Appendix K

Natural Environmental Assessment Report

GFT

Blatchford Bridge, Wellington Road 32

Township of Guelph-Eramosa, Wellington County

Natural Environment Assessment Report

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1.0 Introduction

The County of Wellington is proposing the replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment, identify impacts to the natural environment for each proposed option, and propose reasonable measures to mitigate any potential impacts that may arise through the EA process. The NEA will also summarize mitigation and potential permitting requirements based on the options and outcome of the EA.

1.1 Proposed Development

The current structure is a 31.7 m span truss bridge. The structure is in need of replacement, with four options being considered: do nothing, new single 38 m span girder bridge, new single 38 m span girder bridge with raised profile, and new 2 x 19 m span girder bridge, with a pier in the water. A municipal class EA is required to determine the best option for the structure. This study will investigate the short- and long-term plan for the crossing.

1.2 Existing Land Use and Study Area

The study area includes the subject structure and staging areas outlined in *Figure 1*, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

The structure is within the Township of Guelph-Eramosa, while the study area also extends within the Township of Puslinch.

The structure is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 41/24, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

1.3 Existing Regulations

The Provincial Policy Statement (PPS 2024), Species Conservation Act (SCA 2025), Fisheries Act (FA 1985), Species at Risk Act (SARA, 2002), , GRCA Policies for the Administration of the Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24, Wellington County Official Plan, Township of Guelph/Eramosa Zoning By-law 40/2016, and Township of Puslinch Zoning By-law 023-18 are relevant to the replacement of Blatchford Bridge, and are outlined in detail in *Appendix 1*, including the policy, sections, applicable details, conformity and any proposed mitigation or permitting requirements as it relates to these policies.

1.4 Terms of Reference

Based upon the above Acts, Policies and Regulations, proposed Terms of Reference (ToR) for the NEA were developed and submitted to the GRCA, Township of Puslinch, and Township of Guelph-Eramosa on March 15, 2024. GRCA provided comments on the ToR on March 28, 2024, providing comments to be incorporated in the ToR relating to impact assessment, and hydraulic and fluvial impacts, as well as requesting a revised ToR with these comments incorporated. No comments were received from the Townships on the proposed ToR. A revised ToR was submitted on May 13, 2024, to all parties, and was accepted by the GRCA on March 28, 2024. The Townships declined to comment on the revised ToR. The ToR and associated correspondence are provided in *Appendix 2.*

2.0 Methods

2.1 Background Review

A background information review was conducted, of both biological and physical features within the vicinity of the study area. The following resources were consulted during this review:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- Grand River Conservation Authority Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation, O. Reg. 41/24
- Wellington County Official Plan, 2025 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed March 1, 2024.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. 2019
- Ontario Breeding Bird Atlas. Bird Studies Canada, 2007.
- Atlas of the Mammals of Ontario. Dobbyn, 1994.
- iNaturalist. Accessed March 1, 2024.
- eBird. Cornell Lab of Ornithology. Accessed March 1, 2024.
- Ontario Butterfly Atlas. Toronto Entomologists' Association. Accessed March 1, 2024.
- Aquatic Species at Risk Map. Department of Fisheries and Oceans. Accessed April March 1, 2024.
- Aquatic Resource Area Survey Points and Line Segments, Land Information Ontario, accessed March 1, 2024.

2.2 Wetland Boundary Delineation

A portion of the Speed River Wetland Complex is adjacent to the structure. Shannon Davison, Certified Ontario Wetland Evaluator, performed an initial staking of the boundary of the wetland immediately adjacent the structure on May 30, 2024, and the boundary was verified with the GRCA on the same day. Boundaries were determined

using vegetation community borders and soil probes to depths of up to 60cm for water and hydric soil detection, as per the Ontario Wetland Evaluation System (OWES 2013) criteria. The wetland boundary was established where vegetation was comprised of 50% wetland and 50% upland species, and where soils displayed hydric conditions (e.g., presence of mottles and/or gleys), per the Ontario Wetland Evaluation System (OWES 2013). Site investigation details are provided in *Appendix 3*.

2.3 Vegetation

2.3.1 Ecological Land Classification

Ecological Land Classification (ELC) surveys were completed on May 30, 2024. Site investigation details are provided in *Appendix 3*. Due to restricted access the private properties within the study area, the ELC survey was conducted from the roadside, within the Right of Way. Surveys were completed by qualified Ecologist, Shannon Davison, OMNRF Certified in Ecological Land Classification. Vegetation communities within the study area were characterized and delineated following the Ecological Land Classification (ELC) system for Southern Ontario 1st approximation; community codes used generally follow the 2nd approximation (Lee, et al., 1998, 2008). Boundaries of ELC communities were mapped using aerial images and field observations (*Figure 1*). Digitized ELC data sheets are provided in *Appendix 4*.

Identified ELC communities were cross referenced with the NHIC Ontario Plant Community List (NHIC 2015) to determine the presence of rare plant communities (S3-S1). The Subnational, or Provincial Ranks (S Rank) are assigned by the Ontario Ministry of Natural Resources and Forestry (MNRF) Natural Heritage Information Centre (NHIC) to help assign protection priorities.

2.3.2 Botanical Inventory

Concurrent with ELC evaluations, the subject lands were inventoried as best as possible from the right of way to provide a comprehensive spring botanical inventory. A summer botanical was conducted on July 23, 2024. Site investigation details are provided in *Appendix 3*.

Identified vascular plant species were compared to provincial and federal SAR lists (COSARO, SARA), provincial ranks (NHIC 2015), global ranks, and Waterloo Region Significant Species List (Region of Waterloo, 1999) to assess federal, provincial, regional, and local conservation status of each species. English colloquial names and scientific binomials of plant species generally follow the Database of Vascular Plants of Canada (VASCAN 2016).

Identification of environmentally sensitive plant species was completed based on assignment of a coefficient of conservatism value (CC) for each native species (Oldham, et al., 1995). The value of CC, ranging from 0 (low) to 10 (high), is based on a species' tolerance of disturbance and fidelity to specific natural habitat parameters. Species with a CC value of 9 or 10 generally exhibit a high degree of fidelity to a narrow range of habitat parameters. These species may be more sensitive to environmental changes (Mortarello et. al., 2010).

A list of all identified plant species is provided in *Appendix 5*. The list provides botanical names, common names, provincial rarity rank (S-rank), global rarity rank (G-rank), provincial Species at Risk status (PSO), federal Species at Risk status (SARA), local rarity/significance within Grey County (Oldham 1993), CC and coefficient of wetness (CW). Plant species that could only be identified to genus were not assigned the above information.

2.4 Wildlife

2.4.1 Incidental Wildlife Observations

Incidental observations of wildlife were recorded during all field visits. Site investigation details are provided in *Appendix 3*.

2.4.2 Breeding Bird Surveys

Breeding bird surveys were conducted by Brynn Varcoe, Terrestrial Ecologist, to determine if significant breeding bird habitat occurs within, or adjacent to, the study area. Two point count surveys were conducted, comprised of 10-minute point counts positioned at a pre-determined location. Surveys followed the Ontario Breeding Bird Atlas: Guide for Participants (Bird Studies Canada, 2001). The highest observed level of breeding evidence was used to assign breeding status (i.e., confirmed, possible, probable or observed) to each species.

Surveys were performed during the peak breeding season for the bulk of species in southern Ontario (last week of May through early July) and were spaced at least 10 days apart in order to determine presumed permanent territories through territorial singing males. The two surveys took place on the morning of June 4 and June 18, 2024, between 30 minutes before dawn and 5 hours after dawn. The point count locations are illustrated on *Figure 1*, full survey results are provided in *Appendix 6*, and detailed survey dates and weather information are provided in *Appendix 3*.

2.4.3 Bat Maternity Habitat Surveys

Bat maternity habitat surveys occurred during leaf off, and were conducted by Heather Dixon, Aquatic Ecologist, and Brynn Varcoe, Terrestrial Ecologist. All ELC communities

identified as FOD, FOC, FOM, SWD, SWC, and SWM are considered Candidate Bat Maternity Habitat. As tree removal will be necessary for the bridge replacement, a survey for candidate bat maternity trees took place. All trees with a diameter at breast height (DBH) greater than 10 cm, and meeting any of the criteria for candidate bat habitat as outlined in the "Treed Habitats – Maternity Roost Survey" protocol(MECP, 2022), were recorded.

Candidate trees are those with some or all of the following characteristics:

- Tallest snag/cavity tree
- Exhibits cavities or crevices most often originating as cracks, scars, knot holes or woodpecker cavities
- Has leaf clusters, particularly relevant for Tri-colored Bats
- Has the largest diameter breast height (>25cm diameter at breast height, minimum >10cm diameter), however trees <25cm diameter at breast height are well documented as supporting day roosts of little brown myotis, northern myotis and tri-colored bat
- Is within the highest density of snags/cavity trees (e.g., cluster of snags)
- Has a large amount of loose, peeling bark
- Cavity or crevice is high in snag/cavity tree (>10m)
- Tree species that provide good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Canopy is more open (to determine canopy cover, determine the percentage of the ground covered by a vertical projection of the outermost perimeter of the natural spread of the foliage of trees); and
- Exhibits early stages of decay (decay Class 1-3; refer to Watt and Caceres 1999).

The survey occurred on March 14, 2024. A thorough walk-through of each suitable vegetation community identified above, where access was provided, was performed. During the walk-through, trees exhibiting one or more of the above characteristics were recorded. The tree locations are illustrated on *Figure 2*. Detailed survey dates and weather information are provided in *Appendix 3*.

2.4.4 Pileated Woodpecker and Red-headed Woodpecker Cavity Identification Surveys

With guidance from the Pileated Woodpecker Cavity Identification Guide (Environment and Climate Change Canada, 2023) and A Comparison of Some Aspects of the Breeding Ecology of Red-Headed and Red-Bellied Woodpeckers in Kansas (Jackson, 1976), all trees within the right-of-way in the study area were examined for Pileated Woodpecker and Red-headed Woodpecker cavities including those for nesting, roosting

and feeding. The survey occurred on March 14, 2024, and was conducted by Heather Dixon and Brynn Varcoe. Detailed survey and weather information are provided in *Appendix 3*.

Pileated Woodpeckers and Red-headed Woodpeckers create cavities for different stages of their life cycle including nesting, roosting and feeding. The following characteristics were examined during surveys to determine the type of cavity observed.

- Number of holes
- Cavity edge texture
- Hole shape
- Hole size
- Hole depth
- Hole appearance
- Suspected woodpecker species
- Tree type

While all cavities are recorded, only nesting cavities of Pileated Woodpecker are protected under the MBCA outside the nesting season, while active nesting cavities of Red-headed Woodpecker are protected under SARA, with the suggested regulated habitat under the Red-headed Woodpecker Recovery Strategy to be 200 m around the nest cavity (ECCC, 2021; MECP, 2022).

2.4.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (MNRF, 2015), the study area was considered for the presence of Significant Wildlife Habitat (e.g., specialized habitats for wildlife, and habitat for species of conservation concern). An assessment of the study area for all SWH is provided in *Appendix 7.*

2.4.6 Species at Risk Habitat

A thorough review of background documents was conducted to compile a master list of all Species at Risk, and species with conservation designation that may occur in the study area. A review of the site, along with habitat requirements for each species was conducted; the site was then evaluated for potential habitat using Ecological Land Classification, guidance from MNRF documents, and on-site knowledge acquired through field surveys. An assessment of the study area for candidate habitat for SAR is provided in *Appendix* 8.

2.5 Aquatic Habitat Assessment

Aquatic habitat assessments (AHA) were completed by Heather Dixon, Aquatic Ecologist, on July 23, 2024. The assessment was completed in an effort to classify stream features present to help inform decisions and mitigate any potential risks to fish and fish habitat as a result of the potential work. Data were collected upstream and downstream of the bridge, where access was allowed and where the river maintained a safe wading depth. The following criteria were used to characterize features present at each station:

- mean channel width;
- mean wetted width;
- max water depth;
- percent stream shading;
- buffer width;
- substrate;
- flow pattern;
- channel morphology;
- instream cover;
- bank characteristics; and
- presence of specific site features.

Detailed survey and weather information are provided in *Appendix 3*.

3.0 Existing Conditions

3.1 Background Review

3.1.1 Wildlife Atlases-Species of Conservation Concern

A thorough background search of the study area and adjacent lands has been completed using the resources noted in Section 2.1. The species of conservation concern, including those listed under the SCA and/or SARA as well as those with S-ranks of S1-S3, identified in the background search are identified in *Table 1*. *Table 1* includes the identified species, the sources where they were identified, their currents statuses under COSSARO, the SCA, COSEWIC, and SARA, as well as their provincial, national, and global ranks.

The findings of this review are presented in *Table 1* and *Appendix 9*. An assessment of the study area for candidate habitat for these SAR is included in *Appendix 8*.

3.1.2 Ministry of Northern Development, Mines, Natural Resources and Forestry

A request for information was sent to the Ministry of Northern Development, Mines, Natural Resources and Forestry, Guelph District, on March 8, 2024. A response was provided on March 11, 2024 with additional information for the study area. The response confirmed the presence of the Speed River PSW wetland complex, Waterfowl Winter Concentration Area, and White-tailed Deer Wintering Area (Stratum II) in the study area, that the Speed River is classified as a warm water watercourse, and that nine fish species are listed in the watercourse. The request for information and response are included in *Appendix 10*.

3.1.3 Ministry of Environment, Conservation and Parks

A request for information was sent to the Ministry of Environment, Conservation and Parks (MECP) on March 8, 2024 to inquire whether any further Species at Risk may occur in the study area. A follow-up email was sent to the MECP on May 8, 2024. No response was received from the MECP and the request was forwarded by them to the NHIC. The NHIC reached out on May 9, 2024 requesting a shapefile for access to medium sensitive data. AA responded on the same day clarifying that the request was for unpublished species at risk observations, not a sensitive data request. No further response was received from NHIC. The request for information and response is included in *Appendix 10*.

Table 1. Species at Risk Identified in Background Review

Source	Common Name	Scientific Name	COSSARO	SCA	COSEWIC	SARA	S-RANK	G-RANK	N-RANK	Area sensitive	Area required (ha)	PIF Species (BCR 13)
ORAA (2010)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	NL	THR	THR	S4	G5TNR	N4			
OBBA, eBird (2022)	Bank Swallow	*Riparia riparia*	THR	NL	THR	THR	S4B	G5	N5B,N5M			✓
OBBA, NHIC, eBird (2023)	Barn Swallow	*Hirundo rustica*	SC	NL	THR	THR	S4B	G5	N3N4B,N3N4M			
OBBA, NHIC, eBird (2021)	Bobolink	*Dolichonyx oryzivorus*	THR	NL	THR	THR	S4B	G5	N5B,N4N5M	✓	>10ha	✓
OBBA, eBird (2021)	Chimney Swift	*Chaetura pelagica*	THR	NL	THR	THR	S3B	G4G5	N4BN3M			✓
OBBA, NHIC, eBird (2023)	Eastern Meadowlark	*Sturnella magna*	THR	NL	THR	THR	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓
OBBA, NHIC, eBird (2023)	Eastern Wood-Pewee	*Contopus virens*	SC	NL	SC	SC	S4B	G5	N5B,N5M			✓
eBird (2022)	Evening Grosbeak	*Coccothraustes vespertinus*	SC	NL	SC	SC	S4	G5	N4B,N4N,NUM			
NHIC	Golden-winged Warbler	*Vermivora chrysoptera*	NL	NL	THR	THR	S3B	G4	N4B,NUM			✓
OBBA, NHIC	Grasshopper Sparrow	*Ammodramus savannarum*	SC	NL	SC	SC	S4B	G5	N4N5B,N4N5M	✓	>10ha	✓
eBird (2020)	Lesser Yellowlegs	*Tringa flavipes*	THR	THR	THR	NL	S3S4B,S5M	G5	N4N5B,N5M			
NHIC	Peregrine Falcon	*Falco peregrinus*	SC	NL	SC	SC	S4	G4	N3N4B,N2N,N3N4M			✓
NHIC	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END	NL	END	END	S3	G5	N4B,N3M			✓
eBird (2022)	Rusty Blackbird	*Euphagus carolinus*	SC	NL	SC	SC	S4B,S3N	G4	N4B,NUN,N4M			
OBBA, NHIC, eBird (2020)	Wood Thrush	*Hylocichla mustelina*	SC	NL	THR	THR	S4B	G4	N4B,NUM			✓
OBA (2022)	Monarch	*Danaus plexippus*	SC	NL	END	SC	S2N,S4B	G5	N3B,NNRM			
NHIC	American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	EXP	EXP	SH	G2G3	NH			
OMA	Little Brown Myotis	*Myotis lucifugus*	END	END	END	END	S3	G3G4	N2N4B,NNRN, NNRM			
ORAA (2019), NHIC	Midland Painted Turtle	*Chrysemys picta marginata*	NAR	NAR	SC	SC	S4	G5T5	N4			
ORAA (2019), NHIC	Snapping Turtle	*Chelydra serpentina*	NL	SC	SC	SC	S4	G5T5	N4			

G-Rank:

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act

END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not at Risk
NL: Not Listed

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species

S#B- Breeding Status Rank
S#N- Non Breeding Status Rank

G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
iNat: iNaturalist
ARA: Aquatic Resource Area Survey Points and Line Segments
NHIC: Natural Heritage Information Centre
DFO: Department of Fisheries and Oceans Species at Risk Mapping

3.2 Wetland Boundary Delineation

3.2.1 Boundary Survey

Following confirmation by the GRCA of the evaluated wetland boundary on May 30, 2024, the wetland limit was surveyed (*Figure 1*).

3.2.2 Wetland Characteristics

The GRCA's online mapping (Grand River Information Network, 2020) shows part of the Speed River Provincially Significant Wetland Complex within the study area, adjacent to the structure. The portion of the PSW within the study area consists of White Cedar Mineral Coniferous Swamp, Willow Mineral Deciduous Swamp, White Cedar-Hardwood Mineral Mixed Swamp, and Tamarak-Hardwood Mineral Mixed Swamp.

3.3 Vegetation

3.3.1 Ecological Land Classification and Botanical Inventory

The community polygons identified during the ELC survey are summarized in *Table 2* below. Field forms and a comprehensive vascular plant list for the entire study area are presented in *Appendices 4 and 5*, respectively.

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
Coniferous Swamp (SWC)		
SWCM1-1	White Cedar Mineral Coniferous Swamp	This community is north of Wellington Road 32, east of the Speed River. The canopy and sub-canopy are dominated by Eastern White Cedar (*Thuja occidentalis*) with secondary species including Black Walnut (*Juglans nigra*), American Elm (*Ulmus americana*), and Manitoba Maple (*Acer negundo*). The understorey consists of Black Walnut, Riverbank Grape (*Vitis riparia*), and Choke Cherry (*Prunus virginiana*). The ground layer consists of Riverbank Grape, Common Buckthorn, Prickly Gooseberry (*Ribes cynobasti*), Ostrich Fern (*Matteuccia struthiopteris*), and Dame's Rocket (*Hesperis matronalis*).
Mixed Swamp (SWM)		

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
SWMM1-1	White Cedar-Hardwood Mixed Swamp	This community is west of Wellington Road 32, and south of the Speed River. The canopy is dominated by Eastern White Cedar and Crack Willow (*Salix euxina*). The subcanopy includes Eastern White Cedar, Manitoba Maple, and Black Walnut. The understorey includes Manitoba Maple, Common Buckthorn, Riverbank Grape, and Black Raspberry (*Rubus occidentalis*) .The ground layer includes Manitoba Maple, Virginia Creeper, Garlic Mustard, and Dame's Rocket,.
SWMM5-2	Tamarack-Hardwood Mineral Mixed Swamp	This community occurs on the northern edge of the study area. The canopy includes Tamarack (*Larix laricina*), Trembling Aspen (*Populus tremuloides*), Silver Maple (*Acer saccharinum*), and Black Spruce (*Picea mariana*). The subcanopy included Trembling Aspen, Black Walnut, Tamarack, and Black Spruce. The understorey included Riverbank Grape, Manitoba Maple, Common Buckthorn, and Glossy Buckthorn (*Frangula alnus*). The ground layer consists of Spotted Jewelweed, Broad-leaved Enchanter's Nightshade, Ostrich Fern and Colt's-foot (*Tussilago farfara*).
Deciduous Swamp (SWD)		
SWDM4-1	Willow Mineral Deciduous Swamp	These communities occur on the northwestern side of the Speed River on either side of Wellington Road 32. The canopy consists of Crack Willow and Trembling Aspen. The subcanopy includes Trembling Aspen, Eastern White Cedar, American Elm, and Manitoba Maple.. The understorey includes American Elm, Manitoba Maple, Common Buckthorn and Riverbank Grape. The ground layer includes Common Buckthorn, Poison Ivy, Goldenrod species and Dame's Rocket.
Coniferous Forest (FOC)		
FOCM2-2	Dry- Fresh White Cedar Coniferous Forest	These communities occur on the southern side of the Speed River on either side of Wellington Road 32. The canopy is dominated by Eastern White Cedar, with occasional Black Cherry (*Prunus serotina*). The subcanopy includes Eastern White Cedar, Manitoba Maple, Eastern White Pine (*Pinus strobus*), and Red Pine (*Pinus resinosa*). The understorey includes Norway Maple, Common Buckthorn, Riverbank Grape and Virginia Creeper. The ground layer includes Riverbank Grape, Common Buckthorn, Virginia Creeper, and Common Dandelion.
Open Aquatic (OA)		

Table 2. Ecological Land Classification

ELC Code	Vegetation Type	Community Description
OAO	Open Aquatic	The Speed River runs through the centre of the study area, passing under Blatchford Bridge.
Constructed (CV)		
CVR	Constructed	This community occurs on the north side of the Speed River to the west of Wellington Road 32.
Residential (CVR)		
CVR_3	Single Family Residential	These communities occur on the south side of the Speed River on either side of Wellington Road 32.
CVR_4	Rural Property	This community occurs on the north side of the Speed River to the east of Wellington Road 32 on the edge of the study area.

3.3.2 Botanical Inventory

A detailed botanical field inventory of the study area completed from the roadside identified 87 species of vascular plants. All identified plant species are listed in *Appendix 5*. Three additional species were identified only to the level of genus and have not been designated as native or non-native or included in the overall species count.

Of the 86 species identified, 57 species (66%) are native, and 30 species (34%) are exotic or cultivars.

3.3.2.1 Species at Risk, Regional and Local Significance

No vegetation communities listed in *Table 2* are considered rare in the province.

Most of the native species are ranked S5 (secure in Ontario) or SNA (S-Rank not applicable) with two species, White Ash and Green Ash, ranked S4 (apparently secure in Ontario), and two additional species, Virginia Creeper and Black Walnut, ranked S4?, indicating uncertainty in its ranking. No S1-S3 species were observed in the study area. None of the species observed in the study area had a coefficient of conservatism of 9 or 10. This indicates the presence of species with moderate to high tolerance for environmental ranges, which may be less impacted by minor site alteration or environmental disturbance.

No nationally or provincially rare, threatened, or endangered species were found.

3.4 Wildlife

3.4.1 Incidental Wildlife Observations

All incidental wildlife observations made outside formal field surveys are presented in *Table 3*. All observations were of single individuals unless otherwise stated.

Table 3. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Notes
Green Frog	*Lithobates clamitans*	Amphibian	July 23, 2024	Observed.
American Crow	*Corvus brachyrhynchos*	Bird	March 14 and June 18, 2024	Observed outside the point count radius during the second breeding bird survey.
American Goldfinch	*Carduelis tristis*	Bird	July 23, 2024	Observed.
American Robin	*Turdus migratorius*	Bird	March 14, 2024	Observed.
Black-capped Chickadee	*Poecile atricapillus*	Bird	March 14, 2024	Observed.
Blue Jay	*Cyanocitta cristata*	Bird	July 23, 2024	Observed.
Canada Goose	*Branta canadensis*	Bird	March 14 and May 30, 2024	Observed.
Common Yellowthroat	*Geothlypis trichas*	Bird	June 18, 2024	Observed outside the point count radius.
Killdeer	*Charadrius vociferus*	Bird	March 14, 2024	Observed.
Northern Cardinal	*Cardinalis cardinalis*	Bird	March 14, 2024	Observed.

Table 3. Incidental Wildlife Observations

Common Name	Scientific Name	Taxa	Date	Notes
Northern Flicker	*Colaptes auratus*	Bird	March 14, 2024	Observed.
Red-winged Blackbird	*Agelaius phoeniceus*	Bird	March 14, May 30, and July 23, 2024	Observed.
Song Sparrow	*Melospiza melodia*	Bird	March 14 and July 23, 2024	Observed.
White-crowned Sparrow	*Zonotrichia leucophrys*	Bird	March 14, 2024	Observed.
Crayfish sp.	Astacidea	Crayfish	July 23, 2024	Observed.
Ebony Jewelwing	*Calopteryx maculata*	Damselfly	May 30 and July 23, 2024	Observed.
Minnow sp.	Leuciscidae	Fish	July 23, 2024	Observed.
Eastern Cottontail	*Sylvilagus floridanus*	Mammal	March 14, 2024	Observed.
Raccoon	*Procyon lotor*	Mammal	March 14 and July 23, 2024	Tracks observed.
Red Squirrel	*Tamiasciurus hudsonicus*	Mammal	March 13, May 30, and July 23, 2024	Observed.

3.4.2 Breeding Bird Surveys

The results of the Breeding Bird Survey (BBS) are presented in *Table 4.* During BBS visits, a total of eight species were detected during point counts.

It is important to note that, despite high levels of breeding evidence, a given species may not have been breeding specifically in the area in which it was observed. This is particularly true where species were only detected during one of the Breeding Bird Surveys. These species may have been foraging in these areas or may have been wandering during post-breeding dispersal. However, in order to ensure that all potential breeding bird species have been captured by this survey, any species exhibiting possible, probable, or confirmed breeding behaviour was considered to be breeding in the study area. Therefore, six species were presumed to be breeding within the study area: Eastern Kingbird, Chipping Sparrow, Song Sparrow, Red-winged Blackbird, Common Grackle, and Common Yellowthroat. The Breeding Bird Survey results in their entirety can be found in *Appendix 6.*

Table 4. Point Count Surveys- Highest Breeding Evidence (HBE)

Common Name	Scientific Name	COSSARO	COSEWIC	SARA	S-RANK	G-RANK	Area sensitive	Area required (ha)	PIF priority species	GRCA (date unk.)	Wellington County (2009)	June 4		June 18		FINAL HBE
												TOTAL	HBE	TOTAL	HBE	
Ring-billed Gull	*Larus delawarensis*				S5	G5					x	1	FO	0	NA	FO
Eastern Kingbird	*Tyrannus tyrannus*				S4B	G5			✓	CP	x	2	P	0	NA	P
American Robin	*Turdus migratorius*				S5	G5						1	FO	0	NA	FO
Chipping Sparrow	*Spizella passerina*				S5B, S3N	G5						1	S	0	NA	S
Song Sparrow	*Melospiza melodia*				S5	G5						3	S	2	T	T
Red-winged Blackbird	*Agelaius phoeniceus*				S5	G5						5	S	3	T	T
Common Grackle	*Quiscalus quiscula*				S5	G5						2	S	0	S	S
Common Yellowthroat	*Geothlypis trichas*				S5B, S3N	G5						1	S	2	T	T

Legend:
COSSARO: Committee on the status of Species at Risk Ontario
COSEWIC: Committee on the status of Endangered Wildlife in Canada
SARA: Species at Risk Act

S-Rank:
S5: Secure—Common, widespread, and abundant in the province
S4: Apparently Secure—Uncommon but not rare
S3: Vulnerable—Vulnerable, relatively few populations
G-Rank:
G5: Very common globally; demonstrably secure
B: Breeding.
N: Non-breeding.
M: Migrant.

Breeding Evidence:
Observed
FO- Flyover
Possible
S-singing male
Probable
P- Pair observed in suitable nesting habitat
T-Presumed territory

3.4.2.1 SAR, Regional, and Local Significance

No SAR were identified in the study area. Most species detected in the study area are ranked as S5 (very common) in Ontario. The rank qualifier ‘B’ denotes the status of a migratory species during the breeding season, while the rank qualifier ‘N’ denotes a

non-migratory population. One species (Eastern Kingbird) is considered a GRCA Conservation Priority and two species (Eastern Kingbird and Ring-billed Gull) are considered Significant in Wellington County.

3.4.2.2 Regional Priority Species

The Ontario Landbird Conservation Plan (OLCP): Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13 has identified a number of species that are considered conservation priorities for the region (Ontario Partners in Flight, 2008). One priority species (Eastern Kingbird) was identified during the breeding bird surveys.

3.4.3 Bat Maternity Habitat Surveys

No trees demonstrating the characteristics of candidate bat maternity trees were identified near the bridge. Therefore, no additional studies or habitat compensation are recommended.

3.4.4 Pileated and Red-headed Woodpecker Cavity Identification Surveys

Investigations were completed to identify Pileated and Red-headed Woodpecker nesting cavities near the bridge. No nesting cavities for either species were identified, and therefore no compensation or monitoring is recommended.

3.4.5 Significant Wildlife Habitat

With guidance from the *Significant Wildlife Habitat Technical Guide* (2000) and the SWH EcoRegion Criterion Schedule 6E (2015), we have determined that confirmed Significant Wildlife Habitat (SWH) is present in the form of Deer Winter Congregation Areas and Waterfowl Winter Concentration Areas. Candidate SWH is present in the form of Habitat for Special Concern and Rare Wildlife Species and Turtle Wintering Area, as habitat for Midland Painted Turtle and Snapping Turtle is present in the study area. See *Appendix 7* for a detailed assessment of SWH.

Candidate habitat for Snapping Turtle and Midland Painted was identified in the watercourse, particularly in the areas with sand and silt dominated substrates downstream of the bridge. No individuals were observed during the field investigations, however, since surveys were not conducted for turtles, this SWH is assumed present within the study area. Performing the work outside of the overwintering turtle window and minimising disturbance to the watercourse will help to mitigate for effects to these species.

3.4.6 Species at Risk Habitat

A thorough review of background documents was conducted to compile a master list of all Species at Risk, and species with conservation designations that may occur in the study area. Species listed as Rare or Special Concern are discussed in detail in section

3.3.5. Based on the background review and site assessment, candidate habitat for SAR listed as threatened or endangered is not known to occur within the study area.

See *Appendix 8* for a detailed assessment of Species at Risk Habitat.

3.5 Aquatic Habitat Assessment

An extended aquatic habitat assessment to map habitat features present along the watercourse up to 120 m upstream and downstream of the bridge took place on May 30, 2024. However, the river was deep (>1 m depth) in many places downstream, and almost immediately upstream of the bridge, limiting the detail collected during the assessment. In addition to deep water the current was strong, although flow was almost universally flat. Only the area immediately upstream of the bridge was accessible for in-stream assessment, while assessment of the downstream stretch was patchy. The deep water, strong current, and wide river did not allow for measurements of river width, although analysis of aerial photos indicate that in the vicinity of the bridge, river width averages around 30 m. Air temperature was 20°C and water temperature was 22°C at the time of the assessment.

The stream featured a low percentage of stream shading at 15%, with variable buffers of between 30 m and 70 m on both banks. There was evidence of erosion on the southern bank of the river downstream of the bridge. The substrates were variable, with cobble and boulder more prevalent on the southern side of the river downstream of the bridge, and sand and bedrock being more prevalent along the northern bank. Soft sediments like silt and sand were prevalent around the bridge and immediately downstream of it. Submerged vegetation was present within sandy areas at the edge of the study area. Boulders were present on the southern bank of the river downstream of the bridge, and a small bar made up of cobbles and boulders was present in the centre of the river immediately upstream of the bridge. Vascular plants within the riparian area included Eastern White Cedar, Crack Willow, Riverbank Grape, Crack Willow, Goldenrod species, and Spotted Joe Pye Weed, and the banks were well vegetated. In-stream fallen tree trunks were present throughout the study area.

The substrates, vegetation, and natural debris present in the creek provide moderate habitat for fish species, as the site has highly heterogenous substrates and variable water depths, although in-stream cover and stream shading was low. Fish and crayfish were observed during the site visit. Habitat mapping is provided for the assessed section of the watercourse in *Figure 3*, and site photos showing the river are provided in *Appendix 11*.

3.6 Geology and Soils

The study area contains Bottomland, Burford, and Granby soils (Hoffman et al., 1963). The Burford soils in the study area are loams which are part of the Grey Brown Podzolic Great Group, are gravelly, very gently to gently sloping, and slightly to moderately stony (Hoffman et al., 1963). They have good drainage, and consist of loam surface horizons on gravel deposits from glacial meltwaters (Hoffman et al., 1963). The materials vary in size from fine sand to cobbles. (Hoffman et al., 1963). The Granby soils in the study area are sandy loams which are part of the Dark Grey Gleysolic Great Group, consist of medium sand, and are smooth and stonefree (Hoffman et al., 1963). They have poor drainage, have developed from calcareous outwash, and are saturated with water for most of the year as they occur in depressions (Hoffman et al., 1963). The Bottomland soils are variable in texture, soil materials, topography, and stoniness (Hoffman et al., 1963). They are soils that occur on variable textured alluvial deposits in river and creek beds that are subject to periodic flooding (Hoffman et al., 1963).

4.0 Impact Analysis

Any proposed Infrastructure replacement will result in impacts to the existing natural features. The structure is proposed to be replaced in the same location as the existing structure. Subject to future detailed design, through the implementation of proposed mitigation the impact is expected to be minor to none.

4.1 Generalized Impacts and Mitigation Recommendations

An assessment of the impacts (potential and actual) and mitigation measures are provided in *Appendix 12*. The expected impacts include loss of vegetation and wildlife habitat, disturbance of wildlife species, impacts to nesting birds and bat maternity habitat, increased erosion, sedimentation, nutrient inputs, and contaminants into the wetland, decreased shade and cover, changes to drainage and surface runoff, increased soil compaction, and wildlife entering the construction areas.

Mitigation methods include:

- the development and implementation of an Erosion and Sediment Control (ESC) plan, including ESC fencing to isolate the work area and prevent the entrance of wildlife,
- removal of vegetation outside of sensitive timing windows (April 1-August 31 for breeding birds),
- Removal of trees outside the bat maternity timing window (March 15 – November 30),

- where avoidance is not possible, nest searches prior to vegetation removal in the breeding bird nesting window,
- maintaining site vegetation or restoring with native species as soon as possible, including the use of compensation planting,
- controlling access and movement of equipment and people,
- scheduling grading to avoid high run-off events,
- minimizing changes to land contours and natural drainage,
- controlling water contamination through good housekeeping practices such as designated areas for parking and refuelling vehicles,
- maintaining fish passage through the watercourse, and
- implementing a wetland restoration and planting plan.

4.2 Hydrological Function of the Wetland and Watercourse

A detailed hydrological study and analysis of the functions and anticipated changes to the watercourse have not been completed, so an evaluation of stormwater management alternatives is not available at this time. Preliminary hydraulic assessments indicate that it is expected that the replacement of Blatchford Bridge would have little to no impact on the hydrology of the watercourse, wetland, or flood risk, provided the bridge continues to span outside of the watercourse limits.

4.3 Analysis and Comparison of Bridge Replacement Alternatives

The proposed alternatives for the replacement of Blatchford Bridge have been assessed for impacts to the surrounding Natural Heritage System. The assessment of alternatives was completed by evaluating the potential and actual impacts of each proposed alternative on the identified Natural Heritage Features in the study area and surrounding landscape. The current state of the bridge was considered to be neutral, and positive or negative impacts were assessed relative to this condition. The current bridge is a 31.7 m span truss bridge.

Four alternatives (A, B, C and D) were considered in the evaluation of impacts to the Natural Environment. The following alternatives were provided by GFT Inc.

Alternative A - Do nothing
This is the neutral “null” alternative, against which all other alternatives will be measured. If nothing is done to replace the bridge, the bridge will continue to deteriorate and eventually fail.

Alternative B – Replace the current bridge with a new single 38 m span girder bridge (with new abutments offset behind the existing)

Construct a new larger bridge at the same location. New abutments will be offset behind the existing. This alternative may provide insufficient capacity below the bridge due to conversion from truss bridge to a girder bridge.

Alternative C – Replace the current bridge with a new single 38 m span girder bridge with a raised profile

Construct a new larger bridge at the same location. New abutments will be offset behind the existing. This alternative could be restricted by the adjacent driveway access but may be required to mitigate capacity below the bridge while converting to a girder type bridge.

Alternative D – Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water

Construct a new larger bridge at the same location which is supported in the middle with a pier in the water.

In order to evaluate the alternatives provided, each alternative was assessed with respect to potential impacts to the significant features of the natural environment identified in the study area (*Table 5*). These are:

- Impacts to Habitat of Species at Risk;
- Impacts to Fish Habitat, (including thermal regime and fish passage);
- Impacts to Significant Wildlife Habitat;
- Impacts to Provincially Significant Wetlands.

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
Species at Risk (SAR)	The effects each alternative has on native SAR within the project study area. Changes or alterations due to the bridge replacement can have negative impacts on the natural habitat features and ecological functions of the identified species. This is measured through the desktop and field investigations which assess the types of species present.	MED	No impacts are anticipated under current state.	No long-term impacts are anticipated following reconstruction of the bridge.	No long-term impacts are anticipated following reconstruction of the bridge.	No long-term impacts are anticipated following reconstruction of the bridge.
Ranking			**-4**	**0**	**0**	**0**
Aquatic/Fish Habitat	The effects each alternative has on the native fish species and their habitat. Changes to the habitat present in the river and impacts of the work may affect fish habitat. This is measured through the desktop and field investigations which assess the types of fish species present and other aquatic habitat features.	HIGH	No impacts are anticipated under current state. Bridge failure has the potential to cause negative impacts to fish and fish habitat	No long-effects expected following this method of bridge replacement. Present habitat will be preserved.	No long-effects expected following this method of bridge replacement. Present habitat will be preserved.	Construction of the pier will result in the long-term removal of a small area of fish habitat, will result in changes to the hydrology of the river at the new pier location, and will impact the hydrology and fish habitat in the area during construction.

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
						Most habitat within the study area will be unaffected.
Ranking			**-6**	**0**	**0**	**-3**
Significant Wildlife Habitat (SWH)	The effects each alternative has on SWH within the project study area. The destruction of SWH due to changes or alterations can have negative impacts on the natural habitat features and ecological functions. Measured through desktop and field investigations.	HIGH	No impacts are anticipated under current state. Bridge failure has the potential to cause negative impacts to SWH.	If appropriate mitigation measures are put in place, no long term impacts are anticipated following construction and restoration.	If appropriate mitigation measures are put in place, no long term impacts are anticipated following construction and restoration.	Long term negative-neutral impacts on the features and functions of the following assumed SWH: Turtle overwintering and Habitat for Special Concern Species and Rare Wildlife Species, due to the construction of the pier.
Ranking			**-6**	**0**	**0**	**-3**

Table 5. Comparison and Ranking of Alternatives

CRITERIA	Summary of Weighted / Measured Criteria	Weighting	ALTERNATIVE A Do Nothing	ALTERNATIVE B Replace the current bridge with a new single 38 m span girder bridge	ALTERNATIVE C Replace the current bridge with a new single 38 m span girder bridge with a raised profile	ALTERNATIVE D Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
NATURAL ENVIRONMENT						
Provincially Significant Wetlands (PSW) /Landscape Features	The effects each alternative has on the Speed River Wetland complex present within the project study area. Changes to the limit and extent of the PSW can cause negative impacts to the local ecological interdependencies. This is measured through desktop and field investigations which quantify and assess the current limit and extent of PSW.	MED	No impacts are anticipated under current state however, bridge failure has the potential to cause negative impacts to the PSW.	Impacts to upstream and downstream hydrology is negligible. No impacts are anticipated.	Potential encroachment into the PSW by the road due to the construction of the raised profile. Encroachment will be minor relative to the size of the PSW.	Impacts to upstream and downstream hydrology is negligible. No impacts are anticipated.
Ranking			**-4**	**0**	**-2**	**0**
Total Ranking		**20**	**-20**	**0**	**-2**	**-6**

4.4 Impacts to the Natural Environment

Alternative A - Do nothing
The Do Nothing Alternative will result in no immediate additional negative impacts to the existing natural features under the existing structure. This alternative will likely cause significant and unknown impacts to the natural environment in the case of an uncontrolled structure failure.

Alternative B – Replace the current bridge with a new single 38 m span girder bridge (with new abutments offset behind the existing)
Alternative B for structure replacement is not anticipated to result in new long-term negative impacts to the natural environment, relative to the current state. In general, the anticipated impacts associated with Alternative B are short term, while construction is ongoing. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be remain the same.

Alternative C – Replace the current bridge with a new single 38 m span girder bridge with a raised profile
Alternative C for structure replacement has the potential for long-term neutral to negative impacts on the PSW adjacent to the bridge on all sides, as this alternative will require the raising on the road on each side of the bridge. This may lead to encroachment into the wetland, although this will be relatively minor given the size of the wetlands.

Aside from the potential impacts to the PSW, the anticipated impacts associated with Alternative C are short term, while construction is ongoing. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be maintained.

Alternative D – Replace the current bridge with a new 2 x 19 m span girder bridge, with a pier in the water
Alternative D for structure replacement has the potential for long-term neutral to negative impacts on the both SWH and aquatic habitat. The construction of the pier has the potential to impact Turtle Overwintering Habitat and Habitat for Special Concern and Rare Wildlife found underneath the bridge, as well as impact fish habitat and alter the hydrology of the river around the pier.

Aside from the potential impacts from the pier, the anticipated impacts associated with Alternative D are short term, while construction is ongoing, although these impacts will be greater for this alternative compared to Alternatives B and C due to the construction of the pier. Mitigation measures can be applied to reduce or eliminate short-term negative impacts to the habitats. Existing long-term impacts to the natural environment which are present due to the existing structure will be maintained.

5.0 Legislation and Policy Compliance

5.1 Provincial Policy Statement

Blatchford Bridge is considered essential transportation infrastructure and is therefore exempt from the constraints applied to development. The natural resources adjacent to the existing structure must still be given consideration, and impacts must be minimized where possible.

To fulfill the requirement under the PPS, natural features were inventoried and assessed for potential and actual impacts based on the proposed replacement of the structure. Confirmed SWH and candidate habitat for SAR can be found around the bridge, and the portion of these habitats adjacent to the bridge will be disturbed by the removal of vegetation and in-water work during the bridge replacement. Revegetation of the site following construction with native plants, adhering to timing windows, and the use of ESC fencing and cofferdams to prevent wildlife access to the site will help to mitigate these effects.

5.2 Species Conservation Act

The Species Conservation Act (2025) provides protection to species designated as Threatened or Endangered on the Protected Species in Ontario List (O. Reg. 60/26) and their habitat. Protected habitat is habitat identified as essential for life processes including breeding, rearing, feeding, hibernation, and migration.

No SAR were identified during site investigations, impacts to SAR are not anticipated, as a result the structure replacement options are expected to comply with the SCA.

5.3 Fisheries Act, 1985

To ensure compliance with the *Fisheries Act (1985)*, a DFO Self-Assessment should be completed at detailed design to determine if the works can be completed under the appropriate codes of practice. Based on this review a DFO Request for Review of the

detailed design may be required where works cannot comply or fall outside of the purview of the codes of practice, and should be completed by a qualified biologist/ecologist. If it is determined that proposed actions may cause the death of fish or the harmful alteration, disruption or destruction (HADD) of fish habitat that cannot be mitigated for, then a Fisheries Act Authorization would be required.

5.4 Species at Risk Act

No Federal lands are present in the study area, and no migratory bird SAR or aquatic SAR have been identified within the study area. Therefore, this project is expected to be in compliance with the Species at Risk Act.

5.5 Grand River Conservation Authority

The study area is entirely within the GRCA regulated area and contains the Speed River Provincially Significant Wetland Complex, the Speed River, floodplain, and a watercourse crossing.

The replacement of the Blatchford Bridge is considered to be public infrastructure which is permitted within the area of interference of a wetland, interfering with a watercourse via a watercourse crossing, and within the regulated area subject to the activity being approved through a satisfactory EA process and/or if it has been demonstrated to the satisfaction of GRCA that the development is acceptable on the natural features and hydrologic and ecological functions of the area.

This area is already impacted by the existing structure, and it is expected that any new impacts to the natural heritage features will be minor to none. Alternative C with the raised profile has the greatest likelihood of impact to the PSW through direct encroachment, although that impact is likely to be minor. The total area (m^2) of any proposed direct impacts to the PSW will be quantified at the detailed design and permitting stage. Hydrological impacts to the watercourse and changes to flood capacity should be minimized through detailed design. Any encroachment into the adjacent wetland should be avoided and the designated location for the storage of equipment and materials should be as far from the wetland as possible. Appropriate mitigation measures should be applied through design and construction planning and disturbed areas restored or enhanced where appropriate. See Section 7.0 for recommendations.

5.6 Wellington County Official Plan (2025)

The Wellington County Official Plan (2025 consolidation) indicates the presence of Core Greenlands including PSW, hazardous lands (floodplain), fish habitat, and candidate SAR habitat in the Study Area. Greenlands is also present due to Significant Woodland and SWH being present in the study area. Based on the findings of the NEA, the choice of either Alternative B or C, and the recommended mitigation outlined in *Appendix 12* and Section 7.0, prior, during, and post-construction, ensures that the replacement of Blatchford Bridge will not negatively impact the ecological functions or environmental features present, and is not expected to contravene the Wellington County Official Plan.

5.7 Township of Guelph/Eramosa Zoning By-law (40/2016)

The study area is within lands designated as Environmental Protection. Completing the NEA to the satisfaction of the Township will result in this project conforming to the by-law.

5.8 Township of Puslinch Zoning By-law (023-18)

The study area is within lands designated as Natural Environment and Agriculture. Completing the NEA to the satisfaction of the Township will result in this project conforming to the by-law.

6.0 Summary and Conclusions

It is the opinion of AA that by implementing the mitigation measures identified in *Section 4*, that the options for replacement of the Blatchford Bridge will result in no significant long-term negative impacts to natural heritage features identified in the study area. The natural features within the study area will be protected and enhanced through mitigation and restoration recommendations. This will result in long-term positive effects on the natural heritage features within the study area. Below is a summary of the affected natural heritage features, constraints, and impacts. Recommendations for associated mitigation and/or protection measures are identified in *Section 4.*

6.1 Biological Constraints

1. Surveys were conducted for Ecological Land Classification and Vegetation Communities (ELC and Vascular Plant List), Breeding Birds, Candidate Bat Maternity Habitat, Woodpecker Cavity Surveys, Significant Wildlife Habitat, Species at Risk Habitat and Aquatic Habitat.

2. No SAR or their habitat were detected within the study area.

3. Confirmed SWH is present in the form of Deer Winter Congregation Areas and Waterfowl Winter Concentration Areas.

4. Assumed SWH is present in the form of Habitat for Special Concern and Rare Wildlife Species and Turtle Overwintering Habitat.

5. The study area includes a reach of the Speed River, which is classified as a cold-water watercourse, and which provides fish habitat.

6. Significant Woodland as defined by Wellington County is also present in the study area.

6.2 Impact Assessment

1. Impacts to the assumed SWH can be mitigated through site exclusion measures, undertaking work outside the turtle overwintering window, and revegetating disturbed areas.
2. Impacts to confirmed SWH can be mitigated by performing work outside of the winter, to avoid disturbing wintering deer and waterfowl.
3. Generalized impacts due to the replacement of the structure were assessed to determine their extent and mitigation guidelines have been provided.

4. Potential impacts primarily involve the removal of herbaceous vegetation communities, site grading, impact to aquatic habitat, wildlife disturbance, and sediment run-off.

5. From a Natural Environment perspective, Alternative B is the preferred alternative. Alternative D is the least preferred alternative due to the construction of the pier having greater potential for long-term impacts to fish habitat and SWH.

6. There are opportunities in the study area for edge enhancement, restoration, invasive species management, and compensation planting to mitigate and offset potential impacts.

6.3 Legislation and Policy Compliance

1. SWH and habitat near the structure has the potential to be disturbed during construction. However, negative impacts to these natural features or their ecological functions will ne mitigated through implementation of ESC, wildlife

exclusion, and revegetation of the disturbed areas with native plants and compensation planting.

2. The proposed replacement of Blatchford Bridge can occur in accordance with the provincial, federal, and municipal policies because it has been demonstrated that any impact to the hydrologic or ecological functions will be minimized through the recommended mitigation measures. The implementation of appropriate mitigation measures and restoration of disturbed areas will be considered through design and construction planning.

7.0 Recommendations

The following recommendations are provided to ensure protection of natural heritage features and function within and adjacent the proposed structure replacement.

1. Implement Erosion and Sediment Control Plan (ESC) following guidelines provided in the “Greater Golden Horseshoe Area Conservation Authorities’ Erosion and Sediment Control Guideline for Urban Construction”.

2. ESC measures should be implemented such that they isolate the work area, to reduce the potential for wandering wildlife inside the work area.

3. The area of construction disturbance shall be kept to a minimum.

4. Control access and movement of equipment and people.

5. Minimize the use of heavy equipment in sensitive areas. Equipment is to be limited to the construction allowance area and is not to encroach within the adjacent natural communities.

6. No equipment storage within 30 m of wetland limits.

7. Works are to be located as far away from the wetland feature boundary as possible.

8. Accumulated sediment and debris to be removed before silt fence is removed.

9. All disturbed areas will be re-vegetated or restored with site appropriate indigenous plants wherever opportunities exist.

10. Time activities to avoid wildlife disturbance during critical life stages:

a) No in-water works are permitted from March 15-June 30, as per MNDMNRF timing windows for the protection of fish and fish habitat, and during the timing window for overwintering turtles (September 30-April 1).
b) Avoid removal of trees and vegetation during the generalized breeding bird nesting period from April 1 to August 31 and the bat maternity period from March 15 to November 30. If limited removal of herbaceous vegetation and shrubs is to occur during the general nesting period, a nest search is to be completed by a skilled and experienced biologist/ecologist.
c) Net off the structure by April 1 to prevent any bird nesting.

11. Where in water works cannot be conducted per the applicable codes of practice, submit a DFO Request for Review to identify any potential risks to fish and fish habitat.

12. If dewatering within the study area is deemed necessary, ensure a fish rescue is completed by a qualified biologist/ecologist prior to dewatering being completed.

13. Choose designs and materials that will minimize impacts.

14. Limit any cleaning solutions or paint used on the structure and take appropriate precautions to avoid products entering the watercourse.

Prepared By:

ABOUD & ASSOCIATES INC.



Jordan Widmaier, B. Sc.,
Aquatic Ecologist

Reviewed By:



Cheryl-Anne Ross, B. Sc.,
Ecology Lead & Wildlife Ecologist
OMNR Certified Ecological Land Classification
OMNR Certified Wetland Evaluation

8.0 References

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

COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis *Myotis lucifugus*, Northern Myotis *Myotis septentrionalis* and Tri-colored Bat *Perimyotis subflavus* in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).

County of Wellington. 2025. County of Wellington Official Plan. December 2025 Office Consolidation

DFO. 1985. Department of Fisheries and Oceans. Fisheries Act

Dobbyn, John. 1994. *Atlas of the Mammals of Ontario.* Federation of Ontario Naturalists, viii + 120pp.

Environment and Climate Change Canada (ECCC). 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.

Environment and Climate Change Canada (ECCC). 2023. Pileated Woodpecker Cavity Identification Guide. Accessed November 23, 2023 at: https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/pileated-woodpecker-cavity-identification-guide.html

Government of Canada. 2019. *Species at Risk Public Registry – Schedule 1.*

Government of Ontario. 2025. Species Conservation Act, 2025, S.O. 2025, c. 4, Sched. 10.

GRCA. 2024. Grand River Conservation Authority. *Map Your Property Tool*. Available at: https://maps.grandriver.ca/web-gis/public/?theme=MYP&bbox=518708,4810285,567634,4837487

GRCA. 2024. *Grand River Conservation Authority Policies for the Administration of the Prohibited Activities, Exemptions and Permits Regulation.* Ontario Regulation 41/24. Resolution No. 24-88, Effective May 24, 2024.

Hoffman, D.W., Matthews, B.C., and Wicklund, R.E. 1963. Soil Survey of Wellington County. Report No. 35 of the Ontario Soil Survey. Experimental Farms Service, Canada Department of Agriculture and the Ontario Agricultural College

Jackson, J. A. 1976. A Comparison of Some Aspects of the Breeding Ecology of Red-Headed and Red-Bellied Woodpeckers in Kansas. The Condor, 78(1), 67-76.

Jones,C., Layberry, R. and Macnaughton, A.. Ontario Butterfly Atlas Online. (April 30, 2015). Toronto Entomologists' Association: http://www.ontarioinsects.org/atlas_online.htm

Lee, H.T., W.D. Bakowsky, J.L. Riley, J. Bowles, M. Puddister, P. Uhlig and S. McMurry. 1998. *Ecological Land Classification for Southern Ontario: First Approximation and its Application.* Ontario Ministry of Natural Resources, Southcentral Science Section. Science Development and Transfer Branch. SCSS Field Guide FG-02

MECP. 2022. Treed Habitats – Maternity Roost Surveys. 3 pp.

MECP. 2022. Recovery Strategy for the Red-headed Woodpecker (*Melanerpes erythrocephalus*) in Ontario. Ontario Recovery Strategy Series. Prepared by the Ministry of the Environment, Conservation and Parks, Peterborough, Ontario. iv + 5 pp. + Appendix. Adoption of the Recovery Strategy for Red-headed Woodpecker (*Melanerpes erythrocephalus*) in Canada (Environment Canada 2021).

MNRF. 2000. Ontario Ministry of Natural Resources. *Significant Wildlife Habitat Technical Guide.* October 2000.

MNRF. 2002. Ontario Ministry of Natural Resources. *Ontario Wetland Evaluation System: Southern Manual.* 3rd Edition.

MNRF. 2010. Ontario Ministry of Natural Resources. *Natural Heritage Reference Manual for Natural Heritage Policies of the Provincial Policy Statement, 2005*. Second Edition. Toronto: Queen's Printer for Ontario.

MNRF. 2015. Ontario Ministry of Natural Resources. *Significant Wildlife Habitat Criteria Schedules For Ecoregion 6E*

NHIC. 2019. Natural Heritage Information Centre. *NHIC online database and mapping.* Ontario Ministry of Natural Resources. Available at: https://www.ontario.ca/environment-and-energy/natural-heritage-information-centre

OMMHA. 2020. Ontario Ministry of Municipal Affairs and Housing. *Ontario Provincial Policy Statement.* October 20, 2024.

Ontario Nature. 2019. Ontario *Reptile and Amphibian Atlas.* Available at: http://www.ontarionature.org/protect/species/herpetofaunal_atlas.php

Ontario Partners in Flight. 2008. *Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain, North American Bird Conservation Region 13.* Ontario Ministry of Natural Resources, Bird Studies Canada, Environment Canada. Draft Version 2.0

Perry, R. W., and Thill, R. E. 2007. Tree roosting by males and female Eastern Pipistrelles in a forested landscape. Journal of Mammalogy. 88(4): 974-981

Township of Guelph/Eramosa. 2016. Township of Guelph/Eramosa Zoning By-law 40/2016. August 8, 2016.

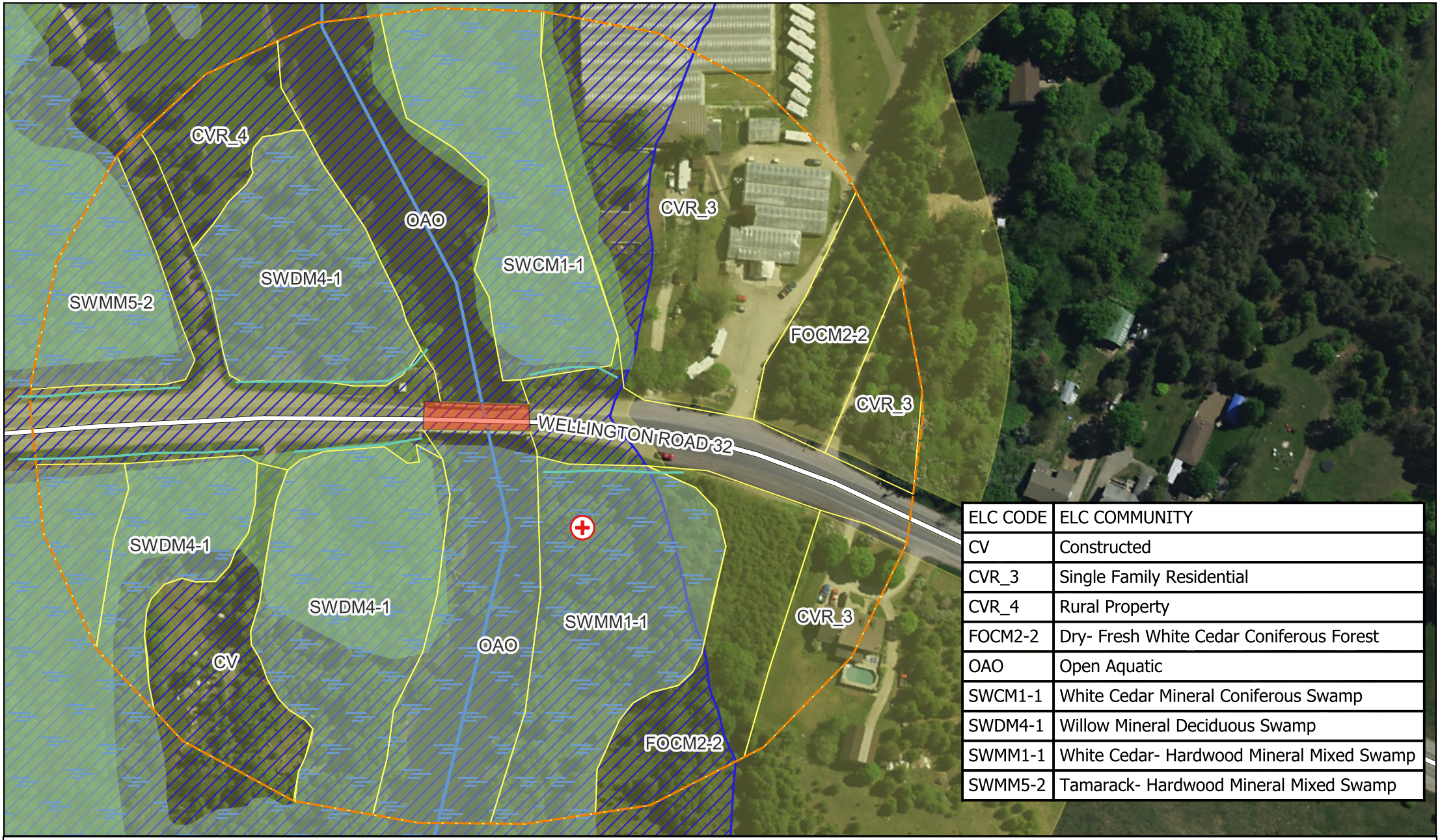
Township of Puslinch. 2021. Puslinch Zoning By-law, Comprehensive Zoning By-Law No. 023-18. Consolidated May 2021.

Authorities Consulted

Species at Risk Branch, MECP. Email Correspondence.

Denyes, David. Management Biologist. MNRF. Email Correspondence.

FIGURES



ELC CODE	ELC COMMUNITY
CV	Constructed
CVR_3	Single Family Residential
CVR_4	Rural Property
FOCM2-2	Dry- Fresh White Cedar Coniferous Forest
OAO	Open Aquatic
SWCM1-1	White Cedar Mineral Coniferous Swamp
SWDM4-1	Willow Mineral Deciduous Swamp
SWMM1-1	White Cedar- Hardwood Mineral Mixed Swamp
SWMM5-2	Tamarack- Hardwood Mineral Mixed Swamp

LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- SPEED RIVER
- SIGNIFICANT WOODLANDS
- GRCA FLOODPLAIN
- GRCA REGULATED AREA
- VERIFIED WETLAND LIMIT
- SPEED RIVER WETLAND COMPLEX
- BREEDING BIRD SURVEY LOCATION
- ECOLOGICAL LAND CLASSIFICATION

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

EXISTING CONDITIONS & SURVEY LOCATIONS

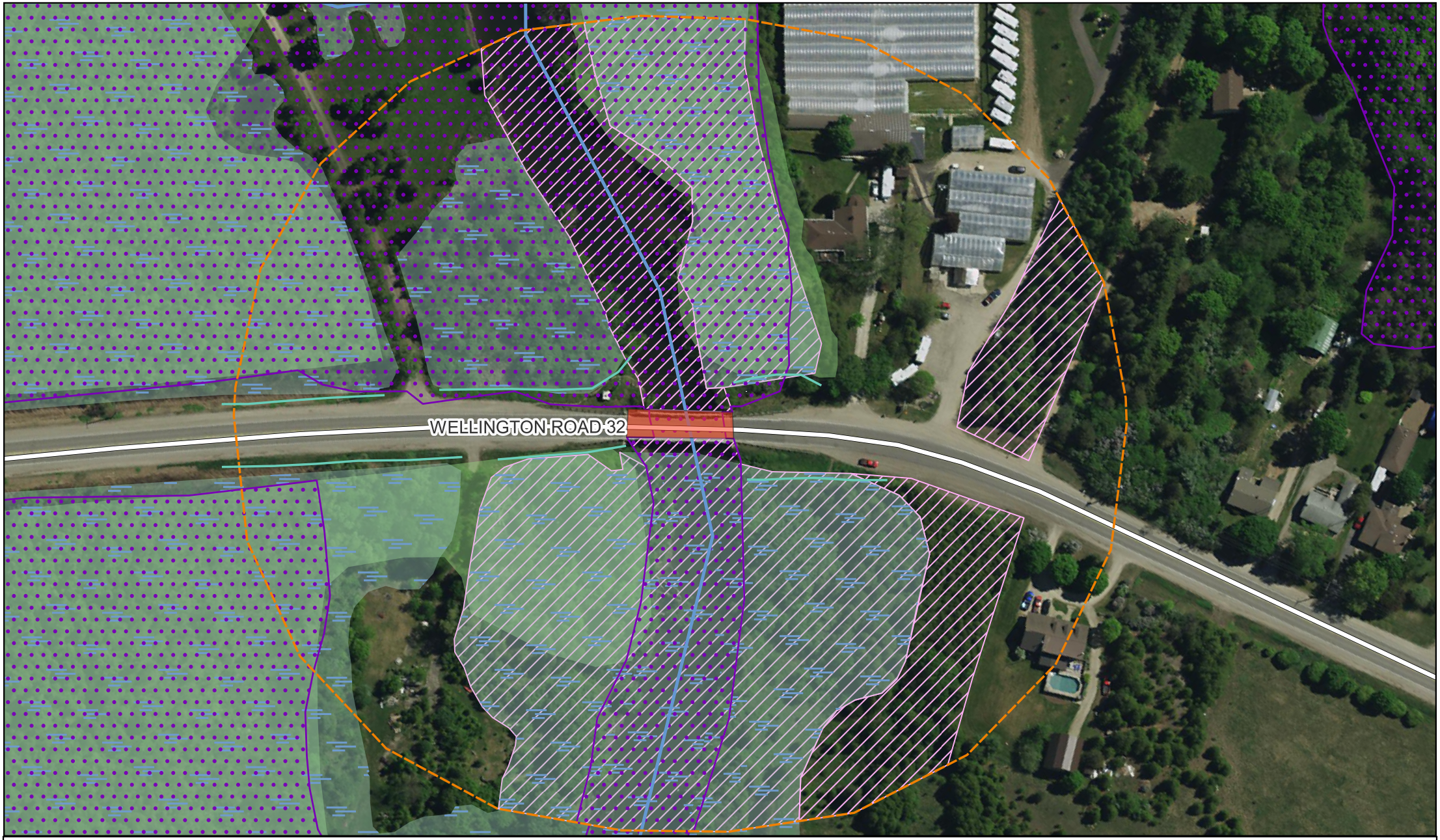
Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1



LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- SPEED RIVER
- VERIFIED WETLAND LIMIT
- CANDIDATE SAR HABITAT
- SPEED RIVER WETLANDS COMPLEX
- SIGNIFICANT WOODLANDS
- CONFIRMED AND ASSUMED SIGNIFICANT WILDLIFE HABITAT

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

NATURAL HERITAGE FEATURES & CONSTRAINTS

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 2



LEGEND

- BLATCHFORD BRIDGE
- STUDY AREA
- TREE
- BOULDER
- SUBMERGED VEGETATION
- EROSION
- 100 BEDROCK
- 100 COBBLE
- 100 SAND
- 100 SILT
- 50 SAND, 25 GRAVEL, 25 COBBLE
- 50 SAND, 50 COBBLE
- 60 COBBLE, 35 BOULDER, 5 SAND
- 60 COBBLE, 40 SAND
- 80 SAND, 20 BEDROCK
- 90 BEDROCK, 10 COBBLE
- 90 BOULDER, 10 COBBLE
- 90 COBBLE, 10 BOULDER
- COBBLE BAR

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed September 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed September 2024.

Title:

AQUATIC HABITAT MAPPING

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: SEPTEMBER 2024

Project: AA23-105A

Scale: 1 : 400

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Figure No: 3

APPENDIX 1
Applicable Policies and Conformity

Policy	Relevant Sections of the Policy	Policy Constraints Within the Study Area	Project Policy Conformity	Proposed Mitigation
Provincial Policy Statement (2024)	Chapter 3: Infrastructure and Facilities - Section 3.2 Transportation Systems - Section 3.3 Transportation and Infrastructure Corridors Chapter 4: Wise Use and Management of Resources - Section 4.1 Natural Heritage	Habitat of endangered species potentially present in Study Area. Significant Wildlife Habitat (SWH), Provincially Significant Wetlands and fish habitat present in the study area.	Confirmed and candidate SWH will be disturbed near the bridge, with the removal of vegetation.	Vegetation to be replanted with native species.
Species Conservation Act (2025)	Subsection 2(1) Section 16 O. Reg. 74/26 O. Reg. 75/26 O. Reg. 61/26	Species at Risk and their habitat are potentially present in the Study Area.	Following surveys and site-specific background review, No Candidate SAR habitat was identified in the study area.	No specific mitigation needed.
Fisheries Act (1985)	Section 34.4 (1) Section 35 (1)	Fish and fish bearing waters are present in the Study Area.	Fish habitat is confirmed as present in the study area.	The project will need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause death of fish or the harmful alteration, disruption or destruction of fish habitat that cannot be mitigated, then a Fisheries Act Authorization will be required.
Species at Risk Act (2002)	Subsection 32 (1) and (2) Subsection 33 Subsection 34(1) Subsection 58 (1)	Migratory bird SAR and aquatic Species at Risk and their habitat are potentially present in the Study Area.	Following surveys and background review, no aquatic SAR or their habitat have been identified in the study area. No migratory bird SAR were identified in the study area. No federal land present in the study area.	No specific mitigation needed.

Policy	Relevant Sections of the Policy	Policy Constraints Within the Study Area	Project Policy Conformity	Proposed Mitigation
Wellington County Official Plan (2025)	Section 5.4.1 Section 5.4.2 Section 5.4.3 Section 5.6.1	The majority of the study area is identified as Core Greenlands due to the presence of the PSW, hazardous lands (floodplain), fish habitat, and candidate SAR habitat. Greenlands is also present due to the presences of significant woodland and SWH.	Existing uses are permitted within Core Greenland and Greenland areas.	This EIS is part of an EA process and has demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions, provided mitigation described in *Appendix 12* are utilized.
GRCA Policies for the Administration of Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24	Section 7.1.2 Section 7.1.3 Section 8.1.15 Section 8.1.16 Section 8.1.17 Section 8.4.6 Section 8.4.7	PSW, regulated area, floodplain, and a watercourse present in the study area. The project is a public infrastructure project.	Infrastructure maintenance is permitted within the regulated area if authorized under an environmental assessment process.	This EIS is part of an EA process, and has demonstrated that there will be no negative impacts on the natural features and areas or their ecological functions, provided mitigation described in *Appendix 12* are utilized.
Township of Guelph/Eramosa Zoning By-law (40/2016)	Section 20	The study area is within lands designated as Environmental Protection.	Completing the EIS to the satisfaction of the Township will result in this project conforming to the by-law.	No specific mitigation needed.
Township of Puslinch Zoning By-law (023-18)	Section 11 Section 12	The study area is within lands designated as Natural Environment and Agriculture.	Completing the EIS to the satisfaction of the Township will result in this project conforming to the by-law.	No specific mitigation needed.

APPENDIX 2
Terms of Reference and Approval

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HABITAT RESTORATION
EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

May 13, 2024

Our Project No.: AA23-105A
Sent by Email: vwismer@grandriver.ca
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&

Amanda Roger
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&

Justine Brotherston
Deputy Clerk
Township of Puslinch
7404 Wellington Rd 34, Puslinch ON N0B 2J0

Re: Blatchford Bridge (B032085) Rehabilitation or Replacement
Terms of Reference R1 - Natural Environment Assessment Report

Dear Ms. Wismer, Ms. Roger, and Ms. Brotherstone:

This document outlines the revised Terms of Reference (ToR) of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation or replacement of Blatchford Bridge on Wellington County Road 32, in the Township of Guelph-Eramosa, Ontario. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA. The bridge is within the Township of Guelph-Eramosa, but some of the study area is within the Township of Puslinch.

The bridge is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 150/06, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- GRCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation, Ontario Regulation 150/06
- Prohibited Activities, Exemptions and Permits, Ontario Regulation 41/24
- Wellington County Official Plan, 2022 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed November 2022.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibian, accessed November 2022.
- Bird Studies Canada. Atlas of the Breeding Birds of Ontario 2008.

- Federation of Ontario Naturalists, Atlas of the Mammals of Ontario.
- DFO Aquatic Species at Risk Map. Accessed November 2022.
- iNaturalist. Accessed November 2022,
- eBird. Cornell Lab of Ornithology. Accessed November 2022.
- Aquatic Resource Area Survey Points online mapping. Accessed November 2022.
- Ontario Nature. Ontario Butterfly Atlas.

STUDY AREA

The study area includes the subject structure and staging areas outlined in Figure 1, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features. Lands outside of the field study area will be reviewed from existing background information e.g., Waterloo Regional Official Plan.

PLANNING CONTEXT

Provincial Policy Statement (2020)

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

In regards to **Natural Heritage Protection** the PPS states that:

"*Natural features and areas shall be protected for the long term.*"

And that:

"*The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*"

"Development and site alteration shall not be permitted in:

a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
b) Significant coastal wetlands.

Development and site alteration shall not be permitted in:

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6Eand 7E;

b) *Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
c) *Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);*
d) *Significant wildlife habitat;*
e) *Significant areas of natural and scientific interest; and*
f) *Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)"*

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under *Section 1.6.8.6*, these significant resources shall be given consideration in the planning of significant transportation *infrastructure*.

The subject structure is considered infrastructure and therefore is not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

Endangered Species Act, 2007

The *Endangered Species Act* (ESA) (Subsection 9(1)) states that:
"No person shall,

(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;

(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,

(ii) any part of a living or dead member of a species referred to in subclause (i),

(iii) anything derived from a living or dead member of a species referred to in subclause (i); or

(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA also states that:
"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

Clause 16(5) of the ESA states that:
"An agreement entered into under this section may require the authorized party under the agreement to pay a species conservation charge to the Agency in accordance with Section 20.3 if an impacted species under the agreement is also a conservation fund species."

Clause 17(1) of the ESA states:
"The Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by Section 9 or 10. 2007, c. 6, s. 17(1)."

An authorization or permit between the proponent and the Minister of Environment Conservation and Parks is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

Fisheries Act, 1985

The study area contains fish-bearing waters in the form of the Speed River. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

Section 35 (1) of the Fisheries Act states that:
"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat."

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support direct or indirect fish habitat. Within the context of the replacement or rehabilitation of the bridge, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish, which cannot be mitigated for, then a Fisheries Act Authorization would be required.

Species at Risk Act (S.C. 2002, c. 29)
The Species at Risk Act (SARA) includes prohibitions to protect listed wildlife species. Prohibitions of SARA within the Province of Ontario generally apply to species present on federal lands and all aquatic Species at Risk (SAR).

SARA subsection 32 (1) and (2) states that:

No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.
And,
No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual.

SARA subsection 33 also states that:

No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

SARA subsection 34(1), identifies where SARA does not apply in the Province:

With respect to individuals of a listed wildlife species that is not an aquatic species or a species of birds that are migratory birds protected by the Migratory Birds Convention

Act, 1994, sections 32 and 33 do not apply in lands in a province that are not federal lands unless an order is made under subsection (2) to provide that they apply.

SARA subsection 58 (1) identified the restrictions to the destruction of critical Habitat, and states that:

Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species — or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada — if…b) the listed species is an aquatic species; or….

Where impacts may occur or are expected, agreements or permits may be entered into with the appropriate ministry, as outlined in section 73, which states:

(1) The competent minister may enter into an agreement with a person, or issue a permit to a person, authorizing the person to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.

(2) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons;
(b) the activity benefits the species or is required to enhance its chance of survival in the wild; or
(c) affecting the species is incidental to the carrying out of the activity.

3) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that

> *(a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;*
> *(b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and*
> *(c) the activity will not jeopardize the survival or recovery of the species.*

The Species at Risk Act requires that projects and activities avoid causing serious harm to Species at Risk or their habitat unless authorized to do so. This applies to work conducted in or near waterbodies that support species at risk fish, or their critical habitat. Any proposed actions that could impact species at risk or their habitat would need to be assessed for compliance. If it is determined that proposed actions will cause

serious harm to species at risk that cannot be mitigated, then a Species at Risk Act Authorization would be required.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020 Consolidation)

Section 4.2.2.1 states:

A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.

The bridge and surrounding area are part of the Growth Plan's Natural Heritage System, as there are key hydrologic and key natural heritage features present.

Section 4.2.3 states that:

"Outside of settlement areas, development or site alteration is not permitted in key natural heritage features that are part of the Natural Heritage System for the Growth Plan or in key hydrologic features, except for:

c) activities that create or maintain infrastructure authorized under an environmental assessment process"

Wellington County Official Plan (2022 consolidation)

Schedule B3 of the Wellington County Official Plan indicates that the majority of the study area is identified as Core Greenlands due to the presence of the PSW and hazardous lands (floodplain).

Section 5.4.1 states that:

"All wetlands in the County of Wellington are included in the Core Greenlands. Development and site alteration will not be permitted in wetlands which are considered provincially significant. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland."

Township of Guelph/Eramosa Zoning By-law (40/2016)

The study area is within lands designated as Environmental Protection.

Township of Puslinch Zoning By-law (023-18)

The study area is within lands designated as Natural Environment and Agriculture.

Grand River Conservation Authority

Blatchford Bridge is within the GRCA Regulation limit. The study area contains the Speed River Provincially Significant Wetland (PSW), One Zone Floodplain, and watercourse.

Section 8.1.16 states that:

"Public infrastructure including but not limited to roads, sanitary sewers, utilities, water and sewage treatment plants, water supply wells, well houses, and pipelines may be permitted in accordance with the policies in Sections 7.1.2 – 7.1.3- General Policies, provided that there is no feasible alternative site outside the Riverine Flooding Hazard as determined through an Environmental Assessment or other comprehensive plan supported by the GRCA, and where it can be demonstrated that:

a) Adverse hydraulic or fluvial impacts are limited and any risk of flood damage to upstream or downstream properties is not increased or is minimized through site design and the affected landowner(s) is informed of the increased risk,
b) There is no loss of flood storage wherever possible, and
c) Where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.

Section 8.1.17 states that:

"The maintenance and repair of public infrastructure may be permitted in accordance with the policies in Sections 7.1.2-7.1.3- General Policies, and where it can be demonstrated that where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."

Development/interference within a wetland or development within an area of interference is not permitted except under certain circumstances.

Section 8.4.6 states:

"Public Infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, within a wetland larger than specified in Sections 8.4.4-8.4.5 may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, provided that it can be demonstrated that:

a) an Environmental Assessment or other comprehensive plan supported by the GRCA, demonstrates that all alternatives to avoid wetland loss or interference

have been considered and that the proposed alignment minimizes wetland loss or interference to the greatest extent possible, and

b) *where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."*

Additionally, section 8.4.7 states that:
"Where an Environmental Assessment or other comprehensive plan is available and supported by the GRCA as specified in Section 8.4.6, the GRCA will request a more detailed site-specific study (i.e., a Scoped Environmental Impact Study) consistent with the comprehensive plan."

Section 9.1.2 states that:
"Crossings including but not limited to bridges, culverts, pipelines, channel enclosures of less than 20 metres (66 feet) and causeways may be permitted to be constructed, replaced or upgraded in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.16-8.1.17 and/or Section 8.2.21 where appropriate, and provided that all feasible alternative sites and alignments have been considered through an Environmental Assessment supported by the GRCA"

In addition, GRCA is authorized under Section 28 of the Conservation Authorities Act to implement and enforce the Prohibited Activities, Exemptions and Permits Regulation (Ontario Regulation 41/24). Where discrepancies exist between the text of the legislation or regulation and the information provided within GRCA's existing Policy Document, the text of the legislation and regulation will prevail.

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. Preliminary investigation through the Natural Heritage Information Centre identified SAR records in the 1 km x 1 km squares containing the study area, and adjacent squares. Thirteen SAR were identified: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Golden-winged Warbler, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, American Burying Beetle, Midland Painted Turtle, Snapping Turtle, and Butternut. It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 103 species; 8 of which are considered SAR: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow, and Chimney Swift.

3. Review of the Ontario Reptile and Amphibian Atlas identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area. This list includes three species which are considered SAR: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog.

4. Review of the Atlas of the Mammals of Ontario identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis. It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area, including one SAR: Monarch.

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak, Lesser Yellowlegs and Rusty Blackbird.

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will complete the following:

Part 1. Schedule B Environmental Assessment

A. Confirm Terms of Reference

1. Review background information, (e.g., proposed development, relevant sections of Natural Heritage System components of the County, Township, Investigation of Wildlife Atlases and NHIC).
2. Prepare a Draft Terms of Reference and provide to Wellington County, Township of Guelph-Eramosa and the GRCA for Approval.

B. Field Assessment

3. Complete an MECP Request for Information and determine if any additional Species at Risk have been identified in the study area. COMPLETE
4. Complete an MNRF Request for Information to acquire fish timing windows and wetland information. COMPLETE
5. Conduct a screening of all background information and the site to determine the potential for the presence of Species at Risk (SAR).
6. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and summer) botanical inventory of the Study Area during the growing season.
7. Complete a wetland delineation, per the OWES protocol, for wetland limits within proximity of the proposed work and field verify the limits with the GRCA. This work will be undertaken by an OWES certified ecologist, who will flag wetland boundaries within 30 meters of the existing bridge structure or road right-of-way (where access is permitted) with wire flags in advance of verification with the GRCA. Verified wetland boundaries will be surveyed as soon as possible by an Ontario Land Surveyor retained by the client, and a digital shape file will be submitted to the GRCA for information.
8. Conduct a breeding bird survey of the study area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both point counts and area searches. The breeding bird survey requires two, focused, early morning site visits during the period between late May and early July.
9. Complete a Bat Habitat Assessment, review trees meeting the MNDNRF criteria (>10cm DBH) within the proposed development and immediately adjacent area (5M) and identify trees that meet the criteria for bat maternity habitat and require consideration under the ESA.
10. Investigate the study area for evidence of Pileated and Red-headed Woodpecker nest cavities and use a pole mirror to determine if the cavity is likely nesting,

roosting, or feeding, per the Environment Canada Pileated Woodpecker Cavity Identification Guide (Environment Canada, 2023).

11. Complete a characterization of the study area for any additional significant natural heritage features, per the PPS by applying provincial protocols and criteria to site features.
12. Conduct an aquatic assessment and aquatic habitat investigation to characterize the present watercourse and identify any fisheries constraints including a review of substrates and suitability for species at risk.
13. Investigate the study area for the presence of significant wildlife habitat during all surveys.
14. Investigate the study area for presence of species at risk and species at risk habitat during all surveys.
15. Record observations of incidental wildlife during all site visits.

C. Draft Natural Environment Assessment (NEA)

16. Analyze findings and prepare a map that shows: identified natural heritage features, and functions and landscape level features (e.g., linkages, wetland limits, forest interior habitat), the proposed area of work, ELC vegetation communities and, other noteworthy features as needed.
17. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofauna atlas, County's OP.
18. Consider and evaluate stormwater management alternatives to help inform the bridge design and demonstrate compliance with GRCA policies.
19. Conduct a preliminary impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features by the various design concepts under consideration. This includes the potential for hydraulic or fluvial impacts, such as increased flooding and erosion, and recommend measures to avoid or mitigate such impacts.
20. Prepare a report of the NEA that includes background information, methods, existing conditions, proposed options, recommended buffers, and appendices of field studies (e.g., ELC, aquatic assessment).
21. Submit draft NEA to client for review followed by distribution to County, municipality and GRCA.

Part 2. Preliminary Design

D. Impact Assessment Report

22. At approximately 50% design of the approved option, summarize the development proposal and provide associated metrics, including visual representations of the structure's footprint and proposed setbacks from confirmed limits of natural features.

23. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location of the components of the plan to reduce/avoid impacts to natural heritage features. Show the limits of expected impact and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent and AA.
24. Provide policy rationale for expected impacts to natural heritage features.
25. Identify options for mitigation or rehabilitation of the site, during and post construction.
26. Demonstrate that there will be no negative or adverse hydrologic impacts on adjacent wetlands.
27. Integrate the key findings and recommendations from concurrent assessments (e.g. fluvial or hydraulic assessment, geotechnical) that may be required.
28. Review the DFO requirements for projects near water and standards to determine if a request for review is required.
29. Update the NEA report to include the completed impact assessment of the detailed design of the project including mitigation measures, and identifies additional requirements, such as permits or registration under the ESA or DFO.
30. Submit finalized NEA to client for review followed by distribution to County, Township and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.781.1581.

Yours truly,

ABOUD & ASSOCIATES INC.



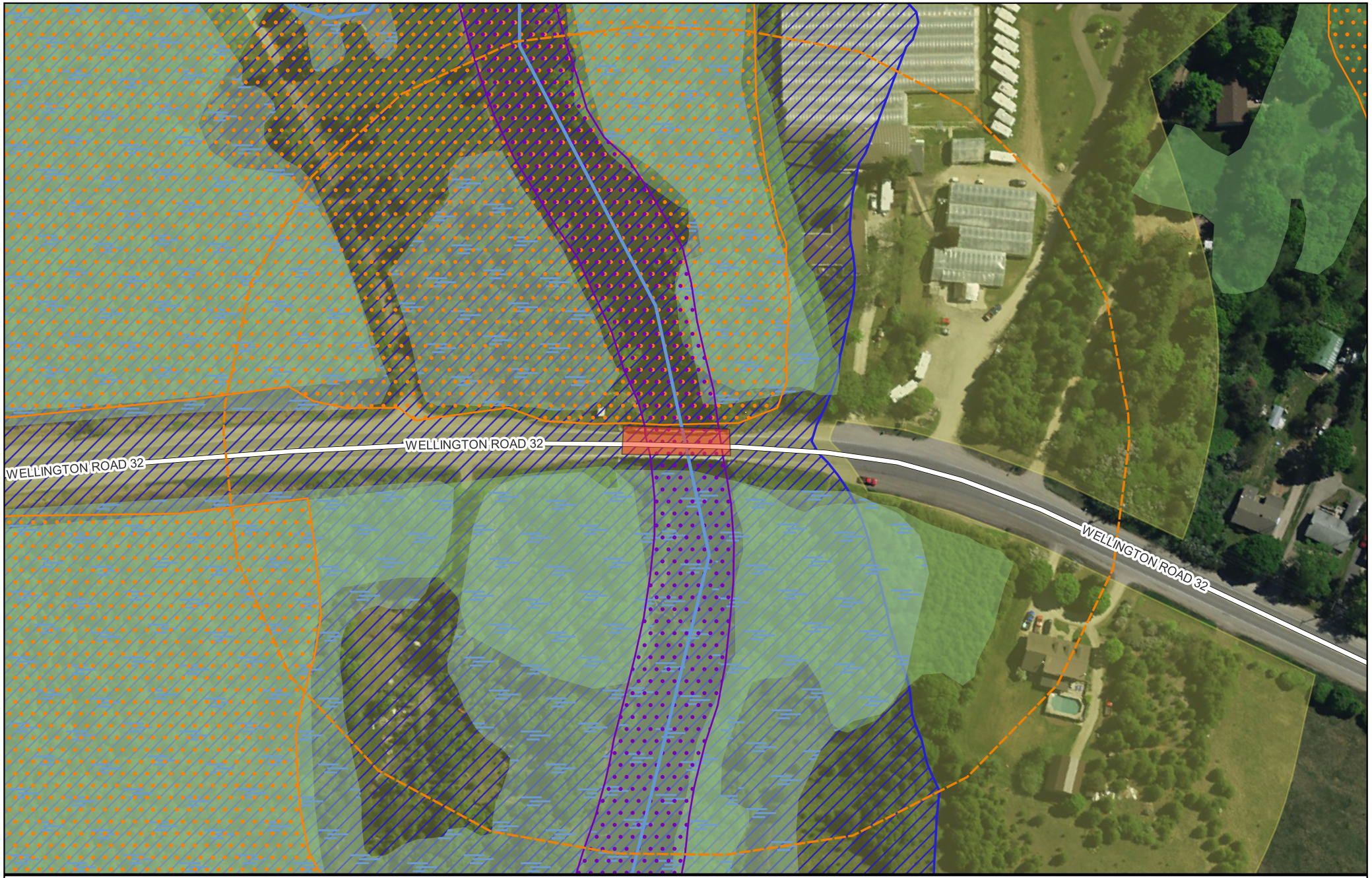
Heather Dixon, PhD
Aquatic Ecologist

Figure 1. Study Area

Appendix A. Candidate Significant Wildlife Habitat
Appendix B. Candidate Species at Risk Habitat

Cc: Cheryl-Anne Ross, Aboud & Associates Inc. (email)

Zach Prince, County of Wellington (email)
William Van Ruyven, Gannett Fleming (email)



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
1	Waterfowl stopover and Staging Areas (terrestrial)	Seasonal Concentration Areas	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	None, no habitat present.
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal Concentration Areas	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e. >700 waterfowl use days) confirms SWH	Habitat confirmed as present by LIO.
3	Shorebird Migratory stopover	Seasonal Concentration Areas	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	None, no habitat present.
4	Raptor Wintering Area	Seasonal Concentration Areas	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	None, no habitat present.
5	Bat Hibernacula	Seasonal Concentration Areas	- Caves, mine shafts, underground foundations, karsts. - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	None, no habitat present.
6	Bat Maternity Colony	Seasonal Concentration Areas	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Bat habitat assessment; candidate trees present.
7	Turtle Wintering Area	Seasonal Concentration Areas	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Speed River present, aquatic habitat assessment required.
8	Reptile Hibernaculum	Seasonal Concentration Areas	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Candidate habitat may be present, site will be assessed during ELC.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
9	Colonially-nesting Bird Habitat (cliff/bank)	Seasonal Concentration Areas	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	None, no habitat present.
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal Concentration Areas	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	None, no habitat present.
11	Colonially-nesting Bird Habitat (Ground)	Seasonal Concentration Areas	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	None, no habitat present.
12	Migratory Butterfly Stopover Area	Seasonal Concentration Areas	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	None, no habitat present.
13	Land bird Migratory Stopover Area	Seasonal Concentration Areas	- Woodlots >5ha in size - within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	None, no habitat present.
14	Deer Yarding Areas	Seasonal Concentration Areas	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	None, no habitat present.
15	Deer Winter Congregation Areas	Seasonal Concentration Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	Habitat confirmed as present by LIO.
16	Cliffs & Talus Slopes	Rare Vegetation Communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None, no habitat present.
17	Sand Barren	Rare Vegetation Communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	None, no habitat present.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
18	Alvar	Rare Vegetation Communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	None, no habitat present
19	Old Growth Forest	Rare Vegetation Communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	None, no habitat present
20	Savannah	Rare Vegetation Communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	None, no habitat present
21	Tallgrass Prairie	Rare Vegetation Communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	None, no habitat present
22	Other Rare Vegetation Communities	Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	None, no habitat present
23	Waterfowl Nesting Areas	Specialized Habitats for Wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	None, no habitat present
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized Habitats for Wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
25	Woodland Raptor Nesting Habitat	Specialized Habitats for Wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	None, no habitat present
26	Turtle Nesting Areas	Specialized Habitats for Wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	None, no habitat present
27	Seeps and Springs	Specialized Habitats for Wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	None, no habitat present
28	Amphibian Breeding Habitat (woodland)	Specialized Habitats for Wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	None, no habitat present
29	Amphibian Breeding Habitat (Wetland)	Specialized Habitats for Wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	None, no habitat present

#	**Significant wildlife habitat (SWH)**	**Candidate SWH type**	**Candidate SWH criteria**	**Criteria for SWH confirmation**	**Candidate SWH present** (Field survey type required)
30	Area-sensitive Breeding Bird Habitat	Specialized Habitats for Wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	None, no habitat present
31	Marsh Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands; all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	None, no habitat present
32	Open Country Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species. - Field with 1 or more Short-eared Owls	None, no habitat present
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	None, no habitat present

#	**Significant wildlife habitat (SWH)**	**Candidate SWH type**	**Candidate SWH criteria**	**Criteria for SWH confirmation**	**Candidate SWH present** (Field survey type required)
34	Terrestrial Crayfish	Habitats of Species of Conservation Concern	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	None, no habitat present
35	Special Concern & Rare Wildlife Species	Habitats of Species of Conservation Concern	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable. - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	Suitable habitat for special concern and provincially rare plant and bird species present. ELC, botanical inventory, and breeding bird surveys required.
36	Amphibian Movement Corridor	Wildlife Movement Corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors. - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	None, no habitat present.
37	Deer Movement Corridor	Wildlife Movement Corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat. - Unbroken by roads and residential areas - Shorter corridors are more significant	ELC, spring botanical, SAR and SWH assessment, and investigation of aerial photos.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Jefferson Salamander	*Ambystoma jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat present in study area.	None needed.
Unisexual Ambystoma, Jefferson dependent population	*Ambystoma laterale - (2) jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation to breed (COSEWIC 2016).	No habitat present in study area.	None needed.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	Amphibians	NAR	THR	S4	MNRF species occurrence mapping, ORAA (2010)	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	Habitat potentially present in study area.	ELC and botanical inventory.
American Burying Beetle	*Nicrophorus americanus*	Butterflies, bees, damselflies, dragonflies & insects	EXP	EXP	SH	NHIC	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat present in study area.	None needed.
Monarch	*Danaus plexippus*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S2N, S4B	MNRF species occurrence mapping, OBA (2022)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Habitat potentially present in study area.	ELC and botanical inventory.
Rusty-patched Bumble Bee	*Bombus affinis*	Butterflies, bees, damselflies, dragonflies & insects	END	END	S1	MNRF species occurrence mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land, and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	No habitat present in study area.	None needed.
West Virginia White	*Pieris virginenisis*	Butterflies, bees, damselflies, dragonflies & insects	SC	NAR	S3	MNRF species occurrence mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	No habitat present in study area.	None needed.
Yellow-banded Bumble Bee	*Bombus terricola*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S3S5	MNRF species occurrence mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	No habitat present in study area.	None needed.
Bank Swallow	*Riparia riparia*	Birds	THR	THR	S4B	MNRF species occurrence mapping, OBBA, eBird (2022)	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Barn Swallow	*Hirundo rustica*	Birds	SC	THR	S5B	MNRF species occurrence mapping, OBBA, NHIC, eBird (2023)	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Habitat potentially present in study area.	Breeding bird survey.
Barn Owl	*Tyto alba*	Birds	END	END	S1	MNRF species occurrence mapping	Requires open habitat for foraging, such as old fields and pastures, that provide habitat for rodents, and uses a variety of natural and man-made structures for nesting (COSEWIC 2010e)	No habitat present in study area.	None needed.
Bobolink	*Dolichonyx oryzivorus*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2021)	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat present in study area.	None needed.
Canada Warbler	*Wilsonia canadensis*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	No habitat present in study area.	None needed.
Cerulean Warbler	*Setophaga cerulea*	Birds	THR	END	S3B	MNRF species occurrence mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat present in study area.	None needed.
Chimney Swift	*Chaetura pelagica*	Birds	THR	THR	S4B, S4N	MNRF species occurrence mapping OBBA, eBird (2021)	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat present in study area.	None needed.
Common Nighthawk	*Chordeiles minor*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat present in study area.	None needed.
Eastern Meadowlark	*Sturnella magna*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat present in study area.	None needed.
Eastern Whip-poor-will	*Caprimulgus vociferus*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat present in study area.	None needed.
Eastern Wood-Pewee	*Contopus virens*	Birds	SC	SC	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Habitat potentially present in study area.	Breeding bird survey.
Evening Grosbeak	*Coccothraustes vespertinus*	Birds	SC	SC	S4B	MNRF species occurrence mapping, eBird (2022)	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat present in study area.	None needed.
Golden-winged Warbler	*Vermivora chrysoptera*	Birds	SC	THR	S4B	MNRF species occurrence mapping, NHIC	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Grasshopper Sparrow	*Ammodramus savannarum*	Birds	SC	SC	S4B	MNRF species occurrence mapping, OBBA, NHIC	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat present in study area.	None needed.
Henslow's Sparrow	*Ammodramus henslowii*	Birds	END	END	SHB	MNRF species occurrence mapping	Breeds in grassland habitat and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat present in study area.	None needed.
Least Bittern	*Ixobrychus exilis*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat present in study area.	None needed.
Lesser Yellowlegs	*Tringa flavipes*	Birds	THR	THR	S3S4B, S5M	eBird (2020)	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat present in study area.	None needed.
Loggerhead Shrike	*Lanius ludovicianus*	Birds	END	END	S2B	MNRF species occurrence mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat present in study area.	None needed.
Louisiana Waterthrush	*Seirus motacilla*	Birds	SC	THR	S3B	MNRF species occurrence mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat present in study area.	None needed.
Olive-sided Flycatcher	*Contupus cooperi*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat present in study area.	None needed.
Peregrine Falcon	*Falco peregrinus*	Birds	SC	SC	S3B	NHIC	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat present in study area.	None needed.
Prothonotary Warbler	*Protonotaria citrea*	Birds	END	END	S1B	MNRF species occurrence mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat present in study area.	None needed.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Birds	END	THR	S4B	MNRF species occurrence mapping, NHIC	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	Habitat potentially present in study area.	Breeding bird survey.
Rusty Blackbird	*Euphagus carolinus*	Birds	SC	SC	S4B	eBird (2022)	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat present in study area.	None needed.
Short-eared Owl	*Asio flammeus*	Birds	THR	SC	S2N, S4B	MNRF species occurrence mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat present in study area.	None needed.
Wood Thrush	*Hylocichla mustelina*	Birds	SC	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2020)	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Habitat potentially present in study area.	Breeding bird survey.
Yellow-breasted Chat	*Icteria virens*	Birds	END	END	S1B	MNRF species occurrence mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Black Redhorse	*Moxostoma duquesnei*	Fish	THR	THR	S2	MNRF species occurrence mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand, or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Sunfish (Great Lakes-Upper St. Lawrence Population)	*Lepomis peltastes*	Fish	SC	SC	S3	MNRF species occurrence mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	Habitat potentially present in study area.	Aquatic habitat assessment.
Redside Dace	*Clinostomus elongatus*	Fish	END	END	S1	MNRF species occurrence mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	Habitat potentially present in study area.	Aquatic habitat assessment.
Rainbow	*Villosa iris*	Molluscs	SC	SC	S2S3	MNRF species occurrence mapping	Most abundant in small to medium-sized rivers but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	Habitat potentially present in study area.	Aquatic habitat assessment.
Eastern Red Bat	*Lasiurus borealis*	Mammals	NL	END	S4	MNRF species occurrence mapping	Typically roosts among the foliage of trees and occasionally shrubs. They use both deciduous and coniferous forests of any age class, but in some parts of their range will avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Eastern Small-footed Myotis	*Myotis leibii*	Mammals	END	NA	S2S3	MNRF species occurrence mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Habitat potentially present in study area.	Bat habitat assessment
Hoary Bat	*Lasiurus cinereus*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosts solitarily in trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees. Typically roosts among the foliage of trees and occasionally shrubs, and use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Forages in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Little Brown Myotis	*Myotis lucifugus*	Mammals	END	END	S3	MNRF species occurrence mapping, OMA	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment
Northern Myotis	*Myotis septentrionalis*	Mammals	END	END	S3	MNRF species occurrence mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Silver-haired Bat	*Lasionycteris noctivagans*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosting occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Roosts in a variety of large diameter coniferous and deciduous trees. When taken as a whole, the data indicate that the species does select specific attributes of trees to roost in. However, these attributes are not specific to particular tree species or type (deciduous or coniferous specifically) across the species range. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics. Deciduous species (especially *Populus* spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur. Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used. Several studies report the frequent use of old woodpecker cavities (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Tri-colored Bat	*Perimyotis subflavus*	Mammals	END	END	S3?	MNRF species occurrence mapping	Hibernate in caves, abandoned mines, wells, and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Habitat potentially present in study area.	Bat habitat assessment
Blanding's Turtle	*Emydoidea blandingii*	Reptiles	THR	THR	S3	MNRF species occurrence mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Habitat potentially present in study area.	Aquatic habitat assessment.
Midland Painted Turtle	*Chrysemys picta marginata*	Reptiles	NL	SC	S4	ORAA (2019), NHIC	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Map Turtle	*Graptemys geographica*	Reptiles	SC	SC	S3	MNRF species occurrence mapping	Highly aquatic species, found in deep, large waterbodies, including lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Snapping Turtle	*Chelydra serpentina*	Reptiles	SC	SC	S4	MNRF species occurrence mapping, ORAA (2019), NHIC	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Habitat potentially present in study area.	Aquatic habitat assessment.
Spotted Turtle	*Clemmys guttata*	Reptiles	END	END	S2	MNRF species occurrence mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Wood Turtle	*Glyptemys insculpta*	Reptiles	END	THR	S2	MNRF species occurrence mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Butler's Gartersnake	*Thamnophis butleri*	Reptiles	END	END	S2	MNRF species occurrence mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat present in study area.	None needed.
Eastern Ribbonsnake	*Thamnophis sauritus*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat present in study area.	None needed.
Milksnake	*Lampropeltis triangulum*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	No habitat present in study area.	None needed.
Massassauga Rattlesnake	*Sistrurus catenatus*	Reptiles	SC	THR	S3	MNRF species occurrence mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat present in study area.	None needed.
American Ginseng	*Panax quinquefolius*	Vascular plants	END	END	S2	MNRF species occurrence mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat present in study area.	None needed.
Black Ash	*Fraxinus nigra*	Vascular plants	END	THR	S4	MNRF species occurrence mapping	Predominantly a wetland species of swamps, floodplains and fens. Has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Also occurs widely in moist upland forests, but generally at lower densities than in wet areas (COSEWIC, 2018).	Habitat potentially present in study area.	ELC and botanical inventory.
Blue Ash	*Fraxinus quadrangulata*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Found in 3 habitat types; floodplains and river valleys where Blue Ash grows in rich soils in association with other tree species; shallow soils on alvar and limestone on the Lake Erie islands; and stabilized beaches at Point Pelee National Park, and Fish Point on Pelee Island (COSEWIC 2014)	No habitat present in study area.	None needed.
Butternut	*Juglans cinerea*	Vascular plants	END	END	S2?	MNRF species occurrence mapping, NHIC	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	Habitat potentially present in study area.	ELC and botanical inventory.
Common Hoptree	*Ptelea trifoliata*	Vascular plants	THR	SC	S3	MNRF species occurrence mapping	Occurs nearly entirely along or near the Lake Erie shoreline. Often found in areas of natural disturbance where it forms part of the outer edge of shoreline woody vegetation (COSEWIC 2015)	No habitat present in study area.	None needed.
Dense Blazing Star	*Liatris spicata*	Vascular plants	THR	THR	S2	MNRF species occurrence mapping	Occurs in open tallgrass prairies. It can grow in a range of moisture regimes from dry to very moist (COSEWIC 2010)	No habitat present in study area.	None needed.
Hill's Pondweed	*Potamogeton hillii*	Vascular plants	SC	SC	S2S3	MNRF species occurrence mapping	Occur in cold clear calcareous streams, ponds, and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat present in study area.	None needed.
Lakeside Daisy	*Tetraneuris herbacea*	Vascular plants	SC	THR	S3	MNRF species occurrence mapping	Commonly found in alvar habitats, but occasionally occurs in prairies and cliffs. Habitat is seasonally wet in spring and fall and moderately drought-like in the summer (COSEWIC 2002)	No habitat present in study area.	None needed.
Smooth Yellow False Foxglove	*Aureolaria flava*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Inhabits a variety of dry upland woods including escarpment slopes, oak hummocks, oak woodlands, and oak savannas. Primarily associated with Oak species. (COSEWIC 2018)	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Tuberous Indian Plantain	*Arnoglossum plantagineum*	Vascular plants	SC	SC	S2	MNRF species occurrence mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat present in study area.	None needed.

References:

Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp. (Available online here: http://www.birdsontario.org/atlas/datasummaries.jsp)

Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. (Available online here: Toronto Entomologists' Association: http://www.ontarioinsects.org/atlas_online.htm)

Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (Available online here: http://www.ontarionature.org/discover/resources/publications.php)

MNRF, 2015. Wellington County Upper Tier Species at Risk. Ministry of Natural Resources and Forestry. Provided February 10, 2015.

NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org.

NHIC, 2015. MNRF Make a map: Natural Heritage Areas. (Available online: http://www.ontario.ca/environment-and-energy/make-natural-heritage-area-map)

Ontario Nature. 2015. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. (Available online here: http://www.ontarionature.org/atlas)

Heather Dixon

From: Vanessa Wismer <vwismer@grandriver.ca>
Sent: Wednesday, May 29, 2024 2:00 PM
To: Heather Dixon
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)
Attachments: 2024-05-28 - Draft Terms of Reference - GRCA Comments.pdf

Caution. Outside Sender

Hello Heather,

Many thanks for providing GRCA staff with the revised Terms of Reference for the Blatchford Bridge. Please see the attached. Should you have any questions or comments, please do not hesitate to contact me.

Cheers,

Vanessa Wismer, MSc
Resource Planner
Grand River Conservation Authority

400 Clyde Road, PO Box 729
Cambridge, ON N1R 5W6
Office: 519-621-2761 ext. 2327
Toll-free: 1-866-900-4722
www.grandriver.ca | Connect with us on social

From: Heather Dixon <Heather@aboudtng.com>
Sent: Monday, May 13, 2024 11:14 AM
To: Vanessa Wismer <vwismer@grandriver.ca>; planning@get.on.ca; jbrotherston@puslinch.ca
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Good morning,

Please see attached for the revised Terms of Reference for Blatchford Bridge, with the comments provided by the GRCA incorporated. We would appreciate your review and comments on this document. We have not heard back from either of the Townships, so please provide comments on this ToR as appropriate.

The wetland delineation for this project has been booked with the GRCA for this Wednesday, and will be surveyed the next day.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

From: Vanessa Wismer <vwismer@grandriver.ca>
Sent: Thursday, March 28, 2024 9:39 AM
To: Heather Dixon <Heather@aboudtng.com>; planning@get.on.ca; jbrotherston@puslinch.ca
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Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

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Hello,

Many thanks for providing the Terms of Reference of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation/replacement of the Blatchford Bridge on Wellington County Road 32 in the Township of Guelph Eramosa to GRCA staff for review.

The information currently available in our office indicates that the following regulated features are in the project area: engineered/one-zone floodplain (blue cross hatching) and wetland (purple), in addition to the regulated allowance (yellow) to those features. Please refer to the enclosed map.

Staff have reviewed the NEA provided and offer the following comments for your consideration:

1. The wetlands are part of the Speed River PSW Complex. One of the evaluated wetland units (north side of the river and east of the road) is not currently mapped by the GRCA. The GRCA's wetland layer will be reconciled with the MNRF layer as soon as possible.

2. We ask that wetland boundaries within 30 meters of the existing bridge structure or road right-of-way be delineated with ribbons, wire flags, and/or wood stakes in advance by the consultant and subsequently verified by GRCA staff. Verified wetland boundaries must be surveyed as soon as possible and a digital file (shape files or CAD) submitted to the GRCA for information. We ask that a site visit be scheduled with the GRCA when site conditions are appropriate (generally between May 1 and October 15).

3. Section 9.1.2 of the GRCA's consolidated policies is also applicable. Crossings including but not limited to bridges may be permitted to be replaced or upgraded in accordance with the policies in Sections 7.1.2-7.1.3 – General Policies and Sections 8.1.16, and provided that all feasible alternative sites and alignments have been considered through an Environmental Assessment supported by the GRCA.

4. The terms of reference indicate that the impact assessment will be done for the 50% design option. Potential impacts associated with the various design concepts under consideration should also be reviewed and documented as part of the Natural Environment Assessment. A more detailed assessment of impacts shall accompany the 50% design drawings.

5. Stormwater management alternatives should be given due consideration and evaluated on an individual basis to help inform the bridge design and to demonstrate compliance with GRCA policies.

6. The Natural Environment Assessment should evaluate the potential for hydraulic or fluvial impacts, including increased flooding and erosion, and recommend measures to avoid or mitigate such impacts.

7. The Natural Environment Assessment should demonstrate there will be no negative or adverse hydrologic impacts on adjacent wetlands.

8. The Natural Environment Assessment should integrate the key findings and recommendations from concurrent assessments (e.g. fluvial or hydraulic assessment, geotechnical) that may be required.

Advisory Comments:

- The Speed River is currently classified as warm water fish habitat by the Ontario Ministry of Natural Resources and Forestry. The following fish species have been documented in this section of river:
    - Blackside Darter, Bluntnose Minnow, Brook Stickleback, Brown Bullhead, Common Shiner, Greenside Darter, Smallmouth Bass, White Sucker
- We request that the terms of reference be revised accordingly.

Please be advised that on February 16, 2024, the Prohibited Activities, Exemptions and Permits under Conservation Authorities Act Regulation (Ontario Regulation 41/24) was approved. This regulation replaces the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 150/06) on April 1, 2024. We are revising our policies accordingly to align with these changes.

If you wish to discuss this further or have any questions, please do not hesitate to contact me.

Many thanks,

Vanessa Wismer, MSc
Temporary Resource Planner
Grand River Conservation Authority

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From: Heather Dixon <Heather@aboudtng.com>
Sent: Friday, March 15, 2024 10:32 AM
To: Vanessa Wismer <vwismer@grandriver.ca>; planning@get.on.ca; jbrotherston@puslinch.ca
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>
Subject: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Dear Ms. Wismer, Ms. Rogers, and Ms. Brotherstone,

Please see the attached draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON. The draft Terms of Reference have been developed based on information received from the proponent, and a review of the applicable municipal, provincial, and federal guidelines that apply to this project. The bridge is in the Township of Guelph-Eramosa, but some of the study area is in the Township of Puslinch. We would appreciate your review and comments on the Terms of Reference in order to finalize the proposed scope of work required for the Natural Environment Assessment Report.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist

ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

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Phone: 519-621-2761 Toll free: 1-866-900-4722 Fax: 519-621-4844 www.grandriver.ca

May 28, 2023 **VIA EMAIL**

Heather Dixon
Aboud and Associates Inc.
3-5 Edinburgh Road South
Guelph, ON, N1H 5N8

Dear Ms. Dixon,

Re: Terms of Reference for a Natural Environment Assessment Report - Revised
Blatchford Bridge, County of Wellington

Grand River Conservation Authority (GRCA) staff have reviewed the above-noted Terms of Reference for a Natural Environment Assessment Report, proposed to be completed as part of a Schedule B Environmental Assessment for the rehabilitation or replacement of the Blatchford Bridge in the Township of Guelph Eramosa.

GRCA Comments

Staff have reviewed the following report, received May 13th, 2024:

- Blatchford Bridge (b032085) Rehabilitation or Replacement Terms of Reference (Revised) – Natural Environment Assessment Report, prepared by Aboud and Associates Inc., May 13th 2024.

GRCAs previous comments, provided on March 28th, 2024, have been sufficiently addressed in the revised submission. GRCA staff are satisfied with the revised Terms of Reference for the above-mentioned works.

Should you have any questions, please contact Vanessa Wismer at 519-621-2761 ext. 2327 or vwismer@grandriver.ca.

Sincerely,

Chris Foster-Pengelly, M.Sc.
Supervisor of Planning and Regulation Services
Grand River Conservation Authority

Heather Dixon

From: Justine Brotherston <jbrotherston@puslinch.ca>
Sent: Wednesday, May 15, 2024 9:14 PM
To: Planning; Heather Dixon; Vanessa Wismer
Cc: Cheryl-Anne Ross; Zachary Prince; Van Ruyven, William; Amanda Knight; Harry Niemi
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Caution. Outside Sender

Hi Heather,

Similarly, the Township of Puslinch will not be providing comments at this time as the proposal will be reviewed at the County level.

Kind regards,

Justine Brotherston
Interim Municipal Clerk
Deputy Clerk
Township of Puslinch
7404 Wellington Rd 34, Puslinch ON N0B 2J0
519-763-1226 ext. 208 Fax 519-736-5846 www.puslinch.ca

My hours may not match your working hours. If you received this email outside of regular business hours, I do not expect an immediate response.

From: Planning <planning@get.on.ca>
Sent: Wednesday, May 15, 2024 10:32 AM
To: Heather Dixon <Heather@aboudtng.com>; Vanessa Wismer <vwismer@grandriver.ca>; Planning <planning@get.on.ca>; Justine Brotherston <jbrotherston@puslinch.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>; Zachary Prince <zacharyp@wellington.ca>; Van Ruyven, William <wvanruyven@GFNET.com>; Amanda Knight <aknight@get.on.ca>; Harry Niemi <hniemi@get.on.ca>
Subject: RE: Draft Terms of Reference for a Natural Environment Assessment Report for the proposed rehabilitation or replacement of Blatchford Bridge, County of Wellington, ON (AA23-105A)

Hi Heather,

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Regards,

Amanda Roger
Planning Technician/ Secretary Treasurer, Committee of Adjustment

Township of Guelph/Eramosa
8348 Wellington Road 124, PO Box 700
Rockwood, ON N0B 2K0

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Ph: 519-856-9596 ext 112
Toll Free: 1-800-267-1465
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> You don't often get email from heather@aboudtng.com. Learn why this is important

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ABOUD & ASSOCIATES INC.
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TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 15, 2024

Our Project No.: AA23-105A
Sent by Email: vwismer@grandriver.ca
planning@get.on.ca
jbrotherston@puslinch.ca

Vanessa Wismer
Resource Planner
Grand River Conservation Authority
400 Clyde Road PO Box 729
Cambridge, Ontario N1R 5W6

&

Amanda Roger
Planning Administrator
Township of Guelph-Eramosa
8348 Wellington Road 124
P.O. Box 700
Rockwood, ON N0B 2K0

&

Justine Brotherston
Deputy Clerk
Township of Puslinch
7404 Wellington Rd 34, Puslinch ON N0B 2J0

Re: Blatchford Bridge (B032085) Rehabilitation or Replacement
Terms of Reference - Natural Environment Assessment Report

Dear Ms. Wismer, Ms. Roger, and Ms. Brotherstone:

This document outlines the Terms of Reference (ToR) of the scoped Natural Environment Assessment Report (NEA) for the rehabilitation or replacement of Blatchford Bridge on Wellington County Road 32, in the Township of Guelph-Eramosa, Ontario. Please review the terms and circulate to GRCA staff for discussion and approval.

BACKGROUND

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA. The bridge is within the Township of Guelph-Eramosa, but some of the study area is within the Township of Puslinch.

The bridge is within the Grand River Conservation Authority regulation limit, including the Speed River, Floodplain, and the Provincially Significant Speed River Wetland Complex. Per Ontario Regulation 150/06, a permit from the GRCA is required prior to any development or site alteration.

The Wellington County Official Plan Schedule A identifies Core Greenland within the study area. Guelph-Eramosa Zoning includes Environmental Protection (EP) lands and Puslinch zoning includes Natural Environment (NE) and Agriculture (A).

In preparing the Terms of Reference, the following sources were reviewed for background information:

- Aerial photography of the subject site.
- GRCA mapping (accessed March 13, 2024) of natural heritage features (e.g. regulation limit, GRCA and OMNR wetlands, ANSI's, and MNRF Woodlands).
- Wellington County Official Plan, 2022 consolidation
- Township of Guelph/Eramosa Zoning By-law (40/2016)
- Township of Puslinch Zoning By-law (023-18)
- Explore Wellington Interactive Map. Accessed March 13, 2024.
- Township of Guelph/Eramosa Interactive Planning Map. Accessed March 13, 2024.
- Land Information Ontario, Woodland, and Wetland Mapping, 2007.
- Natural Heritage Information Center, Make-a-map, accessed November 2022.
- Ontario Nature. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibian, accessed November 2022.
- Bird Studies Canada. Atlas of the Breeding Birds of Ontario 2008.
- Federation of Ontario Naturalists, Atlas of the Mammals of Ontario.
- DFO Aquatic Species at Risk Map. Accessed November 2022.
- iNaturalist. Accessed November 2022,
- eBird. Cornell Lab of Ornithology. Accessed November 2022.

- Aquatic Resource Area Survey Points online mapping. Accessed November 2022.
- Ontario Nature. Ontario Butterfly Atlas.

STUDY AREA

The study area includes the subject structure and staging areas outlined in Figure 1, as well as adjacent lands up to 120 metres surrounding the subject area, where access to lands is permitted (right of way).

As needed, the lands adjacent the study area may require further access in order to assist with understanding the features and functions of natural heritage features. Lands outside of the field study area will be reviewed from existing background information e.g., Waterloo Regional Official Plan.

PLANNING CONTEXT

Provincial Policy Statement (2020)

The *Provincial Policy Statement* ([PPS] OMMHA 2020) provides policy direction on matters of provincial interest related to land use planning and development.

In regards to **Natural Heritage Protection** the PPS states that:

"*Natural features and areas shall be protected for the long term.*"

And that:

"*The diversity and connectivity of natural features in an area, and the long-term ecological function and biodiversity of natural heritage systems, should be maintained, restored or, where possible, improved, recognizing linkages between and among natural heritage features and areas, surface water features and ground water features.*"

"Development and site alteration shall not be permitted in:

a) Significant wetlands in Ecoregions 5E, 6E and 7E; and
b) Significant coastal wetlands.

Development and site alteration shall not be permitted in:

a) Significant wetlands in the Canadian Shield north of Ecoregions 5E, 6Eand 7E;
b) Significant woodlands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
c) Significant valley lands in Ecoregions 6E and 7E (excluding islands in Lake Huron and the St. Marys River);
d) Significant wildlife habitat;

e) Significant areas of natural and scientific interest; and
f) Coastal wetlands in Ecoregions 5E, 6E and 7E that are not subject to policy 2.1.4(b)"

The PPS (2020) also states that:

- *"Development and site alteration shall not be permitted in fish habitat except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted in habitat of endangered species and threatened species, except in accordance with provincial and federal requirements."*

- *"Development and site alteration shall not be permitted on adjacent lands to the natural heritage features and areas identified in policies 2.1.4, 2.1.5, and 2.1.6 unless the ecological function of the adjacent lands has been evaluated and it has been demonstrated that there will be no negative impacts on the natural features or on their ecological functions.*

- *"Development and site alteration shall be restructured in or near sensitive surface water features and sensitive ground water features such that these features and their related hydrologic functions will be protected, improved or restored. Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore sensitive surface water features, sensitive ground water features, and their hydrologic functions."*

Under *Section 1.6.8.6*, these significant resources shall be given consideration in the planning of significant transportation *infrastructure*.

The subject structure is considered infrastructure and therefore is not prohibited on lands containing significant resources. However, natural features must be documented and considered when evaluating potential impacts of the proposed works.

Endangered Species Act, 2007

The *Endangered Species Act* (ESA) (Subsection 9(1)) states that:
"No person shall,
(a) kill, harm, harass, capture or take a living member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species;
(b) possess, transport, collect, buy, sell, lease, trade or offer to buy, sell, lease or trade,

(i) a living or dead member of a species that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species,
(ii) any part of a living or dead member of a species referred to in subclause (i),
(iii) anything derived from a living or dead member of a species referred to in subclause (i); or
(c) sell, lease, trade or offer to sell, lease or trade anything that the person represents to be a thing described in subclause (b) (i), (ii) or (iii).

Clause 10(1)(a) of the ESA also states that:
"No person shall damage or destroy the habitat of a species that is listed on the Species at Risk in Ontario list as an endangered or threatened species."

Clause 16(5) of the ESA states that:
"An agreement entered into under this section may require the authorized party under the agreement to pay a species conservation charge to the Agency in accordance with Section 20.3 if an impacted species under the agreement is also a conservation fund species."

Clause 17(1) of the ESA states:
"The Minister may issue a permit to a person that, with respect to a species specified in the permit that is listed on the Species at Risk in Ontario List as an extirpated, endangered or threatened species, authorizes the person to engage in an activity specified in the permit that would otherwise be prohibited by Section 9 or 10. 2007, c. 6, s. 17(1)."

An authorization or permit between the proponent and the Minister of Environment Conservation and Parks is required to authorize activities that would otherwise be prohibited by subsection 9(1) and 10(1) of the ESA.

Fisheries Act, 1985
The study area contains fish-bearing waters in the form of the Speed River. This area and the fish within are protected under the Federal Fisheries Act, 1985. The Fisheries Act provides protection for the sustainability and ongoing productivity of Canada's recreational, commercial and Aboriginal fisheries.

Section 35 (1) of the Fisheries Act states that:
"No person shall carry on any work, undertaking or activity that results in the harmful alteration, disruption or destruction of fish habitat."

The Fisheries Act requires that projects and activities avoid causing serious harm to fish and fish habitat unless authorized to do so by the Department of Fisheries and Oceans Canada (DFO). This applies to work conducted in or near waterbodies that support direct or indirect fish habitat. Within the context of the replacement or rehabilitation of the bridge, any proposed actions that could impact fish or fish habitat would need to be assessed for compliance with the Fisheries Act. If it is determined that proposed actions will cause serious harm to fish, which cannot be mitigated for, then a Fisheries Act Authorization would be required.

Species at Risk Act (S.C. 2002, c. 29)

The Species at Risk Act (SARA) includes prohibitions to protect listed wildlife species. Prohibitions of SARA within the Province of Ontario generally apply to species present on federal lands and all aquatic Species at Risk (SAR).

SARA subsection 32 (1) and (2) states that:

No person shall kill, harm, harass, capture or take an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species.
And,
No person shall possess, collect, buy, sell or trade an individual of a wildlife species that is listed as an extirpated species, an endangered species or a threatened species, or any part or derivative of such an individual.

SARA subsection 33 also states that:

No person shall damage or destroy the residence of one or more individuals of a wildlife species that is listed as an endangered species or a threatened species, or that is listed as an extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada.

SARA subsection 34(1), identifies where SARA does not apply in the Province:

With respect to individuals of a listed wildlife species that is not an aquatic species or a species of birds that are migratory birds protected by the Migratory Birds Convention Act, 1994, sections 32 and 33 do not apply in lands in a province that are not federal lands unless an order is made under subsection (2) to provide that they apply.

SARA subsection 58 (1) identified the restrictions to the destruction of critical Habitat, and states that:

Subject to this section, no person shall destroy any part of the critical habitat of any listed endangered species or of any listed threatened species — or of any listed extirpated species if a recovery strategy has recommended the reintroduction of the species into the wild in Canada — if…b) the listed species is an aquatic species; or….

Where impacts may occur or are expected, agreements or permits may be entered into with the appropriate ministry, as outlined in section 73, which states:

(1) The competent minister may enter into an agreement with a person, or issue a permit to a person, authorizing the person to engage in an activity affecting a listed wildlife species, any part of its critical habitat or the residences of its individuals.

(2) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) the activity is scientific research relating to the conservation of the species and conducted by qualified persons;
(b) the activity benefits the species or is required to enhance its chance of survival in the wild; or
(c) affecting the species is incidental to the carrying out of the activity.

3) The agreement may be entered into, or the permit issued, only if the competent minister is of the opinion that
(a) all reasonable alternatives to the activity that would reduce the impact on the species have been considered and the best solution has been adopted;
(b) all feasible measures will be taken to minimize the impact of the activity on the species or its critical habitat or the residences of its individuals; and
(c) the activity will not jeopardize the survival or recovery of the species.

The Species at Risk Act requires that projects and activities avoid causing serious harm to Species at Risk or their habitat unless authorized to do so. This applies to work conducted in or near waterbodies that support species at risk fish, or their critical habitat. Any proposed actions that could impact species at risk or their habitat would need to be assessed for compliance. If it is determined that proposed actions will cause serious harm to species at risk that cannot be mitigated, then a Species at Risk Act Authorization would be required.

A Place to Grow: Growth Plan for the Greater Golden Horseshoe (2020 Consolidation)
Section 4.2.2.1 states:

A Natural Heritage System for the Growth Plan has been mapped by the Province to support a comprehensive, integrated, and long-term approach to planning for the protection of the region's natural heritage and biodiversity. The Natural Heritage System for the Growth Plan excludes lands within settlement area boundaries that were approved and in effect as of July 1, 2017.

The bridge and surrounding area are part of the Growth Plan's Natural Heritage System, as there are key hydrologic and key natural heritage features present.

Section 4.2.3 states that:
"Outside of settlement areas, development or site alteration is not permitted in key natural heritage features that are part of the Natural Heritage System for the Growth Plan or in key hydrologic features, except for:

c) activities that create or maintain infrastructure authorized under an environmental assessment process"

Wellington County Official Plan (2022 consolidation)
Schedule B3 of the Wellington County Official Plan indicates that the majority of the study area is identified as Core Greenlands due to the presence of the PSW and hazardous lands (floodplain).

Section 5.4.1 states that:
"All wetlands in the County of Wellington are included in the Core Greenlands. Development and site alteration will not be permitted in wetlands which are considered provincially significant. The appropriate Conservation Authority should be contacted when development is proposed in or adjacent to a wetland."

Township of Guelph/Eramosa Zoning By-law (40/2016)
The study area is within lands designated as Environmental Protection.

Township of Puslinch Zoning By-law (023-18)
The study area is within lands designated as Natural Environment and Agriculture.

Grand River Conservation Authority
Blatchford Bridge is within the GRCA Regulation limit. The study area contains the Speed River Provincially Significant Wetland (PSW), One Zone Floodplain, and watercourse.

Section 8.1.16 states that:

"Public infrastructure including but not limited to roads, sanitary sewers, utilities, water and sewage treatment plants, water supply wells, well houses, and pipelines may be permitted in accordance with the policies in Sections 7.1.2 – 7.1.3- General Policies, provided that there is no feasible alternative site outside the Riverine Flooding Hazard as determined through an Environmental Assessment or other comprehensive plan supported by the GRCA, and where it can be demonstrated that:

a) *Adverse hydraulic or fluvial impacts are limited and any risk of flood damage to upstream or downstream properties is not increased or is minimized through site design and the affected landowner(s) is informed of the increased risk,*
b) *There is no loss of flood storage wherever possible, and*
c) *Where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions.*

Section 8.1.17 states that:
"The maintenance and repair of public infrastructure may be permitted in accordance with the policies in Sections 7.1.2-7.1.3- General Policies, and where it can be demonstrated that where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."

Development/interference within a wetland or development within an area of interference is not permitted except under certain circumstances.

Section 8.4.6 states:
"Public Infrastructure including but not limited to roads, sanitary sewers, utilities, water supply wells, well houses, and pipelines, within a wetland larger than specified in Sections 8.4.4-8.4.5 may be permitted in accordance with the policies in Sections 7.1.2-7.1.3 - General Policies, provided that it can be demonstrated that:

a) *an Environmental Assessment or other comprehensive plan supported by the GRCA, demonstrates that all alternatives to avoid wetland loss or interference have been considered and that the proposed alignment minimizes wetland loss or interference to the greatest extent possible, and*
b) *where unavoidable, intrusions on significant natural features or hydrologic or ecological functions are minimized, and it can be demonstrated that best management practices including site and infrastructure design and appropriate remedial measures will adequately restore and enhance features and functions."*

Additionally, section 8.4.7 states that:
"Where an Environmental Assessment or other comprehensive plan is available and supported by the GRCA as specified in Section 8.4.6, the GRCA will request a more detailed site-specific study (i.e., a Scoped Environmental Impact Study) consistent with the comprehensive plan."

BACKGROUND REVIEW

Additional background natural heritage information related to the subject lands and adjacent lands identified the following information:

1. Preliminary investigation through the Natural Heritage Information Centre identified SAR records in the 1 km x 1 km squares containing the study area, and adjacent squares. Thirteen SAR were identified: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Golden-winged Warbler, Peregrine Falcon, Red-headed Woodpecker, Wood Thrush, American Burying Beetle, Midland Painted Turtle, Snapping Turtle, and Butternut. It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area during the 2001-2005 Ontario Breeding Bird Atlas was compiled. This list includes 103 species; 8 of which are considered SAR: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow, and Chimney Swift.

3. Review of the Ontario Reptile and Amphibian Atlas identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area. This list includes three species which are considered SAR: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog.

4. Review of the Atlas of the Mammals of Ontario identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis. It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area, including one SAR: Monarch.

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird

observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak, Lesser Yellowlegs and Rusty Blackbird.

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

This information indicates that there is a potential presence of additional natural heritage features and constraints that may require investigation and/or comment.

PROPOSED TERMS OF REFERENCE

To fulfill the requirements of this study, we will complete the following:

Part 1. Schedule B Environmental Assessment

A. Confirm Terms of Reference

1. Review background information, (e.g., proposed development, relevant sections of Natural Heritage System components of the County, Township, Investigation of Wildlife Atlases and NHIC).
2. Prepare a Draft Terms of Reference and provide to Wellington County, Township of Guelph-Eramosa and the GRCA for Approval.

B. Field Assessment

3. Complete an MECP Request for Information and determine if any additional Species at Risk have been identified in the study area. COMPLETE
4. Complete an MNRF Request for Information to acquire fish timing windows and wetland information. COMPLETE
5. Conduct a screening of all background information and the site to determine the potential for the presence of Species at Risk (SAR).
6. Conduct two site visits to characterize vegetation communities using the ELC system (MNRF) and complete a two-season (spring and summer) botanical inventory of the Study Area during the growing season.
7. Complete a wetland delineation, per the OWES protocol, for wetland limits within proximity of the proposed work and field verify the limits with the GRCA.
8. Conduct a breeding bird survey of the study area, following the protocol of the Ontario Breeding Bird Atlas (Bird Studies Canada, 2004), and including both point counts and area searches. The breeding bird survey requires two, focused, early morning site visits during the period between late May and early July.
9. Complete a Bat Habitat Assessment, review trees meeting the MNDNRF criteria (>10cm DBH) within the proposed development and immediately adjacent area (5M) and identify trees that meet the criteria for bat maternity habitat and require consideration under the ESA.
10. Investigate the study area for evidence of Pileated and Red-headed Woodpecker nest cavities and use a pole mirror to determine if the cavity is likely nesting, roosting, or feeding, per the Environment Canada Pileated Woodpecker Cavity Identification Guide (Environment Canada, 2023).
11. Complete a characterization of the study area for any additional significant natural heritage features, per the PPS by applying provincial protocols and criteria to site features.

12. Conduct an aquatic assessment and aquatic habitat investigation to characterize the present watercourse and identify any fisheries constraints including a review of substrates and suitability for species at risk.
13. Investigate the study area for the presence of significant wildlife habitat during all surveys.
14. Investigate the study area for presence of species at risk and species at risk habitat during all surveys.
15. Record observations of incidental wildlife during all site visits.

C. Draft Natural Environment Assessment (NEA)

16. Analyze findings and prepare a map that shows: identified natural heritage features, and functions and landscape level features (e.g., linkages, wetland limits, forest interior habitat), the proposed area of work, ELC vegetation communities and, other noteworthy features as needed.
17. Locations of other natural heritage features from background literature searches (e.g., mammal atlas, herpetofauna atlas, County's OP.
18. Prepare a report of the NEA that includes background information, methods, existing conditions, proposed options, recommended buffers, and appendices of field studies (e.g., ELC, aquatic assessment).
19. Submit draft NEA to client for review followed by distribution to County, municipality and GRCA.

Part 2. Preliminary Design

D. Impact Assessment Report

20. At approximately 50% design of the approved option, summarize the development proposal and provide associated metrics, including visual representations of the structure's footprint and proposed setbacks from confirmed limits of natural features.
21. Conduct an impact assessment by reviewing the proposed development's direct, indirect, and induced (i.e., residual, ongoing) impacts on the natural features. Provide an opinion about the location of the components of the plan to reduce/avoid impacts to natural heritage features. Show the limits of expected impact and assess for minimizing impacts to ecological features and functions. This will involve discussions with the proponent and AA.
22. Provide policy rationale for expected impacts to natural heritage features.
23. Identify options for mitigation or rehabilitation of the site, during and post construction.
24. Review the DFO requirements for projects near water and standards to determine if a request for review is required.

25. Update the NEA report to include the completed impact assessment of the detailed design of the project including mitigation measures, and identifies additional requirements, such as permits or registration under the ESA or DFO.
26. Submit finalized NEA to client for review followed by distribution to County, Township and GRCA.

I look forward to your response regarding these proposed terms of reference. If you require clarification, please do not hesitate to email or call me at 519.781.1581.

Yours truly,

ABOUD & ASSOCIATES INC.

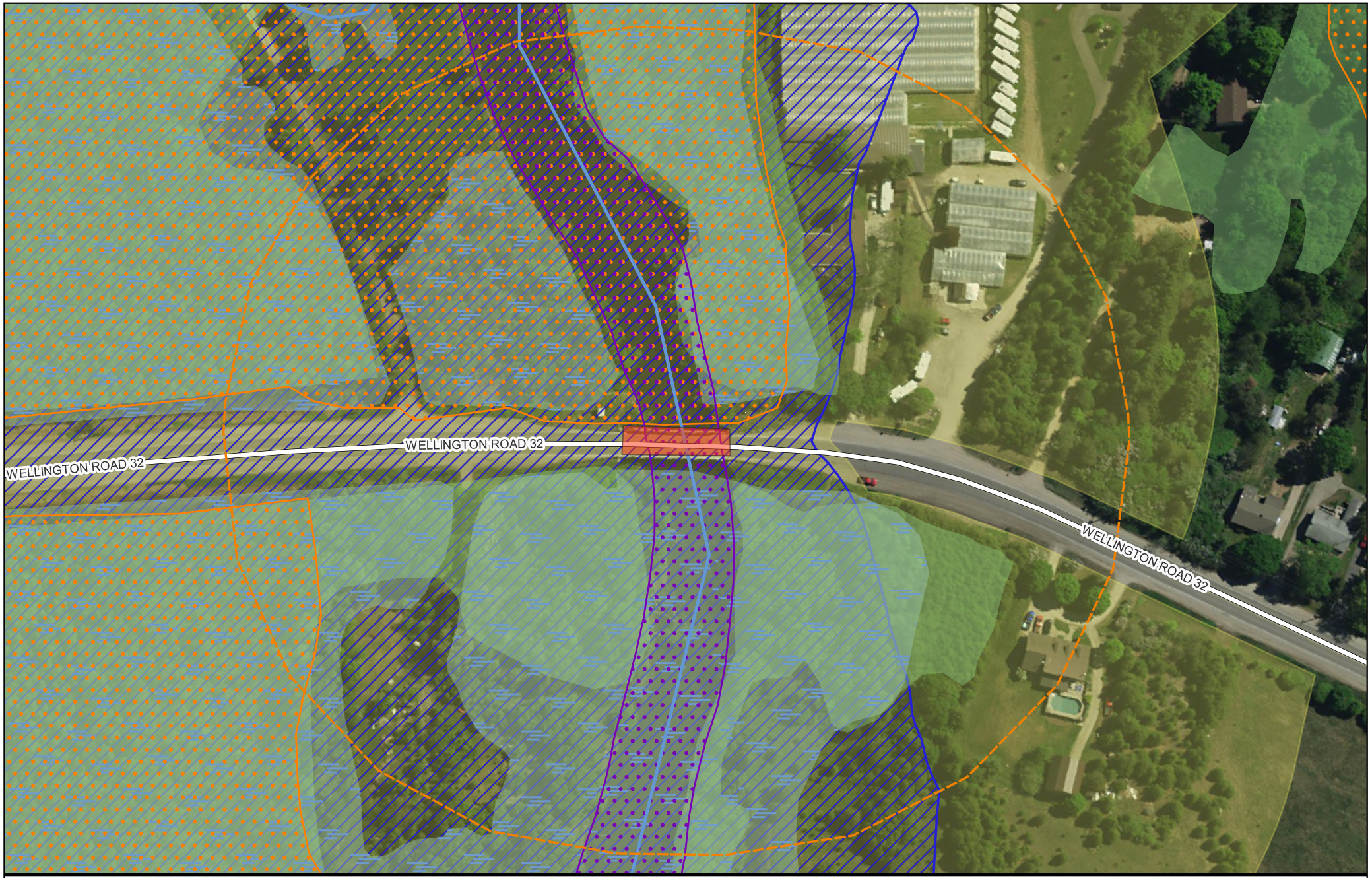


Heather Dixon, PhD
Aquatic Ecologist

Figure 1. Study Area

Appendix 1. Candidate Significant Wildlife Habitat
Appendix 2. Candidate Species at Risk Habitat

Cc: Cheryl-Anne Ross, Aboud & Associates Inc. (email)
Zach Prince, County of Wellington (email)
William Van Ruyven, Gannett Fleming (email)



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
1	Waterfowl stopover and Staging Areas (terrestrial)	Seasonal Concentration Areas	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	None, no habitat present.
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal Concentration Areas	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e. >700 waterfowl use days) confirms SWH	Habitat confirmed as present by LIO.
3	Shorebird Migratory stopover	Seasonal Concentration Areas	- Shorelines of Lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	None, no habitat present.
4	Raptor Wintering Area	Seasonal Concentration Areas	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	None, no habitat present.
5	Bat Hibernacula	Seasonal Concentration Areas	- Caves, mine shafts, underground foundations, karsts. - buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	None, no habitat present.
6	Bat Maternity Colony	Seasonal Concentration Areas	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Bat habitat assessment; candidate trees present.
7	Turtle Wintering Area	Seasonal Concentration Areas	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Speed River present, aquatic habitat assessment required.
8	Reptile Hibernaculum	Seasonal Concentration Areas	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Candidate habitat may be present, site will be assessed during ELC.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
9	Colonially-nesting Bird Habitat (cliff/bank)	Seasonal Concentration Areas	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	None, no habitat present.
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal Concentration Areas	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	None, no habitat present.
11	Colonially-nesting Bird Habitat (Ground)	Seasonal Concentration Areas	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	None, no habitat present.
12	Migratory Butterfly Stopover Area	Seasonal Concentration Areas	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	None, no habitat present.
13	Land bird Migratory Stopover Area	Seasonal Concentration Areas	- Woodlots >5ha in size - within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	None, no habitat present.
14	Deer Yarding Areas	Seasonal Concentration Areas	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	None, no habitat present.
15	Deer Winter Congregation Areas	Seasonal Concentration Areas	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	Habitat confirmed as present by LIO.
16	Cliffs & Talus Slopes	Rare Vegetation Communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	None, no habitat present.
17	Sand Barren	Rare Vegetation Communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	None, no habitat present.

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
18	Alvar	Rare Vegetation Communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	None, no habitat present
19	Old Growth Forest	Rare Vegetation Communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	None, no habitat present
20	Savannah	Rare Vegetation Communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	None, no habitat present
21	Tallgrass Prairie	Rare Vegetation Communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	None, no habitat present
22	Other Rare Vegetation Communities	Rare Vegetation Communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	None, no habitat present
23	Waterfowl Nesting Areas	Specialized Habitats for Wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	None, no habitat present
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized Habitats for Wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	None, no habitat present

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	Candidate SWH present (Field survey type required)
25	Woodland Raptor Nesting Habitat	Specialized Habitats for Wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	None, no habitat present
26	Turtle Nesting Areas	Specialized Habitats for Wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	None, no habitat present
27	Seeps and Springs	Specialized Habitats for Wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs. -	None, no habitat present
28	Amphibian Breeding Habitat (woodland)	Specialized Habitats for Wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	None, no habitat present
29	Amphibian Breeding Habitat (Wetland)	Specialized Habitats for Wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	None, no habitat present

#	**Significant wildlife habitat (SWH)**	**Candidate SWH type**	**Candidate SWH criteria**	**Criteria for SWH confirmation**	**Candidate SWH present** (Field survey type required)
30	Area-sensitive Breeding Bird Habitat	Specialized Habitats for Wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH -	None, no habitat present
31	Marsh Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands; all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	None, no habitat present
32	Open Country Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species. - Field with 1 or more Short-eared Owls	None, no habitat present
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of Species of Conservation Concern	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat Or Golden-winged Warbler is SWH	None, no habitat present

#	**Significant wildlife habitat (SWH)**	**Candidate SWH type**	**Candidate SWH criteria**	**Criteria for SWH confirmation**	**Candidate SWH present** (Field survey type required)
34	Terrestrial Crayfish	Habitats of Species of Conservation Concern	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	None, no habitat present
35	Special Concern & Rare Wildlife Species	Habitats of Species of Conservation Concern	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable. - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	Suitable habitat for special concern and provincially rare plant and bird species present. ELC, botanical inventory, and breeding bird surveys required.
36	Amphibian Movement Corridor	Wildlife Movement Corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors. - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	None, no habitat present.
37	Deer Movement Corridor	Wildlife Movement Corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat. - Unbroken by roads and residential areas - Shorter corridors are more significant	ELC, spring botanical, SAR and SWH assessment, and investigation of aerial photos.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Jefferson Salamander	*Ambystoma jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Adults are found within upland deciduous or mixed forest habitat with suitable breeding ponds, such as kettle ponds, natural basins and limestone sink holes, which can be permanent or ephemeral, and include appropriate egg attachment sites and lack of predatory fish (COSEWIC 2010).	No habitat present in study area.	None needed.
Unisexual Ambystoma, Jefferson dependent population	*Ambystoma laterale - (2) jeffersonianum*	Amphibians	END	END	S2	MNRF species occurrence mapping	Unisexual ambystoma share the same habitat requirements as Jefferson salamander, as they rely on Jefferson salamander for sperm donation to breed (COSEWIC 2016).	No habitat present in study area.	None needed.
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	Amphibians	NAR	THR	S4	MNRF species occurrence mapping, ORAA (2010)	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	Habitat potentially present in study area.	ELC and botanical inventory.
American Burying Beetle	*Nicrophorus americanus*	Butterflies, bees, damselflies, dragonflies & insects	EXP	EXP	SH	NHIC	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat present in study area.	None needed.
Monarch	*Danaus plexippus*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S2N, S4B	MNRF species occurrence mapping, OBA (2022)	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Habitat potentially present in study area.	ELC and botanical inventory.
Rusty-patched Bumble Bee	*Bombus affinis*	Butterflies, bees, damselflies, dragonflies & insects	END	END	S1	MNRF species occurrence mapping	Uses a variety of open or semi-open habitat, including meadows, agricultural land, and savannah habitat for foraging. Nests are often found underground, in old rodent burrows (COSEWIC 2010c).	No habitat present in study area.	None needed.
West Virginia White	*Pieris virginenisis*	Butterflies, bees, damselflies, dragonflies & insects	SC	NAR	S3	MNRF species occurrence mapping	Found in rich deciduous and mixed forests and swamps with a poorly vegetated shrub layer. The larvae feed only on the leaves of a few host plants, including the Two-leaved Toothwort (*Cardamine diphylla*) and cut-leaved toothwort (Burke 2013).	No habitat present in study area.	None needed.
Yellow-banded Bumble Bee	*Bombus terricola*	Butterflies, bees, damselflies, dragonflies & insects	SC	SC	S3S5	MNRF species occurrence mapping	Occur in a diverse range of habitat, including mixed woodlands, farmlands, urban areas, montane meadows, prairie grasslands and boreal habitats. Queens overwinter underground and in decomposing organic material such as rotting lots (COSEWIC 2015)	No habitat present in study area.	None needed.
Bank Swallow	*Riparia riparia*	Birds	THR	THR	S4B	MNRF species occurrence mapping, OBBA, eBird (2022)	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and river banks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Barn Swallow	*Hirundo rustica*	Birds	SC	THR	S5B	MNRF species occurrence mapping, OBBA, NHIC, eBird (2023)	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Habitat potentially present in study area.	Breeding bird survey.
Barn Owl	*Tyto alba*	Birds	END	END	S1	MNRF species occurrence mapping	Requires open habitat for foraging, such as old fields and pastures, that provide habitat for rodents, and uses a variety of natural and man-made structures for nesting (COSEWIC 2010e)	No habitat present in study area.	None needed.
Bobolink	*Dolichonyx oryzivorus*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2021)	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat present in study area.	None needed.
Canada Warbler	*Wilsonia canadensis*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Prefers wet coniferous, deciduous and mixed forest types, with a dense shrub layer (COSEWIC 2008b).	No habitat present in study area.	None needed.
Cerulean Warbler	*Setophaga cerulea*	Birds	THR	END	S3B	MNRF species occurrence mapping	Occur in older, mature, deciduous forests, preferentially oak-maple composition, with a full, to partially open canopy, and little to no understory cover. Often in bottomland forests, or adjacent to treed swamplands (COSEWIC 2010f).	No habitat present in study area.	None needed.
Chimney Swift	*Chaetura pelagica*	Birds	THR	THR	S4B, S4N	MNRF species occurrence mapping OBBA, eBird (2021)	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat present in study area.	None needed.
Common Nighthawk	*Chordeiles minor*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Breeds in open habitat, on the ground, in areas with no vegetation, including sand dunes, burned areas, open forests, railways, and gravel rooftops. Eggs are laid directly on the ground (COSEWIC 2007b).	No habitat present in study area.	None needed.
Eastern Meadowlark	*Sturnella magna*	Birds	THR	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat present in study area.	None needed.
Eastern Whip-poor-will	*Caprimulgus vociferus*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Often found breeding in semi-open habitats, with little ground cover, and canopy openings allowing light to penetrate the forest floor, often associated with pine or oak, savannahs and barrens, early-successional poplar stands and open conifer plantations (COSEWIC 2009a)	No habitat present in study area.	None needed.
Eastern Wood-Pewee	*Contopus virens*	Birds	SC	SC	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2023)	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Habitat potentially present in study area.	Breeding bird survey.
Evening Grosbeak	*Coccothraustes vespertinus*	Birds	SC	SC	S4B	MNRF species occurrence mapping, eBird (2022)	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat present in study area.	None needed.
Golden-winged Warbler	*Vermivora chrysoptera*	Birds	SC	THR	S4B	MNRF species occurrence mapping, NHIC	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Grasshopper Sparrow	*Ammodramus savannarum*	Birds	SC	SC	S4B	MNRF species occurrence mapping, OBBA, NHIC	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat present in study area.	None needed.
Henslow's Sparrow	*Ammodramus henslowii*	Birds	END	END	SHB	MNRF species occurrence mapping	Breeds in grassland habitat and is area sensitive. Grasslands with tall, dense cover a thick thatch layer, and are greater than 30ha, but preferentially larger than 100ha are preferred (COSEWIC 2011b).	No habitat present in study area.	None needed.
Least Bittern	*Ixobrychus exilis*	Birds	THR	THR	S4B	MNRF species occurrence mapping	Breeds in large marshes (>5ha) with emergent vegetation, typically cattails, with at least 50% open water, and relatively stable water levels (COSEWIC 2009b).	No habitat present in study area.	None needed.
Lesser Yellowlegs	*Tringa flavipes*	Birds	THR	THR	S3S4B, S5M	eBird (2020)	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat present in study area.	None needed.
Loggerhead Shrike	*Lanius ludovicianus*	Birds	END	END	S2B	MNRF species occurrence mapping	Nests in open, low, grassy habitat with scattered shrubs. Presence of thorny shrubs, such as hawthorn, or barbwire fencing required for impaling prey. Only two recent areas of breeding in the province (Carden Plain and Napanee Plain) (Environment Canada 2015).	No habitat present in study area.	None needed.
Louisiana Waterthrush	*Seirus motacilla*	Birds	SC	THR	S3B	MNRF species occurrence mapping	Nests along headwater streams and associated wetlands which occur within large tracts of mature forest especially mixed wood forests with a component of hemlock. Nests are in stream bank niches, under mossy logs, and within the roots of fallen trees (COSEWIC 2006b)	No habitat present in study area.	None needed.
Olive-sided Flycatcher	*Contupus cooperi*	Birds	SC	THR	S4B	MNRF species occurrence mapping	Associated with natural forest openings (usually conifer or mixed), and edges of forests adjacent wetlands or watercourses, will also use open and semi-open forests and clear-cuts. Presence of tall snags and residual live trees required for nesting and foraging (COSEWIC 2007c).	No habitat present in study area.	None needed.
Peregrine Falcon	*Falco peregrinus*	Birds	SC	SC	S3B	NHIC	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat present in study area.	None needed.
Prothonotary Warbler	*Protonotaria citrea*	Birds	END	END	S1B	MNRF species occurrence mapping	Occupies large, mature and semi-mature, deciduous swamp forest and riparian floodplains. Permanent and semi-permanent pools of open water are characteristics, and nests are typically situated over standing or slow-moving water (COSEWIC 2007)	No habitat present in study area.	None needed.
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Birds	END	THR	S4B	MNRF species occurrence mapping, NHIC	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	Habitat potentially present in study area.	Breeding bird survey.
Rusty Blackbird	*Euphagus carolinus*	Birds	SC	SC	S4B	eBird (2022)	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat present in study area.	None needed.
Short-eared Owl	*Asio flammeus*	Birds	THR	SC	S2N, S4B	MNRF species occurrence mapping	Breeds in open habitats, including grasslands, old pasture marshes, bogs, and sand-sage. Nests are scrapes, located on the ground (COSEWIC 2008c).	No habitat present in study area.	None needed.
Wood Thrush	*Hylocichla mustelina*	Birds	SC	THR	S4B	MNRF species occurrence mapping OBBA, NHIC, eBird (2020)	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	Habitat potentially present in study area.	Breeding bird survey.
Yellow-breasted Chat	*Icteria virens*	Birds	END	END	S1B	MNRF species occurrence mapping	Shrub specialist, nesting in early successional, dense, low-shrub habitat, including old fields, hydro-cutovers and forest edges experiencing regeneration (COSEWIC 2011c).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Black Redhorse	*Moxostoma duquesnei*	Fish	THR	THR	S2	MNRF species occurrence mapping	Associated with cool, clear streams of moderate size with substrates of rocky, cobble, sand, or silt. Found in the Lake Erie and Grand River Watersheds (COSEWIC, 2005a).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Sunfish (Great Lakes-Upper St. Lawrence Population)	*Lepomis peltastes*	Fish	SC	SC	S3	MNRF species occurrence mapping	Prefers shallow, vegetated areas of warm lakes, ponds, and slowly flowing watercourses. Usually occurs in clear waters and is considered intolerant of siltation. Substrate usually consists of sand and gravel, as in the Thames River (COSEWIC 2016)	Habitat potentially present in study area.	Aquatic habitat assessment.
Redside Dace	*Clinostomus elongatus*	Fish	END	END	S1	MNRF species occurrence mapping	Associated with small, clear, head water streams and creeks with abundant overhanging vegetation and both pool and riffle habitat, often with gravel substrates and cool water temperature regimes (COSEWIC, 2007e).	Habitat potentially present in study area.	Aquatic habitat assessment.
Rainbow	*Villosa iris*	Molluscs	SC	SC	S2S3	MNRF species occurrence mapping	Most abundant in small to medium-sized rivers but can also be found in inland lakes. Usually found in or near riffles and along the edges of emergent vegetation in moderate to strong current. Occupies substrate mixtures of cobble, gravel, sandy and occasionally mud or boulder (COSEWIC 2015)	Habitat potentially present in study area.	Aquatic habitat assessment.
Eastern Red Bat	*Lasiurus borealis*	Mammals	NL	END	S4	MNRF species occurrence mapping	Typically roosts among the foliage of trees and occasionally shrubs. They use both deciduous and coniferous forests of any age class, but in some parts of their range will avoid conifer species when suitable deciduous species are present. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. They forage in both forested and non-forested habitats, in both open and semi-cluttered habitats, both above and below forest canopies, and in both early and later stage forests (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Eastern Small-footed Myotis	*Myotis leibii*	Mammals	END	NA	S2S3	MNRF species occurrence mapping	Associated with hilly or mountainous terrain, in or near coniferous or deciduous forest habitat. Maternity roosts located in cracks and crevices of talus slopes and rocky outcrops, or, occasionally in bridges, old buildings, hollow trees (or loose bark) and caves and mines during the maternity season. Hibernate singly or in small clusters in mines and caves (NatureServe, 2015).	Habitat potentially present in study area.	Bat habitat assessment
Hoary Bat	*Lasiurus cinereus*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosts solitarily in trees, with preferences including maple, oak, ash, elder, hemlock, and redwood trees. Typically roosts among the foliage of trees and occasionally shrubs, and use both deciduous and coniferous forests, of any age class. Trees used as maternity roosts tend to be large diameter and tall, reaching or exceeding the height of the surrounding canopy. Forages in the open, and suitable habitats may include wetlands, grasslands and open fields with patchily distributed trees (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Little Brown Myotis	*Myotis lucifugus*	Mammals	END	END	S3	MNRF species occurrence mapping, OMA	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment
Northern Myotis	*Myotis septentrionalis*	Mammals	END	END	S3	MNRF species occurrence mapping	Hibernate in Caves; maternity colonies usually located in trees, and are closely associated with specific tree characteristics and density of suitable trees. Characterized by tall, large diameter trees in early stages of decay, located in openings in mature forest canopies (COSEWIC, 2013c).	Habitat potentially present in study area.	Bat habitat assessment

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Silver-haired Bat	*Lasionycteris noctivagans*	Mammals	NL	END	S4	MNRF species occurrence mapping	Roosting occurs primarily under bark and in the cavities of trees, making them reliant on habitats where large, decaying trees are available. Roosts in a variety of large diameter coniferous and deciduous trees. When taken as a whole, the data indicate that the species does select specific attributes of trees to roost in. However, these attributes are not specific to particular tree species or type (deciduous or coniferous specifically) across the species range. Roost-tree species and type differ depending on the region but tree size, height, roost aspect, and cavity temperature are important characteristics. Deciduous species (especially *Populus* spp.) often have decay characteristics that make them ideal as roost sites, particularly in older forests where these features are more likely to occur. Heart-rot infections at the site of limb breakages often result in large well-protected inner chambers and large sheets of exfoliating bark are ideal for roosting. In other parts of their range, coniferous species are used. Several studies report the frequent use of old woodpecker cavities (COSEWIC 2023).	Habitat potentially present in study area.	Bat habitat assessment
Tri-colored Bat	*Perimyotis subflavus*	Mammals	END	END	S3?	MNRF species occurrence mapping	Hibernate in caves, abandoned mines, wells, and tunnels. Summer roosts include clumps of dead foliage and lichens, typically found in forested habitat close to water sources. May also use anthropogenic structures such as barns for maternity roosts. Foraging habitat includes forested riparian areas over water in relatively open areas (Environment Canada.2015).	Habitat potentially present in study area.	Bat habitat assessment
Blanding's Turtle	*Emydoidea blandingii*	Reptiles	THR	THR	S3	MNRF species occurrence mapping	Use a variety of eutrophic wetland habitat types, including lakes, ponds, watercourses, marshes, man-made channels, farm fields, coastal areas and bays. Seasonal overland terrestrial movements up to 2.5 km occur to reach nesting and overwintering areas, generally through wooded coniferous or mixed forest habitat. Nests are usually laid in loose sand or organic soil (COSEWIC 2005b).	Habitat potentially present in study area.	Aquatic habitat assessment.
Midland Painted Turtle	*Chrysemys picta marginata*	Reptiles	NL	SC	S4	ORAA (2019), NHIC	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Habitat potentially present in study area.	Aquatic habitat assessment.
Northern Map Turtle	*Graptemys geographica*	Reptiles	SC	SC	S3	MNRF species occurrence mapping	Highly aquatic species, found in deep, large waterbodies, including lakes and large rivers, with abundant basking sites. Emerge onto land only during nesting, which occurs in soft sand or soil. Waterbodies with slow currents, soft mud bottoms and abundant aquatic vegetation are preferred (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Snapping Turtle	*Chelydra serpentina*	Reptiles	SC	SC	S4	MNRF species occurrence mapping, ORAA (2019), NHIC	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Habitat potentially present in study area.	Aquatic habitat assessment.
Spotted Turtle	*Clemmys guttata*	Reptiles	END	END	S2	MNRF species occurrence mapping	Found in wetlands with high organic content, including bogs, fens, marshes, woodland streams, sedge meadows, and shallow bays. Only one population is known from Wellington County, in Luther Marsh. Preferential to unpolluted shallow water with aquatic vegetation and soft substrates. Presence of Sphagnum moss, sedge tussocks, cattails and water lilies, may be important to Canadian populations (COSEWIC, 2002b).	No habitat present in study area.	None needed.
Wood Turtle	*Glyptemys insculpta*	Reptiles	END	THR	S2	MNRF species occurrence mapping	Generally found in forested landscapes, associated with clear freshwater streams and associated floodplains. Preferential to streams with year-round current, with sandy or gravelly-sandy bottoms. Streams used are typically meandering with frequent oxbows. Overwintering associated with stable, high concentration dissolved oxygen in pools, under mud or under overhanging banks. Nesting occurs in open areas with high sun exposure, typically within 10 to 50m of aquatic habitat. Home ranges are typically linear, following streams (Environment Canada, 2016).	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Butler's Gartersnake	*Thamnophis butleri*	Reptiles	END	END	S2	MNRF species occurrence mapping	Occupies open areas with dense grass and thatch cover, including tall grass prairie, old fields, abandoned sites in urban areas, drainage swales and seasonally dry marshes. only one population is known from Wellington County, in Luther Marsh. Artificial cover features such as plywood, concrete, shingles, metal sheets etc., increases probability of encounters, but is not essential (COSEWIC, 2010h).	No habitat present in study area.	None needed.
Eastern Ribbonsnake	*Thamnophis sauritus*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	A semi-aquatic species that inhabits dense, low- vegetation, edges of ponds, streams, marshes, fens and bogs, with open sunlit areas for basking (COSEWIC 2002c).	No habitat present in study area.	None needed.
Milksnake	*Lampropeltis triangulum*	Reptiles	SC	SC	S4	MNRF species occurrence mapping	Habitat generalists often associated with edge habitat, meadows, prairies, pastures, rocky outcrops and human disturbances such as hydro corridors and railway embankments. Habitat is usually close to a water source. Hibernation occurs in a variety of natural and man-made features, including rotting logs, old foundations, basements and burrows (COSEWIC 2014).	No habitat present in study area.	None needed.
Massassauga Rattlesnake	*Sistrurus catenatus*	Reptiles	SC	THR	S3	MNRF species occurrence mapping	Only historic observations of Masassauga in the north western portion of Wellington County. Found in wet prairies, old fields, peatlands, rock barrens and coniferous forests, with open-areas, and areas of dense shrub cover. Hibernate in damp areas below the frost line (COSEWIC, 2012b).	No habitat present in study area.	None needed.
American Ginseng	*Panax quinquefolius*	Vascular plants	END	END	S2	MNRF species occurrence mapping	Occur in moist, rich, undisturbed, mature Sugar Maple dominated deciduous woodlands. Often, colonies are located at the bottom of south facing slopes (COSEWIC, 2000).	No habitat present in study area.	None needed.
Black Ash	*Fraxinus nigra*	Vascular plants	END	THR	S4	MNRF species occurrence mapping	Predominantly a wetland species of swamps, floodplains and fens. Has an intermediate light requirement and a tendency toward greater abundance in more alkaline sites. Most sites in which it is dominant are flood prone, where its high tolerance of seasonal flooding appears to offer a competitive advantage. Also occurs widely in moist upland forests, but generally at lower densities than in wet areas (COSEWIC, 2018).	Habitat potentially present in study area.	ELC and botanical inventory.
Blue Ash	*Fraxinus quadrangulata*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Found in 3 habitat types; floodplains and river valleys where Blue Ash grows in rich soils in association with other tree species; shallow soils on alvar and limestone on the Lake Erie islands; and stabilized beaches at Point Pelee National Park, and Fish Point on Pelee Island (COSEWIC 2014)	No habitat present in study area.	None needed.
Butternut	*Juglans cinerea*	Vascular plants	END	END	S2?	MNRF species occurrence mapping, NHIC	Occur in rich moist sites, that are well-drained, often found along stream banks or gravelly sites. Butternut is shade intolerant (COSEWIC, 2003b).	Habitat potentially present in study area.	ELC and botanical inventory.
Common Hoptree	*Ptelea trifoliata*	Vascular plants	THR	SC	S3	MNRF species occurrence mapping	Occurs nearly entirely along or near the Lake Erie shoreline. Often found in areas of natural disturbance where it forms part of the outer edge of shoreline woody vegetation (COSEWIC 2015)	No habitat present in study area.	None needed.
Dense Blazing Star	*Liatris spicata*	Vascular plants	THR	THR	S2	MNRF species occurrence mapping	Occurs in open tallgrass prairies. It can grow in a range of moisture regimes from dry to very moist (COSEWIC 2010)	No habitat present in study area.	None needed.
Hill's Pondweed	*Potamogeton hillii*	Vascular plants	SC	SC	S2S3	MNRF species occurrence mapping	Occur in cold clear calcareous streams, ponds, and ditches, which are alkaline in nature (COSEWIC 2005c).	No habitat present in study area.	None needed.
Lakeside Daisy	*Tetraneuris herbacea*	Vascular plants	SC	THR	S3	MNRF species occurrence mapping	Commonly found in alvar habitats, but occasionally occurs in prairies and cliffs. Habitat is seasonally wet in spring and fall and moderately drought-like in the summer (COSEWIC 2002)	No habitat present in study area.	None needed.
Smooth Yellow False Foxglove	*Aureolaria flava*	Vascular plants	THR	THR	S2?	MNRF species occurrence mapping	Inhabits a variety of dry upland woods including escarpment slopes, oak hummocks, oak woodlands, and oak savannas. Primarily associated with Oak species. (COSEWIC 2018)	No habitat present in study area.	None needed.

Common name	Scientific name	Group	SARO	Cosewic	S-rank	Background sources	Habitat requirements	Candidate habitat in study area	Field studies recommended
Tuberous Indian Plantain	*Arnoglossum plantagineum*	Vascular plants	SC	SC	S2	MNRF species occurrence mapping	Habitat includes open, sunny areas in wet calcareous soils, including wet meadows and shoreline fens (COSEWIC 2002).	No habitat present in study area.	None needed.

References:

Cadman, M.D.,D.A. Sutherland, G.G. Beck, D. Lepage, and A.R. Couturier. 2007. The Atlas of the Breeding Birds Ontario 2001-2005. Bird Studies Canada, Environment Canada, Ontario Field Ornithologists, Ontario Ministry of Natural Resources, and Ontario Nature, Toronto,xxii + 706pp. (Available online here: http://www.birdsontario.org/atlas/datasummaries.jsp)

Colin Jones, Ross Layberry, and Alan Macnaughton. Ontario Butterfly Atlas Online. (Available online here: Toronto Entomologists' Association: http://www.ontarioinsects.org/atlas_online.htm)

Dobbyn, J. 1994. Atlas of the Mammals of Ontario. Federation of Ontario Naturalists, Altona Manitoba, Canada. (Available online here: http://www.ontarionature.org/discover/resources/publications.php)

MNRF, 2015. Wellington County Upper Tier Species at Risk. Ministry of Natural Resources and Forestry. Provided February 10, 2015.

NatureServe. 2015. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://explorer.natureserve.org.

NHIC, 2015. MNRF Make a map: Natural Heritage Areas. (Available online: http://www.ontario.ca/environment-and-energy/make-natural-heritage-area-map)

Ontario Nature. 2015. Ontario Reptile and Amphibian Atlas: a citizen science project to map the distribution of Ontario's reptiles and amphibians. Ontario Nature, Ontario. (Available online here: http://www.ontarionature.org/atlas)

APPENDIX 3
Site Investigation Details

SURVEY	TIME	DATE	STAFF	TEMP.	WIND (beaufort)	CLOUD COVER (%)	PRECIP.	PAST PRECIP.
Bat Maternity Habitat Survey, Woodpecker Nesting Cavity Survey, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	10:10-11:00	14-Mar-24	H. Dixon, B. Varcoe	7	2	100	No	No
Spring Botanical Inventory, Ecological land Classification, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	09:03-11:00	30-May-24	S. Davison	15	1	0	No	No
Breeding Bird Survey 1	06:30-06:40	04-Jun-24	B. Varcoe	13	1	95	No	No
Breeding Bird Survey 2	06:48-06:58	18-Jun-24	B. Varcoe	21	0	100	No	No
Summer Botanical Inventory, Aquatic Habitat Assessment, Significant Wildlife Habitat Assessment, and Species at Risk Habitat Assessment	08:52-10:45	23-Jul-24	H. Dixon, S. Davison	20	1	10	No	No

APPENDIX 4
Ecological Land Classification Forms

Roadside ELC CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** A
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☑ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Mixed Swamp	**CODE:** SWM
ECOSITE:	White Cedar Mineral Mixed Swamp	**CODE:** SWMM1
VEGETATION TYPE:	White Cedar- Hardwood Mixed Swamp	**CODE:** SWMM1-1
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Acer negundo		A-O	O	R
Juglans nigra		O		
Salix euxina	O			
Thuja occidentalis	O	O		
Rhamnus cathartica			O	
Sambucus canadensis			O-R	
Vitis riparia			A-O	
Rubus occidentalis			O-R	
Parthenocissus quinquefolia			O	O
Cornus alternifolia			R	

SPECIES	LAYER			
	C	SC	U	GL
Alliaria petiolata				O
Hesperis matronalis				R
Galium aparine				O
Urtica dioica				O
Solidago sp.				O
Ranunculus repens				A-O
Carex lacustris				O-R
Glechoma hederacea				O-R
Matteuccia struthiopteris				A-O
Chelidonium majus				O-R
Aegopodium podagraria				A
Thalictrum dioicum				O-R
Echinocystis lobata				R
Solidago canadensis				O-R
Impatiens capensis				O-R
Plantago major				R
Campanula rapunculoides				R
Verbena urticifolia				R
Leonurus cardiaca				R
Galeopsis tetrahit				R
Geum canadense				R
Prunella vulgaris				R
Toxicodendron radicans				R
Eutrochium maculatum				R
Solanum dulcamara				R
Rubus idaeus ssp. strigosus				R
Lysimachia ciliata				R
Symphyotrichum sp.				O
Sonchus arvensis				R

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Roadside ELC

CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** D
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 09:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE	☐ OPEN	☑ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ SHRUB	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☑ TREED		☐ THICKET
		☐ BEACH/BAR			☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Coniferous Swamp	**CODE:** SWC
ECOSITE:	White Cedar Mineral Coniferous Swamp	**CODE:** SWCM1
VEGETATION TYPE:	White Cedar Mineral Coniferous Swamp	**CODE:** SWCM1-1
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Thuja occidentalis	D	A		
Acer negundo		O-R		
Juglans nigra		O-R	O-R	
Ulmus americana		O-R		
Vitis riparia			O	O
Prunus virginiana			O	
Syringa vulgaris			R	
Morus alba			R	
Rhamnus cathartica			O-R	O-R
Ribes cynosbati				O-R
Lonicera tatarica			R	
Echinocystis lobata			R	

SPECIES	LAYER			
	C	SC	U	GL
Matteuccia struthiopteris				A-O
Hesperis matronalis				R
Solidago sp.				O
Alliaria petiolata				R
Toxicodendron radicans				A-O
Geranium robertianum				R
Taraxacum officinale				R
Verbena urticifolia				R
Ageratina altissima				R
Vinca minor				O-R
Solanum dulcamara				R

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Roadside ELC CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** G	
SURVEYOR(S): SD	**DATES:** May 30, 2024		
START: 9:04	**END:** 10:46	**COORDINATES:**	

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☑ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Mixed Swamp	**CODE:** SWM
ECOSITE:	Conifer- Hardwood Mineral Mixed Swamp	**CODE:** SWMM5
VEGETATION TYPE:	Tamarack- Hardwood Mineral Mixed Swamp	**CODE:** SWMM5-2
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION							
STANDING SNAGS:	O	<10	A	10-24	R	25-50	R	>50
COMMUNITY AGE:	Mid-aged						

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Populus tremuloides	O	O		
Juglans nigra		R		
Ulmus americana		O		
Acer saccharinum	R			
Larix laricina	A-O	O		
Acer negundo			R	
Picea glauca		R		
Picea mariana	O	O		
Pinus strobus		R		
Acer saccharum		R		
Rhamnus cathartica			A-O	
Lonicera tatarica			O	
Vitis riparia			R	
Frangula alnus			O	

SPECIES	LAYER			
	C	SC	U	GL
Typha angustifolia			O-R	
Impatiens capensis				O
Tussilago farfara				O
Caltha palustris				A-O
Phalaris arundinacea				O-R
Phragmites australis			R	
Eleocharis obtusa				O-R
Sium suave				R
Verbena hastata				R
Epilobium hirsutum				O
Leersia oryzoides				O
Matteuccia struthiopteris				O-R

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CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** J
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☑ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☐ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☐ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☐ SWAMP
		☑ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☐ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☑ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☑ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Forest	**CODE:** FO
COMMUNITY SERIES:	Coniferous Forest	**CODE:** FOC
ECOSITE:	Dry- Fresh Cedar Coniferous Forest	**CODE:** FOCM2
VEGETATION TYPE:	Dry- Fresh White Cedar Coniferous Forest	**CODE:** FOCM2-2
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	N	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Thuja occidentalis	D	A		
Pinus strobus		R		
Prunus serotina	O-R			
Acer platanoides			R	
Fraxinus americana			R	
Pinus resinosa		R		
Acer negundo		R		
Rhamnus cathartica			O	O
Vitis riparia			R	R
Parthenocissus quinquefolia			O-R	O-R
Cornus alternifolia			R	

SPECIES	LAYER			
	C	SC	U	GL
Fragaria virginiana				O
Circaea canadensis				O-R
Taraxacum officinale				R
Asarum canadense				O-R
Lotus corniculatus				R
Erigeron annuus				O-R

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CLASSIFICATION

PROJ. NO./NAME: Blatchford Bridge (B032085)		**POLYGON:** K
SURVEYOR(S): SD	**DATES:** May 30, 2024	
START: 9:04	**END:** 10:46	**COORDINATES:**

POLYGON DESCRIPTION

SYSTEM	SITE	TOPOGRAPHIC FEATURE	HISTORY	PLANT FORM	COMMUNITY
☐ TERRESTRIAL	☐ OPEN WATER	☐ LACUSTRINE	☑ NATURAL	☐ PLANKTON	☐ LAKE
☑ WETLAND	☐ SHALLOW WATER	☐ RIVERINE	☐ CULTURAL	☐ SUBMERGED	☐ POND
☐ AQUATIC	☑ SURFICIAL DEP.	☑ BOTTOMLAND		☐ EMERGENT	☐ RIVER
	☐ BEDROCK	☐ TERRACE		☐ FLOATING-LVD.	☐ STREAM
		☐ VALLEYSLOPE		☐ GRAMINOID	☐ MARSH
		☐ TABLELAND		☐ FORB	☑ SWAMP
		☐ ROLL. UPLAND		☐ LICHEN	☐ FEN
		☐ CLIFF		☐ BRYOPHYTE	☐ BOG
		☐ TALUS	COVER	☑ DECIDUOUS	☐ BARREN
		☐ CREVICE/CAVE		☐ CONIFEROUS	☐ MEADOW
		☐ ALVAR	☐ OPEN	☐ MIXED	☐ PRAIRIE
		☐ ROCKLAND	☐ SHRUB		☐ THICKET
		☐ BEACH/BAR	☑ TREED		☐ SAVANNAH
		☐ SAND DUNE			☐ WOODLAND
		☐ BLUFF			☐ FOREST
					☐ PLANTATION

COMMUNITY CLASSIFICATION

COMMUNITY CLASS:	Swamp	**CODE:** SW
COMMUNITY SERIES:	Deciduous Swamp	**CODE:** SWD
ECOSITE:	Mineral Deciduous Swamp	**CODE:** SWDM4
VEGETATION TYPE:	Willow Mineral Deciduous Swamp	**CODE:** SWDM4-1
INCLUSION:		**CODE:**
COMPLEX:		**CODE:**

STAND COMPOSITION								
STANDING SNAGS:	N	<10	O	10-24	N	25-50	N	>50
COMMUNITY AGE:	Mid-aged							

NOTES:

Asclepias syriaca only observed immediately adjacent road.

LAYERS: C = CANOPY SC = SUBCANOPY U = UNDERSTOREY GL = GRD LAYER
ABUNDANCE* CODES: N= NONE R= RARE O= OCCASIONAL A= ABUNDANT D= DOMINANT
** Abundance not representative of interior of community.*

SPECIES	LAYER			
	C	SC	U	GL
Salix euxina	A-O			
Populus tremuloides	O	O		
Thuja occidentalis		O-R		
Acer platanoides		R		
Populus alba			R	
Ulmus americana		O-R	O-R	
Acer negundo		O-R	R	
Quercus sp.			R	
Fraxinus pennsylvanica		O		
Tilia americana		R		
Rhamnus cathartica			O	A-O
Vitis riparia			O	
Parthenocissus quinquefolia			O-R	R
Rosa multiflora				R
Frangula alnus			O	

SPECIES	LAYER			
	C	SC	U	GL
Typha angustifolia			A-O	
Equisetum arvense				O-R
Toxicodendron radicans				O-R
Solidago sp.				A-O
Hesperis matronalis				R
Anemonastrum canadense				R
Matteuccia struthiopteris				O
Solanum dulcamara				R
Impatiens capensis				O
Onoclea sensibilis				O
Thalictrum pubescens				O-R
Alliaria petiolata				O-R
Phragmites australis			O-R	
Asclepias syriaca				R
Verbena hastata				R
Sium suave				O-R
Solidago canadensis				R
Rubus pubescens				R
Lythrum salicaria				R
Ageratina altissima				R

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Representative Photographs of Vegetation Community:





APPENDIX 5
Vascular Plant List

Season		Plant [1]					SARO [4]	SARA [5]	Global [6]	Prov. [7]
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	Status	Status	Rank	Rank
✓	✓	TR	*Acer negundo*	Manitoba Maple	0	0			G5	SU
✓	✓	TR	*Acer platanoides*	Norway Maple	*	5			GNR	SNA
✓		TR	*Acer saccharinum*	Silver Maple	5	-3			G5	S5
✓	✓	TR	*Acer saccharum*	Sugar Maple	4	3			G5	S5
✓	✓	FO	*Aegopodium podagraria*	Goutweed	*	0			GNR	SNA
	✓	FO	*Ageratina altissima*	Common White Snakeroot	5	3			G5	S5
✓	✓	FO	*Alliaria petiolata*	Garlic Mustard	*	0			GNR	SNA
✓		SH	*Alnus incana*	Grey Alder	6	-3			G5	S5
✓		FO	*Anemonastrum canadense*	Canada Anemone	3	-3			G5	S5
✓		FO	*Asarum canadense*	Canada Wild-ginger	6	5			G5	S5
✓		FO	*Asclepias syriaca*	Common Milkweed	0	5			G5	S5
✓	✓	FO	*Caltha palustris*	Yellow Marsh Marigold	5	-5			G5	S5
	✓	FO	*Campanula rapunculoides*	Creeping Bellflower	*	5			GNR	SNA
✓	✓	SE	*Carex lacustris*	Lake Sedge	5	-5			G5	S5
✓		FO	*Chelidonium majus*	Greater Celadine		5			GNR	SNA
✓	✓	FO	*Circaea canadensis ssp. canadensis*	Broad-leaved Enchanter's Nightshade	2	3			GNR	S5
✓	✓	SH	*Cornus alternifolia*	Alternate-leaved Dogwood	6	3			G5	S5
	✓	VW	*Echinocystis lobata*	Wild Mock-cucumber	3	-3			G5	S5
	✓	FO	*Echium vulgare*	Common Viper's Bugloss	*	5			GNR	SNA
✓		SE	*Eleocharis obtusa*	Blunt Spike-rush	5	-5			G5	S5
	✓	FO	*Epilobium hirsutum*	Hairy Willowherb	*	-3			GNR	SNA
✓		FE	*Equisetum arvense*	Field Horsetail	0	0			G5	S5
	✓	FO	*Erigeron annuus*	Annual Fleabane	0	3			G5	S5
	✓	FO	*Eutrochium maculatum var. maculatum*	Spotted Joe Pye Weed	3	-5			G5T5	S5
✓		FO	*Fragaria virginiana*	Wild Strawberry	2	3			G5	S5
	✓	SH	*Frangula alnus*	Glossy Buckthorn	*	0			GNR	SNA
✓	✓	TR	*Fraxinus americana*	White Ash	4	3			G5	S4
	✓	TR	*Fraxinus pennsylvanica*	Green Ash	3	-3			G5	S4
	✓	FO	*Galeopsis tetrahit*	Common Hemp-nettle	*	3			GNR	SNA
✓	✓	FO	*Galium aparine*	Cleavers	4	3			G5	S5
✓		FO	*Geranium robertianum*	Herb-Robert	2	3			G5	S5
	✓	FO	*Geum canadense*	White Avens	3	0			G5	S5
✓	✓	FO	*Glechoma hederacea*	Ground Ivy	*	3			GNR	SNA
✓		FO	*Hesperis matronalis*	Dame's Rocket	*	3			G4G5	SNA
✓	✓	FO	*Impatiens capensis*	Spotted Jewelweed	4	-3			G5	S5

Season		Plant [1]					SARO [4]	SARA [5]	Global [6]	Prov. [7]
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	Status	Status	Rank	Rank
✓	✓	TR	*Juglans nigra*	Black Walnut	5	3			G5	S4?
✓		TR	*Larix laricina*	Tamarack	7	-3			G5	S5
	✓	FO	*Leonurus cardiaca*	Common Motherwort	*	5			GNR	SNA
	✓	SH	*Lonicera tatarica*	Tartarian Honeysuckle	*	3			GNR	SNA
	✓	FO	*Lotus corniculatus*	Garden Bird's-foot Trefoil	*	3			GNR	SNA
	✓	FO	*Lysimachia ciliata*	Fringed Loosestrife	4	-3			G5	S5
	✓	FO	*Lythrum salicaria*	Purple Loosestrife	*	-5			G5	SNA
✓	✓	FE	*Matteuccia struthiopteris*	Ostrich Fern	5	0			G5T5	S5
✓		TR	*Morus alba*	White Mulberry	*	0			GNR	SNA
	✓	FO	*Oenothera biennis*	Common Evening Primrose	0	3			G5	S5
✓	✓	FE	*Onoclea sensibilis*	Sensitive Fern	4	-3			G5	S5
✓	✓	VW	*Parthenocissus quinquefolia*	Virginia Creeper	6	3			G5	S4?
✓		GR	*Phalaris arundinacea*	Reed Canary Grass	0	-3			G5	S5
✓	✓	GR	*Phragmites australis ssp. australis*	European Reed		-3			G5T5	SNA
✓		TR	*Picea glauca*	White Spruce	6	3			G5	S5
✓	✓	TR	*Picea mariana*	Black Spruce	8	-3			G5	S5
	✓	TR	*Pinus resinosa*	Red Pine	8	3			G5	S5
✓	✓	TR	*Pinus strobus*	Eastern White Pine	4	3			G5	S5
	✓	FO	*Plantago major*	Common Plantain	*	3			G5	S5
✓	✓	TR	*Populus alba*	White Poplar	*	5			G5	SNA
✓	✓	TR	*Populus tremuloides*	Trembling Aspen	2	0			G5	S5
	✓	FO	*Prunella vulgaris ssp. Lanceolata*	Self-heal	0	0			G5T5	S5
✓	✓	TR	*Prunus serotina*	Black Cherry	3	3			G5	S5
✓		SH	*Prunus virginiana*	Choke Cherry	2	3			G5	S5
✓		TR	*Quercus sp.*	Oak species						
✓	✓	FO	*Ranunculus repens*	Creeping Buttercup	*	0			GNR	SNA
✓	✓	SH	*Rhamnus cathartica*	Common Buckthorn	*	0			GNR	SNA
✓		SH	*Ribes cynosbati*	Prickly Gooseberry	4	3			G5	S5
✓		SH	*Rosa multiflora*	Multiflora Rose	*	3			GNR	SNA
	✓	SH	*Rubus idaeus ssp. strigosus*	Wild Red Raspberry	2	3			G5T5	S5
	✓	SH	*Rubus occidentalis*	Black Raspberry	2	5			G5	S5
	✓	FO	*Rubus pubescens*	Dewberry	4	-3			G5	S5
✓	✓	TR	*Salix euxina*	Crack Willow		0			GNR	SNA
✓		SH	*Sambucus canadensis*	Common Elderberry	5	-3			G5	S5
	✓	FO	*Sium suave*	Hemlock Water-parsnip	4	-5			G5	S5

Season		Plant [1]								
Spring	Summer	Type	Scientific Name	Common Name	CC [2]	CW [3]	SARO [4] Status	SARA [5] Status	Global [6] Rank	Prov. [7] Rank
✓	✓	VW	*Solanum dulcamara*	Bittersweet Nightshade	*	0			GNR	SNA
	✓	FO	*Solidago canadensis*	Canada Goldenrod	1	3			G5T5	S5
✓		FO	*Solidago sp.*	Goldenrod species						
	✓	FO	*Sonchus arvensis ssp. arvensis*	Glandular Field Sow-thistle		3			GNRTNR	SNA
	✓	FO	*Symphyotrichum sp.*	Aster sp.						
✓	✓	SH	*Syringa vulgaris*	Common Lilac	*	5			GNR	SNA
✓	✓	FO	*Taraxacum officinale*	Common Dandelion	*	3			G5	SNA
	✓	FO	*Thalictrum dioicum*	Early Meadow-rue	6	3			G5	S5
✓		FO	*Thalictrum pubescens*	Tall Meadow-rue	5	-3			G5	S5
✓	✓	TR	*Thuja occidentalis*	Eastern White Cedar	4	-3			G5	S5
	✓	TR	*Tilia americana*	American Basswood	4	3			G5	S5
✓	✓	WV	*Toxicodendron radicans ssp. Negundo*	Eastern Poison Ivy	5	-1			G5	S5
✓		FO	*Tussilago farfara*	Colt's-foot	*	3			GNR	SNA
✓	✓	FO	*Typha angustifolia*	Narrow-leaved Cattail		-5			G5	SNA
✓	✓	TR	*Ulmus americana*	American Elm	3	-3			G5	S5
✓	✓	FO	*Urtica dioica ssp. dioica*	European Stinging Nettle	*	0			G5T5?	SNA
	✓	FO	*Verbena hastata*	Blue Vervain	4	-3			G5	S5
	✓	FO	*Verbena urticifolia*	White Vervain	4	0			G5	S5
	✓	FO	*Vinca minor*	Periwinkle	*	5			GNR	SNA
✓	✓	VW	*Vitis riparia*	Riverbank Grape	0	0			G5	S5

1. Plant Types: AL = Algae; FE = Fern; FO = Forb; GR = Grass; LC = Lichen; LV = Liverwort; MO = Moss; RU = Rush; SE = Sedge; SH = Shrub; TR = Tree; VI = Herbaceous vine; VW = Woody
2. CC: Coefficient of Conservatism reflects a species' fidelity to a specific habitat. Range from 0 to 10; 10 = very conservative, not likely in disturbed habitats, 1 = least conservative, likely found in a broad range of habitat. * = value not assigned because they are non-native
3. CW: Coefficient of Wetness reflects a species' affinity for wet soil conditions. Range from -5 to 5; -5 = obligate wetland species, 5 = obligate upland species
4. SARO: Status under the Provincial Endangered Species Act, listed on the Species at Risk in Ontario (SARO) list. In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
5. SARA: Status under the National Species at Risk Act (SARA), assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). In order of severity, statuses include: EXP = Extirpated; END = Endangered; THR = Threatened; SC = Special Concern
6. Global rarity rank. Range from G1 to G5; G1 = Extremely rare, G5 = Very Common. NR = Unranked; U = Unrankable
7. Provincial rarity rank. Range from S1 to S5; S1 = Extremely rare, S5 = Very Common. NR = Unranked; U = Unrankable

APPENDIX 6
Breeding Bird Survey

															PC 1	Habitat: Watercourse and riverbank															
															round1	date: June 4, 2024						round2	date: June 18, 2024						Max Summaries		SITE SUMMARY	
LIST	COMMON NAME	SCIENTIFIC NAME	COSSARO	SARO	COSEWIC	SARA	S-RANK	G-RANK	N-RANK	AREA SENSITIVE	AREA REQUIRED	PIF SPECIES	GRCA(date unk.)	WELLINGTON COUNTY (2009)	>50	50-100	>100	FO	total	HBE	>50	50-100	>100	FO	total	HBE	TOTAL	HBE	TOTAL	HBE
1109	Ring-billed Gull	*Larus delawarensis*					S5	G5	N5B,N5N,N5M					x				1	0	NA					0	NA	0	NA	0	NA
1168	Eastern Kingbird	*Tyrannus tyrannus*					S4B	G5	N5B,N5M			✓	CP	x		2			2	P					0	NA	2	P	2	P
1187	American Crow	*Corvus brachyrhynchos*					S5	G5	N5B,N5N,N5M										0	NA			1		0	NA	0	NA	0	NA
1223	American Robin	*Turdus migratorius*					S5	G5	N5B,N4N5N,N5M									1	0	NA					0	NA	0	NA	0	NA
1241	Chipping Sparrow	*Spizella passerina*					S5B,S3N	G5	N5B,N5M							1			1	S					0	NA	1	S	1	S
1254	Song Sparrow	*Melospiza melodia*					S5	G5	N5B,N5N,N5M						1	2			3	S	1	1			2	T	3	T	3	T
1265	Red-winged Blackbird	*Agelaius phoeniceus*					S5	G5	N5B,N5N,N5M						1	4			5	S		3			3	T	5	T	5	T
1269	Common Grackle	*Quiscalus quiscula*					S5	G5	N5B,NUN,N5M						2				2	S					0	S	2	S	2	S
1284	Common Yellowthroat	*Geothlypis trichas*					S5B,S3N	G5	N5B,N5M							1			1	S		2	1		2	T	2	T	2	T

Breeding Evidence:

Observed
FO-flyover
X- species observed in breeding season

Possible
H-suitable habitat
S-singing male

Probable
M-multiple singing individuals
P-pair observed in suitable habitat
T-presumed territory based on presence of singing bird at least one week apart
D-courtship or display
V-visiting probabale nest site
A-agitated behaviour
B-brood patch or cloacal protuberance
N-nest building by wrens or woodpeckers

Confirmed
NB-nest building
AE-adult entering, occupying or leaving nest site
NU-empty nest used in the same season
FY-recently fledged young
DD-distraction display
FS-adult carrying fecal sac
CF-adult carrying food
NE-nest with eggs
NY-nest with young

APPENDIX 7
Significant Wildlife Habitat Assessment

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
1	Waterfowl Stopover and Staging Areas (Terrestrial)	Seasonal concentration areas of animals	- Fields with Sheet water in spring (incl. agricultural)	- Mixed species aggregations of 100 or more individuals confirms SWH	Flooded field ecosite and 100-300m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
2	Waterfowl Stopover and Staging (Aquatic)	Seasonal concentration areas of animals	- Ponds, marshes, lakes, bays, coastal inlets and watercourses and reservoirs - SWTP & SWMP are not SWH	- Aggregations of 100 or more listed species for 7 days (i.e., >700 waterfowl use days) confirms SWH	Aquatic ecosite and 100m radius is the SWH	Waterfowl Winter Concentration Area identified as present by the MNRF.	Yes	None required, habitat already confirmed.	Yes
3	Shorebird Migratory Stopover	Seasonal concentration areas of animals	- Shorelines of lakes, rivers, wetlands, beaches, bars; seasonally flooded, muddy, and un-vegetated shoreline habitat	- 3 or more listed species and >1000 shorebird use days, or >100 whimbrel, confirms SWH	Shoreline ecosite and 100m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
4	Raptor Wintering Area	Seasonal concentration areas of animals	- Combination of upland field and woodland habitat >20ha total (includes,>15ha upland field) - Least disturbed sites, idle, fallow or lightly grazed field/meadow best	- 1 or more Short-eared Owl, or at least 10 individuals and 2 listed species for a minimum of 20 days, and 3 of 5 years, confirms SWH	Ecosite communities (field and woodland) is the SWH	No habitat matching criteria identified in study area.	No	None required	No
5	Bat Hibernacula	Seasonal concentration areas of animals	- Caves, mine shafts, underground foundations, karsts. - Buildings are not SWH	- All sites with confirmed hibernating bats, confirms SWH	Ecosite and 200m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
6	Bat Maternity Colony	Seasonal concentration areas of animals	- All forested ecosites, FOD, FOC, FOM, SWD, SWM, SWC with >10/ha trees (>25cm DBH) in early stages of decay (class 1-3) - Buildings are not SWH	- >10 Big Brown Bats, >5 adult female Silver-haired Bats confirms SWH	Entire woodland or forest stand ELC ecosite containing colony is the SWH	Wooded areas present in the study area.	Yes	Bat habitat assessment completed. No suitable trees identified near bridge.	No
7	Turtle Wintering Area	Seasonal concentration areas of animals	- Areas with permanent water deep enough not to freeze, with mud/soft substrates	- 5 over-wintering Midland Painted Turtles, 1 or more Northern Map Turtle or Snapping Turtle confirms SWH	Mapped ELC ecosite, or deep pool element where turtles overwinter is the SWH	Soft substrates and deep water present in Speed River,	Yes.	Aquatic habitat assessment, and incidental observations during other studies.	Unknown-assumed present.
8	Reptile Hibernaculum	Seasonal concentration areas of animals	- Sites below the frost line; rock barren, crevice and cave, talus, alvar, rock piles, slopes, stone fences, and crumbling foundations	- Presence of hibernacula with minimum 5 individuals of 1 snake species/ individuals of 2 or more species confirms SWH. - Congregations of a minimum of 5 snakes of 1 species/ individuals of 2 or more snake species, near potential hibernacula on sunny warm days in spring and fall confirms SWH	Feature hibernacula is in, and 30m radius is the SWH	No habitat matching criteria identified in study area.	No	None required	No
9	Colonially-nesting Bird Habitat (Cliff/bank)	Seasonal concentration areas of animals	- Eroding banks, sandy hills, borrow pits, steep slopes, sand piles, cliff faces, bridge abutments, silos, barns	- 1 or more nest sites with 8 or more Cliff Swallow or, 50 Bank Swallow and Rough-winged Swallow pairs during the breeding season.	Colony and 50m radius around peripheral nest are the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
10	Colonially-nesting Bird Habitat (Tree/shrub)	Seasonal concentration areas of animals	- Live or dead standing trees in wetlands, lakes, islands and peninsulas, occasionally shrubby and emergent vegetation	- 5 or more active Great-blue Heron or other listed species nests	Edge of the colony plus minimum 300m radius, or extent of the forest ecosite, or entire island <15ha is the SWH	No habitat matching criteria identified in study area.	No	None required	No
11	Colonially-nesting Bird Habitat (Ground)	Seasonal concentration areas of animals	- Rocky islands or peninsulas within a lake or large river (natural or artificial)	- >25 active nests of Herring Gull, Ring-billed Gull, >5 active nests of Common Tern, or >2 active nests of Caspian Tern. 5 or more pairs of Brewer's Blackbird. Any active nesting colony of Little Gull, Great Black-backed Gull.	Edge of colony plus min 150m radius or extent of ELC ecosite, or island <3ha is the SWH	No habitat matching criteria identified in study area.	No	None required	No
12	Migratory Butterfly Stopover Area	Seasonal concentration areas of animals	- At least 10ha, with undisturbed field/meadow and forest or woodland edge habitat present, within 5km of Lake Ontario.	- Presence of Monarch use days >5000 or >3000 where there is a mix of Monarch with Painted Ladies or White Admirals	Field/meadow and forest/woodland is the SWH	No habitat matching criteria identified in study area.	No	None required	No
13	Land bird Migratory Stopover Area	Seasonal concentration areas of animals	- Woodlots >5ha in size - Within 5km of Lake Ontario	- Use by >200 birds/day, with >35species, with at least 10sp recorded on 5 different survey dates.	Woodlot is the SWH	No habitat matching criteria identified in study area.	No	None required	No
14	Deer Yarding Areas	Seasonal concentration areas of animals	- ELC communities providing Thermal cover (FOM, FOC, SWM, SWC, CUP2, CUP3, FOD3, CUT)	- Deer yards are managed by MNRF, available through district offices and LIO.	LIO mapping	No habitat matching criteria identified in study area.	No	None required	No
15	Deer Winter Congregation Areas	Seasonal concentration areas of animals	- All forested ecosites >100ha - Conifer Plantations <50ha may be used	- Deer management is the responsibility of the MNRF. - Contact MNRF or LIO for known deer winter areas.	LIO mapping	White-tailed Deer Wintering Area (Stratum II) identified as present by the MNRF.	Yes	None required, habitat already confirmed.	Yes
16	Cliffs & Talus Slopes	Rare vegetation communities	- Cliff: vertical to near vertical bedrock >3m in height - Talus slope: rock rubble at the base of a cliff made up of coarse rocky debris	- Confirm any ELC Vegetation Type for Cliffs or Talus Slopes	Area of ELC sites: TAO, TAS, TAT, CLO, CLS, CLT	No habitat matching criteria identified in study area.	No	None required	No
17	Sand Barren	Rare vegetation communities	- Exposed, sparsely vegetated & caused by lack of moisture, fires, and erosion.	- Area >0.5ha in size - Confirm any ELC vegetation Type for Sand Barren - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
18	Alvar	Rare vegetation communities	- Level, mostly un-fractured calcareous bedrock feature, overlain by a thin veneer or soil	- Area >0.5ha in size - Field Studies that identify four of the five Alvar Indicator Species - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
19	Old Growth Forest	Rare vegetation communities	- >30ha forests with at least 10ha interior habitat and multi-layered canopy	- Dominant Tree Species >140 years old - No recognizable signs forestry practices (old stumps)	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
20	Savannah	Rare vegetation communities	- Tall Grass Prairie Habitat with 25%-60% Tree cover - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more savannah indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
21	Tallgrass Prairie	Rare vegetation communities	- Ground cover dominated by prairie grasses with <25% tree cover. - Remnant sites such as Railway Right of ways are not SWH	- No minimum size and must be restored to a natural state. - Confirm one or more prairie indicator species. - Not dominated by exotic or introduced species	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
22	Other Rare Vegetation Communities	Rare vegetation communities	- All Provincially Rare S1, S2, S3 Vegetation Communities (Appendix M of SWHTG)	- Field Studies Confirming ELC vegetation type is a rare vegetation community	Area of ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
23	Waterfowl Nesting Areas	Specialized habitat for wildlife	- Upland Habitat, adjacent to Wetland ELC ecosites (except SWC, SWM) - Extends 120m from a wetland (>0.5ha) and any small wetlands (<0.5ha) within a cluster of at least 3. - Upland area at least 120m wide	- Presence of 3 or more nesting pairs of listed species excluding Mallards - Presence of 10 or more nesting pairs including mallards - Any active Black Duck nesting site	SWH may be greater than or less than 120m from the wetland edge and must provide enough habitat for waterfowl to successfully nest	No habitat matching criteria identified in study area.	No	None required	No
24	Bald Eagle or Osprey Nesting, Foraging and Perching Habitat	Specialized habitat for wildlife	- Forest communities, adjacent to riparian areas - Osprey nests usually at top of tree - Bald Eagle nest usually in super canopy tree in a notch within canopy	- Studies confirm one or more active Bald Eagle or Osprey nest. - Alternate nests included in SWH. - Nests must be used annually, if found inactive, must be known inactive at least 3 years, or suspected unused for 5 years if unknown	- Active nest plus 300m for OSPR - Active nest plus 400-800m for BAEA	Riparian habitat with forests present.	Yes.	Breeding bird survey and incidental observations.	No
25	Woodland Raptor Nesting Habitat	Specialized habitat for wildlife	- Forested communities, forested swamp communities and cultural Plantations - Natural Forested/conifer plantations >30ha with >10ha interior habitat (200m buffer)	- One or more active nest of listed species	Nest protection radius: - RSHA, NOGA 400m - BAOW 200m. - Broad-winged Hawk, COHA 100m - SSHA 50	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
26	Turtle Nesting Areas	Specialized habitat for wildlife	- Exposed Mineral soil (sand or gravel) adjacent (<100m) or within shallow marsh, shallow submerged, shallow floating, bog or fen communities. - Located in open sunny areas, away from roads and less prone to predation. - Municipal and provincial road shoulders are not SWH.	- Confirm 5 or more nesting Midland Painted Turtles, 1 or more nesting Northern Map Turtle or Snapping Turtle	Area or sites with exposed mineral soils, plus a radius of 30-100m around the nesting area is the SWH.	No habitat matching criteria identified in study area.	No	None required	No
27	Seeps and Springs	Specialized habitat for wildlife	- Areas where ground water comes to the surface. - Any forested area within the headwaters of a stream or river system	- Confirm site with 2 or more seeps/springs.	Area of ELC forest ecosite containing seep/spring is the SWH	No habitat matching criteria identified in study area.	No	None required	No
28	Amphibian Breeding Habitat (Woodland)	Specialized habitat for wildlife	- Breeding pools within woodlands - Wetland, pond, or pool >500m^2 within or adjacent (<120m) to a woodland. - Woodlands with permanent ponds, or those with water until mid-July more likely to be used.	- Confirm Breeding population of 1 or more listed newt/salamander species, 2 or more of the listed frog species with at least 20 individuals (adults or egg masses), 2 or more of the listed frog species with call code levels of 3. - Wetland adjacent to woodlands includes travel corridor connecting features as SWH.	Wetland area, plus 230m radius of woodland is the SWH.	No habitat matching criteria identified in study area.	No	None required	No
29	Amphibian Breeding Habitat (Wetland)	Specialized habitat for wildlife	- Swamp, marsh, fen, bog, open aquatic, and shallow aquatic ELC communities. - Typically isolated from woodlands (>120m) but includes larger wetlands with primarily aquatic species (bull frogs) that are adjacent to woodlands. - Wetlands >500m2 - Presence of shrubs & logs - Bullfrogs require permanent water bodies and abundant emergent vegetation.	- Confirm Breeding populations of 1 or more listed newt/salamander species, or 2 or more listed frog/toad species with at least 20 individuals (adults or egg masses), or 2 or more listed frog/toad species with a call code level of 3 - Or any wetland with confirmed breeding Bullfrog.	- ELC ecosite and shoreline is the SWH. - Movement corridors (SWH) must be considered if this habitat is significant	No habitat matching criteria identified in study area.	No	None required	No
30	Area-sensitive Breeding Bird Habitat	Specialized habitat for wildlife	- Habitats where interior breeding birds are breeding. - Large mature (>60 years) forest stands or woodlots >30ha. - Forest and swamp ELC communities - Interior habitat at least 200m from edge	- Presence of nesting or breeding pairs of 3 or more of the listed species - Any site with Cerulean Warbler or Canada Warbler is SWH	ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
31	Marsh Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Some meadow marsh, shallows submerged, shallow floating, mixed shallow floating, fen, and bog communities (see SWH Ecoregion guide for specifics) - Nesting occurs in wetlands, all wetland habitat is considered with presence of shallow water with emergent aquatic vegetation - Green heron at edge of water sheltered by shrubs and trees.	- 5 or more nesting pairs of Sedge Wren or Marsh Wren, 1 pair of Sandhill Crane, or breeding by any combination of 5 or more of the listed species - Any Wetland with 1 or more breeding pair Black Tern, Trumpeter Swan, Green Heron or Yellow Rail	ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
32	Open Country Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Grassland area >30ha (natural & cultural fields and meadows) - Grasslands not class 1 or 2 agriculture (no row crops or intensive hay or livestock pasturing) - Mature hayfields or pasture at least 5 years old	- Nesting or breeding of 2 or more of the listed species - Field with 1 or more Short-eared Owls	Contiguous ELC ecosite is the SWH	No habitat matching criteria identified in study area.	No	None required	No
33	Shrub/Early Successional Bird Breeding Habitat	Habitats of species of conservation concern considered SWH	- Cultural thickets, savannah, and woodland habitat - Large field area succeeding to shrub and thicket habitat >10ha in size - Patches of shrub ecosite may be complexed into larger old field ecosites for some species	- Confirm nesting or breeding of 1 of the listed indicator species and at least 2 of the common species - Habitat with Yellow-breasted Chat or Golden-winged Warbler is SWH	SWH is contiguous ELC ecosite field/thicket area	No habitat matching criteria identified in study area.	No	None required	No
34	Terrestrial Crayfish	Habitats of species of conservation concern considered SWH	- Meadow marsh, shallow marsh, swamp thicket, deciduous swamp, and mixed swamp communities - Cultural meadow with inclusions of meadow marsh may be used - Wet edges of marshes and wet meadows should be surveyed for crayfish	- Presence of 1 or more individuals of listed species or their chimneys in suitable habitat	Area of ELC ecosite or Eco element area of meadow marsh or swamp within the larger ecosite area is the SWH	No habitat matching criteria identified in study area.	No	None required	No

#	Significant wildlife habitat (SWH)	Candidate SWH type	Candidate SWH criteria	Criteria for SWH confirmation	SWH protected area	Site assessment details	Candidate SWH	Field studies required/ completed	Confirmed SWH
35	Special Concern & Rare Wildlife Species	Habitats of species of conservation concern considered SWH	- All Special concern and Provincially Rare plant and animal species - Where an element occurrence is identified within a 1 or 10km grid for a species listed, linking candidate habitat on the site must be completed to ELC ecosites	- Assessment/inventory of site for identified special concern or rare species completed during time of year when species is present or easily identifiable - Habitat must be easily mapped and cover an important life stage component (specific nesting habitat, foraging)	SWH is the finest ELC scale that protects the form and function of the habitat	Background Atlas review identified 10 Special concern species within 10km of the Study Area - Snapping Turtle (ORAA, NHIC) - Midland Painted Turtle (ORAA, NHIC) - Barn Swallow (OBBA, NHIC, eBird) - Eastern Wood-pewee (OBBA, NHIC, eBird) - Evening Grosbeak (eBird) - Grasshopper Sparrow (OBBA, NHIC) - Peregrine Falcon (NHIC) - Rusty Blackbird (eBird) - Wood Thrush (OBBA, NHIC, eBird) - Monarch (OBA)	Yes-Woodlands on site and within 120m may provide habitat for Eastern-Wood-pewee, Wood Thrush. Roadsides may provide habitat for Monarch. Marsh and shallow aquatic habitat on site, and within 120 m may provide habitat for Snapping Turtle and Midland Painted Turtle.	ecological land classification, breeding bird survey, incidental wildlife.	None, assumed overwintering habitat for Midland Painted Turtle and Snapping Turtle.
36	Amphibian Movement Corridor	Animal movement corridors	- Corridors may occur in all ecosites associated with water. - Presence of significant amphibian breeding indicates the requirement for identifying corridors - Movement corridors between breeding habitat and summer habitat	- Corridors typically include areas with native vegetation, with several layers of vegetation, unbroken by roads, waterways or waterbodies are most significant - At least 15 of vegetation on both sides of the waterway or up to 200m wide of woodland habitat with gaps of <20m - Shorter corridors are more significant than longer, but amphibians must be able to get to and from their summer breeding habitat	Corridor is the SWH	No habitat matching criteria identified in study area.	No	None required	No
37	Deer Movement Corridor	Animal movement corridors	- May occur in all forested ecosites. - Determined when deer wintering habitat is confirmed as SWH	- Corridors at least 200m wide with gaps <20m leading to wintering habitat - Unbroken by roads and residential areas - Shorter corridors are more significant	Corridor is the SWH	No corridors identified by aerial images.	No	None required	No

APPENDIX 8
Species at Risk Habitat Assessment

Common name	Scientific name	SCA	SARA	S-rank	Habitat requirements	Suitable habitat in study area	Field studies completed	Observed by AA
Western Chorus Frog – Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	THR	S4	Generally found in lowland communities, such as swamps, inhabiting lowland shrubs and grasses in the community, near breeding habitat. Breeding occurs in lowland, ephemeral ponds, devoid of predatory fish species (COSEWIC 2008a).	No habitat matching criteria identified in study area.	Ecological land classification, and incidental observations.	None observed.
American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	SH	Given that the species had a very broad historical range, which crossed many basic landforms and vegetation zones, it is unlikely that it was ever a consistent habitat specialist throughout its range. There appear to be three requirements for viable habitat: (1) soils sufficiently friable for the excavation of the brood chamber; (2) presence of a sufficient supply of carcasses of the appropriate size; and (3) absence of an overwhelming number of competitors for the carcasses (COSEWIC 2011)	No habitat matching criteria identified in study area.	Ecological land classification, and incidental observations.	None observed.
Monarch	*Danaus plexippus*	NL	SC	S2N, S4B	Requires milkweed for larval feeding, other wildflower species are also important for adult feeding when milkweed is not in flower; often found in abandoned farmland, along roadsides, and other open spaces (COSEWIC 2010b)	Milkweed present in study area, but no individuals observed.	Ecological land classification, and incidental observations.	None observed.
Bank Swallow	*Riparia riparia*	NL	THR	S4B	Breeds in a variety of natural and artificial bank type habitat, such as bluffs, stream and riverbanks, sand and gravel pits, piles of sand, topsoil and other material. Nests are typically in vertical or near-vertical surfaces (COSEWIC 2013b).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Barn Swallow	*Hirundo rustica*	NL	THR	S5B	Occurs in farmland, along lake/river shorelines, in wooded clearings and in urban populated areas. Nesting may occur inside or outside buildings; under bridges and in road culverts (COSEWIC 2011a).	Bridge present in study area, but no individuals observed during breeding bird surveys or incidentally, and no nests identified under the bridge.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Bobolink	*Dolichonyx oryzivorus*	NL	THR	S4B	Nest in grassland habitats, including hayfields and meadows with a mixture of grasses and broad-leaved forbs with a high litter cover. Area Sensitive, with increased density in grasslands greater than 10ha (Renfrew et. al. 2015)	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Chimney Swift	*Chaetura pelagica*	NL	THR	S4B, S4N	Typically nests in traditional chimneys of older buildings, which also provide roosting sites for many individuals during spring and fall migration (MNRF 2013).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Eastern Meadowlark	*Sturnella magna*	NL	THR	S4B	Nest in grassland habitats, including hayfields, pasture, savannahs, and other open areas. Preferential habitat includes areas with good grass and thatch (litter) cover (Jaster et. al. 2012).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Eastern Wood-Pewee	*Contopus virens*	NL	SC	S4B	Associated with mid-age mixed and deciduous forest stands, often dominated by Maple (Acer), Elm (Ulmus) or Oak (Quercus), and include areas with clear-cuts, openings or forest edges. Also prefers forest stands with little to no understory vegetation (COSEWIC 2012a).	Deciduous swamps present containing Maple, Elm, and Oak, but no individuals observed during breeding bird surveys or incidentally.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Evening Grosbeak	*Coccothraustes vespertinus*	NL	SC	S4B	Breeding habitat includes open, mature mixed wood forests, where fir species and/or White Spruce are dominant, and Spruce Budworm is abundant (COSEWIC 2016)	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Golden-winged Warbler	*Vermivora chrysoptera*	NL	THR	S4B	Nests in early successional shrub habitat, with adjacent forest edges for singing perches, often in hydro cut-overs, recently logged areas and beaver marshes (COSEWIC 2006a).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Grasshopper Sparrow	*Ammodramus savannarum*	NL	SC	S4B	Prefers moderately open grasslands and prairies with patchy bare ground; avoids grasslands with extensive shrub cover (Vickery 1996).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Lesser Yellowlegs	*Tringa flavipes*	THR	THR	S3S4B, S5M	Nests on dry ground near peatlands, marshes, ponds, and other wetlands in the boreal forest and taiga. In winter and during migration, the species frequents coastal salt marshes, estuaries and ponds, as well as lakes, other freshwater wetlands, and anthropogenic wetlands such as flooded rice fields and sewage lagoons (COSEWIC 2020).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Peregrine Falcon	*Falco peregrinus*	NL	NAR	S3B	Nests on cliff-ledges (50-200m preferred) near foraging areas. Also nests on anthropomorphic structures, such as tall building ledges, bridges, quarries, mines and cuts for road beds (COSEWIC, 2007a).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.

Common name	Scientific name	SCA	SARA	S-rank	Habitat requirements	Suitable habitat in study area	Field studies completed	Observed by AA
Red-headed Woodpecker	*Melanerpes erythrocephalus*	NL	THR	S4B	Found in a variety of open areas, with a high density of dead or dying trees, particularly forests dominated by oak or beech (COSEWIC 2007d).	No habitat matching criteria identified in study area.	Breeding bird surveys, Woodpecker cavity assessment, Ecological land classification, and incidental observations.	None observed.
Rusty Blackbird	*Euphagus carolinus*	NL	SC	S4B	Breeding habitat is characterized by coniferous-dominated forests adjacent to wetlands, such as slow-moving streams, peat bogs, sedge meadows, marshes, swamps and beaver ponds. On migration, the Rusty Blackbird is primarily associated with wooded wetlands (COSSARO 2017).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Wood Thrush	*Hylocichla mustelina*	NL	THR	S4B	Prefers second growth moist deciduous forests, with tall trees, and a dense understory of low saplings and an open forest floor with decaying leaf litter. Often nests in saplings, shrubs or occasionally dead stumps (COSEWIC 2012b).	No habitat matching criteria identified in study area.	Breeding bird surveys, Ecological land classification, and incidental observations.	None observed.
Little Brown Myotis	*Myotis lucifugus*	END	END	S3	Hibernate in Caves; maternity colonies located in warm sites, often associated with human habitation; including attics, old buildings, under bridges, rock crevices and cavities in canopy trees in wooded areas (COSEWIC, 2013c).	No habitat matching criteria identified in study area.	Bat habitat assessment, Ecological land classification, and incidental observations.	None observed.
Midland Painted Turtle	*Chrysemys picta marginata*	NL	SC	S4	Occupy slow moving, relatively shallow and well-vegetated wetlands and water bodies with abundant basking sites and organic substrate. Found in association with submergent aquatic plants, which are used for cover and feeding. Semi -tolerant of human-altered landscapes, occasionally found occupying urban ponds and lands subject to anthropogenic disturbance. Suitable nesting habitat includes open, often south-facing, and sloped areas with sandy-loamy and/or gravel substrate usually within 1200 m of aquatic active season habitats. Overwinter in shallow water with deep sediment (COSEWIC 2018).	Potential overwintering habitat present near the bridge.	Ecological land classification, and incidental observations.	None observed.
Snapping Turtle	*Chelydra serpentina*	NL	SC	S4	Inhabit slow-moving waters with soft, muck bottom and dense aquatic vegetation. Ponds, sloughs and shallow bays are all often used as summering and overwintering habitat (COSEWIC 2008d).	Potential overwintering habitat present near the bridge.	Ecological land classification, and incidental observations.	None observed.

References:

COSEWIC. 2008. COSEWIC assessment and update status report on the Western Chorus Frog (Pseudacris triseriata) Carolinian population and Great Lakes/St. Lawrence – Canadian Shield population in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 47 pp.
COSEWIC. 2011. COSEWIC assessment and status report on the American Burying Beetle Nicrophorus americanus in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 35 pp. (www.registrelep-sararegistry.gc.ca/default_e.cfm).
COSEWIC. 2010. COSEWIC assessment and status report on the Monarch (Danaus plexippus) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 43 pp.
COSEWIC. 2013. COSEWIC assessment and status report on the Bank Swallow (Riparia riparia) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 48 pp.
COSEWIC. 2011. COSEWIC assessment and status report on the Barn Swallow (Hirundo rustica) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 37 pp.
Renfrew, R., A.M. Strong, N.G. Perlut, S.G. Martin and T.A. Gavin. 2015. Bobolink (Dolichonyx oryzivorus), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Birds of North America Online: http://bna.birds.cornell.edu/bna/species/176
MNRF, 2013. General Habitat Description for the Chimney Swift (Chaeture pelagica). Ontario Ministry of Natural Resources and Forestry. July 2, 2013.
Jaster, Levi A., William E. Jensen and Wesley E. Lanyon. (2012). Eastern Meadowlark (Sturnella magna), The Birds of North America (P. G. Rodewald, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America: https://birdsna.org/Species-Account/bna/species/easmea
COSEWIC. 2012. COSEWIC assessment and status report on the Eastern Wood-Pewee (Contopus virens) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 39 pp.
COSEWIC. 2016. COSEWIC assessment and status report on the Evening Grosbeak (Coccothraustes vespertinus) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
COSEWIC 2006. COSEWIC assessment and status report on the Golden-winged Warbler (Vermivora chrysoptera) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 30 pp.
Vickery, Peter D. 1996. Grasshopper Sparrow (Ammodramus savannarum), The Birds of North America Online (A. Poole, Ed.). Ithaca: Cornell Lab of Ornithology; Retrieved from the Birds of North America Online: http://bna.birds.cornell.edu/bna/species/239\
COSEWIC. 2020. COSEWIC assessment and status report on the Lesser Yellowlegs (Tringa flavipes) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. x + 64 pp.
COSEWIC 2007. COSEWIC assessment and update status report on the Peregrine Falcon (Falco peregrinus) (pealei subspecies - Falco peregrinus and pealei anatum/tundrius -Falco peregrinus anatum/tundrius) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vii + 45 pp.
COSEWIC 2007. COSEWIC assessment and update status report on the Red-headed Woodpecker (Melanerpes erythrocephalus) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. vi + 27 pp.
COSEWIC. 2017. COSEWIC assessment and status report on the Rusty Blackbird (Euphagus carolinus) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xi + 64 pp.
COSEWIC. 2012. COSEWIC assessment and status report on the Wood Thrush (Hylocichla mustelina) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. ix + 46 pp.
COSEWIC. 2013. COSEWIC assessment and status report on the Little Brown Myotis (Myotis lucifugus), Northern Myotis (Myotis septentrionalis) and Tri-colored Bat (Perimyotis subflavus) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xxiv + 93 pp.
COSEWIC. 2018. COSEWIC assessment and status report on the Midland Painted Turtle (Chrysemys picta marginata) and the Eastern Painted Turtle (Chrysemys picta picta) in Canada. Committee on the Status of Endangered Wildlife in Canada. Ottawa. xvi + 107 pp.
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.

APPENDIX 9
Background Wildlife List

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
	INSECTS														
NHIC	American Burying Beetle	*Nicrophorus americanus*	EXP	EXP	EXP	EXP	Schedule 1	SH	G2G3	NH					
iNat (2021)	Seven-spotted Lady Beetle	*Coccinella septempunctata*						SNA	GNR	NNA					
	BUTTERFLIES & MOTHS														
OBA (2012)	Least Skipper	*Ancyloxypha numitor*						S5	G5	N5					
OBA (2012)	Arctic Skipper	*Carterocephalus palaemon*						S5	G5	N5					
OBA (2022)	Silver-spotted Skipper	*Epargyreus clarus*						S4	G5	N5					
OBA (2021)	Wild Indigo Duskywing	*Erynnis baptisiae*						S4	G5	N4					x
OBA (2021)	Common Sootywing	*Pholisora catullus*						S4	G5	N4					x
OBA (2018)	Peck's Skipper	*Polites peckius*						S5	G5	N5					
OBA (2020)	European Skipper	*Thymelicus lineola*						SNA	G5	NNA					
OBA (2021)	Northern Azure	*Celastrina lucia*						S5	G5	N5					
OBA (2021)	Eastern Tailed Blue	*Cupido (Everes) comyntas*						S5	G5	N5					
OBA (2020)	Silvery Blue	*Glaucopsyche lygdamus*						S5	G5	N5					
OBA (2020)	Bronze Copper	*Lycaena hyllus*						S5	G4G5	N5					
OBA (2022)	Acadian Hairstreak	*Satyrium acadica*						S4	G5	N5					
OBA (2020)	Milbert's Tortoiseshell	*Aglais milberti*						S5	G5	N5					
OBA (2022)	Common Wood-Nymph	*Cercyonis pegala*						S5	G5	N5					
OBA (2022)	Common Ringlet	*Coenonympha tullia*						S5	G5	N5					
OBA (2022)	Monarch	*Danaus plexippus*	SC		END	SC	Schedule 1	S2N,S4B	G5	N3B,NNRM					
OBA (2021)	Baltimore Checkerspot	*Euphydryas phaeton*						S4	G4	N5					
OBA (2012)	Variegated Fritillary	*Euptoieta claudia*						SNA	G5	N5B.N3N,NNRM					
OBA (2008)	Common Buckeye	*Junonia coenia*						SNA	G5	NNA					
OBA (2022)	Viceroy	*Limenitis archippus*						S5	G5	N5					
OBA (2022)	Red-spotted Purple	*Limenitis arthemis astyanax*						S5	G5T5	N5					
OBA (2020)	Little Wood-Satyr	*Megisto cymela*						S5	G5	N5					
OBA (2021)	Mourning Cloak	*Nymphalis antiopa*						S5	G5	N5					
OBA (2022)	Compton Tortoiseshell	*Nymphalis l-album*						S5	G5	N5					
OBA (2022)	Northern Crescent	*Phyciodes cocyta*						S5	G5	N5					
OBA (2021)	Pearl Crescent	*Phyciodes tharos*						S4	G5	N5					

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
OBA (2021)	Eastern Comma	*Polygonia comma*						S5	G5	N5					
OBA (2020)	Question Mark	*Polygonia interrogationis*						S5	G5	N5B,N4N5M					
OBA (2020)	Gray Comma	*Polygonia progne*						S5	G4G5	N5					
OBA (2020)	Great Spangled Fritillary	*Speyeria cybele*						S5	G5	N5					
OBA (2021)	Red Admiral	*Vanessa atalanta*						S5B	G5	N5B,N5M					
OBA (2014)	Painted Lady	*Vanessa cardui*						S5B	G5	N5B,N5M					
OBA (2014)	Pipevine Swallowtail	*Battus philenor*						SNA	G5	NNA					
OBA (2021)	Giant Swallowtail	*Papilio cresphontes*						S4	G5	N4					x
OBA (2022)	Eastern Tiger Swallowtail	*Papilio glaucus*						S5	G5	N4					
OBA (2022)	Black Swallowtail	*Papilio polyxenes*						S5	G5	N5					
OBA (2021)	Orange Sulphur	*Colias eurytheme*						S5	G5	N5B,N5M					
OBA (2022)	Clouded Sulphur	*Colias philodice*						S5	G5	N5					
OBA (2022)	Cabbage White	*Pieris rapae*						SNA	G5	NNA					
iNat (2018)	Banded Tussock Moth	*Halysidota tessellaris*						S5	G5	N5					
	AMPHIBANS														
iNat (2023), ORAA (2019)	American Toad	*Anaxyrus americanus*						S5	G5	N5					
ORAA (2019)	Gray Treefrog	*Hyla versicolor*						S5	G5	N5					
ORAA (2019)	Spring Peeper	*Pseudacris crucifer*						S5	G5	N5					
ORAA (2010)	Western Chorus Frog - Great Lakes / St. Lawrence - Canadian Shield Population	*Pseudacris triseriata pop. 2*	NL	NAR	THR	THR	Schedule 1	S4	G5TNR	N4					
ORAA (2017)	American Bullfrog	*Lithobates catesbeianus*						S4	G5	N5	✓				x
iNat (2023), ORAA (2017)	Green Frog	*Lithobates clamitans*						S5	G5	N5					
ORAA (1990)	Pickerel Frog	*Lithobates palustris*		NAR	NAR			S4	G5	N5					x
ORAA (2018)	Northern Leopard Frog	*Lithobates pipiens*		NAR	NAR			S5	G5	N5					
ORAA (2016)	Wood Frog	*Lithobates sylvaticus*						S5	G5	N5					
ORAA (2014)	Unisexual Ambystoma, Blue-spotted Salamander-dependent population	*Ambystoma (2) laterale - jeffersonianum*		NAR	NAR			S4		N4					x
ORAA (2014)	Blue-spotted Salamander	*Ambystoma laterale*						S4	G5	N5					x

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
ORAA (1988)	Eastern Red-backed Salamander	*Plethodon cinereus*						S5	G5	N5					
ORAA (1988)	Red-spotted Newt	*Notophthalmus viridescens viridescens*						S5	G5	N5					x
	SNAKES AND LIZARDS														
ORAA (2017)	DeKay's Brownsnake	*Storeria dekayi*		NAR	NAR			S5	G5T5	N5					x
ORAA (2011)	Red-bellied Snake	*Storeria occipitomaculata occipitomaculata*						S5	G5	N5					x
ORAA (2017)	Eastern Gartersnake	*Thamnophis sirtalis sirtalis*						S5	G5T5	N5					
	TURTLES														
ORAA (2019), NHIC	Snapping Turtle	*Chelydra serpentina*	NL		SC	SC	Schedule 1	S4	G5T5	N4					
ORAA (2019), NHIC	Midland Painted Turtle	*Chrysemys picta marginata*	NAR	NAR	SC	SC	Schedule 1	S4	G5T5	N4					
	BIRDS														
eBird (2019)	Cackling Goose	*Branta hutchinsii*						SUB,S4M	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	Canada Goose	*Branta canadensis*						S5	G5	N5B,N5N,N5M				CP	
eBird (2024)	Trumpeter Swan	*Cygnus buccinator*		NAR	NAR			S4	G4	N5B,N3N,N5M					x
eBird (2020)	Tundra Swan	*Cygnus columbianus*						S2B,S4N,S3M	G5	N5B,N3N,N5M					
OBBA, eBird (2024)	Wood Duck	*Aix sponsa*						S5B, S3N	G5	N5B,N4N5N,N5M					
eBird (2023)	American Wigeon	*Anas americana*						S4B,S4N,S5M	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Mallard	*Anas platyrhynchos*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	American Black Duck	*Anas rubripes*						S4	G5	N5B,N5N,N5M				CP	x
eBird (2024)	Northern Pintail	*Anas acuta*						S5B,S4N	G5	N5B,N5N,N5M	✓			CP	x
eBird (2023)	Ring-necked Duck	*Aythya collaris*						S5B,S4N	G5	N5B,N5N,N5M				CP	x
eBird (2014)	Greater Scaup	*Aythya marila*						S4B,S4N,S5M	G5	N5B,N5N,N5M					
eBird (2023)	Lesser Scaup	*Aythya affinis*						S4B,S4N,S5M	G5	N5B,N5N,N5M				CP	x
eBird (2014)	Long-tailed Duck	*Clangula hyemalis*						S3B,S5N	G5	N5B,N5N,N5M					
eBird (2023)	Bufflehead	*Bucephala albeola*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Common Goldeneye	*Bucephala clangula*						S5	G5	N5B,N5N,N5M	✓				
OBBA, eBird (2023)	Hooded Merganser	*Lophodytes cucullatus*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2024)	Common Merganser	*Mergus merganser*						S5	G5	N5B,N5N,N5M	✓				x
eBird (2015)	Red-breasted Merganser	*Mergus serrator*						S5	G5	N5B,N5N,N5M	✓			CP	x
OBBA	Ruddy Duck	*Oxyura jamaicensis*						S3B,S4N,S5M	G5	N5B,N5N,N5M					x
eBird (2020)	Wild Turkey	*Meleagris gallopavo*						S5	G5	N5					

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OBBA, eBird (2022)	Ruffed Grouse	*Bonasa umbellus*						S5	G5	N5				CP	
OBBA	Ring-necked Pheasant	*Phasianus colchicus*						SNA	G5	NNA					
OBBA	Pied-billed Grebe	*Podilymbus podiceps*						S4B,S2N	G5	N5B,N4N5N,N5M				CP	x
OBBA, eBird (2024)	Rock Pigeon	*Columba livia*						SNA	G5	NNA					
OBBA, eBird (2024)	Mourning Dove	*Zenaida macroura*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2021)	Black-billed Cuckoo	*Coccyzus erythropthalmus*						S4S5B	G5	N5B,N5M			✓	CP	x
eBird (2020)	Yellow-billed Cuckoo	*Coccyzus americanus*						S4B	G5	N4B,NUM					x
OBBA, eBird (2021)	Chimney Swift	*Chaetura pelagica*	THR		THR	THR	Schedule1	S3B	G4G5	N4BN3M			✓		x
OBBA, eBird (2020)	Ruby-throated Hummingbird	*Archilochus colubris*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Virginia Rail	*Rallus limicola*						S4S5B	G5	N5B,NUM,N5M				CP	
OBBA	Sora	*Porzana carolina*						S5B	G5	N5B,N5M				CP	x
OBBA	Common Gallinule	*Gallinula chloropus*						S3B	G5	N4N5B,N4N5M				CP	x
eBird (2023)	Sandhill Crane	*Grus canadensis*						S5B,S3N	G5	N5B,N1N,N5M	✓	>40ha			x
OBBA, eBird (2023)	Killdeer	*Charadrius vociferus*						S4B	G5	N5B,N4N5N,N5M					
OBBA, eBird (2018)	American Woodcock	*Scolopax minor*						S4B	G5	N5B,N5M				CP	
OBBA, eBird (2023)	Spotted Sandpiper	*Actitis macularius*						S5B	G5	N5B,N3N,N5M				CP	
eBird (2024)	Solitary Sandpiper	*Tringa solitaria*						S4B,S5M	G5	N5B,N5M					
eBird (2020)	Lesser Yellowlegs	*Tringa flavipes*	THR	THR	THR	NL		S3S4B,S5M	G5	N4N5B,N5M					
eBird (2021)	Greater Yellowlegs	*Tringa melanoleuca*						S4B,S5M	G5	N5B,N4N,N5M					
eBird (2023)	Ring-billed Gull	*Larus delawarensis*						S5	G5	N5B,N5N,N5M					x
eBird (2023)	Herring Gull	*Larus argentatus*						S4B,S5N	G5	N5B,N5N,N5M					x
eBird (2023)	Caspian Tern	*Hydroprogne caspia*		NAR	NAR			S3B,S5M	G5	N4B,N4M					x
eBird (2022)	Double-crested Cormorant	*Phalacrocorax auritus*		NAR	NAR			S5B,S4N	G5	N5M,N3N4N,N5M					x
OBBA	American Bittern	*Botaurus lentiginosus*						S5B	G5	N5B,N3N,N5M	✓			CP	x
OBBA, eBird (2023)	Great Blue Heron	*Ardea herodias*						S4	G5	N5B,N3N,N5M					x
eBird (2024)	Great Egret	*Ardea alba*						S2B,S3M	G5	N3B,N3M					x
OBBA, eBird (2021)	Green Heron	*Butorides virescens*						S4B	G5	N4N5B,N3N4N,N4N5M				CP	x
OBBA, eBird (2023)	Turkey Vulture	*Cathartes aura*						S5B, S3N	G5	N5B,N5M				CP	x
eBird (2023)	Osprey	*Pandion haliaetus*						S5B	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Northern Harrier	*Circus cyaneus*		NAR	NAR			S5B,S4N	G5	N5B,N4N	✓	>30ha	✓	CP	x

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OBBA, eBird (2024)	Sharp-shinned Hawk	*Accipiter striatus*		NAR				S5	G5	N5B,N5N,N5M	✓	>30ha		CP	x
eBird (2024)	Cooper's Hawk	*Accipiter cooperii*		NAR	NAR			S4	G5	N5B,N5N,N4N5M	✓	>10ha		CP	x
eBird (2024)	Bald Eagle	*Haliaeetus leucocephalus*	NAR	NAR	NAR			S4	G5	N5B,N5N,N5M	✓		✓		x
eBird (2023)	Red-shouldered Hawk	*Buteo lineatus*		NAR	NAR			S4B,S2N	G5	N4N5B,N4N5M	✓	>100ha	✓	CP	x
eBird (2021)	Broad-winged Hawk	*Buteo platypterus*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2024)	Red-tailed Hawk	*Buteo jamaicensis*		NAR	NAR			S5	G5	N5B,N5N,N5M					
eBird (2021)	Rough-legged Hawk	*Buteo lagopus*		NAR	NAR			S1B,S4N	G5	N5B,N5N,N5M					
OBBA	Eastern Screech-Owl	*Megascops asio*		NAR	NAR			S4	G5	N4N5					
OBBA, eBird (2022)	Great Horned Owl	*Bubo virginianus*						S4	G5	N5					
OBBA	Long-eared Owl	*Asio otus*						S4	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Belted Kingfisher	*Megaceryle alcyon*						S5B,S4N	G5	N5B,N4N5N,N5M			✓		x
NHIC	Red-headed Woodpecker	*Melanerpes erythrocephalus*	END		END	END	Schedule1	S3	G5	N4B,N3M			✓		x
OBBA, eBird (2023)	Red-bellied Woodpecker	*Melanerpes carolinus*						S5	G5	N4B,N4N,N3M				CP	x
OBBA, eBird (2024)	Downy Woodpecker	*Picoides pubescens*						S5	G5	N5					
OBBA, eBird (2023)	Hairy Woodpecker	*Picoides villosus*						S5	G5	N5B,N5N,NUM	✓	4-8ha			x
OBBA, eBird (2024)	Northern Flicker	*Colaptes auratus*						S5	G5	N5B,N5N,N5M			✓		x
OBBA	Pileated Woodpecker	*Dryocopus pileatus*						S5	G5	N5	✓	>40ha		CP	x
eBird (2024)	Merlin	*Falco columbarius*		NAR	NAR			S5	G5	N5B,N5N,N5M					x
NHIC	Peregrine Falcon	*Falco peregrinus*						S4	G4	N3N4B,N2N,N3N4M			✓		
OBBA, eBird (2023)	Great Crested Flycatcher	*Myiarchus crinitus*						S5B	G5	N5B,N5M					
OBBA, eBird (2023)	Eastern Kingbird	*Tyrannus tyrannus*						S4B	G5	N5B,N5M			✓	CP	x
OBBA, NHIC, eBird (2023)	Eastern Wood-Pewee	*Contopus virens*	SC		SC	SC	No Schedule	S4B	G5	N5B,N5M			✓		x
OBBA	Alder Flycatcher	*Empidonax alnorum*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2022)	Willow Flycatcher	*Empidonax traillii*						S4B	G5	N5B,N5M			✓		x
OBBA, eBird (2023)	Least Flycatcher	*Empidonax minimus*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2023)	Eastern Phoebe	*Sayornis phoebe*						S5B	G5	N5B,N5M				CP	
eBird (2020)	Blue-headed Vireo	*Vireo solitarius*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2022)	Warbling Vireo	*Vireo gilvus*						S5B	G5	N5B,N5M					
OBBA, eBird (2023)	Red-eyed Vireo	*Vireo olivaceus*						S5B	G5	N5B,N5N,N5M					

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OBBA, eBird (2024)	Blue Jay	*Cyanocitta cristata*						S5	G5	N5B,N5N,NNRM					
OBBA, eBird (2024)	American Crow	*Corvus brachyrhynchos*						S5	G5	N5B,N5N,N5M					
eBird (2023)	Common Raven	*Corvus corax*						S5	G5	N5					x
OBBA, eBird (2024)	Black-capped Chickadee	*Poecile atricapillus*						S5	G5	N5				CP	
OBBA, iNat (2021), eBird (2024)	Horned Lark	*Eremophila alpestris*						S4	G5	N5B,N5N,N5M				CP	
OBBA, eBird (2022)	Bank Swallow	*Riparia riparia*	THR		THR	THR	No Schedule	S4B	G5	N5B,N5M			✓	CP	x
OBBA, eBird (2023)	Tree Swallow	*Tachycineta bicolor*						S4S5B	G5	N5B,N5M					
OBBA, eBird (2022)	Northern Rough-winged Swallow	*Stelgidopteryx serripennis*						S4B	G5	N5B,N5M				CP	
OBBA, NHIC, eBird (2023)	Barn Swallow	*Hirundo rustica*	SC		THR	THR	No Schedule	S4B	G5	N3N4B,N3N4M				CP	
OBBA, eBird (2021)	Cliff Swallow	*Petrochelidon pyrrhonota*						S4S5B	G5	N5B,N5M				CP	x
eBird (2024)	Golden-crowned Kinglet	*Regulus satrapa*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2023)	Ruby-crowned Kinglet	*Corthylio calendula*						S5B,S3N	G5	N5B,N5N,N5M				CP	x
OBBA, eBird (2024)	Cedar Waxwing	*Bombycilla cedrorum*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	Red-breasted Nuthatch	*Sitta canadensis*						S5	G5	N5B,N5N,N5M	✓	>10ha		CP	x
OBBA, eBird (2024)	White-breasted Nuthatch	*Sitta carolinensis*						S5	G5	N5	✓	>10ha			
OBBA, eBird (2024)	Brown Creeper	*Certhia americana*						S5	G5	N5B,N5N,N5M	✓	>30ha		CP	x
OBBA	Blue-gray Gnatcatcher	*Polioptila caerulea*						S4B	G5	N4B,N4M	✓	>30ha		CP	x
OBBA, eBird (2023)	House Wren	*Troglodytes aedon*						S5B	G5	N5B,N5M					
OBBA, eBird (2024)	Winter Wren	*Troglodytes troglodytes*						S5B,S4N	G5	N5B,N5M	✓	>30ha			x
OBBA	Marsh Wren	*Cistothorus palustris*						S4B,S3N	G5	N5BN5N,N5M				CP	x
OBBA, eBird (2023)	Carolina Wren	*Thryothorus ludovicianus*						S4	G5	N4				CP	x
OBBA, eBird (2023)	Gray Catbird	*Dumetella carolinensis*						S5B,S3N	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Brown Thrasher	*Toxostoma rufum*						S4B	G5	N5B,NUN,N5M			✓	CP	x
OBBA, eBird (2024)	European Starling	*Sturnus vulgaris*						SNA	G5	NNA					
OBBA, eBird (2023)	Eastern Bluebird	*Sialia sialis*		NAR	NAR			S5B,S4N	G5	N5B,N5M				CP	
OBBA, eBird (2020)	Veery	*Catharus fuscescens*						S5B	G5	N5B,N5M	✓	>10ha		CP	x
eBird (2020)	Swainson's Thrush	*Catharus ustulatus*						S5B	G5	N5B,N5M					x

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OBBA, NHIC, eBird (2020)	Wood Thrush	*Hylocichla mustelina*	SC		THR	THR	No Schedule	S4B	G4	N4B,NUM			✓		x
OBBA, eBird (2024)	American Robin	*Turdus migratorius*						S5	G5	N5B,N4N5N,N5M					
OBBA, eBird (2023)	House Sparrow	*Passer domesticus*						SNA	G5	NNA					
eBird (2022)	Evening Grosbeak	*Coccothraustes vespertinus*	SC		SC	SC	No schedule	S4	G5	N4B,N4N,NUM					
OBBA, eBird (2023)	House Finch	*Carpodacus mexicanus*						SNA	G5	N5					
eBird (2023)	Purple Finch	*Carpodacus purpureus*						S5	G5	N5B,N5N,N5M				CP	
eBird (2021)	Common Redpoll	*Carduelis flammea*						S5	G5	N5B,N5N,N5M					
eBird (2021)	White-winged Crossbill	*Loxia leucoptera*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Pine Siskin	*Carduelis pinus*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	American Goldfinch	*Carduelis tristis*						S5	G5	N5B,N5N,N5M				CP	
iNat (2021), eBird (2023)	Snow Bunting	*Plectrophenax nivalis*						S4N	G5	N5B,N5N,N5M					
OBBA, NHIC	Grasshopper Sparrow	*Ammodramus savannarum*	SC		SC	SC	No Schedule	S4B	G5	N4N5B,N4N5M	✓	>10ha	✓	CP	x
OBBA, eBird (2023)	Chipping Sparrow	*Spizella passerina*						S5B,S3N	G5	N5B,N5M					
OBBA, eBird (2023)	Field Sparrow	*Spizella pusilla*						S4B,S3N	G5	N4B,NUM			✓	CP	x
eBird (2022)	Fox Sparrow	*Passerella iliaca*						S5B,S3N	G5	N5B,N4N5N,N5M					
eBird (2024)	American Tree Sparrow	*Spizella arborea*						S5	G5	N5B,N5N,N5M					
eBird (2024)	Dark-eyed Junco	*Junco hyemalis*						S5	G5	N5B,N5N,N5M				CP	x
eBird (2020)	White-crowned Sparrow	*Zonotrichia leucophrys*						S5B,S3N	G5	N5B,N5N,N5M					
OBBA, eBird (2024)	White-throated Sparrow	*Zonotrichia albicollis*						S5	G5	N5B,N5N,N5M				CP	
OBBA	Vesper Sparrow	*Pooecetes gramineus*						S4B	G5	N5B,N5M			✓	CP	x
OBBA, eBird (2023)	Savannah Sparrow	*Passerculus sandwichensis*						S5B,S3N	G5	N5B,N4N,N5M	✓	>50ha	✓	CP	x
OBBA, eBird (2024)	Song Sparrow	*Melospiza melodia*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2023)	Swamp Sparrow	*Melospiza georgiana*						S5B,S4N	G5	N5B,NUN,N5M				CP	
OBBA, eBird (2020)	Eastern Towhee	*Pipilo erythrophthalmus*						S4B,S3N	G5	N4N5B,N4M			✓	CP	x
OBBA, NHIC, eBird (2021)	Bobolink	*Dolichonyx oryzivorus*	THR		THR	THR	No Schedule	S4B	G5	N5B,N4N5M	✓	>10ha	✓	CP	x
OBBA, NHIC, eBird (2023)	Eastern Meadowlark	*Sturnella magna*	THR		THR	THR	No Schedule	S4B,S3N	G5	N4B,NUM	✓	>10ha	✓	CP	x
OBBA, eBird (2024)	Baltimore Oriole	*Icterus galbula*						S4B	G5	N5B,N5M			✓		x

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OBBA, eBird (2023)	Red-winged Blackbird	*Agelaius phoeniceus*						S5	G5	N5B,N5N,N5M					
OBBA, eBird (2023)	Brown-headed Cowbird	*Molothrus ater*						S5	G5	N5B,NUN,N5M					
eBird (2022)	Rusty Blackbird	*Euphagus carolinus*	SC		SC	SC	Schedule1	S4B,S3N	G4	N4B,NUN,N4M					
OBBA, eBird (2024)	Common Grackle	*Quiscalus quiscula*						S5	G5	N5B,NUN,N5M					
OBBA	Ovenbird	*Seiurus aurocapilla*						S5B	G5	N5B,N5M	✓	>70ha		CP	x
OBBA, eBird (2020)	Northern Waterthrush	*Seiurus noveboracensis*						S5B	G5	N5B,N5M					
NHIC	Golden-winged Warbler	*Vermivora chrysoptera*	NL		THR	THR	Schedule1	S3B	G4	N4B,NUM			✓	CP	x
eBird (2021)	Black-and-white Warbler	*Mniotilta varia*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
OBBA, eBird (2022)	Nashville Warbler	*Vermivora ruficapilla*						S5B	G5	N5B.N5M				CP	
OBBA	Mourning Warbler	*Oporornis philadelphia*						S5B	G5	N5B,N5M				CP	
OBBA, eBird (2023)	Common Yellowthroat	*Geothlypis trichas*						S5B,S3N	G5	N5B,N5M					
OBBA	American Redstart	*Setophaga ruticilla*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
eBird (2022)	Cape May Warbler	*Dendroica tigrina*						S5B	G5	N5B,N5M					
eBird (2023)	Magnolia Warbler	*Dendroica magnolia*						S5B	G5	N5B,N5M	✓	>30ha		CP	x
eBird (2020)	Bay-breasted Warbler	*Dendroica castanea*						S5B	G5	N5B,N5M					x
eBird (2020)	Blackburnian Warbler	*Dendroica fusca*						S5B	G5	N5B,N5M	✓	>50ha		CP	x
OBBA, eBird (2023)	Yellow Warbler	*Dendroica petechia*						S5B	G5	N5B,N5M					
OBBA, eBird (2020)	Chestnut-sided Warbler	*Dendroica pensylvanica*						S5B	G5	N5B,N5M				CP	
eBird (2020)	Black-throated Blue Warbler	*Dendroica caerulescens*						S5B	G5	N5B,N5M	✓	>100ha		CP	x
eBird (2021)	Western Palm Warbler	*Dendroica palmarum palmarum*						S5B	G5T5	N5B					
OBBA, eBird (2021)	Pine Warbler	*Dendroica pinus*						S5B,S3N	G5	N5B,N5M	✓	15-30ha		CP	x
OBBA,eBird (2023)	Yellow-rumped Warbler	*Dendroica coronata*						S5B,S4N	G5	N5B,N4N,N5M				CP	
eBird (2021)	Black-throated Green Warbler	*Dendroica virens*						S5B	G5	N5B,N5M	✓	>30ha			x
eBird (2024)	Wilson's Warbler	*Wilsonia pusilla*						S5B	G5	N5B,N5M					
OBBA, eBird (2020)	Scarlet Tanager	*Piranga olivacea*						S5B	G5	N5B,N4N5M	✓	>20ha		CP	x
OBBA, eBird (2024)	Northern Cardinal	*Cardinalis cardinalis*						S5	G5	N5					
OBBA, eBird (2023)	Rose-breasted Grosbeak	*Pheucticus ludovicianus*						S5B	G5	N5B,N5M			✓		x
OBBA, eBird (2023)	Indigo Bunting	*Passerina cyanea*						S5B	G5	N5B,N5M					
eBird (2021)	Northern Shrike	*Lanius borealis*						S4B,S5N	G5	N5B,N5N					
eBird (2014)	White-winged Scoter	*Melanitta deglandi*						S4B,S5N	G5	N5B,N5N					

SOURCE	COMMON NAME	SCIENTIFIC NAME	COSSARO[1]	PSO[2]	COSEWIC[3]	SARA[4]	SCHEDULE	S-RANK[5]	G-RANK[6]	N-RANK[7]	AREA SENSITIVE[8]	AREA REQUIRED[8]	PIF SPECIES[9]	GRCA (date unk.)	WELLINGTON COUNTY (Dougan & Associates,2009)
	MAMMALS														
OMA	White-tailed Deer	*Odocoileus virginianus*						S5	G5	N5					
OMA	Coyote	*Canis latrans*						S5	G5	N5					
OMA	Red Fox	*Vulpes vulpes*						S5	G5	N5					
OMA	Striped Skunk	*Mephitis mephitis*						S5	G5	N5					
OMA	American Mink	*Neovison vison*						S4	G5	N5					
OMA	Northern Raccoon	*Procyon lotor*						S5	G5	N5					
OMA	Big Brown Bat	*Eptesicus fuscus*						S4	G5	N5					
OMA	Little Brown Myotis	*Myotis lucifugus*		END	END	END	Schedule 1	S3	G3G4	N2N4B,NNRN,NNRM					x
OMA	Virginia Opossum	*Didelphis virginiana*						S4	G5	N4N5					
OMA	Eastern Cottontail	*Sylvilagus floridanus*						S5	G5	N5					
OMA	Beaver	*Castor canadensis*						S5	G5	N5					
OMA	Muskrat	*Ondatra zibethicus*						S5	G5	N5					
OMA	Norway Rat	*Rattus norvegicus*						SNA	G5	NNA					
OMA	Woodchuck	*Marmota monax*						S5	G5	N5					
OMA	Eastern Gray Squirrel	*Sciurus carolinensis*						S5	G5	N5					
OMA	Eastern Chipmunk	*Tamias striatus*						S5	G5	N5					
OMA	Red Squirrel	*Tamiasciurus hudsonicus*						S5	G5	N5					
	FISH														
ARA (2018)	Western Blacknose Dace	*Rhinichthys obtusus*						S5	G5	N5					
ARA (2018)	Creek Chub	*Semotilus atromaculatus*						S5	G5	N5					
ARA (unk.)	Brook Stickleback	*Culaea inconstans*						S5	G5	N5					
ARA (2018)	Brook Trout	*Salvelinus fontinalis fontinalis*						S5	G5T5	N5					
	ARACHNIDS														
iNat (2022)	Yellow Garden Spider	*Argiope aurantia*						S5	G5	N5					

Legend:

COSSARO: Committee on Species at Risk Ontario
COSEWIC: Committee on the Status of Endangered Wildlife in Canada
SARA: Species at Risk Act
SCA: Species Conservation Act
END: Endangered
THR: Threatened
SC: Special Concern
NAR: Not At Risk
NL: Not listed
DD: Data Deficient

N- and S-Rank:

S1: Critically Imperiled—Critically imperiled in the jurisdiction (often 5 or fewer occurrences)
S2: Imperiled—Imperiled in the jurisdiction, very few populations (often 20 or fewer),
S3: Vulnerable—Vulnerable in the jurisdiction, relatively few populations (often 80 or fewer)
S4: Apparently Secure—Uncommon but not rare
S5: Secure—Common, widespread, and abundant in the jurisdiction
SX: Presumed Extirpated
SH: Possibly Extirpated (Historical)
SNR: Unranked
SU: Unrankable—Currently unrankable due to lack of information
SNA: Not Applicable—The species is not a suitable target for conservation activities
S#S#: Range Rank—Indicates a range of uncertainty about the status of the species
S#B- Breeding Status Rank
S#N- Non Breeding Status Rank
?: Indicates uncertainty in the assigned rank

G-Rank:

G1: Extremely rare globally
G1G2: Extremely rare to very rare globally
G2: Very rare globally
G2G3: Very rare to uncommon globally
G3: Rare to uncommon globally
G3G4: Rare to common globally
G4: Common globally
G4G5: Common to very common globally
G5: Very common globally; demonstrably secure
T: Denotes that the rank applies to a subspecies or variety

Source Codes

OBA: Ontario Butterfly Atlas
ORAA: Ontario Reptile and Amphibian Atlas
OMA: Ontario Mammal Atlas
OBBA: Ontario Breeding Bird Atlas
eBird: eBird
ARA: Aquatic Resource Area Survey Points
DFO: Department of Fisheries and Oceans Species at Risk Mapping
iNat: iNaturalist
NHIC: Natural Heritage Information Centre

References:

1. COSSARO Status Endangered Species Act, 2007 (Bill 184). Schedules 1- 5. January 25, 2023.
2. Protected Species in Ontario List. Species Conservation Act, 2025 (Ontario Regulation 60/26). March 30, 2026.
3. COSEWIC Status COSEWIC. 2014. Canadian Species at Risk. Committee on the Status of Endangered Wildlife in Canada. January 25, 2023.
4. Species Conservation Act, 2025. March 30, 2026.
5. Provincial Rarity Rank. NatureServe. 2023.
6. Global Rarity Rank. NatureServe. 2023.
7. National Rank. NatureServe. 2023.
8. Significant Wildlife Habitat Technical Guide. Ontario Ministry of Natural Resources. 2000. Appendix C: A list of area sensitive species and key references.
9. Ontario Partners in Flight (PIF). 2008. Ontario Landbird Conservation Plan: Lower Great Lakes/St. Lawrence Plain (North American Bird Conservation Region 13), Priorities, Objectives and Recommended Actions. Environment Canada (Ontario Region) and Ontario Ministry of Natural Resources. Final Draft, November, 2008.
10. GRCA. date unk. A Checklist of Birds in the Grand River Watershed.

11.Dougan & Associates, with Sneil & Cecile Environmental Research. 2009. List of Significant Wildlife in Wellington County; In City of Guelph Natural Heritage Strategy - Phase 2: Terrestrial Inventory & Natural Heritage System (VOL. 2 – APPENDICES). Final Report March 2009.

APPENDIX 10
Agency Communication

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects

3-5 Edinburgh Road South
Guelph . Ontario
N1H 5N8

T: 519.822.6839
info@aboudtng.com
www.aboudtng.com

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EDGE MANAGEMENT PLANS
RAVINE STEWARDSHIP PLANS
NATURALIZATION PLANS
INTERPRETIVE DESIGN
MONITORING
CONTRACT ADMINISTRATION

ENVIRONMENTAL STUDIES
SUBWATERSHED STUDIES
ENVIRONMENTAL IMPACT STATEMENTS
ECOLOGICAL LAND CLASSIFICATION
WETLAND EVALUATION
VEGETATION ASSESSMENT
BOTANICAL INVENTORIES
WILDLIFE SURVEYS
MONITORING

LANDSCAPE ARCHITECTURE
MASTER PLANNING
RESIDENTIAL COMMUNITIES
COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 8, 2024

Our Project #: AA23-105A
Sent by email: SAROntario@ontario.ca

Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section, Species at Risk Branch

Re: Blatchford Bridge, Wellington County, ON
Request for Species at Risk and Local Site Information

To whom it may concern:

Please accept this request for Information regarding Species at Risk.

Any other possible site constraints or information would also be greatly appreciated, as it applies to the rehabilitation or replacement of Blatchford Bridge in the County of Wellington (*Figure 1*). The information provided will be used to inform the field work and the Natural Environment Assessment report.

Project Location

Town/City: Township of Guelph-Eramosa

County/Region: Wellington County

UTM Coordinates: 558057.77 E 4814841.53 N

Proposed Activity

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA.

Existing Site Conditions

The subject lands and study area contains woodlands, wetlands, residential properties, and industrial properties (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. Preliminary investigation through the Natural Heritage Information Centre (NHIC 2021) identified SAR records in the 1 km x 1 km square containing the study area (17NJ5814), and the squares surrounding the study area (17NJ5713, 17NJ5714, 17NJ5715, 17NJ5914, 17NJ5915, 17NJ5815, 17NJ5813, and 17NJ5913). Thirteen SAR listed under the ESA and/or SARA, respectively, were identified: Barn Swallow (*Hirundo rustica*; SC, THR), Bobolink (*Dolichonyx oryzivorus*; THR, THR), Eastern Meadowlark (*Sturnella magna*; THR, THR), Eastern Wood-pewee (*Contopus virens*; SC, SC), Grasshopper Sparrow (*Ammodramus savannarum*; SC, SC), Golden-winged Warbler (*Vermivora chrysoptera*; SC, THR), Peregrine Falcon (*Falco peregrinus*; SC, SC), Red-headed Woodpecker (*Melanerpes erythrocephalus*; END, END), Wood Thrush (*Hylocichla mustelina*; SC, THR), American Burying Beetle (*Nicrophorus americanus*; EXP, EXP), Midland Painted Turtle (*Chrysemys picta marginata*; NL, SC), Snapping Turtle (*Chelydra serpentina*; SC, SC), and Butternut (*Juglans cineara*; END, END). It should be noted that American Burying Beetle is presumed extirpated in the province.

2. A list of birds determined to be present in the 10 km x 10 km square containing the study area (17NJ51) during the 2001-2005 Ontario Breeding Bird Atlas (Cadman et. al. 2007) was compiled. This list includes 103 species; 8 of which are considered SAR under the ESA and/or SARA, respectively: Barn Swallow, Bobolink, Eastern Meadowlark, Eastern Wood-pewee, Grasshopper Sparrow, Wood Thrush, Bank Swallow (*Riparia riparia*; THR, THR), and Chimney Swift (*Chaetura pleagica*; THR, THR).

3. Review of the Ontario Reptile and Amphibian Atlas (Ontario Nature 2019) identified 21 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51). This list includes three species which are considered SAR under the ESA and/or SARA respectively: Midland Painted Turtle, Snapping Turtle, and Western Chorus Frog (Great Lakes / St. Lawrence-Canadian Shield Population; *Pseudacris triseriata* pop. 2; NAR, THR).

4. Review of the Atlas of the Mammals of Ontario (Dobbyn 1994) identified 17 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Little Brown Myotis (*Myotis lucifugus*; END, END). It should be noted that other species of SAR bats could occur anywhere in Ontario.

5. Review of the Ontario Butterfly Atlas online database (Toronto Entomologists' Association, 2019) identified 41 species that are known to occur or have historically occurred within the 10 km x 10 km square containing the study area (17NJ51), including one SAR: Monarch (*Danaus plexippus*; SC, SC).

6. eBird is an online reporting system for birdwatchers managed by the Cornell Lab of Ornithology. The database was reviewed to see what bird species had been reported in the vicinity of the subject property. It should be noted that eBird observations occur year-round, and may include non-breeding, wintering and migratory individuals. The closest reporting location is Speed River Trail-Wellington Rd 32 west towards Hespeler, approximately 275 m southwest of the bridge. One-hundred-and-forty-four species have been observed at this site. This list includes ten SAR listed under the ESA and/or SARA: Bank Swallow, Barn Swallow, Bobolink, Chimney Swift, Eastern Meadowlark, Eastern Wood-pewee, Wood Thrush, Evening Grosbeak (*Coccothraustes vespertinus*; SC, SC), Lesser Yellowlegs (*Tringa flavipes*; THR, NL) and Rusty Blackbird (*Euphagus carolinus*, SC, SC).

7. iNaturalist, another self-reporting system that is not limited by taxa, was also consulted. The search was limited to a 1 km radius from the centre of the study area and only research grade reports, which are confirmed independently, were used to compile the list. Nine wildlife species and three vascular plant and fungi species were identified in the search radius, none of which are SAR.

8. The online Fisheries and Oceans Canada (DFO) mapping system was consulted in the background review. A review for SAR Critical Habitat and species presence was completed in a 1 km radius around the subject lands. No SAR presence or potential presence, and no critical habitat for any SAR was identified.

9. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping indicated the presence of four fish species within a 1 km radius of the bridge, none of which are SAR.

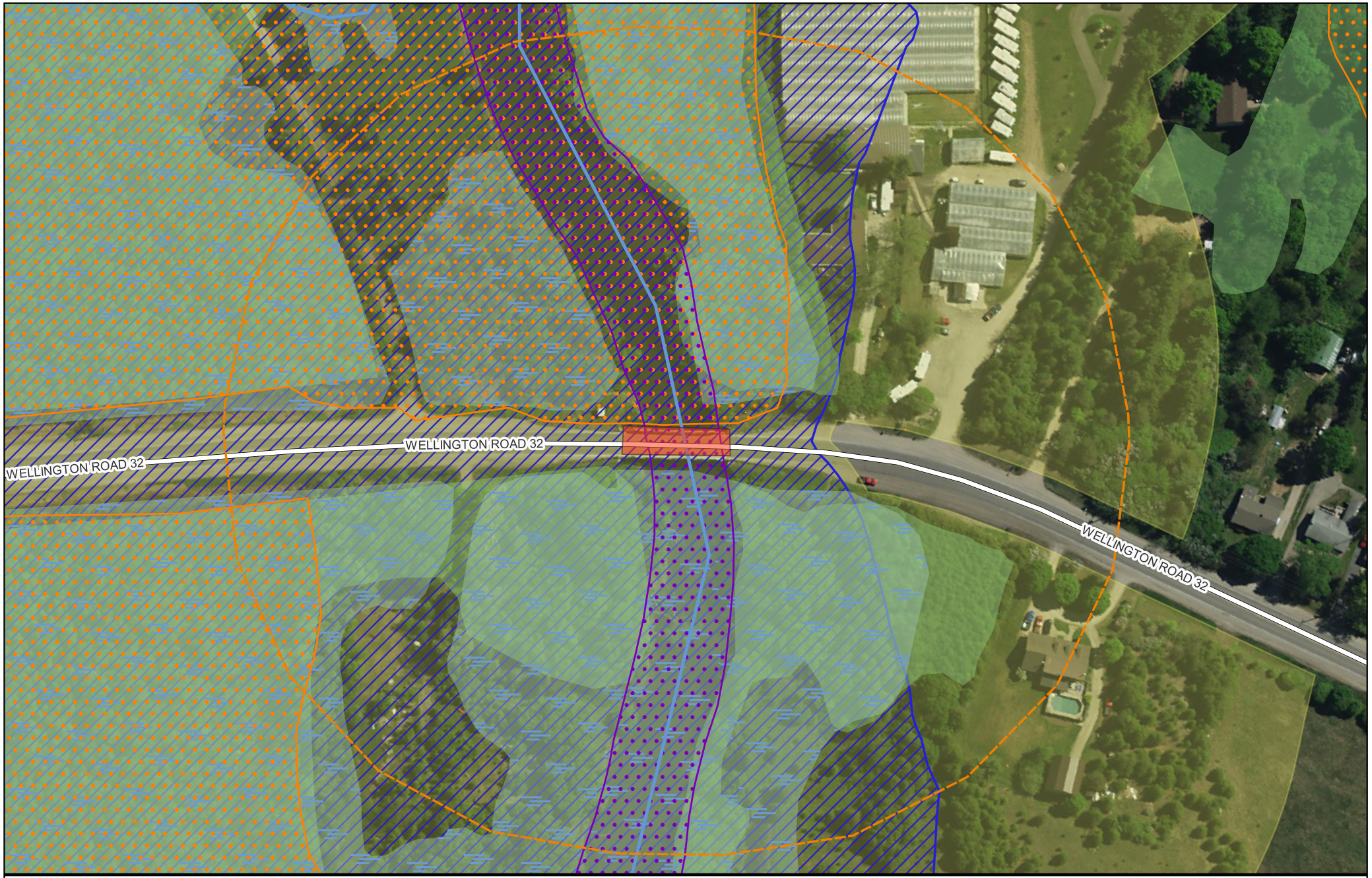
Please contact the undersigned should you require additional information of the above.
Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

ABOUD & ASSOCIATES INC.
Consulting Arborists • Ecologists • Landscape Architects
3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8 . 519.822.6839 . www.aboudtng.com

Figure No: 1

Heather Dixon

From: Heather Dixon
Sent: Thursday, May 9, 2024 3:07 PM
To: NHIC-Requests (MNRF)
Cc: Cheryl-Anne Ross
Subject: RE: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Good afternoon,

We are not looking for sensitive data, but for records of any SAR that have not been added to the NHIC Make-A-Map for these squares yet. We do not need exact locations or anything beyond what would be published on the Make-a-Map. MECP used to provide this service, but does not seem to any more.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

From: NHIC-Requests (MNRF) <nhicrequests@ontario.ca>
Sent: Thursday, May 9, 2024 8:00 AM
To: Heather Dixon <Heather@aboudtng.com>
Subject: Re: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Caution. Outside Sender

Good morning Heather,

We were forwarded this message for a request for SAR data - if you are interested in getting medium sensitive NHIC data, please fill out the NHIC's data access request form.

Kind regards,

Matthew, NHIC Information Officer

From: Species at Risk (MECP) <SAROntario@ontario.ca>
Sent: Wednesday, May 8, 2024 7:23 PM
To: NHIC-Requests (MNRF) <nhicrequests@ontario.ca>
Subject: FW: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Hello,

Please find the following request for SAR information sent to the SAR inbox.

SAR Ontario

From: Heather Dixon <Heather@aboudtng.com>
Sent: May 8, 2024 3:01 PM
To: Species at Risk (MECP) <SAROntario@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: FW: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

I am following up on the attached request for SAR information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Please contact me if you have any questions. We appreciate your prompt response to our request.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

From: Heather Dixon
Sent: Friday, March 8, 2024 4:19 PM
To: 'Species at Risk (MECP)' <SAROntario@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: Request for SAR Information for Blatchford Bridge, Township of Guelph-Eramosa, ON (AA23-105A)

Good afternoon,

Please accept the attached request for SAR information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Please contact me if you have any questions. We appreciate your prompt response to our request.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

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VEGETATION ASSESSMENT
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COMMERCIAL/INDUSTRIAL
HEALTHCARE AND EDUCATION
STREETSCAPES
PARKS AND OPEN SPACES
TRAIL SYSTEMS
GREEN ROOFS
CONTRACT ADMINISTRATION

EXPERT OPINION
OMB TESTIMONY
LEGAL PROCEEDINGS
PEER REVIEW
RESEARCH
EDUCATION

March 8, 2024

Our Project #: AA23-105A
Sent by email: scp.guelph@ontario.ca

Ministry of Natural Resources and Forestry
Aylmer Guelph District
1 Stone Road West,
Guelph, ON N1G 4Y2

Re: Blatchford Bridge, Township of Guelph-Eramosa, ON
Request for Local Site Information

Dear MNRF Staff,

Please accept this request for Information regarding:
☒ Wetland Mapping and/or Evaluation and Data Records
☒ Fish Dot Information
☐ ANSI Mapping and/or check-sheet

Any other possible site constraints or information would also be greatly appreciated, as it applies to a bridge rehabilitation in the Township of Guelph-Eramosa, ON (*Figure 1*), including timing windows and thermal regime. The information provided will be used to inform the field program.

Project Location

Town/City: Township of Guelph-Eramosa

County/Region: Wellington County

UTM Coordinates: 558057.77 E 4814841.53 N

Proposed Proposed Activity

The County of Wellington is proposing the rehabilitation or replacement of the Blatchford Bridge on Wellington Road 32, south of County Road 124. As a result, they require a Schedule B Municipal Class EA. As part of the Municipal Class EA, the County requires the completion of a Natural Environment Assessment Report (NEA) to characterize the natural environment and propose reasonable measures to mitigate any potential impacts that may arise through the EA process and determine any mitigation requirements based on the options and outcome of the EA.

Existing Site Conditions

The subject lands and study area contains woodlands, wetlands, residential properties, and industrial properties (*Figure 1*).

Background Information

A thorough background search has been completed; using available resources provided online related to the subject lands and adjacent lands and is listed below:

1. A review of the Land Information Ontario mapping (2007) indicates that the Provincially Significant Speed River Wetland Complex, a White-tailed Deer Wintering Area (Stratum 2), and a Waterfowl Winter Concentration Area are present in the study area.

2. The Aquatic Resources Area (ARA) Survey Point and Line Segment mapping indicated the presence of four species of fish within 1 km of the study area.

3. A review of the Grand River Conservation Authority mapping indicates the presence of engineered floodplain and regulated area.

Please contact the undersigned should you require additional information of the above.

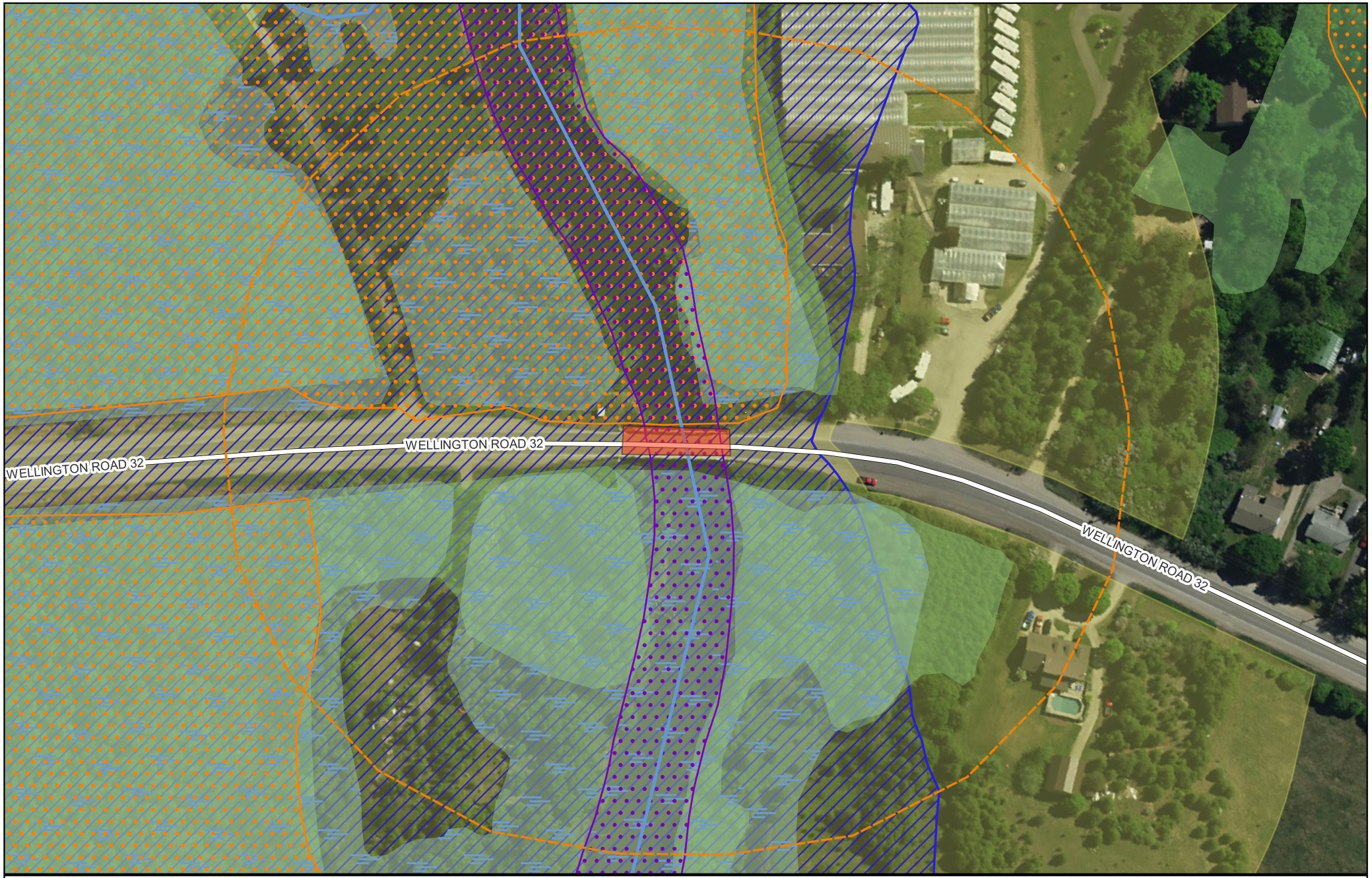
Yours truly,

ABOUD & ASSOCIATES INC.



Heather Dixon, PhD
Aquatic Ecologist
heather@aboudtng.com

Attachment: Figure 1



LEGEND

- BRIDGE
- STUDY AREA
- SPEED RIVER
- WOODLANDS
- SPEED RIVER WETLAND COMPLEX PSW
- ENGINEERED FLOODPLAIN
- GRCA REGULATED AREA
- WATERFOWL WINTER CONCENTRATION AREA
- WHITE-TAILED DEER WINTERING AREA

Information Sources:

1. Orthophotography provided by First Base Solutions. Accessed March 2024.
2. Woodlands, wetlands, and roads provided by LIO Open Data. Accessed March 2024.

Title:

STUDY AREA

Project:

BLATCHFORD BRIDGE
GUELPH-ERAMOSA, ON

Date: MARCH 2024
Project: AA23-105A
Scale: 1 : 1500

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Figure No: 1

Heather Dixon

From: Denyes, David (MNRF) <David.Denyes@ontario.ca>
Sent: Monday, March 11, 2024 11:45 AM
To: Heather Dixon
Cc: Cheryl-Anne Ross; Scientific Collection Permits Guelph (MNRF)
Subject: RE: Request for Information-Proposed Bridge Rehabilitation, Blatchford Bridge, Township of Guelph-Eramosa ON (AA23-105A)
Attachments: Speed River Wetland.pdf

Caution. Outside Sender

Hello Heather,

Thank you for your request for information on natural heritage features.

Absence or lack of information for a given geographic area does not necessarily mean the absence of natural heritage features. Many areas in Ontario have never been surveyed and new plant and animal species records are still being discovered for many localities. In addition, new species may be listed and new natural heritage features may be defined over time. For these reasons, the Ministry cannot provide a definitive statement on the presence, absence or condition of natural heritage features in all parts of Ontario.

At this time, the Ministry has the following information for your project location.

1. Speed River
    a. Warm water thermal regime in this reach
    b. Restricted in-water work timing window: March 15th to June 30th (Note: Dates represent when in-water work should be avoided)
    c. Species (from ARA layer): Blackside Darter, Bluntnose Minnow, Brook Stickleback, Brown Bullhead, Common Shiner, Greenside Darter, Johnny Darter x Tesselated Darter, Smallmouth Bass and White Sucker
    d. Comments- confirmed or probable seasonal or permanent use by Northern Pike
2. Waterfowl Winter Concentration Area in this section of the Speed River
3. White-tailed Deer Wintering Area (Stratum II)
4. Speed River Provincially Significant Wetland Complex (evaluation attached)

The Ministry of Environment, Conservation & Parks (MECP) is responsible for Species at Risk in Ontario. Any questions about Species at Risk or the Endangered Species Act can be directed to MECP staff at SAROntario@ontario.ca.

Regards,

David

David Denyes
Management Biologist | Aylmer, Guelph District
Ministry of Natural Resources and Forestry | Ontario Public Service
289-241-6872 | david.denyes@ontario.ca

4890 Victoria Ave North
Vineland ON L0R 2E0

Ontario

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---

From: Heather Dixon <Heather@aboudtng.com>
Sent: Friday, March 8, 2024 4:22 PM
To: Scientific Collection Permits Guelph (MNRF) <scp.guelph@ontario.ca>
Cc: Cheryl-Anne Ross <Cheryl@aboudtng.com>
Subject: Request for Information-Proposed Bridge Rehabilitation, Blatchford Bridge, Township of Guelph-Eramosa ON (AA23-105A)

CAUTION -- EXTERNAL E-MAIL - Do not click links or open attachments unless you recognize the sender.

Good afternoon,

Please see the attached request for information in regards to wetland, fish dot, and restricted in-water timing window information for the proposed rehabilitation or replacement of Blatchford Bridge, Township of Guelph-Eramosa, ON. Thank you for any additional information you can provide.

Many thanks,

Heather Dixon, PhD (she/her) . Aquatic Ecologist
ABOUD & ASSOCIATES INC. 3-5 Edinburgh Road South . Guelph . Ontario . N1H 5N8
519.781.1581 www.aboudtng.com . heather@aboudtng.com

Aboud & Associates Inc. is located within the Between the Lakes Purchase (Treaty 3); the treaty lands and territory of the Mississaugas of the Credit.

APPENDIX 11
Site Photos





Photos showing rock protection under the bridge, and erosion on the downstream south bank by the bridge



Photo showing cobble/boulder bar just upstream of the bridge





Photos showing representative habitat downstream (left) and upstream (right) of the bridge

APPENDIX 12
Mitigation

ACTIVITY	PROJECT PHASE	POTENTIAL IMPACTS	INITIAL IMPACT RATING[1,3]	MITIGATION RECOMMENDATIONS/COMMENTS	FINAL IMPACT RATING[2,3]	PROPOSED IMPLEMENTATION PHASE	MONITORING/ FOLLOW-UP RECOMENDATIONS
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Loss of vegetation and wildlife habitat	Minor	▪ Avoidance of significant wildlife habitat ▪ Implicate design to avoid or minimize loss of vegetation and edge habitat. ▪ Implement compensation plan where possible, using native tree, shrub, and vegetative species.	Minor-None	Site Preparation and Servicing, Construction,	
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Disturbance of wildlife species	Minor-None	▪ Avoid removal or destruction of animal movement corridors. ▪ Time activities to avoid wildlife disturbance during important life stages. ▪ Implement ESC plan such that it excludes wildlife from within the work site.	None	Site Preparation and Servicing, Construction	
Vegetation Removal – Clearing & Grubbing *Upland Area*	Site Preparation and Servicing	Impacts to nesting birds protected under the Migratory Bird Convention Act	Moderate	▪ Net off the structure prior to April 1 to prevent Barn Swallow nesting. ▪ Complete all vegetation removal outside the Environment Canada breeding bird nesting window (April 1- August 31) ▪ Where vegetation removal must occur during the nesting window, conduct a bird nest survey to determine locations of active nests prior to construction works including installation of Erosion Sediment Control (ESC) fence and any site clearing. ▪ Create nest protection zones where active bird nests are found.	None	Site Preparation and Servicing, Construction, Post Construction	Monitor active nests (as needed, e.g., weekly) until inactive.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Loss of shade, resulting in increased water temperatures	Moderate-Minor	▪ Maintain or restore riparian vegetation where possible	Minor	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.

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Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Bank erosion and sedimentation during rainfall events	Minor	• Implement ESC plan as per GGH erosion and sediment guidelines • Stabilize banks where necessary, prior to construction	None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Reduced vegetation and insect inputs to waterbody	Minor	• Plant appropriate native species, using local stock	Minor-None	Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Disturbance to riparian species	Moderate-Minor	• Maintain or restore riparian vegetation where possible	Minor	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Loss of fish spawning habitat	Moderate-Minor	• Maintain important wildlife areas • Maintain fish passage through creek • Performing work outside of the restricted in-water timing windows.	None	Construction	
Vegetation Removal – Clearing & Grubbing *Shoreline/ Riparian Areas*	Site Preparation and Servicing	Changes in temperature regime for fish species	Moderate-Minor	• Maintain or restore riparian vegetation and buffers where possible	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Vegetation Removal – Clearing & Grubbing *Wetland Areas*	Site Preparation and Servicing	Increased erosion, sedimentation into wetland	Moderate	• Develop & implement ESC plan	None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair.

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Grading	Site Preparation and Servicing	Increased erosion, sedimentation, and turbidity	Moderate	▪ Maintain or restore vegetative buffers ▪ Develop & implement an ESC Plan as per GGH erosion and sediment guidelines	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Grading	Site Preparation and Servicing	Increase nutrient inputs and contaminants to waterbodies and wetlands	Moderate	▪ Develop & implement ESC Plan per GGH Erosion and Sediment guidelines (TRCA, 2019) ▪ Designate areas for equipment storage.	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Grading	Site Preparation and Servicing	Increased soil compaction	Moderate	▪ Control access and movement of equipment and people	Minor	Site Preparation and Servicing, Construction, Post Construction	
Grading	Site Preparation and Servicing	Changes to drainage	Minor	▪ Schedule grading to avoid high runoff volumes. ▪ Minimize changes to land contours and natural drainage	None	Construction	
Grading	Site Preparation and Servicing	Changes to surface runoff	Minor	▪ Maintain streams and timing, quantity of flows.	None	Construction	
Grading	Site Preparation and Servicing	Changes in soil moisture, tree cover and vegetation	Moderate	▪ Minimize the area and duration of soil exposure	Minor	Construction	
Grading	Site Preparation and Servicing	Disturbance to wildlife	Minor	▪ Time activities and conduct work outside timing windows of sensitive species and avoid sensitive periods (breeding birds, fish spawning)	Minor-None	Site Preparation and Servicing, Construction	
Grading	Site Preparation and Servicing	Alteration or destruction of wildlife habitat	Minor	▪ Identify sensitive species prior to work and design grading to avoid disturbing sensitive species.	Minor-None	Site Preparation and Servicing, Construction	

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Grading	Site Preparation and Servicing	Wildlife entering construction areas	Minor	• Develop & implement ESC plan to exclude wildlife	Minor-None	Site Preparation and Servicing, Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Roads – Water Crossings	Construction	Increased erosion, sedimentation, and turbidity	Moderate-Minor	• Develop and implement sediment and erosion control plan	Minor-None	Site Preparation and Servicing, Construction, Post Construction	Monitor ESC fence weekly, and after a major storm event for any breaks, and repair
Roads – Water Crossings	Construction	Loss of riparian vegetation	Moderate	• Re-vegetate as soon as possible	Minor	Post Construction	Monitor restoration areas annually (or per landscape documents/permitting requirements) until established.
Roads – Water Crossings	Construction	Linkage interruption along watercourse	Minor	• Extend bridges beyond shoreline to allow land-based wildlife passage	None	Construction	

LEGEND:

[1] *Initial Impact* is a relative rating of the expected impact to occur in the absence of any mitigation measures. It evaluates the impact based on the duration, reversibility, extend of influence, frequency, existing ecological site context, likelihood of occurring and cumulative effects.

[2] *Actual Impact* is the expected impact in consideration of implementation of mitigation measures or where potential impact may cause little to no actual impact.

[3] *Impact Rating*

None: An event that, if it occurs, will cause no foreseeable impact.
Minor: An event that, if it occurs, will cause small, reversible, and geographically localized impact that can be easily mitigated.
Moderate: Significant but reversible, OR irreversible and geographically localized, impact that requires significant mitigation.
Severe: Significant AND irreversible impact on the environment, impacts cannot be fully mitigated.

- Urban Forestry
- Ecological Restoration
- Landscape Architecture
- Environmental Studies
- Expert Opinion

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