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Terrestrial Ecosystems Preliminary Impact Assessment Report

Highway 401 Nagle Road
Interchange Study
(GWP 4059-17-00)

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1.0 Introduction

The Ministry of Transportation (MTO) and the Town of Cobourg (the Town) retained Stantec Consulting Ltd. (Stantec) to undertake a Planning, Preliminary Design, and Class Environmental Assessment (EA) Study for a new Highway 401 interchange with Nagle Road within the Town and the Township of Hamilton. This new interchange is the Town's initiative and will support the transportation objectives set forth in the Town's Official Plan and future growth within the Cobourg East Community Secondary Plan area (Figure 1).

The study includes reviewing existing conditions, developing, and evaluating alternatives, identifying appropriate improvements, and developing environmental protection / mitigation measures for the Recommended Plan.

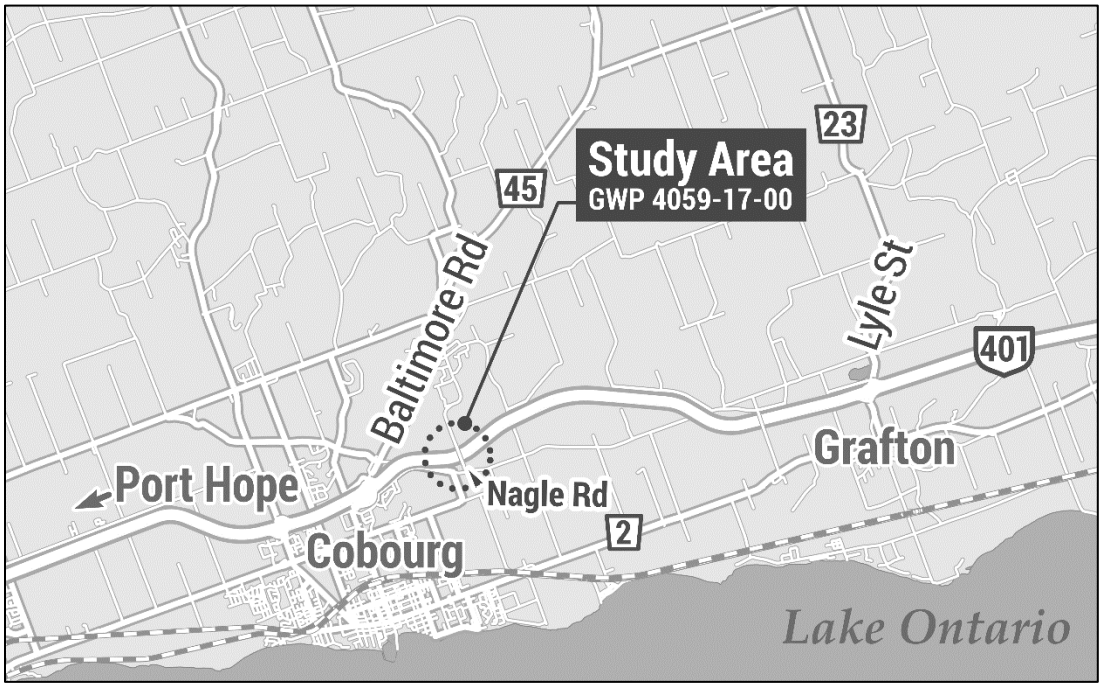

Figure 1: Location of Study Area

This Terrestrial Ecosystems Preliminary Impact Assessment Report summarizes the terrestrial features and wildlife species present in the Study Area (Figure 2, Appendix A) and provides a preliminary impact assessment based on the Recommended Plan. The impact assessment will be revisited and refined at the time of Detail Design. Detailed methods and results of background data collection and field investigations are available in the *Terrestrial Existing Conditions Report* previously prepared for the project (Stantec 2018).

This report was completed in accordance with Section 3.2 - Terrestrial Ecosystems of the *Environmental Reference for Highway Design* (MTO 2013) and Section 4 – Wildlife and Wildlife Management of the *Environmental Reference for Contract Preparation* (MTO 2013). Fish and fish habitat features for this project are described in separate reports (Stantec 2018, 2022).

2.0 Methods

Details of agency correspondence, background data sources, and the methods and results of the 2017 field investigations are described in the *Terrestrial Existing Conditions Report* for the project (Stantec 2018).

Stantec completed field investigations within the Study Area from August 12 - 16, 2017. Correspondence with the Ministry of Natural Resources and Forestry (MNRF) and Ministry of Environment, Conservation and Parks (MECP) received for the *Terrestrial Existing Conditions Report* (Stantec 2018) is provided in Appendix B.

3.0 Summary of Existing Conditions

The following natural heritage features, identified in the Existing Conditions report were carried forward to the Preliminary Impact Assessment in Section 5.0.

- White Cedar Swamp (unevaluated wetland)
- Significant Wildlife Habitat (confirmed Deer Wintering Areas, candidate bat maternity colony habitat)
- Candidate habitat for species of conservation concern
  - Barn Swallow
  - Monarch

  - Eastern Milksnake
- Suitable habitat of endangered or threatened species
  - Bobolink
  - Eastern Meadowlark
  - Little Brown Myotis
  - Small-footed Myotis
  - Northern Myotis
  - Tri-colored Bat
- Migratory bird nests

4.0 Description of Work

The Recommended Plan for the Highway 401 interchange with Nagle Road consists of a hybrid Parclo A2/Diamond configuration, including two exit ramps and two entrance ramps (Appendix A, Figure 3). The addition of exit and entrance ramps results in the need for modifications to the existing Highway 401 to accommodate the ramps, in addition to the ultimate future footprint of Highway 401 (i.e., eight lanes). The Nagle Road bridge over Highway 401 may be replaced in advance of the need for the proposed interchange.

The limits of proposed work for the Recommended Plan are shown on Figures 2 and 3, Appendix A.

5.0 Preliminary Impact Assessment

Impacts to natural features from Project construction are presented based on the draft Recommended Plan. For this assessment, it is assumed that natural areas within the construction limits will be removed for construction. Precise limits of vegetation removal will be refined during Detail Design.

Potential impacts associated with the installment of the new interchange could include soil compactions, siltation of nearby wetland communities, terrestrial habitat loss and vegetation removal, disturbance to wildlife species, spills of deleterious substances into natural communities, and noise disturbance. All of these impacts, except terrestrial habitat loss, are expected to be short term and localized to the Study Area during construction activities and lessened through the application of appropriate construction techniques and mitigation measures. Some terrestrial habitats will be permanently lost due to vegetation clearing for the construction of the new interchange and associated culverts and ramps. Standard environmental protection and feature-specific mitigation measures are discussed in separate sections below.

5.1 Loss of Terrestrial Habitat

The proposed new interchange and associated bridge replacement/rehabilitation will require vegetation removal, earth clearing, and grading and will result in the loss of approximately 21.7 ha of terrestrial habitat within the Study Area, 8.3 ha of which is currently agricultural land (see Table 1, Figure 2, Appendix A). Construction activities in some areas will extend beyond the current ROW and require vegetation removal and earth grading which will result in the loss of natural vegetation communities, mostly in meadow communities. There will also be a small loss of forested habitats including a forested swamp identified as an unevaluated wetland. Loss of habitat by ELC community based on the Recommended Plan is shown in Table 1.

Table 1: Terrestrial Habitat Impacted within the Study Area

Vegetation Community	ELC Code	Impacted Area (ha)	Total Impacted Area (ha) by Vegetation Community
Meadow	Dry - Fresh Mixed Meadow/ Fresh - Moist Mixed Meadow (MEMM3 / MEMM4)	5.6	8.0
	Dry - Fresh Mixed Meadow Ecosite/ Dry Low shrub Tallgrass Thicket Ecosite (MEMM3/THDM4)	1.8	
	Graminoid Meadow (MEG)	0.6	
Forest	Fresh – Moist White Cedar Coniferous Forest Ecosite (FOCM4)	1.4	1.5
	Deciduous Forest (FOD)	0.04	
Regeneration Thicket	Dry - Fresh Deciduous Regeneration Thicket Ecosite (THDM4)	0.8	0.8

Vegetation Community	ELC Code	Impacted Area (ha)	Total Impacted Area (ha) by Vegetation Community
Plantation	Coniferous (TAGM1)	1.5	2.2
	Hedgerows	0.7	
Swamp	White Cedar Mineral Coniferous Swamp Ecosite (SWCM1)	0.8	0.8
Agriculture	Open Agriculture (OAG)	8.3	8.3
Total Impacted			**21.7**

*Sum of vegetation communities may not equal the sum impacted due to rounding

5.2 Potential Disturbance to Wetlands

A White Cedar Mineral Coniferous Swamp (SWCM1) is present in the Study Area adjacent to the Highway 401 ROW within the proposed area of impact (Figure 2, Appendix A). There will be an estimated loss of 0.8 ha to this community based on the Recommended Plan. Standard Sediment and Erosion Control (Section **Error! Reference source not found.**) methods are recommended along all wetland communities and near watercourse boundaries (Figure 2, Appendix A).

Vegetation protection measures in Section **Error! Reference source not found.** and invasive species management measures in Section 6.1.3, are also recommended to reduce indirect impacts to wetlands.

5.3 Potential Disturbance to Vegetation and Terrestrial Habitat

It is anticipated that the proposed works will disturb approximately 21.7 ha of vegetation cover and terrestrial habitat during construction. There will be temporary and permanent loss or disturbance to native vegetation communities because of the clearing required to accommodate construction activities (i.e., excavation, demolition, staging).

The following indirect impacts may also occur as a result of construction:

- accidental damage or loss of trees and other vegetation features because of site alteration or construction activities
- temporary disturbance of noise, vibration, and vegetation removal to terrestrial wildlife habitat
- erosion and sedimentation into adjacent vegetation communities

- permanent loss of native vegetation due to the spread of non-native and invasive vegetation species into disturbed areas after construction

5.4 Potential Interference with Migratory Birds

Although no migratory bird nests were present during field investigations, the culverts within the Study Area have potential to support nests of birds that are protected by the MBCA; birds may establish nests on structures in the future. Barn Swallows [recently down listed to Special Concern under the Endangered Species Act (ESA)] may also establish nests on culverts. Natural vegetation within the Study Area including woodlands, meadows and agricultural lands may also support nesting migratory birds. Any work near active bird nests has the potential to disturb nesting behavior or damage/destroy the nests, particularly during vegetation clearing within the ROW during the active breeding bird window (i.e., April 1 - August 31). Measures to mitigate impacts to protected bird nests will be implemented as outlined in **Section 6.1.4**.

5.5 Potential Disturbance to Significant Wildlife Habitat

Except for Deer Wintering Areas confirmed by MNRF, no significant wildlife habitat features were confirmed in the Study Area. Woodlands within the ROW may be of lower quality for deer wintering habitat due to proximity to a major highway and general level of human disturbance. By reducing woodland clearing to the extent possible and with proper forest edge management, impacts to deer wintering may be reduced.

Movement corridors for deer and various wildlife are assumed to occur within the Study Area, notably the forested communities east of Nagle Road. There is potential for new culverts under Highway 401, east of Nagle Road to be designed as ecopassages in order to connect habitats to the north and to the south of the highway corridor. Opportunities to maintain and enhance habitat connectivity for wildlife should be considered during Detail Design.

Construction phase disturbance to candidate SWH can be mitigated through standard environmental protection measures for sediment and erosion control and vegetation protection, as discussed in Sections 6.1.1 and 6.1.2. Measures to mitigate impacts to bird nests are outlined in Section 6.1.4. Standard mitigation to reduce harm to wildlife is provided in Section 6.1.5, while site-specific mitigation for bat maternity colonies, Monarch, and reptiles are provided in Section 6.2.3.

5.6 Potential Disturbance to Species at Risk and Species of Conservation Concern

Suitable habitat for SAR and SOCC in the Study Area was primarily associated with deciduous forests, thickets and open meadow communities. Potential impacts to SOCC and SAR that may be encountered in work zones, including Monarch, Eastern Milksnake, Barn Swallow, Bobolink, Eastern Meadowlark and bat SAR (Little Brown Myotis, Small-footed Myotis, Northern Myotis, Tri-colored Bat) are discussed below.

Construction phase disturbance to habitat of SAR and SOCC can be mitigated through standard environmental protection measures for sediment and erosion control and vegetation protection, as discussed in Section 6.1.1 and 6.1.2, respectively, and through site-specific measures as discussed in Section 6.2.3. Measures to mitigate impacts to protected bird nests are outlined in Section 6.1.4. Mitigation to reduce harm to wildlife is provided in Section 6.1.5.

5.6.1 Species at Risk

The following six SAR have potential to be directly impacted during construction activities due to their behavior, habitat preferences, or movement patterns:

- **Bobolink and Eastern Meadowlark** – Although the species were not observed during breeding bird surveys, suitable habitat for grassland bird SAR is present within the Study Area, including areas that may be impacted by construction activities. Timing windows are recommended to reduce the risk of interference with nesting birds (Section **Error! Reference source not found.**). Targeted surveys for Bobolink and Eastern Meadowlark are recommended during Detail Design. Site-specific measures proposed to mitigate impacts to SAR are discussed in Section **Error! Reference source not found.**.
- **Bat SAR (Little Brown Myotis, Northern Myotis, Eastern Small-footed Myotis, and Tri-colored Bat)** – Potential bat maternity roost habitat is present within forests, plantations, hedgerows, and individual trees in the Study Area and proposed area of impact. Tree removal can result in direct mortality to bat SAR and loss of habitat. Protection for bats is provided by the timing restrictions identified in Section 6.2.3.4. If timing of construction activities cannot abide the timing restrictions for bats, acoustic monitoring for bat SAR is recommended during Detail Design.

5.6.2 Species of Conservation Concern

The following three SOCC have potential to be directly impacted during construction activities due to their behavior, habitat preferences, or movement patterns:

- **Monarch** - primarily found in areas containing milkweed and wildflowers (including goldenrods, asters, and purple loosestrife) (MECP 2021). The larvae occur only where milkweed exists, whereas adults are more generalized, feeding on a variety of wildflower nectar (MECP 2021). Monarch and its habitat (i.e., milkweed patches) were observed in roadside meadows, which will experience temporary and permanent disturbance during construction. Site-specific mitigation measures for Monarch are discussed in Section 6.2.3.2.
- **Eastern Milksnake** - Construction activities can result in direct mortality to snakes. Snakes may be vulnerable during emergence from a hibernaculum, re-entrance, and basking periods, and may preferentially seek out construction materials to bask under. Peak activity for Eastern Milksnake is typically between late April and late June (MNRF 2016). With the implementation of mitigation measures (Section 6.2.3.3), no direct impacts are expected.
- **Barn Swallow** – although not present during the 2021 field investigations, structures in the proposed area of impact may provide suitable habitat (i.e., vertical walls, ledges) and Barn Swallows may establish nests at new locations in future nesting seasons. Standard mitigation measures for nesting birds are discussed in Section 6.1.4.

6.0 Mitigation Recommendations

Mitigation will be employed to reduce the likelihood and magnitude of impacts to the natural environment. The following section describes standard measures that will be applied to all work areas. These general measures recommended for the protection and reduction of impacts to natural features, general wildlife and wildlife habitat will also reduce risk of potential impacts to SAR and SOCC. Site-specific recommendations for natural features, SWH, or habitat of SAR/SOCC confirmed in the Study Area or conservatively assumed to be present, are discussed in Section 6.2.

6.1 Standard Environmental Protection Measures

6.1.1 Erosion and Sedimentation Control

Mitigation measures for sedimentation, erosion, and dust control will be implemented to prevent sediment and dust from entering sensitive natural features. The primary principles associated with sedimentation and erosion protection measures are to:

- reduce the duration of soil exposure
- retain existing vegetation, where feasible
- encourage re-vegetation
- divert runoff away from exposed soils
- keep runoff velocities low
- trap sediment as close to the source as possible

To address these principles, the following mitigation measures are recommended:

- Silt fencing and/or barriers are recommended along the work zone where there is potential for sedimentation of watercourses or wetlands, or inadvertent encroachment of construction vehicles into natural areas of Significant Woodlands, wetlands, and watercourses.
- Avoid entering any natural areas beyond the barrier fencing with equipment and avoid excess vegetation removal.
- Stabilize exposed soil areas (native seed mixes; sourced locally if possible) and re-vegetate through the placement of seed and mulching or seed and an erosion control blanket, promptly upon completion of construction activities. All disturbed substrates are recommended to be re-vegetated using seed mixes of species that are native to the site and suitable for site conditions. Introduce seed to disturbed substrates as soon as feasible following construction, and sediment fencing is recommended to remain in place until vegetation cover is re-established.
- Re-fuel equipment 30 m away from watercourses to reduce potential impacts if an accidental spill occurs.
- In addition to any specified requirements, make additional silt fence available on site, prior to grading operations, to provide a contingency supply in the event of an emergency.

- Monitor all erosion and sedimentation controls regularly and properly maintain, as required. Remove controls only after the soils of the construction area have been stabilized and adequately protected or until cover is re-established.
- Monitor limits of construction adjacent to natural features during construction (along with erosion and sedimentation control measures) to ensure that the limits are maintained with respect to vehicular traffic and soil or equipment stockpiling.
- Avoid stockpiling excess materials on site within proximity of Significant Woodlands, wetlands, and watercourses.
- Restore any disturbed natural areas to pre-construction conditions.

6.1.2 Vegetation Protection

Precise limits of vegetation removal will be confirmed during Detail Design. Vegetation removal will be limited to the extent possible and undertaken outside the migratory bird nesting period (Section 6.1.4). Sediment controls will be used to clearly mark and separate work areas from sensitive natural features (e.g., significant woodlands, wetlands, and watercourses). Sediment fencing (Section 6.1.1) will reduce the likelihood of release of sediments and other deleterious substances into adjacent areas of natural vegetation.

Topsoil and organic matter will be salvaged and reused in areas disturbed during construction, as appropriate. Replaced soils will contain native seed bank, which will help facilitate successful revegetation. Post-construction seeding of the disturbed ROW will be done with a suitable native seed mix and in consideration of Monarch habitat (Section 6.2.3.2). Seed mixes will include fast-growing, short-lived perennial cover crop to stabilize soil and reduce competition from weedy exotics. Native cover crops are preferred. New seed will be introduced to disturbed substrates as soon as feasible following construction (within 15 days for areas less than 200 m from a watercourse, and 45 days for other areas), and sediment fencing will remain in place until vegetation cover is re-established. Seeded areas shall receive water either through precipitation or irrigation after every seven successive days without rainfall for the first two months during the growing season after seeding.

A landscape restoration plan will be developed for all areas disturbed during construction, as well as any proposed compensation areas, and incorporated into the Detail Design package. The plan will include recommendations for use of native species in restoration planting as well as methods for management of invasive species.

6.1.3 Invasive Phragmites Management

The invasive common reed (Phragmites) is a 'restricted' plant species regulated by the Ontario *Invasive Species Act* (2015), and under the Act it is illegal to import, deposit, release, grow, buy, sell, lease, or trade this species. Phragmites is present throughout the existing ROW. If Phragmites control is required for this project, further field studies are recommended during Detail Design, including site-specific mapping. A clean equipment protocol is required for machinery entering riparian areas to prevent the spread of invasive species into the feature.

6.1.4 Protection of Nesting Birds

Although no nests were observed under any of the four structures at the time of field investigations, there is potential for such structures to support nests of migratory birds in subsequent seasons.

The *Migratory Birds Convention Act, 1994* (MBCA) protects nests of migratory birds from damage while they are active, including nests in vegetation and on structures. For all migratory birds, the core nesting period is identified as April 1 to August 31 (Government of Canada 2018). Vegetation clearing during nesting periods in migratory bird breeding habitat can destroy active nests and contravene the MBCA. Vegetation clearing is recommended to occur outside the core nesting period to eliminate the need for migratory bird nest searches. If work must take place during the core nesting period and the area is small enough to be effectively searched for nesting birds (e.g., isolated trees or hedgerows), then a breeding bird survey can be completed by a Qualified Biologist. The pre-construction breeding bird survey is also recommended to occur at structures proposed for rehabilitation/removal within the work zone. The area where bird nests may be impacted must be searched within five days prior to the work commencing. If breeding pairs are located, then they will be protected with a buffer until the nest is no longer active.

If an active nest is observed during construction, a designated buffer will be delineated within which no activity will be allowed to occur while the nest is active (i.e., with eggs or young). The radius of the buffer will also be determined by a Qualified Biologist. Once the nest is determined to be inactive (e.g., the young have fledged the nest), clearing and other activities in the area may proceed.

Under the new 2022 updates to the Migratory Bird Regulations (MBR) within the MBCA, Pileated Woodpecker (*Dryocopus pileatus*) nests are now protected year-round (Migratory Birds Regulations 2022). If a Pileated Woodpecker nest is determined to be empty of live birds or viable eggs, then the nest must be registered under Environment and Climate Change Canada's (ECCC) Abandoned Nest Registry. At which point the prescribed period of inactivity can begin to be counted (36-months) before any action can be taken towards the nest. Destroying an unoccupied Pileated Woodpecker nesting cavity prior to the 36-month waiting period will require a permit and may require additional mitigation measures.

6.1.5 Wildlife Protection

The following mitigation and protective measures for wildlife and wildlife habitat are recommended:

- construction equipment and vehicles are to yield to wildlife
- inform construction personnel not to threaten, harass or injure wildlife
- If wildlife are encountered during construction, personnel are required to move away from the animal and wait for the animal to move off the construction site. If slow-moving wildlife (e.g., turtles, snakes) are observed on the road and are in danger, and if safe to do so, they will be moved off the road by gently guiding the individual in the direction it was traveling. Handling of SAR is not permitted without an ESA authorization.

6.2 Site-Specific Protection Measures

Site-specific protection measures are required for sensitive species or habitats that may be present within the Study Area and where standard mitigation measures alone do not provide sufficient protection.

6.2.1 Wetlands

Standard Sediment and Erosion Control measures (Section **Error! Reference source not found.**) are recommended where work will occur within 30 m of wetland communities. Compensation for wetland area lost will be determined at Detail Design in consultation with MNRF and the appropriate Conservation Authority. Potential compensation measures might include enhancement of existing degraded wetlands or construction of new wetlands within the same watershed.

6.2.2 Woodlands

Newly created edges that are cut along existing woodlands will be addressed with restoration plantings to protect and mitigate for potential negative effects, such as increased sunlight penetration, susceptibility to windthrow, desiccation, and spread of invasive species. Restoration plans will use native species that are tolerant of the site conditions, including roadside stresses such as salt, pollution, and soil compaction. Restoration will include broadcast seeding to replace seed banks that are lost, as well as planting of woody shrubs and trees to create vertical structure. Monitoring plans will track survivorship and effectiveness of restoration plans and include recommendations to adapt management as appropriate.

6.2.3 Species at Risk/Species of Conservation Concern

The mitigation measures presented below follow general guidance for the protection of SAR/SOCC and are consistent with approved measures implemented on similar projects in Ontario. Species-specific measures are provided for species commonly encountered along roadways or in construction zones. Further field investigations, including targeted surveys, should be undertaken at Detail Design to confirm the presence of SAR or SOCC and their habitat. ESA authorization requirements, if any, for SAR will be determined at Detail Design.

The following mitigation recommendations are provided to reduce the risk to SAR and SOCC through avoidance of habitat features, timing windows and observations of potential refuges.

General mitigation to reduce impacts to SAR or SOCC and their habitats include:

- Inform on-site personnel of the potential presence of the SAR/SOCC identified in the Study Area, obligations under the ESA (2007), and recommended actions in the event of an encounter.
- Species listed as endangered or threatened on the SARO list that are present in the Study Area must be protected from harm and harassment.
- Any SAR that is incidentally encountered in the Study Area must be allowed to leave of its own accord. Activities within 20 m will cease until the individual disperses. Construction machinery/equipment must maintain a minimum operating distance of 20 m from the individual until it disperses from the work zone of its own accord.
- Should on-site personnel be unable to allow an incidentally encountered SAR to disperse from the active construction area under its own ability, MECP must be contacted immediately for additional guidance.

- Any SAR that is encountered in the work zone will be reported to the MECP staff within 48 hours of the observation or the next working day, whichever comes first.
- If an injured or deceased SAR is found, the specimen must be placed in a non-airtight container that is maintained at an appropriate temperature and MECP must be contacted immediately for additional guidance.
- Temporary alterations to SAR habitat must be limited to the duration and spatial extent possible and be remediated upon completion of activity and monitored as necessary.

6.2.3.1 Reptiles and Amphibians

Because general mitigation measures may not provide sufficient protection, avoidance of sensitive wildlife periods and temporary wildlife exclusion are recommended for reptiles and amphibians.

The peak active season for reptiles and amphibians, from approximately April 1 to October 31, cannot be avoided during construction. Installation of wildlife exclusion fencing will occur before May 15 or after September 15 (i.e., outside of key breeding period) to define Work Zones and restrict the movement of reptiles and amphibians into the working area. If construction must be initiated during the turtle nesting or snake gestation season (approximately June 1 to September 1), a qualified biologist will visually inspect the site for evidence of nesting or individual reptiles and direct installation of construction barrier fencing to avoid nests. If it is not possible to isolate a nest from construction, work will be delayed until it is determined that the nest no longer includes viable eggs (hatchlings have emerged, or eggs were predated).

Potential snake hibernation sites (rock outcroppings or stumps extending below-grade, or animal burrows) will not be disturbed during the hibernation period (November 1 to March 31). If removal of above-ground habitat features (rock slabs or piles, brush) is needed, these features will be retained outside the active work zone during construction and returned post-construction to the same or a nearby location.

During ditching and grading activities undertaken between April 1 and October 31, disturbance will be limited to the greatest extent possible to protect reptiles or amphibians that may be present. A spotter could be used to identify individuals present in the work area.

6.2.3.2 Bats

Trees > 10 cm DBH are present in the Study Area and within the proposed area of impact. These trees may be used by bat SAR as maternity habitat. The following mitigation measures are recommended to address bat SAR.

Trees that have the potential to be used as maternity habitat by bat SAR may be present within the areas proposed for vegetation removal. To identify potentially suitable bat SAR trees, follow-up surveys (during Detail Design) are recommended during leaf-off in areas where vegetation removal is proposed. Trees will be surveyed to identify trees that are >10 cm DBH, with cavities or loose, peeling bark and will be completed following the guidance outlined in MECP's survey protocol: *Treed Habitats – Maternity Roost Surveys* (2022), which references the *Bats and Bat Habitats: Guidelines for Wind Power Projects* (MNR 2011). If potential bat trees are identified within the area proposed for removal, acoustic surveys or maternity exit surveys may be needed prior to tree removals.

Additionally, to further reduce the likelihood of harm to bats, removal of trees > 10 cm DBH is recommended to take place outside the period when bats use trees for maternity roosts. Myotis species typically give birth in late-May to early-June, and females fly with newborn young until they become too heavy. Young begin to fly in mid- to late-June, at age three to four weeks. Rearing is completed in August when the bats move to hibernacula (Broders et al. 2006, Cagle and Cockrum 1943, Gerson 1984). Therefore, tree removal should not occur between May 1 to August 31. If tree clearing is required within this window, maternity exit surveys may be conducted prior to the tree removals, as mentioned above. Maternity exit surveys are conducted during the evening and will include visual and acoustic surveys using accepted protocols.

Consultation with MECP is recommended prior to any tree removals in order to receive up-to-date guidance on appropriate surveys and mitigation measures to remain compliant under the ESA.

6.2.3.3 Grassland Birds

Although grassland bird SAR were not observed during field investigations, suitable habitat is present in the Study Area and proposed area of impact. Breeding bird surveys are recommended during Detail Design. If these species are confirmed present, construction activities with the potential to harm habitat of grassland breeding birds will not be undertaken between April 1 and August 31. Work adjacent to confirmed breeding habitat will be limited during the breeding season as much as possible to avoid harassment to these species.

The limits of construction within grassland habitat will be reduced to the extent possible and delineated and flagged / staked in the field prior to construction to assist with the demarcation of the construction area. The delineated limits of construction will be reviewed by a qualified ecologist.

Grassland habitat disturbed temporarily will be remediated to pre-existing conditions as soon as possible before the beginning of the next nesting period.

6.2.3.4 Monarch

Construction activities with the potential to harm Monarch eggs, caterpillar, or pupae (e.g., vegetation clearing in meadow areas) should not be undertaken during the larval period which is approximately May 1 to September 30 (Mission-Monarch 2020).

If vegetation clearing will proceed when Monarch larvae may be present (May 1 to September 30), inspection of milkweed plants is recommended to locate Monarch larvae. If larvae are present, they may be moved to a location that is suitable and safe under the direction of a qualified professional. Monarch caterpillars may be moved to other milkweed plants; for other larval stages (i.e., eggs and chrysalis), entire milkweed plants should be transplanted.

Milkweed and nectar producing plants will be included in seed mixes for areas restored to meadow to provide habitat for Monarch. Planting will follow mitigation recommendations from **Section** Error! Reference source not found. above.

7.0 Consideration of the Endangered Species Act, 2007

The provincial ESA prohibits the killing, harming, harassing, capturing, or taking of a living member of a species listed as threatened, endangered, or extirpated by the SARO list (O. Reg. 230/08) (S. 9). Damage to habitat (S. 10) is also prohibited except where a permit is issued under S. 17(2) of the same Act or the Activity is registered under the Species at Risk Registry.

Potential habitat for SAR (Bobolink, Eastern Meadowlark, Eastern Small-footed Myotis, Little Brown Myotis, Northern Myotis and Tri-colored Bat) was identified in the Study Area but could not be confirmed during preliminary field investigations. Targeted surveys for Bobolink, Eastern Meadowlark, and bat SAR are recommended at Detail Design to determine if species and/or habitat is present within work zones. Bobolink and Eastern Meadowlark habitat could be removed with authorization under the ESA, but there would be a requirement to create compensation habitat off-site or to pay into the provincial Species at Risk Conservation Fund.

Consultation with MECP is recommended during Detail Design to discuss potential impacts to bat SAR that may result from the Project after mitigation, and to determine potential authorizations/permits.

8.0 Summary

This *Terrestrial Ecosystems Preliminary Impact Assessment Report* evaluated the potential for sensitive natural heritage features, SAR and SOCC within the Highway 401 Nagle Road Interchange Study Area using guidance from the *Environmental Reference for Highway Design* (MTO 2013).

The Study Area is a mixture of mixed and coniferous thickets, coniferous swamp, mixed meadows, and agricultural communities. Natural heritage features identified in the Study Area include Significant Wildlife Habitat (confirmed Deer Wintering Areas, candidate bat maternity colony habitat), candidate habitat for SOCC (Monarch, Barn Swallow, and Eastern Milksnake), suitable habitat of endangered or threatened species (Bobolink, Eastern Meadowlark, bat SAR), and migratory bird nests.

Standard and site-specific mitigation measures are recommended to address the anticipated impacts, including timing restrictions to address protected bird nests as well as tree removals for bats, physical protection measures such as sediment and erosion control or barrier fencing, and post-construction restoration.

Authorization requirements for SAR as well as registration under the ECCC Abandoned Nest Registry for Pileated Woodpecker will be determined at Detail Design, following completion of targeted surveys to confirm species and habitat presence. Long-term, landscape-level effects from the highway and interchange improvements are considered negligible with the implementation of the standard and site-specific environmental protection measures.

9.0 References

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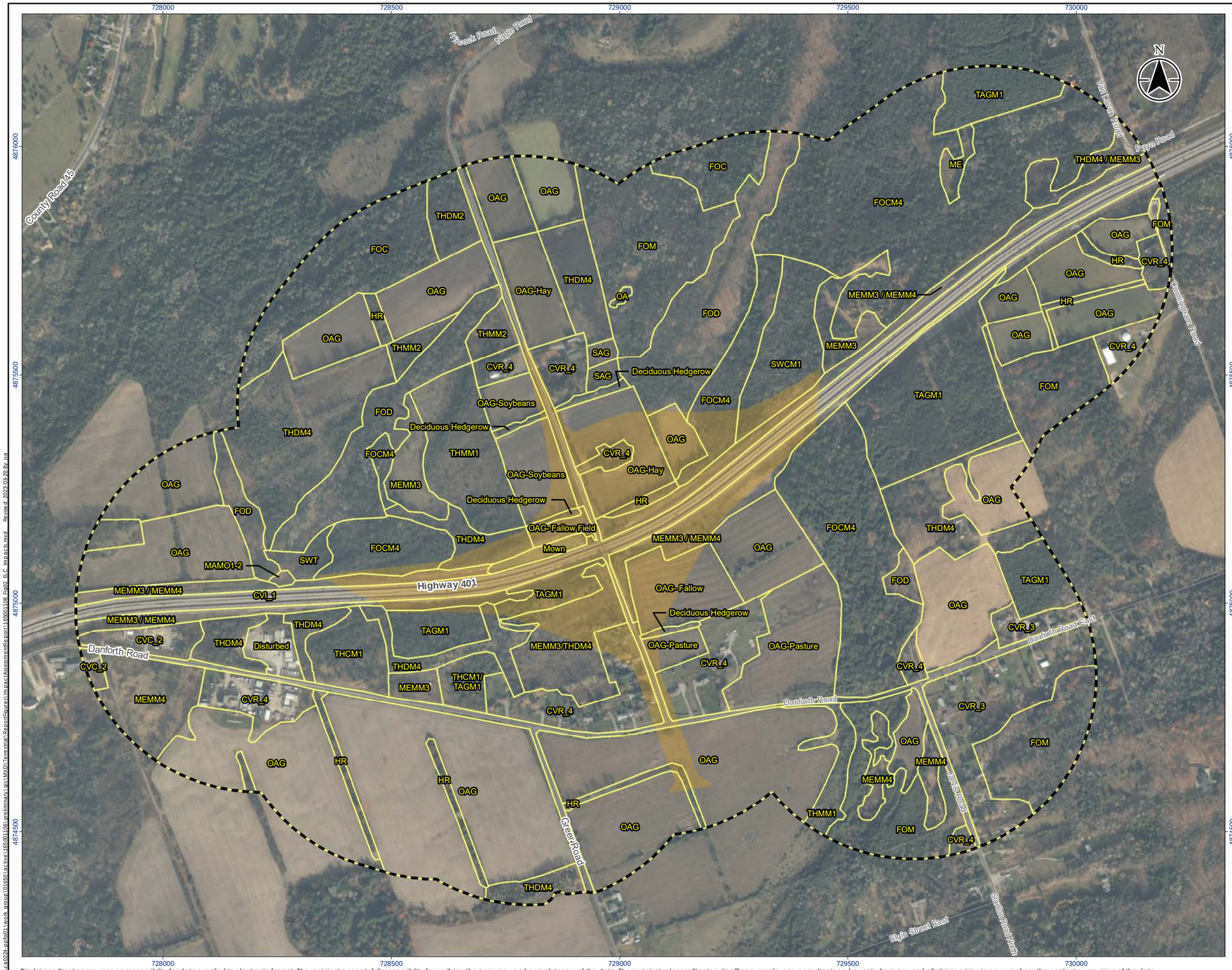
Appendix A
Figures



Stantec

Legend

- Terrestrial Study Area
- Estimated Work Area
- ELC

ELC Legend

CVC_2: Light Industry

CVI_1 - Transportation

CVR_3: Single Family Residential

CVR_4: Rural Property

Deciduous Hedgerow

Disturbed

FOC: Coniferous Forest

FOCM4: Fresh – Moist White Cedar Coniferous Forest Ecosite

FOD: Deciduous Forest

FOM: Mixed Forest

HR: Hedge Row

MAMO1-2: Cattail Graminoid Organic Meadow Marsh Type

ME: Meadow

MEG: Graminoid Meadow

MEMM3 / MEMM4: Dry - Fresh Mixed Meadow/ Fresh - Moist Mixed Meadow

MEMM3/THDM4: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Deciduous Regeneration Thicket Ecosite

MEMM3/THDM4: Dry - Fresh Mixed Meadow Ecosite/ Dry Lowshrub Tallgrass Thicket Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM4: Fresh - Moist Mixed Meadow

OA: Open Water

OAG: Open

SAG: Shrub

SWCM1: White Cedar Mineral Coniferous Swamp Ecosite

SWT: Thicket Swamp

TAGM1: Coniferous Plantation

THCM1/ TAGM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite/ Coniferous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 200 400 Metres

1:8,500 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2019.
3. Orthoimagery obtained from ©Frist Base Solutions, Town of Cobourg, 2020

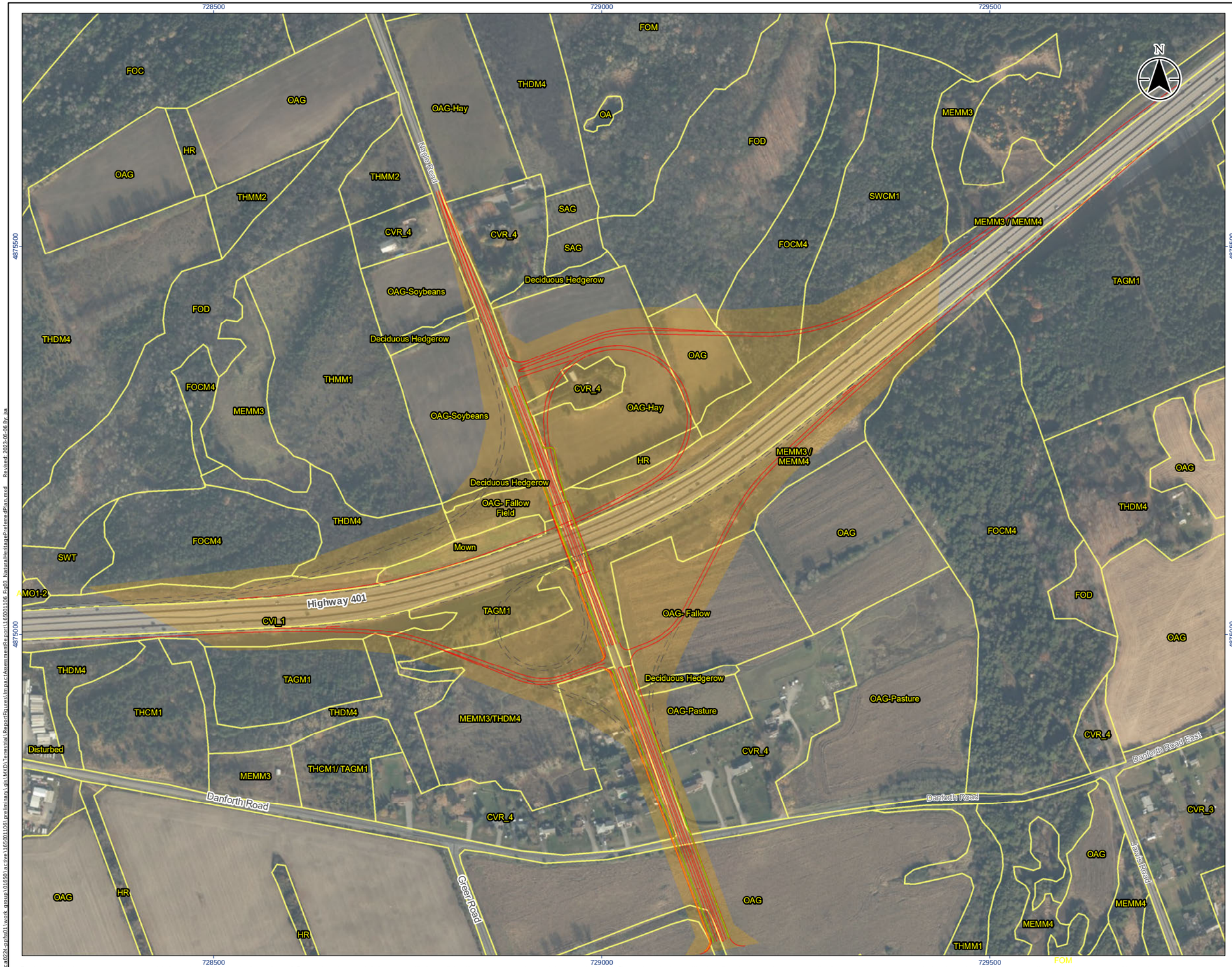
Project Location
Northumberland County

165001106 REV4
Prepared by JSa on 2023-03-20

Client/Project
MINISTRY OF TRANSPORTATION
NAGLE ROAD INTERCHANGE STUDY
(GWP 4059-17-00)

Figure No.
2

Title
Natural Heritage Features and Preliminary Impacts



Stantec

Legend

- Preferred Plan Edge of Pavement
- Preferred Future Design
- ELC
- Proposed Bike Lane
- Proposed Sidewalk
- Estimated Work Area

ELC Legend

CVI_1 - Transportation

CVR_3: Single Family Residential

CVR_4: Rural Property

Deciduous Hedgerow

Disturbed

FOC: Coniferous Forest

FOCM4: Fresh – Moist White Cedar Coniferous Forest Ecosite

FOD: Deciduous Forest

FOM: Mixed Forest

HR: Hedge Row

MAMO1-2: Cattail Graminoid Organic Meadow Marsh Type

MEG: Graminoid Meadow

MEMM3 / MEMM4: Dry - Fresh Mixed Meadow/ Fresh - Moist Mixed Meadow

MEMM3/THDM4: Dry - Fresh Mixed Meadow Ecosite/ Dry Lowshrub Tallgrass Thicket Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM4: Fresh - Moist Mixed Meadow

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SWCM1: White Cedar Mineral Coniferous Swamp Ecosite

SWT: Thicket Swamp

TAGM1: Coniferous Plantation

THCM1/ TAGM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite/ Coniferous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 100 200 Metres

1:5,000 (At original document size of 11x17)

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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3. Orthoimagery obtained from ©Frist Base Solutions, Town of Cobourg, 2020

Project Location
Northumberland County

165001106 REV4
Prepared by JSa on 2023-06-06

Client/Project
MINISTRY OF TRANSPORTATION
NAGLE ROAD INTERCHANGE STUDY
(GWP 4059-17-00)

Figure No.
3

Title
Natural Heritage Features and Preferred Plan

Appendix B
Agency Correspondence

From:	Gazibara, Nevena
To:	Giesbrecht, Debra; Todd, Kathleen
Subject:	FW: Revised Species at Risk list for the Preliminary Design and Class Environmental Assessment for Highway 401 Planning Study for Cobourg to Colborne
Date:	Tuesday, September 4, 2018 2:55:55 PM

Hi Debbie and Kathleen,

We received an updated list of SAR for the Highway 401 Cobourg study…please see email below. This information can be included in the impact assessment reports (to be completed later in the study) since the existing conditions reports have already been written.

Thanks,
Nevena

From: Prell, Phil (MNRF) <Phil.Prell@ontario.ca>
Sent: Tuesday, September 04, 2018 2:53 PM
To: Gazibara, Nevena <Nevena.Gazibara@stantec.com>
Subject: Revised Species at Risk list for the Preliminary Design and Class Environmental Assessment for Highway 401 Planning Study for Cobourg to Colborne

Dear Nevena,

Below is the revised list of species at risk for the hwy 401 project. Not much as changed (see below).

Revised list of Species at Risk (this changed in early August):

Species at Risk
A review of our best available information indicates that there are observations of the following species (endangered/threatened/special concern) in the immediate area of the site (1 km radius):

1. American Eel (END)
2. Bank Swallow (THR)
3. Barn Swallow (THR)
4. Eastern Meadowlark (THR)
5. Peregrine Falcon (SC)
6. Silver Lamprey (Great Lakes – Upper St. Lawrence Populations) (SC)
7. Snapping Turtle (SC)
8. Wood Thrush (SC)

Also, there are observations of the following species (endangered/threatened/special concern) in the general area (5 km) of the proposed activities:

1. Blanding's Turtle (THR)
2. Bobolink (THR)
3. Butternut (END)
4. Canada warbler (SC)

5. Cerulean Warbler (THR)
6. Chimney Swift (THR)
7. Cucumber Tree (END)
8. Eastern Hog-nosed Snake (THR)
9. Eastern Prairie Fringed Orchid (END)
10. Eastern Ribbonsnake (SC)
11. Eastern Wood-pewee (SC)
12. Lake Sturgeon (Great Lakes – Upper St. Lawrence River Population) (THR) → changed to (E)
13. Little Brown Myotis (END)
14. Loggerhead Shrike (END)
15. Northern Brook Lamprey (SC)
16. Red-headed Woodpecker (SC)
17. Short-eared Owl (SC)

Although no other threatened or endangered species or their habitat have been documented in the area of the proposed projects, these features may be present and this list should not be considered complete.

Overall it appears that only Lake Sturgeon have changed their designation. All other species are correctly classified.

Stantec

Meeting Notes

Ministry of Natural Resources and Forestry (MNRF)
Ministry of Environment, Conservation and Parks (MECP)

Highway 401 Planning Study from Cobourg to Colborne
Preliminary Design & Class Environmental Assessment
GWP 4060-11-00 and Nagle Road Interchange Study GWP 4059-17-00

Assignment Number 4015-E-0033, / Stantec File 165001090 & 165001106

Date/Time:	November 12, 2019 / 10:30 AM	
Place:	Conference Call	
Next Meeting:	TBD	
Attendees:	Muhammad Waseem	MTO Project Manager
	Erin Pipe	MTO Environmental Planner
	Elizabeth Spang	Ministry of Natural Resources and Forestry
	Catherine Warren	Ministry of Natural Resources and Forestry
	Colin Higgins	Ministry of Natural Resources and Forestry
	Monique Charette	Ministry of Environment, Conservation and Parks
	Gregg Cooke	Stantec Project Manager
	Nevena Gazibara	Stantec Environmental Team Lead
	Debra Giesbrecht	Stantec Terrestrial Ecologist
Distribution:	Project Team	

Item: **Action:**

1. All attendees were introduced.

2. Gregg Cooke provided a presentation that included an overview of the study purpose and scope of projects and the environmental assessment processes being completed and consultation programs. A copy of the presentation is attached to the meeting notes.

3. The scope of the two current studies includes:

   - Rehabilitation and replacement of bridges and structural culverts
   - Interchange modifications at Lyle Street and Percy Street
   - Commuter parking lot expansions and relocations
   - Establishing footprints of Highway 401 for future six and eight lanes
   - A new interchange near Nagle Road and rehabilitation or replacement of the existing Nagle Road bridge to accommodate the new interchange and future Highway 401 widening

4. Gregg Cooke provided an overview of the preliminary design alternatives that were presented at the first Public Information Centre. The first PIC was held on September 18, 2019.

5. Nevena Gazibara provided an overview of the environmental investigations completed to-date, and in particular the terrestrial and aquatic existing conditions investigations, results, and reports.

Item: **Action:**

a. It was noted that the existing conditions report were completed in 2018 and shared with the MNRF and MECP.

b. The terrestrial fieldwork program for the project and reports was completed in the summer of 2017, in advance of the formal commencement of the project. The field investigations included identifying significant wildlife habitats, completing ecological land classifications based on observations, observations of wildlife, birds and nests. The study area was determined to be 120 m from the ROW and fieldwork was conducted from the Highway 401 ROW.

c. The fisheries fieldwork program was completed in the spring and summer of 2017 and included fish habitat and ecological conditions identification and fish inventories for all watercourses within the study area.

d. The project team identified a Provincially Significant Wetland (Cranberry Lake) within the study area, phragmites within the ROW, individual Barn Swallows flying around the study area (but no nests), Eastern Pheobe nests at Shelter Valley Creek, possible turtle wintering areas and amphibian breeding habitats and animal movement corridors.

e. The fisheries investigations identified 17 watercourses with potential to provide fish habitat with most watercourses classified as permanent coldwater thermal regime watercourses with sensitive species present. One Species at Risk (American Eel) was recorded in background information in Shelter Valley Creek. As the study continues and a preferred plan is identified at Shelter Valley Creek the potential impacts to this SAR will be identified and the need for an ESA permit will be identified through consultation with the MECP.

6. Stantec noted that they have received MNRF's comments on the existing conditions reports and will update the items identified in the Impact Assessment reports, scheduled to be completed once preferred plans are selected. MECP noted that they will provide their comments on the reports within the next month.

7. MNRF and MECP asked why targeted species surveys were not completed as part of the fieldwork. Stantec noted that targeted species surveys were not included in this Planning and Preliminary Design stage and scope of work. These detailed surveys are typically completed during Detail Design, once the recommended plan is finalized and construction details are known.

8. MNRF noted that there is no information regarding deer wintering areas within the terrestrial existing conditions report. MNRF noted that they will provide that information to Stantec to include in the Impact Assessment Report.

9. MNRF noted that there are opportunities and potential for eco-passages at the Unnamed Creek crossing that is 1.4 km West of the Cranberry Lake PSW (21-469) and the Graft Creek culvert, near Craig Road, and possibly near Shelter Valley Creek.

10. Stantec discussed wildlife collision data provided by the MTO within the corridor and noted that there are not any significant patterns observed but that there are clusters of accidents near Lyle Street, Percy

Item:	Action:

Street and Shelter Valley Road. MNRF and MECP requested that the wildlife collision data be shared with them. *Following the meeting, Stantec provided the wildlife collision data with MNRF and MECP.*

11. Stantec and MTO noted that within the study area there are six structural culverts that have been identified for rehabilitation or replacement as part of this study and design alternatives have been developed (as shown on the PIC displays). At this early design stage there may be opportunities to identify culverts that could be used as eco-passages for wildlife if wildlife habitat and movement corridors are identified and topographical conditions are suitable for eco-passages. Stantec noted that they have designed upsized culverts on other projects to create eco-passages but that the success of the eco-passage depends on the length of the culvert, light availability, and ability to create and install funnel fencing adjacent to the culvert.

12. As an example, there are two culverts at Shelter Valley Creek (one road culvert and one watercourse culverts. One of the alternatives that Stantec has developed and is shown on the PIC displays is a new bridge to replace the two existing culverts. This may provide an opportunity for an eco-passage, when compared to the other design alternatives at Shelter Valley Creek. MNRF noted that the new bridge alternative is probably a better option for wildlife- less restricted area. MNRF and MECP requested copies of the PIC displays. *Following the meeting, Stantec provided the PIC displays to MNRF and MECP.*

13. MNRF noted that they will review the wildlife collision data provided and share deer wintering areas that will assist Stantec with identifying potential opportunities to use the structural culverts included in this study as eco-passages. — MNRF

14. A future meeting will be scheduled with the MNRF and MECP once preferred plans have been identified and to confirm if there are opportunities for culvert eco-passages within the study area.

The meeting adjourned at 11:50 AM

The foregoing is considered to be a true and accurate record of all items discussed. If any discrepancies or inconsistencies are noted, please contact the writer immediately.

Stantec Consulting Ltd.

on behalf of

Nevena Gazibara, B.Sc., MREM, ENV SP
Environmental Planner
Stantec Consulting Ltd.
Phone: 905-381-3249
nevena.gazibara@stantec.com

From:	Spang, Elizabeth (MNRF)
To:	Gazibara, Nevena
Cc:	Warren, Catherine (MNRF)
Subject:	RE: GWP 4060-11-00 Highway 401 Planning Study from Cobourg to Colborne- Terrestrial and Aquatic Existing Conditions Reports
Date:	Thursday, October 31, 2019 1:36:48 PM

Good afternoon Nevena:

Thank you very much for circulating the Fisheries and Terrestrial Existing Conditions Reports to MNRF for review and comment. I apologize sincerely for the delay in getting comments to you. We are looking forward to discussing this project further with your team and appreciate you reaching out. MNRF understands that the project entails future widening of the highway from 4 to up to 8 lanes along with rehabilitation of structures, interchange modifications, and commuter parking lot improvements. MNRF previously provided background information to the project team on August 8, 2018 (general background data including fisheries data for all watercrossings), and on Dec 12, 2018. MNRF's comments on the existing conditions reports at this time can be found below.

Fish and Fish Habitat Existing Conditions Report – Hwy 401 Planning Study from Cobourg to Colborne, prepared by Stantec, dated Nov 9, 2018

In general, the report was well done. MNRF has the following comments to provide:

- Permanent vs Intermittent streams: MNRF considers any water feature present for 9 months or more to be permanent. Some creeks were identified by MNRF as permanent, but during Stantec's field visits in September they were found to be dry and labeled as intermittent. Without further, multiple year investigations, it is inconclusive whether these streams are in fact permanent or intermittent. MNRF defaults to a permanent designation.

- MNRF ARA data identified some streams as containing Chum Salmon. This is highly unlikely. Chinook and Coho salmon are the only pacific salmon known to currently occur in Lake Ontario and it's tributaries. Atlantic salmon may also be present and are identified in Shelter Valley Creek. We have confirmed that the ARA data reporting Chum Salmon is incorrect; the catch of Coho salmon in Colborne Creek in 2006 was improperly entered as Chum salmon. We will be correcting this in our data layers.

- The timing window for NO in-water work that MNRF provided in 2018 for all water crossings was Oct 1 – June 30. It appears that Table 3-1 references the opposite dates (July 1 – Sept 30) when in-water work IS permitted. MNRF would appreciate confirmation that our understanding is correct and that the correct timing window will be applied.

- As you know, since the report was authored, the responsibility for species at risk

in Ontario has been shifted to the Ministry of Environment, Conservation and Parks (MECP). MECP should be consulted for advice regarding any aquatic species at risk that may be affected by the project.

Terrestrial Ecosystems Existing Conditions Report – Hwy 401 Planning Study from Cobourg to Colborne, prepared by Stantec, dated Nov 5, 2018

In general, the report provides a good start to inventorying the existing features in the study area; However, there are significant gaps in identifying natural heritage features that have not yet been evaluated. The EA process should address the infrastructure policies (section 3.2) of the *2019 A Place to Grow: Growth Plan for the Greater Golden Horseshoe* (the "Growth Plan"). MNRF has the following specific comments to provide:

- MNRF appreciates the background work done to map ELC vegetation communities along the entire corridor and conduct preliminary investigations for significant wildlife habitat following MNRF's Ecoregion Criteria Schedules. MNRF agrees with the conclusion statement that 'Further investigations of these candidate features (turtle wintering areas, amphibian breeding habitat, animal movement corridors and Snapping turtle habitat) are recommended during detailed design.' MNRF recommends adding habitat for special concern species (see further comment below), turtle nesting area investigations, as well as additional large culvert inspections for nesting birds. Surveys should be done at the appropriate time of year using established methodologies.

- Table 3.2 lists potential habitat for several special concern species within the study area such as breeding habitat for several SC birds. Habitat for special concern species should also be considered significant wildlife habitat. The August field surveys were not conducted at the appropriate time of year to capture breeding birds. MNRF recommends further field investigations during detail design to confirm whether these species are present to identify appropriate mitigation measures.

- MNRF strongly recommends considering enhancing opportunities for wildlife movement across the widened highway corridor by including ecopassages in the design. Turtles and amphibians in particular are very sensitive to population impacts from road mortality. Candidate areas could include larger valley features that already include watercrossings of some kind that could be enhanced to provide safe passage for a variety of wildlife. A potential best bet opportunity for an ecopassage (reptile/amphibian, perhaps other larger animals too) is suggested at the unnamed creek crossing 1.4 km W of Cranberry (Little) Lake Wetland PSW. There are other potential opportunities at the water crossing/valley near Craig Road (Fig 4) that provides a direct connection from a nearby Oak Ridges Moraine Natural Linkage Area to the north to the Growth

Plan NHS north and south of the highway, or possibly at Shelter Valley Creek connecting down to Grafton Swamp PSW at Lake Ontario. MNRF would welcome further discussion with MTO/Stantec about ecopassages. MNRF can provide BMPs for wildlife fencing and ecopassage design for reptiles and amphibians. If MTO has any information to share (e.g. areas with higher vehicle-wildlife conflicts, field assessments of water/valley crossings with good potential), it would be appreciated.

- There are Stratum 2 deer wintering areas within the study area that were not referenced in the report. Deer wintering areas are mapped by MNRF and should be considered significant wildlife habitat as well. Mitigation options for significant wildlife habitat types can be found in the SWH Mitigation Support Tool, found here: https://www.ontario.ca/page/natural-heritage-planning-resources-municipal-planning.

- **Growth Plan:** On May 2, 2019, the Province issued a revised Provincial Plan document called '*A Place to Grow: Growth Plan for the Greater Golden Horseshoe' (2019).* This Plan replaced the Growth Plan for the Greater Golden Horseshoe, 2017 as of May 16, 2019. The entire study area is located within the Growth Plan and most of of the study area is located within the Growth Plan Natural Heritage System (NHS). The Infrastructure policies of the Growth Plan state that an environmental assessment should demonstrate "*that any impacts on key natural heritage features in the Natural Heritage System for the Growth Plan, key hydrologic features and key hydrologic areas have been avoided, or if avoidance is not possible, minimized and to the extent feasible mitigated*." (S. 3.2.5). The Growth Plan can be accessed here: https://www.ontario.ca/document/place-grow-growth-plan-greater-golden-horseshoe. Please see the Growth Plan definitions for a list of key natural heritage features and key hydrologic features. Please note that not all key natural heritage features or key hydrologic features have been mapped in advance and field verifications may be required to map some of these features.

- The report does not investigate whether any of the wooded areas within the study area have potential to be significant woodlands. Significant woodlands are key natural heritage features within the Growth Plan NHS (in addition to being a significant natural heritage feature in the PPS). MNRF is of the opinion that there are woodlands in the study area that have potential to be significant. MNRF recommends that the 2010 Natural Heritage Reference Manual criteria be used to determine woodland significance in Northumberland County. Given that Northumberland County has approximately 36% forest cover, a minimum size of 50 ha is recommended. This size must be identified based on contiguous woodland polygons (excluding gaps less than 20 m wide), regardless of whether they extend outside of the study area (i.e. woodland size must not be cut off at

the study area boundary for the purposes of measuring their overall size). It should be noted that the County of Northumberland is currently developing their own significant woodlands criteria and policies, but they are not yet in place. The municipality is ultimately the approval authority to determine woodland significance for municipal planning purposes. Municipal criteria may exceed the minimum standard set by the Province (e.g. by choosing a smaller threshold to capture more woodlands). For the purposes of the EA, MNRF recommends, at a minimum, a basic analysis of woodlands based on size in order to determine potential significant woodlands and any required measures that are required to avoid, or if avoidance is not possible, minimize and mitigate impacts to the extent possible in accordance with the Growth Plan and the PPS.

- The report does not address unevaluated wetlands, many of which exist in the study area according to the ELC mapping provided. The Growth Plan identifies all wetlands, regardless of significance, as key hydrologic features, which are protected throughout the Growth Plan area (except within settlement areas designated in a municipal official plan). MNRF recommends that the criteria in the 2005 “Technical Definitions and Criteria for Key Natural Heritage Features in the Natural Heritage System of the Protected Countryside Area” (found here: http://www.mah.gov.on.ca/Page10197.aspx) be used to identify wetlands subject to the Growth Plan. Essentially all wetlands are protected unless there is rationale that small wetlands less than 0.5 ha in size do not provide certain functions (see criteria for details). ELC is an acceptable method to map wetlands subject to the Growth Plan wetland policies. MNRF recommends that any wetlands identified in the ELC mapping be considered key hydrologic features (and additionally key natural heritage features if located within the Growth Plan NHS) and be avoided, or if avoidance is not possible, impacts are minimized and mitigated to the extent possible in accordance with the Growth Plan.

- As you know, since the report was authored, the responsibility for species at risk in Ontario has been shifted to the Ministry of Environment, Conservation and Parks (MECP). MECP should be consulted for advice regarding any species at risk that may be affected by the project.

- MNRF manages two acquired crown land areas that are immediately adjacent to the highway within the study area. One is located near Payne Road on south side of the Hwy in Lot 5, Con 1, Hamilton. The second area is two distinct parcels on either side of Vernonville Rd, north side of Hwy in Lots 10 & 11, Con 1, Haldimand. MNRF requests to be contacted for discussion if any impacts from the project are expected on these two Crown land areas.

Thank you for the opportunity to comment. I will be out of the office on maternity leave

starting November 18, 2019. Let me know if a teleconference can be scheduled before that time. During my absence, inquires regarding this project can be directed to my planner colleague, Catherine Warren, cc'd. Please reference the MNRF file numbers **18-HAMI-NOR-EAE-2677 and PB2018-0448** in any future correspondence.

Kind regards,

Liz Spang, M.Pl

District Planner
Peterborough District
Ontario Ministry of Natural Resources and Forestry
300 Water Street, 1st Floor South
Peterborough, ON K9J 8M5
Tel: (705) 755-3360
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Email: Elizabeth.Spang@ontario.ca

From: Gazibara, Nevena <Nevena.Gazibara@stantec.com>
Sent: October 9, 2019 9:20 AM
To: Spang, Elizabeth (MNRF) <Elizabeth.Spang@ontario.ca>; Charette, Monique (MECP) <monique.charette@ontario.ca>
Cc: Waseem, Muhammad (MTO) <Muhammad.Waseem@ontario.ca>; Pipe, Erin (MTO) <Erin.Pipe@ontario.ca>; Cooke, Gregg <gregg.cooke@stantec.com>; Belliveau, Tim <tim.belliveau@stantec.com>
Subject: RE: GWP 4060-11-00 Highway 401 Planning Study from Cobourg to Colborne- Terrestrial and Aquatic Existing Conditions Reports

Good morning Elizabeth and Monique,

I'm following up to see if you two have had time to review the existing conditions reports for the above-mentioned study and whether the project team can schedule a joint conference call/meeting with you to discuss the project, existing natural heritage features, and sensitive areas and constraints, to consider as the project moves forward and preliminary design alternatives are refined and evaluated.

Please let me know your interest and availability in a meeting with the project team.

Kind regards,
Nevena Gazibara B.Sc., MREM, ENV SP
Environmental Planner

Direct: 905 381-3249
Fax: 905 385-3534
nevena.gazibara@stantec.com

Stantec
200-835 Paramount Drive
Stoney Creek ON L8J 0B4

From: Spang, Elizabeth (MNRF) <Elizabeth.Spang@ontario.ca>
Sent: Thursday, May 16, 2019 10:45 AM
To: Gazibara, Nevena <Nevena.Gazibara@stantec.com>
Cc: Waseem, Muhammad (MTO) <Muhammad.Waseem@ontario.ca>; Pipe, Erin (MTO) <Erin.Pipe@ontario.ca>; Cooke, Gregg <gregg.cooke@stantec.com>; Belliveau, Tim <tim.belliveau@stantec.com>
Subject: RE: GWP 4060-11-00 Highway 401 Planning Study from Cobourg to Colborne- Terrestrial and Aquatic Existing Conditions Reports

Hello Nevena:

I've successfully downloaded the reports. Thanks for reaching out and for sharing them with us. I'll be in touch when we've had an opportunity to review.
As mentioned on the phone, the contact for species at risk reviews/inquiries is now the Ministry of Environment, Conservation and Parks at SARontario@ontario.ca.

Cheers,

Liz Spang, M.Pl

District Planner
Peterborough District
Ontario Ministry of Natural Resources and Forestry
300 Water Street, 1st Floor South
Peterborough, ON K9J 8M5
Tel: (705) 755-3360
Fax: (705) 755-3125
Email: Elizabeth.Spang@ontario.ca

From: Gazibara, Nevena <Nevena.Gazibara@stantec.com>
Sent: May 10, 2019 4:14 PM
To: Spang, Elizabeth (MNRF) <Elizabeth.Spang@ontario.ca>
Cc: Waseem, Muhammad (MTO) <Muhammad.Waseem@ontario.ca>; Pipe, Erin (MTO) <Erin.Pipe@ontario.ca>; Cooke, Gregg <gregg.cooke@stantec.com>; Belliveau, Tim <tim.belliveau@stantec.com>
Subject: GWP 4060-11-00 Highway 401 Planning Study from Cobourg to Colborne- Terrestrial and Aquatic Existing Conditions Reports

Good afternoon Elizabeth,

As per our telephone discussion the other day, please find a temporary FTP site with the terrestrial and aquatic existing conditions reports for the above-mentioned project for your reference.

Login Information

Browser link: https://tmpsftp.stantec.com
FTP Client Hostname: tmpsftp.stantec.com Port: 22 (can be used within an FTP client to view and transfer files and folders; e.g., FileZilla)
Login name: s0524135614
Password: 2654096
Disk Quota: 2GB
Expiry Date: 5/24/2019

Please let me know if you have any issues accessing the files.

Once you have had a chance to review the reports we can discuss a potential meeting with you and the project team.

Kind regards,

Nevena Gazibara B.Sc., MREM, ENV SP
Environmental Planner

Direct: 905 381-3249
Fax: 905 385-3534
nevena.gazibara@stantec.com

Stantec
200-835 Paramount Drive
Stoney Creek ON L8J 0B4

From: Addley, Diana
To: Robinson, Jennifer
Subject: FW: Highway 401 Planning Study from Cobourg to Colborne-MECP Comments
Date: Friday, February 7, 2020 2:15:20 PM

Hi Jenn,

Could you please file this comment and update the TRACER document to reflect the comments below?

We can chat about the TRACER when you are free.

Thank you,

Diana Addley
Senior Environmental Planner

Direct: 905 415-6401
Mobile: 647 588-7112
Diana.Addley@stantec.com

Stantec
150 - 1555 Wentworth Street
Whitby ON L1N 9T6

From: Pipe, Erin (MTO) <Erin.Pipe@ontario.ca>
Sent: Friday, February 7, 2020 8:10 AM
To: Addley, Diana <Diana.Addley@stantec.com>
Cc: Cooke, Gregg <gregg.cooke@stantec.com>; Belliveau, Tim <tim.belliveau@stantec.com>; Waseem, Muhammad (MTO) <Muhammad.Waseem@ontario.ca>
Subject: FW: Highway 401 Planning Study from Cobourg to Colborne-MECP Comments

Hi Diana;

Please find below comments from Monique Charette of MECP's SAR Branch. Monique was provided the fisheries and terrestrial existing conditions reports prior to the teleconference Nevena organized which also included MNRF (Catherine Warren and Colin Higgins).

Erin

From: Charette, Monique (MECP) <monique.charette@ontario.ca>
Sent: February-06-20 4:28 PM
To: Pipe, Erin (MTO) <Erin.Pipe@ontario.ca>
Subject: Highway 401 Planning Study from Cobourg to Colborne-MECP Comments

Good afternoon Erin,

My apologies for not responding sooner. I have reviewed the Terrestrial Ecosystems Existing Conditions Report, Fish and Fish Habitat Existing Conditions Report, the mainline and Nagle exhibits and wildlife collision information. I've provided comments on only some of the species at risk listed in the reports however all species at risk and/or species at risk habitat should be considered in the detailed design stage.

Blanding's turtle

We recommend that targeted surveys for Blanding's Turtles be conducted since suitable wetland features are present within the Study Area. Blanding's Turtles also use terrestrial habitat for nesting, thermoregulation and movement. Potential nesting habitat which could include meadows, rocky outcrops, agricultural fields and trails should be considered when evaluating potential impacts on the species.

Blanding's Turtles are also known to travel long distances moving through different habitats especially in spring and fall. Surveys should not be limited to determining whether turtles are using aquatic features or whether there is nesting potential within the Study Area. Surveys should also consider turtle movement as they could be travelling through the Study Area if suitable habitat is found on both sides of the highway. There are several figures in Appendix A that show the existing highway crossing multiple watercourses, some of which are connected to waterbodies. These areas could be potential movement corridors.

In addition to conducting surveys, we recommend that habitat mapping be prepared to show where Category 1, 2 and 3 may be present. The survey results and maps will help inform potential mitigation measures and/or potential overall benefit projects if deemed required. Is there a possibility of adapting existing culverts or new ones to be suitable for Blanding's Turtle passage?

Eastern Whip-poor-will

Although the disturbance from the 401 may prevent the use of the ROW by Eastern Whip-poor-will (EWPW), they may be found in suitable habitat adjacent to the ROW and possibly outside of the Study Area which only includes a 120m area. Activities taking place in the ROW may have an indirect impact on potential adjacent territories. The EWPW has a General Habitat Description under the ESA which includes suitable habitat up to 500m of the nest or centre of approximated defended territory. In Ontario, territory range is thought to be approximately 9Ha. We recommend that a broader area be considered when evaluating potential impacts on this species.

Bobolink and Eastern Meadowlark

Although densities may be lower closer to the 401, if the habitat is suitable and surveys indicate Bobolink and/or Eastern Meadowlark are present, the ESA applies. Birds may generally avoid the ROW as a result of the disturbance associated with the highway, however they may still be in suitable habitat adjacent to the ROW and could be impacted by activities taking place in the ROW. An example of this would be the interchange at Hwy. 401/38 in Kingston where 3 Eastern Meadowlark were observed breeding in close proximity to the highway. Mitigation measures may be required to ensure potential impacts are minimized for these species.

Eastern Small-footed Myotis

The Eastern Small-footed Myotis has been found roosting in a variety of different habitats, both anthropogenic (buildings, bridges) and natural (trees). Although they mainly rely on rock roosts, we recommend that anthropogenic features also be considered when conducting surveys. We also believe that if present, the Eastern Small-footed Myotis could potentially use the rocks surrounding some of the existing culverts (eg. unnamed tributaries 0A and 0B). We recommend that these areas also be considered in future surveys.

Little Brown Myotis, Northern Myotis and Tri-coloured Bat

Although habitat was only found irregularly at the periphery of the ROW and not within the ROW, potential impacts should still be considered especially if tree clearing is to occur in close proximity to suitable habitat. Also, bats often move from one roost site to another within an area. We recommend that potential networks of roosts be considered when conducting surveys.

These bats forage along waterways and forest edges. There are multiple figures in Appendix A that show the highway crossing watercourses that flow through mixed forests, coniferous forests, deciduous forests and coniferous swamps. We recommend that these areas be evaluated as potential movement corridors for bats.

Overall Comment

Surveys are recommended for species that have the potential to be present based on the availability of suitable habitat. Confirming the presence of species at risk and/or their habitat will help inform mitigation measures and potential overall benefits that may be required in the future. Please don't hesitate to contact me if you would like to discuss the type of surveys that may be required or if you have any questions related to my comments.

Sincerely,

Monique Charette
Management Biologist
Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section
Species At Risk Branch
51 Heakes Lane
Kingston ON, K7M 9B1
(613) 583-3162

Stantec Consulting Ltd.
200-835 Paramount Drive, Stoney Creek ON L8J 0B4

April 9, 2020
File: 165001090

Ms. Catherin Warren
District Planner
Ministry of Natural Resources and Forestry- Peterborough District
300 Water Street, 1st Fl
Peterborough ON K9J 3C7

Dear Ms. Warren,

Reference: Highway 401 Planning Study from Cobourg to Colborne, Ontario (GWP 4060-11-00)
Highway 401 Nagle Road Interchange Study (GWP 4059-17-00) - Response to Comments Received on Natural Environment Existing Conditions Reports

Dear Ms. Warren,

Thank you for taking the time to review the Terrestrial and Fisheries Existing Conditions Reports and provide comments on behalf of the MNRF in relation to the above-mentioned project. In addition, thank you for participating in the conference call with the project team and with the Ministry of Environment, Conservation and Parks (MECP) held on November 12, 2019.

With respect to your comments and suggestions regarding the Fish and Fish Habitat Existing Conditions report, please note that the project team will incorporate these changes into the Fish and Fish Habitat Impact Assessment Report, which will be completed once a preferred plan is selected for the project. It is anticipated that this report will be completed in June 2020. As part of these changes, we will: revise the intermittent watercourses to reflect that they are permanent; revise the Colborne Creek fish species from Coho salmon to Chum salmon; and, confirm the in-water timing restrictions.

Your comments and suggestions regarding the Terrestrial Ecosystems Existing Conditions report have also been noted. Similarly, the project team will incorporate these changes into the Terrestrial Ecosystems Impact Assessment Report, which will be completed once a preferred plan is selected for the project. With respect to your comments regarding targeted species surveys, our team will provide recommendations for additional investigations in the Impact Assessment Report; however, as noted during the November 2019 conference call, these investigations are typically completed during the Detail Design stage, once refinements are made to the recommended plan. We will also include information and delineation of significant woodlands in the assessment report.

It is understood that there was a discussion regarding deer wintering areas during the November 2019 conference call. It would be appreciated if the information and mapping related to these areas could be provided to inform the Impact Assessment Report for this project.

As part of our evaluation of design alternatives, the project team will seek to select alternatives that avoid or minimize impacts to unevaluated wetlands, where possible. These features will be included in the natural environment evaluation criteria as part of the evaluation of alternatives.

Reference: Preliminary Design and Class Environmental Assessment
Highway 401 Planning Study from Cobourg to Colborne, GWP 4060-11-00
Response to Comments Received on Natural Environment Existing Conditions Reports

Once the project team selects the preferred plan and confirms property impacts, we will contact you if any impacts are anticipated to the MNRF-managed properties within the study area.

With respect to your comments related to the Growth Plan (2019- A Place to Grow: Growth Plan for the Greater Golden Horseshoe), please note that this project is being completed under the MTO Class Environmental Assessment (EA) for *Provincial Transportation Facilities*, which is an approved process under the Environmental *Assessment Act*. MTO's Class EA document defines the groups of undertakings and associated EA processes which MTO must follow. The MTO Environmental Reference for Highway Design, which was developed in consultation with provincial and federal agencies, provides the standards and requirements for environmental investigations completed as part of the MTO Class EA process. As such, key hydrologic features are identified as part of the Class EA process, and impacts to these areas avoided or mitigated, to the extent possible.

The project team has noted your recommendations and information regarding potential eco-passages within the study area. This information will be considered, and incorporated into the design of the preferred plan, where possible. The project team will contact you and the MECP once a preferred plan has been selected to discuss potential opportunities for eco-passages within the study area.

Thank you again for taking the time to provide comments on behalf of the MNRF. Should you have any additional comments, questions and/or concerns, please do not hesitate to contact the undersigned.

Regards,

Stantec Consulting Ltd.

Diana Addley
Senior Environmental Planner
Phone: (905) 415-6401
Email: Diana.Addley@stantec.com

c. M. Waseem, E. Pipe – Ministry of Transportation
G. Cooke, T. Belliveau – Stantec Consulting Ltd.

Stantec Consulting Ltd.
200-835 Paramount Drive, Stoney Creek ON L8J 0B4

April 9, 2020
File: 165001132

Attention: Monique Charette, Management Biologist
Ministry of the Environment, Conservation and Parks
Permissions and Compliance Section
Species At Risk Branch
51 Heakes Lane
Kingston ON, K7M 9B1
Email: monique.charette@ontario.ca

Dear Ms. Charette,

Reference: Response to MECP Comments, Draft Terrestrial Ecosystems Existing Conditions Report
Highway 401 Planning Study from Cobourg to Colborne (GWP 4060-11-00)
Highway 401 Nagle Road Interchange Study (GWP 4059-17-00)

Thank you for taking the time to review and provide comments on behalf of the Ministry of Environment, Conservation and Parks (MECP) in relation to the Terrestrial Ecosystems Existing Conditions (TEEC) report prepared by Stantec and dated November 5, 2018. This letter provides Stantec's response to the comments received via email by Ms. Erin Pipe of the Ontario Ministry of Transportation, (MTO) from the MECP on February 7, 2020, in relation to the TEEC report and associated terrestrial Species at Risk (SAR) considerations in relation to the above-referenced projects.

As part of your response, specific recommendations were noted in relation to eight of the fourteen SAR listed in the TEEC report, including Blanding's Turtle, Eastern Whip-poor-will, Bobolink, Eastern Meadowlark, Little Brown Myotis, Northern Myotis, Tri-coloured Bat and Eastern Small-footed Myotis. It is understood that all SAR and/or SAR habitat should be considered during the detailed design stage of these projects, including the other species listed within the TEEC report (i.e., Chimney Swift, Least Bittern, Bank Swallow, Barn Swallow and Louisiana Waterthrush).

A summary of habitats for the eight SAR described in the TEEC report is provided in Table 1 (attached), as well as the MECP's associated comments and/or recommendations. As noted in the TEEC report, an Impact Assessment report will be prepared once the Preliminary Design has been completed, at which time site-specific mitigation recommendations will be identified to reduce the likelihood of negative impacts to SAR within the Study Area, including but not limited to conducting targeted surveys for SAR during Detail Design.

In accordance with the Class Environmental Assessment for Provincial Transportation Facilities (2000), the Class EA process consists of four main stages: Planning, Preliminary Design; Detail Design; and, Construction. As noted above, this Study consists of the Planning and Preliminary Design stages, and as such focuses on 'roughing out' a design. As noted in Section 2 of the MTO's Environmental Guide for Highway Design (2013), an overall appreciation of environmental constraints can be determined during Preliminary Design based on a collection of background information, until it is supplemented by field investigations that may be completed once the design is sufficiently advanced and a better understanding

Reference: Response to MECP Comments, Draft Terrestrial Ecosystems Existing Conditions Report Highway 401 Planning Study from Cobourg to Colborne (GWP 4060-11-00) Highway 401 Nagle Road Interchange Study (GWP 4059-17-00)

of impacts is established. The environmental information gathered during Detail Design is intended to fill in information gaps, update information, and enhance the information level of detail acquired during the previous stages.

Based on the February 2020 response, it is understood that MECP is recommending targeted surveys for SAR where suitable habitat is present in the Study Area at the Preliminary Design stage in order to assess potential impacts and inform the recommended mitigation measures. However, please note that a conservative approach is typically undertaken during the Planning and Preliminary Design stage, which includes the evaluation of alternatives. As such, suitable habitat for SAR is identified based on Ecological Land Classification surveys and wildlife habitat assessments conducted for the Study Area, and a species' presence is assumed. Once a Recommended Plan has been identified, site-specific avoidance and mitigation measures are recommended for each SAR or SAR habitat. Consideration is given to species such as Blanding's Turtle and Eastern Whip-poor-will, whose regulated or general habitat extends beyond the 120 m Study Area boundary.

Thank you again for taking the time to review the TEEC and provide comments on behalf of the MECP. Stantec will provide the Impact Assessment report to MECP upon its completion and welcomes MECP's comments on the proposed avoidance and mitigation measures, including recommendations for targeted surveys for SAR during Detail Design. As part of this project, MTO intends to avoid or reduce potential impacts of the project activities on SAR, to the extent possible.

Should you have any additional questions, comments and/or concerns, please do not hesitate to contact the undersigned

Regards,

Stantec Consulting Ltd.

Diana Addley
Senior Environmental Planner
Direct: 905 415-6401
Email: Diana.Addley@stantec.com

Attach.: Table 1 – SAR Habitat Suitability

c. Erin Pipe, MTO
Muhammad Waseem, MTO
Gregg Cooke, Stantec
Debra Giebrecht, Stantec
Melissa Cameron, Stantec

Table 1 – SAR Habitat Suitability

Species	Habitat Suitability in Study Area (as described in the TEEC Report)	MECP Comment / Recommendation
Blanding's Turtle	Suitable wetland habitat is present in proximity to the ROW.	Targeted surveys to confirm habitat use in wetlands and candidate nesting habitat. Conduct mapping of Category 1, 2 and 3 habitats.
Eastern Whip-poor-will	Suitable open woodland habitat is present in the Study Area; however, disturbance from Highway 401 may limit use.	Consider potential impacts outside the Study Area within 500 m of a nest or defended territory.
Bobolink and Eastern Meadowlark	Grassland features within the Study Area may provide breeding habitat for; however, nesting is unlikely to occur in the ROW due to disturbance from Highway 401.	These species may nest in proximity to Highway 401 where suitable habitat is present. Mitigation measures may be required to minimize impacts.
Little Brown Myotis, Northern Myotis and Tri-coloured Bat	Suitable roost occur irregularly at the periphery of the ROW.	Surveys to confirm roosts and movement by bats among roosts, and evaluation of movement corridors within the Study Area.
Eastern Small-footed Myotis	Suitable habitat is not present in the Study Area.	Rocks around some existing culverts may provide suitable roosting habitat. Targeted surveys are recommended.