. • Ponds within the project limits are utilized for stormwater management and do not constitute SWH	Canada Goose Cackling Goose Snow Goose American Black Duck Northern Pintail Northern Shoveler American Wigeon Gadwall Green-winged Teal Blue-winged Teal Hooded Merganser Common Merganser Lesser Scaup Greater Scaup Long-tailed Duck	**Studies carried out & verified presence of:** • Aggregations of 100 or more of listed species for 7 days, results in >700 waterfowl use days. • Areas with annual staging of ruddy ducks, canvasbacks, and redheads are SWH. • The combined area of the Ecological Land Classification (ELC) ecosites and a 100 m radius area is the SWH. • Wetland area and shorelines associated with sites identified within the SWHTG Appendix K are SWH.	No potential. Suitably large communities capable of supporting large aggregations of waterfowl are absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Important for local and migrant waterfowl populations during the spring or fall migration or both periods combined. Sites identified are usually only one of a few in the eco-district.		vegetation in shallow water).		Surf Scoter White-winged Scoter Black Scoter Ring-necked duck Common Goldeneye Bufflehead Redhead Ruddy Duck Red-breasted Merganser Brant Canvasback Ruddy Duck	• Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • Annual Use of Habitat is Documented from Information Sources or Field Studies (Annual can be based on completed studies or determined from past surveys with species numbers and dates recorded). • **SWHMiST Index #7** provides development effects and mitigation measures.	
Shorebird Migratory Stopover Area **<u>Rationale</u>:** High quality shorebird stopover habitat is extremely rare and typically has a long history of use.	BBO1 BBO2 BBS1 BBS2 BBT1 BBT2 SDO1 SDS2 SDT1 MAM1 MAM2 MAM3 MAM4 MAM5	• Shorelines of lakes, rivers and wetlands, including beach areas, bars and seasonally flooded, muddy and un-vegetated shoreline habitats. • Great Lakes coastal shorelines, including groynes and other forms of armour rock lakeshores, are extremely important for migratory shorebirds in May to mid-June and early July to October. • Sewage treatment ponds and storm water ponds do not qualify as a SWH.	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the Study Area.	Greater Yellowlegs Lesser Yellowlegs Marbled Godwit Hudsonian Godwit Black-bellied Plover American Golden-Plover Semipalmated Plover Solitary Sandpiper Spotted Sandpiper Semipalmated Sandpiper Pectoral Sandpiper White-rumped Sandpiper Baird’s Sandpiper Least Sandpiper Purple Sandpiper Stilt Sandpiper Short-billed Dowitcher Red-necked Phalarope Whimbrel RuddyTurnstone Sanderling Dunlin	**Studies confirming:** • Presence of 3 or more of listed species and >1000 shorebird use days during spring or fall migration period (shorebird use days are the accumulated number of shorebirds counted per day over the course of the fall or spring migration period). • Whimbrel stop briefly (<24 hrs.) during spring migration, any site with >100 Whimbrel used for 3 years or more is significant. • The area of significant shorebird habitat includes the mapped ELC shoreline ecosites plus a 100 m radius area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #8** provides development effects and mitigation measures.	No potential. Suitably large communities capable of supporting large aggregations of shorebirds are absent.
Raptor Wintering Area **<u>Rationale</u>:** Sites used by multiple species, a high number of	<u>Hawks/Owls:</u> Combination of ELC Community Series; need to have present one Community Series from each land class;	• The habitat provides a combination of fields and woodlands that provide roosting, foraging and resting habitats for wintering raptors.	No potential within the project limits and Study Area. • Forested areas within the Study Area and general vicinity are not sufficiently large to support overwintering raptors.	Rough-legged Hawk Red-tailed Hawk Northern Harrier American Kestrel Snowy Owl **<u>Special Concern:</u>**	**Studies confirm the use of these habitats by:** • One or more Short-eared Owls or; One or more Bald Eagles or; At least 10 individuals and two of the listed hawk/owl species.	No potential. Suitably large forested communities to support nesting raptors are absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
individuals and used annually are most significant.	Forest: FOD, FOM, FOC. Upland: CUM; CUT; CUS; CUW. Bald Eagle: Forest community Series: FOD, FOM, FOC, SWD, SWM or SWC on shoreline areas adjacent to large rivers or adjacent to lakes with open water (hunting area).	• Raptor wintering sites (hawk/owl) need to be **>** 20 ha, with a combination of forest and upland. • Least disturbed sites, idle/fallow or lightly grazed field/meadow (>15ha) with adjacent woodlands. • Field area of the habitat is to be wind swept with limited snow depth or accumulation. • Eagle sites have open water, large trees and snags available for roosting.		Short-eared Owl Bald Eagle	• To be significant a site must be used regularly (3 in 5 years) for a minimum of 20 days by the above number of birds. • The habitat area for an Eagle winter site is the shoreline forest ecosites directly adjacent to the prime hunting area. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects.” • **SWHMiST Index #10 and #11** provides development effects and mitigation measures.	
Bat Hibernacula **Rationale**: Bat hibernacula are rare habitats in all Ontario landscapes.	**Bat Hibernacula may be found in these ecosites:** CCR1 CCR2 CCA1 CCA2 (Note: buildings are not considered to be SWH)	• Hibernacula may be found in caves, mine shafts, underground foundations and Karsts. • Active mine sites should not be considered as SWH. • The locations of bat hibernacula are relatively poorly known.	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.	Big Brown Bat Tri-coloured Bat	• All sites with confirmed hibernating bats are SWH. • The habitat area includes a 200 m radius around the entrance of the hibernaculum for most development types and 1000 m for wind farms. • Studies are to be conducted during the peak swarming period (August to September). Surveys should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #1** provides development effects and mitigation measures.	No potential. Suitable habitat to support this feature are absent.
Bat Maternity Colonies	Maternity colonies considered SWH are	• Maternity colonies can be found in tree cavities, vegetation and often in	Moderate potential within the project limits and Study Area.	Big Brown Bat Silver-haired Bat	• Maternity Colonies with confirmed use by:	Candidate SWH.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
<u>Rationale:</u> Known locations of forested bat maternity colonies are extremely rare in all Ontario landscapes.	found in forested ecosites. **All ELC ecosites in ELC Community Series:** FOD FOM SWD SWM	buildings are not considered to be SWH). • Maternity roosts are not found in caves and mines in Ontario. • Maternity colonies located in Mature deciduous or mixed forest stands with >10/ha large diameter (>25 cm dbh) wildlife trees. • Female Bats prefer wildlife tree (snags) in early stages of decay, class 1-3 or class 1 or 2. • Silver-haired Bats prefer older mixed or deciduous forest and form maternity colonies in tree cavities and small hollows. Older forest areas with at least 21 snags/ha are preferred.	• The FODM5-6 and SWDO2-2 communities prssent within the Study Area may provide sufficient habitat to support Bat Maternity Colonies.		– >10 Big Brown Bats – >5 Adult Female Silver- haired Bats • The area of the habitat includes the entire woodland, or a forest stand ELC ecosite or an ecoelement containing the maternity colonies. • Evaluation methods for maternity colonies should be conducted following methods outlined in the “Bats and Bat Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #12** provides development effects and mitigation measures.	
Turtle Wintering Areas **<u>Rationale:</u>** Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	Snapping and Midland Painted Turtles. **ELC Community Classes:** SW, MA, OA and SA **ELC Community Series:** FEO and BOO	• For most turtles, wintering areas are in the same general area as their core habitat. Water has to be deep enough not to freeze and have soft mud substrates. • Over-wintering sites are permanent water bodies, large wetlands, and bogs or fens with adequate Dissolved Oxygen. • Man-made ponds such as sewage lagoons or storm water ponds	Low potential within the project limits and Study Area. • Standing water within the SWD community may support turtle overwintering. This community is isolated from watercourses and larger, contiguous wetland complexes capable of supporting overwintering turtles. • Three Midland Painted Turtkes were observed incidentally within the SWDO2-2 community.	Midland Painted Turtle **<u>Special Concern:</u>** Northern Map Turtle Snapping Turtle	• Presence of 5 over-wintering Midland Painted Turtles is significant. • One or more Northern Map Turtle or Snapping Turtle over-wintering within a wetland is significant. • The mapped ELC ecosite area with the over wintering turtles is the SWH. If the hibernation site is within a stream or river, the deep-water pool where the turtles are over wintering is the SWH. • Over wintering areas may be identified by searching for congregations (Basking Areas) of turtles on warm, sunny days during the fall (September–October) or spring (March–May).	Candidate SWH

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
	For Northern Map Turtle: Open Water areas such as deeper rivers or streams and lakes with current can also be used as over-wintering habitat.	should not be considered SWH.			• Congregation of turtles is more common where wintering areas are limited and therefore significant. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle wintering habitat.	
Reptile Hibernaculum **<u>Rationale</u>**: Generally, sites are the only known sites in the area. Sites with the highest number of individuals are most significant.	For all snakes, habitat may be found in any ecosite other than very wet ones. Talus, Rock Barren, Crevice, Cave, and Alvar sites may be directly related to these habitats. Observations or congregations of snakes on sunny warm days in the spring or fall is a good indicator.	• For snakes, hibernation takes place in sites located below frost lines in burrows, rock crevices and other natural or naturalized locations. The existence of features that go below frost line; such as rock piles or slopes, old stone fences, and abandoned crumbling foundations assist in identifying candidate SWH. • Areas of broken and fissured rock are particularly valuable since they provide access to subterranean sites below the frost line. • Wetlands can also be important over-wintering habitat in conifer or shrub swamps and swales, poor fens, or depressions in bedrock terrain with sparse trees or shrubs with sphagnum moss or sedge hummock groundcover.	Moderate potential within the FODM5-6 community. • Two rockpiles were identified within the FODM5-6 community which may support reptile overwintering.	**<u>Snakes</u>**: Eastern Gartersnake Northern Watersnake Northern Red-bellied Snake Northern Brownsnake Smooth Green Snake Northern Ring-necked Snake **<u>Special Concern</u>**: Milksnake Eastern Ribbonsnake	**Studies confirming:** • Presence of snake hibernacula used by a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. • Congregations of a minimum of five individuals of a snake sp. or; individuals of two or more snake spp. near potential hibernacula (e.g., foundation or rocky slope) on sunny warm days in Spring (April/May) and Fall (September/October). • **Note**: If there are Special Concern Species present, then site is SWH. • **Note:** Sites for hibernation possess specific habitat parameters (e.g., temperature, humidity, etc.) and consequently are used annually, often by many of the same individuals of a local population (i.e., strong hibernation site fidelity). Other critical life processes (e.g., mating) often take place in close proximity to hibernacula. The feature in which the hibernacula is located plus a 30 m radius area is the SWH. • **SWHMiST Index #13** provides development effects and mitigation measures for snake hibernacula.	Candidate SWH.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Colonially - Nesting Bird Breeding Habitat (Bank & Cliff) **<u>Rationale</u>:** Historical use and number of nests in a colony make this habitat significant. An identified colony can be very important to local populations. All swallow population are declining in Ontario.	Eroding banks, sandy hills, borrow pits, steep slopes, and sand piles. Cliff faces, bridge abutments, silos, barns. **Habitat found in the following ecosites:** CUM1 CUT1 CUS1 BLO1 BLS1 BLT1 CLO1 CLS1 CLT1	• Any site or areas with exposed soil banks, undisturbed or naturally eroding that is not a licensed/permitted aggregate area. • Does not include man-made structures (bridges or buildings) or recently (2 years) disturbed soil areas, such as berms, embankments, soil or aggregate stockpiles. • Does not include a licensed/permitted Mineral Aggregate Operation.	No potential within the project area • Berms and embankments for soil stockpiles utilized within the north fill areas do not qualify as SWH. No potential within the Study Area. Suitable features are absent.	Cliff Swallow Northern Rough-winged Swallow (this species is not colonial but can be found in Cliff Swallow colonies)	**Studies confirming:** • Presence of 1 or more nesting sites with 8 or more cliff swallow pairs and/or rough-winged swallow pairs during the breeding season. • A colony identified as SWH will include a 50 m radius habitat area from the peripheral nests. • Field surveys to observe and count swallow nests are to be completed during the breeding season. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #4** provides development effects and mitigation measures.	No potential. Vertical faces are absent.
Colonially - Nesting Bird Breeding Habitat (Tree/Shrubs) **<u>Rationale:</u>** Large colonies are important to local bird population, typically sites are only known colony in area and are used annually.	SWM2 SWM3 SWM5 SWM6 SWD1 SWD2 SWD3 SWD4 SWD5 SWD6 SWD7 FET1	• Nests in live or dead standing trees in wetlands, lakes, islands, and peninsulas. Shrubs and occasionally emergent vegetation may also be used. • Most nests in trees are 11 to 15 m from ground, near the top of the tree.	Unlikely to be present within the project limits and Study Area • SWD communities are adjacent to an active waste management facility and roadway. Colonially nesting breeding bird habitat SWH is known to be sensitive to anthropogenic disturbance and human activity/	Great Blue Heron Black-crowned Nigh-Heron Great Egret Green Heron	**Studies confirming:** • Presence of 2 or more active nests of Great Blue Heron or other listed species. • The habitat extends from the edge of the colony and a minimum 300 m radius or extent of the Forest ecosite containing the colony or any island <15.0 ha with a colony is the SWH. • Confirmation of active heronries are to be achieved through site visits conducted during the nesting season (April to August) or by evidence such as the presence of fresh guano, dead young and/or eggshells. • **SWHMiST Index #5** provides development effects and mitigation measures.	No potential. Stick nests were not observed on-site.
Colonially - Nesting Bird Breeding Habitat (Ground)	Any rocky island or peninsula (natural or artificial) within a lake or	• Nesting colonies of gulls and terns are on islands or peninsulas associated with open	No potential within the project limits and Study Area.	Herring Gull Great Black-backed Gull Little Gull Ring-billed Gull	**Studies confirming:** • Presence of > 25 active nests for Herring Gulls or Ring-billed Gulls, >5	No potential. Suitable ELC communities to support this feature are absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
<u>Rationale:</u> Colonies are important to local bird population, typically sites are only known colony in area and are used annually.	large river (two-lined on a 1;50,000 NTS map). Close proximity to watercourses in open fields or pastures with scattered trees or shrubs (Brewer's Blackbird). MAM1 – 6 MAS1 – 3 CUM CUT CUS	water or in marshy areas. • Brewers Blackbird colonies are found loosely on the ground in low bushes in close proximity to streams and irrigation ditches within farmlands.	• Suitable ecosistes to support this feature are absent from the project limits and Study Area.	Common Tern Caspian Tern Brewer's Blackbird	active nests for Common Tern or >2 active nests for Caspian Tern. • Presence of 5 or more pairs for Brewer's Blackbird. • Any active nesting colony of one or more Little Gull, and Great Black-backed Gull is significant. • The edge of the colony and a minimum 150 m radius area of habitat, or the extent of the ELC ecosites containing the colony or any island <3.0 ha with a colony is the SWH. • Studies would be done during May/June when actively nesting. Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #6** provides development effects and mitigation measures.	
Migratory Butterfly Stopover Areas **<u>Rationale:</u>** Butterfly stopover areas are extremely rare habitats and are biologically important for butterfly species that migrate south for the winter.	Combination of ELC Community Series; need to have present one Community Series from each land class. <u>Field</u>: CUM CUT CUS <u>Forest</u>: FOC FOD FOM CUP Anecdotally, a candidate site for butterfly stopover will have a history of butterflies being observed.	• A butterfly stopover area will be a minimum of 10 ha in size with a combination of field and forest habitat present and will be located within 5 km of Lake Erie or Ontario. • The habitat is typically a combination of field and forest and provides the butterflies with a location to rest prior to their long migration south. • The habitat should not be disturbed, fields/meadows with an abundance of preferred nectar plants and woodland edge providing shelter are	No potential within the project limits or Study Area. • The Study Area is not located within 5km of Lake Erie or Lake Ontario.	Painted Lady Red Admiral <u>Special Concern</u> Monarch	S**tudies confirm:** • The presence of Monarch Use Days (MUD) during fall migration (August/October). MUD is based on the number of days a site is used by Monarchs, multiplied by the number of individuals using the site. Numbers of butterflies can range from 100-500/day, significant variation can occur between years and multiple years of sampling should occur. • Observational studies are to be completed and need to be done frequently during the migration period to estimate MUD. • MUD of >5000 or >3000 with the presence of Painted Ladies or Red Admiral's is to be considered significant.	No potential. The Study Area is located >5km from Lake Eries / Lake Ontario.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		requirements for this habitat. • Staging areas usually provide protection from the elements and are often spits of land or areas with the shortest distance to cross the Great Lakes.			• **SWHMiST Index #16** provides development effects and mitigation measures.	
Landbird Migratory Stopover Areas **<u>Rationale:</u>** Sites with a high diversity of species as well as high numbers are most significant.	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Woodlots >5 ha in size and within 5 km of Lake Erie and Ontario. • If woodlands are rare in an area of shoreline, woodland fragments 2-5 ha can be considered for this habitat. • If multiple woodlands are located along the shoreline those Woodlands <2 km from Lake Ontario are more significant. • Sites have a variety of habitats; forest, grassland and wetland complexes. • The largest sites are more significant. • Woodlots and forest fragments are important habitats to migrating birds, these features located along the shore and located within 5 km of Lake Erie and Ontario are Candidate SWH.	No potential within the project limits or Study Area. • The Study Area is not located within 5km of Lake Erie or Lake Ontario	All migratory songbirds. Canadian Wildlife Service Ontario website: http://www.ec.gc.ca/nature/default.asp?lang=En&n=421B7A9D-1 All migrant raptors species: *Ontario Ministry of Natural Resources: Fish and Wildlife Conservation Act, 1997.* Schedule 7: Specially Protected Birds (Raptors)	**Studies confirm:** • Use of the habitat by >200 birds/day and with >35 spp with at least 10 bird spp. recorded on at least 5 different survey dates. This abundance and diversity of migrant bird species is considered above average and significant. • Studies should be completed during spring (April/May) and fall (August/October) migration using standardized assessment techniques. Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #9** provides development effects and mitigation measures.	No potential. The Study Area is located >5km from Lake Eries / Lake Ontario.
Deer Winter Congregation Areas	**All Forested ecosites with these ELC Community Series:**	• Woodlots >100 ha in size or if large woodlots are rare in planning area woodlots >50 ha.	Confirmed absent from within the project limits or Study Area	White-tailed Deer	**Studies confirm:** • Deer management is an MNRF responsibility, deer winter congregation	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
<u>Rationale:</u> Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands to reduce or avoid the impacts of winter conditions.	FOC FOM FOD SWC SWM SWD Conifer plantations much smaller than 50 ha may also be used.	• Deer movement during winter in the southern areas of Ecoregion 7E are not constrained by snow depth, however deer will annually congregate in large numbers in suitable woodlands. • Large woodlots > 100 ha and up to 1500 ha are known to be used annually by densities of deer that range from 0.1-1.5 deer/ha. • Woodlots with high densities of deer due to artificial feeding are not significant.			areas considered significant will be mapped by MNRF. • Use of the woodlot by white- tailed deer will be determined by MNRF, all woodlots exceeding the area criteria are significant, unless determined not to be significant by MNRF. • Studies should be completed during winter (January/February) when >20 cm of snow is on the ground using aerial survey techniques, ground or road surveys. or a pellet count deer density survey. • **SWHMiST Index #2** provides development effects and mitigation measures.	
Table 1.2.1: Rare Vegetation Communities						
Cliffs and Talus Slopes **<u>Rationale:</u>** Cliffs and Talus Slopes are extremely rare habitats in Ontario.	**Any ELC ecosite within Community Series:** TAO CLO TAS CLS TAT CLT	• Most cliff and talus slopes occur along the Niagara Escarpment. • A Cliff is vertical to near vertical bedrock >3 m in height. • A Talus Slope is rock rubble at the base of a cliff made up of coarse rocky debris.	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.		• Confirm any ELC Vegetation Type for Cliffs or Talus Slopes. • **SWHMiST Index #21** provides development effects and mitigation measures.	Confirmed absent.
Sand Barren **<u>Rationale;</u>** Sand barrens are rare in Ontario and support rare species. Most Sand Barrens have been lost due to cottage	**ELC ecosites:** SBO1 SBS1 SBT1 Vegetation cover varies from patchy and barren to continuous meadow	A sand barren area >0.5 ha in size. • Sand Barrens typically are exposed sand, generally sparsely vegetated and caused by lack of moisture, periodic fires and erosion. Usually	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.		• Confirm any ELC Vegetation Type for Sand Barrens • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • **SWHMiST Index #20** provides development effects and mitigation measures.	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
development and forestry.	(SBO1), thicket-like (SBS1), or more closed and treed (SBT1). Tree cover always ≤ 60%.	located within other types of natural habitat such as forest or savannah. Vegetation can vary from patchy and barren to tree covered, but less than 60%.				
Alvar **Rationale;** Alvars are extremely rare habitats in Ecoregion 7E.	ALO1 ALS1 ALT1 FOC1 FOC2 CUM2 CUS2 CUT2-1 CUW2 **Five Alvar Indicator Species:** *Carex crawei* *Panicum philadelphicum* *Eleocharis compressa* *Scutellaria parvula* *Trichostema brachiatum* These indicator species are very specific to Alvars within Ecoregion 7E.	• An alvar is typically a level, mostly unfractured calcareous bedrock feature with a mosaic of rock pavements and bedrock overlain by a thin veneer of soil. The hydrology of alvars is complex, with alternating periods of inundation and drought. Vegetation cover varies from sparse lichen-moss associations to grasslands and shrublands and comprising a number of characteristic or indicator plants. Undisturbed alvars can be phyto- and zoogeographically diverse, supporting many uncommon or are relict plant and animals species. Vegetation cover varies from patchy to barren with a less than 60% tree cover. • An Alvar site > 0.5 ha in size. • Alvar is particularly rare in Ecoregion 7E where	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.		**Field studies that identify:** • Four of the five Alvar Indicator Species at a Candidate Alvar site is Significant. • Site must not be dominated by exotic or introduced species (<50% vegetative cover are exotic sp.). • The alvar must be in excellent condition and fit in with surrounding landscape with few conflicting land uses. • **SWHMiST Index #17** provides development effects and mitigation measures.	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		the only known sites are found in the western islands of Lake Erie.				
Old Growth Forest **<u>Rationale;</u>** Due to historic logging practices and land clearance for agriculture, old growth forest is rare in the Ecoregion 7E.	**Forest Community Series:** FOD FOC FOM SWD SWC SWM	• Old Growth forests are characterized by heavy mortality or turnover of over-storey trees resulting in a mosaic of gaps that encourage development of a multi-layered canopy and an abundance of snags and downed woody debris.	Unknown if present • It is not known if the FOD and SWD communities meet the criteria to be considered old growth.		**Field Studies will determine:** • If dominant trees species of the are >140 years old, then the area containing these trees is SWH. • The forested area containing the old growth characteristics will have experienced no recognizable forestry activities (cut stumps will not be present). • The area of forest ecosites combined or an eco-element within an ecosite that contains the old growth characteristics is the SWH. • Determine ELC vegetation types for the forest forest area containing the old growth characteristics. • **SWHMiST Index #23** provides development effects and mitigation measures.	Unknown
Savannah **<u>Rationale:</u>** Savannahs are extremely rare habitats in Ontario.	TPS1 TPS2 TPW1 TPW2 CUS2	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway right of ways are not considered to be SWH. • A Savannah is a tallgrass prairie habitat that has tree cover between 25–60%. • In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.		**Field studies confirm:** • one or more of the Savannah indicator species listed in Appendix N should be present. **Note**: Savannah plant spp. list from Ecoregion 7E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #18** provides development effects and mitigation measures.	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	Habitat Criteria	Presence of Candidate Habitat in the Study Area (within 120 m of the Project)	Wildlife Species	Defining Criteria	Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)
		Lake Erie shoreline, in Brantford and in Toronto area (north of Lake Ontario).				
Tallgrass Prairie **<u>Rationale:</u>** Tallgrass Prairies are extremely rare habitats in Ontario.	TPO1 TPO2	• No minimum size to site. Site must be restored or a natural site. Remnant sites such as railway Right of Ways (ROW) are not considered to be SWH. • A Tallgrass Prairie has ground cover dominated by prairie grasses. An open Tallgrass Prairie habitat has < 25% tree cover. • In Ecoregion 7E, known Tallgrass Prairie and savannah remnants are scattered between Lake Huron and Lake Erie, near Lake St. Clair, north of and along the Lake Erie shoreline, in Brantford and in Toronto area (north of Lake Ontario).	No potential within the project limits and Study Area. • Suitable ecosistes to support this feature are absent from the project limits and Study Area.		**Field studies confirm:** • One or more of the Prairie indicator species listed in Appendix N should be present. **Note:** Prairie plant spp. list from Ecoregion 7E should be used. • Area of the ELC ecosite is the SWH. • Site must not be dominated by exotic or introduced species (<50% vegetative cover is exotic sp.). • **SWHMiST Index #19** provides development effects and mitigation measures.	Confirmed absent.
Other Rare Vegetation Communities **<u>Rationale:</u>** Plant communities that often contain rare species which depend on the habitat for survival.	• Provincially Rare S1, S2 and S3 vegetation communities are listed in Appendix M of the SWHTG. • Any ELC ecosite Code that has a possible ELC Vegetation Type that is Provincially Rare is Candidate SWH.	• ELC ecosite codes that have the potential to be a rare ELC Vegetation Type as outlined in Appendix M. • The MNRF/Natural Heritage Information Centre (NHIC) will have up to date listing for rare vegetation communities. • Rare Vegetation Communities may include beaches, fens,	Unknown if present • The presence of this community will be determined during a site visit during the 2025 growing season.		**Field studies should confirm:** • If an ELC Vegetation Type is a rare vegetation community based on listing within Appendix M of SWHTG. • Area of the ELC Vegetation Type polygon is the SWH. • **SWHMiST Index #37** provides development effects and mitigation measures.	Confirmed absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		forest, marsh, barrens, dunes and swamps.				
Table 1.2.2: Specialized Habitat for Wildlife considered Significant Wildlife Habitat						
Waterfowl Nesting Area **<u>Rationale;</u>** Important to local waterfowl populations, sites with greatest number of species and highest number of individuals are significant.	**All upland habitats located adjacent to these wetland ELC ecosites are Candidate SWH:** MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SWT1 SWT2 SWD1 SWD2 SWD3 SWD4 Note: includes adjacency to Provincially Significant Wetlands (PSW).	• A waterfowl nesting area extends 120 m from a wetland (> 0.5 ha) or a wetland (>0.5ha) and any small wetlands (0.5ha) within 120 m or a cluster of 3 or more small (<0.5 ha) wetlands within 120 m of each individual wetland where waterfowl nesting is known to occur. • Upland areas should be at least 120 m wide so that predators such as racoons, skunks, and foxes have difficulty finding nests. • Wood Ducks and Hooded Mergansers utilize large diameter trees (>40 cm dbh) in woodlands for cavity nest sites.	Unlikely to occur the project limits. • No evidence of waterfowl nesting was encountered by Burnside during the course of the single breeding bird survey. • Due to the proximity of the CUT1 community to an active landfill with an abundance of scavengers, it is unlikely that this community functions as SWH.	American Black Duck Northern Pintail Northern Shoveler Gadwall Blue-winged Teal Green-winged Teal Wood Duck Hooded Merganser Mallard	**Studies confirmed:** • Presence of 3 or more nesting pairs for listed species excluding Mallards, or; • Presence of 10 or more nesting pairs for listed species including Mallards. • Any active nesting site of an American Black Duck is considered significant. • Nesting studies should be completed during the spring breeding season (April - June). Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • A field study confirming waterfowl nesting habitat will determine the boundary of the waterfowl nesting habitat for the SWH, this may be greater or less than 120 m from the wetland and will provide enough habitat for waterfowl to successfully nest. • **SWHMiST Index #25** provides development effects and mitigation measures.	Confirmed absent. No evidence of waterfowl nesting was observed during the course of Burnside's field investigation.
Bald Eagle & Osprey Nesting, Foraging & Perching Habitat **<u>Rationale;</u>** Nest sites are fairly uncommon in Eco-region 7E and are used annually by these species. Many suitable nesting locations	**ELC Forest Community Series:** FOD FOM FOC SWD SWM and SWC (directly adjacent to riparian areas – rivers, lakes, ponds and wetlands.	• Nests are associated with lakes, ponds, rivers or wetlands along forested shorelines, islands, or on structures over water. • Osprey nests are usually at the top a tree whereas Bald Eagle nests are typically in super canopy trees in a	No potential within the project limits or Study Area • The Study Area is not located adjacent to a watercourse or waterbody.	Osprey **Special Concern** Bald Eagle	**Studies confirm the use of these nests by**: • One or more active Osprey or Bald Eagle nests in an area. • Some species have more than one nest in a given area and priority is given to the primary nest with alternate nests included within the area of the SWH. • For an Osprey, the active nest and a 300 m radius around the nest or the contiguous woodland stand is the SWH,	No potential. Large waterbodies are absent from the vicinity of the Subject Lands.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
may be lost due to increasing shoreline development pressures and scarcity of habitat.		notch within the tree's canopy. • Nests located on man-made objects are not to be included as SWH (e.g., telephone poles and constructed nesting platforms).			maintaining undisturbed shorelines with large trees within this area is important. • For a Bald Eagle the active nest and a 400-800 m radius around the nest is the SWH. Area of the habitat from 400-800 m is dependent on-site lines from the nest to the development and inclusion of perching and foraging habitat. • To be significant a site must be used annually. When found inactive, the site must be known to be inactive for >3 years or suspected of not being used for >5 years before being considered not significant. • Observational studies to determine nest site use, perching sites and foraging areas need to be done from mid-March to mid-August. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #26** provides development effects and mitigation measures.	
Woodland Raptor Nesting Habitat **<u>Rationale:</u>** Nests sites for these species are rarely identified; these area sensitive habitats and are often used annually by these species.	May be found in all forested ELC ecosites. **May also be found in:** SWC SWM SWD and CUP3	• All natural or conifer plantation woodland/forest stands >30 ha with >4ha of interior habitat. Interior habitat determined with a 200 m buffer. • Stick nests found in a variety of intermediate-aged to mature conifer, deciduous or mixed forests within tops or crotches of trees. Species such as Coopers hawk nest along forest edges sometimes on	No potential within the project limits or Study Area • FOD and SWD communities lack interior forest habitat.	Northern Goshawk Cooper's Hawk Sharp-shinned Hawk Red-shouldered Hawk Barred Owl Broad-winged Hawk	**Studies confirm:** • Presence of 1 or more active nests from species list is considered significant. • Red-shouldered Hawk and Northern Goshawk – A 400 m radius around the nest or 28 ha area of habitat is the SWH (the 28 ha habitat area would be applied where optimal habitat is irregularly shaped around the nest). • Barred Owl – A 200 m radius around the nest is the SWH. • Broad-winged Hawk and Coopers Hawk– A 100 m radius around the nest is the SWH.	No potential. The FOD and SWD communities lack interior forest habitat.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		peninsulas or small off-shore islands. • In disturbed sites, nests may be used again, or a new nest will be in close proximity to old nest.			• Sharp-Shinned Hawk – A 50 m radius around the nest is the SWH. • Conduct field investigations from early March to end of May. The use of call broadcasts can help in locating territorial (courting/nesting) raptors and facilitate the discovery of nests by narrowing down the search area. • **SWHMiST Index #27** provides development effects and mitigation measures.	
Turtle Nesting Areas **<u>Rationale;</u>** These habitats are rare and when identified will often be the only breeding site for local populations of turtles.	**Exposed mineral soil (sand or gravel) areas adjacent (<100 m) or within the following ELC ecosites:** MAS1 MAS2 MAS3 SAS1 SAM1 SAF1 BOO1 FEO1	• Best nesting habitat for turtles are close to water and away from roads and sites less prone to loss of eggs by predation from skunks, raccoons or other animals. • For an area to function as a turtle-nesting area, it must provide sand and gravel that turtles are able to dig in and are located in open, sunny areas. Nesting areas on the sides of municipal or provincial road embankments and shoulders are not SWH. • Sand and gravel beaches adjacent to undisturbed shallow weedy areas of marshes, lakes, and rivers are most frequently used.	No potential within the project limits • Areas of exposed soil consist of access roads used within the landfill. Exposed soils are present within the soil stockpiles which are subject to frequent disturbance and are located well beyond 100m of the SWD habitat. Unlikely within the Study Area • Agricultural fields are subject to regular disturbance and should not be considered SWH.	Midland Painted Turtle <u>Special Concern Species:</u> Northern Map Turtle Snapping Turtle	**Studies confirm:** • Presence of 5 or more nesting Midland Painted Turtles. • One or more Northern Map Turtle or Snapping Turtle nesting is a SWH. • The area or collection of sites within an area of exposed mineral soils where the turtles nest, plus a radius of 30-100 m around the nesting area dependent on slope, riparian vegetation and adjacent land use is the SWH. • Travel routes from wetland to nesting area are to be considered within the SWH as part of the 30-100 m area of habitat. • Field investigations should be conducted in prime nesting season typically late spring to early summer. Observational studies observing the turtles nesting is a recommended method. • **SWHMiST Index #28** provides development effects and mitigation measures for turtle nesting habitat.	No potential. Exposed mineral soils beyond those within the active landfill are absent. The active landfill is unlikely to constitute SWH.
Seeps and Springs **<u>Rationale</u>:**	Seeps/Springs are areas where ground water comes to the surface. Often, they are	• Any forested area (with <25% meadow/field/ pasture) within the	No potential within the project limits and Study Area. • The Study Area is not located within the headwaters.	Wild Turkey Ruffed Grouse Spruce Grouse White-tailed Deer	**Field Studies confirm:**	N/A

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Seeps/Springs are typical of headwater areas and are often at the source of coldwater streams.	found within headwater areas within forested habitats. Any forested ecosite within the headwater areas of a stream could have seeps/springs.	headwaters of a stream or river system. • Seeps and springs are important feeding and drinking areas especially in the winter will typically support a variety of plant and animal species.		Salamander spp.	• Presence of a site with 2 or more seeps/springs should be considered SWH. • The area of a ELC forest ecosite or an ecoelement within ecosite containing the seeps/springs is the SWH. The protection of the recharge area considering the slope, vegetation, height of trees and groundwater condition need to be considered in delineation the habitat. • **SWHMiST Index #30** provides development effects and mitigation measures.	
Amphibian Breeding Habitat (Woodland) **<u>Rationale:</u>** These habitats are extremely important to amphibian biodiversity within a landscape and often represent the only breeding habitat for local amphibian populations.	All ecosites associated with these ELC Community Series: FOC FOM FOD SWC SWM SWD Breeding pools within the woodland or the shortest distance from forest habitat are more significant because they are more likely to be used due to reduced risk to migrating amphibians.	• Presence of a wetland, pond or woodland pool (including vernal pools) >500 m^2 (about 25 m diameter) within or adjacent (within 120 m) to a woodland (no minimum size). Some small wetlands may not be mapped and may be important breeding pools for amphibians. • Woodlands with permanent ponds or those containing water in most years until mid-July are more likely to be used as breeding habitat.	Moderate potential within the project limits and Study Area. • May be supported within the SWD communities	Eastern Newt Blue-spotted Salamander Spotted Salamander Gray Treefrog Spring Peeper Western Chorus Frog Wood Frog	**Studies confirm:** • Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog species with Call Level Codes of 3. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the woodland/wetlands. • The habitat is the wetland area plus a 230 m radius of woodland area. If a wetland area is adjacent to a woodland, a travel corridor connecting the wetland to the woodland is to be included in the habitat. • **SWHMiST Index #14** provides development effects and mitigation measures.	Candidate SWH
Amphibian Breeding Habitat (Wetlands)	**ELC Community Classes:**	• Wetlands >500 m2 (about 25 m diameter), supporting high species	No potential. • The MAMM1-12 community may provide suitable breeding	Eastern Newt American Toad Spotted Salamander	**Studies confirm:**	No potential. The on-site marsh communities lack standing water.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
<u>Rationale;</u> Wetlands supporting breeding for these amphibian species are extremely important and fairly rare within Central Ontario landscapes.	SW MA FE BO OA and SA. Typically, these wetland ecosites will be isolated (>120m) from woodland ecosites, however larger wetlands containing predominantly aquatic species (e.g., Bull Frog) may be adjacent to woodlands.	diversity are significant; some small or ephemeral habitats may not be identified on MNRF mapping and could be important amphibian breeding habitats. • Presence of shrubs and logs increase significance of pond for some amphibian species because of available structure for calling, foraging, escape and concealment from predators. • Bullfrogs require permanent water bodies with abundant emergent vegetation.	habitat for amphibian. This community lacked standing water at the time of Burnside's May 2025 site visit. It is Burnside's experience that wetlands dominated by invasive Common Reed do not often support significant amphibian breeding habitat/	Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog Bullfrog	• Presence of breeding population of 1 or more of the listed newt/salamander species or 2 or more of the listed frog/toad species with at least 20 individuals (adults or eggs masses) or 2 or more of the listed frog/toad species with Call Level Codes of 3 or; Wetland with confirmed breeding Bullfrogs are significant. • The ELC ecosite wetland area and the shoreline are the SWH. • A combination of observational study and call count surveys will be required during the spring (March-June) when amphibians are concentrated around suitable breeding habitat within or near the wetlands. • If a SWH is determined for Amphibian Breeding Habitat (Wetlands) then Movement Corridors are to be considered as outlined in Table 1.4.1 of this Schedule. • **SWHMiST Index #15** provides development effects and mitigation measures.	
Woodland Area-Sensitive Bird Breeding Habitat **<u>Rationale</u>:** Large, natural blocks of mature woodland habitat within the settled areas of Southern Ontario are important habitats for area sensitive interior forest song birds.	**All ecosites associated with these ELC Community Series:** FOC FOM FOD SWC SWM SWD	• Habitats where interior forest breeding birds are breeding, typically large mature (>60 yrs. old) forest stands or woodlots >30 ha. • Interior forest habitat is at least 200 m from forest edge habitat.	No potential within the project limits or Study Area. • Interior forest habitat is not present within the project limits or Study Area.	Yellow-bellied Sapsucker Red-breasted Nuthatch Veery Blue-headed Vireo Northern Parula Black-throated Green Warbler Blackburnian Warbler Black-throated Blue Warbler Ovenbird Scarlet Tanager Winter Wren Pileated Woodpecker **Special Concern:** Cerulean Warbler Canada Warbler	**Studies confirm:** • Presence of nesting or breeding pairs of 3 or more of the listed wildlife species. • **Note**: any site with breeding Cerulean Warblers or Canada Warblers is to be considered SWH. • Conduct field investigations in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow "Bird and Bird Habitats: Guidelines for Wind Power Projects". • **SWHMiST Index #34** provides development effects and mitigation measures.	No potential. The defining criteria for this SWH are not met.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
Table 1.3: Habitat for Species of Conservation Concern considered Significant Wildlife Habitat						
Marsh Breeding Bird Habitat **Rationale;** Wetlands for these bird species are typically productive and fairly rare in Southern Ontario landscapes.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 SAS1 SAM1 SAF1 FEO1 BOO1 **For Green Heron:** All SW, MA and CUM1 sites	• Nesting occurs in wetlands. • All wetland habitat is to be considered as long as there is shallow water with emergent aquatic vegetation present. • For Green Heron, habitat is at the edge of water such as sluggish streams, ponds and marshes sheltered by shrubs and trees. Less frequently, it may be found in upland shrubs or forest a considerable distance from water.	Very low potential • Marsh communities consists of inclusions. • The marsh	American Bittern Virginia Rail Sora Common Moorhen American Coot Pied-billed Grebe Marsh Wren Sedge Wren Common Loon Green Heron Trumpeter Swan **Special Concern:** Black Tern Yellow Rail	**Studies confirm:** • Presence of 5 or more nesting pairs of Sedge Wren or Marsh Wren or breeding by any combination of 4 or more of the listed species. • **Note**: any wetland with breeding of 1 or more Black Terns, Trumpeter Swan, Green Heron or Yellow Rail is SWH. • Area of the ELC ecosite is the SWH. • Breeding surveys should be done in May/June when these species are actively nesting in wetland habitats. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #35** provides development effects and mitigation measures.	Confirmed absent. • None of the indicators
Open **Country Bird Breedi**ng Hab**i**tat **Rationale;** This wildlife habitat is declining throughout Ontario and North America. Species such as the Upland Sandpiper have declined significantly the past 40 years based on CWS (2004) trend records.	CUM1 CUM2	• Large grassland areas (includes natural and cultural fields and meadows) >30 ha. • Grasslands not Class 1 or 2 agricultural lands, and not being actively used for farming (i.e., no row cropping or intensive hay or livestock pasturing in the last 5 years). • Grassland sites considered significant should have a history of longevity, either abandoned fields, mature hayfields and pasturelands that are at least 5 years or older.	No potential within the project limits or Study Area • CUM1 and CUM2 2 are absent from the Study Area.	Upland Sandpiper Grasshopper Sparrow Vesper Sparrow Northern Harrier Savannah Sparrow **Special Concern** Short-eared Owl	**Field Studies confirm:** • Presence of nesting or breeding of 2 or more of the listed species. • A field with 1 or more breeding Short-eared Owls is to be considered SWH. • The area of SWH is the contiguous ELC ecosite field areas. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST Index #32** provides development effects and mitigation measures.	No potential. Suitable ELC communities to support this feature are absent.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
		• The Indicator bird species are area sensitive requiring larger grassland areas than the common grassland species.				
Shrub/Early Successional Bird Breeding Habitat **<u>Rationale;</u>** This wildlife habitat is declining throughout Ontario and North America. The Brown Thrasher has declined significantly over the past 40 years based on CWS (2004) trend records.	CUT1 CUT2 CUS1 CUS2 CUW1 CUW2 Patches of shrub ecosites can be complexed into a larger habitat for some bird species.	• Large field areas succeeding to shrub and thicket habitats >10 ha in size. • Shrub land or early successional fields, not class 1 or 2 agricultural lands, not being actively used for farming (i.e., no row-cropping, haying or live-stock pasturing in the last 5 years). • Shrub thicket habitats (>10 ha) are most likely to support and sustain a diversity of these species. • Shrub and thicket habitat sites considered significant should have a history of longevity, either abandoned fields or pasturelands.	Moderate potential • The CUT1 (THDM5-1) community is sufficiently large to support this SWH features.	**Indicator Spp:** Brown Thrasher Clay-coloured Sparrow **Common Spp.** Field Sparrow Black-billed Cuckoo Eastern Towhee Willow Flycatcher **Special Concern:** Yellow-breasted Chat Golden-winged Warbler	**Field Studies confirm:** • Presence of nesting or breeding of 1 of the indicator species and at least 2 of the common species. • A habitat with breeding Yellow-breasted Chat or Golden-winged Warbler is to be considered as SWH. • The area of the SWH is the contiguous ELC ecosite field/thicket area. • Conduct field investigations of the most likely areas in spring and early summer when birds are singing and defending their territories. • Evaluation methods to follow “Bird and Bird Habitats: Guidelines for Wind Power Projects”. • **SWHMiST cxlix Index #33** provides development effects and mitigation measures.	Confirmed present. • Four Brown Thrashers (indicator species) were documented to be possibly breeding within the THDM5-1 community. • Two Field Sparrows (common species) were documented to be possibly breeding within the THDM5-1 community. • Two Willow Flycatchers (common species) were documented to be possibly breeding within the THDM5-1 community.
Terrestrial Crayfish **<u>Rationale:</u>** Terrestrial Crayfish are only found within SW Ontario in Canada and their habitats are very rare.	MAM1 MAM2 MAM3 MAM4 MAM5 MAM6 MAS1 MAS2 MAS3 SWD SWT SWM	• Wet meadow and edges of shallow marshes (no minimum size) should be surveyed for Terrestrial Crayfish. • Constructs burrows in marshes, mudflats, meadows, the ground can’t be too moist. Can often be found far from water.	Moderate potential within the project limits and Study Area. • May be supported within the SWD and MAMcommunities within the project limits and Study Area.	Chimney or Digger Crayfish (*Fallicambarus fodiens*) Devil Crayfish or Meadow Crayfish (*Cambarus Diogenes*)	**Studies Confirm:** • Presence of 1 or more individuals of species listed or their chimneys (burrows) in suitable meadow marsh, swamp or moist terrestrial sites. • Area of ELC ecosite or an ecoelement area of meadow marsh or swamp within the larger ecosite area is the SWH. • Surveys should be done April to August in temporary or permanent water. **Note** the presence of burrows or chimneys	Confirmed present. • Three suspected Chimney Crayfish burrows observed adjacent to the MAMM1-12 community.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
	CUM1 with inclusions of above meadow marsh or swamp ecosites can be used by terrestrial crayfish.	• Both species are a semi-terrestrial burrower which spends most of its life within burrows consisting of a network of tunnels. Usually the soil is not too moist so that the tunnel is well formed.			are often the only indicator of presence, observance or collection of individuals is very difficult. • **SWHMiST Index #36** provides development effects and mitigation measures.	
Special Concern and Rare Wildlife Species **Rationale:** These species are quite rare or have experienced significant population declines in Ontario.	All plant and animal Element Occurrences (EO) within a 1 or 10 km grid. Older element occurrences were recorded prior to GPS being available, therefore location information may lack accuracy.	When an element occurrence is identified within a 1 or 10 km grid for a Special Concern or provincially Rare species; linking candidate habitat on the site needs to be completed to ELC ecosites.	Potential for numerous species to occur within both the project limits and Study Area • See the SAR Assessment Table.	All Special Concern and Provincially Rare (S1-S3, SH) plant and animal species. Lists of these species are tracked by the NHIC.	**Studies Confirm:** • Assessment/inventory of the site for the identified Special Concern or rare species needs to be completed during the time of year when the species is present or easily identifiable. • The area of the habitat to the finest ELC scale that protects the habitat form and function is the SWH, this must be delineated through detailed field studies. The habitat needs be easily mapped and cover an important life stage component for a species e.g., specific nesting habitat or foraging habitat. • **SWHMiST Index #37** provides development effects and mitigation measures.	Candidate SWH
Table 1.4.1: Animal Movement Corridors						
Amphibian Movement Corridors **Rationale;** Movement corridors for amphibians moving from their terrestrial habitat to breeding habitat can be extremely	Corridors may be found in all ecosites associated with water. Corridors will be determined based on identifying the significant breeding habitat for these species in Table 1.1.	• Movement corridors between breeding habitat and summer habitat. • Movement corridors must be determined when Amphibian breeding habitat is confirmed as SWH from Table 1.2.2 (Amphibian Breeding Habitat–	No potential within the project limits or Study Area. • Suitable movement corridors absent.	Eastern Newt American Toad Spotted Salamander Four-toed Salamander Blue-spotted Salamander Gray Treefrog Western Chorus Frog Northern Leopard Frog Pickerel Frog Green Frog Mink Frog	• Field Studies must be conducted at the time of year when species are expected to be migrating or entering breeding sites. • Corridors should consist of native vegetation, with several layers of vegetation. • Corridors unbroken by roads, waterways or bodies, and undeveloped areas are most significant.	No potential. Amphibian breeding habitat (wetland) is not supported within the Study Area.

Significant Wildlife Habitat Screening in the Study Area– Ecoregion 7E Criteria (2015)

Habitat	CANDIDATE - Significant Wildlife Habitat			CONFIRMED - Significant Wildlife Habitat		
	Ecological Land Classification Ecosite Codes	**Habitat Criteria**	**Presence of Candidate Habitat in the Study Area (within 120 m of the Project)**	**Wildlife Species**	**Defining Criteria**	**Presence of Confirmed Significant Wildlife Habitat in the Study Area (within 120 m of the Project)**
important for local populations.		Wetland) of this Schedule.		Bullfrog	• Corridors should have at least 15 m of vegetation on both sides of waterway or be up to 200 m wide of woodland habitat and with gaps <20 m. • Shorter corridors are more significant than longer corridors, however amphibians must be able to get to and from their summer and breeding habitat. • **SWHMiST Index #40** provides development effects and mitigation measures.	
Table 1.5.1: Significant Wildlife Habitat Exceptions for Ecodistricts within EcoRegion 7E						
7E-2 - Bat Migratory Stopover Area **Rationale:** Stopover areas for long distance migrant bats are important during fall migration.	No specific ELC types	• Long distance migratory bags typically migrate during late summer and early fall from summer breeding habitats throughout Ontario to southern wintering areas. Their annual fall migration may concentrate these species of bats at stopover areas. • This is the only known bat migratory stopover habitats based on current information.	No potential within the project limits or Study Area • The Study Area is not located at Long Point.	Hoary Bat Eastern Red Bat Silver-haird Bat	• Long Point ($42^0$35'N, 80^0 30'E, to $42^0$33'N, $80^0$03'E) has been identified as a significant stop-over habitat for fall migrating Silver-haired Bats, due to significant increases in abundance, activity and feeding that was documented during fall migration. • The confirmantion criteria and habitat areas for this SWH are still being determined. • **SWH MIST Index #38** provides development effects and mitigation measures.	No potential.

BURNSIDE

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Attachment C

Background Data

NHIC Data for Squares 17NH1460, 17NH1459 & 17NH1559								
OGF ID	**Element Type**	**Common Name**	**Scientific Name**	**SRank**	**SARO Status**	**COSEWIC Status**	**ATLAS NAD83 IDENT**	**COMMENTS**
914574	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17NH1460	Beyond the project limits, within the Study Area.
914574	SPECIES	Snapping Turtle	Chelydra serpentina	S4	SC	SC	17NH1460	Beyond the project limits, within the Study Area.
914574	SPECIES	American Badger (Southwestern Ontario population)	Taxidea taxus jacksoni	S1	END	END	17NH1460	Beyond the project limits, within the Study Area.
914574	SPECIES	Red-headed Woodpecker	Melanerpes erythrocephalus	S3	END	END	17NH1460	Beyond the project limits, within the Study Area.
914483	SPECIES	Wood Thrush	Hylocichla mustelina	S4B	SC	THR	17NH1459	Within the project limits
914483	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17NH1459	Within the project limits
914483	SPECIES	American Badger (Southwestern Ontario population)	Taxidea taxus jacksoni	S1	END	END	17NH1459	Within the project limits
914483	SPECIES	Eastern Meadowlark	Sturnella magna	S4B,S3N	THR	THR	17NH1459	Within the project limits
914483	SPECIES	Bobolink	Dolichonyx oryzivorus	S4B	THR	SC	17NH1459	Within the project limits

914493	SPECIES	Eastern Wood-pewee	Contopus virens	S4B	SC	SC	17NH1559	Within the project limits

Ontario Breeding Bird Atlas Species List for Square 17TNH16 (Northern Portion) & 17TNH15 (Southern Portion)				
SPECIES	Breeding Evidence Code			
	1st	2nd	1st	2nd
17NH15				
Canada Goose	FY	NE	85	98
Mute Swan ‡			1	11
Wood Duck	FY	NE	84	95
Gadwall ‡			8	0
American Wigeon ‡			4	1
American Black Duck ‡			38	18
Mallard	FY	NE	97	97
Blue-winged Teal	FY	FY	55	36
Northern Shoveler ‡			2	2
Northern Pintail ‡			7	0
Green-winged Teal ‡		FY	0	11
Hooded Merganser			5	25
Common Merganser ‡			1	0
Ruddy Duck †			11	12
Ring-necked Pheasant	S	FY	50	49
Ruffed Grouse	FY		84	61
Wild Turkey		FY	4	95
Northern Bobwhite †			28	11
Pied-billed Grebe		T	15	22
American Bittern ‡			14	5
Least Bittern †			7	4
Great Blue Heron §	H	H	94	81
Green Heron ‡§	FY	T	84	85
Turkey Vulture	P	P	88	97
Bald Eagle †			1	15
Northern Harrier	CF	P	62	77
Sharp-shinned Hawk			18	50
Cooper's Hawk			14	74
Red-should Hawk †			2	5
Broad-winged Hawk			5	16
Red-tailed Hawk	FY	CF	98	98
American Kestrel	FY	NY	98	95

Virginia Rail			20	26
Sora		FY	24	30
Common Gallinule ‡		H	10	8
American Coot ‡		FY	8	8
Coot/Moorhen ‡			0	1
Killdeer	FY	FY	100	98
Rock Dove	FY	NY	98	97
Spotted Sandpiper	FY	FY	94	97
Upland Sandpiper			57	32
Common Snipe	D	H	38	30
American Woodcock	FY	D	97	85
Wilson's Phalarope †			4	0
Herring Gull ‡§			1	1
Black Tern † §			1	4
Mourning Dove	FY	NY	100	98
Yellow-billed Cuckoo			41	63
Black/Yell-billed Cuckoo			0	16
Black-billed Cuckoo	P	T	60	88
Eastern Screech-Owl	T		75	95
Great Horned Owl	FY	NY	94	92
Barred Owl ‡			1	2
Long-eared Owl			11	7
Short-eared Owl †			1	0
North Saw-whet Owl ‡			1	1
Common Nighthawk			40	21
Whip-poor-will ‡			14	4
Chimney Swift ‡	AE		80	59
Ruby-thr Hummingbird	FY	T	91	97
Belted Kingfisher	FY	T	98	98
Red-headed Woodpecker †	FY		95	59
Red-bell Woodpecker		NY	41	95
Yellow-bellied Sapsucker			7	42
Downy Woodpecker	AE	NY	100	98
Hairy Woodpecker	AE	AE	95	97
Northern Flicker	FY	FY	100	98
Pileated Woodpecker			40	69
Olive-sided Flycatcher ‡			1	0

Eastern Wood-Pewee	FY	T	100	98
Acadian Flycatcher †		T	10	15
Alder Flycatcher ‡	FY	FY	37	35
Willow Flycatcher	A	FY	95	97
Least Flycatcher	P	T	91	94
Eastern Phoebe	P	NE	84	94
Gr Crested Flycatcher	FY	AE	100	98
Eastern Kingbird	FY	AE	100	98
Loggerhead Shrike †			1	0
White-eyed Vireo †			1	1
Yellow-throated Vireo		S	61	66
Warbling Vireo	FY	A	100	98
Red-eyed Vireo	FY	A	98	98
Blue Jay	FY	FY	100	98
American Crow	FY	FY	98	98
Horned Lark	FY	FY	98	98
Purple Martin	AE		68	54
Tree Swallow	AE	AE	98	98
North Rgh-wing Swallow	FY	AE	95	91
Bank Swallow ‡§	FY	AE	91	80
Cliff Swallow ‡§	FY	NU	70	88
Barn Swallow	NY	NY	100	98
Black-capped Chickadee	FY	FY	98	98
Red-breast Nuthatch			25	56
White-breast Nuthatch	FY	A	100	98
Brown Creeper	P		28	33
Carolina Wren			5	39
House Wren	FY	FY	100	98
Winter Wren	P	T	21	26
Sedge Wren ‡		T	5	11
Marsh Wren		T	12	16
Golden-crown Kinglet ‡			5	16
Ruby-crown Kinglet ‡			1	0
Blue-gr Gnatcatcher			38	71
Eastern Bluebird			25	91
Mountain Bluebird †			1	0
Veery	FY	T	75	83

Wood Thrush	FY	T	100	98
American Robin	FY	AE	100	100
Gray Catbird	FY	FY	100	98
Brown Thrasher	FY	S	100	97
European Starling	FY	CF	100	98
Cedar Waxwing	FY	FY	100	98
Blue-winged Warbler		S	31	54
Golden-winged Warbler ‡			11	9
Blue/Gold-wing Warbler ‡			0	5
Brewster's Warbler †			1	1
Nashville Warbler ‡	S		8	0
Northern Parula ‡			1	0
Yellow Warbler	FY	CF	100	98
Chestn-sided Warbler		T	41	45
Magnolia Warbler ‡			2	4
Black-thr Green Warbler ‡			2	11
Blackburnian Warbler ‡			2	12
Pine Warbler			8	57
Cerulean Warbler †			7	2
Black-white Warbler ‡			5	16
American Redstart	P	T	72	87
Ovenbird	FY	T	78	76
North Waterthrush	P	S	21	30
Louis Waterthrush †			2	11
Mourning Warbler	S	T	38	47
Common Yellowthroat	FY	CF	98	98
Hooded Warbler †			5	12
Canada Warbler ‡			12	9
Yellow-breast Chat †			2	5
Eastern Towhee	FY		95	88
Chipping Sparrow	FY	FY	100	98
Clay-colored Sparrow ‡	S		4	8
Field Sparrow	FY		100	91
Vesper Sparrow	FY	T	97	97
Savannah Sparrow	FY	FY	100	98
Grasshopper Sparrow			41	23
Song Sparrow	NY	CF	100	98

Swamp Sparrow	FY	T	67	71
White-throat Sparrow			12	12
Scarlet Tanager		T	58	80
Northern Cardinal	FY	FY	100	98
Rose-breast Grosbeak	FY	FY	100	98
Indigo Bunting	FY	FY	100	98
Bobolink	FY	T	98	95
Red-wing Blackbird	NY	CF	100	98
Eastern Meadowlark	FY	CF	98	94
Western Meadowlark ‡			7	1
Common Grackle	FY	CF	100	98
Brown-head Cowbird	FY	FY	100	98
Orchard Oriole			18	60
Baltimore Oriole	CF	FY	100	97
Purple Finch			15	11
House Finch		FY	27	98
White-winged Crossbill ‡			1	5
American Goldfinch	FY	D	100	98
House Sparrow	FY	CF	98	98
17NH16				
Canada Goose	FY	FY	85	98
Mute Swan ‡			1	11
Wood Duck	FY	FY	84	95
Gadwall ‡			8	0
American Wigeon ‡			4	1
American Black Duck ‡	H	H	38	18
Mallard	FY	FY	97	97
Blue-winged Teal	FY	P	55	36
Northern Shoveler ‡			2	2
Northern Pintail ‡			7	0
Green-winged Teal ‡		P	0	11
Hooded Merganser			5	25
Common Merganser ‡			1	0
Ruddy Duck †			11	12
Gray Partridge ‡		P	0	1
Ring-necked Pheasant		S	50	49
Ruffed Grouse	FY	FY	84	61

Wild Turkey		FY	4	95
Northern Bobwhite †			28	11
Pied-billed Grebe			15	22
American Bittern ‡			14	5
Least Bittern †			7	4
Great Blue Heron §	H	H	94	81
Green Heron ‡§	FY	P	84	85
Turkey Vulture	P	P	88	97
Osprey ‡		H	0	1
Bald Eagle †			1	15
Northern Harrier		D	62	77
Sharp-shinned Hawk		CF	18	50
Cooper's Hawk		CF	14	74
Red-should Hawk †			2	5
Broad-winged Hawk		A	5	16
Red-tailed Hawk	FY	FY	98	98
American Kestrel	FY	CF	98	95
Virginia Rail			20	26
Sora		P	24	30
Common Gallinule ‡	H		10	8
American Coot ‡			8	8
Coot/Moorhen ‡			0	1
Killdeer	NE	DD	100	98
Rock Dove	NY	AE	98	97
Spotted Sandpiper	FY	FY	94	97
Upland Sandpiper		P	57	32
Common Snipe	P		38	30
American Woodcock	FY	P	97	85
Wilson's Phalarope †			4	0
Herring Gull ‡§			1	1
Black Tern † §			1	4
Mourning Dove	NE	FY	100	98
Yellow-billed Cuckoo		CF	41	63
Black/Yell-billed Cuckoo			0	16
Black-billed Cuckoo	P	CF	60	88
Eastern Screech-Owl	FY	T	75	95
Great Horned Owl	FY	P	94	92

Barred Owl ‡			1	2
Long-eared Owl			11	7
Short-eared Owl †			1	0
North Saw-whet Owl ‡			1	1
Common Nighthawk		P	40	21
Whip-poor-will ‡			14	4
Chimney Swift ‡	AE	AE	80	59
Ruby-thr Hummingbird	FY	P	91	97
Belted Kingfisher	AE	S	98	98
Red-headed Woodpecker †	FY	NY	95	59
Red-bell Woodpecker		AE	41	95
Yellow-bellied Sapsucker			7	42
Downy Woodpecker	AE	FY	100	98
Hairy Woodpecker	AE	FY	95	97
Northern Flicker	AE	NY	100	98
Pileated Woodpecker		P	40	69
Olive-sided Flycatcher ‡			1	0
Eastern Wood-Pewee	FY	FY	100	98
Acadian Flycatcher †			10	15
Alder Flycatcher ‡	FY	FY	37	35
Willow Flycatcher	FY	FY	95	97
Least Flycatcher	P	S	91	94
Eastern Phoebe	P	AE	84	94
Gr Crested Flycatcher	AE	AE	100	98
Eastern Kingbird	NY	FY	100	98
Loggerhead Shrike †			1	0
White-eyed Vireo †			1	1
Yellow-throated Vireo		P	61	66
Warbling Vireo	FY	FY	100	98
Red-eyed Vireo	FY	FY	98	98
Blue Jay	FY	A	100	98
American Crow	FY	AE	98	98
Horned Lark	FY	FY	98	98
Purple Martin	P	H	68	54
Tree Swallow	AE	AE	98	98
North Rgh-wing Swallow	FY	FY	95	91
Bank Swallow ‡§	FY	AE	91	80

Cliff Swallow ‡§		AE	70	88
Barn Swallow	NY	FY	100	98
Black-capped Chickadee	FY	FY	98	98
Red-breast Nuthatch		FY	25	56
White-breast Nuthatch	FY	FY	100	98
Brown Creeper		P	28	33
Carolina Wren			5	39
House Wren	FY	FY	100	98
Winter Wren	P	A	21	26
Sedge Wren ‡			5	11
Marsh Wren			12	16
Golden-crown Kinglet ‡		FY	5	16
Ruby-crown Kinglet ‡			1	0
Blue-gr Gnatcatcher		P	38	71
Eastern Bluebird		AE	25	91
Mountain Bluebird †			1	0
Veery	FY	CF	75	83
Wood Thrush	FY	CF	100	98
American Robin	FY	NY	100	100
Gray Catbird	FY	FY	100	98
Brown Thrasher	FY	P	100	97
European Starling	AE	FY	100	98
Cedar Waxwing	FY	FY	100	98
Blue-winged Warbler		S	31	54
Golden-winged Warbler ‡			11	9
Blue/Gold-wing Warbler ‡			0	5
Brewster's Warbler †			1	1
Nashville Warbler ‡			8	0
Northern Parula ‡			1	0
Yellow Warbler	FY	FY	100	98
Chestn-sided Warbler		S	41	45
Magnolia Warbler ‡			2	4
Black-thr Green Warbler ‡			2	11
Blackburnian Warbler ‡			2	12
Pine Warbler		CF	8	57
Cerulean Warbler †			7	2
Black-white Warbler ‡		P	5	16

American Redstart		FY	72	87
Ovenbird	P	P	78	76
North Waterthrush			21	30
Louis Waterthrush †			2	11
Mourning Warbler		CF	38	47
Common Yellowthroat	FY	FY	98	98
Hooded Warbler †			5	12
Canada Warbler ‡		S	12	9
Yellow-breast Chat †			2	5
Eastern Towhee	FY	P	95	88
Chipping Sparrow	FY	FY	100	98
Clay-colored Sparrow ‡			4	8
Field Sparrow	FY	FY	100	91
Vesper Sparrow	FY	FY	97	97
Savannah Sparrow	FY	FY	100	98
Grasshopper Sparrow		S	41	23
Song Sparrow	FY	DD	100	98
Swamp Sparrow	FY	CF	67	71
White-throat Sparrow			12	12
Scarlet Tanager		S	58	80
Northern Cardinal	FY	FS	100	98
Rose-breast Grosbeak	FY	FY	100	98
Indigo Bunting	FY	NE	100	98
Bobolink	FY	FY	98	95
Red-wing Blackbird	FY	FY	100	98
Eastern Meadowlark	FY	CF	98	94
Western Meadowlark ‡			7	1
Common Grackle	CF	FY	100	98
Brown-head Cowbird	FY	P	100	98
Orchard Oriole		FY	18	60
Baltimore Oriole	FY	FY	100	97
Purple Finch			15	11
House Finch		FY	27	98
White-winged Crossbill ‡			1	5
Pine Siskin ‡		P	0	1
American Goldfinch	FY	NE	100	98
House Sparrow	FY	FY	98	98

Ontario Reptile and Amphibian Atlas Squares 17TNH16 (Northern Portion) & 17TNH15 (Southern Portion)

Common Name	ESA	SARA	SARA Schedule	# of Records	Earliest Yr	Latest Yr
17NH15						
Midland Painted Turtle		SC	1	5	1989	2018
Snapping Turtle	SC	SC	1	1	1985	1985
Dekay's Brownsnake				1	1989	1989
Eastern Gartersnake				1	2018	2018
Eastern Hog-nosed Snake	THR	THR	1	4	1978	1978
Gray Treefrog				3	1988	2018
Green Frog				2	2002	2018
Northern Leopard Frog				6	1988	1991
Spring Peeper				11	1988	2018
Western Chorus Frog				7	2005	2006
Wood Frog				15	1988	2018
American Toad				17	1989	2018
Eastern Red-backed Salamander				2	1991	2018
Red-spotted Newt				2	1989	2018
Spotted Salamander				1	1981	1981
17NH16						
Midland Painted Turtle				2	1968	1992
Snapping Turtle	SC	SC	1	7	1969	2019
Eastern Gartersnake				2	1969	2017
American Bullfrog				1	1969	1969
Gray Treefrog				1	1986	1986
Green Frog				1	1969	1969
Northern Leopard Frog				1	1969	1969
Spring Peeper				9	1969	2006
Wood Frog				3	1969	1990
American Toad				6	1969	2006
Eastern Red-backed Salamander				3	1987	1990

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Attachment D

Breeding Bird Table

Attachment D

300058964 Oxford Landfill D&O
Breeding Bird Survey Summary Table
Surveys Conducted By: Sarah Yoshida

Common Name	Scientific Name	Provincial SRANK[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNRF Area Sensitive Species[5]	Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]	Comments
Brown Thrasher	*Toxostoma rufum*	S4B						4	CONFIRMED,CF	Observed with nest building material and copulating on April 8, 2021.
Song Sparrow	*Melospiza melodia*	S5						7	POSSIBLE,S	
Gray Catbird	*Dumetella carolinensis*	S5B, S3N						3	POSSIBLE,S	
Common Yellowthroat	*Geothlypis trichas*	S5B, S3N						3	POSSIBLE,S	
Yellow Warbler	*Setophaga petechia*	S5B						1	POSSIBLE,S	
Cedar Waxwing	*Bombycilla cedrorum*	S5						2	POSSIBLE,S	
Willow Flycatcher	*Empidonax traillii*	S4B						2	POSSIBLE,S	
Eastern Kingbird	*Tyrannus tyrannus*	S4B						4	POSSIBLE,H	
Red-winged Blackbird	*Agelaius phoeniceus*	S5						40	PROBABLE,M / A	
American Goldfinch	*Spinus tristis*	S5						3	POSSIBLE,S / H	
Mourning Dove	*Zenaida macroura*	S5						3	POSSIBLE,S	
Northern Cardinal	*Cardinalis cardinalis*	S5						6	POSSIBLE,S	
Brown-headed Cowbird	*Molothrus ater*	S5						5	POSSIBLE,S	
Red-tailed Hawk	*Buteo jamaicensis*	S5	NAR					1	Observed,X	Flyover
Turkey Vulture	*Cathartes aura*	S5B, S3N						3	Observed,X	Flyover
American Robin	*Turdus migratorius*	S5						9	CONFIRMED,CF	
Indigo Bunting	*Passerina cyanea*	S5B						11	POSSIBLE,S	
Common Grackle	*Quiscalus quiscula*	S5						3	Observed,X	Flyover
Cedar Waxwing	*Bombycilla cedrorum*	S5						1	POSSIBLE,S	
American Crow	*Corvus brachyrhynchos*	S5						8	Observed,X	
Tennessee Warbler	*Leiothlypis peregrina*	S5B						1	Observed,X	The Study Area is located beyond the breeding range of Tennessee Warbler. This observation is likely a late migrant

Common Name	Scientific Name	Provincial SRANK[1]	Provincial SARO (Endangered Species Act, 2007)[2]	Federal COSEWIC[3]	Federal SARA (Species at Risk Act)[3]	Federal SARA Schedule[4]	Provincial MNRF Area Sensitive Species[5]	Highest Number Recorded (All Habitat Units Combined)	Highest Recorded Breeding Evidence[6]	Comments
Chestnut-sided Warbler	*Setophaga pensylvanica*	S5B						9	POSSIBLE,S	
Alder Flycatcher	*Empidonax alnorum*	S5B						6	POSSIBLE,S	
Ring-billed Gull	*Larus delawarensis*	S5						4	Observed,X	
Field Sparrow	*Spizella pusilla*	S4B, S3N						2	POSSIBLE,S	
Northern Mockingbird	*Mimus polyglottos*	S4						2	POSSIBLE,S	
Killdeer	*Charadrius vociferus*	S4B						2	Observed,X	
TOTAL	**28 species**									

[1]S-Ranks (provincial)
Provincial (or Subnational) ranks are used by the Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. These ranks are not legal designations. Provincial ranks are assigned in a manner similar to that described for global ranks, but consider only those factors within the political boundaries of Ontario (Please refer to: http://explorer.natureserve.org/nsranks.htm)

SX — Presumed Extirpated - Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.
SH — Possibly Extirpated (Historical) - Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20–40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for. The SH rank is reserved for species or communities for which some effort has been made to relocate occurrences, rather than simply using this status for all elements not known from verified extant occurrences.
S1 — Critically Imperiled - Critically imperiled in the province or state because of extreme rarity (often 5 or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the province.
S2 — Imperiled - Imperiled in the province because of rarity due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors making it very vulnerable to extirpation from the province.
S3 — Vulnerable - Vulnerable in the province due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors making it vulnerable to extirpation.
S4 — Apparently Secure - Uncommon but not rare; some cause for long-term concern due to declines or other factors.
S5 — Secure - Common, widespread, and abundant in the province.
SNR — Unranked - Province conservation status not yet assessed.
SU — Unrankable - Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.
SNA — Not Applicable - A conservation status rank is not applicable because the species is not a suitable target for conservation activities.
S#S# — Range Rank - A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).
S#? – Inexact or Uncertain - Denotes inexact or uncertain numeric rank.

Breeding Status Qualifiers
B – Breeding Conservation status refers to the breeding population of the species in the nation or state/province.
N – Nonbreeding Conservation status refers to the non-breeding population of the species in the province.
M – Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

[2]SARO *Endangered Species Act, 2007*
(provincial status from http://www.ontario.ca/environment-and-energy/how-species-risk-are-listed#section-3)
The provincial review process is implemented by the MNRF's Committee on the Status of Species at Risk in Ontario (COSSARO).

Extinct - A species that no longer exists anywhere.
Extirpated (EXT) - Lives somewhere in the world, and at one time lived in the wild in Ontario, but no longer lives in the wild in Ontario.
Endangered (END) - Lives in the wild in Ontario but is facing imminent extinction or extirpation.
Threatened (THR) - Lives in the wild in Ontario, is not endangered, but is likely to become endangered if steps are not taken to address factors threatening it.
Special concern (SC) - Lives in the wild in Ontario, is not endangered or threatened, but may become threatened or endangered due to a combination of biological characteristics and identified threats.
Not at Risk (NAR) - A species that has been evaluated and found to be not at risk.
Data Deficient (DD) - A species for which there is insufficient information for a provincial status recommendation.

[3]SARA (Federal *Species at Risk Act*) Status and Schedule (includes COSEWIC Status)
The Act establishes Schedule 1, as the official list of wildlife species at risk. It classifies those species as being either Extirpated, Endangered, Threatened, or Special Concern. Once listed, the measures to protect and recover a listed wildlife species are implemented.

Extinct - A wildlife species that no longer exists.
Extirpated (EXT) - A wildlife species that no longer exists in the wild in Canada, but exists elsewhere.
Endangered (END) - A wildlife species facing imminent extirpation or extinction.
Threatened (THR) - A wildlife species that is likely to become an endangered if nothing is done to reverse the factors leading to its extirpation or extinction.
Special Concern (SC) - A wildlife species that may become threatened or endangered because of a combination of biological characteristics and identified threats.
Data Deficient (DD) - A category that applies when the available information is insufficient (a) to resolve a wildlife species' eligibility for assessment or (b) to permit an assessment of the wildlife species' risk of extinction.

Not At Risk (NAR) - A wildlife species that has been evaluated and found to be not at risk of extinction given the current circumstances.

[4]SARA Schedule
Schedule 1: is the official list of species that are classified as extirpated, endangered, threatened, and of special concern.
Schedule 2: species listed in Schedule 2 are species that had been designated as endangered or threatened, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.
Schedule 3: species listed in Schedule 3 are species that had been designated as special concern, and have yet to be re-assessed by COSEWIC using revised criteria. Once these species have been re-assessed, they may be considered for inclusion in Schedule 1.

The Act establishes Schedule 1 as the official list of wildlife species at risk. However, please note that while Schedule 1 lists species that are extirpated, endangered, threatened and of special concern, the prohibitions do not apply to species of special concern.

Species that were designated at risk by COSEWIC prior to October 1999 (Schedule 2 & 3) must be reassessed using revised criteria before they can be considered for addition to Schedule 1 of SARA. After they have been assessed, the Governor in Council may on the recommendation of the Minister, decide on whether or not they should be added to the List of Wildlife Species at Risk.

[5]Source: Ontario Ministry of Natural Resources. 2000. *Significant Wildlife Habitat Technical Guide* & Appendices.

[6]Ontario Breeding Bird Atlas - Breeding Evidence Codes

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

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

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

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