Advanced Work for Highway 3 Widening Contract 1, Town of Essex, County of Essex Detail Design and Class Environmental Assessment

MTO Project Reference:
3016-E-0010
GWP 317-98-00

Design and Construction Report

Prepared for:
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September 17, 2020

Design and Construction Report

Advanced Work for Highway 3 Widening Contract 1, Town of Essex, County of Essex, Detail Design and Class Environmental Assessment, G.W.P. 317-98-00

Class Environmental Assessment for Provincial Transportation Facilities (2000) Group 'B' Project

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Engineering Program Delivery West

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September, 2020

Sign-off Sheet

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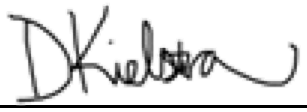
Prepared by 

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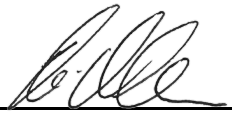
Approved by 

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Ontario

THE PUBLIC RECORD

Ontario Ministry of Transportation

Advanced Work for Highway 3 Widening Contract 1, Town of Essex, County of Essex Detail Design and Class Environmental Assessment

DESIGN AND CONSTRUCTION REPORT

G.W.P. 317-98-00

A copy of this Design and Construction Report (DCR) is available for review at the project website: www.hwy3.ca.The report is also be available at the Town of Essex website: www.essex.ca.

Ce document hautement spécialisé n'est disponsible qu'en anglais en vertue du règlement 411/97, qui en exempte l'application de la Loi sur les services en français. Pour de l'aide en français, veuillez communiquer avec le ministère des Transports, au: WestRegionFrenchLanguageServices@ontario.ca".

ADVANCED WORK FOR HIGHWAY 3 WIDENING CONTRACT 1, TOWN OF ESSEX, COUNTY OF ESSEX DETAIL DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT

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ADVANCED WORK FOR HIGHWAY 3 WIDENING CONTRACT 1, TOWN OF ESSEX, COUNTY OF ESSEX DETAIL DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT

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Executive Summary

The Ontario Ministry of Transportation (MTO) retained Stantec Consulting Ltd. (Stantec) to complete a Class Environmental Assessment (EA) study for advance work designed by others on Highway 3 near the proposed Victoria Avenue Overpass at the Town of Essex.

The Victoria Avenue Overpass will be constructed as part of the widening project on Highway 3 being delivered as a Design-Build (DB) assignment anticipated to begin in Fall 2020. The study area of the Highway 3 DB widening project is located within the Town of Essex, in Essex County.

This *Design and Construction Report* (DCR) was prepared to summarize additional natural heritage investigations associated with the advance work described below:

- A municipal road extension of South Talbot Road westerly across the Canada Southern Railway right of way (ROW).
- Realignment of the Essex Outlet municipal drain, including a new centerline culvert on Highway 3.
- Preloading and surcharging of the Highway 3 overpass approach embankments at Victoria Avenue eastbound (EBL) and westbound (WBL) lanes.

The additional natural heritage investigations included daily emergent surveys for Eastern Foxsnake and a Species at Risk survey at culverts in the study area.

Fish and Fish Habitat investigations were also conducted at the Essex Outlet Drain. The Essex Outlet Drain will be filled in within the ROW and a 600 m long new channel realignment will be built to convey drain flows from the Victoria Avenue/South Talbot Road underground sewer, around the grade separation and tie back into the existing drain on the south side. As a result of the impacts to existing fish habitat, a Request for Review was submitted to Fisheries and Oceans Canada (DFO) on August 19, 2020. This new channel is unlikely to negatively affect drain flows and is anticipated to provide improved fish habitat.

Environmental mitigation, concerns and commitments associated with the Victoria Avenue Overpass are summarized from the *Highway 3 Improvements, Town of Essex (GWP 317-98-00) Transportation Environmental Study Report Addendum* (Dillon Consulting, 2016). For full information regarding the Highway 3 widening study area and the full list of these concerns and commitments, refer to the Transportation Environmental Study Report (TESR) Addendum.

The DCR is placed on the Public Record for a comment period of 30 calendar days to provide the opportunity for the public to comment.

ADVANCED WORK FOR HIGHWAY 3 WIDENING CONTRACT 1, TOWN OF ESSEX, COUNTY OF ESSEX DETAIL DESIGN AND CLASS ENVIRONMENTAL ASSESSMENT

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As this project has already met the requirements of the *Ontario Environmental Assessment Act*, there will be no opportunity to request a bump-up to an Individual Environmental Assessment.

If there are no outstanding concerns after the 30-day comment period has expired, further documentation will not be prepared, and construction may commence without further notice.

1.0 Overview of the Undertaking

1.1 Introduction and Project Background

The Ontario Ministry of Transportation (MTO) retained Stantec Consulting Ltd. (Stantec) to complete a Design and Construction Report (DCR) for advance work required as part of the Highway 3 widening, Contract 1, in the Town of Essex, Essex County (see **Figure 1**).

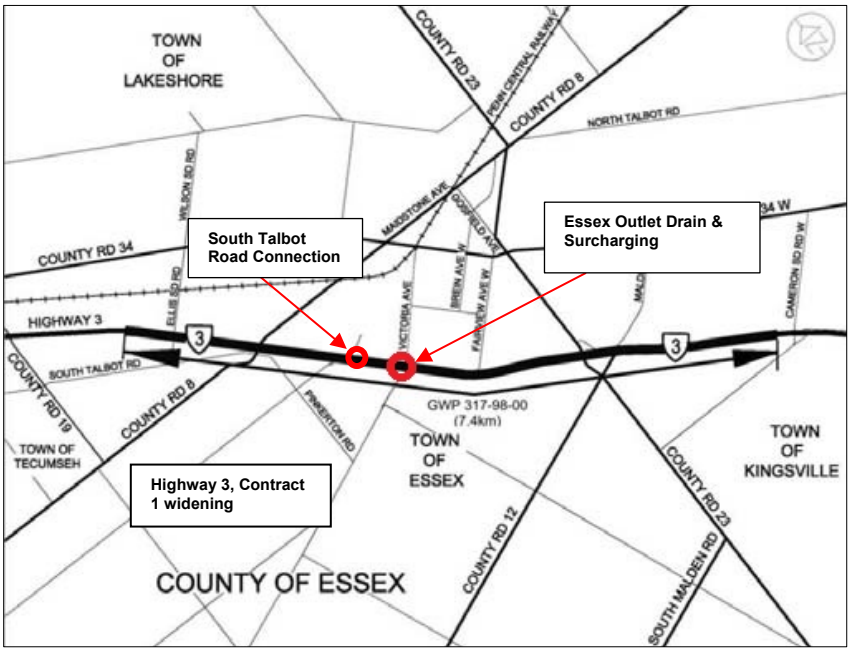

Figure 1 Study Area

This DCR summarizes the design and construction requirements related to the following advance work:

- A municipal road extension of South Talbot Road westerly across the Canada Southern Railway right of way (ROW);
- Realignment of the Essex Outlet municipal drain, including a new centerline culvert on Highway 3; and
- Preloading and surcharging of the future Highway 3 overpass approach embankments at Victoria Avenue.

A separate Detail Design study will be completed for the remainder of the Highway 3 widening, Contract 1, for 7.9 km, from 0.8 km west of Ellis Side Road easterly to 2.2 km east of Essex County Road (CR) 23.

1.2 Environmental Assessment Process

This study is following the approved planning process for a Group 'B' project in accordance with the *Class Environmental Assessment (Class EA) for Provincial Transportation Facilities (2000)*. An updated Preliminary Design and Class EA Study was documented in the *Highway 3 Improvements Town of Essex (GWP 317-98-00) TESR Addendum* (Dillon Consulting) which was completed in November 2016 and provided for a 30-day comment period in December 2016. Opportunities for public consultation for the overall Highway 3 project were included as part of the TESR Addendum (2016) which included newspaper notifications and two Public Information Centres. The Highway 3 Victoria Avenue overpass was included in the previously approved plan for the Highway 3 widening, as documented in the *TESR Addendum*.

1.3 Purpose of the Design and Construction Report

The DCR is intended to document the following:

- A summary description of the project.
- A summary of the Class EA process followed.
- A description of significant transportation engineering and environmental issues and how they were addressed.
- A description of the Recommended Plan.
- A summary of stakeholder and public consultation (previously completed through the TESR Addendum process).
- Identification of project approvals that must be obtained prior to construction.
- A detailed description of anticipated environmental effects and recommended mitigation measures that will be incorporated into the contract documents.

A "DCR Notice of Completion" will be published in the *Essex Free Press* newspaper concurrent with the filing of the DCR. The purpose of the notice is to inform the public that a DCR, documenting the Detail Design and Class EA and associated environmental protection measures has been prepared and will be available for a 30-day public comment period on the www.hwy3.ca website, and will be available at the Town of Essex website (www.essex.ca).

Notification letters will be sent to the project mailing list notifying them of the DCR 30-day public comment period.

2.0 Consultation Process

Significant consultation has occurred with external agencies, elected officials, Indigenous communities, and public stakeholders and is documented as part of the 2006 TESR and the 2016 TESR Addendum. Consultation completed specifically as part of the TESR Addendum included:

- A project mailing list, updated throughout the project;
- Indigenous community engagement, consisting of notification materials provided to communities at key milestones of the project;
- A project website (www.hwy3.ca) launched on September 20, 2012 and active throughout the project;
- A Notice of Study Commencement, published in the Essex Free Press;
- Public Information Centre (PIC) #1 notice published November 29, 2012 and December 6, 2012 in the Essex Free Press and held on December 11, 2012;
- PIC #2 notice published June 6, 2013 and June 13, 2013 and held on June 20, 2013; and
- Meetings with Municipal and Emergency Medical Service (EMS).

Comments were received from agencies and information was incorporated into the TESR Addendum study, as required.

The TESR Addendum was subject to a 30-day public comment period from November 10, 2016 to December 12, 2016, during which the general public was provided with an opportunity to comment on the document. The report was subsequently approved.

2.1 Project Mailing List

A mailing list was prepared during the Preliminary Design study and was included in the approved 2016 TESR Addendum. The mailing list included the local MPP, provincial ministries, Essex County, local municipalities, Essex Region Conservation Authority, other local agencies, emergency services, utility companies, and landowners that were potentially affected by the improvements to Highway 3 and local roads. The contact list was updated throughout Preliminary Design to add members of the public who attended the two PICs, completed comment forms or contacted the preliminary design team and MTO through the project website at www.hwy3.ca.

2.2 Notice of Completion – Design and Construction Report

The Notice of Completion for the advance work was published in the *Essex Free Press* on September 17, 2020 and sent to the following External Agencies (**Table 1**) on September 16, 2020.

Table 1 External Agencies

Municipalities

Town of Essex

County of Essex

Town of Lakeshore

Town of Kingsville

Stakeholder Groups/ Interest Groups

Heritage Essex

Greater Essex County District School Board

Windsor-Essex Catholic District School Board

Conseil scolaire catholique Providence

Conseil scolaire Viamonde

Royal Astronomical Society of Canada

Windsor-Essex Student Transportation Services

Essex County Federation of Agriculture

Windsor Essex Economic Development Corporation

Elected Officials

MPP - Essex

Provincial Agencies

Ontario Ministry of Agriculture and Food, and Rural Affairs

Ministry of Heritage, Sport, Tourism and Culture Industries

Ministry of Municipal Affairs and Housing

Ministry of Energy, Northern Development and Mines

Infrastructure Ontario

Ministry of Natural Resources and Forestry

Ministry of the Environment, Conservation and Parks

Federal Agencies

Fisheries and Oceans Canada

Transport Canada

Conservation Authorities

Essex Region Conservation Authority

Windsor Essex Regional Chamber of Commerce

Southwest Economic Alliance

Indigenous Communities

Caldwell First Nation

Chippewas of the Thames First Nation

Munsee-Delaware First nation

Oneida Nation of the Thames First Nation

Aamjwnaang First Nation

Delaware First Nation

Walpole Island First Nation

Chippewas of Kettle and Stony Point First Nation

Metis Nation of Ontario

Emergency Services

Essex Fire and Rescue

Essex-Windsor EMS

Ontario Provincial Police – Essex Detachment

Windsor Fire and Rescue Services

Town of Lakeshore

Town of Kingsville

Town of Tecumseh

Utilities

Union Gas Ltd (now Enbridge)

Town of Essex Utility Services

Union Water Supply System

Ontario Clean Water Agency

ELK Energy

Bell Canada

Cogeco Cable

Hydro One Networks Inc.

Town of Lakeshore

Town of Kingsville

A copy of the External Agency contact list updated for this DCR is provided in **Appendix E.**

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3.0 Detailed Description of the Recommended Plan

The Recommended Plan drawings, as documented in the 2016 TESR, are provided in **Appendix A**. A description of the major features of the proposed work is provided in the following sections.

3.1 Major Features of the Proposed Work

The advance work described in **Section 1.1** is required to complete the Victoria Avenue Overpass Grade Separation at Highway 3 and associated work. The work in this location described in the 2016 TESR includes:

- Southerly shift and grade separation of Highway 3 (30 m long overpass structure) at Victoria Avenue.
- No access to Highway 3 from Victoria Avenue.
- Maintain South Talbot Road/Victoria Avenue intersection and widen South Talbot Road.
- South Talbot Road and the existing Service Road will be combined and a multi-use (pedestrian and bicycle) trail constructed south of the road. A treed buffer will be provided between the trail and Highway 3.
- Provide new road connection between South Talbot Road and Maidstone Avenue for access to Highway 3.

For other design details related to the Highway 3 widening, refer to **Appendix A**.

3.1.1 Safety and Signage

No changes to safety and signage are proposed as part of the advance work.

3.1.2 Active Transportation

South Talbot Road and the existing Service Road will be combined and a multi-use (pedestrian and bicycle) trail constructed south of the road. A treed buffer will be provided between most of the trail and Highway 3.

3.1.3 Traffic Signals

No changes to traffic signals are required as part of the advance work.

3.1.4 Illumination and Utilities

Illumination changes are not within the scope of the advance work.

Coordination with utilities is required as part of the Highway 3 widening to avoid potential impacts to existing utilities where work occurs near utilities.

3.1.5 Drainage and Stormwater Management

The project includes the realignment of the Essex Outlet municipal drain, including a new centerline culvert on Highway 3 as part of the overall drainage for the Highway 3 widening. Potential environmental impacts related to Fish and Fish Habitat are provided in this DCR.

3.1.6 Property

No additional property requirements have been identified as part of this advance work.

3.1.7 Construction Staging and Traffic Management

All of the advance work is required in Year 1 of the construction staging approach.

Construction will be staged in such a manner to limit required closures and to ensure access to property is maintained at all times for residents and emergency services. If temporary closure of property access is required, the contractor will either provide alternative access or arrange for the closure in advance with the landowner and emergency services.

The County of Essex and local emergency services have expressed no concerns about impacts on emergency services response times with the proposed improvements to Highway 3. All emergency services will be notified in advance of construction and provided with maps showing detour/alternate routes for EMS, as noted in the TESR. Regular communication will be maintained with EMS throughout construction.

4.0 Environmental Issues and Commitments

Environmental investigations were undertaken during the Preliminary Design phase of the project, with updated species at risk surveys in 2020. A summary is provided in the following sections. In general, effects to the natural, socio-economic, and cultural environments were minimized during the study by following three principles:

1. Avoidance.
2. Identification of roadway design elements to minimize environmental impacts.
3. Development of site-specific and generic environmental protection plan guidelines for consideration during and following construction.

The design, construction and operation/maintenance phases of this project involve typical activities for which potential environmental impacts are predictable and known environmental protection measures are applied.

Details on how environmental impacts will be mitigated, either through the use of environmental design or through environmental constraints to be included in the construction contract package, are summarized in **Table 2** at the end of this report.

4.1 Terrestrial Ecosystems

Background information and habitat characteristics were previously summarized in the *Terrestrial Ecosystems Assessment Report* (TEAR, Dillon, 2013) and prepared in a subsequent memo to update the TEAR in September 2016. The results of the memo were included within the 2016 TESR Addendum. Dillon completed field investigations on July 19, 2012 and July 20, 2012. As part of the 2016 TESR Addendum, a field investigation was completed on August 31, 2016.

The background review included a review of relevant data sources to identify known natural heritage features, including Designated Natural Areas and other natural features, and records of species at risk (SAR) and Species of Conservation Concern (SOCC) within or near the Study Area.

Field investigations were conducted for the Study Area (i.e., an area encompassing 120 m around the ROW). Data were collected using guidance from the *Environmental Reference for Highway Design* (MTO 2013). Natural heritage features examined included Ecological Land Classification (ELC) vegetation communities, potential SAR habitat and areas of candidate Significant Wildlife Habitat (SWH).

The reports and memos completed during Preliminary Design are included in **Appendix D**.

4.1.1.1 Vegetation

The Study Area is highly disturbed. The MTO ROW is comprised primarily of mixed meadow to the south and manicured lawn on the north side of Highway 3. Ecological connectivity throughout the landscape is maintained through natural features such as surface water drainage and agricultural lands.

The following ELC types were identified in the Highway 3 widening study area:

- TAGM1 Coniferous Plantation
- MEM Mixed Meadow
- FOD Deciduous Forest
- THDM4-1 Native Deciduous Regeneration Thicket
- SWTM3 Willow Mineral Deciduous Thicket Swamp

None of the vegetation communities are rare in Ontario. ELC data is provided in Table 14 and Figure 6 of *the Terrestrial Ecosystem Assessment Report* in **Appendix D**.

In total, approximately 60 flora species were identified during Preliminary Design within the Highway 3 widening ROW in the overall Study Area during the terrestrial survey. One of the species, Butternut (*Juglans cinerea*), is listed as Endangered under the ESA. Two Butternut trees were incidentally observed in the vicinity of the intersection of Pinkerton Sideroad and Concession Road 14. These are not near the Victoria Avenue Overpass and are not affected by the advance work in this DCR.

Tree species were primarily of native, non-invasive origin. The distribution of trees varied, with trees found as scattered individuals and in hedgerows, small forest stands and planted rows and groupings. Trees were typically set back an average of 14 m from the edge of the existing ROW. In many instances, trees were set back 20 m or greater from the road edge. Non-native and naturalized landscape species were also present.

One designated significant Woodland/Environmentally Sensitive Area (Town of Kingsville Official Plan) was identified in the 2016 TESR Addendum, although is setback from Highway 3. The area is not affected by the advance work in this DCR.

4.1.1.2 Wildlife and Wildlife Habitat

No important bird areas (IBA), Provincially Significant Wetlands, or Areas of Scientific or Natural Interest were identified in the Study Area during Preliminary Design.

Significant Wildlife Habitat

Preliminary screening for SWH was completed by Parsons following the SWH Criteria Schedules for Ecoregion 7E (MNRF, 2015) between April 1, 2020 and May 20, 2020.

Reptile Hibernaculum

The criteria for confirming SWH includes congregations of at least five individuals of a snake species or individuals of two or more snake species near potential hibernacula on sunny warm days in Spring (April/May) and Fall (September/October).

SWH was confirmed for Reptile Hibernaculum (more than five individuals of Eastern Gartersnakes were found during three separate survey occasions) at the Essex Outlet Drain, on the north side of Highway 3, and includes the culvert area on the north side of Highway 3 plus a 30 m radius. The habitat consists of mammal burrows, riprap around Essex Outlet Drain, as well as concrete foundations with gaps around two separate culverts that extend underneath the residential area to the north. The exact location of hibernacula was not confirmed during the field surveys.

Turtle Wintering Areas and Turtle Nesting Areas

Candidate SWH for Turtle Wintering Areas and Turtle Nesting Areas are present. Turtles were observed at the 14th Concession Drain, Talbot Road South Drain and Canaan Drain. One Snapping Turtle (*Chelydra serpentine*) was captured on the wildlife camera at 14th Concession Drain and Talbot Road South Drain. Midland Painted Turtles (Chrysemys picta marginata) and hatchling(s) were observed on the wildlife camera on three separate occasions at the north side of Canaan Drain. Due to the timing of the encounter, the hatchling(s) are presumed to be from an overwintered nest, potentially at Canaan Drain.

4.1.1.3 Potential Species at Risk and Species of Conservation Concern

Dillon Consulting SAR Memos (2018 and 2019) detailed potential hibernacula for Eastern Foxsnake (Pantherophis gloydi), Carolinian population, at five culverts along Highway 3 (i.e., 14th Concession East Drain, Essex Outlet Drain, Canaan Drain, Talbot Road South Drain and East Townline Drain). Based on consultation with MECP, it was identified that additional Eastern Foxsnake surveys were required to determine presence/absence.

In 2020, MTO retained Parsons to complete spring emergence surveys for Eastern Foxsnake and confirm permitting requirements under the *Endangered Species Act, 2007* (ESA) for the five culverts, as identified by Dillon Consulting as having potential hibernacula: Essex Outlet Drain, 14th Concession Drain, Canaan Drain, Talbot Road South Drain, and East Townline Drain.

Following completion of surveys, Parsons prepared an "Eastern Foxsnake Survey Results Memo" which was submitted to MECP for approval. The memo outlined the methodology and results of the targeted surveys, as well as a mitigation plan should this species be encountered during construction. MECP approved the memo on June 30, 2020 and subsequently, Parsons updated the memo to include the additional recommendations with the final approved memo provided to MECP on July 23, 2020.

Parsons provided a *Terrestrial Ecosystem Assessment Report* technical memo to describe Eastern Foxsnake and Barn Swallow fieldwork completed in 2020, as well as incidental observations of other wildlife, as observed. The memo is included in **Appendix C**.

The Eastern Foxsnake was not observed at any of the culverts during the 2020 surveys and are not anticipated to be affected by the advance work in this DCR. It is noted that Eastern Foxsnake are known to occur in the study area and may be encountered incidentally during construction. Through discussion with MECP, it was confirmed that a permit was not required although it was recommended that mitigation measures be included to prevent and/or minimize impacts to this species should it be encountered during construction.

A summary of the other incidental non-species at risk documented is included in the TEAR update memo provided in **Appendix C**.

4.1.1.4 Migratory Birds

Nest surveys were completed on July 8, 2020. Four active Barn Swallow (*Hirundo rustica*) nests were observed at the Essex Outlet Drain (Site 6-412/C, Sta. No. 14+750) and two active Barn Swallow nests were observed at the Essex Outlet Storm Sewer Drain under Victoria Avenue (Site 6-413/C). Barn Swallows and nests are protected under the ESA and *Migratory Bird Convention Act* (MBCA) and authorization under the ESA, 2007 will be required.

Results for nest surveys completed at all of the culverts is provided in Table 1 of the TEAR Update Memo (**Appendix C2**).

4.1.2 Potential Impacts & Mitigation Measures

Impacts at all culverts include habitat loss, disturbance and/or alteration to general wildlife habitat through vegetation removal and highway widening. Potential injury and/or incidental take of wildlife may also occur for individuals encountered during construction. Temporary disruption and avoidance of habitat by wildlife may occur due to construction-related activities such as construction noise, lighting and increased human presence. Loss of SWH for reptile hibernacula may occur at Essex Outlet Drain, north side of Highway 3.

4.1.2.1 Wildlife

The following general mitigation measures are provided to prevent and/or minimize potential impacts to general wildlife that may be encountered during construction. Section headings refer to the relevant sections of the TEAR Update memo (2020), **Appendix C2**:

- Where feasible, vegetation removal should occur during winter months or outside of sensitive wildlife periods (see timing windows in Section 5.3.3).
  Conduct visual inspections for wildlife prior to the start of construction each day and regularly throughout the day during the active season. This will include a thorough walk-through of the work area and searching any vegetation, brush piles, logs or rock piles and equipment. If wildlife are observed, work should be temporarily suspended until the species is out of harm's way.
- Immediately upon observation of an actively nesting female turtle, personnel and vehicles should clear the area within the turtle's line of sight as much as possible to allow the female to finish laying. Startling a nesting female could lead to abandonment of the partially laid nest before the eggs are concealed. A Qualified Biologist shall be consulted immediately to discuss mitigation options, including measures to take if relocation of hatchlings or egg salvage is needed.
- If a turtle or snake nest or overwintering site is discovered, work shall be temporarily suspended, and a Qualified Biologist shall be contacted. See Section 5.3.4 (Safe Handling and Relocation) and Section 5.3.5 (Turtle and Snake Nest Salvage).

- All injured wildlife (SAR or non-SAR) will be transported to an authorized wildlife rehabilitator. Euthanasia of injured wildlife is not permitted unless conducted by an authorized wildlife rehabilitator. If an animal is unable or unwilling to flee from human presence, it is likely injured. Signs of wildlife injury include obvious wounds, broken limbs, lethargy, lameness, and difficulty standing or breathing. Injured wildlife experience high levels of stress and pain, and their behaviour is usually unpredictable and defensive, posing an increased risk to handlers. Always use extreme caution when handling injured wildlife, wear thick gloves, and limit handling as much as possible. Avoid aggravating any obvious injuries such as wounds or broken bones. Transport injured wildlife in a dark container where possible. See Section 5.3.4 (Safe Handling and Relocation).
- Construction activities should be limited to the work area, and if necessary, sensitive features should be demarcated if they are located immediately adjacent to the work zone.
- Implement standard BMPs for erosion and sediment control (see Section 5.3.1).
- Implement an emergency and response management plan to address the potential for spills (see Section 5.3.3).
- Where feasible, minimize the extent and duration of construction noise and lighting during sensitive season (see Section 5.3.3).
- Avoid idling and ensure construction vehicles and machinery are kept in good repair.

4.1.2.2 Migratory Birds

Migratory birds are protected under the *Migratory Birds Convention Act* (MBCA) and its regulations (e.g., Migratory Birds Regulations). The Act and its regulations prohibit the disturbance and destruction of migratory birds and their nests and eggs. Migratory bird nests may be encountered throughout the project limits where vegetation works are proposed, including culverts. The following general mitigation measures are provided to ensure compliance with the MBCA and its regulations:

- Where feasible, vegetation removal should occur outside of the breeding bird season which extends from April 1 to August 31.
- If vegetation removal is required during this timing window, the following is recommended:
    - A nest sweep should be completed by a qualified biologist prior to construction to verify nesting activity. Vegetation clearing must take place within 48 hours of the inspection.
    - Preventative measures (e.g., tarps) should be installed at all culvert locations prior to April 1 to inhibit birds from nesting within the structures.
    - Regular inspection of the culverts during the nesting season should be completed to ensure the exclusion measures have been effective and no nests are present.

- If an active nest is found within the work area, at any time (including times outside of the typical nesting season), construction in the vicinity must cease until the young birds have fledged or the nest is otherwise abandoned. A setback from the nest (e.g., 30 m) should be identified and the area demarcated to ensure work does not occur within the setback limits. A qualified biologist should be consulted to determine the setback limits.

4.1.2.3 SWH for Reptile Hibernaculum

SWH for Reptile Hibernaculum was identified at the Essex Outlet Drain on the north side of Highway 3. The exact location of hibernacula was not confirmed. It is recommended that the mitigation measures identified for Eastern Foxsnake be followed. In particular, exclusionary measures should be installed around the culvert (north side of Highway 3) by September 1 if construction is to occur during the fall/winter period. This will prevent snakes from accessing hibernacula. If snakes are observed in the area, relocation may be required to an area where they can access hibernacula, outside of the construction area. Where this is not feasible in a given year, the DB Contractor shall include daily monitoring at the site to search for snakes and relocate, as necessary. The monitor shall also be at the culvert locations during construction activities that may impact potential hibernacula, including but not limited to any earthworks and removal of riprap. The DB Contractor shall take measures to avoid incidental take throughout the construction, including during the overwintering period and between April 1 – May 20 when snakes are emerging from hibernacula. Daily monitoring shall occur prior to start of work each day and regularly throughout the day during the active period. Consultation with MNRF is recommended to discuss these mitigation measures and any other regulatory requirements.

4.1.2.4 Eastern Foxsnake

Eastern Foxsnake was not encountered during the surveys. As a result, it was determined that hibernacula are not present within the areas surveyed and a permit is not required under the ESA. Since Eastern Foxsnake are known to occur in the study area and may be encountered incidentally during construction a mitigation plan has been prepared and should be followed to prevent and/or minimize impacts to this species should it be encountered during construction. If the recommendations in the plan are followed, MECP does not anticipate any negative impacts to the species from the highway improvements.

In particular, exclusionary measures should be installed around the culvert (north side of Highway 3) by September 1 if construction is to occur during the fall/winter period. This will prevent snakes from accessing hibernacula. If snakes are observed in the area, relocation may be required to an area where they can access hibernacula, outside of the construction area. Where this is not feasible in a given year, the Contractor shall include daily monitoring at the site to search for snakes and relocate, as necessary. The monitor shall also be at the culvert locations during construction activities that may impact potential hibernacula, including but not limited to any earthworks and removal of riprap. The Contractor shall take measures to avoid incidental take throughout the construction, including during the overwintering period and between April 1 – May 20 when snakes are emerging from hibernacula. Daily monitoring shall occur prior to start of work each day and regularly throughout the day during the active period.

The Eastern Foxsnake Mitigation Plan was prepared (Parsons, 2020) and provided in **Appendix C.**

4.1.2.5 Barn Swallow

Barn Swallow nests were confirmed at the Essex Outlet Drain and the Essex Outlet Storm Sewer Drain. To avoid contravention of all Acts, adherence to the requirements of the ESA and the mitigation measures outlined in Section 5.2.2 and 5.2.5, TEAR Update Memo, Appendix C2 shall be followed. Permits under SARA and the MBCA are generally not available for incidental take.

4.2 Fish and Fish Habitat

A *Fish and Fish Habitat Existing Conditions and Impact Assessment Report* (Dillon, 2016) was completed by Dillon Consulting Ltd. as part of the TESR Addendum (2016). Due to the length of time since the EA (>5 years), Parsons collected new field data/information to update site conditions pertaining to the watercourse crossings within the project limits and reassessed the impacts of the Project within the context of the modernized *Fisheries Act* (August, 2019) and recent changes made to the MTO/Fisheries and Oceans (DFO)/Ministry of Natural Resources and Forestry (MNRF) Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings (Pilot), Version 4 (2020 – herein referred to as “the Protocol”) and MTO’s Interim Environmental Guide for Fish and Fish Habitat (2020 – herein referred to as “the Fish Guide”). The Parsons *Fish and Fish Habitat Existing Conditions and Impact Assessment Report* (August 2020) is intended to supplement previous documentation prepared by Dillon.

4.2.1 Existing Conditions and Proposed Work

A total of 12 culvert crossing locations within 30 m of a watercourse were included in the Parsons August 2020 report. The focus of the following summary is on the culvert crossing locations within the advance work study area, including:

Station	Watercourse ID	Highway/ Road	Proposed Work
9+108	14th Concession East Drain	South Talbot Road Extension (new)	• Installation of a new 29.74 m long, 3.05 m wide by 1.52 m tall open-foot concrete culvert **(29.74 m total new footprint or ~90.7 m^2).**
13+892	14th Concession East Drain	Highway 3	• 26.95 m long, 3.05 m wide by 1.52 m tall open-foot concrete culvert to be extended 33.34 m to the south **(33.34 m total new footprint or ~101.7 m^2).**
14+018	Unnamed Drain	Highway 3	• 29.67 m long, 0.75 m diameter corrugated steel pipe (CSP) to be replaced with a 54.84 m long, 0.825 m diameter CSP **(25.17 m total new footprint or ~20.8 m^2).**
14+742	Essex Outlet Drain	Highway 3	• 36.79 m long, 3.6 m wide by 1.8 m tall concrete box culvert combined with a 40.17 m long, 1.8 m wide by 1.2 m tall CSP (overflow culvert) to be decommissioned and filled-in, including approximately 18 m long by 2 m wide open channel between Highway 3 and Talbot Road South **(~312 m^2 drain area lost – 180 m^2 open and 132 m^2 closed).** • The new pre-cast concrete box culvert measuring 94.61 m long, 4.26 m wide by 2.44 m tall will be installed under Highway 3 approximately 300 m west of its existing location.

Station	Watercourse ID	Highway/ Road	Proposed Work
			• A new channel will be created within the ROW on the north and south sides (~600 m long by 4 m bottom), and tie back in where the existing drain currently meets the ROW boundary. Two permanent rock check dams in the northern portion of the realignment to control flow and sediment loadings entering the culvert.
14+777	Essex Drain Outlet	South Talbot Road/Victoria Avenue	• 3.05 m wide by 1.7 m tall concrete box culvert under Victoria Avenue is to be extended to the south 26 m with a 3 m wide by 2.8 m tall concrete box culvert. • The outlet of the extension will tie into the new diversion channel associated with the adjacent Sta. 14+742 drain realignment.

All of the proposed culvert extensions will be of similar length and diameter as existing culverts; however, all new culverts associated with the proposed new South Talbot Road Extension will have a closed bottom and will be sufficiently embedded below the drain bottom to maintain existing flows and water depth. Riprap aprons are proposed at each new culvert inlet and outlet, below the existing drain invert, to prevent erosion of fine-grained bedding/bank material.

Sta. 14+018 (Unnamed Drain) was confirmed in the field to be an ephemeral roadway drainage ditch and does not support fish. As such, this culvert crossing is not carried forward for further discussion and impact assessment. Given that impacts to fish and fish habitat are unlikely, work at this location can proceed provided that general mitigation measures outlined in OPSS.PROV 182 (General Specifications for Environmental Protection for Construction in and around Waterbodies and on Waterbody Bank) are applied and monitored during construction.

The remaining four culvert locations are expected to impact fish and fish habitat as per Table 1 as these works involve in-water work in fish-bearing waterbodies. As per Step 3 of the Protocol, it was determined that none of the proposed works can be addressed using the MTO Interim Environmental Guide for Fisheries – Best Management Practices (BMP) Manual (2020) and thus, a fisheries assessment is required as per Step 4 of the Protocol.

4.2.1.1 14th Concession East Drain - New South Talbot Road Extension and Highway 3 (STA 09+108 and 13+892)

14th Concession Drain has a warmwater thermal regime with an in-water work timing window between July 1st and March 14th of the following year to protect fish during sensitive periods. No significant fish habitat was present in the field of investigation and no SAR were identified during background review or field investigations.

Planting riparian shrubs along the exposed drain banks could increase overhead coverage, provide protection for fish, and decrease water temperatures by shading the drain. This would also buffer the drain from runoff draining from the surrounding agricultural fields. Additionally, installation works at Sta. 09+108 should consider cleaning out the drain throughout the area of investigation to improve flows by removing excess sediment and dense emergent vegetation in the channel. Fish passage is currently impaired during flow periods due to the establishment of dense emergent vegetation in the channel and make-shift all-terrain vehicle (ATV) crossing, immediately upstream of the upstream ROW. Removing some of the vegetation and the ATV crossing would increase flows and provide for improved movement throughout the year.

4.2.1.2 Essex Outlet Drain (STA14+742 and STA14+771)

The watercourse has a warm water thermal regime with a recommended permitted in-water timing window between July 1st and March 14th of any given year to protect fish during sensitive life cycles. Overhanging cover on the east side of the drain is very minimal. Planting riparian shrubs or tress will improve the cover over the stream, reducing temperature and providing more ideal conditions for fish. Sediment has accumulated in the creek and the silty bottom is approximately 1-2 m deep before any resistance. Removing the sediment will improve the habitat during low flow conditions and water flow through the drain.

4.2.2 Fisheries Assessment

New culvert extensions are required at Sta. 13+892 (14th Concession East Drain) and Sta. 14+777 (Essex Outlet Drain) to accommodate the advance work and will permanently alter existing fish habitat. An existing culvert will be removed and filled in at Sta. 14+742 (Essex Outlet Drain) destroying fish habitat and a new culvert is proposed at Sta. 09+108 (14th Concession Drain), which will permanently alter existing fish habitat. As such, a fisheries assessment is required to determine the likelihood of these alterations and destruction to cause HADD of fish habitat, which is prohibited under the *Fisheries Act* unless authorized by DFO.

Culvert extension, removal and associated installation activities in water have the potential to directly affect fish and fish habitat in the following ways:

- Negatively affect or change native substrate composition important for cover and spawning;
- Reduction or complete obstruction of flow and fish passage;
- Further drain fragmentation from culvert removal and associated in-fill;
- Change or removal of accumulated debris, organic matter and aquatic vegetation that is important for structure, cover, nutrient and food production;
- Disruption of fish passage and critical life stages (e.g., spawning, migration) and mortality of fish or eggs from heavy equipment;
- Increased erosion potential due to soil disturbances;
- Site specific siltation and sedimentation to downstream fish habitat; and
- Introduction of deleterious substances to the watercourse, including concrete/other construction debris and petroleum products from heavy machine.

Appropriate mitigation measures are expected to minimize or avoid most of the negative impacts; however, residual effects are expected at each drain crossing after reasonable measures have been implemented (i.e., net effects). The type of works with the potential to cause residual effects are discussed in the Parsons August 2020 fisheries report. In addition, the report documents the impacts, proposed mitigation measures, residual effects, and the likelihood of causing death of fish or the harmful alteration, disruption, or destruction (HADD) of fish habitat.

4.2.3 Permit and Approval Requirements

The residual effects identified in Table 6 of the Parsons August 2020 fisheries report were assessed to determine the likelihood of causing death of fish and/or HADD of fish habitat, which is defined in DFO's Fish and Fish Habitat Protection Policy Statement (August 2019) as:

- “death of fish” by means other than fishing; and,
- “harmful alteration, disruption or destruction” as any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes of fish.

When considering whether these residual effects are likely to cause death of fish and/or HADD, the following factors (taken from the Fish Guide) are used to determine their severity:

- Spatial Scale (size) - the direct footprint of the project, as well as areas indirectly affected, such as downstream or down-current areas;
- Intensity - the amount of time that a residual effect will persist after construction, as well as the duration of construction (e.g. days, months, multiple years, or permanent); and
- Duration - The expected amount of change from the baseline condition. Intensity is a way of describing the degree of change, such as changes in water temperature, changes in flow velocity, suspended sediment, habitat availability, habitat accessibility, etc.

It is important to note that the intensity of the effect is often linked to the type of fish species (i.e., generalists or specialists) and/or fish habitat present (i.e., limiting or homogeneous), particularly significant or critical habitat such as spawning grounds, nursery and feeding areas or habitat that supports SAR.

Based on the assessment of these factors at each drain crossing associated with the advance work, the activities at the Essex Outlet Drain (Sta. 14+742) was assessed to likely cause a HADD.

As per Step 5 of the Protocol, MTO Project Notification Forms were prepared for the locations not likely to cause a HADD and a DFO Request for Review Form was prepared and submitted to DFO on August 19, 2020 to cover the work planned in Essex Outlet Drain (Sta. 14+742) at Highway 3 and downstream (Step 6).

During construction, a Licence to Collect Fish for Scientific Purposes (i.e., Fish Permit) will be required to salvage fish from within construction site isolation measures to prevent death of fish.

No SAR permitting or approvals are required for the advance work.

4.3 Groundwater

The *Groundwater Assessment Report* (Dillon Consulting, 2013) prepared by others during Preliminary Design concluded that the proposed improvements to Highway 3 will have no significant impacts on the quantity and quality of groundwater resources in the Study Area:

- Any open excavations during construction will be relatively shallow compared to the depth of nearby water wells.
- Little or no dewatering will be required during construction and there will be no consumptive use of groundwater.
- Drinking water wells are located at significantly greater depths than proposed excavation depths. In addition, there are a relatively few wells (21 according to MOE Water Well Records) within 500m of the highway improvements.
- Residences in the vicinity of the Study Area are serviced by municipal water supply. As a result, actual domestic groundwater use in the vicinity of the project was considered to be low. Based on this, no impacts to domestic groundwater users are predicted.

Best management practices are available for spills management and salt management and mitigation measures will be included in the contract.

A Permit to Take Water (PTTW) is not anticipated for this project groundwater takings are anticipated to be less than 50,000 litres/day. Any excavation dewatering will be an immediate non-consumptive return to the natural environment. (Dillon Consulting, 2016).

4.4 Social/Economic Environment

4.4.1 Land Use

The land use section of the TESR Addendum (2016) was reviewed in relation to the proposed work.

4.4.1.1 Impacts on Agriculture

Impacts to agriculture and out of way travel are unchanged from the TESR Recommended Plan. No additional property is anticipated for this project.

All farm infrastructure damaged/removed during construction, such as fences, field entrances and drainage tiles, will be repaired/restored, as required by the construction contract.

4.4.1.2 Impacts on Residential Uses

There is no impact on traffic or residential land uses associated with the municipal road extension at South Talbot Road.

There is no impact to traffic associated with the preloading/surcharging of the embankments at Victoria Avenue. Traffic volume increases identified in the TESR Addendum (2016) will occur only once the Highway 3/Victoria Avenue intersection is closed.

Traffic volumes are expected to increase significantly on South Talbot Road west of Victoria Avenue and decrease on South Talbot Road east of Victoria Avenue. Traffic infiltration through residential neighbourhoods caused by the removal of the Highway 3/Victoria Avenue intersection is expected to occur on Woodview Avenue and Oak Drive in the Tulley Meadows subdivision. Projected increases in traffic volumes and traffic infiltration will potentially cause noise and air quality impacts, visual impacts and safety issues for the houses located along the affected streets.

4.4.1.3 Impacts on Commercial, Institutional and Industrial Uses

The proposed improvements to Highway 3 have no impacts on other commercial and industrial land uses in the Study Area. The South Talbot municipal road extension provides connectivity to lands zoned for manufacturing along Highway 3.

4.4.1.4 County and Local Official Plans

County of Essex Official Plan

The *County of Essex Official Plan* (2014) was consulted in the preparation of this Design and Construction Report (DCR). There have been no changes to the official plan land use designations since the TESR Addendum (2016).

The County's Official Plan was approved by the Ministry of Municipal Affairs and Housing (MMAH) on April 28, 2014. As shown on Schedule A1 of the Plan, the Town of Essex urban area north of Highway 3 is designated "Settlement Area". Lands south of Highway 3 are designated as "Agricultural". These areas consist of prime agricultural lands designated for long-term agricultural use. The plan states that the long-term success of Essex County —will be directly related to its ability to properly manage, protect and enhance its agricultural resource."

The Town of Essex Official Plan

The *Town of Essex Official Plan* came into force on July 15, 2009. The plan recognizes MTO's jurisdiction over Highway 3. Schedule A-1 "Land Use Plan" of the Official Plan shows that most of the lands south of Highway 3 are designated Agricultural. The plan protects prime agricultural areas for long-term agricultural use.

4.4.1.5 Provincial Policy Statement

The *Provincial Policy Statement* (2020) outlines that transportation facilities such as Highway 3, are defined as infrastructure. The improvements are consistent with the PPS Sections 1.6.7 and 1.6.8 in the following ways:

- The improvements are consistent with the PPS goal for transportation systems since they are safe, energy efficient, facilitate the movement of people and goods and address projected needs.
- Consistent with the PPS, the improvements make efficient use of existing and planned infrastructure, including the existing alignment of Highway 3.
- MTO has integrated transportation and land use considerations in all stages of the planning process, as required by the PPS.
- MTO is planning for and protecting the Highway 3 corridor and ROW for the future.

The PPS requires that MTO consider the significant resources protected by Section 2 of the PPS, when planning for corridors and rights-of-way. Significant resources potentially affected by the proposed improvements include prime agricultural lands, significant wildlife habitat and archaeological resources. The project requires no additional prime agricultural lands identified south of Highway 3.

The proposed improvements potentially impact significant wildlife habitat, including Barn Swallow (listed as Threatened under the ESA) habitat and Eastern Foxsnake (listed as Endangered under the ESA) habitat. Measures to protect these species will be incorporated into the Design Build contract.

Impacts on lands with archaeological potential will be avoided by obtaining archaeological clearance from Ministry of Heritage, Sport, Tourism and Culture Industries (MHSTCI) prior to construction.

4.4.2 Traffic and Emergency Services

No additional traffic impacts are anticipated as a result of the embankment work or the South Talbot Road municipal road extension as the work can be completed away from traffic.

Traffic impacts associated with the removal of the Victoria Avenue intersection are described in the TESR Addendum (2016).

4.4.3 Air Quality

Dust may be generated during construction, which may adversely affect air quality.

Impacts will be minimized by compliance with Ministry of the Environment, Conservation and Parks (MECP) guidelines, as well as Contract General Conditions to minimize dust and other air quality impacts.

4.4.4 Construction Noise

Equipment shall be maintained in an operating condition that prevents unnecessary noise, including, but not limited to non-defective muffler systems, properly secured components, and lubrication of moving parts. Idling of equipment shall be restricted to the minimum necessary time to perform the specified work.

Where possible, major construction activities to be scheduled to take place during daytime hours (i.e., 7:00 AM to 7:00 PM) to avoid sensitive nighttime periods. MTO projects do not require obtaining a Municipal Noise By-Law exemption.

4.5 Cultural Environment

4.5.1 Heritage Resources

The TESR Addendum (2016) noted that the Town of Essex does not include any built heritage structures. The only cultural heritage resources that may be affected are the original township surveys (“roadscapes”). All changes proposed avoid all above-ground cultural heritage resources.

4.5.2 Archaeology

Fisher Archaeological Consulting (FAC) completed a Stages 1 and 2 Archaeological Assessment of the Highway 3 improvements, as documented in a report dated December 10, 2013. The Stage 2 assessment found no evidence of archaeological significance and concluded that no further archaeological work is required. The report was entered into the Public Register of Archaeological Reports in August 2015.

Should unassessed buried archaeological resources be uncovered during development, these may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. Upon discovering the archaeological resources, the Contractor must cease alteration of the local site area immediately and notify the Contract Administrator who shall engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Section 48 (1) of the *Ontario Heritage Act*.

Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. Notification to the MTO Environmental Planner will occur so that the MTO Regional Archaeologist can be informed.

4.6 Property Contamination

The *Contamination Overview Study* (COS) (Dillon Consulting, 2013) prepared by others concluded that the overpass grade separation at Victoria Avenue has a low potential for impacts to the subsurface based on the adjacent low density residential and agricultural land uses.

Some sources of contamination were identified in the area of the Canada Southern Railway ROW, with Phase 1 Environmental Site Assessments requested for those areas. The locations are south of Highway 3 and away from the Victoria Avenue and South Talbot Road municipal road extension work. The potentially contaminated lands are not anticipated to be affected by this advance work.

4.6.1 Effluent, Cleaning Materials and Spills Management

During construction, there is some potential for spills of operational fluids from vehicles, equipment, and other sources. Spills can result in the contamination of soils and contribute to surface and groundwater degradation. During construction, the potential for spills is greatly reduced by managing these materials according to regulations and implementing appropriate mitigation.

Standard mitigation for construction spills management can be found in **Table 2**.

4.6.2 Excess Materials

All excess material generated during construction shall be managed in accordance with OPSS 180. Opportunities for reducing, reusing, and recycling excess materials generated during construction will be considered. Standard mitigation will be used for dust control (i.e., water, calcium chloride) during construction. Standard mitigation for designated substances, excess materials management, and spills management can be found in **Table 2**.

4.7 Erosion and Sediment Control

Mitigation measures for sedimentation, erosion, and dust control are recommended to prevent sediment and dust from entering sensitive natural areas (i.e., watercourse and wetlands). The primary principles associated with sedimentation and erosion protection measures are to: (1) reduce the duration of soil exposure; (2) retain existing vegetation, where feasible; (3) encourage re-vegetation; (4) divert runoff away from exposed soils; (5) keep runoff velocities low; and to (6) trap sediment as close to the source as possible.

Mitigation measures to address these principles are included in **Table 2**.

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5.0 Summary of Environmental Effects, Mitigation, and Commitments

The proposed improvements within the study area can be completed without significant adverse effects to the existing natural, social, and cultural environment. Long term effects from the construction are considered negligible.

A summary of environmental effects, mitigation and commitments, as identified at the end of the study is provided in **Table 2**. The table forms a comprehensive checklist of the commitments made to external agencies, the public, and other stakeholders during Detail Design.

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Table 2: Summary of Environmental Effects, Proposed Mitigation and Commitments for Future Work

Abbreviations

MTO Ministry of Transportation DFO Fisheries and Oceans Canada MNRF Ministry of Natural Resources and Forestry Town Town of Essex	ERCA Essex Region Conservation Authority MHSTCI Ministry of Heritage, Sport, Tourism and Culture Industries EMS Emergency Medical Services	UTIL Utilities MECP Ministry of the Environment, Conservation and Parks CWS Canadian Wildlife Service County County of Essex

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
1.0 Erosion and Sediment Control				
1.1	<u>Erosion and Sediment Control</u> Sediment and dust may enter sensitive natural features Erosion of exposed soil, and subsequent sediment inputs into watercourses have the potential to occur during construction of the project. Exposed soil, especially on slopes and in ditches, are vulnerable to erosion until vegetation has re-established.	MTO ERCA MECP MNRF	1.1.1	The following measures from the TESR Addendum (2016) will be implemented during construction in accordance with MTO's Environmental Guide for Erosion and Sediment Control during Construction of Highway Projects: • Minimize disturbance of existing well vegetated ditches and grassed slopes. • Protect undisturbed slopes and sensitive ditching with silt fence and temporary fibre-roll flow checks until exposed soils are stabilized. • Apply seed and cover to disturbed areas post-construction. Use native seed mixes suited to the site conditions to encourage adequate coverage for erosion control and suppression of invasive species. • Place appropriately sized rip rap and geotextile at new and existing storm sewer outlets. • Special contract provisions with timing restrictions to limit the length of time between start of clearing and application of final cover to 45 days. *OPSS 182 – Environmental Protection for Construction in Waterbodies and on Waterbody Banks* *OPSS 804 – Seed and Cover* *OPSS 805 – Temporary Erosion and Sediment Control Measures* *Operational Constraint Environmental – Erosion and Sedimentation Control – General*
2.0 Terrestrial Ecosystems				
2.1	<u>General Wildlife Protection</u> Wildlife may be disturbed by construction activities.	MTO MNRF MECP	2.1.1	• A thorough visual search of work zones should be conducted by construction contractors before work commences each day. • The feeding, harassment, or taking of wildlife is strictly prohibited. • All construction equipment and vehicles shall give a right-of-way to wildlife, allowing wildlife to pass and proceed to a safe distance prior to construction equipment/vehicles commencing construction activities. • In the event wildlife is injured during construction activities, the Contractor shall immediately cease work activities and notify the MTO Contract Administrator providing details of the incident. *Operational Constraint Environmental – Wildlife Protection – General*

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
2.2	<u>Vegetation and Wetland Disturbance</u> Heavy equipment could damage peripheral vegetation from contact, excavation and/or soil compaction.	MTO MNRF MECP Residents	2.2.1	• Minimize encroachment and vegetation disturbance to that necessary for construction, and implement standard measures to protect adjacent vegetation, including erosion and sediment control measures and installing barriers for tree protection (e.g., snow fencing) to protect adjacent habitats. • Any vegetation removal or clearing will occur outside of the core nesting period for migratory birds (i.e., April 1 to August 31) and turtles and snakes (April 1 – October 31 (migration is April-May and September-October). • Barrier fencing should be installed prior to construction and established at, or beyond, the tree drip-line, as appropriate. • Areas to be cleared of existing vegetation should be clearly marked to prevent unnecessary removal. Barriers for tree protection may be coincident with silt fencing used to control erosion and sediment transport at the site in areas of grading. • Standard Sediment and Erosion Control fencing will be installed at the limit of the work zones to prevent encroachment and additional vegetation removal. • Banks cleared of vegetation to facilitate work will be stabilized (e.g. vegetated) prior to removal of erosion and sediment control measures. • Post-construction seeding of the disturbed ROW (such as along drains) should be done with a suitable native seed mix to minimize invasion and colonization by non-native species and increase shade/cover for fish and wildlife. • Replaced soils will contain native seed bank, facilitating successful revegetation. *OPSS 801 – Protection of Trees* *OPSS 201 – Clearing and Grubbing* *OPSS 180 – Management of Excess Materials* *Operational Constraint Environmental – Timing Constraint for Clearing* *Operational Constraint – Erosion and Sedimentation Control* *Operational Constraint – Construction Access*
2.3	<u>Protection of Migratory Birds</u> Destruction or disturbance of birds or active nests protected under the *Migratory Birds Convention Act (MBCA)* is not permitted. Migratory bird nests may be encountered throughout the project limits where vegetation works are proposed, including culverts.	MTO MNRF MECP CWS	2.3.1	• Where feasible, vegetation removal should occur outside of the breeding bird season which extends from April 1 to August 31. • If vegetation removal is required during this timing window, the following is recommended: – A nest sweep should be completed by a qualified biologist prior to construction to verify nesting activity. Vegetation clearing must take place within 48 hours of the inspection. – Preventative measures (e.g., tarps) should be installed at all culvert locations prior to April 1 to inhibit birds from nesting within the structures. – Regular inspection of the culverts during the nesting season should be completed to ensure the exclusion measures have been effective and no nests are present. – If an active nest is found within the work area, at any time (including times outside of the typical nesting season), construction in the vicinity must cease until the young birds have fledged or the nest is otherwise abandoned. A setback from the nest (e.g., 30 m) should be identified and the area demarcated to ensure work does not occur within the setback limits. A qualified biologist should be consulted to determine the setback limits. • The Contract Administrator shall be notified if active nests (nests with eggs or young birds) are encountered.

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
				Operational Constraint Environmental – Migratory Bird Protection – General *Operational Constraint Environmental – Timing Constraint for Clearing*
2.4	<u>Species at Risk: Barn Swallow</u> Active Barn Swallow nests were observed at Essex Outlet Drain (4) and Essex Outlet Storm Sewer Drain (2)	MTO MECP MNRF	2.4.1	• The same mitigation measures are to be implemented for Barn Swallow, as described for Migratory Birds, as above. • A Notice of Activity is to be registered prior to work on the culverts with observed Barn Swallow nests. A Barn Swallow mitigation plan will be prepared. • Adhere to the requirements of the ESA and the mitigation measures provided for migratory birds. *Operational Constraint – Protection of Species at Risk* *Endangered Species Act*
2.5	<u>Significant Wlidlife Habitat for Reptile Hibernaculum</u> Eastern Gartersnake SWH observed at the Essex Outlet Drain, on the north side of Highway 3	MTO MECP MNRF	2.5.1	• Mitigation measures identified for Eastern Foxsnake be followed (see below). • Exclusionary measures should be installed around the culvert (north side of Highway 3) by September 1 if construction is to occur during the fall/winter period. This will prevent snakes from accessing hibernacula. • If snakes are observed in the area, relocation may be required to an area where they can access hibernacula, outside of the construction area. Where this is not feasible in a given year, the Contractor shall include daily monitoring at the site to search for snakes and relocate as necessary. The monitor shall also be at the culvert locations during construction activities that may impact potential hibernacula, including but not limited to any earthworks and removal of riprap. • The Contractor shall take measures to avoid incidental take throughout the construction, including during the overwintering period and between April 1 – May 20 when snakes are emerging from hibernacula. • Daily monitoring shall occur prior to start of work each day and regularly throughout the day during the active period. • Consultation with MNRF is recommended to discuss these mitigation measures and any other regulatory requirements.
2.6	<u>Species at Risk: Eastern Foxsnake</u> Potential for Eastern Foxsnake (Endangered species) to occur within the Study Area	MTO MECP MNRF	2.6.1	The active season for Eastern Foxsnake is April 1 to October 31 of any year with hibernation occurring anywhere between September to late May depending on weather. To avoid impacts and interactions with Eastern Foxsnake, the following mitigation measures will be followed: • The Contractor shall adhere to the Eastern Foxsnake Mitigation Plan, provided in the TEAR Update Memo (Parsons 2020), and identified below: • The active season for Eastern Foxsnake is April 1 to October 31 of any year with hibernation occurring anywhere between. • September to late May depending on weather. • Removal of non-woody vegetation shall be conducted between June 1 and September 30 when snakes are active and most able to flee areas of disturbance, or between November 1 and March 30 when snakes are hibernating. • Mesh or netting type stabilization material must not be used on site to prevent the entanglement of Eastern Foxsnake. • During the active season when temperatures exceed 18°C, Eastern Foxsnake may find and occupy materials and equipment stored onsite. As a result, the site must be maintained in a clean and debris/clutter-free condition at all times and materials such as plywood or rubber mats must not be stored flat on the ground. • During excavation and backfill, disturbance shall be minimized to the greatest extent possible and piling fill in fallow vegetation shall be avoided.

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
				• Disturbance to brush piles/logs shall be avoided wherever possible during the active season, particularly between June 1 and September 30 when eggs and hatchlings may be present. If a brush/log pile must be moved or disturbed outside this window, it shall be carefully inspected for snakes. If eggs or hatchlings are present, work must cease and a Qualified Biologist and MECP must be contacted to discuss mitigation options. • Wildlife-specific exclusionary fencing shall be installed where culvert works occur at the five locations during the active period. If Eastern Foxsnake is encountered elsewhere in the project limits, additional wildlife-specific fencing shall be installed where the species was observed, with the limits determined by a Qualified Biologist. Silt fencing, including light duty or mesh or netting-type silt fencing is not permitted for the purpose of excluding Eastern Foxsnake. Wildlife-specific fencing shall be used (e.g., ERTEC, Animex) with a recommended fence height of a minimum of 100 cm. The fence shall be buried at a depth of 10-20 cm with an additional 10 cm of fabric that extends outward at the bottom and functions as a horizontal lip to prevent wildlife from excavating under the fencing. The fencing should be installed following the MNRF guidelines for Reptile and Amphibian Exclusion Fencing (MNRF, 2013) as summarized: • Exclusion fencing intended to exclude snakes should have the stakes installed on the activity side (opposite the normal requirement for sediment control fencing) to prevent snakes from using the stakes to maneuver over the fencing (see diagram in the Mitigation Plan). • Fences should be inspected throughout the active season. Any damage that affects the integrity of the fence (e.g. tears, loose edges, collapses, etc.) should be fixed promptly. • Install fences with a turn-around at the ends furthest from the construction limits to assist in redirecting animals away from any fence openings (see diagram in the Mitigation Plan). • Curving the ends of the fencing inward (i.e. away from the road or construction site) may help to reduce access to these locations. The ends may also be tied off to natural features on the landscape such as trees or rock cuts. • Work occurring between September to late May has the potential to discover hibernacula, particularly in areas where there are animal burrows, rock crevices, gabion baskets or foundations are present. If Eastern Foxsnake is discovered, all work shall cease, and Qualified Biologist be contacted to discuss mitigation options. • The Contractor shall include on its team, an Environmental Inspector with SAR experience, including Eastern Foxsnake, who will provide SAR training to staff. An Eastern Foxsnake information sheet shall be provided to staff to assist with identification and measures to take if this species is encountered (TEAR Report, Attachment E). All individuals working onsite must confirm (in writing) that they have received training and reviewed the factsheet. • The Contractors' Environmental Inspector will complete a visual inspection of work areas, as well as machinery and equipment each day prior to commencement or when moving to new locations, throughout the active period. This will include a thorough walk-through of the work area and searching any brush piles, logs or rock piles. • Construction equipment that is left idle for over (1) hour or is parked overnight between the active period must be inspected for the presence of Eastern Foxsnake before (re)ignition. This visual examination should include all lower components of the machinery, including operational extensions and running gear. • If Eastern Foxsnake are encountered during construction, work at that location will be temporarily suspended until the species is out of harm's way. If a hibernacula or egg-laying site is discovered, all work must cease and a Qualified Biologist will be contacted to discuss mitigation options.

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
				• If a snake nest is discovered on the project site, MECP shall be contacted to discuss mitigation options and to obtain authorization for nest relocation or to excavate the eggs for transport to a licensed Wildlife Custodian for the remainder of the incubation period until they can be released. If this approach is taken, a Qualified Biologist, experienced in excavation and relocation of eggs shall be contacted. The Qualified Biologist will use a container with a lid with holes for ventilation, and partially filled with the substrate used for nesting or other mediums such as sphagnum moss, potting soil or vermiculite. Using their hands while wearing gloves or using a small utensil if the soil is packed down, the Qualified Biologist will gently scrape away the soil on the top of the nest to reveal the eggs. A pencil will be used to gently mark the top of each egg so that the eggs are placed in the container in the same orientation as they were in the nest. Prior to placing the eggs in the container, the Qualified Biologist will make an egg-sized indent with their finger in the container substrate for each of the eggs. This will reduce the risk of eggs rolling during transport and shifting orientation. The eggs will be carefully removed from the nest and placed in the container in the same orientation as it was laid. In case an egg is inadvertently rolled during transport, it can be re-oriented in the correct position using the pencil mark as a guide to avoid harming the embryo. If the eggs are not brought to an incubator right away, they should be stored in a warm place between 24-26˚C • Any SAR observed must be reported to MECP within 48 hours. Species should not be handled unless it is in harm's way and in accordance with the MNRF Species at Risk Handling Manual (Attachment F) by qualified staff. Authorization from MECP is required if SAR are in possession or are to be relocated. • All injured wildlife (SAR or non-SAR) will be transported to an authorized Wildlife Custodian. Euthanasia of injured wildlife is not permitted unless conducted by an authorized wildlife rehabilitator. If an animal is unable or unwilling to flee from human presence, it is likely injured. Signs of wildlife injury include obvious wounds, broken limbs, lethargy, lameness, and difficulty standing or breathing. Injured wildlife experience high levels of stress and pain, and their behaviour is usually unpredictable and defensive, posing an increased risk to handlers. Always use extreme caution when handling injured wildlife, wear thick gloves, and limit handling as much as possible. Avoid aggravating any obvious injuries such as wounds or broken bones. • Transport injured wildlife in a dark container where possible. *Operational Constraint – Protection of Species at Risk Endangered Species Act*
2.7	<u>Wildlife Safe Handling and Relocation</u>	MTO MECP MNRF	2.7.1	• Wildlife relocations will only be performed as part of wildlife salvage or if an animal is in danger and field staff can do so safely. Relocations will be completed by a Qualified Biologist following the techniques outlined in the MNRF *Ontario Species at Risk Handling Manual: For Endangered Species Act Authorization Holders*. The manual includes measures for safe handling, relocation, and transportation of live, injured, and dead animals. Injured wildlife will be captured and relocated to the nearest appropriate authorized wildlife rehabilitator. • Wildlife should be relocated within 50 m of the capture location toward the direction they were heading and outside of the construction zone. • Overwintering turtles and snakes should not be relocated. If overwintering turtles or snakes are disturbed by construction activities, work shall cease and a Qualified Biologist shall be contacted.

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
				Operational Constraint – Protection of Species at Risk *Endangered Species Act*
3.0 Fish and Fish Habitat				
3.1	<u>In-water work</u> Project Notification Form (under Fisheries Protocol) required for low risk of negative effects on fish and fish habitat caused by culvert modifications. The following watercourse crossings pertain to the advance work: Culvert extension at Essex Outlet Drain (at South Talbot Road and Victoria Avenue) Request for Project Review Form (under Fisheries Protocol) required	DFO MTO MNRF ERCA	3.1.1	• Prior to clearing and grading, appropriate erosion and sediment controls (e.g., silt fence, filter rolls, check dams) must be installed as per a comprehensive Erosion and Sediment Control Plan around each drain location on both sides to protect fish and fish habitat and also prevent the transport of sediment and sediment-laden water into adjacent areas or further downstream potentially affecting habitats far away from the site. Furthermore, stockpiled organic material and soils will need to be placed away from all watercourses and protected (i.e., temporarily stabilized) so the material does not enter the water and wash downstream, potentially creating barriers to fish movement and covering over existing habitat features. • Excavated bank material at each crossing to allow for the installation of culverts and extensions will be temporarily stored within the ROW and reused within the cofferdam to reform the banks once the culvert works are complete. Any extra material will be properly disposed offsite. The highway embankment will be restored and stabilized immediately before removing all site isolation measures. Erosion and sediment controls must remain in place until disturbed soils have stabilized naturally or covered with rock, where proposed on drawings. • To avoid resuspension of sediment as a result of drain disturbances during the placement of material or structures in water, the entire in-water work area at each location will be isolated from the open drain using cofferdams. Any fish confined or trapped within the isolated areas will be removed by a qualified biologist under a licence from the MNRF prior to dewatering, in order to prevent death. Only clean materials, free of particulate matter will be used for cofferdams (i.e., no earthen berms). • To avoid construction related impacts and disruption to fish species during their most vulnerable life cycles, an in-water work timing window will be applied for all construction activities directly or indirectly impacting the drains within the Project limits. If there is water present at the time of construction, the in-water work timing window within the Project limits is from July 1st to March 14th of the following year. • The removal of aquatic vegetation within cofferdam areas is unavoidable at each location and represents a residual effect of the work; however, the use of site isolation measures encloses sediment-laden water during the removal process and allows an opportunity to filter during dewatering throughout filter bags (or other measures as appropriate) before releasing back into the drains. Removed aquatic vegetation is expected to naturally return over the next few growing seasons as abundant material exists around the sites to aid in re-establishment; however, aquatic vegetation is not expected to return within the new footprints of new culverts or extensions. The size of cofferdams will be minimized to the extent possible to safely isolate the work site and allow enough room to undertake the work. • During construction, cofferdams will temporarily block active channel flow and water will need to be maintained around each work site to prevent flooding and ensure that fish habitat downstream does not run dry. Depending on the site conditions at the time of construction, a dam and flume, dam and pump around or a combination of the two will be needed to temporarily bypass flows. To prevent death of fish, cofferdam dewatering will be necessary to maintain dry working conditions, which will be filtered appropriately before being allowed to re-enter the drain. Also bypass pump inlets will need to be fitted with fish protection screens to avoid impingement end entrainment of small fish into the system that are present at each location. Flow bypass/diversions will only be permitted during the in-water work timing window (July 1 to March 14 of the following year).

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				• Provided that the new culvert planned at Sta. 09+108 (14th Concession East Drain) and extensions planned at all other locations are installed correctly and embedded below the existing drain bed elevation (at least 10%) and backfilled with native material to maintain existing flow and water depth (same as existing), impacts to fish passage will be avoided (if not improved due to accumulation of debris and dense emergent vegetation at some culverts). Cofferdams will not be in place during sensitive reproductive or migratory periods to maintain seasonal movement patterns and migration. • Any work that must take place in the water will be isolated from the open portion of the surrounding waterbody via cofferdams. Isolating the work area will ensure that any sediment generated during the construction activities will not be permitted to exit the worksite. Any fish trapped within the isolated area must be removed prior to the initiation of work. The local hydrology will be considered in design to ensure that site isolation measures have the capacity to handle typical baseflows and storm flows during anticipated construction periods. • Any part of equipment operating on the banks and/or over the water shall be free of fluid leaks and externally cleaned and/or degreased. All equipment maintenance and refueling shall be conducted at least 30 m away from the waterbody. The Contractor will prepare a Spill Response and Action Plan that describes actions to be taken in the event of an incident such as an accidental spill. A spill kit containing absorbent materials (appropriate for removing petroleum from water and ground surfaces, i.e., pads, socks, granular) will always be kept on site to be used in the event of that deleterious materials are released. *OPSS 180 – General Specification for the Management of Excess Materials* *OPSS 182 – General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks* *OPSS 517 – Construction Specification for Dewatering* *OPSS 804 – Construction Specification for Seed and Cover* *OPSS 805 – Construction Specification for Temporary Erosion and Sediment Control Measures* *Operational Constraint Environmental – Erosion and Sedimentation Control – General* *Special Provision – Timing of In-Water Works*
4.0 Drainage and Groundwater				
4.1	<u>Drainage</u> Improvements for this project area coincide with improvements to the following culverts: • Proposed Essex Outlet Drain • Extension of Existing Essex Outlet Drain culvert/storm sewer at Victoria Ave/South Talbot Road	MTO MECP ERCA Town County	4.1.1	• All culvert extensions/replacements and new culverts will be designed to meet MTO drainage design criteria and incorporate erosion and scour protection and fisheries protection measures, where applicable. *Operational Constraint Environmental – Erosion and Sedimentation Control – General*

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4.2	<u>Drainage/Stormwater Management (SWM)</u> Water Quantity and Quality Impacts	MTO MECP ERCA Town County	4.2.1	• Any new ditches will be designed using a minimum 1.0m bottom width, low gradient and permanent rock flow checks to improve online storage characteristics, promote infiltration/vegetative uptake, attenuate peak flows and settle suspended solids potentially containing deleterious substances. • Newly graded soil will be protected from surface erosion and sediment transport with temporary and permanent sediment and erosion control measures, such as erosion control blanket, fibre-roll flow checks, rip rap and vegetative cover. *Operational Constraint Environmental – Erosion and Sedimentation Control – General*
4.3	<u>Groundwater</u> Study Area located in an area of low vulnerability for groundwater recharge with watercourses designated as: Intake Protection Zone 3 (IP-Z3). No impacts expected during construction. Ancillary activities (handling/storage of fuel) may pose a low risk. Activities during operation, such as application of road salt, pose a low risk to local groundwater and surface water quality	MTO MECP ERCA	4.3.1	• Erosion and Sediment Control measures are provided in the contract. • Measures to protect groundwater will be included in the construction Contract based on *MTO's Environmental Reference for Contract Preparation* (ERCP). • MTO will apply current best practices, such as MTO's Salt Management Plan, to minimize threats to groundwater quality. *General Contract provisions* *Operational Constraint Environmental – Erosion and Sedimentation Control – General*
		MTO MECP ERCA	4.3.2	• To minimize the impact of potential contaminant spills, the Contractor should implement best management protocols such as secondary containment of any temporary fuel storage and preparation of a spill response plan and proper facility management during operation and maintenance. *General Contract provisions*
5.0 Management of Excess Materials				
5.1	<u>Potential for the Generation of Excess Materials</u> Excess Materials generated during construction require proper management and disposal	MTO MECP	5.1.1	• Excess materials generated during construction will be managed by the Contractor in accordance with standard MTO specifications (i.e., *OPSS 180 – General Specification for the Management of Excess Materials*). • All materials and debris will be removed upon completion of the work. • Opportunities for reducing, re-using, and recycling excess materials generated during construction will be considered. • If soil impacted by salt-related parameters is to be excavated and removed from the Site, it should be managed in accordance with OPSS 180, and in consideration of the MECP's 2014 document *Management of Excess Soil – A Guide for Best Management Practices* (the BMPs) and according to further guidance and regulations developed by the MECP for excess soil, as applicable. *OPSS 180 – General Specification for the Management of Excess Materials* *Operational Constraint Environmental – Management of Excess Earth With Salt Impacts*

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6.0 Property Contamination				
6.1	Potential to Encounter Contaminated Soils	MTO MECP	6.1.1	• Any excess soil will be managed in accordance with *OPSS 180 Management of Excess Materials.* *OPSS 180 – Management of Excess Materials* *Operational Constraint Environmental – Management of Excess Earth With Salt Impacts*
6.2	Effluent, Cleaning Materials and Spills Management Improper handling and disposal of operating fluids from equipment and machinery may result in spills, which may impact the environment	MTO MECP	6.2.1	• Ensure all on-site hazardous materials are properly stored and located at least 30 m away from watercourses and other sensitive natural features, such as wetlands, including all handling and refueling activities. • All on-site materials should be self-contained, maintained according to manufacturer's instructions and disposed of appropriately. • Develop and implement an emergency response management and monitoring plan that includes measures for preventing and addressing potential spills and monitoring activities. • Spill kits should be kept on-site and accessible at all times. • All waste resulting from construction should be removed from the site and disposed of at an appropriate facility. This includes packaging (bags, wraps, boxes, ties, etc.), waste materials (excess fill, cement, grout, asphalt, or other substances), and ESC structures (silt fencing, flow checks, etc.) once permanent vegetation has established and ESC measures are no longer required. • All spills will be immediately controlled and reported, and MECP Spills Action Centre will be contacted. The Spills Action Centre Hotline number (1-800-268-6060) shall be posted at the work zones. • Inspection staff will be notified immediately if contaminated soils (i.e., soils that exhibit visual or olfactory evidence of petroleum or other contamination) are encountered. The contract will include standard wording to address contaminated soil should it be encountered during construction. • Any effluent or cleaning materials generated during the work program will be considered waste and will need to be managed as such. They should be contained in appropriate storage containers and sampled prior to off-site disposal to determine the quality and the appropriate location for disposal. Effluent and cleaning materials cannot be discharged over land or to surface water bodies. *OPSS 100 – MTO General Conditions of Contract* *OPSS 182 – General Specification for Environmental Protection for Construction in Waterbodies and on Waterbody Banks*
7.0 Traffic and Emergency Services				
7.1	Traffic Impacts and Access for Emergency Services Work associated with the advance work is completed off active roadways	MTO EMS	7.1.1	• Access for emergency services on Highway 3 will be maintained for the duration of construction. • The Contractor will apply for and obtain annually all applicable permits from the Town of Essex for all work on property outside MTO jurisdiction prior to undertaking any work.

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				OPSS 100 – MTO General Conditions of Contract *Notice to Contractor – Road Occupancy Permit*
8.0 Air Quality				
8.1	Dust to be generated during construction, which may adversely affect air quality	MTO MECP County Town Residents	8.1.1	• Impacts will be minimized by compliance with standard Ministry of the Environment, Conservation and Parks (MECP) guidelines, as well as Contract General Conditions to minimize dust and other air quality impacts. *OPSS 100 – MTO General Conditions of Contract*
9.0 Construction Noise				
9.1	<u>Potential Disturbance from Construction Activities</u> Noise emissions from construction activities have the potential for disturbance	MTO Town	9.1.1	• Construction noise minimized by implementation of construction best practices. • Equipment shall be maintained in an operating condition that prevents unnecessary noise, including, but not limited to non-defective muffler systems, properly secured components, and lubrication of moving parts. • Idling of equipment shall be restricted to the minimum necessary time to perform the specified work. • A Noise By-Law exemption is not required for MTO work. *Special Provision – Construction Noise Constraints*
10.0 Archaeology				
10.1	<u>Potential for Archaeological Finds</u> Potential destruction/disturbance of archaeological resources during construction. Potential destruction/disturbance during construction.	MHSTCI	10.1.1	• Impacts avoided by Stage 1 & 2 Archaeological Assessments, as noted in the TESR Addendum (2016) – acceptd by MHSTCI in August 2015. • Contract provisions are included for notification of the discovery of archaeological resources uncovered during construction. • Should previously unknown or unassessed buried archaeological resources be uncovered during development, these may be a new archaeological site and therefore subject to Section 48 (1) of the *Ontario Heritage Act*. Upon discovering the archaeological resources, the Contractor must cease alteration of the local site area immediately and notify the Contract Administrator who shall engage a licensed archaeologist to carry out archaeological fieldwork, in compliance with Sec. 48 (1) of the *Ontario Heritage Act.* • Any person discovering human remains must immediately notify the police or coroner and the Registrar of Cemeteries, Ministry of Government Services. • Notification to the MTO Environmental Planner will occur so that the MTO Regional Archaeologist can be informed. *OPSS 100 – MTO General Conditions of the Contract* *Operational Constraint Environmental – Archaeological Finds/Heritage Resources*

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11.0 Utilities				
11.1	Potential to Impact Utilities	UTIL MTO	11.1.1	• Contractor to confirm location of all existing utilities to avoid conflicts during construction. • Relocations will be identified and completed prior to or during construction. *Notice to Contractor – Coordination with Utilities*
12.0 Land Use				
12.1	Impacts on Agriculture	MTO Town	12.1.1	• No advance work components will affect agricultural lands.
12.2	Impacts on Residential Use Traffic increases on South Talbot Road (west of Victoria Avenue) and traffic infiltration in neighbourhoods, potentially causing noise, air quality, visual impacts and safety issues	MTO Town County	12.2.1	• Mitigation measures are not required for the advance work.
12.3	Land Use Plans Conformity to County and Local Municipal Official Plans/ Consistency with the Provincial Policy Statement	MTO Town County	12.3.1	• No changes are required to the project proposed in the TESR Addendum (2016). Mitigation Measures are not required.
13.0 General Environmental Protection Measures				
13.1	Mitigation measures must be properly implemented in order to minimize the environmental impacts	MTO MECP MNRF	13.1.1	• Environmental inspections should take place during construction to ensure that all mitigation measures are implemented properly, maintained and remedial measures are initiated in a timely manner where warranted. • Wildlife protocols should be developed to educate workers of potential wildlife occurrences, including SAR, and measures to take in the event of potential encounters. Preventative measures to minimize encounters, injury and incidental take should also be provided. • Complete daily visual inspections of the work area during the active season, including inspecting equipment and brush piles for wildlife prior to being moved.

ID #	Environmental Effect/Concern and Potential Impact	Concerned Agencies	ID #	Mitigation/Commitment for Future Work
				• A monitoring plan should be developed to ensure mitigation and contingency measures are implemented and performance objectives are being met. Construction monitoring should be completed to ensure wildlife exclusionary and E&S measures are in place and working effectively. E&S controls should be checked weekly and after major rain events (>10mm) to ensure it is installed and functioning properly. Daily monitoring should be completed by the Contractor. Any deficiencies should be repaired immediately. A construction monitoring log should be maintained to ensure any deficiencies and corrective actions are documented. • Following construction, it is recommended that disturbed areas are re-stored and vegetated to preconstruction conditions. Vegetation plantings should include seed mixes that are appropriate for the area and similar to or better than pre-construction conditions. • The Clean Equipment Protocol for Industry (Halloran et al., 2013) should be implemented throughout the duration of construction. *Operational Constraint Environmental – General Environmental Protection Requirements*

6.0 Environmental Clearances/Approvals/Permits

No formal clearances are required under the *EA Act* since the structure replacement has been "screened", as required by MTO's Class EA for a Group 'B' project.

Mitigation measures are included above for Eastern Foxsnake, and no ESA permit is required.

A DFO Request for Review Form was prepared and submitted to DFO on August 19, 2020 to cover the work planned in Essex Outlet Drain (Sta. 14+742) at Highway 3 and downstream. During construction, a Licence to Collect Fish for Scientific Purposes (i.e., Fish Permit) will be required to salvage fish from within construction site isolation measures to prevent death of fish. No aquatic SAR permitting, or approvals are required for the advance work.

Mitigation measures and registration of the Notice of Activity for work with the potential to affect Barn Swallows is to be pursued as part of the Highway 3 widening Design-Build Ready project.

MTO is not required to obtain Municipal Noise By-Law exemptions.

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7.0 Environmental Inspection and Monitoring

An Environmental Synopsis will be developed to ensure that the Contract Administrator and the Contractor are made aware of, and are prepared to deal with, all environmental issues that may arise during construction. Specific environmental controls based on these detailed mitigation measures will be included in the contract documents and drawings to address specific environmental concerns during the construction phase.

Monitoring will be conducted by on-site construction supervisory staff to ensure that environmental protection measures, as outlined in this report and in the contract package, are being implemented and are effective. This includes ensuring that the implementation of mitigating measures and key design features are consistent with commitments made to external agencies prior to construction. If protective measures do not address concerns identified or if major problems develop, the appropriate agency will be contacted to provide additional input.

If the impacts of construction are different than anticipated, or that the method of construction is such that there are greater than anticipated impacts, the Contractor's method of operation will be modified to reduce those impacts. Any changes proposed by the Contractor should be thoroughly evaluated to ensure that the intent of the mitigation measures and provisions are maintained.

Following completion of the project, monitoring will be conducted by maintenance staff to ensure erosion control measures have been effective. In the event that problems are identified, MTO will initiate remedial action, as appropriate.

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8.0 References

Dillon Consulting (2013). *Terrestrial Ecosystems Assessment Report.*

Dillon Consulting (2016). *Fish and Fish Habitat Existing Conditions and Impact Assessment Report.*

Dillon Consulting (2016). *Highway 3 Improvements Town of Essex (GWP 317-98-00) Transportation Environmental Study Report Addendum (TESR Addendum).*

Dillon Consulting (2016). *TEAR Update Memo.*

Dillon Consulting (2019). *Species at Risk Memorandum.*

Parsons (2020). *Eastern Foxsnake Survey Results, Highway 3 Improvements in the Town of Essex (GWP 317-98-00).*

Parsons (2020). *Essex Outlet Drain Fish and Fish Habitat Assessment, Highway 3 Improvements in the Town of Essex (GWP 317-98-00).*

Parsons (2020). *Terrestrial Ecosystem Assessment Report – Technical Update Memo. Highway 3 Improvements in the Town of Essex (GWP 317-98-00).*

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