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Memorandum

Subject: **Terrestrial Ecosystems Existing Conditions Memorandum (30% Design)
Highway 400 - Highway 404 Link (Bradford Bypass) County Road 4 Advance Works (GWP
2008-21-00), Ontario Ministry of Transportation**

1. Introduction

The Ontario Ministry of Transportation (the Ministry) has retained AECOM Canada Ltd. (AECOM) to undertake a Preliminary Design and Environmental Assessment study for the new County Road 4 bridge over the future Highway 400 – Highway 404 Link (Bradford Bypass). The Study Area is located in the Town of Bradford West Gwillimbury and Simcoe County (see key plan). This study will advance as an early works contract package for the Bradford Bypass Project. The new bridge will be designed to include the widening of County Road 4 approved by Simcoe County.

The County Road 4 early works is being undertaken in accordance with Ontario Regulation 697/21: Bradford Bypass Project, under the *Environmental Assessment Act*. The Project Team will review and carry forward previous environmental commitments made during the previous 2002 Route Planning and Environmental Assessment Study, commitments made during the Simcoe County Road 4 Widening Environmental Assessment study, as well as assess any new impacts and prescribe new mitigation measures to be carried forward to further design and construction.

The intent of this memorandum is to provide a brief overview of the terrestrial ecosystem existing conditions found within the Study Area to inform the Detail Design.

2. Terrestrial Existing Conditions

2.1 Background Review

A background review was completed to obtain information on known natural heritage features and species records, including Species at Risk (SAR) and Species of Conservation Concern (SOCC) within the Study

Area. Results of the background information review are discussed as part of **Section 2** below. Background information was obtained from the following sources:

- Ministry of Natural Resources and Forestry (MNRF) – Natural Heritage Information Centre (NHIC) Make a Map feature (2021);
- Ontario Breeding Bird Atlas (OBBA) Point Count Records (BSC, 2006);
- Ontario Reptile and Amphibian Atlas (ORAA; Ontario Nature, 2019);
- Ontario Butterfly Atlas (TEA, 2019);
- Bat Conservation International Species Profiles and Range Maps (BCI, 2021);
- *Widening of County Road 4 From the 8th Line to Just North of the Intersection with County Road 89 Report. Prepared for the County of Simcoe* (Ainley & Associates, 2012);
- *Terrestrial Existing Conditions Report: Highway 400 – Highway 404 Link (Bradford Bypass)* (AECOM, 2020).
- The Town of Bradford West Gwillimbury Official Plan (2021);
- Simcoe County Official Plan (2013);
- MECP Information Request Response; and,
- Aerial photography.

An information request was sent to the Ministry of Environment Conservation and Parks (MECP), MNRF, Lake Simcoe Region Conservation Authority (LSCRA) and the Nottawasaga Valley Conservation Authority (NVCA) in order to prepare the *Terrestrial Existing Conditions Report: Highway 400 – Highway 404 Link (Bradford Bypass)* (AECOM, 2020). As the County Road 4 Study Area is encompassed by the Bradford Bypass Study Area; the agency correspondence provided therein also applies to this project.

2.2 Vegetation Communities and Flora

2.2.1 Background

Background information was reviewed to identify records of rare vegetation communities, species at risk (SAR) and Species of Conservation Concern plants within the vicinity of the Study Area as outlined in **Section 2.1**. No rare vegetation communities were identified within the vicinity of the Study Area during the background review process. Records of one plant SAR, butternut (*Juglans cinerea*), was identified within the vicinity of the Study Area through a review of the MNRF's make-a-map: NHIC) records (2021). Additionally, 16 butternut were observed within the large naturalized property located directly west of County Road 4 (PIN 580331517) during the 2020 Bradford Bypass field investigations. The closest butternut observed within the naturalized property was located approximately 300 m west of the County Road 4 Study Area. Butternut is listed as Endangered (END) under the Endangered Species Act, 2007 (ESA), the Species at Risk Act, 2002 (SARA) and the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) status list.

2.2.2 Methods

Natural areas within 120m of the Limits of Work were visited during the growing season to confirm vegetation community boundaries and classification. Vegetation community types were delineated using the Ecological Land Classification (ELC) system for southern Ontario (Lee et al., 1998). This system provides a standard for comparing similar vegetation communities across Ontario. Vegetation communities are classified through the completion of a multilayer (i.e., canopy, sub-canopy, understory and groundcover) vegetation inventory. Particular consideration

was given to identifying provincially rare flora and the presence of SAR plants. The Study Area, Limits of Work and Vegetation community boundaries are presented on **Figure 1** in **Attachment A**.

The completed vascular plant list for each ELC code was analyzed for rare plant species that may be affected by the proposed works. Plants were considered rare if designated as Threatened (THR), END or Special Concern (SC) under the ESA, or designated provincially as S1 (extremely rare in Ontario), S2 (very rare in Ontario), or S3 (rare to uncommon in Ontario).

2.2.3 Results

Site visits for the County Road 4 and Bradford Bypass project were conducted throughout the 2020 and 2021 growing season by qualified AECOM Ecologists. Vegetation communities observed within the County Road 4 Study Area consisted of primarily disturbed sites including cultural meadows and thickets which have had a high degree of past and current human influence. One natural forested community was observed east of County Road 4 in the central portion of the Study Area. An overview of the vegetation communities found within the Study Area is provided in **Table 1**. No significant vegetation communities or vegetation, i.e., provincially rare plants or SAR, were observed during field investigations. Additionally, there are no designated natural areas present within the Study Areas.

Table 1: Natural ELCs within the Study Area

ELC Code	ELC Community	Location
CUM1-1	Dry – Moist Old Field Meadow Type	This cultural meadow community was located west of County Road 4 in the central portion of the Study Area. Ground cover was dominant at greater than 60% cover with the most frequent species being reed canary grass (<i>Phalaris arundinacea</i>), Kentucky bluegrass (<i>Poa pratensis</i>), Canada goldenrod (<i>Solidago canadensis</i>), tall goldenrod (<i>Solidago altissima</i>), tufted vetch (<i>Vicia cracca</i>), coltsfoot (<i>Tussilago farafara</i>), field sow-thistle (<i>Sonchus arvensis</i>) and common dandelion (<i>Taraxacum officinale</i>). The shrub layer was comprised of American ash (<i>Fraxinus americana</i>), bitternut hickory (<i>Carya cordiformis</i>), gray dogwood (<i>Cornus racemosa</i>) and common buckthorn (<i>Rhamnus cathartica</i>).
CUM1-1	Dry – Moist Old Field Meadow Type	This cultural meadow community was located adjacent to the east side of County Road 4 in the southeast section of the Study Area. Ground cover was dominant at greater than 60% cover with the most frequent species being smooth brome (<i>Bromus inermis</i>), Kentucky bluegrass (<i>Poa pratensis</i>), Canada goldenrod, and New England aster (<i>Symphotrichum novae-angliae</i>), broad-leaved cattail (<i>Typha latifolia</i>) and common reed (<i>Phragmites australis</i> ssp. <i>australis</i>). The shrub layer was comprised of heart-leaved willow (<i>Salix eriocephala</i>) and sandbar willow (<i>Salix interior</i>). The sparse tree layer consisted of balsam poplar (<i>Populus balsamifera</i>) and Russian olive (<i>Elaeagnus angustifolia</i>). A Mineral Shallow Marsh Ecosite (MAS2) and a Cattail Mineral Shallow Marsh Type (MAS2-1) inclusion was present within the community.
CUM1-1	Dry – Moist Old Field Meadow Type	This cultural meadow community was located east of County Road 4 in the northern portion of the Study Area. Ground cover was dominant at greater than 60% cover with the most frequent species smooth brome, Kentucky bluegrass, tall goldenrod, and bird's-foot trefoil (<i>Lotus corniculatus</i>). The shrub layer was comprised of staghorn sumac (<i>Rhus typhina</i>) and black locust (<i>Robina pseudoacacia</i>).
CUT1	Mineral Cultural Thicket Ecosite	This mineral cultural thicket was located west of County Road 4 in the central portion of the Study Area. Tall shrub layer species were dominant in this community with the most frequent species being red-osier dogwood (<i>Cornus sericea</i>), Russian olive and Manitoba maple (<i>Acer negundo</i>). The ground cover layer consisted of white sweetclover (<i>Melilotus albus</i>), Canada goldenrod, and riverbank grape (<i>Vitis riparia</i>).
CUT1	Mineral Cultural Thicket Ecosite	This mineral cultural thicket was located southwest of the County Road 4 and the future Bradford Bypass interchange. Low shrub layer species were dominant in this community with the most frequent species being willow species (<i>Salix</i> sp.), Russian olive, common buckthorn, and red osier dogwood. The ground cover layer consisted of smooth brome, Canada goldenrod, tall goldenrod and wild carrot (<i>Daucus carota</i>). Surveys were completed from the adjacent road right-of-way due to access constraints at the time of the field investigations.

ELC Code	ELC Community	Location
CUT1-5	Raspberry Cultural Thicket Type	This mineral cultural thicket was located east of County Road 4 in the northeast section of the Study Area. Low shrub layer species were dominant in this community with the most frequent species being red raspberry (<i>Rubus idaeus</i>), staghorn sumac, and riverbank grape. The sparse canopy layer consisted of eastern cottonwood (<i>Populus deltoides</i>), Scots pine (<i>Pinus sylvestris</i>), black locust, sugar maple (<i>Acer saccharum</i>) and trembling aspen (<i>Populus tremuloides</i>). The ground cover layer consisted of smooth brome, purple crown-vetch (<i>Securigera varia</i>) and thicket creeper (<i>Parthenocissus vitacea</i>). This community was complexed with a Mineral Cultural Thicket Ecosite (CUT1) and a Dry – Moist Old Field Meadow Type (CUM1-1) community. Surveys were completed from the adjacent road right-of-way due to access constraints at the time of the field investigations.
CUW	Cultural Woodland	This community could not be visited due to site access constraints and was delineated through the use of aerial photo interpretation.
FOD8-1	Fresh - Moist Poplar Deciduous Forest Type	This deciduous forest was located east of County Road 4 in the central portion of the Study Area. Forest canopy cover was dominant at greater than 60% cover. Dominant species included trembling aspen, green ash (<i>fraxinus pennsylvanica</i>), American elm (<i>Ulmus americana</i>) and eastern cottonwood. The shrub layer was comprised of trembling aspen, round-leaved dogwood (<i>Cornus rugosa</i>), alternative-leaved dogwood (<i>Cornus alternifolia</i>) and Tatarian honeysuckle (<i>Lonicera tatarica</i>). The sparse ground layer consisted of purple-stemmed aster (<i>Symphotrichum puniceum</i>), field horsetail (<i>Equisetum arvense</i>), broad-leaved enchanter's nightshade (<i>Circaea canadensis</i>), herb-Robert (<i>Geranium robertianum</i>) and gray goldenrod (<i>Solidago nemoralis</i>). Surveys were completed from the adjacent road right-of-way due to access constraints at the time of the field investigations.
OAO	Open Aquatic	A stormwater management pond is located within the southern portion of the Study Area between Meadowview Drive and County Road 4.

2.3 Breeding Bird Surveys

2.3.1 Background Information

The Atlas of the Breeding Birds of Ontario (Cadman et al. 2007) provides breeding bird data within 10 km x 10 km squares across the province. The Study Area lies within square 17PJ18, which had observation data for 109 avian species. Additional background records were also identified through the sources outlined in **Section 2.1**.

Records of 14 avian SAR and SOCC were identified within the vicinity of the Study Area through the background review as outlined in **Section 2.1**. Further information is provided in **Section 2.4**.

2.3.2 Methods

Breeding bird surveys for the County Road 4 project were completed in tandem with the Bradford Bypass breeding bird surveys. One breeding bird station was established within the cultural meadow community located west of County Road 4 (BBS-07). A total of two point-count surveys were completed at each station during the breeding bird period between May 24th and July 10th. The separate surveys are recommended as they typically provide data that more accurately reflects the number of species and birds utilizing the habitat at each station (Canadian Wildlife Services, 2009). An additional point count survey was completed at the BBS-07 station in accordance with the *Bobolink Survey Methodology*, dated April 2012 from the MNRF Guelph District (MNRF) to determine the presence or absence of SAR grassland birds. Surveys were completed between 5:00 am and 10:00 am under appropriate weather conditions (i.e. no precipitation, calm to light wind) (CWS, 2009). Each point-count consisted of two ten-minute surveys during which time, species and individual bird movement within 100 m radius were recorded. Species heard outside of the 100 m radius or that were observed outside of their breeding habitat within the 100 m radius (i.e. Fly-overs) were recorded separately.

2.3.3 Results

Breeding bird surveys were completed within the Study Area on June 7th, June 23rd and July 14th, 2021. A total of 12 species were identified within the Study Area. All bird species observed are listed as Apparently Secure to Secure or Common under NHIC (2021). Actively nesting migratory birds are protected under the *Migratory Birds Convention Act* (MBCA). Some species which are not identified in the MBCA, such as Raptors, are protected under the *Fish and Wildlife Conservation Act* (FWCA). Nests of these species can only be removed if a permit is obtained from the MNRF. In order to remain in compliance with the MBCA and FWCA, it is recommended that any vegetation removal that may be required take place outside of the breeding bird season (April 1st to August 31st) for this region.

2.4 Species at Risk

SAR include any species designated as THR or END on the SAR in Ontario (SARO) List, which are afforded both individual and habitat protection under the ESA. Whereas, species designated as SC on the SARO List, listed federally under the *Species at Risk Act, 2002* as END, THR or SC and, any species with a Provincial S-Rank of S1, S2 or S3 that is not otherwise protected under the ESA are considered SOCC. SOCC are documented herein, in the event that these species become up listed in the future (i.e., from SC to THR or END). In addition to SAR and SOCC, migratory birds, their eggs and their active nests are protected under the MBCA.

Prior to field investigations, A SAR screening exercise was completed to determine the presence and potential impacts to SAR within the Study Area. A list of SAR which have the potential to occur within the Study Area was compiled based on a review of background information as described in **Sections 2.1**. Habitat preferences of the listed terrestrial SAR were then compared to onsite habitat characteristics to determine if the Study Area contained potential habitat for SAR. The potential for species to occur was then determined through a probability of occurrence whereby the following rankings were applied:

- **Low Probability:** suitable habitat for the species is not likely present within the study area,
- **Moderate Probability:** potentially suitable SAR habitat may be present within the study area,
- **High Probability:** preferred habitat conditions for SAR are likely present within the study area, and
- **Confirmed:** species were observed within the Study Area during field investigations.

This assessment was initially completed using aerial photo interpretation and was then further refined after ELC community delineations were complete (**Section 2.2**).

2.4.1 Results

The background information review resulted in a total of 12 SAR and 10 SOCC which have been recorded within the vicinity of the Study Area. These SAR are listed in **Table 2** below. A habitat assessment was completed for these species to determine if suitable habitat is present in the Study Area based on the vegetation communities delineated during the ELC surveys and through interpretation of aerial photography.

Table 2: Probability of Occurrence for SAR with Records for the Vicinity of the Study Area

Taxa	Common Name	Scientific Name	S-Rank ¹	ESA Status ²	Last Year Observed	Source of Record	Probability of Occurrence within the Study Area	Justification
Bird	Bald Eagle	<i>Haliaeetus leucocephalus</i>	S4	SC	N/A	MECP	Low	Suitable habitat is not present within the Study Area. Species was not observed during breeding bird surveys and nest sweeps.
	Bank Swallow	<i>Riparia riparia</i>	S4B	THR	2001-2005	NHIC/OBBA/MECP	Low	Embankments within the study are covered in dense vegetation making them unsuitable for nesting. Species was not observed during breeding bird surveys and nest sweeps.
	Barn Swallow	<i>Hirundo rustica</i>	S4B	THR	2001-2005	OBBA	Low	Barn swallow nests were not observed within the Study Area. Species was not observed during breeding bird surveys and nest sweeps.
	Black Tern	<i>Chlidonias niger</i>	S3B, S4N	SC	2001-2005	OBBA	Low	Suitable vegetation communities (OAO) are small in size and unlikely to support black tern nesting. Species was not observed during breeding bird surveys and nest sweeps.
	Bobolink	<i>Dolichonyx oryzivorus</i>	S4B	THR	2001-2005	OBBA/MECP	Low	Agricultural fields within the Study Area were planted with winter wheat. Species was not observed during breeding bird surveys and nest sweeps.
	Chimney Swift	<i>Chaetura pelagica</i>	S3B	THR	2001-2005	OBBA	Moderate	A potentially suitable chimney for nesting is present within the abandoned building located at 2879 Yonge Street. The species was not observed during breeding bird surveys and nest sweeps. Targeted surveys were not completed at the abandoned building. The interior of the property was not investigated

Taxa	Common Name	Scientific Name	S-Rank ¹	ESA Status ²	Last Year Observed	Source of Record	Probability of Occurrence within the Study Area	Justification
								due to health and safety concerns resulting from the deteriorated condition of the house..
	Eastern Meadowlark	<i>Sturnella magna</i>	S4B, S3N	THR	2001-2005	OBBA/M ECP	Low	Species was not observed during breeding bird surveys and nest sweeps.
	Eastern Wood-Pewee	<i>Contopus virens</i>	S4B	SC	2001-2005	OBBA	Moderate	The FOD8-1 community may provide suitable nesting habitat. Species was not observed during breeding bird surveys and nest sweeps.
	Grasshopper Sparrow	<i>Ammodramus savannarum</i>	S4B	SC	2001-2005	OBBA	Low	Species was not observed during breeding bird surveys and nest sweeps.
	Henslow's Sparrow	<i>Centronyx henslowii</i>	S1B	END	N/A	MECP	Low	Habitat of suitable area is not present within the Study Area. Species was not observed during breeding bird surveys and nest sweeps.
	Least Bittern	<i>Ixobrychus exilis</i>	S4B	THR	N/A	MECP	Low	Suitable vegetation communities (OAO) are small in size and unlikely to support least bittern nesting. Species was not observed during breeding bird surveys and nest sweeps.
	Peregrine Flacon	<i>Falco peregrinus</i>	S4	SC	N/A	MEPC	Low	Suitable habitat is not present within the Study Area. Species was not observed during breeding bird surveys and nest sweeps.
	Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	S3	SC	2001-2005	OBBA	Moderate	The CUW community may provide suitable habitat. Species was not observed during breeding bird surveys and nest sweeps.
	Wood Thrush	<i>Hylocichla mustelina</i>	S4B	SC	2001-2005	OBBA	Moderate	The FOD8-1 community may provide suitable nesting habitat. Species was not observed during breeding bird surveys and nest sweeps.

Taxa	Common Name	Scientific Name	S-Rank ¹	ESA Status ²	Last Year Observed	Source of Record	Probability of Occurrence within the Study Area	Justification
Mammals	Little Brown Myotis	<i>Myotis lucifugus</i>	S3	END	N/A	MECP/BCI	Moderate	The FOD8-1 community and abandoned building located at 2879 Yonge Street community may provide suitable maternity roosting habitat. Targeted surveys for bat SAR were not completed during field investigations. The interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house. Additionally, acoustic monitoring was not completed within the FOD8-1 community as it was located outside of the Limits of Work.
	Eastern Small-footed Myotis	<i>Myotis leibii</i>	S2S3	END	N/A	BCI	Moderate	The FOD8-1 community and abandoned building located at 2879 Yonge Street community may provide suitable maternity roosting habitat. Targeted surveys for bat SAR were not completed during field investigations. The interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house . Additionally, acoustic monitoring was not completed within the FOD8-1 community as it was located outside of the Limits of Work.
	Northern Long-eared Myotis	<i>Myotis septentrionalis</i>	S3	END	N/A	MECP/BCI	Moderate	The FOD8-1 community may provide suitable maternity roosting habitat. Targeted surveys for bat SAR were not completed during field investigations. The interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house. Additionally, acoustic monitoring was not completed within the

Taxa	Common Name	Scientific Name	S-Rank ¹	ESA Status ²	Last Year Observed	Source of Record	Probability of Occurrence within the Study Area	Justification
								FOD8-1 community as it was located outside of the Limits of Work.
	Tri-coloured Bat	<i>Perimyotis subflavus</i>	S3?	END	N/A	MECP/BCI	Moderate	The FOD8-1 community and abandoned building located at 2879 Yonge Street community may provide suitable maternity roosting habitat. Targeted surveys for bat SAR were not completed during field investigations. The interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house. Additionally, acoustic monitoring was not completed within the FOD8-1 community as it was located outside of the Limits of Work.
Reptile	Northern Map Turtle	<i>Emydoidea blandingii</i>	S3	SC	1993	ORAA	Low	Record considered historical (i.e., greater than 20 years old).
	Snapping Turtle	<i>Chelydra serpentina</i>	S4	SC	2019	ORAA	Low	The stormwater management pond found within the Study Area is an isolated feature that is unlikely to support snapping turtles. No other waterbodies are present in the Study Area. Species not observed during field investigations.
Insect	Monarch	<i>Danaus plexippus</i>	S4B, S2N	SC		OBA	Moderate	Common milkweed (<i>Asclepias syriaca</i>) was observed within the CUM1-1, CUT1 and CUT1-5 communities. Species not observed during field investigations.
Plant	Butternut	<i>Juglans cinerea</i>	S2?	END	N/A	NHIC/MECP	Low	Species not observed during ELC and vegetation surveys.

¹ **S-rank:** The natural heritage provincial ranking system (provincial S-rank) is used by the MNRF Natural Heritage Information Centre (NHIC) to set protection priorities for rare species and natural communities. The following status definitions were taken from NatureServe Explorer's (2015) National and Subnational Conservation Status Definitions available at <http://explorer.natureserve.org/nsranks.htm>:

SX - Presumed Extirpated—Species or community is believed to be extirpated from the province. Not located despite intensive searches of historical sites and other appropriate habitat, and virtually no likelihood that it will be rediscovered.

SH- Possibly Extirpated (Historical)—Species or community occurred historically in the province, and there is some possibility that it may be rediscovered. Its presence may not have been verified in the past 20-40 years. A species or community could become SH without such a 20-40 year delay if the only known occurrences in a province were destroyed or if it had been extensively and unsuccessfully looked for.

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

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

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

S4 - Apparently Secure—Uncommon but not rare; some cause for long-term concern due to declines or other factors.

S5 - Secure—Common, widespread, and abundant in the nation or state/province.

SNR - Unranked—Province conservation status not yet assessed.

SU - Unrankable — Currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

SNA - Not Applicable — A conservation status rank is not applicable because the species is not a suitable target for conservation activities.

S#S# - Range Rank —A numeric range rank (e.g., S2S3) is used to indicate any range of uncertainty about the status of the species or community. Ranges cannot skip more than one rank (e.g., SU is used rather than S1S4).

Breeding Status Qualifiers

B - Breeding—Conservation status refers to the breeding population of the species in the province.

N - Nonbreeding—Conservation status refers to the non-breeding population of the species in the province.

M - Migrant—Migrant species occurring regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. Conservation status refers to the aggregating transient population of the species in the province.

Note: A breeding status is only used for species that have distinct breeding and/or non-breeding populations in the province. A breeding-status S-rank can be coupled with its complementary non-breeding-status S-rank if the species also winters in the province, and/or a migrant-status S-rank if the species occurs regularly on migration at particular staging areas or concentration spots where the species might warrant conservation attention. The two (or rarely, three) status ranks are separated by a comma (e.g., "S2B,S3N" or "SHN,S4B,S1M").

Other Qualifiers

? -Inexact or Uncertain—Denotes inexact or uncertain numeric rank. (The ? qualifies the character immediately preceding it in the S-rank.)

²**ESA Status:** *The Endangered Species Act 2007 (ESA) protects species listed as Threatened and Endangered on the Species at Risk in Ontario (SARO) List on provincial and private land. The Minister lists species on the SARO list based on recommendations from the Committee on the Status of Species at Risk in Ontario (COSSARO), which evaluates the conservation status of species occurring in Ontario. The following are the categories of at risk:*

END (Endangered) – A species facing imminent extinction or extirpation in Ontario.

THR (Threatened) – Any native species that, on the basis of the best available scientific evidence, is at risk of becoming endangered throughout all or a large portion of its Ontario range if the limiting factors are not reversed.

SC (Special Concern) – A species that may become Threatened or Endangered due to a combination of biological characteristics and identified threats.

NAR (Not at Risk) – A species that has been evaluated and found to be not at risk

Upon completion of the SAR habitat assessment, the following five SAR were determined to have a moderate probability of occurrence within the Study Area:

- Chimney Swift;
- Little Brown Myotis;
- Eastern Small-footed Myotis;
- Northern Myotis; and,
- Tri-colored Bat;

2.5 Significant Wildlife Habitat

A Significant Wildlife Habitat (SWH) screening exercise was conducted using the Significant Wildlife Habitat Criteria Schedules for Ecoregion 6E (MNR, 2015) to determine the presence of Candidate SWH within the Study Area. The presence of candidate habitat for all five SWH categories were determined by comparing existing conditions based on ELC site investigations to criteria listed within the 6E schedule. Similarly, a background review was conducted to determine the presence of SOCC within the Study Area and surrounding landscape using sources outline in **Section 2.1**. This assessment was completed to help inform the need for taxa-specific surveys completed during field investigations in 2021. The results of ELC and taxa surveys were utilized to confirm the presence / absence of Candidate SWH within the Study Area. A total of two candidate SWH types were identified within the Study Area. No confirmed SWH was present.

Candidate SWH within the Study Area include the following:

Bat Maternity Colonies – The abandoned house located at 2879 Yonge Street and the FOD8-1 community may provide habitat for Bat Maternity Colonies. Targeted surveys for bats were not conducted at either location and the interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house. Acoustic monitoring was not completed within the FOD8-1 community as it was located outside of the Limits of Work. As such, the SWH type remains candidate.

Special Concern and Rare Wildlife Species Habitat – Potentially suitable habitat for Special Concern and Rare Wildlife (i.e., SOCC) was identified during the SWH screening and could not be ruled out within the Study Area during field investigations. Special Concern and Rare Wildlife Species SWH remains candidate for monarch (*Danaus plexippus*) as milkweed plants (*Asclepias sp.*) were observed within the Study Area. Additionally, candidate habitat for eastern wood-pewee (*Contopus virens*), red headed woodpecker (*Melanerpes erythrocephalus*) and wood thrush (*Hylocichla mustelina*) is present within the FOD8-1 and CUW communities.

3. Potential Environmental Effects and Recommended Mitigation Measures

The potential effects of the project on the terrestrial environment were identified and, where available, reasonable mitigation measures were developed to address the potential adverse effects. A discussion of these potential environmental effects and recommended mitigation measures is provided below and summarized in **Table 4** at end of this Section.

3.1 Vegetation

Vegetation removal to support the proposed works is largely expected to be limited to the cultural vegetation communities located adjacent to County Road 4. During the existing conditions survey, the vegetation

surrounding the Project Location was noted to contain common plant species for the area as well as several non-native and invasive species. No rare plants, SAR plants or significant terrestrial features were found. Therefore, considering these factors, limited potential effects to vegetation communities are anticipated. **Table 3** presents the total area of each vegetation community found within the Limits of Work as per the 30% design.

Table 3: Anticipated Size of Vegetation Removals

ELC Code	ELC Description	Area (ha) within the Limits of Work
CUM1-1	Dry – Moist Old Field Meadow Type	2.43
CUT1	Mineral Cultural Thicket Ecosite	0.07
CUT1-5	Raspberry Cultural Thicket Type	0.35
Total		2.85

During projects works, fill and sediment runoff from the active construction area may enter vegetation communities. Additionally, oil, gasoline, grease and other materials from construction equipment, material storage and handling may enter adjacent vegetation communities.

3.2 Species at Risk

Potentially suitable habitat for mammal SAR: little brown myotis (*Myotis lucifugus*), eastern small-footed myotis (*Myotis leibii*), northern myotis (*Myotis septentrionalis*) and tri-coloured bat (*Perimyotis subflavus*) may be present within the forested vegetation communities outside of the Limits of Work. Additionally, candidate SAR bat habitat and chimney swift (*Chaetura pelagica*) habitat is present within the abandoned house located at 2879 Yonge Street. As vegetation removal will be limited to the Limits of Work, destruction of mammal SAR and / or their habitat is not expected within the forested communities found within the Study Area. However, removal of the abandoned building will be required to accommodate the proposed grading limits. As targeted surveys were not completed at the abandoned building for SAR bats and chimney swift as the interior of the property was not investigated due to health and safety concerns resulting from the deteriorated condition of the house it is assumed that SAR habitat will be impacted by the proposed works.

The removal of the house should qualify for registration under Section 23.18 Threats to Health and Safety, Not Imminent of Ontario Regulation 242/08 under the ESA. The project can be registered, and then immediate steps need be taken to minimize the effects on the potential SAR present. These steps include:

- Avoiding removal of the building during sensitive periods (e.g. hibernation, reproduction and rearing). Building removal should be conducted outside of the bat roosting season (April 1st to September 30th) in order to avoid the bat roosting season and breeding bird season (April 1st to August 31st).
- Providing the species with adequate time to leave the area prior to the building demolition.
- Preventing species from entering the area once absence is confirmed.

3.3 Significant Wildlife Habitat

Three bird SOCC, eastern wood-pewee, red-headed woodpecker and wood thrush may be present within the Study Area. Forested communities in which the candidate habitat for the bird SOCC is present is located outside of the Limits of Work and impacts to habitat are not anticipated. Vegetation removals within the Study Area

should occur outside of the bird nesting period of April 1st to August 31st to avoid disturbance to breeding migratory birds including SAR and/or damage/destruction of their nests.

One insect SOCC, monarch, may be present within the Limits of Work and Study Area. Limiting vegetation removal to outside of the bird nesting period will help to protect the species while they are present as eggs or larvae on milkweed plants (May 25th to August 15th). It is recommended that milkweed be included in the species mix for the revegetation of temporary disturbed areas within the Limits of Work.

Candidate Bat Maternity Colonies SWH is present within the abandoned building located at 2879 Yonge Street and the forested communities found within the Study Area. Demolition of the building should take place outside of the bat roosting period of April 1st to September 30th to avoid impacts to bat species including SAR that may be present within the building.

3.4 Contract Provisions

The following MTO Provisions should be utilized, at a minimum:

- Ontario Provincial Standard Specification (OPSS)-180: General Specification for the Management of Excess Materials;
- OPSS-182: General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks;
- OPSS -201: Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piled Boulders;
- OPSS-801: Construction Specification for the Protection of Trees;
- OPSS-803: Construction Specification for Vegetative Cover;
- OPSS-804: Construction Specification for Temporary Erosion Control;
- OPSS.MUNI 804: Construction Specification for Seed and Cover;
- OPSS-805: Construction Specification for Temporary Sediment Control;
- Special Provision (SP) 199S56 Control of Emissions During Structural Work;
- Operation Constraint (OC) (Environmental) – General Environmental Protection;
- OC (Environmental) SP ENVR0007: Protection of Species at Risk; and
- Non-Standard Special Provision Operational Constraints (Environmental) - Migratory Bird Protection.

Table 4: Summary of Environmental Concerns and Commitments

Issue	Concerned Agency	Mitigation/Protection/Monitoring
Vegetation	N/A	<ul style="list-style-type: none"> ■ Clearing will be kept to a minimum and limited to the disturbed ROW. ■ Apply the following MTO provisions: <ul style="list-style-type: none"> – OPSS-180: General Specification for the Management of Excess Materials; – OPSS-182: General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks; – OPSS -201: Construction Specification for Clearing, Close Cut Clearing, Grubbing and Removal of Surface and Piled Boulders; – OPSS-801: Construction Specification for the Protection of Trees; – OPSS-803: Construction Specification for Vegetative Cover – OPSS-804: Construction Specification for Temporary Erosion Control – OPSS.MUNI 804:Construction Specification for Seed and Cover – OPSS-805:Construction Specification for Temporary Sediment Control – SP 199S56 Control of Emissions During Structural Work ■ Refer to vegetation clearing window prescribed for migratory birds and bats below
SAR and Wildlife		<ul style="list-style-type: none"> ■ The abandoned house located at 2879 Yonge Street is considered candidate habitat for bat SAR and chimney swift. The removal of the house should qualify for registration under Section 23.18 Threats to health and safety, not imminent of Ontario Regulation 242/08 under the ESA. . The project can be registered, and then immediate steps need be taken to minimize the effects on the potential SAR present. These steps are outlined in Section 3.2. ■ Should additional SAR be encountered within the work area, construction activities will cease, and the contracting authority and MECP will be contacted for next steps. ■ All SAR observations should be reported to the contracting authority and MECP. ■ Should impacts to woodlands be confirmed through detail design, MECP should be consulted to determine permitting requirements. At a minimum conduct any tree removals outside of the bat roosting season (April 1st to September 30th), following MECP consultation. ■ Schedule vegetation removal to occur outside of the overall bird nesting period of April 1st to August 31st to avoid disturbance to breeding migratory birds including SAR and/or damage/destruction of their nests.

Issue	Concerned Agency	Mitigation/Protection/Monitoring
		<ul style="list-style-type: none"> ■ If vegetation removal must occur within this time period, active nest searches must be conducted prior to vegetation removal by a qualified biologist within ‘simple habitats’ (e.g., mown vegetation) or if minor vegetation clearing is required, to ensure that no active nests of breeding migratory birds or bird SAR are destroyed, in order to prevent contravention of the MBCA and/or the ESA; ■ If wildlife is found within the work area, the wildlife should be permitted to vacate the area. ■ If necessary, wildlife can be relocated from within the work area to suitable habitat outside of the work area by a qualified ecologist or environmental inspector ■ Temporarily disturbed areas within the Limits of Work should be planted with native seed mixes which include native milkweed species.

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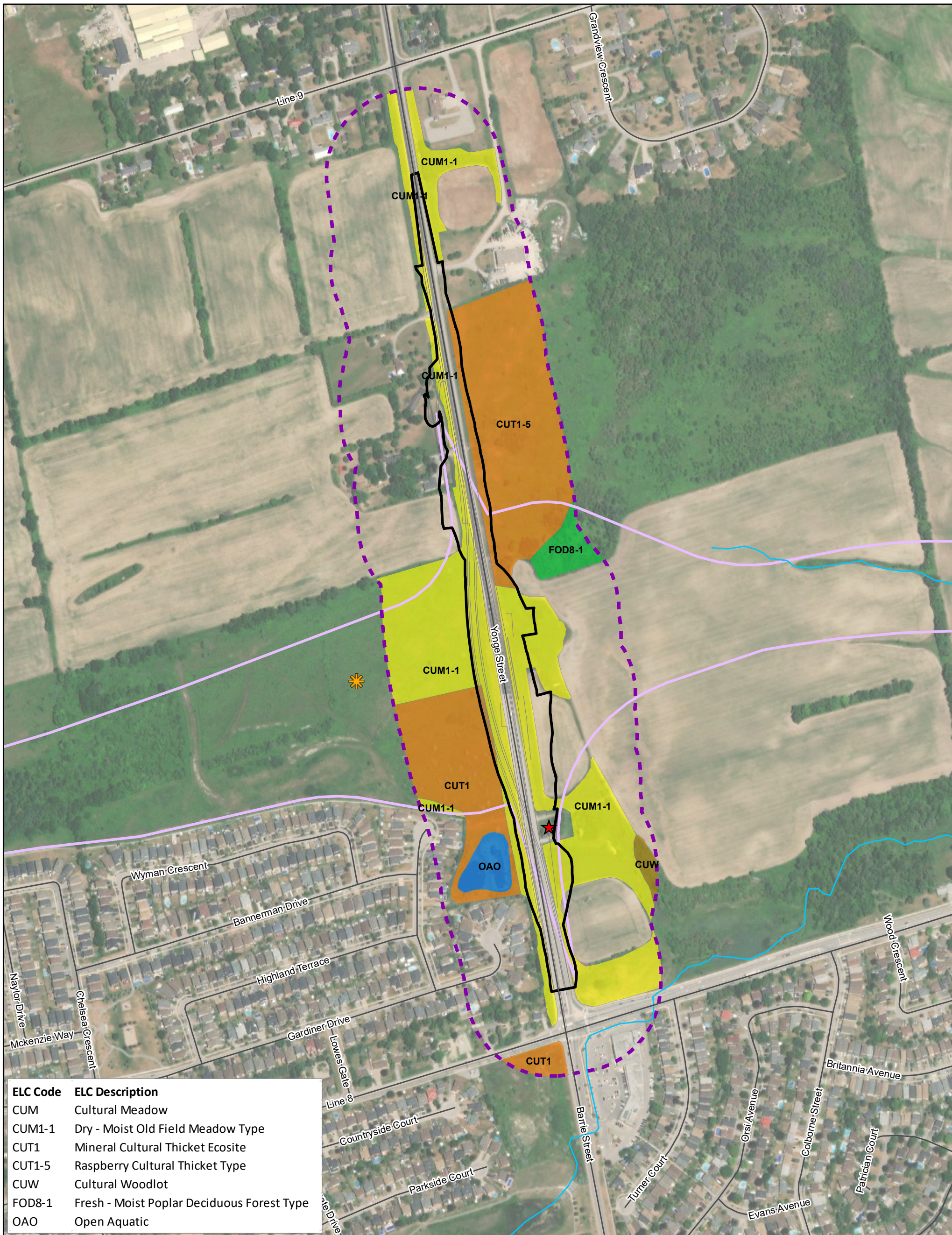
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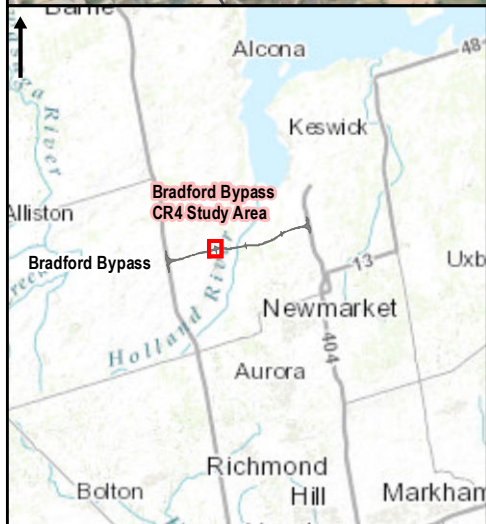
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Attachment A

Figures



ELC Code	ELC Description
CUM	Cultural Meadow
CUM1-1	Dry - Moist Old Field Meadow Type
CUT1	Mineral Cultural Thicket Ecosite
CUT1-5	Raspberry Cultural Thicket Type
CUW	Cultural Woodlot
FOD8-1	Fresh - Moist Poplar Deciduous Forest Type
OAO	Open Aquatic



Legend

- ★ Building to be Removed
- ★ Breeding Bird Point Count Station
- Roads
- Watercourses
- County Road 4 (CR4) Design
- ▭ CR4 Limit of Work
- ▭ CR4 Study
- ▭ Bradford Bypass Right of Way (ROW)

Ecological Land Classification

- CUW
- OAO
- CUM
- CUM1-1
- CUT1
- CUT1-5
- FOD8-1

Highway 400 - Highway 404 Link
(Bradford Bypass) County Road 4 Advance Works (GWP 2008-21-00)

Natural Heritage Investigations

September 2021	1:5,000	NAD 83 Zone 17 GeoHub
P#:	V#:	

AECOM

Figure 1

0 85 170 340
Meters

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