Ontario

Highway 401, Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Replacements (GWP 3054-11-00)

Transportation Environmental Study Report (Final)

July 2017

Project No. 12-7110

Submitted by

DILLON CONSULTING

Ce document hautement spécialisé n'est disponible qu'en Anglais en vertu du règlement 671/92, qui en exempte l'application de la Loi sur les services en français. Pour de l'aide en français, veuillez communiquer avec Heather Edwardson, ministère des Transports, au 905-704-2210.

Notice of Completion of Transportation Environmental Study Report
Highway 401, Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Replacements (GWP 3054-11-00)
City of London

The Ministry of Transportation, Ontario (MTO) retained Dillon Consulting Limited to complete the preliminary design, initial detailed design and Class Environmental Assessment (EA) for the following replacements in the City of London over three years:

- Tributary to Murray Drain Culvert
- CNR Overhead Bridge (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge.

Improvements to Highway 401 include raising the profile of Highway 401 and widening approach embankments to accommodate the bridge and culvert replacements. During construction, the following traffic impacts are anticipated over three years:

- Temporary long duration lane closures on Highway 401
- Temporary short duration ramp closures at Highway 401/Exeter Road off-ramp and Highbury Avenue/ Highway 401 westbound on-ramp (S-W ramp)
- Temporary long duration ramp closures at Highway 401/Highbury Avenue eastbound on and off-ramps (W-N/S ramp and N-E ramp)
- Full closure of Pond Mills Road for up to a total of 18 months (up to six months each year of construction).

The study was completed as a Group "B" project under MTO's *Class Environmental Assessment for Provincial Transportation Facilities (2000).* In accordance with the requirements of MTO's Class EA, a copy of the full TESR is available for public review from **August 2, 2017, to September 1, 2017** at the following locations:

London Public Library
(Pond Mills Branch)
1166 Commissioners Road East
London, Ontario
Tel: 519-685-6465

London Public Library
(Jalna Branch)
1119 Jalna Blvd.
London, Ontario
Tel: 519-685-1333

Ministry of the Environment & Climate Change
London Regional Office
733 Exeter Road
London, Ontario
Tel: 519-873-5000

Ministry of Transportation
West Region
659 Exeter Road, Lobby
London, Ontario
Tel: 519-873-4100

The TESR is also available online at **www.hwy401londonbridges.ca**

Interested persons are encouraged to review the document and provide comments to MTO by **September 1, 2017**. If, after consulting with MTO staff, you have serious unresolved concerns, you have the right to request the Minister of the Environment & Climate Change (MOECC) (Ferguson Block, 11th Floor, 77 Wellesley St. W., Toronto, Ontario, M7A 2T5) to issue a Part II Order (i.e. "bump up") for this project. For more information on the Part II Order request process, you are encouraged to contact the MOECC. A copy of the Part II order request must be forwarded to MTO at the address below. If no requests are received by **September 1, 2017**, the project will be considered to have met the requirements of MTO's Class EA and may proceed to construction.

Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act* and *Access to Information Act*. With the exception of personal information, all comments will become part of the public record.

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If you have accessibility requirements to participate in this project, please contact a team member.
Des renseignements sont disponibles en français en composant Stephen Betts,1-888-345-5668.

Avis d'achèvement d'un rapport d'étude environnementale pour les transports
Autoroute 401, affluent du ponceau et du canal de drainage Murray,
viaduc du CN et pont d'étagement de Pond Mills
Remplacements (GWP 3054-11-00) Ville de London

Le ministère des Transports de l'Ontario (MTO) a engagé Dillon Consulting Limited afin de réaliser la conception préliminaire, la conception détaillée initiale et l'évaluation environnementale (ÉE) de portée générale pour les remplacements suivants au sein de la Ville de London sur trois ans:

- affluent du ponceau et du canal de drainage Murray
- viaduc du CN (London-Port Stanley Railway)
- pont d'étagement de Pond Mills.

Les améliorations à l'autoroute 401 comprennent la surélévation de l'autoroute 401 et l'élargissement de ses remblais d'approche afin de faire place au remplacement du pont et du ponceau. Pendant les trois ans que dureront les travaux de construction, on prévoit les répercussions suivantes sur la circulation:

- fermetures temporaires de longue durée des voies de circulation de l'autoroute 401
- fermetures temporaires de courte durée de la bretelle d'accès à l'autoroute 401/bretelle de sortie d'Exeter Road et de l'avenue Highbury/bretelle d'accès à l'autoroute 401 en direction ouest (bretelle S-O)
- fermetures temporaires de longue durée de la bretelle d'accès à l'autoroute 401/bretelle d'accès à l'avenue Highbury et bretelle de sortie de l'avenue Highbury en direction est (bretelle O-N/S et bretelle N-E)
- fermeture complète du chemin Pond Mills pour une période pouvant aller jusqu'à 18 mois (jusqu'à 6 mois par année pendant les travaux de construction).

L'étude a été réalisée comme un projet du groupe B selon le *processus d'évaluation environnementale de portée générale applicable aux installations de transport provinciales (2000)* du MTO. Conformément aux directives de l'évaluation environnementale de portée générale du MTO, un exemplaire complet du rapport d'étude environnementale sur les transports (REET) sera disponible pour consultation du public, du **2 août 2017 au 1er septembre 2017,** aux endroits suivants:

Bibliothèque publique de London
(secteur de Pond Mills)
1166, Commissioners Road Est,
London (Ontario)
Tél.: 519 685-6465

Bibliothèque publique de London
(secteur de Jalna)
1119, boul. Jalna,
London (Ontario)
Tél.: 519 685-1333

Ministère de l'Environnement et de l'Action en matière de changement climatique
Bureau régional de London
733, Exeter Road,
London (Ontario)
Tél.: 519 873-5000

Ministère des Transports
Région Ouest
659, Exeter Road, hall d'entrée,
London (Ontario)
Tél.: 519 873-4100

Le REET est aussi disponible en ligne à l'adresse **www.hwy401londonbridges.ca**

Les personnes intéressées sont invitées à consulter le document et à faire parvenir leurs commentaires au MTO avant le **1er septembre 2017**. Si, après avoir consulté le personnel du ministère, vous estimez que des questions importantes n'ont pas été réglées, vous avez le droit d'exiger que le Ministère de l'Environnement et de l'Action en matière de changement climatique (MEAMCC) [Édifice Ferguson, 11^{e} étage, 77, rue Wellesley O., Toronto (Ontario) M7A 2T5] reclasse le projet en prenant un arrêté en vertu de la Partie II (c.-à-d., un renvoi vers le haut). Pour de plus amples renseignements sur la procédure de demande de rehaussement (Partie II), nous vous invitons à communiquer avec le MEAMCC. Un exemplaire de la demande de rehaussement (Partie II) doit être envoyé au MTO à l'adresse ci-dessous. Si aucune requête n'est reçue d'ici le **1er septembre 2017**, le projet sera considéré comme ayant respecté les exigences de l'évaluation environnementale de portée générale du MTO et pourra procéder à sa phase de construction.

Les renseignements seront recueillis conformément à la *Loi sur l'accès à l'information et la protection de la vie privée* et *la* Loi sur l'accès à l'information. *À l'exception des renseignements personnels, tous les commentaires* ***seront versés au dossier public.***

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1. INTRODUCTION

1.1 Background and Purpose

The Ministry of Transportation, Ontario (MTO) retained Dillon Consulting Limited (Dillon) to complete the Preliminary Design and initial Detail Design and Class Environmental Assessment (EA) Study of the following four bridge and culvert replacements on Highway 401 in the City of London:

- Tributary to Murray Drain Culvert
- CNR Overhead Bridge (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge
- Elliot-Laidlaw Drain Culvert.

This study also involves improvements to Highway 401, including profile and drainage improvements and widening of the approach embankments to accommodate construction staging for the proposed culvert and bridge replacements.

In January 2004, MTO completed the *Highway 401 Improvements, Planning and Preliminary Design Study, Transportation Environmental Study Report* (TESR) from 1 km west of Highway 4 (Colonel Talbot Road) easterly to 1 km east of Highbury Avenue (GWP 476-89-00). The TESR provided for the expansion of Highway 401 to eight lanes from Wellington Road to Highbury Avenue. The TESR received environmental clearance in February 2004. A symmetrical widening on both sides of the highway within the existing right-of-way (ROW) was identified as the approved alternative. The expansion has yet to be constructed.

The *Highway 401 Interchange Reconstruction at Highbury Avenue, TESR Addendum* is also relevant to this project. Prepared in 2012, the Addendum included the Initial Detail Design of the Elliot-Laidlaw Drain Culvert replacement and provided for high mast illumination on Highway 401 between Wellington Road and Highbury Avenue[1]. The Addendum received environmental clearance in 2013.

Completed in partnership with the City of London, the purpose of this design and Class EA study is to obtain environmental clearance for:

- Replacement of the Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Bridge
- Improvements to Highway 401 include raising the profile of the highway to provide the required structural clearances and structure depths for the bridge and culvert replacements and to meet current design standards
- Drainage improvements, including improvements to the median storm sewer and a storm water management facility on the south side of Highway 401 to accommodate the drainage needs of the increase in pavement width
- Provision of a continuous speed change lane between the:
    - Highbury Avenue N-W ramp and the Exeter Road ramp (westbound)
    - Wellington Road N/S-E ramp and the Highbury Avenue W-N/S ramp (eastbound).

This TESR documents the decision-making process leading to the selection of the preferred design of the bridge replacements, replacement of the Murray Drain Culvert, and improvements to Highway 401 within the Study Area.

1.2 Study Area

As shown on **Figure 1**, the Study Area extends along the Highway 401 corridor from east of Wellington Road to west of Highbury Avenue and includes the lands surrounding the bridge

1 The Preliminary Design, Initial Detail Design and Class Environmental Assessment for the Elliot-Laidlaw Drain Culvert was completed as part of the 2012 Transportation Environmental Study Report Addendum for the Highway 401 Interchange Reconstruction at Highbury Avenue, which received environmental clearance in 2013. For this reason, this Transportation Environmental Study Report acknowledges the work to be completed at the Elliot Laidlaw Drain Culvert but does not discuss design details. For specific design details including the documentation of the Environmental Assessment process and associated impacts and mitigation measures completed for the Elliot Laidlaw Drain Culvert please refer to the 2012 Transportation Environmental Study Report Addendum for the Highway 401 Reconstruction at Highbury Avenue.

and culvert sites. The Study Area is part of an important industrial area along the Highway 401 corridor in the City of London.

Figure 1: Study Area

1.3 Class Environmental Assessment Requirements

The project is being completed as a Class EA following MTO's *Class EA for Provincial Transportation Facilities* (2000). The Class EA categorizes it as a Group B project – major improvements to an existing transportation facility. A Group B project requires the completion of a TESR. Following the 30-day public and agency review period, the TESR is considered approved under the *Environmental Assessment Act*. The project may then proceed to the Detail Design and construction stages.

1.4 Project Description

As shown on **Figure 2**, recommended improvements include:

- Replacement of the Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Bridge
- Improvements to Highway 401 include raising the profile of the highway to provide the required structural clearances and structure depths for the bridge and culvert replacements and to meet current design standards. In addition, the approach embankments will be widened to accommodate construction staging for the improvements

- Drainage improvements, including improvements to the median storm sewer and a storm water management facility on the south side of Highway 401 to accommodate the drainage needs of the increase in pavement width
- Provision of a continuous speed change lane between the:
  - Highbury Avenue N-W ramp and the Exeter Road ramp (westbound)
  - Wellington Road N/S-E ramp and the Highbury Avenue W-N/S ramp (eastbound).

More details on the improvements, construction staging and traffic management during construction are provided in **Section 5**.

1.5 Construction Timing

The MTO *Southern Highways Program* (2016-2020) identifies construction completion of the proposed improvements beyond 2020. Once underway, construction is anticipated to take three years to complete. Staging of the structure replacements will be coordinated with the adjacent Highbury Avenue Interchange Improvements project. Lane closures on Highbury Avenue will not be completed while Pond Mills Road is closed.

2. EXISTING CONDITIONS UPDATE

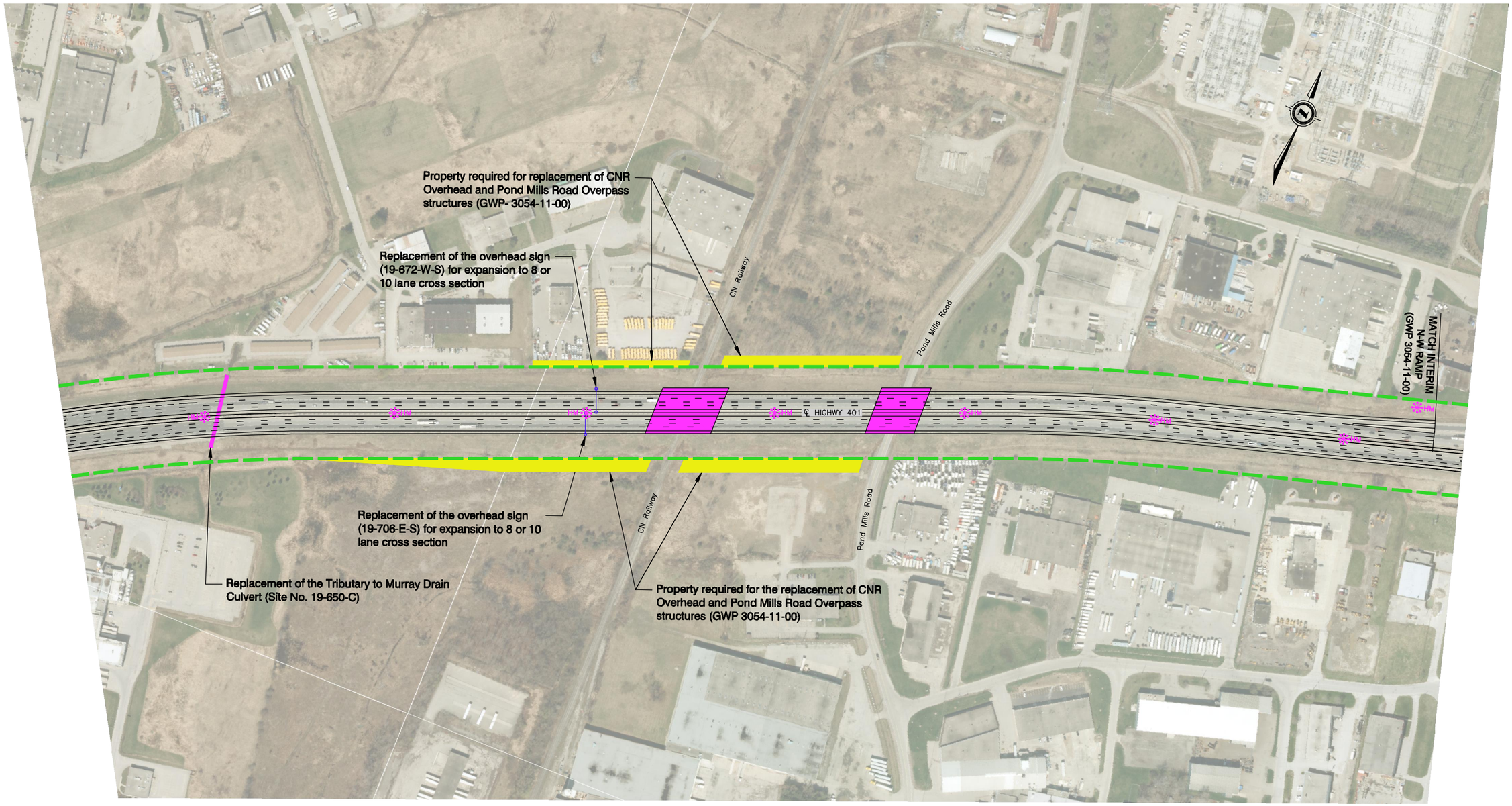
2.1 Introduction

Section 2 updates the existing conditions documented in the 2004 TESR on the Highway 401 Improvements. This section highlights changes to the environment since 2004 and summarizes the field investigations completed as part of the current project.

2.2 Transportation and Traffic Engineering

2.2.1 Tributary to Murray Drain Culvert (Site No. 19-650/C)

The Tributary to Murray Drain (Structural) Culvert is a single span reinforced concrete culvert with a clear span of 3.05 m and a height of 1.83 m. The original 51.8 m long section, constructed in 1952, is an open-footing, non-rigid frame culvert. To accommodate the widening of Highway 401 to six



DATE PLOTTED: 7/21/2016 2:07:05 PM
FILE LOCATION: G:\CAD\12710\Assignment#1 (3011-E-0046)\GWP 3054-11-00\02-Civil\02-Design\Highway 401 10-Laning\3054-Interim Plan (10-Laning).dwg

MINISTRY OF TRANSPORTATION
Highway 401, Four Bridge & Culvert Replacements (GWP 3054-11-00)
Transportation Environmental Study Report

Ontario

NEW STRUCTURE/CULVERT REPLACEMENT/EXTENSION
EXISTING MTO RIGHT-OF-WAY
PROPERTY REQUIRED
HM EXISTING HIGH MAST ILLUMINATION
EXISTING OVERHEAD SIGN

20m 0 40m
Horizontal

CREATED BY: ECO
CHECKED BY: CBC
PROJECT No. 12-7110
DATE: JULY 2016

DILLON CONSULTING

HIGHWAY 401 FOUR BRIDGE AND CULVERT REPLACEMENTS
RECOMMENDED IMPROVEMENTS

FIGURE 2

lanes, the culvert was extended in 1987 and 1989 with open footing rigid frame extensions bringing the total structure length to approximately 74 m. The culvert currently carries six lanes of Highway 401 traffic and provides a drainage outlet for the industrial area north of the highway. A visual inspection was completed by Dillon in February 2013. According to the assessment, the existing culvert is generally in fair to poor condition.

A Bell National Fibre Optic Transmission System (FOTS) line is located north of the culvert along the existing MTO ROW property line.

2.2.2 CNR Overhead Bridge (London-Port Stanley Railway) (Site No. 19-371)

The CNR Overhead Bridge, located about 200 m west of the Pond Mills Road Overpass, is a 10.5 m single-span concrete bridge carrying six lanes of Highway 401 traffic over a single track of CN Rail's Talbot Spur (London-Port Stanley Railway). The existing deck width is 35.23 m. The original bridge superstructure was built in 1954, rehabilitated in 1986 and widened on both sides in 1989. The bridge is in poor condition and has substandard vertical clearance to the top of rails.

Tables 1 and **2** show train traffic counts provided by CN Rail in October 2013 for westbound and eastbound freight and passenger operations. According to this information, four Way Freight trains operate daily from 7:00 a.m. to 11:00 p.m. The original 1954 drawings show provisions for a future track. By letter dated September 19, 2013, CN Rail confirmed that it has no plans to add another track.

Table 1: Daily Train Traffic Volumes from 7:00 a.m. to 11:00 p.m., 2013

Type of Train	Volumes	Maximum Consist*	Maximum Speed (mph)	Maximum Power**
Freight	0	140	60	4
Way Freight	4	25	60	2
Passenger	0	10	95	2

* Maximum number of cars excluding locomotives
** Maximum number of locomotives.

Table 2: Daily Train Traffic Volumes from 11:00 p.m. to 7:00 a.m., 2013

Type of Train	Volumes	Maximum Consist*	Maximum Speed (mph)	Maximum Power**
Freight	0	140	60	4
Way Freight	0	25	60	2
Passenger	0	10	95	2

* Maximum number of cars excluding locomotives
** Maximum number of locomotives.

Two 75 mm lighting ducts, owned by MTO, are located within the barrier walls (one along the outside of the eastbound lanes and one along the outside of the westbound lanes). A Bell National Fiber Optic Transmission System (FOTS) line crosses under the tracks within the MTO ROW on the north side of Highway 401.

2.2.3 Pond Mills Road Overpass Bridge (Site No. 19-372)

The Pond Mills Road Overpass is a 12 m single-span cast-in-place reinforced concrete haunched T-beam bridge carrying six lanes of Highway 401 traffic over the two-lane Pond Mills Road. The structure was constructed in 1955, rehabilitated in 1986 and widened on both sides with cast-in-place reinforced concrete T-beams in 1989. The existing bridge is in fair to poor condition and requires replacement.

A 2010 bridge condition inspection completed by MTO documented various condition issues, including several locations of concrete deterioration and reinforcement corrosion. Abutments, retaining walls and the deck soffit have cracks with leachate deposits. Concrete barriers included light scaling throughout and localized areas of concrete spalling due to vehicle impact.

Pond Mills Road is designated as an "Arterial Road" in the City of London Official Plan and currently carries two lanes of traffic. The City of London's *Transportation Master Plan* (May 2013) provides for the future six-laning of Pond Mills Road. However, in October 2013, the City confirmed in discussions with MTO that Pond Mills Road will ultimately carry four lanes of traffic (with 3.5 m lanes), 1.5 m wide bike lanes and sidewalks on both sides.

Existing utilities at the overpass include:

- Two 75 mm lighting ducts, owned by MTO, are located within the barrier walls (one along the outside of the eastbound lanes and one along the outside of the westbound lanes)
- Bell National FOTS line is located north of the overpass along the existing MTO ROW
- Buried Bell utility on both sides of Pond Mills Road
- Two Union Gas mains along both sides of Pond Mills Road
- Overhead Rogers plant along the east side of Pond Mills Road and crossing Highway 401 approximately 100 m east of Pond Mills Road.

According to the City of London, Average Annual Daily Traffic (AADT) on Pond Mills Road was 5,000 vehicles in 2013.

2.2.4 Highway 401

Highway 401 is classified as a Rural Freeway Divided (RFD 120) with a posted speed limit of 100 km/h. This section of Highway 401 currently has six lanes (three in each direction) with a concrete median barrier.

According to data provided by MTO, in 2013 Highway 401 from Highbury Avenue to Wellington Road had an AADT of 59,000 vehicles and a Summer Average Daily Traffic (SADT) of 64,900 vehicles with 25.2% trucks. An AADT of 91,200 vehicles and a SADT of 100,300 vehicles is projected for this section of Highway 401 by 2035. Based on these projections, eight lanes are not anticipated to be required on Highway 401 between Highbury Avenue and Wellington Road before 2035.

Figure 3 shows the existing Highway 401 six-lane cross-section and the Highway 401 six-lane cross section to be reinstated following construction.

2.3 Drainage and Hydrology

The watercourses within the project limits generally flow in a north to south direction through the Highway 401 corridor except for the two culverts, CV-1 and CV-5, at the east and west limits which flow in a south to north direction. Within the project limits, there are nine locations where ROW and

external drainage area flows are conveyed through the highway corridor and leave the Highway 401 ROW. These are shown on **Figure 4**.

The Murray Drain Tributary and Elliot-Laidlaw Drain are watercourses falling under the jurisdiction of the Upper Thames River Conservation Authority (UTRCA). Both drainage systems are part of large municipal drain systems that previously serviced large areas of agricultural land north of the Highway 401 corridor. Both have evolved over time with significant modifications to the drainage areas and channel configurations.

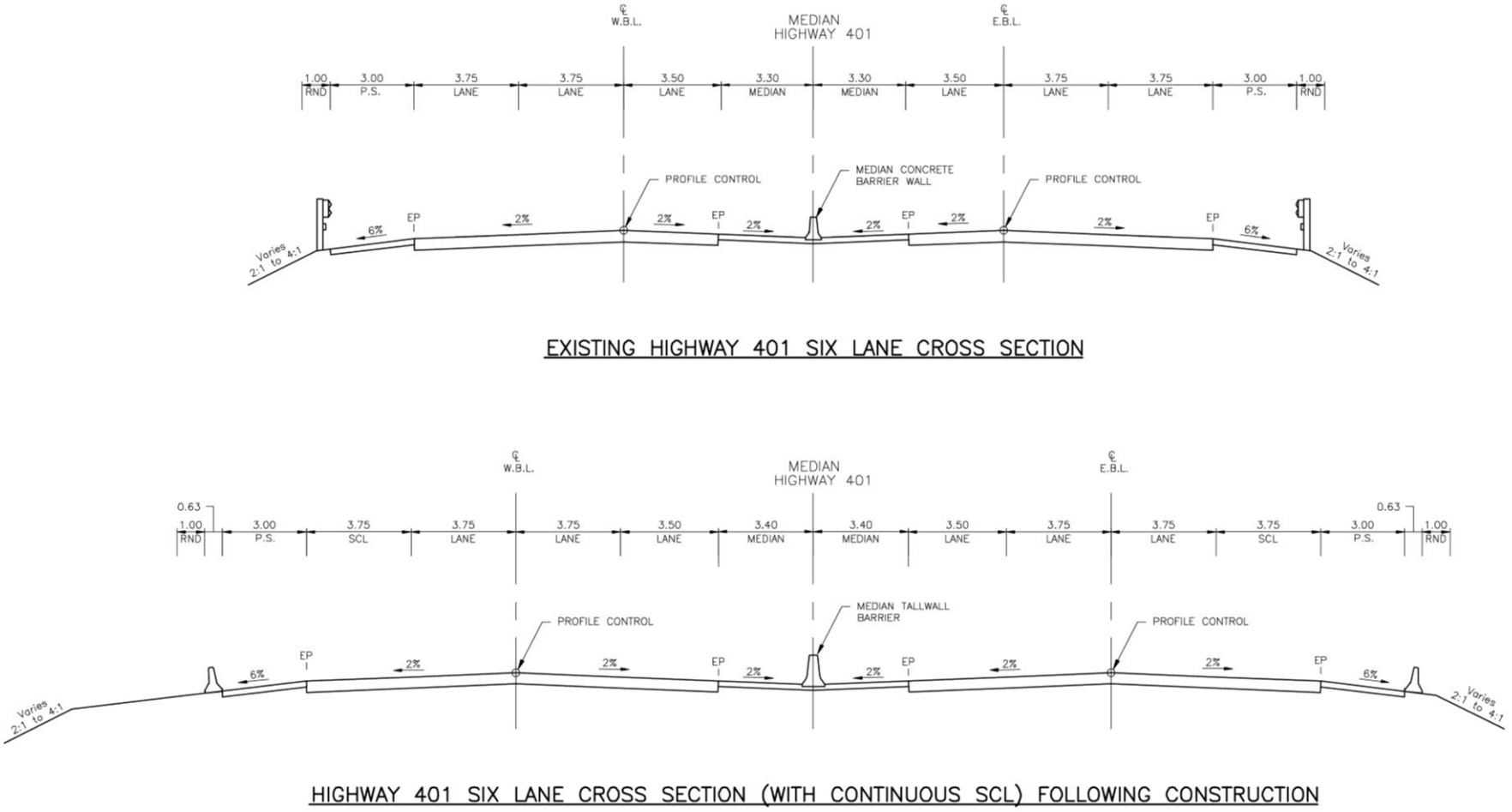


Figure 3: Highway 401, Six 6-Lane Cross-Section and Six Lane Cross-Section Following Construction

As part of the original construction of Highway 401 and the Murray Drain Tributary Culvert, a significant portion of the Murray Drain watershed was diverted along the north side of Highway 401 to the west. The diversion of flows was achieved by constructing a berm across the existing Murray Drain channel approximately 80 m north of the highway ROW. It is believed that the diversion was completed to relieve chronic flooding issues in the downstream portion of the watershed. The channel diversion redirected all flows effectively reducing the drainage area from 144 ha to approximately 7 ha. In its existing condition, the Murray Drain Tributary Culvert conveys surface water runoff from the Highway 401 ROW and industrial development south of Towerline Place and west of the CN railway corridor.

The Elliot-Laidlaw Drain is a significant tributary of Dingman Creek and the subject of several subwatershed studies completed by the City of London and UTRCA. The UTRCA maintains regulatory flood line mapping for the Elliot-Laidlaw Drain from its confluence with Dingman Creek to a location just north of Highway 401. The culvert conveys surface water runoff from a drainage area measuring 335 ha. The Pond Mills Provincially Significant Wetland (PSW) is located within the Elliot-Laidlaw drainage area. The ponds within the wetland provide a significant amount of on-line storage within the drainage system, attenuating runoff and significantly reducing peak flows conveyed to the lower reaches of the watercourse.

The remaining seven drainage locations consist of intermittent Highway 401 drainage crossings and include two small diameter corrugated steel pipe culverts paralleling the CN railway corridor, roadside ditches paralleling Pond Mills Road and three concrete box culverts connecting highway drainage ditches within the Highway 401 ROW. The CN railway drainage culverts, Pond Mills Road ditches and existing concrete box culverts have combined ROW and external drainage areas ranging from 0.2 ha to 7.5 ha. Drainage along Highway 401 is facilitated by a system of roadside ditches that convey surface water runoff from the highway corridor to the seven outlet locations. **Table 3** summarizes the location and configuration of the nine locations where surface water runoff is conveyed through and out of the Highway 401 corridor within the project limits.

Ministry of Transportation

Figure 4: Surface Water Conveyance

- Structure/ Culvert Locations
- Previously Approved Highbury Ave Project Study Area
- Culvert Locations
- Stream, River, Creek

0 225 450
Meters

SCALE 1 : 10,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: SFG
MAP CHECKED BY: CC
MAP PROJECTION: NAD 1983 UTM Zone 17N

DILLON CONSULTING

PROJECT: 127110
STATUS: FINAL
DATE: 03/12/15

Table 3: Culvert Crossing Locations and Upstream Drainage Areas

Crossing Name	Location	Upstream Drainage Area (ha)	Total Drainage Area (ha)	Drainage System
CV-1	Sta. 24+295	4.08	5.14	Murray Drain
Murray Drain Tributary	Sta. 24+954	8.09	9.40	Murray Drain Tributary
CV-2	Sta. 25+418	0.24	0.75	CNR Ditch – West
CV-3	Sta. 25+427	1.60	2.11	CNR Ditch – East
Pond Mills Ditch – West	Sta. 25+625	2.87	3.42	Pond Mills
Pond Mills Ditch – East	Sta. 25+637	1.32	1.87	Pond Mills
CV-4	Sta. 26+116	2.55	5.47	Elliot-Laidlaw Tributary
Elliot-Laidlaw Drain	Sta. 26+355	335	340.27	Elliot-Laidlaw Drain
CV-5	Sta. 27+269	7.43	8.41	Unnamed Drain (Dingman Creek Tributary)

Throughout the project limits, the driving lane and median shoulder adjacent to the tall-wall barrier are drained by a median storm sewer system. In areas of super-elevated curves, surface water runoff from additional lanes on the outside of the curves is directed to the median storm sewer system. The median storm sewer systems generally consist of small and medium diameter storm sewers with catch basin inlets positioned adjacent to the median tall-wall barrier. The spacing of the existing catch basin inlets varies based on the profile of Highway 401 and the locations of profile sag curves. **Table 4** summarizes the locations of the median storm sewer system and the crossing location of the storm sewer systems ultimate discharge.

Table 4: Median Storm Sewers and Crossing Locations

Location	Storm Sewer System Description (No. of Catch Basins)	Outlet Location	Drainage System
Sta. 24+272 – 24+900	375 – 600 mm (14)	CV-1	Murray Drain
Sta. 24+954 – 25+300	300 – 450 mm (12)	Murray Drain Tributary	Murray Drain Tributary
Sta. 25+590	300 mm (2)	South ROW Ditch	CNR Ditch – West
Sta. 25+650 – 26+285	300 – 525 mm (30)	CV-4	Elliot-Laidlaw Tributary
Sta. 26+355 – 26+700	300 – 450 mm (14)	Elliot-Laidlaw Drain	Elliot-Laidlaw Drain
Sta. 26+920 – 27+269	300 – 450 mm (18)	CV-5	Unnamed Drain (Dingman Creek Tributary)

All of the watercourses and drainage ditches within the project limits fall within the Dingman Creek watershed area.

2.4 Cultural Resources

2.4.1 Archaeology

A Stage 1 Archaeological Assessment was completed in 2001 for the Highway 401 Improvements TESR (2004). According to the assessment, the lands along Highway 401 from Exeter Road to Highbury Avenue have been extensively disturbed and have low archaeological potential. Based on this, a Stage 2 Archaeological Assessment was not required for the 2004 TESR.

MTO reviewed the recommendations of the 2001 Stage 1 aArchaeology Assessment as part of this TESR. Since the recommended improvements affect lands outside the Highway 401 ROW, a Stage 1 Archaeology Assessment was completed and will be submitted to MTCS. The report recommended a Stage 2 Archaeology Assessment on lands to be acquired.

2.4.2 Built Heritage

Archaeological Services Inc. (ASI) prepared a Cultural Heritage Evaluation Report (CHER) for the CNR Overhead (June 2013) to determine its potential cultural heritage significance. The report evaluated the bridge according to the criteria included in the MTO and MTCS *Ontario Heritage Bridge Guidelines* (Interim, January 2008). The Pond Mills Overpass Bridge has been screened in accordance with the *Ontario Heritage Bridge Guidelines* and is not considered to be a Provincial heritage property.

CNR Overhead, Bridge Site No. 19-371

Part of the London-Port Stanley Railway (L&PS), this bridge was built in 1954 and carries Highway 401 traffic over the CN Rail tracks. The existing single span, reinforced concrete bridge using precast concrete channels was designed by M. M. Dillon and Company Limited for the Ontario Department of Highways (DOH). Although the original drawings provide for a second rail line, it was never built. The bridge was later widened by adding precast pre-stressed concrete hollow core slabs.

The L&PS Railway was established in 1856. One of the oldest railways in Canada, it was built to alleviate congestion on the Plank Road between London and Port Stanley. Its principle business was the shipping of coal from Pennsylvania and the transportation of tourists between Port Stanley and London. By 1913, the City of London (owner of the railway since 1894) converted the traditional steam powered line to a modern high-speed electric operation. In 1966, CN took over the northern section of the line, which now primarily serves the Formet Plant in St. Thomas. The southern portion, from St. Thomas to Port Stanley, is owned and operated by Port Stanley Terminal Rail Inc. as a tourist attraction.

The bridge is considered to be the first precast concrete bridge built in Canada for the railway industry and may be one of the first five precast bridges built in Canada. It represents an early stage in the evolution of concrete beam bridge design from reinforced cast-in-place concrete to reinforced precast concrete. In addition, the alignment of the railway is recognized for its significance as a historic transportation route.

Using the criteria from the *Ontario Heritage Bridge Guidelines*, the CNR Overhead scored less than 60 points. The bridge retains cultural heritage value based on its design and contextual and historical values. However, since it did not achieve a score of over 60, it is not eligible for inclusion on the Ontario Heritage Bridge List.

2.5 Natural Environment

2.5.1 Source Water Protection

The Study Area is located within the Thames-Sydenham Region Source Protection Area, as described in the *Source Protection Plan for Thames-Sydenham Region* (September 2015). As outlined in the *Clean Water Act*, the primary objective of the Source Protection Plan is to protect existing and future drinking water sources.

According to the Source Protection Plan, the proposed bridge and culvert replacements are not located near identified well head protection zones or in significant groundwater recharge areas. However, a Highly Vulnerable Aquifer (HVA) has been identified along the Elliot-Laidlaw Drain.

2.5.2 Fish and Fish Habitat

The fish and fish habitat assessment completed for the Study Area is documented in Dillon's Preliminary Fish and Fish Habitat Impact Assessment Report (June 24, 2015). The report was prepared in accordance with MTO's *Environmental Guide for Fish and Fish Habitat* (2009) to determine the risk of causing serious harm to fish under the federal *Fisheries Act*. **Appendix A** includes photographs from field investigations.

Two watercourses are located within 30 m of the proposed work:

- Tributary to Murray Drain flows north to south under Highway 401 through the Murray Drain Culvert (Site 19-650/C). Under the jurisdiction of UTRCA, it is a tributary to the Murray Drain flowing to Dingman Creek
- The Elliot-Laidlaw Drain flows north to south under Highway 401 through the Elliot-Laidlaw Drain Culvert (Site 19-351/C). Also under the jurisdiction of the UTRCA, it is a significant tributary to Dingman Creek. The Pond Mills Provincially Significant Wetland (PSW) is located in the Elliot-Laidlaw drainage area.

As required by the *MTO/DFO/OMNR Protocol for Protecting Fish and Fish Habitat on Provincial Transportation Undertakings (2013)*, field work included a habitat assessment and fish community sampling to determine fish species composition and overall sensitivity to construction activities.

Background Data

Fisheries resources data was obtained from the following sources:

- Ministry of Natural Resources and Forests (MNRF), Aylmer District
- UTRCA
- Natural Heritage Information Centre (NHIC) Biodiversity Explorer database
- Renewable Energy Atlas (Land Information Ontario)
- Fisheries and Oceans Canada (DFO) Distribution Mapping of Aquatic Species at Risk (SAR) (2013).

Table 5 summarizes flow characteristics, thermal regime and fish species, including potential SAR.

Table 5: Fisheries Background Information

Waterbody Name	Watercourse Classification	Habitat Information, Locations	Fish Species (from Historical Data)	MNRF Fisheries Management Objectives	MNRF Ranking of Fish, Fish Habitat Sensitivity	In-water Construction Timing Window
Tributary to Murray Drain	Unknown	No Data	No Data	No Data	No Data	July 1 to March 14
Elliot-Laidlaw Drain	Class E, Warmwater, Sensitive, Cleanout 10 years	May provide spawning habitat for pike	Brook Stickleback, Central Stoneroller, Creek Chub, Fathead Minnow, Green Sunfish, Iowa Darter, Northern Pike, White Sucker	No Data	No Data	July 1 to March 14

Sources: Amanda McCloskey, District Planner, Aylmer District, MNRF, Pers. Comm. June 2013, and Cari Ramsey, Environmental Technician/Health and Safety Specialist UTRCA, Pers. Comm., June 2013.

As shown on **Table 5**, little background information is available for the Tributary to Murray Drain. The species shown on the table for Elliot-Laidlaw Drain have a provincial rank (S-rank) of S4 or S3 meaning they are considered "Apparently Secure or Secure" in Ontario. Overall, the existing data indicates that the fish community composition of Elliot-Laidlaw Drain consists of both warm water and cool water baitfish, panfish species and cool water top predator species, such as Northern Pike. Since fisheries information gaps exist for both watercourses, field investigations were required to assess existing conditions and fish habitat.

Field Investigations

Fish habitat potentially affected by the proposed works was assessed by a Fisheries Assessment Specialist using methods outlined in MTO's *Environmental Guide for Fish and Fish Habitat* (MTO, 2009). Field investigations for the Tributary to Murray Drain were conducted on June 12, 2013. Weather conditions were partly cloudy with an air temperature of approximately 19°C. Field investigations for Elliot-Laidlaw Drain were conducted on May 31, 2012, as part of the Highway 401/Highbury Avenue Interchange Reconstruction. MTO watercourse field record habitat map forms, along with photographs, were used to collect and document information. Fish sampling was undertaken within the ROW of the Tributary to Murray Drain using a Halltech backpack electrofishing unit.

Existing Fish and Fish Habitat

Tributary to Murray Drain

During field investigations, the tributary was observed to have low flow and a poorly defined channel. The tributary was comprised entirely of flat type habitat with an average wetted width of approximately 1.30 m and a wetted depth ranging from 0.08 to 0.20 m. Substrate included silt and detritus. Over 95% of the stream had in-stream cover, mostly comprised of in-stream vegetation, such as grasses and sedges associated with wetlands. A commercial parking lot is located near the watercourse.

Electrofishing was undertaken at this crossing and two species indicative of a warm/cool-water ecosystem were captured, as shown on **Table 6**. All observed species have a SRank of S5, indicating that these species are Secure (i.e., common, widespread and abundant in Ontario).

Elliot-Laidlaw Drain

During field investigations (in 2012), the drain was comprised of a variety of riffle, pool, run and flat type habitat. It had an average wetted width of approximately 1 m with the exception of one larger pool located approximately 3.0 m downstream of the culvert. The mean water depth throughout the assessed section was 0.30 m. The substrate was comprised of a mixture of silt, sand, gravel, muck, detritus and cobble. Available in-stream cover for fish upstream of the culvert was sparse to moderate (approximately 20% to 40%) and primarily consisted of in-stream plants that are seasonally inundated. Downstream, a higher percentage of cover was observed (approximately 65%) in a variety of forms, including undercut banks, large woody debris, organic debris, vascular plants and cobble. The culvert also offers considerable in-stream cover.

Electrofishing was undertaken in 2012, with a variety of species (18 species) encountered. The species shown on **Table 6** are indicative of a warm/cool water ecosystem. All observed species have an S-Rank of S5, indicating that these species are Secure (i.e., common, widespread and abundant in Ontario).

Table 6: Fish Species Present

Common Name	Scientific Name	*Species at Risk Act* (SARA)	*Endangered Species Act* (ESA 2007) 4	SRank 5
Tributary to Murray Drain[1]				
Brook Stickleback	*Culaea inconstans*	---	---	S5
Fathead Minnow	*Pimephales promelas*	---	---	S5
Elliot-Laidlaw Drain[2]				
Creek Chub	*Semotilus atromaculatus*	---	---	S5
Sunfish Sp	*Lepomis sp.*	---	---	--
Green Sunfish	Lepomis cyanellus	---	---	S4
Central Mudminnow	*Umbra limi*	---	---	S5
Brook Stickleback	*Culaea inconstans*	---	---	S5
Pumpkinseed	*Lepomis gibbosus*	---	---	S5
Bluntnose Minnow	*Pimephales notatus*	---	---	S5
Iowa Darter	*Etheostoma exile*	---	---	S5
Common shiner	*Luxilus cornutus*	---	---	S5
Blacknose Dace	*Rhinichthys obtusus*	---	---	SNR
Northern Redbelly Dace	*Phoxinus eos*	---	---	S5
Longnose Dace	*Rhinichthys cataractae*	---	---	S5
Fathead Minnow	*Pimephales promelas*	---	---	S5
Johnny Darter	*Etheostoma nigrum*	---	---	S5
Emerald Shiner	*Notropis atherinoides*	---	---	S5
Central Stoneroller	*Campostoma anomalum*	---	NAR	S4
Brown Bullhead	*Ameiurus nebulosus*	---	---	S5
White Sucker	*Catostomus commersonii*	---	---	S5
Northern Pike[3]	*Esox lucius*	---	---	S5

1. From Dillon 2013 field collection.
2. From Dillon 2012 field collection.
3. Young of the year.
4. NAR (Not at Risk).
5. S4 (apparently secure), S5 (secure), SNR (Species not ranked).

Sensitivity of Fish and Fish Habitat

Since MNRF did not provide fish and fish habitat sensitivity for the two watercourses, the Fish Guide was used to determine sensitivity. **Table 7** indicates sensitivity using the sensitivity ranking criteria from Table 6.1 of the Fish Guide (MTO, 2009).

Table 7: Sensitivity of Fish and Fish Habitat

Attribute	Attribute Description	Tributary to Murray Drain	Elliot-Laidlaw Drain
Species Sensitivity	Sensitivity to changes in environmental conditions (suspended sediments, water temperature or salinity)	Low – Fish species present are resilient to change	Moderate – Species present are moderately resilient to change and perturbation (i.e., Northern Pike)
Species Dependence on Habitat	Use of habitat by fish species. Some species may be able to spawn in a wide range of habitats, while others may have very specific habitat requirements	Moderate – habitat has potential to support multiple life-cycle functions (feeding, migration)	Moderate – habitat has potential to support multiple life-cycle functions (feeding, migration, spawning, rearing)
Rarity	Relative strength of a fish population or prevalence of a particular type of habitat	Low – All species are prevalent and widely distributed in Ontario (S4 or S5)	Low – All species are prevalent and widely distributed in Ontario (S4 or S5)
Habitat Resiliency	Ability to recover from changes in environmental conditions, such as flow and thermal regimes and physical characteristics	Moderate – permanent, warmwater system moderately resilient to change and perturbation. Silt loading has degraded some habitat. Likely has high fluctuation in flow	Moderate – permanent warmwater system resilient to change and perturbation. May contain spawning and rearing habitat reliant on seasonal flooding of sufficient duration
Overall Ranking	-	**MODERATE-LOW**	**MODERATE**

Summary

Based on information collected during the background data review and field investigations, the Tributary to Murray Drain has moderate-low fish and fish habitat sensitivity. Elliot-Laidlaw Drain has moderate sensitivity due to the presence of top predators and nursery and suitable spawning habitat for northern pike. These sensitivities were considered during the planning and design of the proposed bridge and culvert replacements.

2.5.3 Terrestrial Ecosystem

The terrestrial ecosystem assessment completed for the Study Area is documented in Dillon's Terrestrial Ecosystem Assessment Report (July 28, 2015). Following the requirements of MTO's *Environmental Reference for Highway Design*, the report addresses the potential environmental impacts of the bridge and culvert replacements on existing terrestrial ecosystems and identifies mitigation measures to avoid or reduce potential impacts. Field work was completed on June 3 and June 4, 2013, with some additional work on November 10, 2014. **Appendix B** includes photographs and background information.

Potential Species at Risk and Provincially Rare Species

Based on a review of secondary source information, 12 SAR listed as Threatened or Endangered under the Ontario *Endangered Species Act*, 2007 (ESA, 2007) have the potential to occur in the Study Area based on historical occurrence records. These species are shown on **Table 8**.

Twenty nine Species of Conservation Concern (SCC) were identified as potentially occurring in the Study Area based on secondary source information, as shown on **Table 9**. SCC are defined as species listen as Special Concern, Threatened or Endangered in the federal *Species at Risk Act*, 2002, but not Threated or Endangered under ESA, 2007, and/or species that are provincially rare/tracked (i.e., have a Sub-national (provincial) Rank of S1 – Critically Imperiled, S2 – Imperiled or S3 – Vulnerable) or designated as Special Concern under the ESA, 2007.

All other species identified in secondary source information have Secure (S5) or Apparently Secure (S4) populations within Ontario and are not considered SAR or SCC. The full list of plant and wildlife species observed or sighted in background studies in the Study Area is included in **Appendix B**.

Table 8: Species at Risk Identified in Background Information Search

Scientific Name	Common Name	Provincial Conservation Rank[2] (SRank)	Federal *SARA* Status (Schedule 1)[2]	Ontario *ESA, 2007* Status[2]	Information Source[1]
BIRDS					
Hirundo rustica	Barn Swallow	S4B	---	THR	OBBA/MNRF
Dolichonyx oryzivorus	Bobolink	S4B	---	THR	OBBA/MNRF
Chaetura pelagica	Chimney Swift	S4B, S4N	THR	THR	OBBA
Sturnella magna	Eastern Meadowlark	S4B	---	THR	OBBA/MNRF
Aquila chrysaetos	Golden Eagle	S2B	---	END	CBC
MAMMALS					
Myotis lucifugus	Little Brown Myotis	S4	END	END	AMO
HERPTILES					
Emydoidea blandingii	Blanding's Turtle	S3	THR	THR	NHIC, OHSA/ON
Apalone spinifera spinifera	Eastern Spiny Softshell	S3	THR	THR	OHSA/ON
VASCULAR PLANTS & BRYOPHYTES					
Trillium flexipes	Bent Trillium	S1	END	END	NHIC
Viola pedata	Birds-foot Violet	S1	END	END	NHIC
Juglans cinerea	Butternut	S4	END	END	MNRF
Bryoandersonia illecebra	Spoon-leaved Moss	S2	END	END	NHIC

1. CBC = Christmas Bird Count; OBBA = Ontario Breeding Bird Atlas; AMO = Atlas of the Mammals of Ontario; OHSA = Ontario Herpetofaunal Summary Atlas; ON = Ontario Nature; NHCI = Natural Heritage Information Centre; MNRF = Response to Information Request.
2. See **Appendix B** for codes.

Table 9: Species of Conservation Concern

Scientific Name	Common Name	Provincial Conservation Rank (SRank)[2]	Federal *SARA* Status (Schedule 1)[2]	Ontario *ESA, 2007* Status[2]	Information Source[1]
HERPTILES					
Chelydra serpentina	Common Snapping Turtle	S4	SC	SC	OHSA/ON
Lampropeltis triangulum	Eastern Milk Snake	S4	SC	Not Listed	OHSA/ON
Graptemys geographica	Northern Map Turtle	S3	SC	SC	OHSA/ON
Thamnophis sauritus septentrionalis	Northern Ribbon Snake	S3	SC	SC	NHIC/ON
BIRDS					
Haliaeetus leucocephalus	Bald Eagle	S4B, SZN	---	SC	CBC
Chlidonias niger	Black Tern	S3B	---	SC	OBBA
Contopus virens	Eastern Wood-pewee	S4B	---	SC	OBBA
Falco peregrinus	Peregrine Falcon	S2S3B, ZN	SC	SC	OBBA/CBC
Melanerpes erythrocephalus	Red-headed Woodpecker	S4B	THR	SC	OBBA/CBC
Vireo griseus	White-eyed Vireo	S2B	---	---	NHIC
Hylocichla mustelina	Wood Thrush	S4B	---	SC	OBBA
PLANTS					
Fraxinus quadrangulata	Blue Ash	S3	SC	SC	NHIC
Linaria canadensis	Blue Toadflax	S3	---	---	NHIC
Crataegus brainerdii	Brainerd's Hawthorn	S2	---	---	NHIC
Euonymus atropurpurea var. *atropurpurea*	Burning Bush	S2	---	---	NHIC
Conioselinium chinense	Chinese Hemlock Parsley	S2	---	---	NHIC
Hybanthus concolor	Eastern Green Violet	S2	---	---	NHIC
Polygonum erectum	Erect Knotweed	S1	---	---	NHIC
Arisaema dracontium	Green Dragon	S3	SC	SC	NHIC
Potamogeton hillii	Hill's Pondweed	S1	SC	SC	NHIC
Crataegus dissona	Northern Hawthorn	S2	---	---	NHIC

Scientific Name	Common Name	Provincial Conservation Rank (SRank)[2]	Federal *SARA* Status (Schedule 1)[2]	Ontario *ESA, 2007* Status[2]	Information Source[1]
Asclepias sullivantii	Prairie Milkweed	S1	---	---	NHIC
Cystopteris protrusa	Southern Bladder Fern	S3	---	---	NHIC
Gentianella quinquefolia	Stiff Gentian	S2	---	---	NHIC
Scleria triglomerata	Tall Nutrush	S1	---	---	NHIC
Panicum villosissimum	White-haired Panic Grass	S3	---	---	NHIC
Lupinus perennis ssp. perennis	Wild Lupine	S3	---	---	NHIC
Bartonia virginica	Yellow Bartonia	S2	---	---	NHIC
ODONATA					
Aeshna verticalis	Green-striped Darner	S3	---	---	OA
Enallagma traviatum	Slender Bluet	S1	---	---	OA

1. CBC = Christmas Bird Count; AMO = Atlas of the Mammals of Ontario; OHSA = Ontario Herpetofaunal Summary Atlas; ON = Ontario Nature; OA = Odonata Atlas.
2. See **Appendix B** for codes.

City of London Natural Heritage Features

Natural Heritage Features designated in the City of London Official Plan are described in **Section 2.6.1** and shown on **Figure 5**. None of the features have been designated as significant.

Ecological Land Classification (ELC)

ELC was completed for the ROW and Study Area based on aerial photograph interpretation and field observations. The Study Area is in an urbanized, industrial area in the City of London. The ROW primarily consists of culturally influenced meadow with some forest and thicket communities outside of the ROW. A meadow marsh was observed south of the highway, east of the CN Rail line.

As shown on **Figure 6** and **Table 10**, seven natural communities were identified in the Study Area:

- Deciduous Forest, between the Tributary to Murray Drain and CNR Overhead, designated as an "Unevaluated Vegetation Patch" in the London Plan (adopted by Council in June 2016)
- Dry-Fresh Black Locust Deciduous Forest, between the CNR Overhead and Pond Mills Road Overpass, also designated as an "Unevaluated Vegetation Patch" in the London Plan

- Cattail Graminoid Mineral Meadow Marsh, south of the CNR Overhead, designated as an "Unevaluated Wetland" in the London Plan
- Dry-Fresh Mixed Meadow located along the Highway 401 ROW
- Dry-Fresh Graminoid Meadow located around the north side of the Elliot-Laidlaw Drain
- Dry-Fresh Deciduous Shrub Thicket between the Elliot-Laidlaw Drain and Highbury Avenue
- Fresh-Moist Deciduous Thickets located north of Pond Mills Road and the Elliot-Laidlaw Drain.

Ministry of Transportation

Figure 5: Highway 401, Four Bridge and Culvert Replacements - Designated Natural Features

- Tributary to Murray Drain Culvert
- Pond Mills Road Overpass
- CN Rail Overhead
- Project Location
- Previously Approved Highbury Ave Project Study Area
- 5 m Contours
- Watercourse
- Provincially Significant Wetland
- Woodland

0 25 50 100 Meters

SCALE 1 : 10,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: SFG
MAP CHECKED BY: CC
MAP PROJECTION: NAD 1983 UTM Zone 17N

File Location: I:\GIS\127110 - MTO 11 Structures\mxd\2015\TEAR\Figure 3 -MEGA EA - Assignment 1b Tributary to Murray Drain Culvert, CNR Overhead Bridge (London-Port Stanley Railway, Pond Mills Road Overpass, Elliot-Laidlaw Drain Culvert - Natural Features.mxd

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PROJECT: 127110
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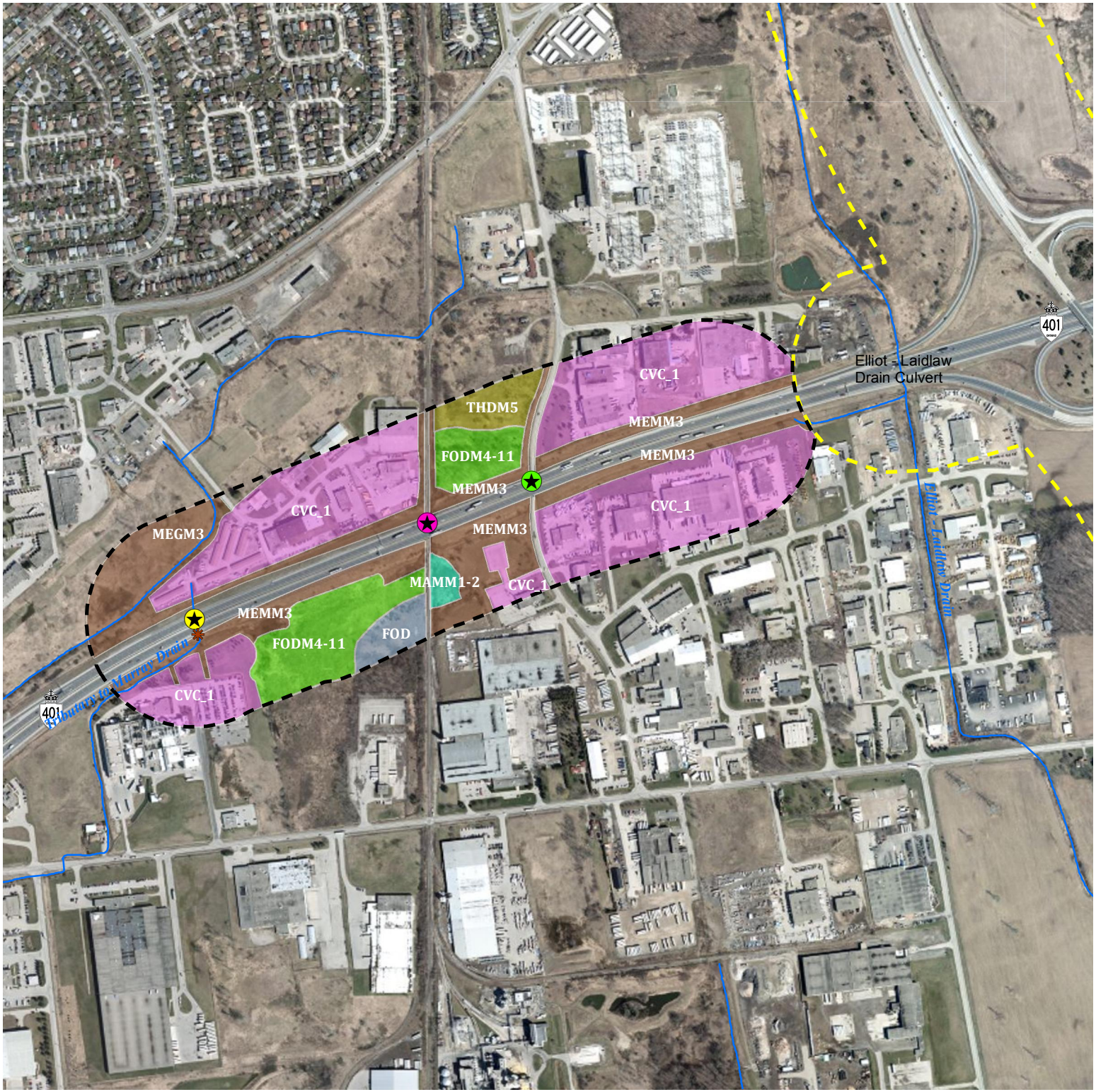

Ministry of Transportation

Figure 6: Highway 401, Four Bridge and Culvert Replacements - Terrestrial Ecosystem Field Survey

Project Locations

- Tributary to Murray Drain Culvert
- Pondmills Road Overpass
- CNR Overhead
- Project Location
- Previously Approved Highbury Ave Project Study Area

Natural Features

- Watercourse

Species Observations

- One Barn Swallow Nest /One Cliff Swallow Nest

Ecosystem Land Classification

- CVC_1: Business Sector
- FOD: Deciduous Forest
- FODM4-11: Dry – Fresh Black Locust Deciduous Forest
- MAMM1-2: Cattail Graminoid Mineral Meadow Marsh
- MEMM3: Dry – Fresh Mixed Meadow
- OAO: Open Aquatic
- THDM2: Dry - Fresh Deciduous Shrub Thicket
- THDM5: Fresh – Moist Deciduous Thicket

0 25 50 100 Meters

SCALE 1 : 10,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: SFG
MAP CHECKED BY: CC
MAP PROJECTION: NAD 1983 UTM Zone 17N

File Location: I:\GIS\127110 - MTO 11 Structures\mxd\2015\TEAR\Figure 4 - MEGA EA – Assignment 1b Tributary to Murray Drain Culvert, CNR Overhead Bridge (London-Port Stanley Railway, Pond Mills Road Overpass, Elliot-Laidlaw Drain Culvert – Ecological Land Classification.mxd

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Table 10: ELC Communities in Study Area

ELC Code	Classification	Vegetation	Comments
Vegetation Communities			
FOD	Deciduous Forest	Mix of deciduous tree species, such as Basswood (*Tilia americana*), Balsam Poplar (*Populus balsamifera*), Green Ash (*Fraxinus pennsylvanica*), White Elm (*Ulmus americana*), Sugar Maple (*Acer saccharum*), and White Oak (*Quercus alba*).	Consists of one unit between Tributary to Murray Drain Culvert and CNR Overhead south of Highway 401. See photo in **Appendix B**.
FODM4-11	Dry-Fresh Black Locust Deciduous Forest	Characterized by a canopy with a mix of non-native Black Locust (*Robinia pseudoacacia*), Balsam Poplar, White Ash (*Fraxinus americana*), Scots Pine (*Pinus sylvestris*) and Green Ash. Understory includes Common Buckthorn (*Rhamnus cathartica*) and Riverbank Grape (*Vitis riparia*). Ground layer has abundant grass and aster (*Aster* sp.) species.	Located between CNR Overhead and Pond Mills Road Overpass north of Highway 401. Designated as "Woodland" in London Official Plan. See photo in **Appendix B**.
MAMM1-2	Cattail Graminoid Mineral Meadow Marsh	Small wetland community dominated by Broad-leaved Cattail (*Typha latifolia*) with occasional meadow species around edges. Meadow species are same as MEMM3.	Consists of one unit, south of CNR Overhead. See photo in **Appendix B**.
MEMM3	Dry-Fresh Mixed Meadow	Culturally influenced meadow community typically characterized by an abundance of non-native forb and graminoid species, such as Canada Thistle (*Cirsium arvense*), Common Dandelion (*Taraxacum officinale*), Smooth Brome (*Bromus inermis ssp. inermis*), Kentucky Blue Grass (*Poa pratensis ssp. pratensis*), and Common Teasel (*Dipsacus fullonum ssp. sylvestris*). Patches of European Common Reed (*Phragmites australis* ssp. *australis*), Reed Canary Grass (*Phalaris arundinacea*) and Broad-leaved Cattail occur within ditches.	Primarily found along ROW of Highways 401 and 4. Larger areas are found north of Tributary to Murray Drain Culvert (hydro corridor) and southeast of CNR Overhead (vacant field). See photos in **Appendix B**.
MEGM3	Dry-Fresh Graminoid Meadow	Characterized by ground layer dominated by non-native graminoid species, such as Common Reed, Smooth Brome, and Kentucky Blue Grass.	Community is within and adjacent to ROW around north side of Elliot-Laidlaw Drain Culvert. See photos in **Appendix B**.

ELC Code	Classification	Vegetation	Comments
THDM2	Dry-Fresh Deciduous Shrub Thicket	Community dominated by Grey Dogwood (*Cornus foemina ssp. Racemosa)* and Common Buckthorn (*Rhamnus cathartica*) surrounded by meadow species listed under MEMM3.	Community is outside ROW between Elliot-Laidlaw Drain/Highbury Avenue/Bradley Avenue and Highway 401.
THDM5	Fresh-Moist Deciduous Thicket	Thicket community dominated by Common Buckthorn and American Highbush Cranberry (*Viburnum trilobum*). Occasional occurrences in sub-canopy and understory of tree species such as White Spruce (*Picea glauca*) and Balsam Poplar. Ground layer contains abundant Aster, grass and Goldenrod species (*Solidago* sp.).	Community is outside ROW. Species could not be definitively identified from roadside. See photo in **Appendix B**.
Cultural Communities			
CVC_1	Business Sector	Vegetation includes manicured lawns, flower beds and landscape trees.	Community is adjacent to ROW. See photo in **Appendix B**.

The vegetation communities documented in the Study Area are considered common in Ontario and not designated as provincially rare.

The meadow marsh wetland community observed in the Study Area south of the CNR Overhead (designated as an "Unevaluated Wetland" in the City's Official Plan) has not been previously evaluated for provincial significance. However, this wetland does not meet the *Ontario Wetland Evaluation System* criteria for provincial significance due to its size, isolation and lack of requisite ecologically sensitivity and/or hydrological connectivity to an existing Provincially Significant Wetland.

Vegetation

Approximately 50 flora species were identified in the Study Area during the terrestrial survey. None of the species are listed as SAR or considered to be provincially rare. A full list of plant species encountered during field surveys, including their provincial and federal status, is included in **Appendix B**. Approximately 35% of the species are either non-native or exotic species.

Wildlife

The potential for significant wildlife habitat was based on the vegetation communities identified in the Study Area and evidence of wildlife use (e.g., scat, burrows, tracks, nests, etc.).

Wildlife observations in the Study Area were sparse, along with potential wildlife habitat. During the field investigation, incidental wildlife was noted from the Highway 401 ROW. Species and/or evidence of wildlife observed are common for an urban environment and include Red-winged Blackbird (*Agelaius phoeniceus*) and White-tailed Deer (*Odocoileus virginianus*). These species have Secure (S5) populations in Ontario.

Migratory and Protected Birds

A survey for migratory bird nests was carried out in 2013 at each structure within the ROW. One Barn Swallow (*Hirundo rustica*) nest was observed by Dillon's terrestrial biologists in the Tributary to Murray Drain Culvert in June 2013. Barn Swallow is listed as *Threatened* under the provincial *Endangered Species Act* (ESA 2007). Cliff Swallow (*Petrochelidon pyrrhonota*) nests were observed during an inspection of the culvert by Dillon's structural engineering team in February 2013.

There is potential for additional nests to be built within the Study Area between the time of the field investigations in 2013 and the construction stage. As a result, follow-up surveys for nests closer to the start of construction are recommended to confirm the exact number of Barn Swallow, Cliff Swallows and other species that could be legally regulated/protected under the ESA (2007) and/or the federal *Migratory Birds Convention Act* (MBCA).

Species at Risk and Provincially Rare Species Habitat

As summarized in the table in **Appendix B**, Dillon evaluated the Study Area's suitability to provide habitat for SAR and/or provincially rare Species of Conservation Concern. Due to the urbanization of the Study Area and the limited amount of natural and undisturbed vegetation communities, potential significant wildlife habitat is limited.

As shown on **Figure 7**, there are two candidate significant wildlife habitats in the Study Area:

- A potential Turtle Overwintering Area was identified in a pond northwest of the Elliot-Laidlaw Drain Culvert, well removed from the highway ROW
- An Amphibian Breeding Habitat (wetland) was identified on lands southeast of Highway 401 and the CNR Overhead.

As shown on the table in **Appendix B**, the Study Area also has potential to provide habitat for Brainerd's Hawthorn (*Imperilled* in Ontario) and Northern Hawthorn (*vulnerable*) based on the presence of Hawthorn species observed during field work. A tree inventory is recommended during Detail Design stage to determine if these species are present in hedgerows proposed for removal.

2.6 Land Uses and Socio-Economic Environment

This section of the TESR describes land uses and the socio-economic environment potentially affected by the proposed bridge and culvert replacements. Prepared in accordance with the requirements of MTO's ERD for Land Use Factors, the Study Area for this component consisted of all potentially impacted land uses.

Ministry of Transportation

Figure 7: Highway 401, Four Bridge and Culvert Replacements - Candidate Significant Wildlife Habitat

Project Locations

- Tributary to Murray Drain Culvert
- Pondmills Road Overpass
- CNR Overhead
- Project Location
- Previously Approved Highbury Ave Project Study Area

Natural Features

- Watercourse

Candidate Significant Wildlife Habitat

- Amphibian Breeding Habitat (Wetland)
- Turtle Overwintering Area

Property Requirements

- Existing ROW
- Permanent Property Requirements

0 25 50 100 Meters

SCALE 1 : 10,000

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: SFG
MAP CHECKED BY: CC
MAP PROJECTION: NAD 1983 UTM Zone 17N

File Location: I:\GIS\127110 - MTO 11 Structures\mxd\2015\TEAR\Figure 5 - MEGA EA - Assignment 1b Tributary to Murray Drain Culvert, CNR Overhead Bridge (London-Port Stanley Railway, Pond Mills Road Overpass, Elliot-Laidlaw Drain Culvert - Ecological Land Classification.mxd

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DATE: 03/12/15

2.6.1 Existing Land Uses and Official Plan

As shown on **Figure 8**, the Study Area is part of an important industrial area along the Highway 401 corridor located in the Westminster Planning District. Existing land uses around the Pond Mills Bridge and CNR Overhead include commercial and light industrial uses and vacant lands designated "Light Industrial" in the City of London Official Plan. Uses along this section of Highway 401 include manufacturing, warehousing and transportation related uses, such as Lamko Tool and Mold, Lawson Properties Ltd. (formerly Floyd Dunford), First Student Canada Bus Rentals, Norwood International (metal warehouse), Emterra Environmental, Nestle Canada, Ryder Truck Rentals and Kal-Tire. The Islamic Centre of Southwest Ontario is also located along this section of Highway 401 on Pond Mills Road.

The industrial lands along Highway 401 are designated "Light Industrial" in the London Plan (adopted by Council in June 2016).

Part of the City's Natural Heritage system, the open space lands along the Tributary to Murray Drain and Murray Drain itself are designated as "Open Space" and "Significant Valley Lands" in the London Plan. South of Highway 401, the lands along the Elliot-Laidlaw Drain are part of a "Significant Corridor", subject to UTRCA's flood and fill regulations. A wooded area south of Highway 401, between the Tributary to Murray Drain Culvert and the CNR Overhead, is designated as an "Unevaluated Vegetation Patch" with an "Unevaluated Wetland". These features are shown on **Figure 8**.

Highway 401 is designated as a "Provincial Highway" in the London Plan. Pond Mills Road and Exeter Road are designated as "Civic Boulevards", while Wellington Road is designated as an "Urban Thoroughfare" and "Rapid Transit Boulevard" north of Highway 401.

2.6.2 Development Activity

According to City of London Development Services (September 25, 2015), there are two current development applications in the Study Area:

- The Islamic Centre of Southwestern Ontario has filed a Zoning By-law Amendment application for additional parking and a future expansion of the religious centre

- Emterra Environmental received Site Plan Approval from the City of London in 2014 for a building expansion on the north side of Highway 401. The expansion has yet to be constructed.

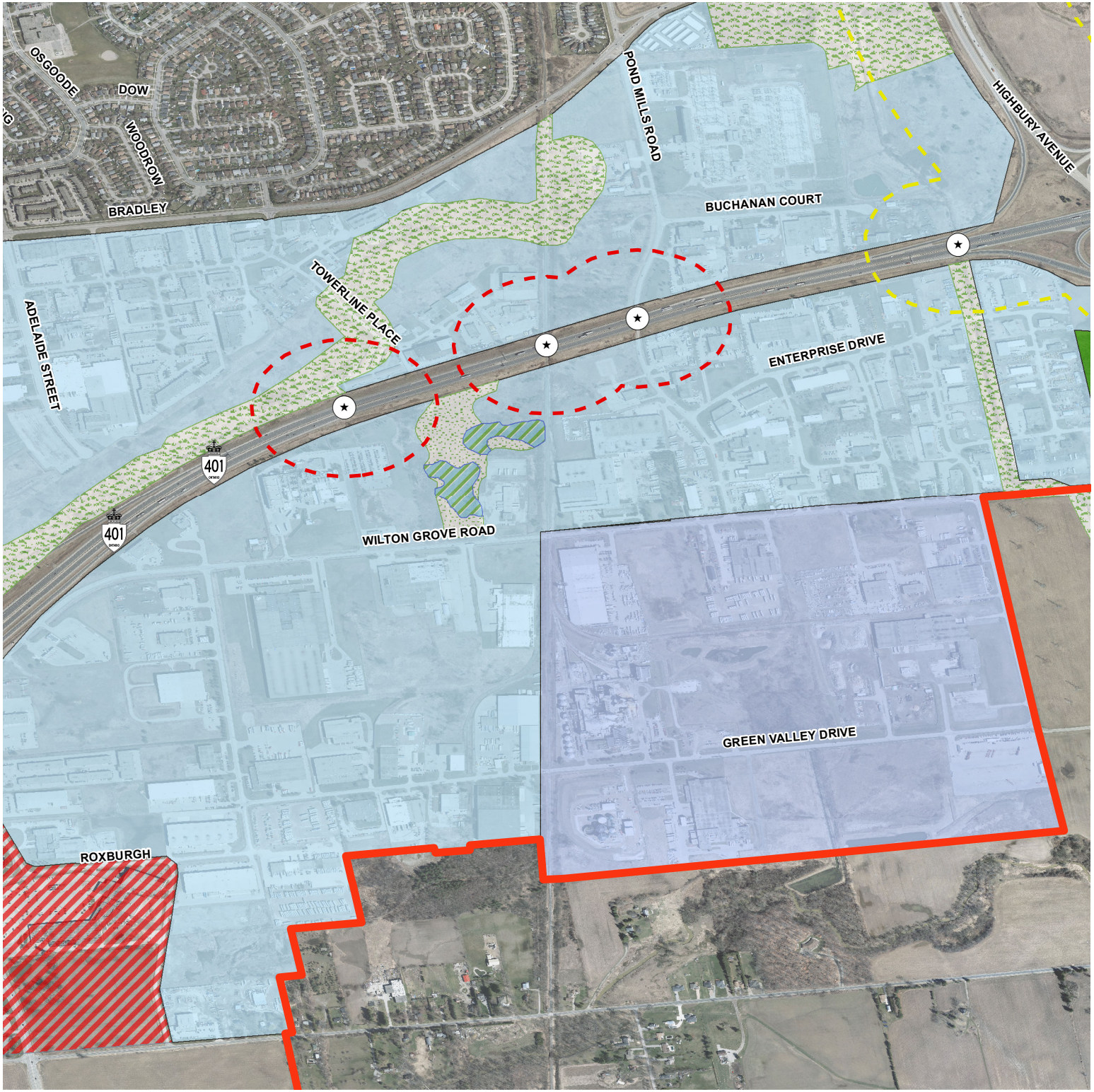
2.6.3 Provincial Policy Statement (PPS)

The *Planning Act* requires that any decision made by the Crown "shall be consistent" with the 2014 PPS.

The PPS includes policies for "Transportation Systems" defined as "a system consisting of corridors and rights-of-way for the movement of people and goods." Transportation systems are defined as "infrastructure" in the PPS. The policies also require that MTO consider significant provincial resources protected by the PPS, such as prime agricultural land, natural heritage features, ground and surface water, archaeological resources and cultural heritage resources.

2.7 Contamination Overview Study

Dillon completed a Contamination Overview Study (July 27, 2015) of the proposed improvements to identify properties in the Study Area with the potential for subsurface and/or groundwater contamination. Summarized in **Section 5** of this report, the study was completed in accordance with MTO's *Environmental Guide for Contaminated Property Identification and Management* (2006).



MINSTRY OF TRANSPORTATION

Figure 8: City of London Official Plan Land Use and Environmental Designations

Legend

- Structure Locations
- Previously Approved Highbury Ave Project Study Area
- Study Area

Official Plan Designations

- Urban Growth Boundary
- General Industrial
- Light Industrial
- Open Space
- Unevaluated Vegetation Patch
- Unevaluated Wetland
- Woodland

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: BJF
MAP CHECKED BY: JMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: G:\GIS\127110 - 12 Structures\mxd\Assignment 1 - MXD

DILLON CONSULTING

PROJECT: 12-7110
STATUS: FINAL
DATE: 04/02/2015

3. PRELIMINARY DESIGN ALTERNATIVES

3.1 Introduction

Section 3 of the TESR summarizes the development and evaluation of Preliminary Design alternatives for the bridge and culvert replacements and improvements to Highway 401 proposed as part of this project. Based on the evaluation, this section identifies a recommended plan for each bridge and culvert replacement and the improvements to Highway 401. The evaluation of alternative construction staging and traffic management concepts are also presented in this section.

3.2 TESRs Relevant to the Preliminary Design Alternatives

The Preliminary Design alternatives developed for the study are based on the transportation improvements approved in the *Highway 401 Improvements, Planning and Preliminary Design Study, Transportation Environmental Study Report*, 2004, from 1 km west of Highway 4 (Colonel Talbot Road) easterly to 1 km east of Highbury Avenue (GWP 476-89-00). The TESR provided for the expansion of Highway 401 to eight lanes from Wellington Road to Highbury Avenue by the year 2012. A symmetrical widening on both sides of the highway within the existing ROW was identified as the preferred alternative.

3.3 Tributary to Murray Drain Culvert Design Alternatives

The existing culvert is generally in fair to poor condition. A minor increase in length is required to accommodate the future expansion of Highway 401 to eight lanes. The culvert diameter can be smaller than the existing culvert based on hydraulic requirements.

Three improvement alternatives were considered, including:

- Alternative 1: Rehabilitate Existing Culvert
- Alternative 2: Extend and Reline Existing Culvert with a Structural Lining
- Alternative 3: Replace in Stages.

All three alternatives require the lengthening of the existing culvert to accommodate the proposed widening of the highway embankments. Based on the significant reduction in design flows, it was determined that all alternatives meet or exceed the hydraulic design criteria associated with the original open-footing concrete culvert. Due to the condition of the existing culvert, structural design elements, hydraulic performance, construction staging, cost and constructability, it was determined that the replacement alternative (Alternative 3) is preferred for the Murray Drain Culvert.

The preferred culvert replacement alternative consists of an 1800 mm (span) x 2400 mm (rise) concrete box culvert embedded 300 mm below the natural bottom of the existing channel. Based on hydraulic requirements, the diameter of the new culvert can be smaller than the existing.

3.4 CNR Overhead Bridge (London-Port Stanley Railway) Design Alternatives

This bridge is in poor condition with less than desirable horizontal and vertical clearance to the rail line. Since it requires replacement, no other improvement alternatives were developed. Since CN Rail has no plans to add another track (CN letter dated September 13, 2013, to Dillon), the new bridge will be designed to accommodate one track.

To accommodate construction staging for Highway 401, the new bridge will be designed to accommodate four eastbound lanes and five westbound lanes (nine lane cross-section) and be constructed in three stages. Vertical clearance of the new bridge will accommodate the Highway 401 nine lane cross-section and be compatible with the ultimate expansion of Highway 401 to ten lanes. Following construction, the Highway 401 six lane cross-section will be restored with three eastbound and three westbound lanes and a continuous speed change lane in each direction (**Figure 3**).

3.5 Pond Mills Road Overpass Bridge Design Alternatives

The existing bridge is in fair to poor condition. Since it requires replacement, no other improvement alternatives were considered.

The new bridge will be constructed in three stages to accommodate construction staging on Highway 401 as described in **Section 3.8.1**. To accommodate construction staging, the new bridge will be designed to provide four eastbound lanes and five westbound lanes (nine lane cross-section).

Vertical clearance of the new bridge will be designed to be compatible with the ultimate expansion of Highway 401 to ten lanes. Following construction, the Highway 401 nine lane cross-section will be restored to a six lane cross-section with three lanes and continuous speed change lanes in the westbound and eastbound directions (**Figure 3**).

The new bridge has been designed to accommodate a future ultimate cross-section of Pond Mills Road, including four lanes of traffic with bike lanes and sidewalks on both sides (as identified by the City of London in 2013). Although the new bridge will be designed to accommodate the future ultimate cross-section, Pond Mills Road will be restored to an urban section with one lane in each direction following construction (**Figure 9)**.

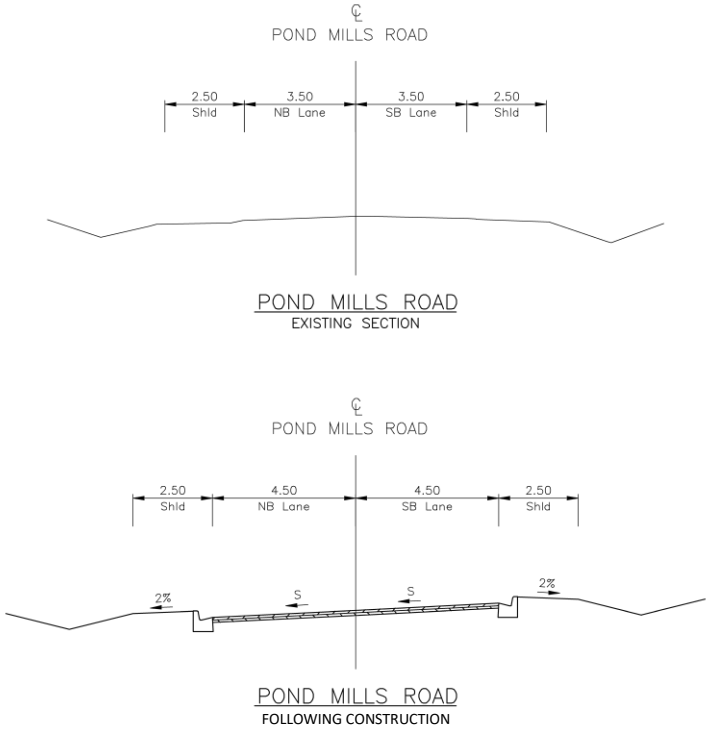


Figure 9: Existing and Interim Cross-Sections of Pond Mills Road

3.6 Highway 401 Improvements

In addition to the structure replacements, this project also includes raising the profile of Highway 401 to provide the minimum structural clearance required at the CN Rail Overhead Bridge and improve the existing substandard vertical alignment in the vicinity of the CN Rail Overhead Bridge and Pond Mills Road Overpass structures. To accommodate traffic during construction, construction staging requires overbuilding beyond the existing six lane cross section.

Due to the grade raise, vertical alignment improvements and overbuilding required for construction staging, property is required along Highway 401 within the project limits. As outlined in **Section 4.4.**, many of the property owners and businesses expressed concerns about the amount of property required and the impacts on current and future business operations.

To address these concerns and reduce the amount of property required, Dillon reviewed the potential to lower the CN Rail line and/or Pond Mills Road, profile and grading alternatives, and alternative construction staging concepts.

Lowering of CN Rail Line and Pond Mills Road Profiles at Highway 401

To minimize the Highway 401 grade raise and potential property impacts, lowering the CN Rail line and Pond Mills Road at Highway 401 was reviewed.

Although it was determined the rail line could be lowered up to 1 m, it was not recommended since lowering Highway 401 beyond 0.5 m would also require the Pond Mills Road structure to be lowered. In addition, the lowering does not reduce property impacts.

Lowering the existing Pond Mills road profile was reviewed and not recommended since Pond Mills Road cannot be lowered beyond the existing sag elevation without a stormwater pumping station.

Profile Alternatives

Profile alternatives were also developed and reviewed in an effort to reduce property impacts resulting from a Highway 401 grade raise.

Since the CN Rail Overhead and Pond Mills Road structures cannot be lowered, a grade raise of Highway 401 is needed to provide the required vertical clearance at the CN Rail Overhead Bridge structure, and to provide a vertical curve to meet current design standards for a design speed of 120 km/hr.

In an effort to reduce property impacts, constructing the grade raise with a vertical curve that satisfies a design speed of 116 km/hr was reviewed. This curve would maintain the elevation of the Pond Mills Road Overpass structure, reduce the overall grade raise on Highway 401, and provide the required vertical clearance at the CN Rail Overhead. However, it was not recommended since it does not significantly reduce property impacts.

Grading Alternatives

The initial recommended Highway 401 cross-section included 2:1 embankment slopes with a 2 m mid-height berm. This cross-section resulted in some property impacts north and south of Highway 401 from 400 m west of the CNR Overhead to approximately 100 m east of Pond Mills Road. The recommended cross-section and associated property impacts were presented to impacted property owners who raised concerns regarding the amount of property required. To address their concerns, several grading alternatives were developed and evaluated and a cross-section with a 2:1 embankment slope (without a berm) is recommended as it reduces the overall property requirements. This recommendation was presented to impacted property owners and these discussions are summarized in **Section 4.4.**

3.7 Construction Staging

3.7.1 Highway 401

The construction staging concept initially developed for Highway 401 provided a minimum of two eastbound and two westbound lanes throughout construction. Median cross-overs were not included to reduce costs, construction duration and impacts on existing infrastructure (i.e., median barrier and existing storm sewer system). The initial recommended construction staging concept required significant overbuilding to accommodate traffic and construction access throughout construction. In the westbound lanes, 9.1 m of overbuilding was required and, in the eastbound lanes, 12.6 m of overbuilding was required.

Following the development of the initial staging concept, a Queue Analysis was completed to determine queues resulting from two lanes eastbound and two lanes westbound lanes during construction. The Queue Analysis determined that queuing would be limited to Friday afternoons when queues could reach lengths of 11 km in the westbound lanes and 8 km in the eastbound lanes. The analysis did not account for any traffic diversion; it is anticipated that traffic diversion will occur in the westbound lanes due to the proximity of adjacent interchanges (Veterans Memorial Parkway and Westchester Bourne) reducing the length of queue and time required for the queue to dissipate. Based on the findings, the Queue Analysis recommended two westbound lanes and three eastbound lanes be maintained where possible during construction and three eastbound lanes and three westbound lanes be maintained during winter shut-down.

Since maintaining three eastbound lanes (where possible) without a median cross-over would require additional property and result in more overbuilding, construction staging alternatives were developed to include a median cross-over. The recommended staging concept, as described in **Section 5.2.2**, includes a median cross-over.

3.7.2 Pond Mills Road Construction Staging

The construction staging concept initially recommended for the Pond Mills Road Overpass replacement was full closure of Pond Mills Road for up to 24 months. However, due to concerns raised by adjacent landowners, two alternative construction staging options were considered:

1) Full closure of Pond Mills Road for up to 18 months (up to six months each year of construction)
2) Two-way traffic with a single lane using temporary traffic signals. Single-laning of traffic is required to allow construction equipment to access the existing abutments and underside of the bridge. This option also requires multiple short duration closures of Pond Mills Road for the removal of the existing bridge and to erect the girders for the new bridge.

Option 1 was recommended because it improves both worker and road user safety in addition to improving construction access and constructability. Option 2 was not recommended because it increases overall complexity and costs, and still requires short-term full closures. Opportunities to reduce closure periods will be reviewed during Detail Design. As documented in Section 4, the preferred option was presented to the City of London's Civic Works Committee (2017).

3.8 Recommended Preliminary Design Alternatives

In summary, the recommended Preliminary Design alternatives for the proposed improvements are:

- Replacement of the Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Bridge
- Improvements to Highway 401, including profile and drainage improvements.

4. PUBLIC AND AGENCY CONSULTATION

4.1 Introduction

This section summarizes public and agency consultation undertaken throughout the Class EA and design study. Copies of consultation materials referred to in **Section 4** are included in **Appendix C**.

4.2 Contact List

The project Contact List includes Federal departments, the MPP for Elgin-Middlesex-London, Provincial Ministries, City of London, local agencies, such as the UTRCA, and property owners along Highway 401 in the Study Area (from the City of London Assessment Roll). Updated throughout the project, the Contact List also includes First Nations, emergency services and utilities.

4.3 Notice of Study Commencement

In addition to the bridge and culvert replacements, the Notice of Study Commencement (in **Appendix C**) also described proposed improvements to the Highway 401/Colonel Talbot Road interchange, including the replacement or permanent closure of the Glanworth Drive Bridge. These improvements are being addressed by a separate MTO TESR (Highway 401/Highway 4 (Colonel Talbot Road) Interchange Improvements, GWP 3030-11-00).

Distribution of Notice

A Notice of Study Commencement appeared in the February 6, 2013, editions of the London Free Press and L'Action London/Sarnia. The local MPP was advised of the project and newspaper publication dates by letter dated January 30, 2013.

The notice, along with a comment form requesting comments by February 28, 2013, were distributed as follows:

- Agencies on the Contact List received copies by letter dated February 4, 2013
- Staff hand delivered letters dated February 4, 2013, and copies of the notice and comment form to property owners along Highway 401 within the Study Area
- First Nations received copies by letter dated January 30, 2013.

Letters dated February 4, 2013, were sent to Aboriginal Affairs and Northern Development Canada (AANDC) and the Ministry of Aboriginal Affairs (MAA) advising them of the First Nations on the Contact List and requesting information on claims and litigation.

The project website was launched on February 4, 2013, under two separate URLs including www.10bridges.ca and www.hwy401londonbridges.ca. A total of 38 submissions were received in reply to the Notice of Study Commencement. Only ten submissions, including seven from agencies and three from the public, specifically pertained to the bridge and culvert replacements.

Agency Comments

Some agencies did not provide any comments but requested to be kept informed. These included the City Engineer [City of London], UTRCA, Middlesex-London EMS, Rogers and Union Gas. Comments were received from the following:

- The Ministry of Aboriginal Affairs provided information on First Nations, land claims and litigation
- Aamjiwnaang First Nation (Chippewas of Sarnia) stated that the Chief and Council will review the notice.

Public Comments

Belfor Property Restoration, located near the Elliot-Laidlaw Drain Culvert, expressed concerns about any type of signage, sound barrier walls or berms that may obstruct the view of the company's signage from Highway 401. Norwood International, an industry located along Highway 401, questioned if the project "is the right use of city (City of London) resources at this time? How many local jobs will this create? Will this construction help to smooth traffic flow in the city?"

Throughout the project, Dillon worked with CNR's Manager of Public Works to determine CNR's requirements for the CNR Overhead Bridge.

No comments were received about the other project components, including the Tributary to Murray Drain Culvert and the Pond Mills Road Overpass.

4.4 Landowner Consultation

4.4.1 Meetings with Impacted Property Owners, Initially Recommended Construction Staging, 2015

A meeting with property owners and businesses potentially impacted by the proposed bridge and culvert replacements and improvements to Highway 401 was held at the Ramada Inn on Wellington Road on February 18, 2015, from 2:00 p.m. to 4:00 p.m. The purpose of the meeting was to obtain input on the initially recommended Preliminary Design, including property requirements, construction and traffic staging during construction.

A letter dated January 30, 2015, was sent to 12 registered property owners inviting them to the meeting. The invitation was also hand delivered by Dillon staff on February 3, 2015, to 13 buildings to ensure that tenants were invited to the meeting.

The meeting was an informal walk-in session with displays summarizing the project and potential property impacts. MTO and Dillon staff were in attendance to explain the displays, record comments and answer questions. The displays described the project, the purpose of the study, proposed improvements to Highway 401 and the detour route for the full closure of Pond Mills Road. The displays also outlined the next steps in the Class EA process.

Copies of the displays, a comment form requesting comments by March 4, 2015, and an individual site plan showing potential property impacts were handed out to all present.

Two landowners/tenants attended the meeting, including representatives of First Student Canada/Laidlaw Bus Company and Ryder Truck Rentals. Ryder Truck Rentals did not express concerns about the strip of property required at that time along its rear yard for the Highway 401 improvements. First Student Canada/Laidlaw Bus Company expressed many concerns about the impacts of the required property taking on its site. These included a reduced area to park buses, loss of land to store snow and the cost to move the property's electrical supply. The company also submitted a completed comment form with these comments.

Since the meeting was poorly attended, an information package dated March 9, 2015, was mailed to all registered landowners affected by the proposed property requirements. The package included the displays from the February 18, 2015, meeting, an aerial photograph of the landowner's property showing potential property impacts and a copy of the comment form requesting comments by March 27, 2015. Comments, questions and concerns were received from the following:

- Islamic Centre of Southwestern Ontario stated that closing Pond Mills Road for such a long period is unacceptable and objected to the amount of land required along Highway 401
- An owner of a vacant parcel asked questions about how much land is required. He had no objections to the required property taking
- Lamko Tool and Mold is extremely concerned about potential impacts on its business, including the loss of most of the site's parking spaces along Highway 401. According to Lamko, the parking lot serves their employees and is used for both shipping and receiving. The company manufactures steel molds for automotive parts and employs 100 people
- Emterra Environmental (Halton Recycling) is also very concerned about the proposed property taking along Highway 401 and impacts on the company's future expansion plans on the site. In a letter dated March 25, 2015, Halton Recycling re-iterated its concerns and provided more details on the company's future expansion plans
- 427703 BC Ltd. (owner of the Emterra property) also expressed concerns regarding the amount of land required and impacts on the future expansion plans
- Floyd Dunford (now Expressway Trucks) expressed concerns about the impacts of the proposed property taking on current and long-term site operations. The site is currently used as a tractor trailer dealership and the loss of property would prevent trailers from being able to turn around in the back parking lot.

4.4.2 Meetings with Impacted Property Owners, Recommended Design, 2016

As summarized in **Sections 3.7** and **3.8** of this TESR, Dillon reviewed construction staging and grading alternatives to reduce the project's property requirements. The recommended alternatives eliminate all property requirements east of Pond Mills Road and significantly reduce the property required west of Pond Mills Road on both sides of Highway 401, thereby reducing the number of properties affected by the improvements.

Between May 2016 and August 2016, MTO and Dillon held site meetings with the remaining directly impacted property owners to review the construction staging and grading alternatives and the reduced property requirements. Although the amount of property required has been reduced, concerns were still expressed about loss of property and impacts on existing site operations, future expansion plans and site infrastructure, such as signs, parking, storage areas and hydro service. Some of the property owners suggested a retaining wall be provided to avoid the property requirements. MTO and Dillon explained that retaining walls are not preferred due to the construction complexity, long term maintenance costs and initial construction costs.

These concerns were addressed by Dillon letters dated February 17, 2017, to the impacted property owners.

4.4.3 Meetings with Adjacent Businesses, Recommended Design, 2016

On February 28, 2017, MTO and Dillon met with representatives from the Flying J Truck Stop. The purpose of the meeting was to raise awareness of the Highway 401 construction and previously approved Highbury Avenue interchange reconstruction projects. Flying J had several concerns regarding ramp closures and duration of construction. Consultation with Flying J will be continued during Detail Design and the coordination of construction staging between the Highbury Avenue Interchange Reconstruction and the Highway 401 reconstruction projects.

4.5 Consultation with CN Rail

Consultation occurred with CN Rail throughout the project. CN Rail provided the following information during a teleconference with MTO and Dillon on September 2, 2016:

- Flagging will be required during construction of the new overhead. The timing of flagging will be confirmed once an agreement is in place between MTO and CN Rail
- CN Rail requires an agreement with MTO to allow construction to take place
- CN Rail also requires a permit for construction to allow for a temporary crossing of the rail line and any short-term rail line closures.

4.6 Consultation with EMS

On March 9, 2017, MTO and Dillon met with representatives from local emergency management service (EMS) providers. Construction staging was discussed. EMS raised was concerned about potential closures of both Pond Mills Road and Highbury Avenue at the time. It was noted that the two construction projects would be coordinated to ensure closures did not occur at the same time. EMS had no further concerns.

4.7 Consultation with City of London

MTO and Dillon met with representatives from the City of London throughout the project. City staff raised concerns regarding timing of construction and coordination of the project with the adjacent Highbury Avenue Interchange Improvements project. Based on comments from the City, the Detail Design phase will include a review of construction staging plans to coordinate the two projects to minimize traffic impacts. On February 21, 2017, MTO and Dillon presented project details to the City of London Civic Works Committee. Details of the project including construction staging, timing and coordination with the adjacent Highbury Avenue Interchange Improvements project were presented. The Civic Works Committee had no concerns with the project and received the information.

5. IMPACTS AND MITIGATION

5.1 Introduction

Section 5 of the TESR describes the recommended improvements in detail and includes an impact assessment of the construction and operation of the recommended Preliminary Design. Measures and provisions to avoid or mitigate impacts are also identified in this section. **Table 12** at the end of the report summarizes the impact assessment.

5.2 Project Description

5.2.1 Structure Replacements and Highway 401 Improvements

The recommended Preliminary Design is shown on **Figure 2** and consists of the following improvements:

- Replacement of the Tributary to Murray Drain Culvert, CNR Overhead Bridge and Pond Mills Road Overpass Bridge
- Improvements to Highway 401 include raising the profile of the highway to provide the required structural clearances and structure depths for the bridge and culvert replacements. In addition, the approach embankments will be widened to accommodate construction staging
- Drainage improvements, including improvements to the median storm sewer and a stormwater management facility on the south side of Highway 401 to accommodate the drainage needs of the increase in pavement width
- Provision of a continuous speed change lane between the:
  - Highbury Avenue N-W ramp and the Exeter Road ramp (westbound)
  - Wellington Road N/S-E ramp and the Highbury W-N/S ramp (eastbound).

5.2.2 Construction Staging and Traffic Management

Based on the review of construction staging alternatives, as outlined in **Section 3.8**, a new staging concept was recommended, as shown in **Figure 10**. Future opportunities to optimize construction staging plans may be considered during Detail Design. The recommended preliminary design construction staging concept includes the following three stages:

<u>Stage 1 (Year 1)</u>

- Westbound lanes reduced to two lanes and shifted to median
- Construct Highway 401 north grade raise and widen northerly portions of the new CNR Overhead and Pond Mills Overpass structures and Tributary to Murray Drain Culvert
- Prior to winter shutdown westbound lanes shifted to outside widening and opened to three lanes.

Winter Shutdown

- Three lanes westbound and three lanes eastbound.

Prior to Stage 2 (Year 2)

- Construct temporary median cross-over and median padding
- Shift eastbound lanes to median cross-over.

Stage 2

- Construct south grade raise and widen and new southerly portion of CNR Overhead and Pond Mills Road Overpass structures and Tributary to Murray Drain Culvert
- Prior to winter shutdown shift eastbound lanes to outside widening and open to three lanes.

Winter Shutdown

- Three lanes westbound lanes and three lanes eastbound.

Stage 3 (Year 3)

- Westbound lanes reduced to two lanes
- Construct median grade raise (including storm sewers improvements and median tall wall barrier) and median portion of CNR Overhead, Pond Mills Road Overpass, Tributary to Murray Drain Culvert.

Although this staging concept increases both construction duration and the amount of temporary works, the concept maintains three eastbound lanes of traffic where possible, requires the least amount of overbuilding (five lanes westbound and four lanes eastbound) and minimizes property impacts.

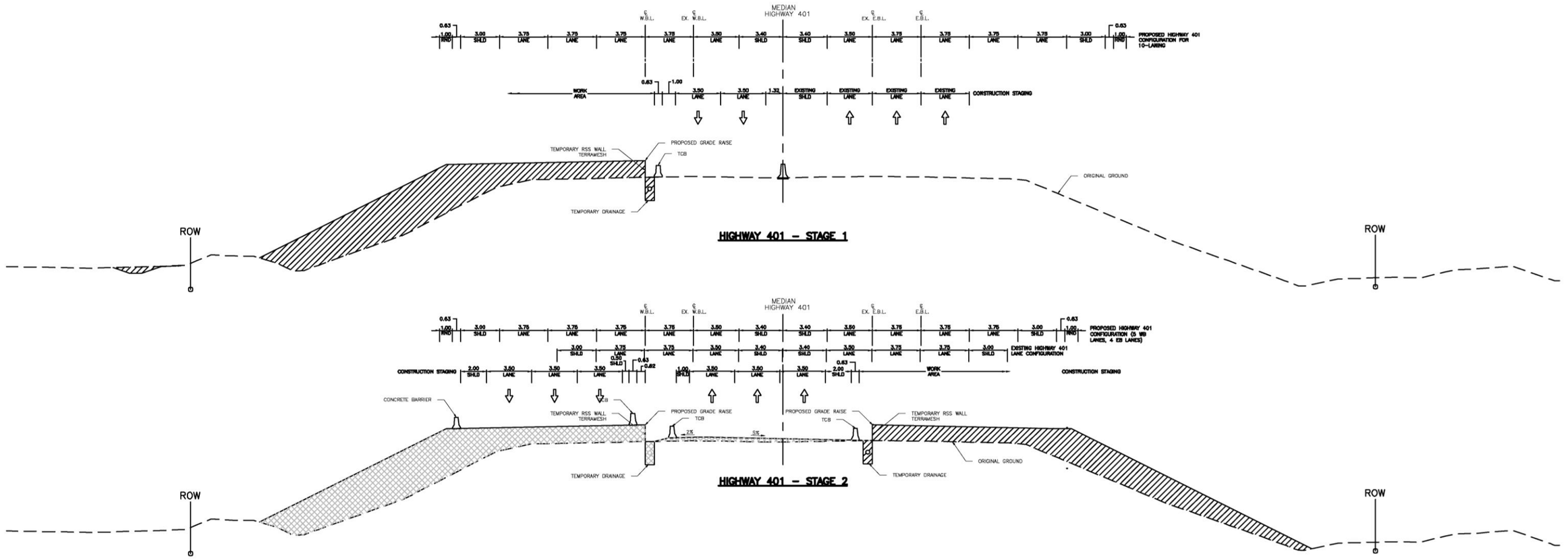


Figure 10A: Construction Staging for CNR Overhead, Pond Mills Road Overpass and Tributary to Murray Drain Culvert

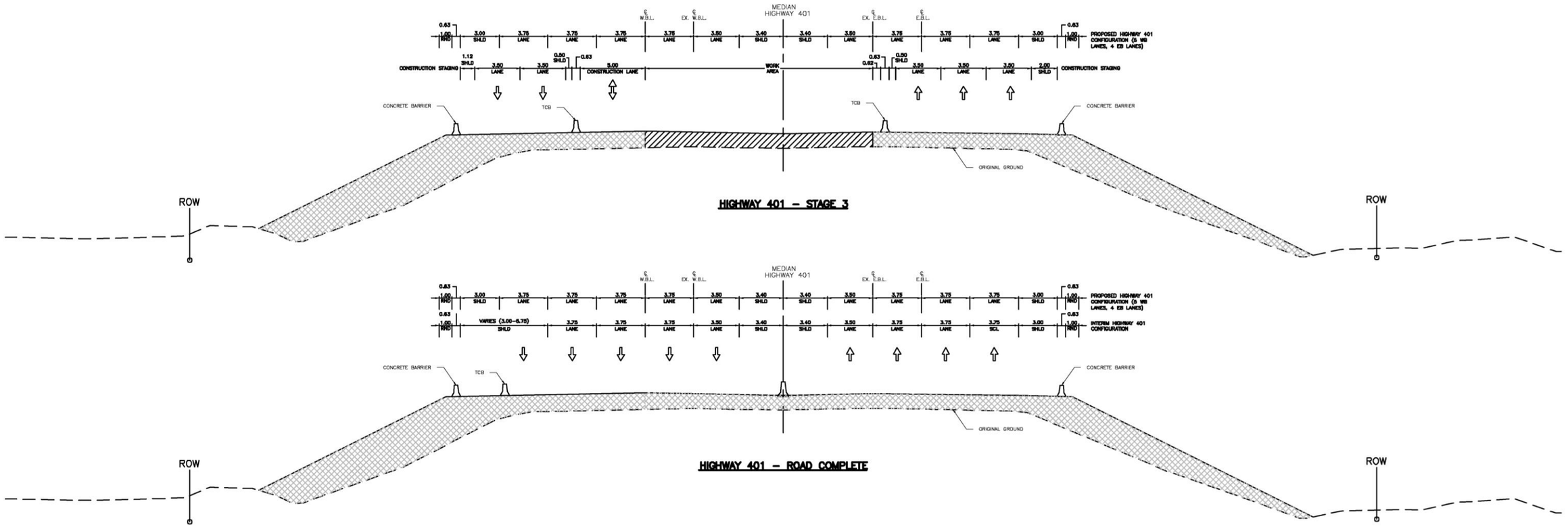


Figure 10B: Construction Staging for CNR Overhead, Pond Mills Road Overpass and Tributary to Murray Drain Culvert

Short duration full closures of Highway 401 are required for removal and installation of overhead signs. Closures will occur in non-peak times, such as overnight and weekends, and include a full detour route to be confirmed with the City of London during the Detail Design. In addition, short-term night-time single laning of Highway 401 will be required for construction activities.

Highway 401 Interchange Ramp Closures

As a result of the Highway 401 eastbound and westbound lane shifts, short-term (e.g., five nights and/or one weekend) ramp closures will be required at the Highway 401/Highbury Avenue and Highway 401/Wellington Road interchanges to complete temporary ramp connections and to accommodate lane closures/shifts during replacement of the CNR Overhead and Pond Mills Road Overpass.

Pond Mills Road

Pond Mills Road will be closed at Highway 401 during construction of the Pond Mills Road Overpass Bridge for up to 18 months (up to six months each year of construction). The closure is required to remove the existing girders and abutments, erect new girders and complete formwork for the new bridge deck during each of the three stages. Opportunities to open Pond Mills Road will be considered during Detail Design. To mitigate traffic impacts, the closure of Pond Mills Road will not occur at the same time as lane closures on Highbury Avenue.

CN Rail

The CNR Overhead structure replacement will be completed without long-term closures of the rail tracks. The structure replacement will be completed around train schedules with flagging. Short-term closures (i.e., up to 24 hours) may be required for some construction activities such as structure removal and girder placement. Construction staging and detailed railway impacts will be determined during Detail Design.

5.2.3 Highway 401 Lane Configuration

As outlined in **Section 5.2.2**, construction staging for the structure replacements requires widening of Highway 401 to a nine lane cross-section with five lanes westbound and four lanes eastbound. Following construction, a six lane cross section will be restored.

A review of lane balancing determined that there will be an unused width of 3.75 m in the eastbound lanes and 7.5 m in the westbound lanes when a six lane configuration is reinstated. To utilize the unused roadway, it is recommended to include continuous speed change lanes between the following ramps:

- Highbury Avenue N-W Ramp and Exeter Road Ramp (westbound lanes)
- Wellington Road N-E Ramp and Highbury Avenue W-N/S Ramp (eastbound lanes).

The continuous speed change lane in the eastbound direction will utilize the additional roadway in the eastbound direction, but will not use the entire roadway width in the westbound direction. In the westbound lanes, temporary concrete barrier will be placed 3 m from the edge of the continuous speed change lane between the two structures to provide visible delineation to the driver (**Figure 3**). The pavement between the bridges will remain to potentially be used for future staging requirements or future expansions.

5.3 Impact Assessment and Mitigation

Table 11 at the end of this report includes an impact assessment of the recommended Preliminary Design. Measures to avoid or mitigate impacts are also identified. The following sections summarize the impact assessment.

5.4 Transportation and Traffic Engineering

5.4.1 Impacts on Highway 401 Traffic during Construction

Out-of-way travel and traffic delays for the travelling public and local road users will be caused by Highway 401 lane closures required for construction of the structure replacements and single-laning required for paving, installation of temporary road protection and construction of staging transitions. The shifting of both eastbound and westbound lanes during construction results in short-duration (e.g., five nights and/or one weekend closures) ramp closures required to construct temporary ramp connections at the Highbury Avenue and Wellington Road interchanges.

As shown on **Table 11**, these impacts will be mitigated by the following construction staging and traffic management measures:

- Two westbound lanes and three eastbound lanes (where possible) of traffic will be maintained on Highway 401
- Temporary reduction to two westbound lanes will be required for northerly and median portions of the structure replacements
- Temporary reduction to two eastbound lanes will be required for construction of the median crossover prior to construction of the southerly portion of the structures
- Short duration, night-time, single-laning of Highway 401 will only occur during off-peak hours, including night-time and weekends
- Staging of the CNR Overhead, Pond Mills Road Overpass and Tributary to Murray Drain Culvert replacements will be co-ordinated with the adjacent Highbury Avenue project to avoid concurrent lane reductions.

5.4.2 Impacts on Pond Mills Road Traffic during Construction

Pond Mills Road will be fully closed at Highway 401 for up to 18 months (up to six months each year of construction) for construction of the new overpass bridge. Out-of-way travel and traffic delays will be mitigated by a signed detour route following Bradley Avenue, Highbury Avenue and Wilton Grove Road, as shown on **Figure 11**. During detailed design alternative detour routes may be considered by MTO in consultation with the City of London.

Also to reduce traffic impacts, the timing of construction will be coordinated with the Highbury Avenue interchange improvements.

5.4.3 Impacts on CN Rail Service

The majority of construction activities can be completed around train schedules with the use of railway flagging. Some short-term closures of the rail tracks (i.e., up to 24 hours) may be required for the removal of the existing structure and placement of girders for the new structure.

The timing of the short-term closures/staging will be reviewed further with CN Rail during the Detail Design stage.

5.4.4 Impacts on Emergency Services

Highway 401 lane closures and the closure of Pond Mills Road could potentially cause emergency service vehicle delays to incidents on Highway 401 and Pond Mills Road during construction. Potential delays will be avoided by:

- Advance notification of lane and road closures to emergency services, with maps showing detour/alternative routes
- Regular communication with emergency services during construction.

5.4.5 Impacts on Utilities

The proposed improvements conflict with the utilities listed in **Table 11**. Utility relocations will be co-ordinated with utility companies during Detail Design.

5.5 Drainage and Hydrology

The proposed improvements and modifications to the lane configurations and associated embankment widening required along Highway 401 have a direct impact on drainage infrastructure and the Murray Drain Tributary and Elliot-Laidlaw Drain culverts. Impacts on these drainage system components were evaluated based on the need to accommodate immediate and future improvements within the Highway 401 corridor. Improvements and modifications directly affecting the existing drainage infrastructure include:

- Profile adjustments (grade raise) of Highway 401 from Station 24+820 to 26+005 required to improve the vertical clearance at the CN Rail Overhead and Pond Mills Road Overpass
- 3.75 m crown shift (to the outside) throughout the project limits to accommodate the future eight-lane and ultimate ten-lane configurations and avoid excessive asphalt padding on the existing six-lane cross-section for the proposed CN Rail and Pond Mills Road structures
- The need to accommodate storm sewer capacity improvements for the future eight-laning and ultimate ten-laning of Highway 401, including interim improvements to accommodate construction staging requirements.

Ministry of Transportation

Highway 401, Tributary to Murray Drain Culvert Replacement and CNR Overhead Bridge and Pond Mills Road Overpass Replacements (GWP 3054-11-00)

Pond Mills Road Detour Route
Figure 11

Legend

- Structure/ Culvert Locations
- Previously Approved Highbury Ave Project Study Area
- Study Area
- Pond Mills Road Detour Route

0 250 500 Meters

N W E S

MAP DRAWING INFORMATION:
DATA PROVIDED BY MNR

MAP CREATED BY: BJF
MAP CHECKED BY: JMS
MAP PROJECTION: NAD 1983 UTM Zone 17N

FILE LOCATION: G:\GIS\127110 - 12 Structures\mxd\Assignment 1 - MXD

DILLON CONSULTING

PROJECT: 12-7110
STATUS: FINAL
DATE: 07/22/2016

Impacts on Murray Drain Tributary

The significant reduction in drainage area resulting when the main branch of the Murray Drain was diverted along the north side of Highway 401 provides an opportunity to reduce the hydraulic opening of the Murray Drain Tributary culvert without causing an adverse impact on projected headwater elevations and flooding potential upstream of the existing culvert location.

The 1800 mm x 2400 mm concrete culvert for the Murray Drain Tributary provides sufficient hydraulic capacity to convey the 1:50-year design flows, closely matches projected maximum headwater elevations compared to existing conditions, provides approximately 0.83 m of clearance, operates with 1.32 m/s outlet velocities for the required Check Storm and requires standard erosion and scour channel protection at the upstream/downstream ends of the culvert.

Impacts on Receiving Water Systems

The interim and future improvements to Highway 401 will have a direct impact on the receiving water systems in the Study Area. Changes to the hydrologic characteristics of the ROW drainage area, namely the addition of paved surfaces within the corridor, will increase the amount of runoff received by the drainage systems downstream of the Highway 401 ROW.

To quantify potential adverse impacts on the receiving water systems, the existing and future hydrologic conditions within the highway corridor were compared. The proposed ultimate widening of Highway 401 (ten-laning) results in increased flows at four critical outlet locations on the south side of the corridor, the CN Rail east and west ditches and the Pond Mills Road east and west ditches. The capacity of drainage infrastructure downstream of the Highway 401 corridor to convey additional runoff is very limited at these four locations. In order to mitigate the potential increase in the rate and volume of runoff received by the CN Rail and Pond Mills drainage systems, the configuration of the ROW ditches east of Pond Mills Road and west of the CN Rail corridor have been optimized to direct as much flow away from the critical outlets as possible.

In order to compensate for the potential negative impacts of diverting additional runoff to the Murray and Elliot-Laidlaw Drains, the road-side ditches west of the CN Rail and east of Pond Mills Road overpasses will be enhanced and widened on the south side of the Highway 401 ROW. Ditching enhancement will allow for storage and attenuation via short-term ponding of stormwater runoff prior to discharging to the receiving water systems.

Storm Sewer Infrastructure Impacts

The proposed modifications to the Highway 401 cross-section (crown shift) and the need to accommodate future widening of Highway 401 have direct impacts on the performance of the existing median storm sewer system. The increased drainage area resulting from the crown shift and future eight and ten-lane widening causes most of the existing median storm sewer system to operate under surcharge conditions for the ten-year design storm. Based on the resulting reduction in level of service, the median storm sewer system will be replaced and upsized throughout the limits of full reconstruction. Storm sewer outlets from the upgraded median storm sewer system will be incorporated into the highway cross-section near the east (25+975) and west (24+840) limits of full reconstruction. The remaining portions of the median storm sewer within the project limits will be upgraded when the expansion of Highway 401 is completed in the future.

Stormwater Management Facility

In existing conditions, the ROW drainage area, including the median storm sewer, between the CN Rail and Pond Mills Road corridor discharges to the Pond Mills Road ditches along the south side of Highway 401. The downstream receiving water system, including the municipal storm sewers associated with Pond Mills Road, have limited capacity to receive additional stormwater runoff from the widened highway between the new CN Rail and Pond Mills Road overpass structures.

To accommodate the increase is stormwater runoff resulting from widening Highway 401 and constructing new median and edge of shoulder storm sewer systems, a Stormwater Management Facility, consisting of a dry pond for quantity control, will be constructed on the south side of Highway 401 within the new ROW limits. The stormwater management facility will be used to attenuate post-development peak flows and over-control stormwater discharge to a rate at or below the existing condition flows currently directed to the Pond Mills Road or CN Rail corridor drainage system. The ROW width on the south side of Highway 401, between Pond Mills Road and the CN Rail corridor, provides adequate width, offset from the toe of the proposed embankment slope, to allow for the construction of a dry pond facility. The area designated for the dry pond facility provides sufficient space and potential storage volume so that runoff can be over-controlled and either discharge to the CN Rail corridor drainage system or the Pond Mills Road drainage system.

5.6 Cultural Resources

5.6.1 Archaeology

Since property is required outside the existing ROW, a Stage 1 Archaeological Assessment was completed and submitted to MTCS; a Stage 2 Archaeology Assessment was recommended for lands to be acquired. The assessment complies with the requirements of the MTCS *Standards and Guidelines for Consultant Archaeologists* (2011) and must be accepted by MTCS prior to construction.

If deeply buried cultural deposits or unmarked human remains are uncovered during construction, the appropriate agency will be contacted. Special Provisions regarding the discovery of archaeological materials and unmarked human remains will be included in the construction Contract.

5.6.2 Built Heritage

The CNR Overhead Bridge will be removed and replaced. ASI's Cultural Heritage Evaluation Report (CHER) for the bridge (June 2013) concluded that it is not eligible for inclusion on the Ontario Heritage Bridge List. As recommended by the report:

- The CHER will be submitted to the Ministry of Tourism, Culture and Sport (MTCS) as sufficient documentation of its heritage value
- Since the bridge requires replacement, MTO will place the original structural drawings in the Archives of Ontario.

5.7 Natural Environment

5.7.1 Source Water Protection

As shown in the amended *Source Protection Plan for the Thames-Sydenham Region* (2014), the Study Area is located in an area of low vulnerability for groundwater recharge and is not located near identified wellhead protection zones. The Elliot-Laidlaw Drain Culvert is located within a Highly Vulnerable Aquifer area. However, the threat to drinking water resources from construction activities is low with mitigation measures in place.

Identifying potential threats to source water is an important aspect of source water protection. Ancillary project activities (application of road salt, handling and storage of fuel, etc.) may pose a low risk to local groundwater and surface water quality. To minimize these risks, MTO will apply current best management practices (e.g., Salt Management Plan) and adhere to established Ministry plans and policies, special contract provisions and contract monitoring. MTO's *Environmental Reference for Contract Preparation* (ERCP) also provides guidance on implementing environmental protection and mitigation during construction.

5.7.2 Erosion and Sedimentation

Grading during construction potentially causes erosion and sedimentation. Site specific erosion and sedimentation control measures will be developed during Detail Design following MTO's *Environmental Guide for Erosion and Sediment Control during Construction of Highway Projects* (MTO 2007). Areas of moderate to high erosion potential will be identified during Detail Design.

Erosion and sedimentation control measures will be based on the following general guidelines:

- Minimize the disturbance of existing well vegetated ditches and grassed slopes
- Protect undisturbed slopes and sensitive ditching with silt fence and flow checks. These measures must remain in place until exposed soils are stabilized
- Seed and place erosion control blanket or bonded fibre matrix on 2:1 slopes where height warrants its use
- Place appropriately sized rip rap and geotextile at new and existing storm sewer outlets
- Areas with medium to high erosion potential will be identified during Detail Design.

The construction Contract will include Special Provisions (SPs) with timing restrictions to minimize the length of time between the start of any work that disturbs earth surfaces and the application of final cover to 45 days. The SPs will also require that final cover be applied by a certain date to allow vegetation to be established during the growing season.

5.7.3 Fish and Fish Habitat

The culvert modifications required for the project potentially cause a risk of negative effects on fish and fish habitat. Culvert modifications include:

- Minor extension and replacement of the Tributary to Murray Drain Culvert. The tributary has moderate-low fish and fish habitat sensitivity.

The recommended culvert replacement has the potential to impact fish habitat in the following ways:

- Increased erosion potential, decreased bank stability and exposed soils and removal of in-stream organic structure resulting from clearing of riparian vegetation and grading along the banks of the ROW
- Change in shade, external nutrient and energy inputs from the clearing of riparian vegetation
- Potential of direct harm to fish, re-suspension of sediment, release of oil, grease and fuel into the water from use of construction equipment
- Change in hydraulics, substrate and aquatic macrophytes from the removal and/or replacement of materials in the channel
- Change in light penetration, nutrient inputs and re-suspension of sediment from removal of aquatic vegetation
- Obstruction of upstream/downstream fish passage and alteration of flow and migration patterns from infilling and site isolation/flow by-pass during construction activities
- Scouring of channel beds, bank erosion from dewatering and diversion of flow around the construction site.

The risk of negative effects on fish and fish habitat can be avoided by incorporating the following measures into the construction Contract:

- All in-water work will avoid sensitive periods (**March 15 to June 30**)
- Temporary flow passage systems (e.g., dam and pump) will be used to maintain flow around the work site to allow work to be completed in the dry
- Fish salvage will be performed during dewatering operations, if necessary. All fish will be released alive downstream of the work site

- Sections of new precast (or cast-in-place) box culverts will be installed in-line with the existing watercourse, levelled and embedded at least 300 mm to naturally facilitate the re-establishment of substrate in the new culvert on the Tributary to Murray Drain
- Appropriate erosion and sedimentation control measures must be implemented around the work areas to prevent downstream migration of loose soils and accumulated sediment. Silt fence will be installed along drains and around fill placement areas, as appropriate. Erosion and sediment control will follow MTO's 2007 guide
- Proper handling of fuel, excess materials and debris on site in accordance with standard construction practices
- All materials used or generated (e.g., organics, soils, woody debris, temporary stockpiles, construction debris, etc.) will be temporarily stored, handled and disposed of during site preparation, construction and clean-up in a manner that prevents entry into any watercourse.

Finally, all disturbed areas will be restored to pre-construction conditions with a standard grass seed mix and native plant species and stabilized to prevent erosion.

5.7.4 Terrestrial Ecosystems

Vegetation

The bridge and culvert replacements and improvements to Highway 401 will require minor works outside the highway ROW causing the removal of culturally influenced meadow, individual trees and woodland edge trees and encroach into unevaluated wetlands. The potential impacts of removing vegetation include:

- Increased vulnerability of areas cleared of vegetation to invasion by non-native species
- Decreased shade and cover for fish and wildlife
- Localized temporary displacement of wildlife due to disturbance caused by vegetation clearing and general construction activity
- Increased erosion and sedimentation of lands adjacent to the construction area causing vegetation dieback at the edge of natural features.

These impacts will be mitigated by incorporating the following measures during detail design and/or construction:

- Minimize vegetation removal as much as possible
- Delineate Tree Protection Zones (TPZ) during Detail Design
- Follow tree felling and grubbing procedures, as outlined in *OPSS 201, Construction Specification for Clearing, Close Cut Clearing, Grubbing*
- Erosion and sediment control measures will be developed during Detail Design
- Areas temporarily cleared of vegetation to facilitate road and culvert works will be stabilized (e.g., vegetated/seeded) prior to removal of erosion and sedimentation control measures
- Disturbed areas along drains will be re-vegetated to minimize invasion and colonization by non-native species and increase shade/cover for wildlife.

Migratory and Species at Risk Birds

Cliff Swallow (a migratory bird) nests and one Barn Swallow (listed as a *Threatened* species with habitat protection under the ESA) nest were observed in the Tributary to the Murray Drain Culvert. Destruction and disturbance of active nests (with eggs or young birds) and wounding and/or killing species protected under the MBCA is prohibited. Vegetation clearing from **April 1 to August 31** in any given year could impact migratory nesting birds resulting in a contravention of the Act.

Replacement of the Tributary to Murray Drain Culvert requires the removal of one Barn Swallow nest observed in the culvert. Measures to compensate for the loss of this nest include:

- During Detail Design, prior to next removal during the Barn Swallow inactive season (**September 1 to March 31**), a Notice of Activity will be filed with MNRF under *Ontario Regulation (O. Reg.) 242/08*. This Notice will allow the removal of the nest as long as a temporary nesting habitat (artificial nest structure) is installed and other mitigation measures are implemented in accordance with the regulation
- In accordance with *O. Reg. 242/08:*
  - Nest deterrent measures must be installed prior to **April 1**
  - If construction is proposed to begin outside of the Barn Swallow active season, habitat must be created at a ratio of 1:1 before the beginning of the next Barn Swallow active season (**April 1**)

  - If construction is proposed to begin during the Barn Swallow active season, habitat must be created at a ratio of 1:1 before the beginning of the Barn Swallow active season
- Fact sheets and detection protocols for the identification of Barn Swallow will be provided to the construction crew before the project begins
- Workers must be vigilant and check work areas for the presence of breeding birds and nests containing eggs and young
- If breeding birds and/or nests are encountered during construction, works should not continue near the nest until it has been determined that the young have fledged and left the nest site permanently.

To protect migratory birds and comply with the MBCA, the following measures will be incorporated into the construction Contract:

- For tree and non-tree nesting species, vegetation removal will be completed outside the breeding bird period (**April 1 to August 31**)
- Swallow nest prevention/deterrent measures (e.g., tarping) may be installed at the culverts to be replaced prior to **April 1** to allow construction to occur during the restricted period.

In addition, there is potential for additional nests to be built in the Study Area between the time of the field investigations in 2013 and the construction phase. As a result, follow-up surveys for nests are recommended closer to the time of construction to confirm the exact number of Barn Swallow, Cliff Swallows and other species that are protected under applicable legislation.

Species at Risk Vegetation

Brainerd's Hawthorn (listed as *Imperilled* in Ontario under the ESA) and Northern Hawthorn (listed as *Vulnerable*) are potentially present in the vegetation requiring removal. During the subsequent design stage, a tree inventory is recommended to determine if these species are present.

5.8 Land Uses and Socio-Economic Environment

5.8.1 Property Impacts

The improvements to Highway 401 require property from several properties along Highway 401, including:

- A 6 m deep strip of land from the rear yard of two transportation related industrial uses on the north side of Highway 401. Potential impacts on current site operations include impacts on site facilities, such as signs, parking and storage areas and on-site hydro facilities. These facilities will be restored during construction. Both businesses were also concerned about the turning radius for trucks/buses turning on the property. Based on Site Movement Drawings prepared for both properties, the improvements are expected to have no impacts on current and future site operations
- A 13 m deep (and tapering) strip of land from the rear yard of a vacant property on the south side of Highway 401. Since this is a large property, the required property taking is expected to have no impacts on the development potential of the property for industrial uses
- A 14 m deep strip of land from the side yard of an institutional use. The property acquisition is expected to have no impacts on the current or future use of the property
- An 11 m deep strip of land from Hydro One Networks Inc. This is expected to have no impacts on the utility.

5.8.2 Short-term Construction Impacts

Noise, vibrations and air quality (dust) impacts during construction will be mitigated by construction best practices for noise, vibration and dust control. No residential or other sensitive land uses are located close to the construction sites. Overnight work may require an exemption from City of London Noise Control By-law (PW-12). The need for an exemption will be determined during Detail Design.

5.8.3 Conformity to the London Plan

The proposed improvements conform to the London Plan by improving transportation infrastructure in this important industrial area.

5.8.4 Consistency with Provincial Policy Statement (PPS)

The proposed improvements are consistent with the goals and policies of the PPS for transportation systems:

- The improvements are consistent with the PPS goal of providing transportation systems which are safe, energy efficient and facilitate the movement of people and goods and are appropriate to address projected needs
- Consistent with the PPS, the improvements make efficient use of existing and planned infrastructure
- 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 401 corridor and ROW for the future.

The PPS also requires that MTO consider the significant resources protected by the PPS, when planning for corridors and rights-of-way. Potential impacts on significant resources, such as surface water, groundwater, fish habitat, migratory birds and SAR will be avoided by the mitigation measures outlined in this TESR.

5.9 Impacts on Potentially Contaminated Property

Dillon completed a Contamination Overview Study (July 27, 2015) for the proposed improvements. The study identified the following areas with potential for subsurface or groundwater contamination, including:

- Retail fuel outlets located at industrial uses on Buchanan Court and Enterprise Drive in the vicinity of the Elliot-Laidlaw Drain Culvert have high potential for contamination
- A private fuel outlet on Pond Mills Road near the Pond Mills Road Overpass has high potential for contamination
- Properties affected by the property acquisitions required for the Highway 401 improvements have moderate to high potential for contamination, including private fuel outlets on Towerline Place.

Lands in the vicinity of the CN Rail Overhead and Tributary to Murray Drain Culvert have low potential for contamination based on reported past and present activities on the sites and distance to surrounding industrial development.

The Contaminated Overview Study recommended that Phase 1 Environmental Assessments be prepared for lands to be acquired by MTO with high potential for contamination. The assessments will be completed during Detail Design.

6. ENVIRONMENTAL CLEARANCES AND APPROVALS

This TESR will be available for the required 30-day public and agency review period. If no Bump-up (Part II Order) requests are received by MOECC during this time, the TESR is considered approved under the *EA Act* and the project can proceed to detail design and construction.

The following design and construction related approvals are required prior to construction:

- Agreement and permit for construction from CN Rail for construction of the CN Rail Overhead structure
- Ministry of Tourism, Culture and Sport acceptance of a Stage 1 and 2 Archaeology Assessment of lands required for construction
- A Notice of Activity (under *O.Reg. 242/08* of the ESA) must be filed with MNRF prior to work on culverts with observed Barn Swallow nests
- Exemption from the City of London Noise Control By-law for night-time work
- City of London Permit for Approved Works for construction activities associated with the Pond Mills Road Overpass.

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LONDON, ONTARIO

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Project Manager

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Environmental Planner

Table 11: Summary of Environmental Concerns and Commitments

I.D. #	I. D. # Sub-issues	Issues/Concerns Potential Effects	Potentially Concerned Agencies	Mitigation/Protection/Monitoring Measures
1. Transportation & Traffic Engineering	1.1 Impacts on Highway 401 Traffic during Construction	Out-of-way travel and traffic delays caused by: • Highway 401 lane closures for construction of the structure replacements • Single-laning for paving, installation of temporary roadway protection, construction of staging transitions • Lane closures also require temporary short duration Highway 401 interchange ramp closures (e.g. five nights and/or one weekend) at Highbury Avenue, Exeter Road and Wellington Road interchanges.	MTO, City of London, travelling public, local residents and businesses	• Three westbound and three eastbound lanes of traffic will be maintained on Highway 401 in each direction, where possible (minimum two lanes in each direction separated by concrete median barrier) • Temporary reduction to two westbound lanes will be required for northerly and median portions of the structure replacements • Temporary reduction to two eastbound lanes will be required for construction of the median cross-over prior to construction of the northerly portion of the structure • Short duration single-laning and Highway 401 closures will only occur during off-peak hours, including night-time • Staging of the CNR Overhead, Pond Mills Road Overpass and Tributary to Murray Drain Culvert replacements will be co-ordinated with adjacent Highbury Avenue project to avoid concurrent lane reductions.
	1.2 Impacts on Pond Mills Road Traffic during Construction	Out-of-way travel and traffic delays caused by full closure (up to 18 months) of Pond Mills Road at Highway 401 for construction of the overpass bridge.	MTO, City of London, travelling public, local residents and businesses	• Recommended detour route follows Bradley Avenue, Highbury Avenue and Wilton Grove Road. Alternative detour routes may be considered by MTO in consultation with the City • Timing of construction will be co-ordinated with Highbury Avenue interchange reconstruction to reduce traffic impacts.
	1.3 Impacts on Rail Service during Construction	Temporary long-term closures (more than 24 hours) required for removal of existing bridge. Flagging required for any work on and/or over CN Rail property.	MTO, City of London, CN, local industries	• Temporary full closures or railway flagging to occur overnight on weekdays • Temporary long term closures may be feasible over the weekend depending on operations, track protection systems and availability of flagmen • Timing of closures/staging will be reviewed with CN Rail during Detail Design.
	1.4 Emergency Services	Potential emergency service vehicle delays to incidents on: • Highway 401 during construction • Pond Mills Road during road closure.	MTO, Emergency Services, City of London, travelling public, local residents and businesses	• Provide advance notification of lane and road closures to emergency services, with maps showing detour/alternate routes • Maintain regular communication with emergency services during construction.
	1.5 Utilities	Highway and local road improvements conflict with local utilities.	MTO, utilities, City of London	Relocation of utilities will be co-ordinated with utilities during Detail Design.
2. Drainage & Hydrology	2.1 Culvert and Drainage Modifications	Culvert and drainage modifications include: • Replacement and minor extension of Tributary to Murray Drain Culvert • Median storm sewer will be replaced and upsized throughout the limits of full reconstruction • SWM facility (dry pond for quantity control) within Highway 401 ROW limits.	MTO, MOE, MNRF, City of London, UTRCA	• All culvert and drainage modifications will be designed to meet MTO drainage design criteria and incorporate erosion/scour protection and watercourse/fisheries protection measures • Culvert configuration and erosion protection requirements will be developed during Detail Design • SWM facility will attenuate post-development peak flows and over-control stormwater discharge to a rate at or below existing flows.

I.D. #	I. D. # Sub-issues	Issues/Concerns Potential Effects	Potentially Concerned Agencies	Mitigation/Protection/Monitoring Measures
	2.2 Drainage/ Stormwater Management (SWM) Water Quantity and Quality Impacts	Changes to hydrologic characteristics of ROW drainage area (e.g., additional paved area) will increase the amount of run-off received by downstream drainage system, potentially causing erosion, sediment transport and flooding.	MTO, MOECC, City of London, UTRCA	New median storm sewer and SWM facility will accommodate drainage needs of improvements and future Highway 401 expansion. All drainage modifications will be designed to meet MTO drainage design criteria. Required ditch enhancements will be considered during Detail Design.
3. Cultural Resources	3.1 Archaeological Resources	Potential destruction/disturbance of archaeological resources during construction.	MTO, MTCS, City of London	Stage 2 Archaeology Assessment to be completed during Detailed Design for lands to be acquired for construction
	3.2 Deeply Buried Cultural Deposits and Unmarked Human Remains	Potential destruction/disturbance during construction.	MTO, MTCS, City of London	Contract provisions (to be developed during Detail Design) will require immediate contact with MTCS and other appropriate authorities in the event deeply buried cultural deposits and unmarked human remains are discovered.
	3.3 Built Cultural Heritage Resources	Requires removal and replacement of CN Rail Overhead. Although the bridge retains cultural heritage value, ASI's CHER concluded that it is not eligible for inclusion on Ontario Heritage Bridge List.	MTO, MTCS, City of London	The CHER will be submitted to MTCS as sufficient documentation of the heritage value of the CNR Overhead Structure. Also, MTO will place the original structural drawings in the Archives of Ontario.
4. Natural Environment	4.1 Groundwater Quantity and Quality during Construction/ Operation	Elliot-Laidlaw Drain is located in a Highly Vulnerable Aquifer area but threats to drinking water resources from construction activities are low. Ancillary project activities (application of road salt, handling and storage of fuel, etc.) may pose a low risk to local groundwater and surface water quality.	MTO, MOECC, MNRF, City of London, UTRCA	To minimize risks, MTO will apply current best management practices (e.g., Salt Management Plan) and adhere to established Ministry plans and policies, special contract provisions and contract monitoring. MTO's *Environmental Reference for Contract Preparation* (ERCP) provides guidance on implementing environmental protection and mitigation during construction.
	4.2 Erosion and Sedimentation	Potential erosion and sedimentation impacts during construction caused by grading and other construction activities.	MTO, MOECC, MNRF, City of London, UTRCA	Site specific erosion and sedimentation control measures will be developed during detail design following MTO's *Environmental Guide for Erosion and Sediment Control during Construction of Highway Projects* (MTO 2007).

I.D. #	I. D. # Sub-issues	Issues/Concerns Potential Effects	Potentially Concerned Agencies	Mitigation/Protection/Monitoring Measures
4. Natural Environment	4.3 Fish and Fish Habitat	Risk of negative effects on fish and fish habitat caused by: • Replacement of Tributary to Murray Drain Culvert. Drain has moderate-low fish and fish habitat sensitivity.	MTO, MNRF, City of London, UTRCA	Risk of negative effects on fish and fish habitat avoided by implementing the following measures: • In-water work will avoid sensitive periods (**March 15 to June 30**) • Temporary flow bypass (e.g., dam and pump) and/or passage systems to maintain flow around work site to allow work to be completed in the dry • Fish salvage during dewatering operations • Culvert extensions will be installed in-line with existing drain and at same elevation/slope to maintain consistency and allow for fish passage • New culverts embedded sufficiently below existing invert of drain bottom to allow substrates to re-establish and form a low flow channel for fish passage • Channel realignments will properly connect new inlets/outlets to existing downstream drain channels to match dimensions of existing drain • Erosion and sediment control measures, including installing silt fence along drains and around fill placement areas and restoring disturbed areas • Proper handling of fuel, excess materials and debris on site in accordance with standard construction practices.
	4.4 Terrestrial Ecosystems – Vegetation Removal	Bridge and culvert replacements require removal of culturally influenced meadow, individual trees and woodland edge trees. Potential impacts of vegetation removal include: • Increased erosion/sedimentation of adjacent lands • Increased vulnerability to invasion by non-native species • Decreased shade and cover for fish and wildlife • Localized temporary displacement of wildlife • Potential for imported materials (e.g., gravel) to be released adjacent to riparian habitat and displace native substrates.	MTO, MNRF, City of London, UTRCA, property owners	Impacts will be mitigated by the following measures: • Minimize vegetation removal to the extent possible • Delineate Tree Protection Zones (TPZ) during Detail Design • Follow tree felling and grubbing procedures, as outlined in *OPSS 201, Construction Specification for Clearing, Close Cut Clearing, Grubbing* • Erosion and sedimentation control measures • Banks cleared of vegetation to facilitate road and culvert works will be stabilized (e.g., vegetated) prior to removal of erosion and sediment control measures • Disturbed areas along drains will be re-vegetated to minimize invasion and colonization by non-native species and increase shade/cover for fish and wildlife.
	4.5 SAR – Birds	Requires removal of one (1) Barn Swallow nest (listed as *Threatened* with habitat protection) observed in Tributary to Murray Drain Culvert. Nest will be removed during Barn Swallow inactive season (**September 1 to March 31**)	MTO, MNRF, City of London, UTRCA	Measures to compensate for the loss of Barn Swallow nest include: • During Detail Design, prior to work on the culvert, a Notice of Activity (under *O.Reg. 242/08* of the ESA) will be filed with MNRF. The notice will outline compensation measures, other mitigation measures and a plan to monitor the effectiveness of the created habitat • As compensation, artificial nest cups will be installed in the new culvert at a ratio of 1:1 before the beginning of the next active season (**April 1**).
	4.6 Migratory and other Protected Birds	Potential destruction of nests, eggs and young prior to, and during construction, including Cliff Swallow nest found in Murray Drain Culvert.	MTO, MNRF, City of London, UTRCA	Impacts on migratory and protected birds avoided by: • For tree and non-tree nesting species, vegetation removal will be completed outside the breeding bird period (**April 1 to August 31**) • Swallow nest prevention/deterrent measures (e.g., tarping) may be installed at the culverts prior to **April 1** to allow construction to occur during the restricted period.

I.D. #	I. D. # Sub-issues	Issues/Concerns Potential Effects	Potentially Concerned Agencies	Mitigation/Protection/Monitoring Measures
	4.7 SCC – Trees	Brainerd's Hawthorn (*Imperilled*) and Northern Hawthorn (V*ulnerable*) may be present in vegetation requiring removal.	MTO, MNRF, City of London, UTRCA	Impacts avoided by the completion of a tree inventory during Detail Design.
5. Land Uses and Socio-Economic Environment	5.1 Property Impacts	Improvements to Highway 401 require property from: • Two transportation related industrial uses on Highway 401. Property acquisition impacts signs, parking/storage areas and on-site hydro facilities. Potentially affects truck/bus turning movements • An institutional use and a vacant industrial property. No impacts anticipated since both are large properties • Ontario Hydro, CN Rail and City of London.	MTO, City of London, affected property owners	Based on Site Movement Drawings prepared for the transportation related industrial uses, the improvements are expected to have no impacts on current or future site operations. All properties will be restored following construction.
	5.2 Short-Term Construction Impacts	Noise, vibrations and air quality (dust) impacts during construction potentially affecting surrounding land uses.	MTO, MOE, City of London, local businesses	• Mitigated by construction best practices for noise, vibration and dust control. No residential or other sensitive land uses are located close to the construction sites • May require an exemption from City of London Noise Control By-law (PW-12, July 25, 2011) for overnight work. Need for an exemption will be determined during Detail Design.
	5.3 Conformity to City of London Official Plan	Proposed infrastructure improvements conform to the Official Plan by improving transportation infrastructure in this important industrial area.	MTO, Ministry of Municipal Affairs and Housing (MMAH), City of London	Not required.
	5.4 Consistency with Provincial Policy Statement (PPS, 2014)	Proposed infrastructure improvements are consistent with the PPS' transportation policies and do not affect any significant resources	MTO, MMAH, City of London	Not required.
6. Contaminated Property	6.1 Impacts on Contaminated Property	Contaminated Overview Study identified several areas with high potential for subsurface contamination.	MTO, MOECC, City of London	Phase 1 Environmental Site Assessments will be completed for these properties during Detail Design.

APPENDIX A
FISHERIES

Photo 1 – Tributary to Murray Drain (Site No. 19-650c): At Murray Drain culvert upstream of culvert; facing downstream (south)	
Photo 2 – Tributary to Murray Drain (Site No. 19-650c): At Murray Drain facing downstream (south)	

Photo 3 – Elliot Laidlaw Drain (Site No. 19-351/c): At culvert facing upstream (north)	
Photo 4 – Elliot Laidlaw Drain (Site No. 19-351/c): At upstream side of culvert facing downstream (south). Note vegetation	

Photo 7 – Elliot Laidlaw Drain (Site No. 19-351/c): At upstream side of culvert facing downstream (south). Note vegetation	

APPENDIX B
TERRESTRIAL RESOURCES

Photograph 1 – Tributary to Murray Drain Culvert • Business Sector and Dry-Fresh Mixed Meadow • Looking South from Highway 401 ROW	
Photograph 2 – Tributary to Murray Drain Culvert and CNR Overhead • Fresh-Moist Deciduous Thicket (Deciduous Forest in background) • Looking South from Highway 401 ROW	

Photograph 3 – Tributary to Murray Drain Culvert and CNR Overhead • Deciduous Forest • Looking North from Wilton Grove Road	
Photograph 4 – Tributary to Murray Drain Culvert • Barn Swallow Nest	

Photograph 5 – Tributary to Murray Drain Culvert • Cliff Swallow Nests	
Photograph 6 – CNR Overhead • Cattail Meadow Marsh • Looking Northwest from ROW, South of Highway 401	

Photograph 7 – CNR Overhead and Pondmills Road Overpass • Dry – Fresh Mixed Meadow • Looking East from ROW, South of Highway 401	
Photograph 8 – CNR Overhead and Pondmills Road Overpass • Dry – Fresh Black Locust Deciduous Forest and Dry – Fresh Mixed Meadow • Looking West from ROW, North of Highway 401	

Photograph 9 – Elliot-Laidlaw Drain Culvert • Dry-Fresh Graminoid Meadow with drain present in lower left corner of photograph • Looking Northeast	
Photograph 10 – Elliot-Laidlaw Drain Culvert • Dry-Fresh Graminoid Meadow with drain present in lower right corner of photograph • Looking North	

Photograph 11 – Elliot-Laidlaw Drain Culvert • Dry-Fresh Graminoid Meadow within ROW • Looking West	

SAR and Provincially Rare Species Habitat Evaluation

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
HERPTILES										
Apalone spinifera spinifera	Eastern Spiny Softshell	THR	THR	S3	No	No	Intolerant of pollution; large river systems, shallow lakes and ponds with muddy bottoms and aquatic vegetation; basks on sandbars, mud flats, grassy beaches, logs or rocks; eggs are laid near water on sandy beaches or gravel banks in areas with sun; requires acceptable feeding, nesting, habitat and natural, undisturbed corridors between these critical habitats	No	Large river systems, shallow lakes or ponds with muddy bottoms and abundant vegetation not observed in the Study Area.	No – species and/or habitat not observed
Thamnophis sauritus septentrionalis	Northern Ribbon Snake	SC	SC	S3	Yes	No	Sunny grassy areas with low dense vegetation near bodies of shallow permanent quiet water; wet meadows, grassy marshes or sphagnum bogs; borders of ponds, lakes or streams; hibernates in groups in animal burrows or rock crevices[6]	No	Grassy areas with low dense vegetation near shallow, permanent stream is present in Elliot-Laidlaw Drain Culvert Study Area but the absence of suitable hibernacula habitat (e.g., burrows/rock crevices) greatly reduces habitat quality for this species. Records are not current (i.e., >20 years; last observed in 1933).	No – species and/or habitat not observed
Chelydra serpentina	Common Snapping Turtle	SC	SC	S4	No	No	Permanent, semi-permanent fresh water; marshes, swamps or bogs; rivers and streams with soft muddy banks or bottoms; often uses soft soil or clean dry sand on south-facing slopes for nest sites; may nest at some distance from water; often hibernate together in groups in mud under water; home range size ~28 ha	No	No permanent, semi-permanent fresh water marshes, swamps or bogs observed in Study Area. Marsh community dominated by cattail with very little open water. No large rivers or streams with muddy bottoms observed.	No – species and/or habitat not observed
BIRDS										
Sturnella magna	Eastern Meadow-lark	---	THR	S4	No	No	Open, grassy meadows, farmland, pastures, hayfields or grasslands with elevated singing perches; cultivated land and weedy areas with trees; old orchards with adjacent, open grassy areas >10 ha in size.	No	No open, grassy meadows, farmland, pastures, hayfields, > 10 ha were observed in Study Area.	No – species and/or habitat not observed
Chaetura pelagica	Chimney Swift	THR	THR	S4B	No	No	Commonly found in urban areas near buildings; nests in hollow trees, crevices of rock cliffs, chimneys; highly gregarious; feeds over open water.	No	No residential houses with appropriate chimneys, hollow trees, or rock cliffs were observed in Study Area.	No – species and/or habitat not observed
Dolichonyx oryzivorus	Bobolink	---	THR	S4B	No	No	Large, open expansive grasslands with dense ground cover; hayfields, meadows or fallow fields; marshes; requires tracts of grassland >50 ha.	No	No tracts of grasslands >50 ha were observed in Study Area.	No – species and/or habitat not observed

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
Hirundo rustica	Barn Swallow	---	THR	S4B	No	No	Farmlands or rural areas; cliffs, caves, rock niches; buildings or other man-made structures for nesting; open country near body of water.	Yes	A barn swallow nest was observed in the Tributary to Murray Drain Culvert.	Yes– One nest present in culvert. Measures to compensate for the temporary loss of nesting habitat are discussed in the TESR.
Aquila chrysaetos	Golden Eagle	---	END	S2B	No	No	Wild, arid plateaus, deeply cut by streams and canyons or sparsely treed slopes and rock crags.	No	No canyons, treed slopes or rock crags were observed in Study Area.	No – species and/or habitat not observed
Falco peregrinus	Peregrine Falcon	SC	SC	S2S3	No	No	Rock cliffs, crags, especially situated near water; tall buildings in urban centres; threatened by chemical contamination; reintroduction efforts have been attempted in numerous locations throughout Ontario.	No	No rock cliffs, crags or tall buildings were observed in Study Area.	No – species and/or habitat not observed
Melanerpes erythrocephalus	Red-Headed Woodpecker	THR	SC	S4B	No	No	Open, deciduous forest with little understory; fields or pasture lands with scattered large trees; wooded swamps; orchards, small woodlots or forest edges; groves of dead or dying trees; feeds on insects and stores nuts or acorns for winter; loss of habitat is limiting factor; requires cavity trees with at least 40 cm dbh; require about 4 ha for a territory.	No	Open deciduous forest or fields with scattered trees not observed in Study Area. Forests communities identified have dense understory growth but very few nut producing trees.	No – species and/or habitat not observed
Haliaeetus leucocephalus	Bald Eagle	---	SC	S4B	No	No	Require large continuous area of deciduous or mixed woods around large lakes, rivers; require area of 255 ha for nesting, shelter, feeding, roosting; prefer open woods with 30 to 50% canopy cover; nest in tall trees 50 m to 200 m from shore; require tall, dead, partially dead trees within 400 m of nest for perching; sensitive to toxic chemicals.	No	No large mature trees were observed. Forest areas are small and not continuous.	No – species and/or habitat not observed
Chlidonias niger	Black Tern	---	SC	S3B	No	No	Wetlands, coastal or inland marshes; large cattail marshes, marshy edges of rivers, lakes or ponds, wet open fens, wet meadows; returns to same area to nest each year in loose colonies; must have shallow (0.5 to 1 m deep) water and areas of open water near nests; requires marshes >20 ha in size; feeds over adjacent grasslands for insects; also feeds on fish, crayfish and frogs.	No	Marshes >20 ha not observed in the Study Area.	No – species and/or habitat not observed

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
Vireo griseus	White-eyed Vireo	---	---	S2B	Yes	No	Dense, swampy thickets and hillsides with blackberry and briar tangles; forest edges, early successional fields; territories 1-2 ha.	Yes	Dense, swamp thicket and hillsides with bramble tangles not observed in Study Area. Forest edges and early successional fields (deciduous thicket) may provide habitat for this vireo species but records for this species are not current (i.e., >20 years; last observed in 1985).	No. Forested edges occur outside ROW and will not be impacted by proposed works.
MAMMALS										
Myotis lucifugus	Little Brown Bat	END	---	S4	No	No	Uses caves, quarries, tunnels, hollow trees or buildings for roosting; winters in humid caves; maternity sites in dark warm areas such as attics and barns; feeds primarily in wetlands, forest edges.	No	Caves, quarries, tunnels, hollow trees or suitable buildings for roosting not observed in Study Area.	No - species not observed. Potential hollow trees in woodland habitat not observed. Other woodland habitat outside ROW will not be impacted during maternal roosting period
ODONATA										
Aeshna verticalis	Green-striped Darner	---	---	S3	No	No	Forest ponds and lakes with much aquatic vegetation.	No	Forest ponds and lakes not observed in Study Area.	No – species and/or habitat not observed
Enallagma traviatum	Slender Bluet	---	---	S1	No	No	Vegetated ponds and lakes.	No	Vegetated ponds, lakes not observed in Study Area.	No – species and/or habitat not observed
VASCULAR PLANTS										
Juglans cinerea	Butternut	END	END	S4	No	No	Prefers well-drained soil and often found along streams. Also found on well-drained gravel sites and rarely on dry rocky soil. Does not grow well in shade and often grows in sunny openings near forest edges.	No	Portions of the banks along Elliot-Laidlaw Drain and the Tributary to Murray Drain are well-drained and open to the sun. This species was not observed during vegetation assessments.	No – species and/or habitat not observed
Viola pedata	Bird's-foot Violet	END	END	S1	Yes	No	Open, dry oak and jack pine woods, sand barrens, dry prairies and dune forests.	No	Open, dry oak and jack pine woods, sand barrens, dry prairies or dune forests not observed in Study Area. Records for this species are not current (i.e., >20 years; last observed in 1890).	No – species and/or habitat not observed

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
Trillium flexipes	Drooping Trillium	END	END	S1	Yes	No	Rich deciduous woods often along river flats or on heavy basic soils associated with limestone.	No	Habitat not observed in Study Area. Records are not current (i.e., >20 years; last observed in 1883).	No – species and/or habitat not observed
Bryoandersonia illecebra	Spoon-leaved Moss	END	END	S1	Yes	No	Prefers soil substrates, particularly on banks, although it sometimes occurs on rocks or tree bases. Canadian collections are from a variety of habitats (e.g., wet deciduous woodlot, grassy clearing among planted pines, among cedars in a swamp).	No	No banks with exposed soil substrate observed in Study Area. Currently species is only known to occur at 3 sites in Southern Ontario, none of which are in London (COSEWIC, 2003). Records are not current (i.e., >20 years; last observed between 1825 and 1827).	No – species and/or habitat not observed
Arisaema dracontium	Green Dragon	SC	SC	S3	Yes	No	Wet bottomlands along rivers and creeks, wet forests along streams, particularly Maple forest and forest dominated by Red Ash and White Elm.	No	Bottomlands and Maple, Red Ash or White Elm forests not observed in Study Area. Records are not current (i.e., >20 years; last observed in 1979).	No – species and/or habitat not observed
Fraxinus quadrangulata	Blue Ash	SC	SC	S3	Yes	No	Floodplains, shallow soil over limestone.	No	Floodplains with shallow soil over limestone not observed in Study Area. Records not current (i.e., >20 years; last observed in 1977).	No – species and/or habitat not observed
Potamogeton hillii	Hill's Pond-weed	SC	SC	S2	Yes	No	Highly alkaline waters of ditches, beaver ponds and slow-moving cold waters	No	Roadside ditches did not contain sufficient standing water to support pondweed species. No beaver ponds observed in Study Area. Drain systems are slow-moving but alkalinity is unknown. According to recent COSEWIC range maps, the pondweed's current distribution is restricted to Wellington County, Bruce County and Peel Region. Records are not current (i.e., >20 years; last observed in 1951).	No – species and/or habitat not observed
Asclepias sullivantii	Prairie Milk-weed	---	---	S1	Yes	---	Wet meadows and prairies, and adventive along roadsides.	No	Wet meadows and prairies not observed in Study Area. Since this species is found mostly in areas with minor disturbance (Conservation Coefficient of 8), it is unlikely that it would be growing in the highly disturbed ROW of Highway 401. More likely to be found along an old dirt or gravel road with little traffic.	No – species and/or habitat not observed
Bartonia virginica	Yellow Bartonia	---	---	S2	Yes	No	Open to slightly shaded moist *Polytrichum* and *Sphagnum* mats.	No	No moist mats of *Polytrichum* or *Sphagnum* were observed in Study Area. Records are not current (i.e., >20 years; last observed in 1932).	No – species and/or habitat not observed
Conioselinum chinense	Hemlock -parsley	---	---	S3	Yes	No	Calcareous cedar swamps; wet borders of streams and rivers; seepage slopes in wet coniferous woods, swampy thickets, moist clearings and damp roadsides.	No	Calcareous cedar swamps, coniferous woods, swampy thickets and moist clearings not observed in Study Area. Drain borders are wet but because this species is found almost exclusively in undisturbed areas (Conservation Coefficient of 10), it is unlikely that it would be growing in the highly disturbed area surrounding the creek. Records are not current (i.e., >20 years; last observed in 1880).	No – species and/or habitat not observed

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
Crataegus brainerdii	Brainerd's Haw-thorn	---	---	S2	Yes	No	Old fields, poorly managed pastures, fence lines and roadsides.	Yes	Old fields and pasture not observed in the Study Area but fence lines and roadsides were. Records are not current (i.e., >20 years; last observed in 1975) and species observed during vegetation assessments.	Potential – a tree inventory is recommended for Detailed Design to determine if species is present in hedgerows proposed for removal.
Crataegus dissona	Northern Haw-thorn	---	---	S3	Yes	No	Old fields, poorly managed pastures, fence lines and roadsides.	Yes	Old fields and pasture not observed in Study Area but fence lines and roadsides were. Records are not current (i.e., >20 years; last observed in 1975) and species not observed during vegetation assessments.	Potential – a tree inventory is recommended for Detailed Design to determine if species is present in hedgerows proposed for removal.
Cystopteris protrusa	Southern Bladder Fern	---	---	S2	Yes	No	Open deciduous woodlands on sandy loam; alluvial river terraces and hillsides that border streams or rivers.	No	Woodlands contain dense undergrowth and banks of both drain systems do not contain alluvial terraces or hillsides. Records are not current (i.e., >20 years; last observed in 1982).	No – species and/or habitat not observed
Euonymus atropurpureus	Burning Bush	---	---	S3	Yes	No	Dry to moist thickets and woods.	Yes	Fresh-Moist thicket and woodlands were observed outside of the ROW. Records for this species are not current (i.e., >20 years; last observed in 1968) and species was not observed during vegetation assessments.	No – species not observed and potential habitat is outside ROW
Gentianella quinquefolia ssp. occidentalis	Stiff Gentian	---	---	S2	Yes	No	Moist soil, roadsides, streambanks and edges of woods; prairies.	Yes	Roadsides and streambanks are very disturbed at most structures. With a Conservation Coefficient value of 8, it can only withstand minor disturbance. Records are not current (i.e., >20 years; last observed in 1965) and species not observed during vegetation assessments.	No – species and/or habitat not observed
Hybanthus concolor	Eastern Green Violet	---	---	S2	Yes	No	Rich, wet-mesic floodplain forests and mesic forests over limestone.	No	Rich, wet-mesic floodplain forests or mesic forests over limestone not observed in Study Area. Records are not current (i.e., >20 years; last observed in 1982).	No – species and/or habitat not observed
Linaria canadensis	Blue Toadflax	---	---	S1	Yes	No	Dry, open, sandy or rocky barren ground; oak and sassafras savanna and jack pine plains; beds of dried lakes.	No	Habitat not observed in Study Area. Records are not current (i.e., >20 years; last observed in 1951).	No – species and/or habitat not observed

SPECIES		Status in Ontario	Status in Canada	S-Rank	NHIC Occurrence Record	Observed during Field Studies	Habitat Requirements	Potential Habitat in Study Area	Rationale for Potential to Occur	Will Species and/or Habitat be Impacted by Project?
Scientific Name	**Common Name**									
Lupinus perennis ssp. perennis	Wild Lupine	---	---	S3	Yes	No	Dry, sandy oak savannahs and prairies; open forests and forest edges.	No	Dry, sandy oak savannahs, prairies and open forests were not observed within the Study Area. Forest edges are highly disturbed. This species is found almost exclusively in undisturbed areas (Conservation Coefficient of 10). Records are not current (i.e., >20 years; last observed in 1880).	No – species and/or habitat not observed
Panicum villosissimum	White-haired Panic Grass	---	---	S3	Yes	No	Dry open sandy woods, prairie.	No	Habitat not observed in Study Area. Records are not current (i.e., >20 years; last observed in 1951).	No – species and/or habitat not observed
Polygonum erectum	Erect Knot-weed	---	---	S1	Yes	No	Moist, silty, clay/loam soils in areas subject to persistent disturbance; edges of actively cultivated fields, dirt farm roads, trampled cattle pastures, farmyards; wet stream edges and floodplain washout areas.	No	Soils adjacent to the structures are heavily disturbed and contain fill deposited during construction of Highway 401. ROW receives sporadic disturbance through mowing, rubbish dumping and salt build-up. Records are not current (i.e., >20 years; last observed in 1951).	No – species and/or habitat not observed
Scleria triglomerata	Tall Nut Rush	---	---	S1	Yes	No	Moist prairie and thicket.	No	Moist prairie not observed in Study Area. Moist thicket was observed but is heavily disturbed (i.e., abundant non-native species). This species is found almost exclusively in undisturbed habitats (Conservation Coefficient of 10). Records for this species are not current (i.e., >20 years; last observed in 1881).	No – species and/or habitat not observed

APPENDIX C
PUBLIC AND AGENCY CONSULTATION

Contacts

Salutation	Surname	First Name	Organization	Department	Title	Address	City/Prov	Postal Code	Tel.	E-Mail
Local Representatives										
Ms.	Zaifman	Jared	City of London		Councillor Ward 14	300 Dufferin Avenue, Suite 314	London, ON	N6B 1Z2	(519) 661-5095	jzaifman@london.ca
Mr.	Usher	Harold	City of London		Councillor Ward 12	300 Dufferin Avenue, Suite 314	London, ON	N6B 1Z2	(519) 661-5095	husher@london.ca
Mr.	Yurek	Jeff	MPP Elgin-Middlesex-London			750 Talbot St., Suite 201 West Wing	St. Thomas, ON	N5P 1E2	519-631-0666	jeff.yurek@pc.ola.org, jeff.yurekco@pc.ola.org
Federal Agencies										
			Fisheries and Oceans Canada							fisheriesprotection@dfo-mpo.gc.ca
Provincial Ministries										
Mr.	Cooper	Craig	Ministry of Municipal Affairs and Housing	Community Planning and Development	Planner	659 Exeter Road, 2nd Floor	London, ON	N6E 1L3	519-873-4769	craig.cooper@ontario.ca
Mr.	Crinklaw	Drew	Ministry of Agriculture, Food and Rural Affairs	Field Services, South Region	Rural Planner	667 Exeter Road	London, ON	N6E 1L3	519-873-4085	drew.crinklaw@ontario.ca
Ms.	Paller	Claire	Ministry of Natural Resources and Forestry	Aylmer District	District Planner	615 John Street North	Aylmer, ON	N5H 2S8	519-773-4750	claire.paller@ontario.ca
Mr.	Newton	Craig	Ministry of the Environment and Climate Change	Southwest Region Office	Environmental Planner	733 Exeter Road	London, ON	N6E 1L3	519-873-5013	craig.newton@ontario.ca
Ms.	Prowse	Shari	Ministry of Tourism, Culture and Sport	Heritage & Libraries Branch, Southwest Archaeological Field Office	Heritage Planner/Archaeologist	900 Highbury Avenue	London, ON	N6A 1L3	519-675-7742	shari.prowse@ontario.ca
City of London										
Mr.	Ford	John	London Transit Commission		Director of Transportation and Planning	450 Highbury Avenue North	London, ON	N5W 5L2		
Mr.	Grabowski	Karl	City of London	EES - Roads and Transportation/Transportation Planning and Design	Transportation Design Engineer	P.O. Box 5035	London, ON	N6A 4L9	519-661-2489 x 5071	kgrabos@london.ca
Mr.	Kalsi	Iqbal	Middlesex-London Health Unit		Manager, Environmental Health	50 King Street	London, ON	N6A 5L7	519-663-5317 x 2650	Iqbal.Kalsi@mlhu.on.ca
Mr.	MacRae	Doug	City of London	Transportation Planning and Design	Division Manager	P.O. Box 5035	London, ON	N6A 4L9	519-661-2489 x4637	dmacrae@london.ca
Ms.	Sanders	Cathy	City of London		City Clerk	300 Dufferin Avenue, 3rd Floor	London, ON	N6A 4L9	519-661-2489	cs.aunder@london.ca
Mr.	Soldo	Edward	City of London	EES	Director of Roads and Transportation	P.O. Box 5035	London, ON	N6A 4L9	519-661-2489 x 4936	esoldo@london.ca
Emergency Services										
Mr.	Kobarda	John	London Fire Department		Fire Chief	400 Horton Street East	London, ON	N6B 1L7	519-661-4565	
Sgt.	Pfeffer	Amanda	London Police Department	London Police Department	Traffic and Community Services	601 Dundas Street	London, ON	N6B 1X1	519-661-5670	
Mr.	Prno	John	Middlesex-London EMS		Deputy Chief, Operations	340 Waterloo Street	London, ON	N6B 2N6	519-679-5466 Ext. 1106	
Sgt.	Thompson	Bradley	Ontario Provinical Police	Middlesex Detachment, London Office	Staff Sargent	823 Exeter Road	London, ON	N6E 1W1	519-681-0300	
First Nations (to be contacted by MTO only)										
Chief	Doxtator	Sheri	Oneida Nation of the Thames	To be contacted by MTO ONLY.		2212 Elm Avenue	Southwold, ON	N0L 2G0	519-652-3244	
Ms.	George	Valerie	Chippewas of Kettle & Stony Point First Nation	To be contacted by MTO ONLY.	Consultation Coordinator	6247 Indian Lane, ON	Lambton Shores, ON	N0N 1J1		
Chief			Caldwell First Nation	To be contacted by MTO ONLY.		14 Orange Street	Leamington, ON	N8H 1P5	519-322-1766	cfnchief@live.com
Ms.	Johnston	Sharilyn	Chippewas of Aamjiwnaang	To be contacted by MTO ONLY.	Environmental Coordinator	978 Tashmoo Avenue	Sarnia, ON	N7T 7H5	519-336-8410	
Chief	Miskokomon	Daniel	Walpole Island First Nation	To be contacted by MTO ONLY.		RR3	Wallaceburg, ON	N8A 4K9		
Ms.	Burch	Fallon	Chippewas of the Thames First Nation	To be contacted by MTO ONLY.	Consultation Coordinator	320 Chippewa Road	Muncey, ON	N0L 1Y0	519-298-5555	
Chief	Stonefish	Denise	Moravian of the Thames	To be contacted by MTO ONLY.		14760 School House Line, RR3	Thamesville, ON	N0P 2K0		
Chief	Thomas	Roger	Munsee-Delaware Nation	To be contacted by MTO ONLY.		289 Jubilee Road	Muncey, ON	N0L 1Y0		
Local Agencies & Interest Groups										
Mr.	Helsten	Mark	Upper Thames River Conservation Authority		Senior Water Resources Engineer	1424 Clarke Road	London, ON	N5V 5B9	519-451-2800	helstenm@thamesriver.on.ca
Mr.	Levin	Sandy	McIlwraith Field Naturalists of London			Box 24008	London, ON	N6H 5C4	519-457-4593	info@mcilwraith.ca
Mr.	Linder	Stefan	CN Rail			P.O. Box 1000, 4 Welding Way	Concord, ON	L4K 1B9		stefan.linder@cn.ca
Ms.	Ramsey	Cari	Upper Thames River Conservation Authority		Environmental Regulations Technician/Health and Safety Specialist	1424 Clarke Road	London, ON	N5V 5B9	519-451-2800 ext 289	RamseyC@thamesriver.on.ca
Mr.	Snowsell	Mark	Upper Thames River Conservation Authority		Land Use Regulation Officer	1424 Clarke Road	London, ON	N5V 5B9	519-451-2800	snowsellm@thamesriver.on.ca
Mr.	Talbot	Jim	London District Catholic School Board	Catholic Education Centre	Manager of Transportation	P.O. Box 5474 5200 Wellington Road S	London, ON	N6A 4X5	519-663-2088	
Mr.	Thompson	Greg	Urban League of London		Chair	Grosvenor Lodge, 1017 Western Road	London, ON	N6G 1G5	519-857-8800	mwgang@gmail.com
			Southwestern Ontario Student Transportation Services			557 Southdale Road East, Suite 201	London, ON	N6E 1A2	519-649-1160	
			Thames Valley District School Board		Manager of Transportation	PO Box 5888, 1250 Dundas Street	London, ON	N6A 5L1	519-452-2000	
Utilities										
Ms.	Armstrong	Wendy	Hydro One Networks Inc.			P.O Box 130 56 Embro Street	Beachville, ON	N0J 1A0		
Mr.	Doyle	Rod	London Hydro		Distribution Engineer	P.O. Box 2700, 111 Horton Street	London, ON	N6A 4H6		
Mr.	Zuk	Andrew	Bell Canada		Implementation Manager	100 Dundas Street, 4th Floor	London, ON	N6A 5B6		
Mr.	Jackson	Kyle	Rogers Communications		System Planner	P.O. Box 488, 85 Grand Crest Place	Kitchener, ON	N2G 4A8		
Ms.	Ortibus	Elizabeth	Union Gas Limited		Land Resources Agent	P.O. Box 2001, 50 Keil Drive North	Chatham, ON	N7M 5M1		
Property Owners (From City of London Assessment Roll)										
Removed to comply with Protection of Privacy requirements.										
Requests to be Added to Contact List										
Removed to comply with Protection of Privacy requirements.										

Notice of Study Commencement
Highway 401 & 4 (Colonel Talbot Road) Interchange Improvements, Potential Permanent Closure of Glanworth Drive Underpass Bridge & Various Highway 401 Bridge Replacements
City of London

The Ministry of Transportation, Ontario (MTO) has retained Dillon Consulting Limited to undertake the preliminary design, initial detailed design and environmental assessment for the following locations along Highway 401 in the City of London:

- Highway 4 (Colonel Talbot Road) Interchange improvements, including local road realignments and replacement of the Colonel Talbot Road Bridge
- Replacement or potential permanent closure of the Glanworth Drive Underpass Bridge
- Bridge and culvert replacements west of Highbury Avenue, including:
    - CNR Overhead Bridge (London-Port Stanley Railway)
    - Pond Mills Road Overpass Bridge
    - Elliot-Laidlaw Drain Culvert
    - Tributary to Murray Drain Culvert.

The purpose of this study is to identify a preferred plan for each location, including construction staging and traffic management plans. The study will involve the development of alternatives to accommodate both interim (10 year) and ultimate (30 year) transportation needs for the Highway 401 corridor. More information on this project is available on the project website at **www.hwy401londonbridges.ca.**

The Process

This study is being carried out in accordance with the requirements of the MTO Class Environmental Assessment (EA) for Provincial Transportation Facilities (2000). The study will include background technical and environmental studies, as well as consultation activities to obtain input from the public and local businesses.

Comments

We are interested in obtaining your comments by **February 28, 2013.** Information collected will be used in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information, all comments will become part of the public record. For more information, to provide comments or be added to the mailing list, please contact:

Mr. Jeff Matthews, P.Eng., Project Manager
Dillon Consulting Limited
Box 426
London, Ontario, N6A 4W7
Tel.: 519-438-6192
Toll Free:1-888-345-5668, Ext. 1275
Fax: 519-672-8209
Email: hwy401londonbridges@dillon.ca

Mr. Dan Barber, P.Eng., Sr. Project Engineer
Ministry of Transportation
West Region, Planning and Design Section
659 Exeter Road
London, Ontario, N6E 1L3
Tel.: 519-873-4812
Toll Free: 1-800-265-6072, Ext. 519-873-4812
Fax: 519-873-4600
Email: Dan.Barber@ontario.ca

DILLON CONSULTING

Ontario

If you have accessibility requirements to participate in this project, please contact a team member.
Des renseignements sont disponibles en français en composant Stephen Betts,1-888-345-5668.

January 30, 2013

DILLON CONSULTING

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

Mr. Jeff Yurek
MPP Elgin-London-Middlesex
790 Talbot Street, Suite 201 West Wing
St. Thomas, Ontario
N5P 1E2

Attention: Mr. Jeff Yurek

Ministry of Transportation, Ontario (MTO)
Notice of Study Commencement
Highway 401 & 4 (Colonel Talbot Road) Interchange Improvement, Potential Permanent Closure of Glanworth Drive Underpass Bridge & Various Highway 401 Bridge Replacements
(GWP 3030-11-00 & 3054-11-00)

Dear Mr. Yurek:

As outlined in the attached notice, the MTO has retained Dillon Consulting Limited to complete the Preliminary Design, initial Detailed Design and Class Environmental Assessment (EA) process for the following locations along Highway 401 in the City of London:

- Highway 4 (Colonel Talbot Road) Interchange Improvements, including local road realignments and replacement of the Colonel Talbot Road Bridge
- Replacement or potential permanent closure of the Glanworth Drive Underpass Bridge
- CNR Overhead Bridge Replacement (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge Replacement
- Elliot-Laidlaw Drain Culvert Replacement
- Tributary to Murray Drain Culvert Replacement.

Additional project information can be found on the project website at www.hwy401londonbridges.ca.

The study will be completed in accordance with the Class Environmental Assessment for Provincial Transportation Facilities (2000) for a Group "B" project. Two Public Information Centres (PIC) will be held later this year to obtain public and agency input on the preliminary design alternatives generated for the proposed replacements. Notices for the PICs will be advertised in local media outlets and mailed to the project contact list.

...continued

The enclosed notice will be published in the February 6, 2013 edition of the London Free Press and February 6, 2013 edition of L'Action London/Sarnia.

If you would like more information or to provide comments, please contact one of the project managers named on the enclosed notice.

Yours sincerely,

DILLON CONSULTING LIMITED

Janet Smolders, MCIP
for Jeff Matthews, P. Eng.
Project Manager

BJF:enh
Encl.

cc: Dan Barber – MTO, Project Manager
Susan Wagter – MTO, Environmental Planner

Our file: 12-7110

February 4, 2013

DILLON CONSULTING

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

Ministry of Aboriginal Affairs
Consultation Unit
160 Bloor Street East, 9th Floor
Toronto, Ontario
M7A 2E6

Attention: Heather Levecque
Manager

Ministry of Transportation, Ontario (MTO)
Notice of Study Commencement
Highway 401 and Highway 4 (Colonel Talbot Road) Interchange Improvement, Potential Permanent Closure of Glanworth Drive Underpass Bridge and Various Highway 401 Bridge Replacements
(GWP 3030-11-00 and GWP 3054-11-00)

Dear Ms. Levecque:

As outlined in the attached notice, the MTO has retained Dillon Consulting Limited to complete the Preliminary Design, initial Detailed Design and Class Environmental Assessment (EA) process for the following locations along Highway 401 in the City of London:

- Highway 4 (Colonel Talbot Road) Interchange Improvements, including local road realignments and replacement of the Colonel Talbot Road Bridge
- Replacement or potential permanent closure of the Glanworth Drive Underpass Bridge
- CNR Overhead Bridge Replacement (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge Replacement
- Elliot-Laidlaw Drain Culvert Replacement
- Tributary to Murray Drain Culvert Replacement.

Additional project information can be found on the project website at www.hwy401londonbridges.ca.

...continued

The study will be completed in accordance with the Class Environmental Assessment for Provincial Transportation Facilities (2000) for a Group "B" project. Two Public Information Centres (PIC) will be held later this year to obtain public and agency input on the preliminary design alternatives generated for the proposed replacements. Notices for the PICs will be advertised in local media outlets and mailed to the project contact list.

To create a comprehensive aboriginal consultation program, we are developing a mailing list that includes aboriginal groups who may have an interest in the area including First Nations and Métis communities and/or representative organizations. Please provide information on:

- Specific claims in the area
- Comprehensive claims in the area
- Any litigation or legal activity involving aboriginal groups.

The mailing list for this project currently includes the following First Nations and/or Métis communities:

- Walpole Island First Nation
- Chippewas of the Thames First Nation
- Chippewas of Kettle and Stoney Point First Nation
- Aamjiwnaang First Nation
- Caldwell First Nation
- Oneida Nation of the Thames
- Munsee-Delaware Nation
- Moravian of the Thames.

Additionally, notifications will also be sent to the following Political Territorial Organizations and/or Consultation Units:

- Southern First Nations Secretariat
- London and District Chiefs Council
- Association of Iroquois and Allied Indians
- Union of Ontario Indians.

...continued

Thank you for your assistance.

Yours sincerely,

DILLON CONSULTING LIMITED

Brandon Fox, B.E.S.
for Jeff Matthews, P. Eng.
Project Manager

BJF:rrs
Encl.

cc: Dan Barber – MTO, Project Manager
Susan Wagter – MTO, Environmental Planner

Our file: 12-7110

DILLON
CONSULTING

February 4, 2013

Aboriginal Affairs and Northern Development Canada
Consultation and Accommodation Unit
5H – 5th Floor – 10 Wellington Street
Gatineau, Quebec
K1A 0H4

Attention: Ms. Allison Berman
Regional Expert for Ontario

Ministry of Transportation, Ontario (MTO)
Notice of Study Commencement
Highway 401 and Highway 4 (Colonel Talbot Road) Interchange Improvement
Potential Permanent Closure of Glanworth Drive Underpass Bridge and Various Highway 401 Bridge Replacements
(GWP 3030-11-00 and GWP 3054-11-00)

Dear Ms. Berman:

As outlined in the attached notice, the MTO has retained Dillon Consulting Limited to complete the Preliminary Design, initial Detailed Design and Class Environmental Assessment (EA) process for the following locations along Highway 401 in the City of London:

- Highway 4 (Colonel Talbot Road) Interchange Improvements, including local road realignments and replacement of the Colonel Talbot Road Bridge
- Replacement or potential permanent closure of the Glanworth Drive Underpass Bridge
- CNR Overhead Bridge Replacement (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge Replacement
- Elliot-Laidlaw Drain Culvert Replacement
- Tributary to Murray Drain Culvert Replacement.

Additional project information can be found on the project website at www.hwy401londonbridges.ca.

...continued

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

The study will be completed in accordance with the Class Environmental Assessment for Provincial Transportation Facilities (2000) for a Group "B" project. Two Public Information Centres (PIC) will be held later this year to obtain public and agency input on the preliminary design alternatives generated for the proposed replacements. Notices for the PICs will be advertised in local media outlets and mailed to the project contact list.

To create a comprehensive aboriginal consultation program, we are developing a mailing list that includes aboriginal groups who may have an interest in the area including First Nations and Métis communities and/or representative organizations. Please provide information on:

- Specific claims in the area
- Comprehensive claims in the area
- Any litigation or legal activity involving aboriginal groups.

The mailing list for this project currently includes the following First Nations and/or Métis communities:

- Walpole Island First Nation
- Chippewas of the Thames First Nation
- Chippewas of Kettle and Stoney Point First Nation
- Aamjiwnaang First Nation
- Caldwell First Nation
- Oneida Nation of the Thames
- Munsee-Delaware Nation
- Moravian of the Thames.

Additionally, notifications will also be sent to the following Political Territorial Organizations and/or Consultation Units:

- Southern First Nations Secretariat
- London and District Chiefs Council
- Association of Iroquois and Allied Indians
- Union of Ontario Indians.

...continued

Thank you for your assistance.

Yours sincerely,

DILLON CONSULTING LIMITED

Brandon Fox, B.E.S.
for Jeff Matthews, P. Eng.
Project Manager

BJF:rrs
Encl.

cc: Dan Barber – MTO, Project Manager
Susan Wagter – MTO, Environmental Planner

Our file: 12-7110

February 4, 2013

DILLON CONSULTING

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

Letter sent to Contact List

Ministry of Transportation, Ontario (MTO)
Notice of Study Commencement
Highway 401 and Highway 4 (Colonel Talbot Road) Interchange Improvement, Potential Permanent Closure of Glanworth Drive Underpass Bridge and Various Highway 401 Bridge Replacements
(GWP 3030-11-00 and GWP 3054-11-00)

As outlined in the attached notice, the MTO has retained Dillon Consulting Limited to complete the Preliminary Design, initial Detailed Design and Class Environmental Assessment (EA) process for the following locations along Highway 401 in the City of London:

- Highway 4 (Colonel Talbot Road) Interchange Improvements, including local road realignments and replacement of the Colonel Talbot Road Bridge
- Replacement or potential permanent closure of the Glanworth Drive Underpass Bridge
- CNR Overhead Bridge Replacement (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge Replacement
- Elliot-Laidlaw Drain Culvert Replacement
- Tributary to Murray Drain Culvert Replacement.

Additional project information can be found on the project website at www.hwy401londonbridges.ca.

...continued

The study will be completed in accordance with the Class Environmental Assessment for Provincial Transportation Facilities (2000) for a Group "B" project. Two Public Information Centres (PIC) will be held later this year to obtain public and agency input on the preliminary design alternatives generated for the proposed replacements. Notices for the PICs will be advertised in local media outlets and mailed to the project contact list at later dates.

If you have any comments, questions or concerns, please fill out the enclosed comment form and return it to us by **February 28, 2013**, or contact one of the project managers named on the enclosed notice.

Yours sincerely,

DILLON CONSULTING LIMITED

Brandon Fox, B.E.S.
for Jeff Matthews, P. Eng.
Project Manager

BJF:rrs
Encl.

cc: Dan Barber – MTO, Project Manager
Susan Wagter – MTO, Environmental Planner

Our file: 12-7110

JWM

AAMJIWNAANG FIRST NATION
CHIPPEWAS OF SARNIA
Band Council

978 TASHMOO AVENUE
SARNIA, ONTARIO
N7T 7H5
Phone: (519) 336-8410
Fax: (519) 336-0382

File # 2013-0011

February 22, 2013

Ministry of Transportation,
Engineering Office
Environmental Section
West Region
699 Exeter Road
London, Ontario
N6E 1L3

Attention: Ms. Cathy Geisbrecht

Re: Notice of Study Commencement
Highway 401 & 4 Interchange Improvement, Potential Permanent Closure of Glanworth Drive Underpass Bridge, & Various Hwy. 401 Bridge Replacements, City of London (GWP-3030-11-00 & 3054-11-00)

Dear Ms. Geisbrecht:

Thank you for the information regarding this project dated January 31, 2013. Our staff has recorded this information in our log. Over the next few weeks it will be forwarded to our Chief and Council for their review. Upon further direction from our council, we will contact you to inform you of the next step. We will forward any comments received from Chief and Council or Aamjiwnaang's Environment Committee.

Aamjiwnaang First Nation continues to assert and exercise our Aboriginal Rights and Title to all parts of our Reserve and Traditional Territory in regards to lands and resource issues.

Sincerely,

[redacted]

Environmental Coordinator
Aamjiwnaang First Nation

Cc: Mr. Jeff Mathews, Dillon Consulting Limited, Box 426, London, Ont., N6A 4W7

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

Ministry of Transportation Highway 401 Interchange Improvements and Bridge Replacements in the City of London and County of Middlesex

1 message

Fox, Brandon <bfox@dillon.ca> Wed, Feb 13, 2013 at 7:03 PM
To: [redacted]
Cc: Jeff Matthews <jmatthews@dillon.ca>, Janet Smolders <jsmolders@dillon.ca>

Hi [redacted]

Please find attached, three project key plans for the Ministry of Transportation projects happening in the City of London and the County of Middlesex as discussed with Jeff Matthews earlier today.

If you require any other information, please contact us.

Thanks,

DILLON CONSULTING

Brandon Fox
Dillon Consulting Limited
130 Dufferin Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1307
BFox@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

3 attachments

Highway 401 Interchange Improvement and Bridge replacements in the City of London - Glanworth & Hwy 4.jpg
1330K

Highway 401 Interchange Improvement and Bridge Replacements in the City of London - 4 locations.jpg
2789K

Highway 401 Three Interchange Improvements and Bridge Replacements in the County of Middlesex.jpg
3307K

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

Hwy 401 Bridge Replacements

1 message

[redacted] Tue, Feb 26, 2013 at 10:47 AM

To: hwy401londonbridges@dillon.ca
Cc: dan.barber@ontario.ca

Hi Jeff;

Please see attached letter and keep us advised as the project progresses. If you have any questions, please feel free to contact me.

Thanks!

[redacted]

Environmental Regulations Technician/ Health and Safety Specialist
UTRCA
1424 Clarke Side Road
London, ON
N5V 5B9
[redacted]

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55K

UPPER THAMES RIVER
CONSERVATION AUTHORITY

"Working in Partnership with the Community for a Healthy Watershed"

The Thames
A Canadian
Heritage River

February 14, 2013

Dillon Consulting Limited
Box 426
London, ON
N6A 4W7

Attention: **Jeff Matthews, Project Coordinator**

Dear Mr. Matthews:

Re: **Study Commencement Notice – Highway 401 Bridge Replacements**

The Upper Thames River Conservation Authority acknowledges receipt of the Notice of Study Commencement for the above noted projects.

Although we do not have any specific concerns at this time, please keep us advised as the project progresses and please provide us with information as it becomes available. If you have any questions, please contact the undersigned.

Yours truly,
UPPER THAMES RIVER CONSERVATION AUTHORITY

[redacted]
Land Use Regulations Officer

MS/cr

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

MTO Notice of Study - Highway 401 & # 4 (Colonel Talbot Rd.) London (GWP 3030-11-00 & GWP 3054-11-00)

1 message

[redacted] Tue, Feb 19, 2013 at 1:47 PM

To: hwy401londonbridges@dillon.ca
Cc: Ahleam Halbouni <Ahleam.Halbouni@rci.rogers.com>

Good Afternoon Brandon & Jeff,

We received MTO Notice of Study - Highway 401 & # 4 (Colonel Talbot Rd.) London (GWP 3030-11-00 & GWP 3054-11-00) in the mail today. Because this project falls within the City of London I will be forwarding this request to my London based counterpart [redacted] to have one of her System Planners review and complete comment form.

Thank you & Best Regards

[redacted]

[redacted]

85 Grand Crest Pl | Kitchener, Ontario N2G 4A8

[redacted]

jointes) de tout ordinateur ou support de données sans en imprimer une copie.

MTO Notice of Study - Highway 401 & # 4 (Colonel Talbot Rd.) London.pdf
452K

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

RE: MTO-Notice of Study Commencement Hwy 401 & Hwy 4 Interchange Improvement

1 message

[redacted] Mon, Mar 4, 2013 at 9:18 AM

To: "Smolders, Janet" <jsmolders@dillon.ca>

Hi Janet,

I sent the details on to the district project manager/engineer for them to review and comment. I copy your office to inform you that the letter has been received and that you will be contacted by the individual once they have had the opportunity to review the details.

Regards

[redacted]

Associate Land Agent

Union Gas Limited|A Spectra Energy Company

50 Keil Dr. N.|P.O. Box 2001

Chatham, Ont., N7M 5M1

[redacted]

[redacted]

[redacted]

One of Canada's Top 100 Employers

From: Smolders, Janet [mailto:jsmolders@dillon.ca]
Sent: March 4, 2013 9:14 AM
To: [redacted]
Subject: Re: MTO-Notice of Study Commencement Hwy 401 & Hwy 4 Interchange Improvement

Hello, [redacted] We got your e-mail but it only included a copy of the Dillon letter and notice, with no comments. Would you like to make some comments?

Thanks, Janet

Janet Smolders
Associate
Dillon Consulting Limited
130 Dufferin Avenue Suite 1400
London, Ontario, N6A 5R2
T - 519.438.1288 ext. 1268
F - 519.672.8209
M - 519.636.9196
JSmolders@dillon.ca
www.dillon.ca

Please consider the environment before printing this email

On Mon, Mar 4, 2013 at 8:58 AM, [redacted] wrote:

Ministry of Aboriginal Affairs

160 Bloor St. East, 9th Floor
Toronto, ON M7A 2E6
Tel: (416) 326-4740
Fax: (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ministère des Affaires Autochtones

160, rue Bloor Est, 9e étage
Toronto ON M7A 2E6
Tél. : (416) 326-4740
Téléc. : (416) 325-1066
www.aboriginalaffairs.gov.on.ca

Ontario

Reference: 37

March 5, 2013

Brandon Fox
Dillon Consulting
130 Dufferin Avenue,
Mail: Box 426
London, Ontario
N6A 4W7

Re: Notice of Study Commencement
Highway 401 and Highway 4(Colonel Talbot Road) Interchange Improvement
Potential Permanent Closure of Glanworth Drive Underpass Bridge and
Various Highway 401 Bridge Replacements

Dear Brandon Fox:

Thank you for informing the Ministry of Aboriginal Affairs (MAA) of your project. Please note that MAA treats all letters, emails, general notices, etc. about a project as a request for information about which Aboriginal communities may have rights or interests in the project area.

For future Environmental Assessment (EA) inquiry correspondence to MAA, please take note of the following:

1. please send all future EA correspondence to the following email address: MAA.EA.Review@ontario.ca ; or
2. if you prefer to send a hard copy rather than email, please address your correspondence as follows:
   Ministry of Aboriginal Affairs, Consultation Unit
   160 Bloor Street East, 4th floor
   Toronto, Ontario, Canada
   M7A 2E6.

As a member of the government review team, the Ministry of Aboriginal Affairs (MAA) identifies First Nation and Métis communities who may have the following interests in the area of your project:

- reserves;
- land claims or claims in litigation against Ontario;
- existing or asserted Aboriginal or treaty rights, such as harvesting rights; or
- an interest in the area of the project.

MAA is not the approval or regulatory authority for your project, and receives very limited information about projects in the early stages of their development. In circumstances where a Crown-approved project may negatively impact a claimed Aboriginal or treaty right, the Crown may have a duty to consult the Aboriginal community advancing the claim. The Crown often delegates procedural aspects of its duty to consult to proponents. Please note that the information in this letter should not be relied on as advice about whether the Crown owes a duty to consult in respect of your project, or what consultation may be appropriate. Should you have any questions about your consultation obligations, please contact the appropriate ministry.

You should be aware that many First Nations and/or Métis communities either have or assert rights to hunt and fish in their traditional territories. For First Nations, these territories typically include lands and waters outside of their reserves.

In some instances, project work may impact aboriginal archaeological resources. If any Aboriginal archaeological resources could be impacted by your project, you should contact your regulating or approving Ministry to inquire about whether any additional Aboriginal communities should be contacted. Aboriginal communities with an interest in archaeological resources may include communities who are not presently located in the vicinity of the proposed project.

With respect to your project, and based on the brief materials you have provided, we can advise that the project appears to be located in an area where First Nations may have existing or asserted rights or claims in Ontario's land claims process or litigation, that could be impacted by your project. Contact information is below:

Oneida Nation of the Thames 2212 Elm Avenue SOUTHWOLD, Ontario N0L 2G0	Chief Joel Abram (519) 652-3244 (Fax) 652-2930 Joel.abram@oneida.on.ca Laura.phillips@oneida.on.ca Holly.elijah@oneida.on.ca
Chippewas of the Thames First Nation 320 Chippewa Road R.R. #1 MUNCEY, Ontario N0L 1Y0	Chief Richard "Joe" Miskokomon (519) 289-5555 (Fax) 289-2230 chief@cottfn.ca

For your information, MAA notes that the following First Nations may be interested in your project given the proximity of their community or reserve lands to the area of the proposed project or because of your project's potential environmental impacts:

Munsee-Delaware Nation R. R. #1 MUNCEY, Ontario N0L 1Y0	Chief Patrick Waddilove (519) 289-5396 (Fax) 289-5156 pwaddilove@munsee.on.ca

The information upon which the above comments are based is subject to change. First Nation or Métis communities can make claims at any time, and other developments can occur that could result in additional communities being affected by or interested in your undertaking.

Through Aboriginal Affairs and Northern Development (AANDC), the Government of Canada sometimes receives claims that Ontario does not receive, or with which Ontario does not become involved. AANDC's Consultation and Accommodation Unit (CAU) established a "single window" to respond to requests for baseline information held by AANDC on established or potential Aboriginal Treaty and rights. To request information from the Ontario Subject Matter Expert send an email to: UCA-CAU@aadnc-aandc.gc.ca

Additional details about your project or changes to it that suggest impacts beyond what you have provided to date may necessitate further consideration of which Aboriginal communities may be affected by or interested in your undertaking. If you think that further consideration may be required, please bring your inquiry to whatever government body oversees the regulatory process for your project. MAA does not wish to be kept informed of the progress of the project; please be sure to remove MAA from the mailing list.

Yours truly,

Wendy Cornet
Manager, Consultation Unit
Aboriginal Relations and Ministry Partnerships Division

Ontario Ministry of Transportation
Highway 401 and Highway 4 (Colonel Talbot Road) Interchange Improvements, Potential Permanent Closure of Glanworth Drive Underpass Bridge and Various Highway 401 Bridge Replacements, City of London

Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information all comments will become part of the public record.

☑ I/we would like to kept informed regarding this project.

☐ Please remove me from the mailing list for this project.

Agency: (If applicable) _____

Name: BELFOR

Mailing Address: _____

☑ I/we prefer to receive information by email.

E-mail: [redacted]

Comments/ Questions/ Concerns:

Concerned about any type of signage, Sound barrier walls, or berms that may obstruct the view of our business signage and building that has been newly renovated from the 401 Hwy.

Please return this form by **February 28, 2013** to:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2

Tel: 519-438-6192
Fax: 519-672-8209
E-mail: hwy401londonbridges@dillon.ca

Attention: Janet Smolders
File No. 12-7110

DILLON CONSULTING

Ontario Ministry of Transportation
Highway 401 and Highway 4 (Colonel Talbot Road) Interchange Improvements, Potential Permanent Closure of Glanworth Drive Underpass Bridge and Various Highway 401 Bridge Replacements, City of London

Notice of Study Commencement – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. With the exception of personal information all comments will become part of the public record.

☑ I/we would like to kept informed regarding this project.

☐ Please remove me from the mailing list for this project.

Agency: (If applicable) NORWOOD INTERNATIONAL INC.

Name: [redacted]

Mailing Address: [redacted]

LONDON, ONT

N5Z 4A1

☑ I/we prefer to receive information by email.

E-mail: [redacted]

Comments/ Questions/ Concerns:

Is it the right use of city resources at this time? How many local jobs will this create? Will this construction help to smooth traffic flow in the city?

Please return this form by **February 28, 2013** to:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2

Tel: 519-438-6192
Fax: 519-672-8209
E-mail: hwy401londonbridges@dillon.ca

Attention: Janet Smolders

File No. 12-7110

DILLON CONSULTING

Regional Engineering
Engineering Services

Canadian National Railway
4 Welding Way
P.O. Box 1000
Concord, Ontario L4K 1B9
Tel.: 905-669-3184
Fax: 905-760-3406

July, 30th, 2013

Hwy401londonbridges@dillon.ca
130 Dufferin Avenue, Suite 1400
London, ON N6A 5R2

Dear Janet:

Re: Highway 401 and Highway 4 Interchange Improvements

Thank you for the letter, informing us of the above noted project. There appears to be CN property within the said boundaries and therefore CN Rail has concerns and comments regarding this project. Please keep CN on the project mailing list.

This project will require having involvement from CN, please feel free to contact the undersigned.

Sincerely,

[redacted]

Utilities Coordinator

[redacted]

January 30, 2015

DILLON CONSULTING

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

Letter sent to project Contact List

Ministry of Transportation, Ontario (MTO)
Highway 401 Three Bridge and Culvert Rehabilitations West of Highbury Avenue
Design and Class Environmental Assessment Study
Affected Property Owner Meeting Invitation

The Ministry of Transportation, Ontario has retained Dillon Consulting Limited to complete the design and Class Environmental Assessment (EA) for three bridge and culvert replacements on Highway 401 west of Highbury Avenue in the City of London (see attached map), including:

- Tributary to Murray Drain Culvert
- CNR Overhead Bridge (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge.

Additional project information can be found on the project website at www.hwy401londonbridges.ca.

As part of this project, the design team would like to meet with you to discuss direct impacts to your property, including potential land requirements. An Affected Property Owner Meeting has been set-up to discuss the potential impacts with you and address any concerns you may have.

The Affected Property Owner Meeting is scheduled for:

Affected Property Owner Meeting
Wednesday, February 18, 2015
Ramada Inn – Churchill "A" Meeting Room
817 Exeter Road, London, Ontario
2:00 p.m. to 4:00 p.m.

...continued

If you are unable to attend the meeting, or would like to speak with a project team member, please contact Brandon Fox at 519-438-1288, ext. 1307 or email hwy401londonbridges@dillon.ca.

Yours sincerely,

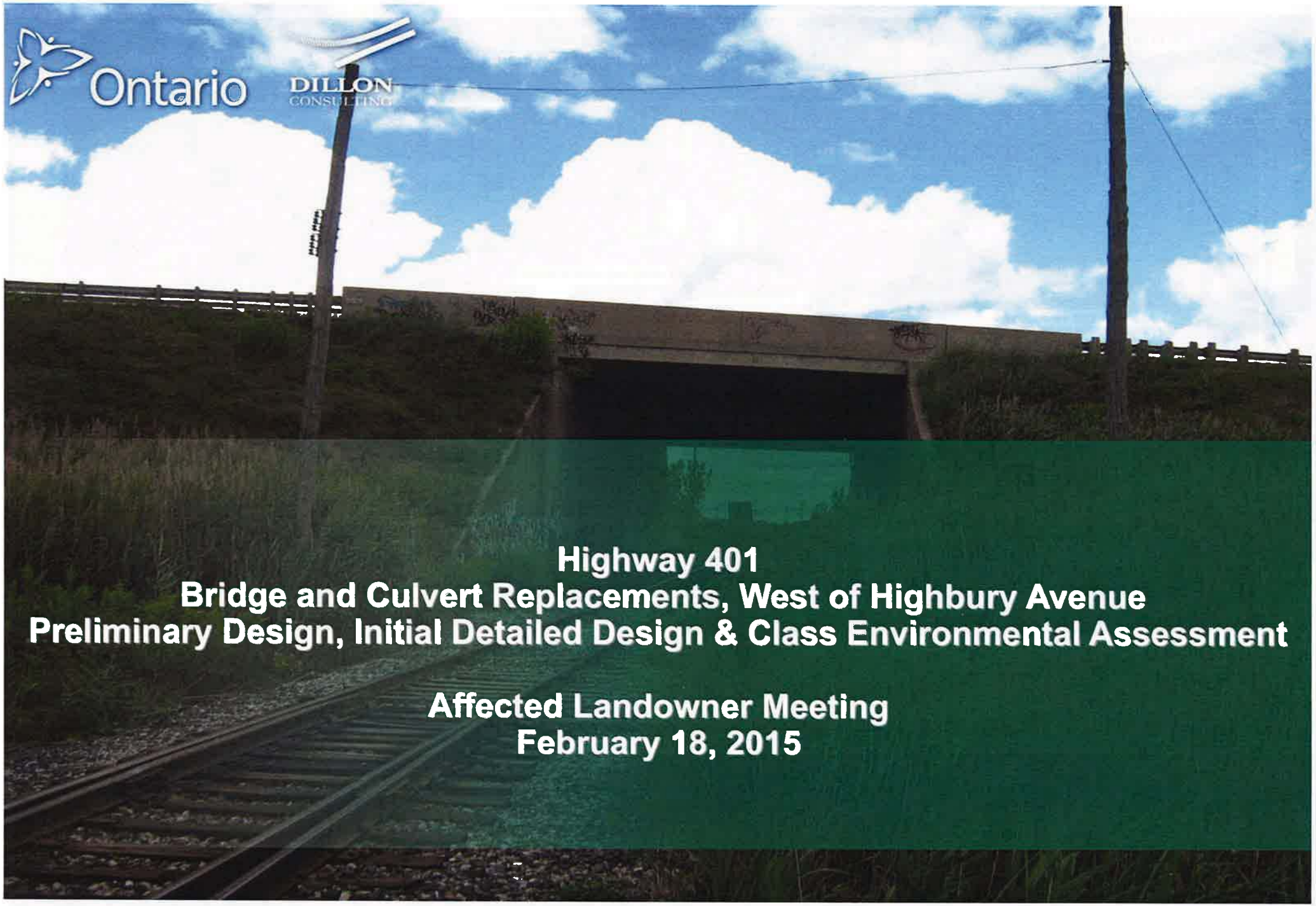
DILLON CONSULTING LIMITED

Brandon Fox, B.E.S
for Jeff Matthews, P. Eng.
Project Manager

BJF:jpa
Encl.

cc: Brian Goudeseune, MTO
Susan Wagter, MTO

Our file: 12-7110



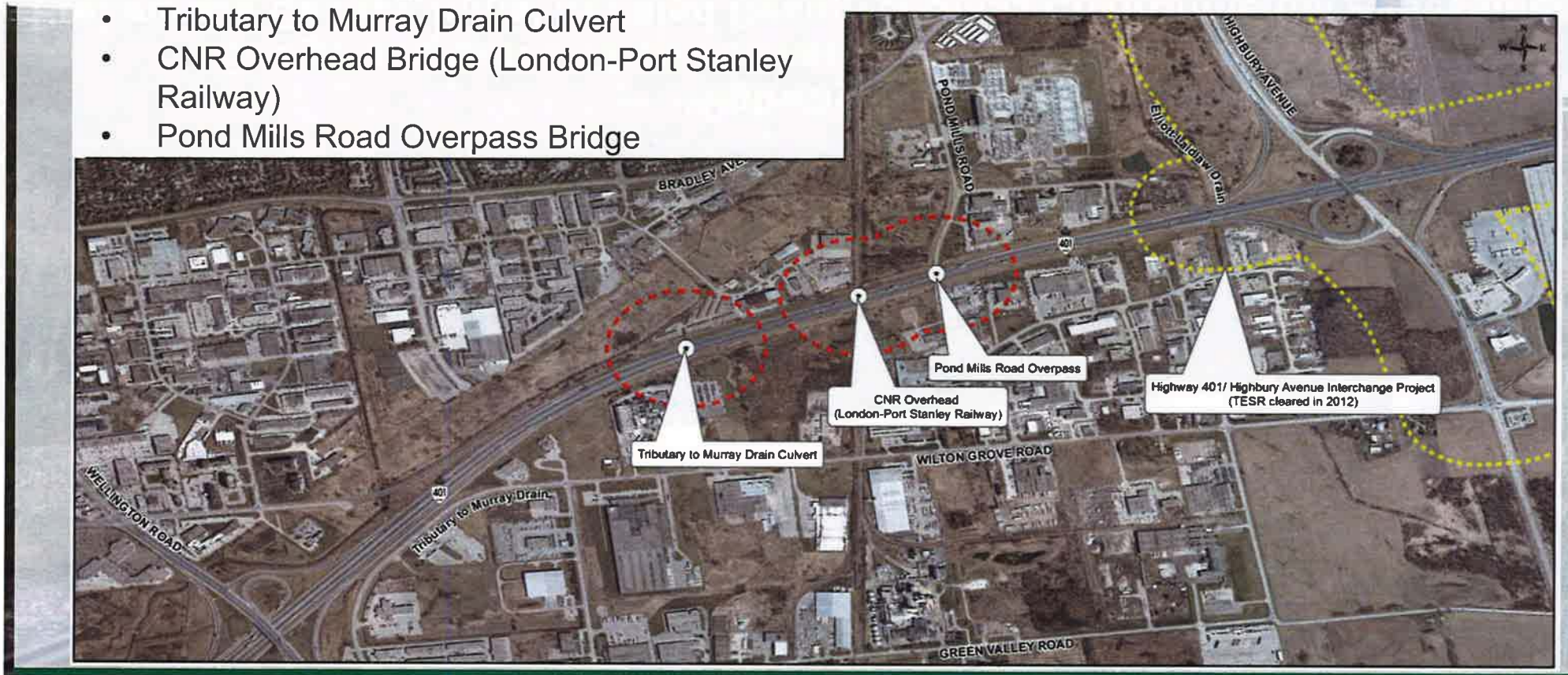
Highway 401
Bridge and Culvert Replacements, West of Highbury Avenue
Preliminary Design, Initial Detailed Design & Class Environmental Assessment

Affected Landowner Meeting
February 18, 2015

Project Description

The Ministry of Transportation, Ontario (MTO) has retained Dillon Consulting Limited to complete the design and Class Environmental Assessment (EA) of bridge and culvert replacements on Highway 401 in the City of London. These include the:

- Tributary to Murray Drain Culvert
- CNR Overhead Bridge (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge



Study Purpose

The *Highway 401 Improvements, Planning and Preliminary Design Study, Transportation Environmental Study Report (TESR)*, prepared in 2004, provided for the expansion of Highway 401 to eight lanes from Wellington Road to Highbury Avenue. The purpose of this study is to:

- Update existing conditions in the Study Area since the TESR was prepared in 2004
- Develop design alternatives for the bridge and culvert improvements to accommodate present and future transportation needs
- Identify a preferred plan for each bridge and culvert replacement, including construction staging, traffic management and property requirements.
- Coordinate the delivery of this work with the adjacent project at the Highbury Avenue interchange (TESR cleared in 2012).

Highway 401 Improvements

- Highway 401 will be raised to improve vertical clearance and accommodate bridge replacements at Pond Mills Road and CNR
- Median storm sewer will be designed to accommodate drainage needs for a future expansion of Highway 401
- Installation of high mast illumination on Highway 401 between Wellington Road and Highbury Avenue (cleared as part of the Highbury Avenue TESR Addendum in 2012)
- As part of this project, the highway embankments though this area will be widened to accommodate traffic during construction staging. Some of this widening impacts properties adjacent to Highway 401.

Detour Route for Pond Mills Road Full Closure

- Full closure of Pond Mills Road at Highway 401 (up to 24 months) will be required to replace the existing bridge
- Preferred Pond Mills Road detour route follows Bradley Avenue, Highbury Avenue and Wilton Grove Road
- Alternative detour routes may be considered by MTO in consultation with the City of London
- To reduce traffic impacts, the timing of construction will be coordinated with the Highbury Avenue Interchange Project (study previously completed by MTO)

Next Steps

	Timeline			
	February 2015	March 2015	April 2015	May 2015 +
Review property impacts and finalize design	Winter/Spring 2015			
Publication of Transportation Environmental Study Report		Available for public review Spring 2015		
Initial and Detailed Design			Initial and Detailed Design	

Thank you for attending

The project team will be available until 4:00 p.m. to discuss property specific concerns regarding the project.

Please review the handout materials and provide any comments on the project by **March 4, 2015**

Project updates are available on the project website at: www.hwy401londonbridges.ca

Information on this project is being collected in accordance with the Freedom of Information and Protection of Privacy Act. With the exception of personal information, all comments will become part of the public record.

March 9, 2015

DILLON CONSULTING

130
Dufferin Avenue
London, Ontario
Canada
N6A 5R2
Mail: Box 426
London, Ontario
Canada
N6A 4W7
Telephone
(519) 438-6192
Fax
(519) 672-8209

Letter sent to Project Contact List

Highway 401 Three Bridge and Culvert Rehabilitations West of Highbury Avenue Design and Class Environmental Assessment Study – Ministry of Transportation, Ontario (MTO)

Affected Property Owners Information Package

Dear Sir/Madam:

The Ministry of Transportation, Ontario has retained Dillon Consulting Limited to complete the design and Class Environmental Assessment (EA) for three bridge and culvert replacements on Highway 401 west of Highbury Avenue in the City of London, including:

- Tributary to Murray Drain Culvert
- CNR Overhead Bridge (London-Port Stanley Railway)
- Pond Mills Road Overpass Bridge.

An affected property owner meeting was held on February 18, 2015. An invitation was sent to you in advance of that meeting (dated January 30, 2015).

For your information, attached is a copy of the display boards presented at the meeting, as well as an aerial photograph of your property showing the proposed impacts from this project.

The project team would like to hear from you. Enclosed is a project comment form. Please review the materials and provide any comments on the project and/or the proposed impacts to your property by completing and returning the comment form by March 27, 2015.

...continued

Alternatively, if you would like to speak with a project team member, please contact Brandon Fox at 519-438-1288, ext. 1307, or email: hwy401londonbridges@dillon.ca.

Yours sincerely,

DILLON CONSULTING LIMITED

Brandon Fox, B.E.S
for Jeff Matthews, P.Eng.
Project Manager

BJF:jpa
Encls.

cc: Brian Goudeseune, MTO
Susan Wagter, MTO

Our file: 12-7110

JMS

MINISTRY OF TRANSPORTATION

Highway 401 Bridge and Culvert Replacements, West of Highbury Avenue
Preliminary Design, Initial Detailed Design & Class Environmental Assessment

Affected Property Owner Meeting – Comment Form

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act*. Unless otherwise stated in the submission, all personal information such as name, address, and property location will become part of the public record and will be included in the final report.

Agency: (If applicable) Islamic Centre of Southwest Ontario

Name: [redacted]

Mailing Address: 951 Road n Wills Rd.
London, ON.

Email: [redacted]

Comments/ Questions/ Concerns:

Closing the road for such a long period is totally unacceptable. Some measures should be taken to open the road after hours as most of our part of access is late in the day and weekends. We are already suffering the loss of land being taken over more than any of the neighbouring properties. Also we were not advised or invited to the public meeting.

Please return this form by **March 27, 2015** to:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2

Tel: 519-438-1288 Ext. 1268
Fax: 519-672-8209
Email: hwy401londonbridges@dillon.ca

Attention: Janet Smolders, MCIP
File No. 12-7110

DILLON CONSULTING

MINISTRY OF TRANSPORTATION

Highway 401 Bridge and Culvert Replacements, West of Highbury Avenue
Preliminary Design, Initial Detailed Design & Class Environmental Assessment

Affected Property Owner Meeting – Comment Form
February 18, 2015

Please complete this form and return it to Dillon Consulting Limited. Information will be collected in accordance with the *Freedom of Information and Protection of Privacy Act.* Unless otherwise stated in the submission, all personal information such as name, address, and property location will become part of the public record and will be included in the final report.

Agency: (If applicable) First Student

Name: [redacted]

Mailing Address: 135 Towerline Place
London ON
N6E 2T3

E-mail: [redacted]

Comments/ Questions/ Concerns:

- the taking of 13 meters will have long term, negative effects on our business. We would lose the ability to park buses 2 or 3 deep in our yard. It will reduce the area we have to pile snow, which can be considerable. The cost to move our electrical

Please return this form by **March 4, 2015** to:

Dillon Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, N6A 5R2

Tel: 519-438-1288 Ext. 1268
Fax: 519-672-8209
E-mail: hwy401londonbridges@dillon.ca

Attention: Janet Smolders, MCIP

File No. 12-7110

DILLON CONSULTING

Comments/ Questions/ Concerns:

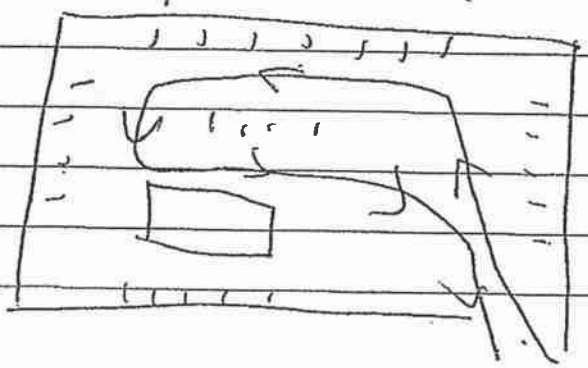
Supply will be excessive.

There is a large ~~to~~ electric transformer located within the land area you want. (Southwest corner) This would need to be relocated

The "temporary" access is going to be difficult. Again we lose the ability to pile snow. We are losing spaces to park Buses and will lose another 4-6 spaces during this temporary access time.

We currently have the ability to park 23 Buses along the South fence, plus up to 3 rows of buses in the middle of the yard. We would NO longer Be able to do this.

ALL Buses enter ~~the~~ and exit the property using the North fence It is one way travel once past the personal car parking.



DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

Record of Phone Conversation - MEGA EA Assignment 1B - Affected Landowner Meeting

1 message

Fox, Brandon <bfox@dillon.ca> Mon, Feb 9, 2015 at 3:44 PM
To: 127110 <127110@dillon.ca>, Janet Smolders <jsmolders@dillon.ca>, Kevin Welker <kwelker@dillon.ca>, Jeff Matthews <jmatthews@dillon.ca>

I spoke with [redacted] of Langstaff/Jane Properties regarding his parcel of undeveloped land at 1010 Wilton Grove Road

[redacted] was concerned about the recent invitation he received to an impacted property owner meeting to be held on Feb. 18, 2015. He was interested in what kind of impacts the MTO was considering.

I told [redacted] that the project is looking at Bridge and Culvert replacements West of Highbury Avenue. The project could potentially require property and the meeting was intended to discuss direct impacts on his land.

[redacted] asked if it was the majority of his property or a limited amount. His property is currently for sale and he inquired if we would be looking to purchase the whole property. I indicated that, that was not currently the case but further information would be available at the meeting.

He is unlikely to attend but interested in selling his property or portions of it. He will try to have his realtor attend the meeting. I told him we would send copies of meeting materials after Feb. 18, 2015.

Brandon

DILLON CONSULTING

Brandon Fox
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BFox@dillon.ca
www.dillon.ca

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

Record of Phone Conversation - Lamko Tool & Mold

1 message

Fox, Brandon <bfox@dillon.ca> Tue, Mar 10, 2015 at 1:23 PM
To: "London Bridges (MEGA EA)" <hwy401londonbridges@dillon.ca>
Cc: Kevin Welker <kwelker@dillon.ca>, "Goudeseune, Brian (MTO)" <brian.goudeseune@ontario.ca>, Janet Smolders <jsmolders@dillon.ca>, 127110 <127110@dillon.ca>, Jeff Matthews <jmatthews@dillon.ca>

I received a phone call from [redacted] of Lamko Tool and Mold on March 10, 2015 at 11:00 a.m.

[redacted] received an affected property owner information package regarding the Highway 401 bridge replacements west of Highbury Avenue.

[redacted] was extremely concerned regarding the property impacts being shown. He is requesting a face to face meeting to discuss the project and the potential impacts from the construction.

I informed [redacted] that an Affected Landowner Meeting was held on Feb. 18 at Ramada Inn and he acknowledged that he knew about it but was unable to attend.

He asked if the proposed impacts were final and could not be changed. I indicated that they were not yet finalized and that a Transportation Environmental Study Report still needs to be filed on the public record and would be available for public review. I indicated that he should submit his comment form as soon as possible as the timeline for this project is aggressive. I did indicate that based on feedback from landowners there is potential for changes to occur. I also indicated that that the plans provided are the currently preferred options.

I asked [redacted] for an overview of what Lamko Tool and Mold does:

They are an industrial tool and die company that makes steel molds for automotive parts manufacturing. They have approximately 100 employees. They ship product almost exclusively to the U.S. and Mexico. They started the company in 1978 at that location and are looking at possible expansion options in the future on the east side of their property. The existing parking lot serves their entire employee base and is used for both shipping and receiving. The parking lot is essential to their operation.

[redacted] will submit his comment form and would like to have further conversations about potential impacts.

Brandon

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BFox@dillon.ca
www.dillon.ca

DILLON CONSULTING

Smolders, Janet <jsmolders@dillon.ca>

Record of Phone Conversation - Emterra Environmental

1 message

Fox, Brandon <bfox@dillon.ca> Fri, Mar 13, 2015 at 11:53 AM
To: "London Bridges (MEGA EA)" <hwy401londonbridges@dillon.ca>
Cc: Jeff Matthews <jmatthews@dillon.ca>, "Goudeseune, Brian (MTO)" <brian.goudeseune@ontario.ca>, Janet Smolders <jsmolders@dillon.ca>, 127110 <127110@dillon.ca>

I spoke with [redacted] of Emterra Environmental on March 13, 2015 at 11:45 a.m.

[redacted] phoned to discuss the recent affected landowner package sent to him for the Halton Recycling Property located at [redacted] London Ontario.

[redacted] was concerned about the proposed property taking being shown. He indicated Emterra Environmental recently applied for an expansion on their property to the City of London for a new building to be located in the southwest corner of their land. He indicated the site plan was approved by the City and that MTO had signed off on the proposed plans.

I requested a copy of the site plan and dates that approvals had been issued if he had them.

[redacted] indicated he would like to arrange a face to face meeting to discuss this project with. I indicated that the project team was reviewing the project and he should provide comments as soon as possible on the materials sent to date.

[redacted] indicated he would provide the site plan drawings ASAP.

Brandon

DILLON CONSULTING

Brandon Fox
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www.dillon.ca

JMS

427703 BC Ltd

1122 Pioneer Road, Burlington, Ontario V7M 1K4

RECEIVED
MAR 2 6 2015
DILLON, LONDON

March 25, 2015

Dillion Consulting Limited
130 Dufferin Avenue, Suite 1400
London, Ontario, M6A 5R2

Attention: Janet Smolders

Dear Sir/Madam,

Re: Highway 401 Three Bridge and Culvert Rehabilitation West of Highbury Avenue Design and Class Environmental Assessment Study - Ministry of Transportation, Ontario (MTO)

Further to your letter of March 9, 2015 regarding the subject matter and the possibility of expropriating an 8-meter strip of land from our property, we wish to register our serious concerns of your proposed plan for the following reasons:

1. Over the last two years, we have worked with the City of London to finally gain a Site Plan Approval as part of our business development plan. This site development plan includes the construction of a second building on the subject property. The siting of the building and traffic flow routes have all been finalized and approved.
2. The Site Plan Agreement also included an extensive property survey, stormwater management plan, fire prevention works, etc.
3. We have also received approval from Ontario MTO regarding the siting of the building and stormwater management works, especially relating to set-back requirement from the Corridor Management Section of the London MTO office. A copy of the Building and Land Use Permit No. BL-2013-31L-162 issued by MTO, is attached for your information.

If your proposed plan for land expropriation goes ahead, it would cause serious impact to our business plan, as we will not be able to proceed with our business development plan and all work done to date would be useless.

Yours truly,

[redacted]

427703 BC Ltd
C/O Halton Recycling Ltd
15 Buchanan Court, London, Ontario, N5Z 4P9