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Terrestrial Ecosystems Preliminary Impact Assessment Report - Highway 401 Planning Study from Cobourg to Colborne (GWP 4060-11-00)

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Sign-off page

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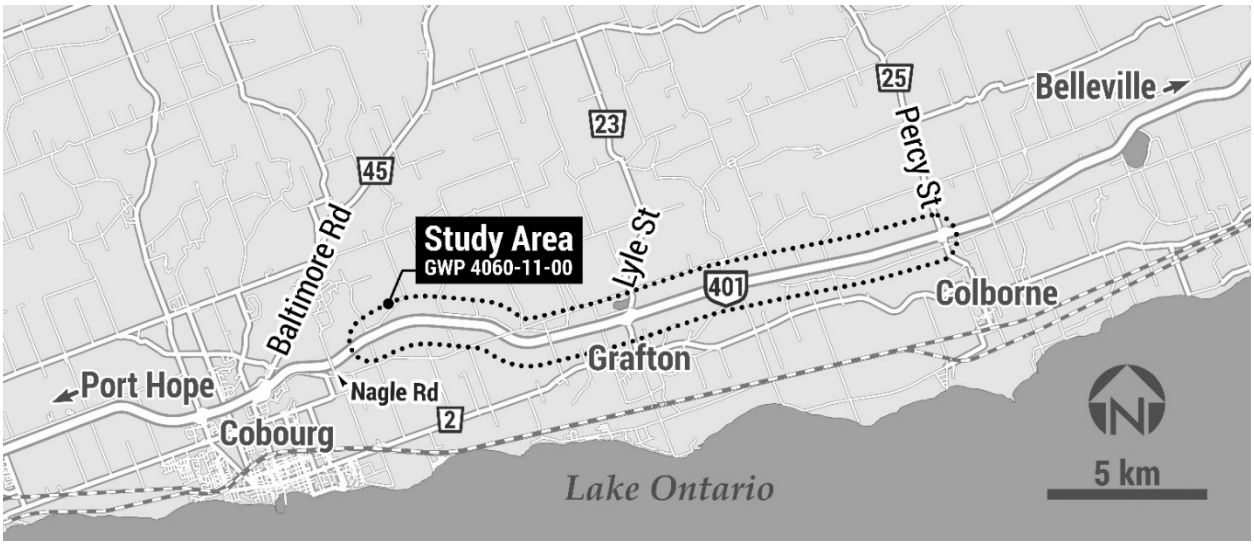
1.0 Introduction

The Ontario Ministry of Transportation (MTO) retained Stantec Consulting Ltd. to undertake a Planning, Preliminary Design, and Class Environmental Assessment (Class EA) Study on Highway 401 for the replacement and rehabilitation of structures, interchange modifications, establishing the footprint of future six and eight lanes to address current and future transportation needs, and commuter parking lot improvements, from 2 km east of Nagle Road to Percy Street (approximately 18 km) (**Figure 1**). The purpose of the study is to identify a Recommended Plan that addresses current and future transportation needs in the Study Area as part of the MTO's ongoing review of safety and operational needs for the provincial highway network. 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. This 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 Ecosystems 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 a separate report (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 Ecosystems Existing Conditions Report* for the project (Stantec 2018).

Stantec completed field investigations within the Study Area from August 12 - 16, 2017. Additional field investigations were conducted at the intersection of Percy Street and Highway 401 on July 3, 2019, after the intersection design was revised.

Correspondence with the Ministry of Natural Resources and Forestry (MNRF) and the Ministry of Environment, Conservation and Parks (MECP) received for the *Terrestrial Ecosystems Existing Conditions Report* (Stantec 2018) are 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**.

- Designated Features
    - Cranberry Lake Provincially Significant Wetland (PSW)
    - Significant Wildlife Habitat (confirmed Deer Wintering Areas, other candidate habitats)
    - Significant Woodlands
    - Significant Valleylands (Gully Creek and Shelter Valley)
- Candidate Habitat for Species of Conservation Concern
    - Monarch
    - Barn Swallow
    - Canada Warbler

  - Eastern Wood-Pewee
  - Grasshopper Sparrow
  - Wood Thrush
  - Northern Map Turtle
  - Snapping Turtle
- Candidate Habitat of Endangered or Threatened Species
  - Bank Swallow
  - Bobolink
  - Eastern Whip-poor-will
  - Least Bittern
  - Louisiana Waterthrush
  - Red-headed Woodpecker
  - Blanding's Turtle
  - Eastern Small-footed Myotis
  - Little Brown Myotis
  - Northern Myotis
  - Tri-colored Bat
- Confirmed Habitat of Endangered or Threatened Species
  - Eastern Meadowlark (species observed within the Study Area, **Figure 2-15, Appendix A**)
- Migratory Bird Nests
  - Eastern Phoebe

4.0 Description of Work

The Recommended Plan for Highway 401 from Cobourg to Colborne includes the future footprint of Highway 401 to an interim 6-lane cross section and ultimate 8-lane cross-

section. The plan includes the replacement and/or rehabilitation of bridges and structural culverts, and interchange modifications at Lyle Street and Percy Street. The interchange modifications include the relocation and expansion of commuter parking lots. The proposed structural modifications and stormwater management facilities may be implemented between completion of the Class EA and implementation of the future 6-lane configuration, depending on the condition of structures and funding. The ultimate 8-lane configuration relates to the additional modifications carried out in conjunction with the future implementation of the ultimate highway footprint.

The limits of proposed work for the Recommended Plan are shown on **Figure 2, Appendix A**.

5.0 Impact Assessment

Impacts to natural features as a result of Project construction are presented based on the 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 culvert replacements, interchange improvements, and future highway footprint 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 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 habitat will be permanently lost due to vegetation clearing and subsequent highway footprint construction. Standard environmental protection and feature-specific mitigation measures are discussed in separate sections below.

5.1 Loss of Terrestrial Habitat

The proposed culvert and bridge replacements, interchange improvements, and future highway footprint will require vegetation removal and grading and will result in the loss of approximately 217 hectares (ha) of terrestrial habitat within the Study Area (see **Figure 2**, **Appendix A**). Construction activities in some areas will extend beyond the current right-of-way (ROW) and require vegetation removal and earth grading which will result in the loss of natural vegetation communities. Specifically in areas where steep slopes occur and occupied by forest communities. The Study Area contains approximately 234 ha of significant woodland of which 25 ha will be impacted by the Project.

Table 1: Terrestrial Habitat Impacted within the Study Area

Vegetation Community	ELC Code	Impacted Area (ha)	Total Impacted Area (ha) by Vegetation Community
Meadow	Linear Meadow (MEM)	80.5	80.72
	Graminoid Meadow (MEG)	0.11	
	Mowed Meadow	0.17	
Regeneration Thicket	Coniferous (THC)	0.91	8.54
	Mixed (THM)	1.88	
	Deciduous (THD)	5.75	
Forest	Coniferous (FOC)	3.10	27.30
	Mixed (FOM)	11.46	
	Deciduous (FOD)	12.74	
Plantation	Coniferous (TAGM1)	2.38	4.79
	Deciduous (TAGM3)	0.07	
	Hedgerow (HR) and other small groups of planted trees	2.34	
Swamp	Coniferous (SWC)	0.62	1.26
	Mixed (SWM)	0.63	
Marsh	Marsh (MA)	2.11	2.11
Open Water	Open Water (OA)	0.08	0.08
Agriculture	Open Agriculture (OAG)	5.84	6.32
	Shrub Agriculture (SAG)	0.48	
Developed	Residential (CVR)	1.04	84.13
	Transportation and Utilities (CVI)	82.71	
	Commercial and Institutional (CVC)	0.19	
	Cleared	1.23	

Vegetation Community	ELC Code	Impacted Area (ha)	Total Impacted Area (ha) by Vegetation Community
Disturbed	Disturbed	1.07	1.07
Total Impacted			**217.03***

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

5.2 Potential Disturbance to Wetlands

Cranberry Lake PSW is located northwest of the Lyle Street interchange but is outside the area of proposed impact. Additional wetlands identified by Stantec during field studies conducted in 2017 and 2019 are located both within and outside the ROW, consequently some wetlands will experience direct impacts during construction. Approximately 3.4 ha of wetlands (marsh and swamp) will be directly impacted by the Project.

Standard Sediment and Erosion Control (**Section 6.1.1**) methods are recommended along all wetland communities (i.e., key hydrological features) and near watercourse boundaries (**Figure 2, Appendix A**).

Vegetation protection measures in **Section 6.1.2** and invasive species management measures in **Section 6.1.3**, are also recommended to reduce indirect impacts to wetlands.

5.3 Potential Interference with Migratory Birds

Two Eastern Phoebe nests were present during the field investigations on the Shelter Valley Creek bridge. There is also potential for Barn Swallow and other birds protected under the *Migratory Birds Convention Act, 1994* (MBCA) to establish nests on bridge or culvert structures in the Study Area during subsequent breeding seasons. Natural vegetation within the Study Area including woodlands, meadows and marshes are likely to 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). Standard mitigation measures are available to avoid protected nests while they are active (**Section 6.1.4**).

5.4 Potential Disturbance to Significant Wildlife Habitat

Except for Deer Wintering Areas confirmed by MNRF, no Significant Wildlife Habitat (SWH) features were confirmed in the Study Area. Woodlands within the ROW may be of lower quality for deer wintering habitat due to the 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. Opportunities to maintain and enhance habitat connectivity for deer in the Study Area are discussed in **Section 7.0**.

Targeted field investigations at Detail Design are recommended to evaluate candidate SWH features. Feature-specific mitigation measures are provided to reduce impacts to wetland habitats (**Section 6.2.1**), woodland habitats (**Section 6.2.2**), and habitat for reptiles and amphibians (**Section 6.2.3.1**). Protection from indirect impacts such as sedimentation and erosion will be addressed through implementation of standard environmental protection measures (**Section 6.1**) and vegetation measures (**Section 6.1.2**). Protection for wildlife is addressed in **Section 6.1.5**.

5.4.1 Wildlife Movement

Movement corridors for wildlife are assumed to occur within the Study Area, with the potential for existing culverts under Highway 401 to connect habitats to the north and the south of the highway corridor. For a discussion of opportunities for, and constraints to, wildlife movement in the Study Area see **Section 7.0**.

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

A conservative approach is typically undertaken during the Planning and Preliminary Design stage, which includes the evaluation of alternatives. As such, suitable habitat for species at risk (SAR) and species of conservation concern (SOCC) is identified based on Ecological Land Classification (ELC) surveys and wildlife habitat assessments conducted for the Study Area, and a species' presence is assumed.

Potential adverse effects for SAR and SOCC that were either observed in the Study Area or that have the potential to be present in the Study Area (based on existing records and the presence of suitable habitat) are discussed below. One SAR; Eastern Meadowlark, and three SOCC; Barn Swallow, Monarch, and grey-headed coneflower, were observed in the Study Area during field investigations.

To facilitate a more informative review of potential direct impacts to potential SAR or SOCC, species have been grouped together by general habitat requirements where possible. The following SAR and SOCC were identified as having potential to occur in the Study Area based on records of occurrence and/or suitable habitat:

Table 2: Potential Direct Impacts to SAR and SOCC in the Study Area

Species Name	Direct Impacts
Wetland	
Blanding's Turtle	Interactions with construction activities could result in direct mortality. Turtles may be particularly vulnerable during peak activity periods (April 1 to October 31), including movement between wintering and nesting sites; nesting in the highway shoulder where eggs may be accidentally excavated as a result of construction activities; and basking or foraging in the ROW. Least bittern may be directly impacted by construction activity through the destruction of their nest and breeding habitat or indirectly impacted by disturbances (i.e., noise, lights) that could result in adults abandoning their nest and/or young. Approximately 2.1 ha of marsh habitat will be removed during construction. Mitigation for impacts to wetland habitat is provided in Section 6.2.1. Mitigation for reptiles and amphibians is provided in Section 6.2.3.1.
Northern Map Turtle	
Snapping Turtle	
Least Bittern	
Forest	
Canada Warbler	Forest breeding birds may be directly impacted by construction activities through the destruction of their nest and breeding habitat during vegetation removal. Breeding birds may abandon their nests and/or young because of indirect impacts due to disturbances (i.e., noise, lights, vibrations) associated with construction activities. Approximately 27 ha of forest habitat will be removed during construction. Mitigation for impacts to forest habitat is provided in Section 6.1.2 and Section 6.2.2. Mitigation to avoid impacts to nesting birds is provided in Section 6.1.4.
Eastern Wood-Pewee	
Eastern Whip-poor-will	
Louisiana Waterthrush	
Red-headed Woodpecker	
Wood Thrush	
Meadow	
Bobolink	Meadow breeding birds may be directly impacted by construction activities through the destruction of their nest and breeding habitat during vegetation removal. Encounters with vehicles or heavy
Eastern Meadowlark	

Species Name	Direct Impacts
Grasshopper Sparrow	equipment could result in direct mortality for adults sitting on the nest or young that have not fledged. Breeding birds may abandon their nests and/or young because of indirect impacts due to disturbances (i.e., noise, lights, vibrations) associated with construction activities. Grey-headed coneflower was observed near the Danforth Road East overpass on the south side of the highway and may be impacted through vegetation removal in this area. Approximately 81 ha of meadow habitat will be removed during construction. Given the small area of grassland habitat within the work zone relative to the availability in the local landscape, negligible long-term loss of grassland habitat is anticipated because of the proposed project. Mitigation for impacts to meadow habitat is provided in Section 6.1.2 and Section 6.2.3.
Monarch	
Grey-headed Coneflower	
Species-Specific	
Bank Swallow	Bank Swallow may be directly impacted by construction activities in valleylands if there are exposed earth banks that may be used as nesting habitat for a colony. Mitigation for impacts to Bank Swallow is provided in Section 6.2.3.
Barn Swallow	Barn Swallow may be directly impacted by the removal, replacement, or construction on any culverts or bridges in the ROW that may be used as nesting habitat. No active Barn Swallow nests were observed during initial field investigations, but Barn Swallows may establish new nests in the future. Mitigation for impacts to Barn Swallow is provided in Section 6.2.3.
Eastern Small-footed Myotis	Eastern Small-footed Myotis may be directly impacted by construction activities if rocky features, including rock piles at culvert and bridge locations, are disturbed. Mitigation for impacts to Eastern Small-footed Myotis is provided in Section 6.2.3.

Species Name	Direct Impacts
Little Brown Myotis	The removal of large diameter trees and/or tree snags may result in the direct loss of maternity colonies and/or roosting habitat for bat SAR. Disturbances (i.e., noise, lights, vibrations) associated with construction activities may result in bats avoiding foraging and roosting habitat in the Study Area. Mitigation for impacts to woodland bats is provided in Section 6.2.3.
Northern Myotis	
Tri-colored Bat	

Feature-specific mitigation measures are outlined in **Section 6.2**. General mitigation measures are outlined in **Section 6.1** and will reduce the likelihood of direct impacts on any SAR or SOCC that may occur in the Study Area.

6.0 Mitigation Recommendations

Mitigation will be employed to reduce the likelihood 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. Feature-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 Protection Measures

6.1.1 Sediment and Erosion Control

- Mitigation measures for sedimentation, erosion, and dust control are recommended to prevent sediment and dust from entering sensitive natural areas (i.e., watercourses and wetlands). 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.
- 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 sediment and erosion controls daily 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 sediment and erosion control measures) to maintain limits with respect to vehicular traffic and soil or equipment stockpiling.
- Avoid stockpiling excess materials on site.
- 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 should be limited to the extent possible and undertaken outside the migratory bird nesting period (**Section 6.1.4**). Sediment and erosion controls should be used to clearly mark and separate work areas from sensitive natural features (e.g., wetlands, watercourses, significant woodlands, and significant valleylands). 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 should 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 should be done with a suitable native seed mix and in consideration of Monarch habitat (**Section 6.2.3.3**). Seed mixes should include fast-growing, short-lived perennial cover crop to stabilize soil and reduce competition from weedy exotics. Native cover crops are preferred. New seed should 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 should 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 after seeding.

A landscape restoration plan should be developed for all areas disturbed during construction, as well as any proposed compensation areas, and incorporated into the Detail Design package. The plan would 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 marshes in the Study Area. If Phragmites control is required for this project, further field studies are recommended during Detail Design, including site-specific mapping. A clean equipment protocol may be required for machinery entering riparian areas to prevent the spread of invasive species into the feature.

6.1.4 Protection of Nesting Birds

The 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, then a breeding bird survey can be completed by a Qualified Biologist. The area where vegetation is to be removed 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 be determined by a Qualified Professional. 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 environmental mitigation and protective measures for wildlife and wildlife habitat are recommended:

- Construction equipment and vehicles are to yield to wildlife.
- Inform construction personnel to not 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 highway and in danger, and if safe to do so, they should be moved off the highway by gently guiding the individual in the direction it was traveling. Handling of SAR is not permitted without an *Endangered Species Act, 2007* (ESA) authorization.

6.2 Site-Specific Protection Measures

Site-specific protection measures are required for specific 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 6.1.1**) are recommended where work will occur within 30 metres (m) of wetland communities. Compensation for wetland area lost should 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 should 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 should use native species that are tolerant of the site conditions, including roadside stresses such as salt, pollution, and soil compaction. Restoration should 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 should 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 and SOCC and are consistent with approved measures implemented on similar projects in Ontario. Species-specific measures are provided for species commonly encountered along highways 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 provides recommendations 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 and/or SOCC identified in the Study Area, obligations under the ESA, 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 individual that is incidentally encountered in the Study Area must be allowed to leave of its own accord. Activities within 20 m should 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 individual to disperse from the active construction area under its own ability, MECP must be contacted immediately for additional guidance.

- Any SAR individual that is encountered in the work zone should 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.

If the peak active season for reptiles and amphibians, from approximately April 1 to October 31, cannot be avoided during construction activities, the installation of wildlife exclusion fencing is recommended. 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 Grassland Birds

Two individuals of Eastern Meadowlark were observed singing during the 2019 field surveys around the Percy Street intersection (**Figure 2-15**, **Appendix A**). Habitat for Eastern Meadowlark may also support Bobolink (Threatened) and Grasshopper

Sparrow (Special Concern). Construction activities with the potential to harm habitat of grassland breeding birds should not be undertaken between April 1 and August 31. Work adjacent to confirmed breeding habitat should be limited during the breeding season as much as possible to avoid harassment to these species.

The limits of construction within grassland habitat should 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 should be remediated to pre-existing conditions as soon as possible before the beginning of the next nesting period.

6.2.3.3 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 should be included in seed mixes for areas restored to meadow to provide habitat for Monarch. Planting should follow mitigation recommendations from **Section 6.1.2** above.

6.2.3.4 Bank Swallow

To prevent Bank Swallow colonization of the work zone during construction, work that involves the modification of natural exposed earthen banks or stockpiling of silt or sandy materials (e.g., soil stockpiles, excavations, trenches, aggregate areas) will not be left with vertical faces during the Bank Swallow breeding season. Slope faces will be reduced to 70 degrees or less (MNRF 2017). This can be achieved by sloping off stockpiles, using an excavator to create the desired slopes or contouring faces or piling material on the face. Slope management will be completed by mid-April and slopes will be maintained daily throughout the nesting season (i.e., until the end of August) to meet the 70 degrees or less target.

6.2.3.5 Barn Swallow

Although Barn Swallow nests were not observed during field investigations in 2017 and 2019, Barn Swallow nests could be established on structures in the Study Area in any

given year prior to construction. Barn Swallow and its habitat (i.e., nesting structures) are currently protected from harm or harassment under the MBCA.

For an activity that has the potential to damage nests or interfere with breeding activity that is required to take place within the Barn Swallow nesting period, installation of exclusionary measures (e.g., pre-tarping) is recommended before April 1 to dissuade Barn Swallow from nesting.

For construction activities that are timed to take place outside of the Barn Swallow nesting period (May 1 to August 31), inactive nests that have the potential to be damaged or destroyed on the structure must be removed prior to commencement of construction and prior to April 1.

6.2.3.6 Bats

Trees > 10 centimeters (cm) Diameter at Breast Height (DBH) are present in the Study Area and within the proposed work zone. 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. 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 should 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.

7.0 Wildlife Movement and Ecopassages

In preparation of this report, Stantec reviewed the MNRF *Best Management Practices (BMP) for Mitigating the Effects of Road Mortality on Amphibian and Reptile Species at Risk in Ontario* (MNRF 2016) and a recent literature review prepared for the American Association of State Highways and Transport Officials (AASHTO; Gunson and Huijser 2019).

MNRF's BMP recommends that when a culvert exceeds 25 m in length, an overpass, bridge, or viaduct (> 3 m wide (CSA-S6-00) should be considered to facilitate wildlife movement across a highway (MNRF 2016). Viaducts and bridges spanning a watercourse provide an opportunity for dry pathways adjacent to the creek or river. In order to increase effectiveness and introduce natural light into longer tunnels, grated openings (skylights) are recommended. Fencing along the highway can be used as a standalone measure (without ecopassages) to prevent road mortality, or to direct animals toward suitable crossing structures (MNRF 2016). The length of fencing beyond the ecopassage should be determined by the target species and their mean and maximum movement distances (MNRF 2016).

A recent literature review of the state of practice for road crossing structures and barriers to small wildlife (amphibian, reptiles, and small mammals) reviewed 62 peer-reviewed articles, 30 technical reports, six academic theses, and 27 conference proceedings (Gunson and Huijser 2019). The average size of concrete box culverts in this review was 2.4 m wide by 1.8 m high. Several studies supported small mammal use of long tunnels, including culverts up to 82 m long under a four-lane highway in the Laurentians, Quebec (e.g., Plante et al. 2019). Midland Painted Turtles and Snapping Turtles were shown to use two 24 m-long culverts in line with a 15 m fenced gap connecting wetlands on either side of the Highway 69 expansion near Parry Sound (Eco-Kare International 2019), while Blanding's Turtle used culverts 25 m long under Highway 24 (Caverhill et al. 2011) and 50 m long under Terry Fox Drive in Ottawa (Dillon Consulting Ltd. 2014). Fencing used to direct wildlife into existing drainage culverts has proven effective in some applications, including for Blanding's Turtle (Caverhill et al. 2011).

7.1 Natural Corridors in the Study Area and Road Mortality Data

Approximately 27% of the Ecodistrict in which the Study Area is located (6E-13) consists of natural forest cover (deciduous, coniferous, and mixed forests). Valleys generally run from north to south toward Lake Ontario. The Study Area crosses two large natural corridors, Barnum House Creek/Grafton Creek (including Barnum House Creek Conservation Area south of Highway 401) and Shelter Valley, as well as

numerous smaller wooded valleys with watercourses. MNRF identified Barnum House Creek/Grafton Creek and Shelter Valley, as well as a wooded valley along an unnamed tributary west of the Danforth Road underpass, as key locations for wildlife passage. One PSW (Cranberry Lake) is within the Study Area, north of Highway 401 near the interchange of County Road 23. Deer wintering areas have been identified by MNRF to the north and south of the Study Area indicating that deer are likely to move across the highway in response to seasonal habitat and foraging needs. Potential SAR and SOCC in the Study Area that may benefit from the availability of ecopassages include Blanding's Turtle and Snapping Turtle.

MTO provided Stantec with a table summarizing all reported collisions in the Study Area from 2012 to 2016, including wildlife-vehicle collisions. For collisions involving wildlife species was not identified but considered to be representative of vehicle-deer collisions as these are the most common reportable incident. Clusters of wildlife-vehicle collisions were noted at six intersections in the Study Area: County Road 25/Percy Street, Boyce Road, Shelter Valley Road, County Road 23/Lyle Street, Gully Road, and Danforth Road. Except where these intersections were located within a valley, the collision points did not appear to correspond well to topography or linear natural corridors.

7.2 Opportunities and Constraints for Wildlife Movement in the Study Area

Drainage and structural studies completed for the Project have identified seven structural culverts for replacement either during the highway future footprint from 4 to 6 lanes or from 6 to 8 lanes.

Three large box culverts are proposed for replacement as part of the interim strategy which range in length from 100 m (21X-0576/C0) to 170 m (21X-0467/C0). Rather than a full replacement, these concrete culverts will be slip-lined with a slightly smaller steel arch culvert (**Table 3**). Increasing culvert size at these locations is not deemed feasible as open-cut construction is not possible and a large tunnel boring machine would be required to create an opening for a larger culvert. Skylights at the centre median are also not possible as these would be located within the paved shoulder. Furthermore, given that the length of these culverts is considerably greater than is considered suitable for wildlife passage, an increase in size may not substantially improve the culvert's function as an ecopassage.

Two large box culverts are proposed for replacement as part of the long-term strategy. One of these structures (i.e., 21X-0468/C0) may be suitable for enlargement to provide better wildlife passage as open-cut construction is possible, however the culvert length may ultimately remain a barrier for wildlife moving under the highway (**Table 3**). Culvert 21X-0468/C0 would connect a large wetland south of Highway 401 with a wooded

upland located to the north of the highway, but connectivity north of this wooded upland toward the Oak Ridges Moraine is limited by agricultural land uses.

Two existing large open-bottom arch culverts (10 m and 15 m width) are present in the Study Area and cross the two most significant natural corridors: Barnum House Creek/ Grafton Creek (21X-0270/C0) and Shelter Valley (21X-0272/C0; **Table 3**). Given the large size of these culverts, they likely support movement of both small and large wildlife under Highway 401. Both structures are proposed for replacement by bridges as part of the long-term strategy and represent the best opportunity in the Study Area for wildlife movement across Highway 401 (**Table 3**).

Table 3: Ecopassage Opportunities based on Proposed Culvert Replacements and Natural Corridors

Culvert ID	Existing Culvert Dimensions (width x height)	Interim Improvement Strategy	Long-term Improvement Strategy	Landscape Feature	Opportunity for Ecopassage
21X-0467/C02	3.1 m x 1.8 m box	slip-line with new culvert 2.7 m x 1.8 m	possible rehab	wooded valley; unnamed tributary 02	Limited, due to culvert size and length
21X-0468/C0	3.1 m x 1.5 m box	culvert rehabilitation	culvert replacement; opportunity to increase size	woodland and wetland, primarily to south; unnamed tributary 03	Good, but not a key landscape feature and no replacement for 30 yrs
21X-0469/C0	3.7 m x 1.8 m box	culvert rehabilitation and extension	culvert replacement	wooded valley: Barnum House Creek	Limited, due to culvert size and length but adjacent to large culvert/ future bridge
21X-0270/C02	9.8 m x 4.9 m arch	culvert rehabilitation and retaining walls	replace with bridge	wooded valley: Barnum House Creek	Excellent, existing large diameter culvert/future bridge and follows key landscape feature
21X-0470/C0	3.1 m x 1.8 m box	slip-line with new culvert 2.7 m x 1.8 m	possible rehab	wooded valley; unnamed tributary 06	Limited, due to culvert size and length

Culvert ID	Existing Culvert Dimensions (width x height)	Interim Improvement Strategy	Long-term Improvement Strategy	Landscape Feature	Opportunity for Ecopassage
21X-0272/C02	15.2 m x 7.7 m arch	none	replace with bridge	wooded valley: Shelter Valley Creek	Excellent, existing large diameter culvert/future bridge and follows key landscape feature
21X-0576/C0	3.1 m x 2.5 m box	slip-line with new culvert 2. 7m x 1.8 m	possible rehab	wooded valley and wetland, primarily to north; unnamed tributary 09	Limited, due to culvert size and length

7.3 Recommendations for Ecopassages in the Study Area

Two excellent opportunities for an ecopassage are present in the Study Area where existing large open-bottom arch culverts connect two significant natural corridors across Highway 401. The function of these culverts could be improved through installation of fencing to direct wildlife to the culverts. The length and placement of fencing in the Study Area should be determined by the Project priorities, such as a reduction in deer-vehicle collisions on Highway 401 or facilitating movement of small wildlife (reptiles, amphibians, and small mammals) across the highway. Additional improvements for wildlife movement are expected as part of the long-term strategy where these two large culverts will be replaced by bridges.

8.0 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.

Eastern Meadowlark was observed in suitable habitat in the Study Area in 2019. Direct harm to the species can be avoided if mitigation measures including timing windows as discussed in **Sections 6.1.4** and **6.2.3.2** are followed. Should impacts to the species' habitat be unavoidable, habitat removal is possible by following the rules set out in O. Reg. 242/08 and/or pay into the provincial Species at Risk Conservation Fund.

Potential habitat for other SAR (Blanding's Turtle, Red-headed Woodpecker, Least Bittern, Eastern Whip-poor-will, Bobolink, Bank Swallow, Louisiana Waterthrush, 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 during appropriate timing windows are recommended at Detail Design to determine if any other SAR occur within the Study Area or work zone.

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

9.0 Recommendations

Field investigations undertaken during this Planning and Preliminary Design study were scoped to ELC surveys and wildlife habitat assessments in the Study Area. Details will be confirmed during Detail Design and used to inform site-specific ecological surveys.

The following steps to assess sensitive features and confirm the presence of habitat for SAR or SOCC are recommended during Detail Design:

- An assessment of wetland features and functions where wetlands will experience direct impacts
- Breeding bird surveys (grassland, woodland and wetland habitats)
- Crepuscular breeding bird (i.e., Eastern Whip-poor-will) surveys within 500 m of the ROW
- Breeding bird nest surveys targeting migratory birds (i.e., Barn Swallow, Cliff Swallow, Eastern Phoebe) in culverts and bridges
- Habitat assessments for turtle overwintering, turtle nesting, amphibian breeding, and snake hibernacula
- Habitat mapping (Category 1, 2, and 3) for Blanding's Turtle
- Habitat characterization and acoustic monitoring of suitable bat habitat, including candidate maternity roosting sites in trees (>10 cm DBH) and structures, and rocky areas suitable for Eastern Small-footed Myotis. Consultation with MECP is recommended to confirm survey methods
- Invasive Phragmites mapping in the work zone

10.0 Summary

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

The Study Area is predominantly a mix of linear meadow and forested communities. Key natural heritage features mapped in the Study Area include a PSW, significant woodlands, and significant valleylands.

Candidate habitat for SAR and SOCC was present in the Study Area. Candidate habitat for SAR includes Blanding's Turtle nesting and overwintering habitat, breeding bird nesting habitat (i.e., Eastern Whip-poor-will, Least Bittern, Red-headed Woodpecker, Bank Swallow, Louisiana Waterthrush, Bobolink, and Eastern Meadowlark) and bat SAR maternity and roosting habitat (i.e., Little Brown Myotis, Eastern Small-footed Myotis, Northern Myotis, and Tri-colored Bat). Candidate habitat for SOCC includes turtle nesting and overwintering habitat (i.e., Northern Map Turtle and Snapping Turtle), amphibian breeding habitat, and breeding bird nesting habitat (i.e., Barn Swallow, Canada Warbler, Eastern Wood-Pewee, Wood Thrush, and Grasshopper Sparrow).

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

Opportunities for ecopassages are present in the Study Area where existing large open-bottom arch culverts connect two significant natural corridors (Barnum House Creek/Grafton Creek and Shelter Valley) across Highway 401. The function of these culverts could be improved through installation of fencing to direct wildlife to these and other existing structural culverts. Improvements for wildlife movement are expected as part of the long-term strategy where these two large culverts will be replaced by bridges.

ESA authorization requirements for SAR 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 intersection improvements are considered negligible with the implementation of the standard and site-specific environmental protection measures and wildlife ecopassage improvements included in this report.

11.0 References

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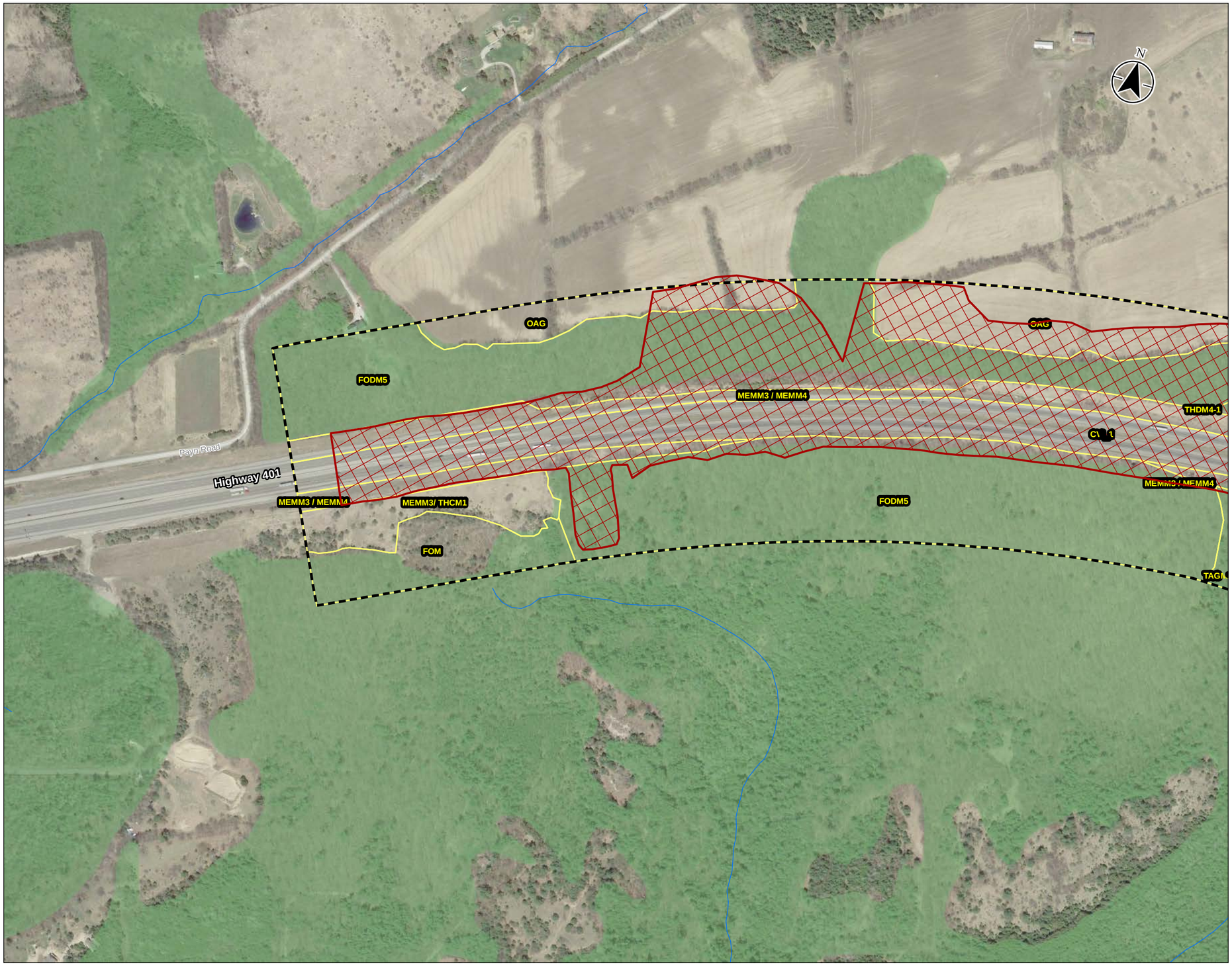
Appendix A
Figures



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOM: Mixed Forest

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

MEMM3/ THCM1: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

OAG: Open Agriculture

TAGM1: Coniferous Plantation

THDM4-1: Native Deciduous Regeneration Thicket Type

0 50 100 Meters

1:5,000 (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. Imagery obtained from Google Satellite, February 2019.

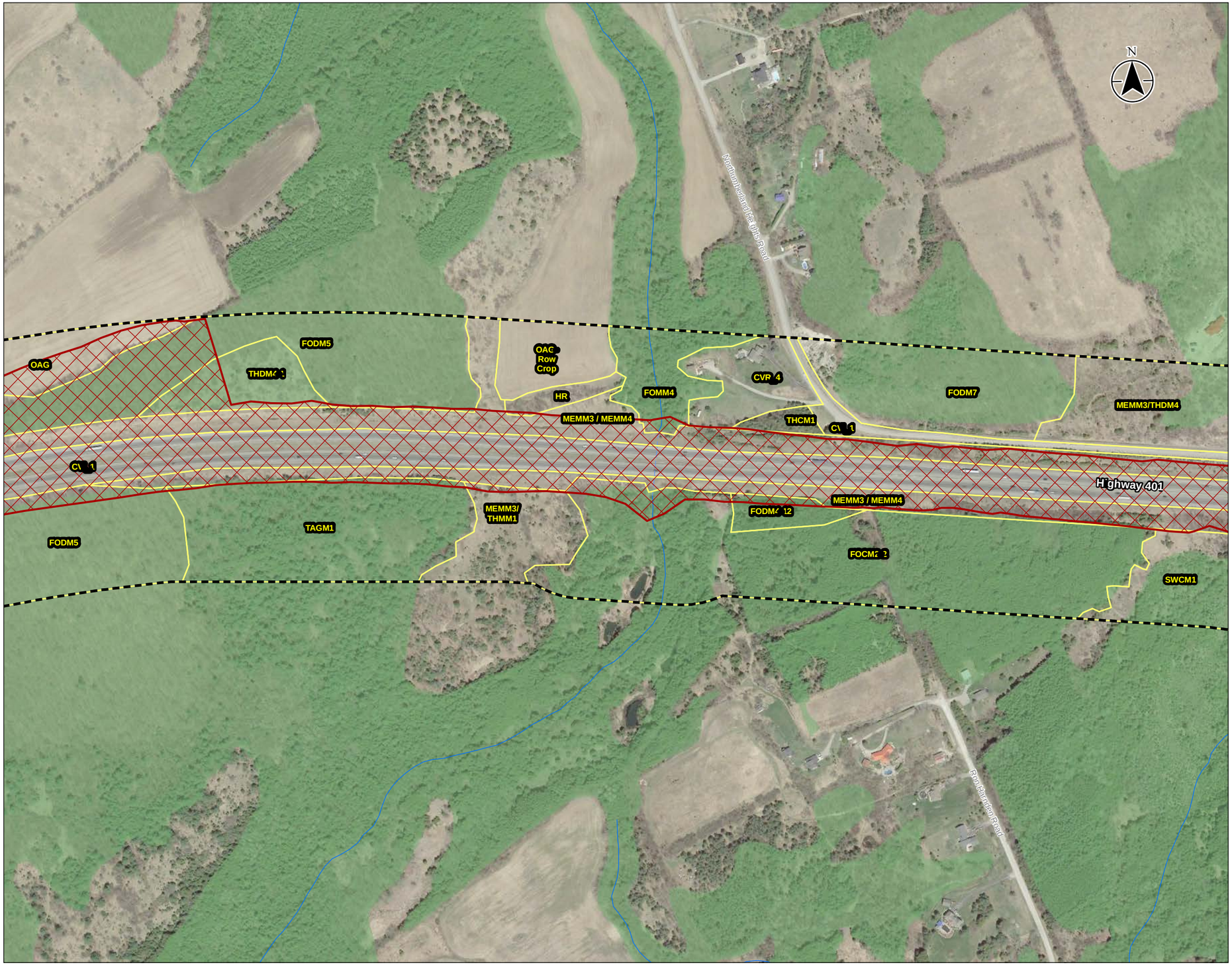
Project Location
County of Northumberland

165001090 REVA
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-1

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

CVR_4: Rural Property

FOCM2-2: Dry – Fresh White Cedar Coniferous Forest Type

FODM4-12: Dry - Fresh Exotic Deciduous Forest Type

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FODM7: Fresh – Moist Lowland Deciduous Forest Ecosite

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

HR: Hedge Row

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

MEMM3/ THMM1: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

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

OAG: Open Agriculture

SWCM1: White Cedar Mineral Coniferous Swamp Ecosite

TAGM1: Coniferous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM4-1: Native Deciduous Regeneration Thicket Type

0 50 100 Meters

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

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MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-2

Title
Natural Heritage Features and Potential Impacts

Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVC_1: Business Sector
CVI_1: Transportation
CVR_4: Rural Property
FOCM2-2: Dry – Fresh White Cedar Coniferous Forest Type
FOD: Deciduous Forest
FODM7: Fresh – Moist Lowland Deciduous Forest Ecosite
FOM: Mixed Forest
FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite
MEMM3 / MEMM4: Dry - Fresh Mixed Meadow/ Fresh - Moist Mixed Meadow
MEMM3/THDM4: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Deciduous Regeneration Thicket Ecosite
MEMM3: Dry - Fresh Mixed Meadow Ecosite
SWCM1: White Cedar Mineral Coniferous Swamp Ecosite
SWDM4: Mineral Deciduous Swamp Ecosite
THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite
THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

0 50 100 Meters

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Notes
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Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-3

Title
Natural Heritage Features and Potential Impacts

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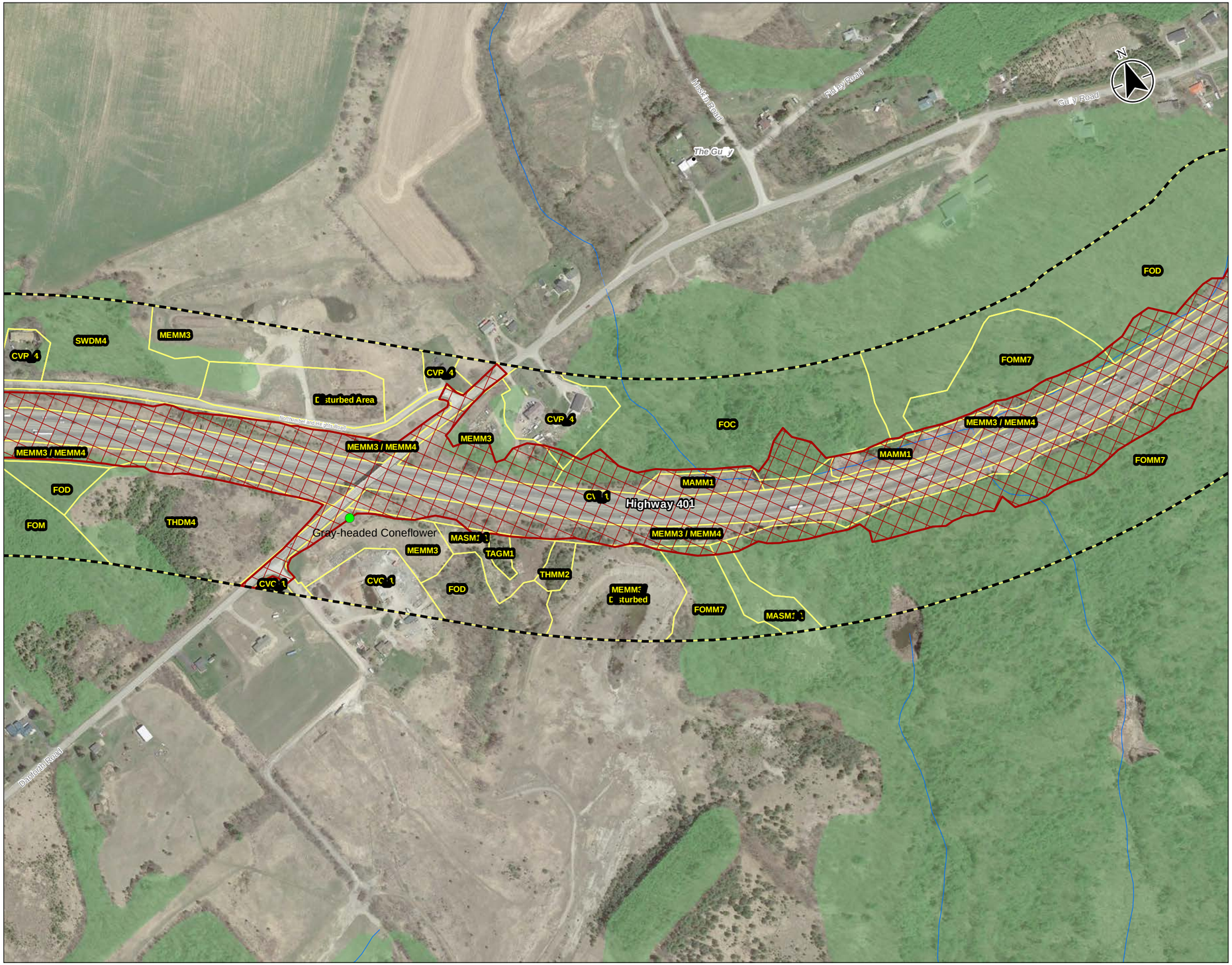

Stantec

Legend

- Incidental Observation
- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVC_1: Business Sector

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOD: Deciduous Forest

FOM: Mixed Forest

FOMM7: Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite

MAMM1: Graminoid Mineral Meadow Marsh Ecosite

MASM1-1: Cattail Mineral Shallow Marsh Type

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

MEMM3/ Disturbed: Dry - Fresh Mixed Meadow Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

SWDM4: Mineral Deciduous Swamp Ecosite

TAGM1: Coniferous Plantation

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 50 100 Meters

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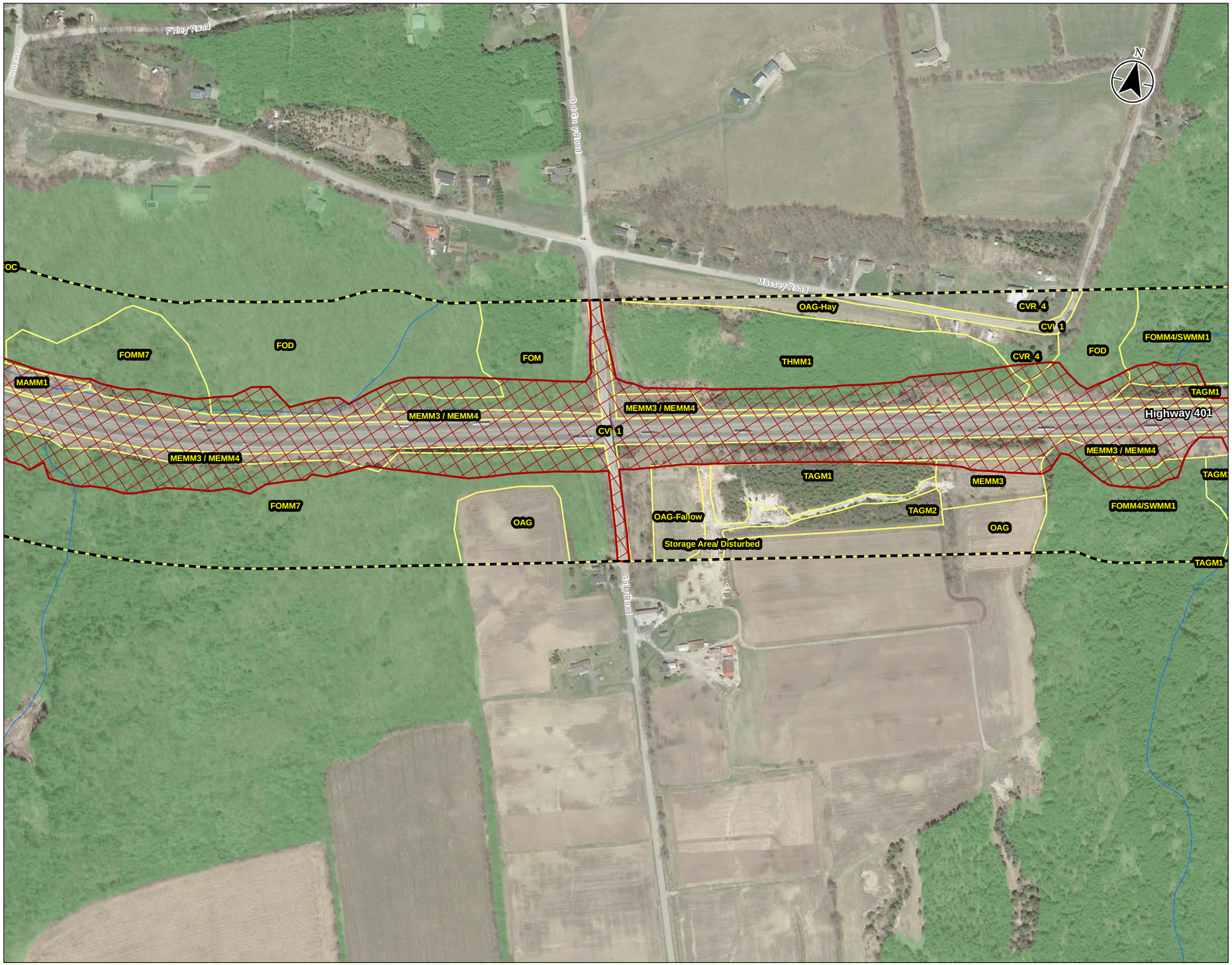
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-4

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOD: Deciduous Forest

FOM: Mixed Forest

FOMM4/SWMM1: Dry – Fresh White Cedar Mixed Forest Ecosite/ White Cedar Mineral Mixed Swamp Ecosite

FOMM7: Fresh – Moist White Cedar – Hardwood Mixed Forest Ecosite

MAMM1: Graminoid Mineral Meadow Marsh Ecosite

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OAG: Open Agriculture

TAGM1: Coniferous Plantation

TAGM2: Mixed Plantation

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

0 50 100 Meters

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

Notes

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3. Imagery obtained from Google Satellite, February 2019.

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Prepared by JW on 2023-03-24

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MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-5

Title
Natural Heritage Features and Potential Impacts

Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)
- Wetland, Provincially Significant

ELC Code

CVC_2 : Light Industry

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOCM2-2: Dry – Fresh White Cedar Coniferous Forest Type

FOD: Deciduous Forest

FODM4-12: Dry - Fresh Exotic Deciduous Forest Type

FODM5-8: Dry – Fresh Sugar Maple – White Ash Deciduous Forest Type

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOMM4/SWMM1: Dry – Fresh White Cedar Mixed Forest Ecosite/ White Cedar Mineral Mixed Swamp Ecosite

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

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

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

OA: Open Water

OAG: Open Agriculture

TAGM1: Coniferous Plantation

TAGM2: Mixed Plantation

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 50 100 Meters

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

Notes

1. Coordinate System: NAD 1983 UTM Zone 17N
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3. Imagery obtained from Google Satellite, February 2019.

Project Location
County of Northumberland

165001090 REVA
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-6

Title
Natural Heritage Features and Potential Impacts

Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)
- Wetland, Provincially Significant

ELC Code

CVC_2 : Light Industry

CVI: Transportation and Utilities

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOCM2-2: Dry – Fresh White Cedar Coniferous Forest Type

FOD: Deciduous Forest

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOM: Mixed Forest

ME: Meadow

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

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OAG: Open Agriculture

SWMO4: Conifer - Hardwood Organic Mixed Swamp Ecosite

TAGM1: Coniferous Plantation

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

0 50 100 Meters

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

Notes

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Project Location
County of Northumberland

165001090 REVA
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-7

Title
Natural Heritage Features and Potential Impacts

Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

FOCM4-4: Fresh - Moist White Cedar - White Pine Coniferous Forest Type

FOD: Deciduous Forest

FODM4-2: Dry - Fresh White Ash - Hardwood Deciduous Forest Type

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOM: Mixed Forest

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OAG: Open Agriculture

SWM: Mixed Swamp

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

0 50 100 Meters

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Project Location
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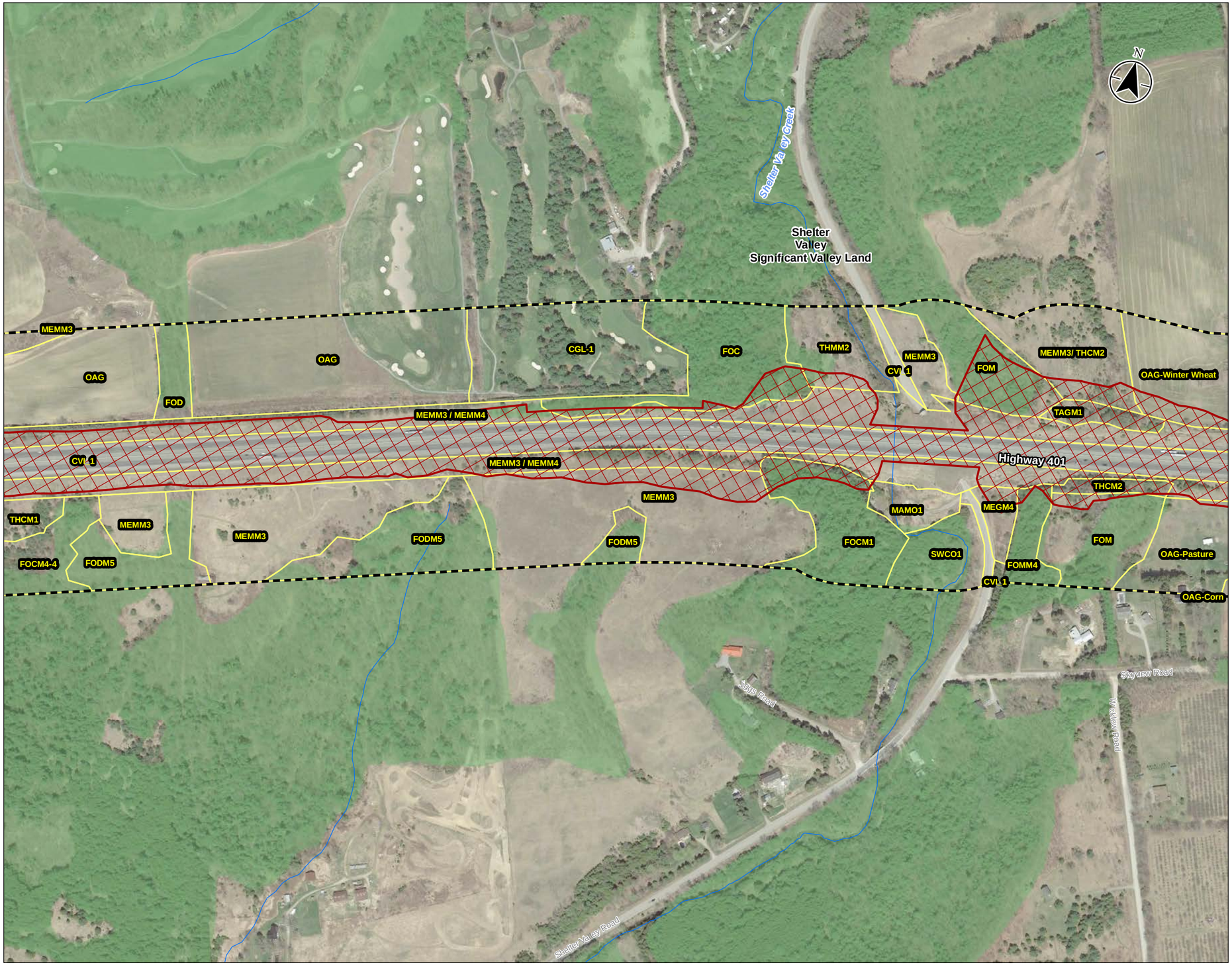
Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-8

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CGL-1: Golf Course

CVI_1: Transportation

FOC: Coniferous Forest

FOCM1: Dry – Fresh Pine Coniferous Forest Ecosite

FOCM4-4: Fresh - Moist White Cedar - White Pine Coniferous Forest Type

FOD: Deciduous Forest

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOM: Mixed Forest

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

MAMO1: Graminoid Organic Meadow Marsh Ecosite

MEGM4: Fresh - Moist Graminoid Meadow Ecosite

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

MEMM3/ THCM2: Dry - Fresh Mixed Meadow Ecosite/ Fresh - Moist Coniferous Thicket Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OAG: Open Agriculture

SWCO1: White Cedar Organic Coniferous Swamp Ecosite

TAGM1: Coniferous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THCM2: Fresh - Moist Coniferous Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 50 100 Meters

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Project Location
County of Northumberland

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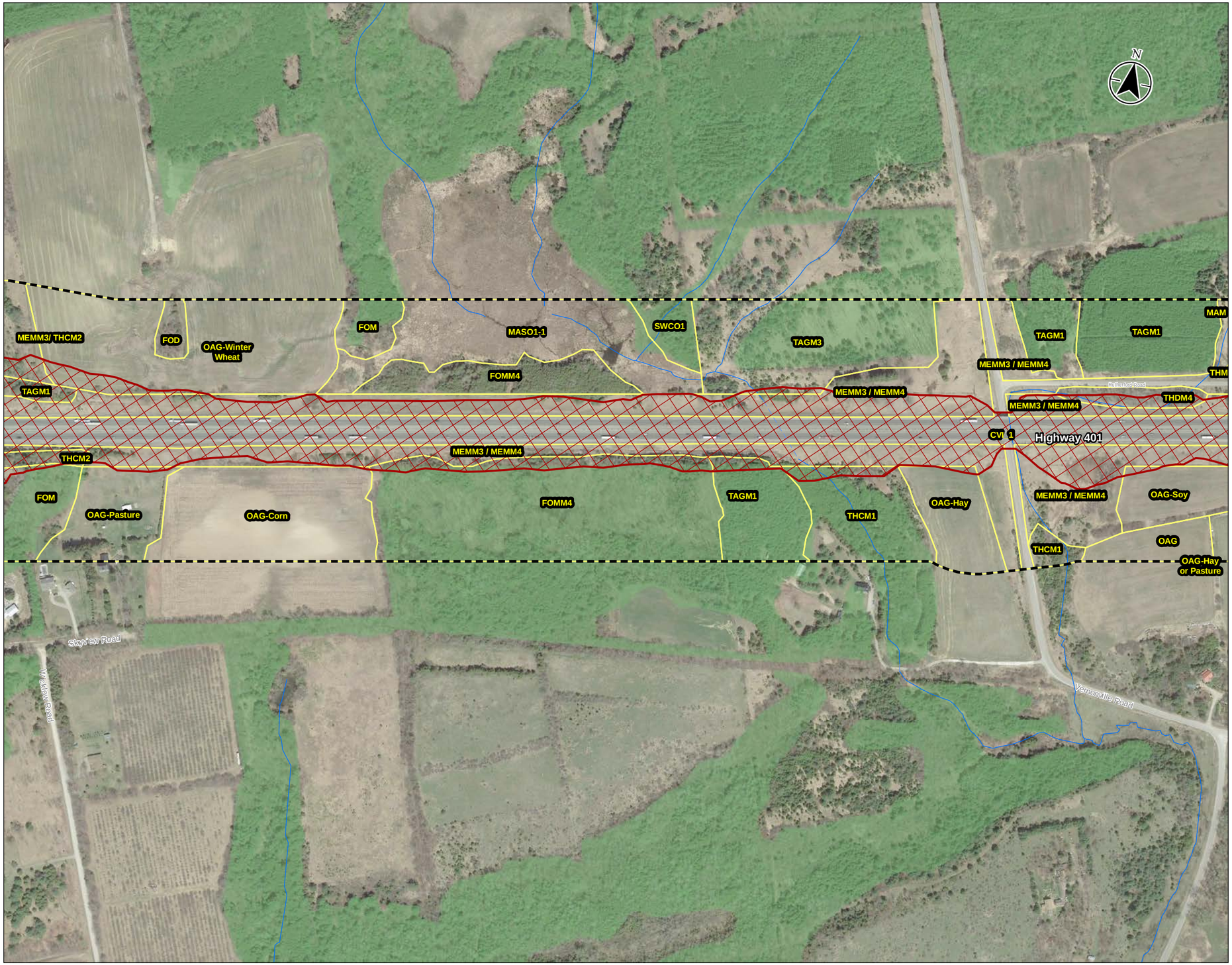
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-9

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

FOD: Deciduous Forest

FOM: Mixed Forest

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

MAM: Meadow Marsh

MASO1-1: Cattail Organic Shallow Marsh Type

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

MEMM3/ THCM2: Dry - Fresh Mixed Meadow Ecosite/ Fresh - Moist Coniferous Thicket Ecosite

OAG: Open Agriculture

SWCO1: White Cedar Organic Coniferous Swamp Ecosite

TAGM1: Coniferous Plantation

TAGM3: Deciduous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THCM2: Fresh - Moist Coniferous Thicket Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

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Project Location
County of Northumberland

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Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-10

Title
Natural Heritage Features and Potential Impacts

Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

CVR_4: Rural Property

FOCM4-1: Fresh – Moist White Cedar Coniferous Forest Type

FOCM4-2: Fresh – Moist White Cedar – Hemlock Coniferous Forest Type

FODM8-1: Fresh – Moist Poplar – Sassafras Sucessional Deciduous Forest Ecosite

MAM: Meadow Marsh

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

MEMM3/THCM1: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OA: Open Water

OAG: Open Agriculture

SWM: Mixed Swamp

TAGM1: Coniferous Plantation

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM2: Fresh - Moist Mixed Thicket Ecosite

0 50 100 Meters

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Project Location
County of Northumberland

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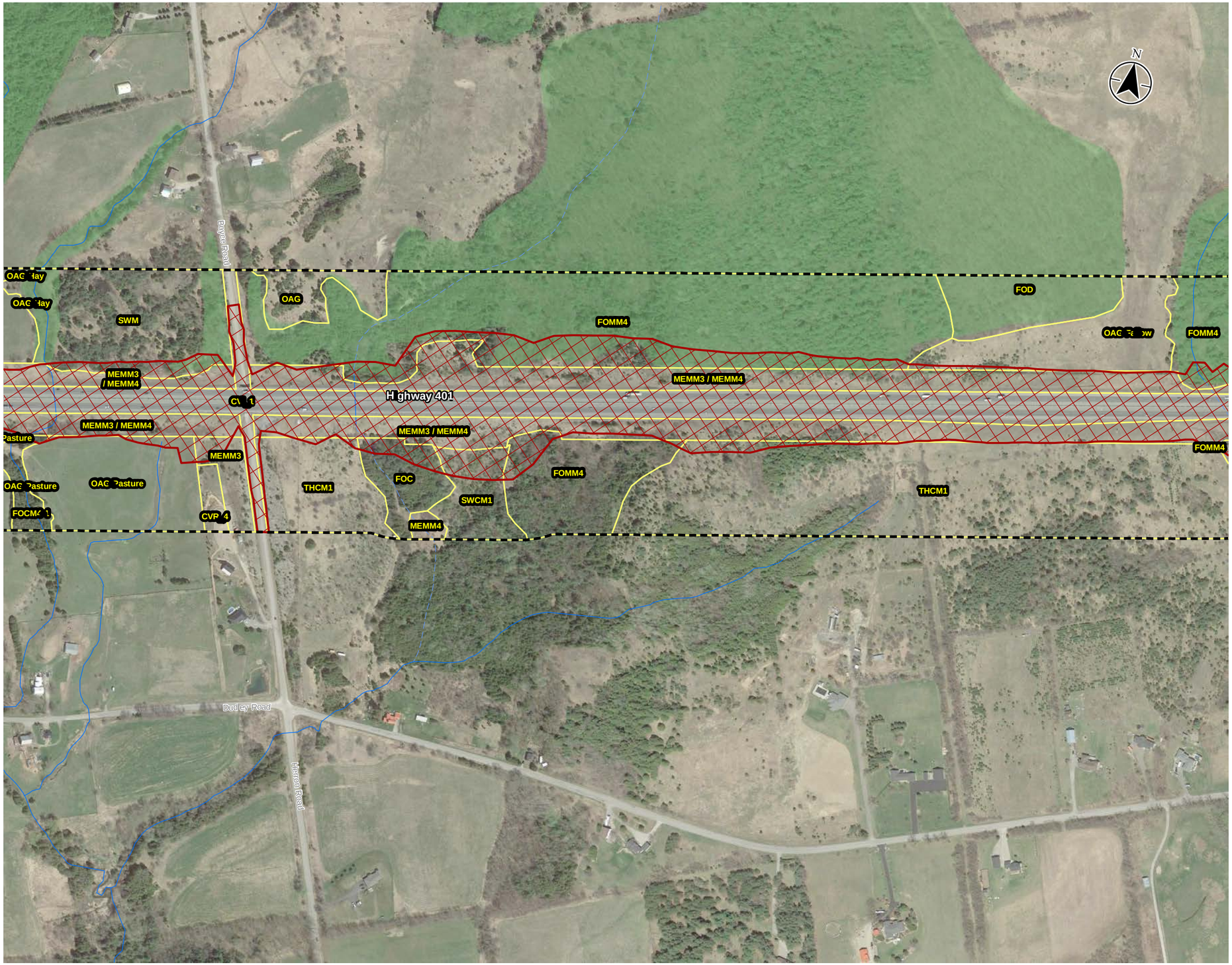
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-11

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOCM4-1: Fresh – Moist White Cedar Coniferous Forest Type

FOD: Deciduous Forest

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM4: Fresh - Moist Mixed Meadow Ecosite

OAG: Open Agriculture

SWCM1: White Cedar Mineral Coniferous Swamp Ecosite

SWM: Mixed Swamp

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

0 50 100 Meters

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Project Location
County of Northumberland

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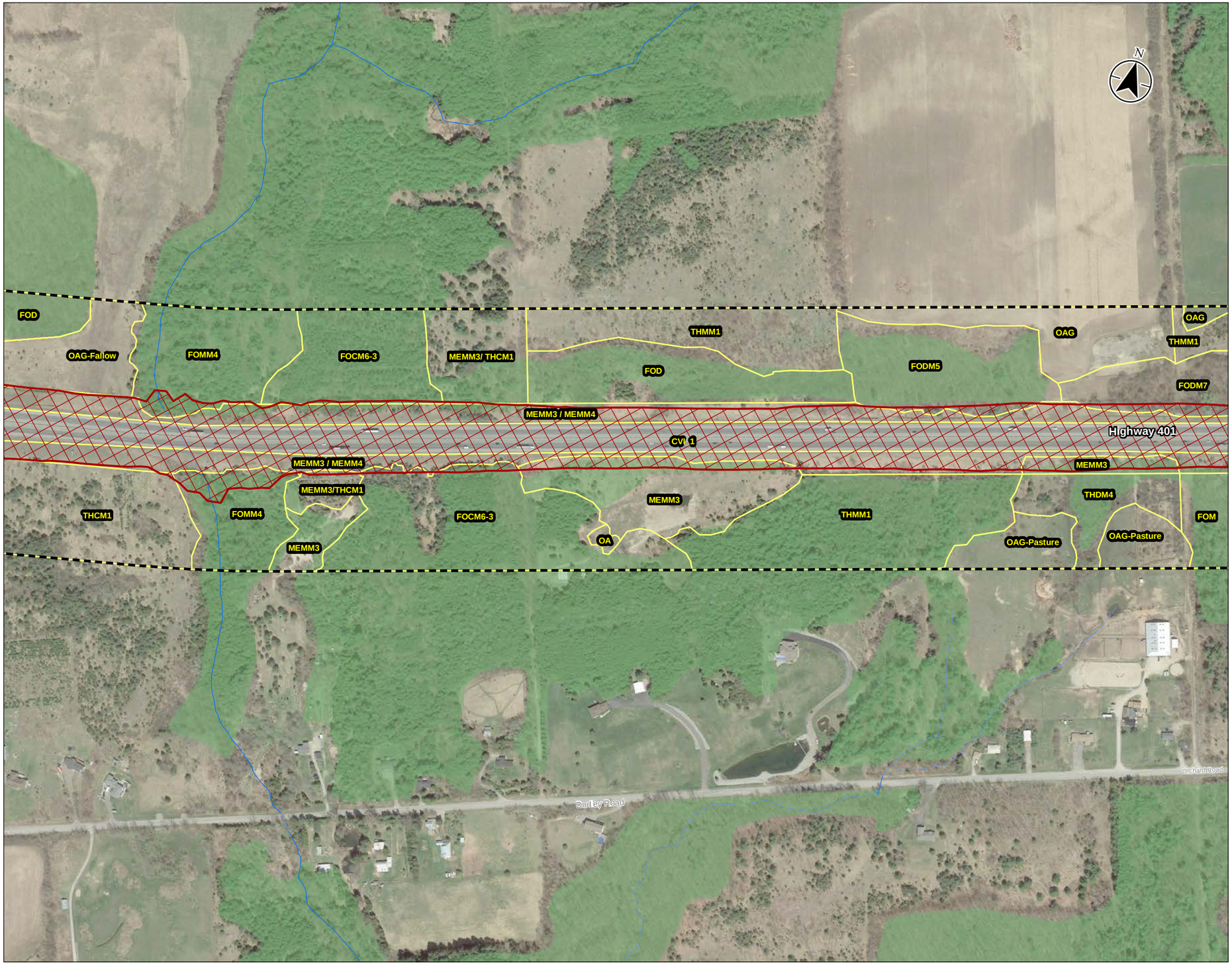
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-12

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CVI_1: Transportation

FOCM6-3: Dry - Fresh Scotch Pine Naturalized Coniferous Plantation Type

FOD: Deciduous Forest

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FODM7: Fresh – Moist Lowland Deciduous Forest Ecosite

FOM: Mixed Forest

FOMM4: Dry – Fresh White Cedar Mixed Forest Ecosite

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

MEMM3/ THCM1: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

MEMM3/THCM1: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

OA: Open Water

OAG: Open Agriculture

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

0 50 100 Meters

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Project Location
County of Northumberland

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Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-13

Title
Natural Heritage Features and Potential Impacts

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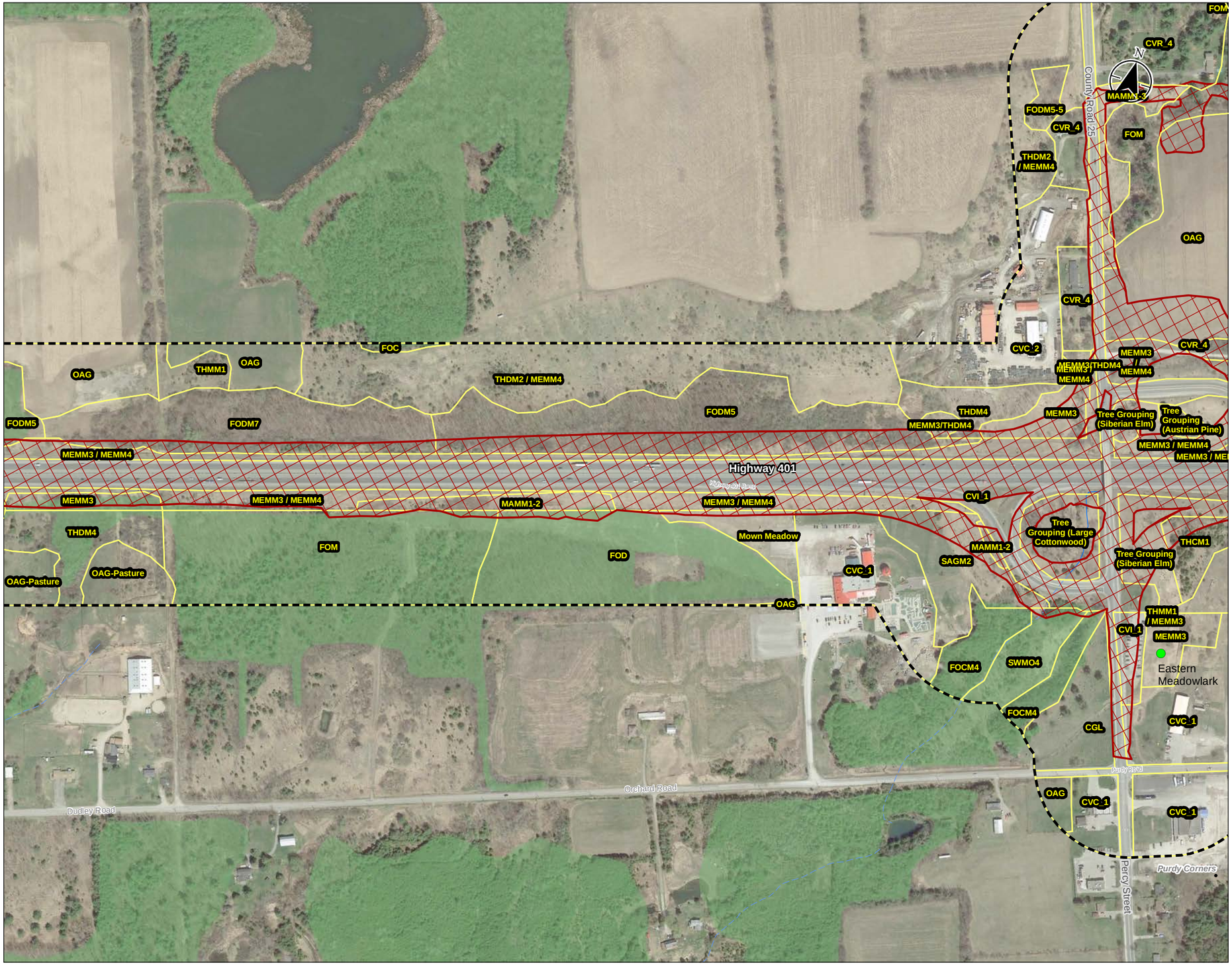

Stantec

Legend

- Incidental Observation
- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CGL: Cemetery

CVC_1: Business Sector

CVC_2 : Light Industry

CVI: Transportation and Utilities

CVI_1: Transportation

CVR_4: Rural Property

FOC: Coniferous Forest

FOCM4: Fresh – Moist White Cedar Coniferous Forest Ecosite

FOD: Deciduous Forest

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FODM7: Fresh – Moist Lowland Deciduous Forest Ecosite

FOM: Mixed Forest

MAMM1-2: Cattail Graminoid Mineral Meadow Marsh Type

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

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

Mown Meadow: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

OAG: Open Agriculture

SAGM2: Orchard

SWMO4: Conifer - Hardwood Organic Mixed Swamp Ecosite

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM2 / MEMM4: Dry - Fresh Deciduous Shrub Thicket Ecosite/ Fresh - Moist Mixed Meadow Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1 / MEMM3: Dry - Fresh Mixed Regeneration Thicket Ecosite/ Dry - Fresh Mixed Meadow Ecosite

THMM1: Dry - Fresh Mixed Regeneration Thicket Ecosite

0 50 100 Meters

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Project Location
County of Northumberland

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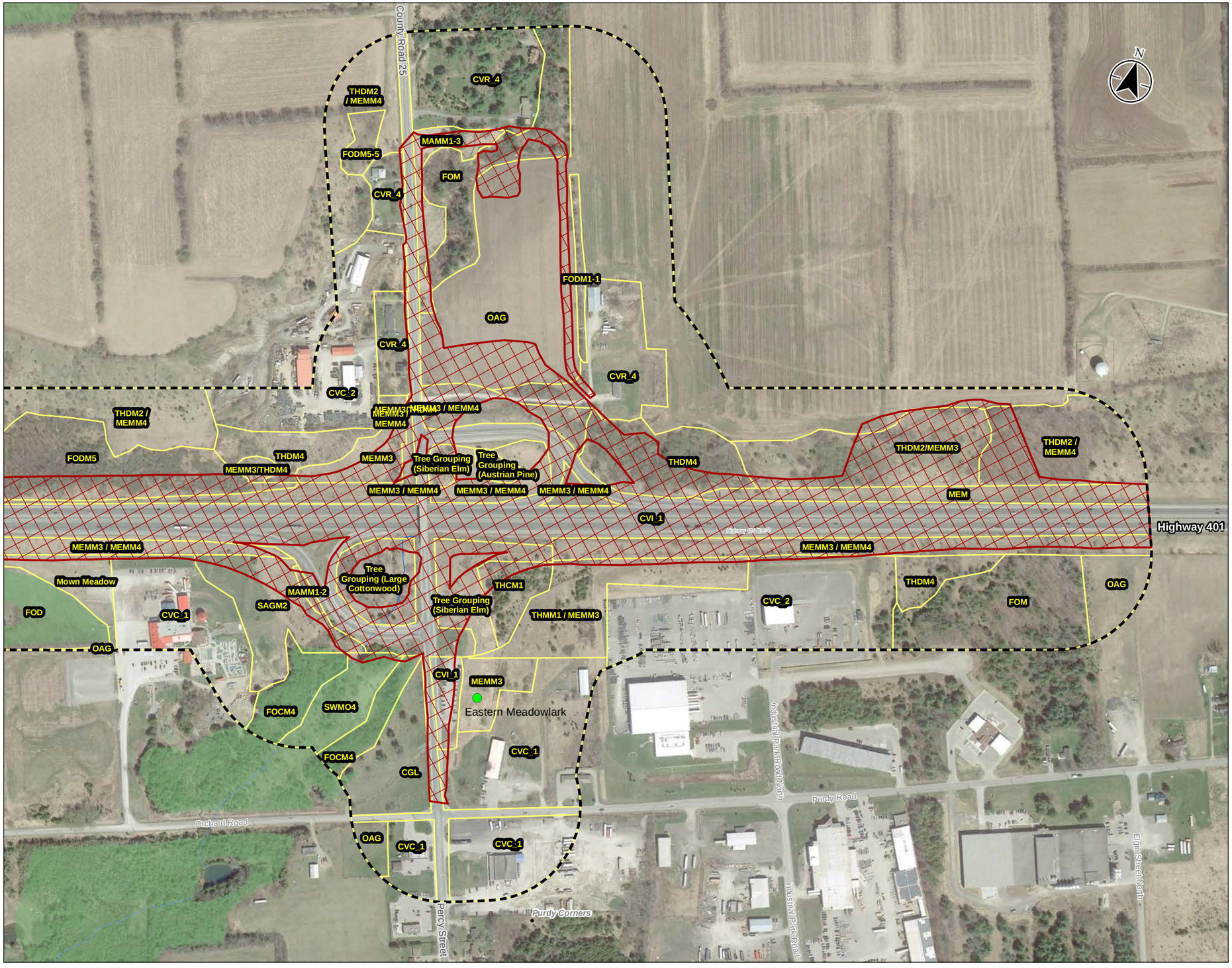
Prepared by JW on 2023-03-24

Client/Project
MINISTRY OF TRANSPORTATION
HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-14

Title
Natural Heritage Features and Potential Impacts



Stantec

Legend

- Incidental Observation
- ELC
- Terrestrial Study Area
- Significant Wooded Area
- Area of Impact

Key Hydrological

- Watercourse (Intermittent)
- Watercourse (Permanent)

ELC Code

CGL: Cemetery

CVC_1: Business Sector

CVC_2 : Light Industry

CVI: Transportation and Utilities

CVI_1: Transportation

CVR_4: Rural Property

FOCM4: Fresh – Moist White Cedar Coniferous Forest Ecosite

FOD: Deciduous Forest

FODM5: Dry – Fresh Sugar Maple Deciduous Forest Ecosite

FOM: Mixed Forest

MAMM1-2: Cattail Graminoid Mineral Meadow Marsh Type

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

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

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

MEMM3: Dry - Fresh Mixed Meadow Ecosite

MEMM3: Dry - Fresh Mixed Meadow Ecosite

Mown Meadow: Dry - Fresh Mixed Meadow Ecosite/ Dry - Fresh Coniferous Regeneration Thicket Ecosite

OAG: Open Agriculture

SAGM2: Orchard

SWMO4: Conifer - Hardwood Organic Mixed Swamp Ecosite

THCM1: Dry - Fresh Coniferous Regeneration Thicket Ecosite

THDM2 / MEMM4: Dry - Fresh Deciduous Shrub Thicket Ecosite/ Fresh - Moist Mixed Meadow Ecosite

THDM2/MEMM3: Dry - Fresh Deciduous Shrub Thicket Ecosite/ Dry - Fresh Mixed Meadow Ecosite

THDM4: Dry - Fresh Deciduous Regeneration Thicket Ecosite

THMM1 / MEMM3: Dry - Fresh Mixed Regeneration Thicket Ecosite/ Dry - Fresh Mixed Meadow Ecosite

0 50 100 Meters

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HIGHWAY 401 PLANNING STUDY FROM COBOURG TO COLBORNE (GWP 4060-11-00)

Figure No.
2-15

Title
Natural Heritage Features and Potential Impacts

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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
Fax: (705) 755-3125
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
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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.